ADDENDUM No. 2

RFP No. 24-19

Miller Avenue Rehabilitation

Due Date and Time: May 6, 2024 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 No. 2 includes Two hundred and seven (207) pages.**

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 Declaration**
- **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
New Content	
Addendum-2-1 to Addendum-2-2	Addendum No. 2 New Content and Replaced RFP Sections
Addendum-2-3 to Addendum-2-4	Questions and Answers
Addendum-2-5 to Addendum-2-7	Pre-Proposal Meeting Minutes

Addendum-2-8	SD_W-1; Fire Hydrant Assembly
Addendum-2-9	SD_W-3; Precast Gate Well (Water Mains 16 Inch and Smaller)

Replace Schedule of Prices

Sheets 15 – 17	**Replace with Sheets BID FORM-1 through BID FORM-4** Quantity updates to reflect plan sheet additions and previously neglected pay items

Replace Detailed Specifications

DS-1 to DS-8	**Replace with DS-1 to DS-63**

PROJECT SCHEDULE AND PAYMENT, Revised for General Conditions Maximum Unit Price
PERMANENT SIGN AND SUPPORT, Updated
IN-STREET PEDESTRIAN CROSSING SIGN, New
CHAMBERMAXX SYSTEM, New
WATER STRUCTURES, Unchanged
AGGREGATE BASE CONDITIONING, New
MONOLITHIC CURB AND GUTTER, New
DETECTABLE DIRECTIONAL TILE, New
MODULAR CURB SYSTEM, New
BIKEWAY DELINEATOR POST, New
STEEL POST, New
GROUND MOUNTED SIGN SUPPORTS, REMOVE, New
TRAFFIC, PEDESTRIAN, AND BIKE SIGNAL, New
LIGHT STANDARD ARM, INSTALL SALVAGED, New
PUSHBUTTON AND SIGN, SALVAGE, New
ACCESSIBLE PEDESTRIAN SIGNAL SYSTEM, New
WIRELESS VEHICLE DETECTION SYSTEM, New
HEMISPHERICAL VIDEO DETECTION, New
TRAFFIC SIGNAL BACKPLATE, New
TRAFFIC SIGNAL MAST ARM POLE AND MAST ARM, New
MAST ARM POLE FOUNDATION, New
LONG LIFE LIGHT EMITTING DIODE TRAFFIC SIGNAL, New
TRAFFIC SIGNAL CONTROLLER, New
TRAFFIC SIGNAL CABINET, New
TWO-WAY ILLUMINATED STREET NAME SIGNS, LIGHT EMITTING DIODE, New
ROADSIDE UNIT, REMOVE AND SALVAGE, New

Replace Plan Set in its entirety

Plan Sheets 1-130	**Replace with Plan Sheets 1-131** Sheet 64; Not Needed, Replaced with Signal Sheets Sheet 89; Replotted for Points Column Sheet 101:HMA Application Table Addresses Hand Patching Sheets 104-107 (Originally Bid): Deleted for Duplicate Details Sheets 111-116: Construction Key No. 3 Changed for Hand Patching Sheets 127-131: New Signal Sheets

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: What is the engineers estimate (for bonding purposes)? Can you provide an engineer's estimate for the project?
Answer 1: $6,815,062.75

Question 2: After initial review of the plans and proposal documents, it appears that there is a significant amount of missing pay items and Detailed Specifications. Do you know when these missing items will be issued?
Answer 2: Tuesday, April 30, 2024

Question 3: Due to the above missing items, the specialty scopes involved and the current bid schedule, is there any opportunity to extend the bid date? Lots of specialty work that needs to be farmed out to Specialty Subs. Moving bid date would help.
Answer 3: The Bid has been extended to Monday, May 6, 2024 at 11:00am.

Question 4: Can the pay items associated with the Cycle Track (Phase 3) be broken out from Phase 1 and 2 quantities?
Answer 4: No. Like items of work can be done concurrently as the traffic control covers the extended limits and there is not a prescribed start date to Phase 3 work.

Question 5: Considering that this is a multi-year project, will the City consider paying for stored materials off-site?
Answer 5: No. Phase 2 and 3 materials can be ordered in 2025.

Question 6: From conversations in the pre-proposal meeting, new and revised pay items will be issued along with potential revisions to the bid plans. Can consideration be made to extend the bid date beyond 5/1/24, to incorporate the anticipated changes?
Answer 6: Yes, see Answer 3.

Question 7: Are RRFBs a separate contract and are not in these plans?
Answer 7: A set of RRFBs near Red Oak is part of this contract; Other RRFBs will have foundations and ramp work as part of this contract and grading was supplied in this plan set; The RRFBs themselves between N. Maple Rd. and Newport Rd. will be a separate contract.

Question 8: Will signal work plans and quantities will be a part of the 2nd addendum (Thursday)?
Answer 8: The New Signal Sheets are part of the Replaced Plan Set; Sheets 127-135

Question 9: Is there electrical work needed at Red Oak for RRFB?
Answer 9: RRFBs at Red Oak will be solar powered, but electrical work needed at N. Seventh Street and N. Maple Road. Electrical work for all three of these intersections will be a part the Addendum No. 2.

Question 10: There are missing pay items: Machine Grading, Hand Patching, and Temporary Water Main Line Stop, Additional Rental Day.
Answer 10: These items will be included in an Addendum. Machine Grading is covered under Aggregate Base Conditioning.

Question 11: Concrete work for cycle track will be in Phase 2 and cut into the existing pavement if not otherwise addressed on the plans. Will all of these be issued with the Addendum?

Answer 11: Concrete pay items are used in Phase 1 through Phase 3. Some updates to pay items have been addressed in this Addendum No. 2

Question 12: Will an Excel version of the Bid Form be provided?
Answer 12: Yes, one can be provided. Send e-mail to jallen2@a2gov.org for Excel version.

Question 13: Can we get clarification on what is all in the scope of the 30 days to complete the cycle track work?
Answer 13: The intent of the Project Schedule was to have the Phase 2 utility work done by Oct. 15, 2025 and final items for the cycle track (Phase 3) by Nov. 15, 2025 but there wasn't a start date to Phase 3. Work can be done to the cycle track, outside of the utility limits, at the same time Phase 2 pay items are schedule, like concrete, as the traffic control is the same.

Question 14: I assume that all of the work for the cycle track inside of the two watermain phases, at least the concrete portions can be done during the watermain phases?
Answer 14: Yes, Correct. See Answer 15.

Question 15: The remaining area past the watermain limits, there is a considerable amount of removal and concrete work, and then pavement marking, and bollards to put up. 30 days seems very tight. Is the intention that you only get 30 days or that you get until 11/15/25 to get phase 2 and the cycle track done?
Answer 15: Work can be done to the cycle track, Phase 3, concurrently with Phase 2, but all of Phase 2 shall be complete October 15, 2025, whereas Phase 3 work has a completion date of November 15, 2025.

Question 16: On sheet 20, the cross section between STA 68+75 and 72+85 show full depth removal. The removal sheets 42-43 do not reflect this; nor would the quantities add up. Which is correct?
Answer 16: The Removal Sheets 42-43 are correct. They also represent removals for the intersection realignment at N. Seventh Street.

Question 17: On sheet 20, the cross section between STA 72+85 and POE conflict with the cross sections shown on sheet 21 (STA 79+00 to POE). Which is correct?
Answer 17: The POE on the top Typical Section on Sheet 20 in the should be 79+00, whereas the two Typical Sections on Sheet 21 are 79+00 to 82+50 and 82+50 to POE

Question 18: Cross sections shown on sheet 21 do not match the removal sheets 44-45. Which is correct?
Answer 18: The Typical Sections on Sheet 21 are representative of Removal Sheets 44 & 45. The Watermain trench is along the South side of Miller Ave and the entire width is getting 4.5" HMA, see Sheet 17 for HMA Application Table, after 4 HMA Cold-Milling. Hatching on the Typical Sections have been revised for clarification.

Question 19: There are no underdrain pay items in the schedule of values. I assume these were overlooked, correct?
Answer 19: Correct. Underdrain, Subgrade, 6 in. is now included, See Schedule of Prices, Addendum No. 2.

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

Pre-Proposal Meeting
Miller Avenue Rehabilitation
April 19, 2024 via Microsoft Teams

I. Introductions
   a. Jane Allen – City of Ann Arbor Project Manager
   b. Tulio Decan and Doug Egeler - City of Ann Arbor Inspection
   c. Construction Staking by City of Ann Arbor
   d. Construction Material Testing – Materials Testing Consultants, Inc. (MTC)
   e. In attendance:
      1. Jane Allen, City of Ann Arbor
      2. Trevor Brydon, City of Ann Arbor
      3. Cynthia Redinger, City of Ann Arbor
      4. David Fiegel, City of Ann Arbor
      5. Tulio Decan, City of Ann Arbor
      6. Douglas Engler, City of Ann Arbor
      7. Allison Bennett, City of Ann Arbor
      8. Dean Wozniak, City of Ann Arbor
      9. Nick Nicita, Hubbell, Roth & Clark, Inc
      10. Mike Haeussler, Miller Bros. Const., Inc.
      11. Chet Lutz, Miller Bros. Const., Inc.
      12. John Niemiec, E.T. Mackenzie Company

II. Project Overview
   a. Work components – Multi-Year / Unit Prices remain effective over Two Years
      i. Phase 1 – Miller Ave., Newport Rd. to S. Seventh St.
         1. Watermain Replacement and Stormwater Improvements
         2. Miller Ave. / Red Oak Rd. Intersection Realignment
         3. New Crosswalk with Rectangular Rapid Flashing Beacon (RRFB)
         4. Concrete; curb replacement, ramps, foundations, bus pad relocations
         5. Road Resurfacing & Temp Pav't Mrkg
      ii. Phase 2 – Miller Ave., S Seventh St. to Chapin St.
         1. Watermain Replacement and Service Transfers
         2. Stormwater Improvements and Retention System in West Park
         3. Miller Ave. / S. Seventh St. Intersection Realignment
            a. Alternate schedules will be entertained to complete this intersection during the 2024 construction season in order to start before school lets out 2025.
         4. Concrete; curb replacement, foundations for RRFBs, ramps, bus pad relocations
         5. Road Resurfacing
      iii. Phase 3 Cycle Track; Similar pay items from Phase 2 can be done concurrently.

1. Signal Improvements
    a. Miller Ave. / N. Maple Rd.
    b. Miller Ave. / S. Seventh St.
2. Modular Curb System with Delineators and Signs
3. Concrete buffers and speed tables – concrete cut into existing pavement.
4. Pavement Markings

iv. (Phase 4) RRFBs
1. Done by Others but need concrete work done this contract.

b. Engineer's estimate - $ 6,815,062.75

III. General Items

a. Standard Specifications – NEW
i. Tracer wire
ii. Bulkheading manholes is included in sewer removal

b. Detailed Specifications
i. Schedule and Phasing - Multi-Year / Unit Prices remain effective over Two Years
ii. Permanent Signs & Supports, Signal Upgrades
iii. Stormwater Management – Retention System
iv. Modular Curb System

c. Misc. construction items
i. Stormwater Management – Oversized In-line Pipe
1. Vortex valves
ii. Curb relocations
iii. Relocate Crosswalks (with new foundations) and bus stops

d. Accessibility
i. Detour – Inbound Local Traffic – 1 Lane
ii. Ann Arbor Open School
1. June 13 – August 26

e. Davis Bacon Wage Decisions
i. 10 days before proposals are **due** (Pull Friday April 26, 2024)

f. Addendum(s)
i. Answer all Questions Received
ii. New Pay Items and Detailed Specifications
iii. Updated Bid Form – All Items and Updated Quantities
1. Updated Excel File will be provided when requested.
iv. Minor Plan Clarifications/Details
v. New Plans - Signals

IV. Project Schedule

a. Written Questions due Monday, April 22, 2024 by 12:00PM
b. Addendum anticipated ~~Tuesday, April 23, 2024~~ Friday, April 26, 2024
c. Proposal Due, Monday, May 6, 2024 by 11:00AM

d. Anticipated Council Award, Monday, June 3, 2024
e. Construction Start, Monday, June 17, 2024

Important items not discussed in the pre-proposal meeting:

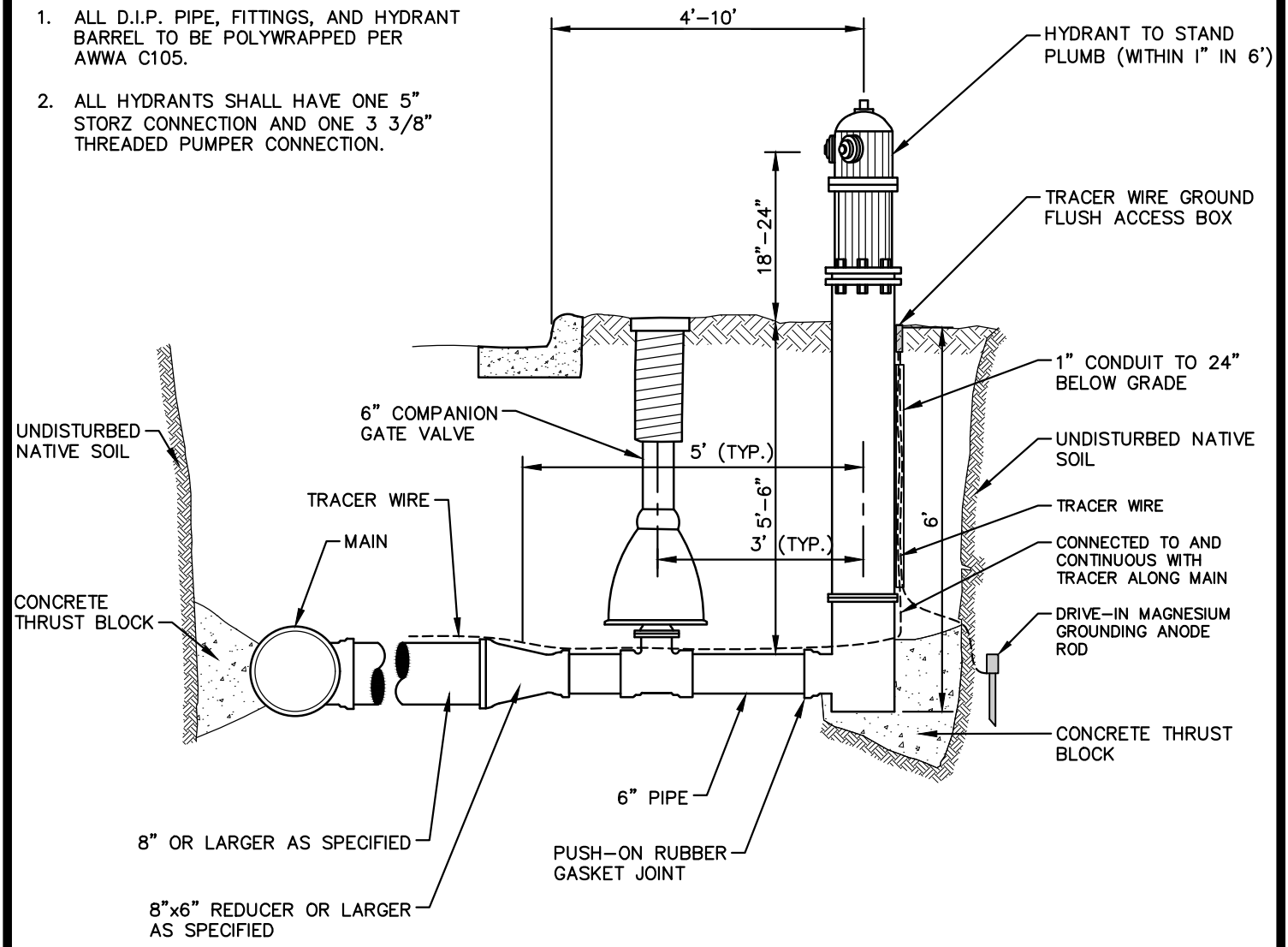
- Garbage day is Friday along Miller Avenue. The contractor will be responsible for making sure that resident carts are able to be picked up weekly. This may include moving them to and from a location that the waste collection truck is able to access them. This cost is incidental to General Conditions.
- Mail service is walked door to door. Contractor shall ensure that USPS has sufficient space to pass to make their daily deliveries.
- Ann Arbor Open School has high traffic for pickup and drop off during the school year. This included buses and passenger vehicles for 15-20 minutes in the morning and the afternoon. Nearby Miller Avenue intersections are at Red Oak and S. Seventh, and at least one these intersections shall be open to traffic during the school year. School starts the week of August 26th, 2024 and lets out again around June 12, 2025 and will start again the week of August 25, 2025.

Notes by:
Jane Allen, PE
Jallen2@a2gov.org

NOTES:

1. ALL D.I.P. PIPE, FITTINGS, AND HYDRANT BARREL TO BE POLYWRAPPED PER AWWA C105.

2. ALL HYDRANTS SHALL HAVE ONE 5" STORZ CONNECTION AND ONE 3 3/8" THREADED PUMPER CONNECTION.



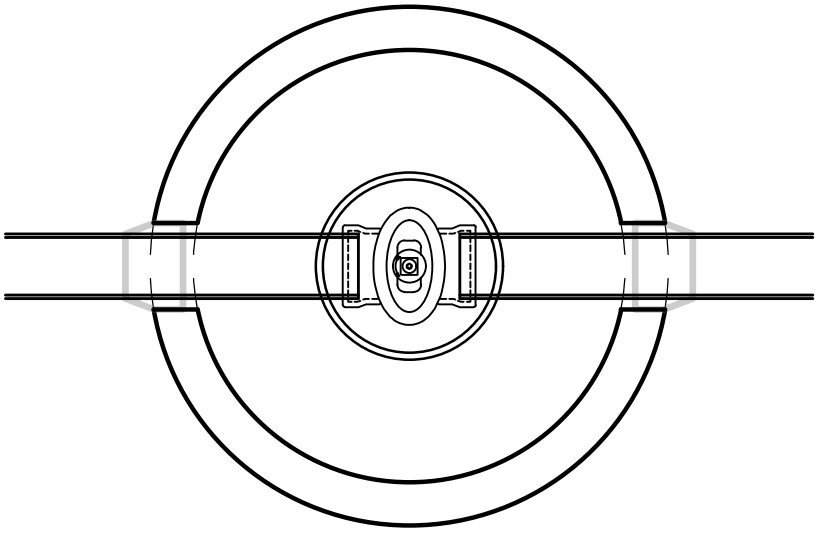
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org

00	2/5/24	ENG	AA
REV. NO.	DATE	DRAWN BY	CHECKED BY

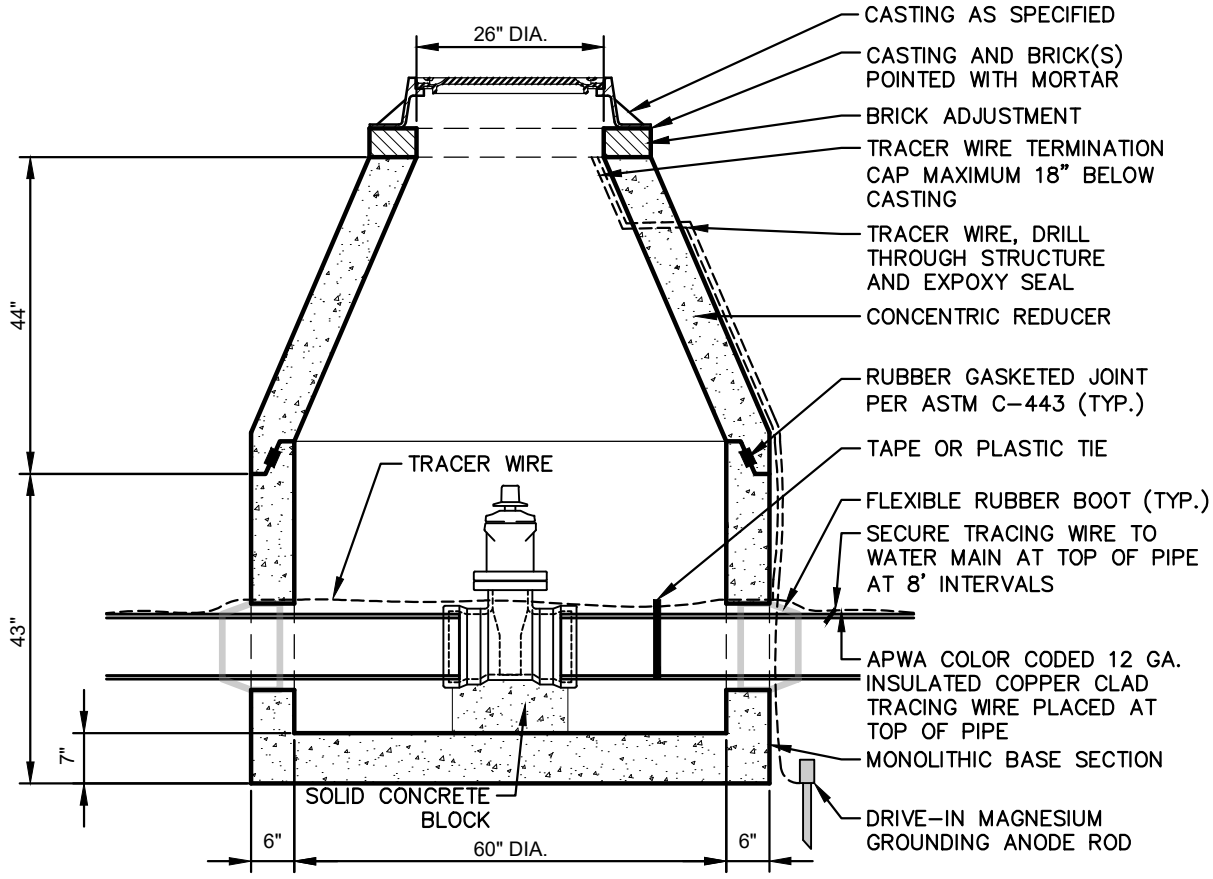
FIRE HYDRANT ASSEMBLY

DR. ENG	CH. ENG	DRAWING NO.
SCALE N.T.S.	DATE 12/8/2023	**SD-W-1**

Addendum-2-8



TOP VIEW



TYPICAL MANHOLE SECTION

NOTES:

1. PRECAST MANHOLE PER ASTM C-478.
2. REINFORCING IN WALLS TO BE ONE LAYER OF 2" X 8" W3/W2.9 WELDED WIRE MESH. CIRCUMFERENTIAL REINFORCEMENT = 0.18 SQ. IN./VERT. FT.
3. BASE SLAB TO BE REINFORCED WITH ONE LAYER OF #4 REBAR AT 12" C-C, E.W. AREA/STEEL = .20 SQ. IN./FT E.W.

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00	2/5/24	ENG	AA
REV. NO.	DATE	DRAWN BY	CHECKED BY

PRECAST GATE WELL (WATERMAINS 16 INCH AND SMALLER)

DR. ENG	CH. ENG	DRAWING NO.
SCALE N.T.S.	DATE 12/8/2023	**SD-W-3**

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: **Miller Avenue Rehabilitation**

File #: 2022-034 **RFP#: 24-19** **Engineer's Estimate**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1000	General				
1000.00	General Conditions, Max. $300,000.00	LS	1	$	$
1001.00	Project Supervision, Max. $150,000.00	LS	1	$	$
1002.00	Project Clean-Up and Restoration	LS	1	$	$
1003.00	Digital Audio Visual Coverage	LS	1	$	$
1021.00	Erosion Control, Inlet Protection, Fabric Drop	Ea	94	$	$
1030.00	Tree Protection Fence	Ft	1837	$	$
1040.00	Minor Traffic Control, Max. $75,000.00	LS	1	$	$
1041.00	Traffic Regulator Control	LS	1	$	$
1050.00	Sign, Type B, Temp, Prismatic, Furn & Oper	Sft	1477.25	$	$
1051.00	Sign, Type B, Temp, Prismatic, Special, Furn & Oper	Sft	473	$	$
1052.00	Temporary "No Parking" Sign	Ea	208	$	$
1060.00	Lighted Arrow, Type A, Furn & Oper	Ea	1	$	$
1070.00	Sign, Portable, Changeable Message, Furn & Oper	Ea	8	$	$
1080.00	Plastic Drum, High Intensity, Lighted, Furn & Oper	Ea	459	$	$
1081.00	Channelizer Cone, High Intensity, 42 In., Furn & Oper	Ea	25	$	$
1092.00	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	Ea	75	$	$
1100.00	Pedestrian Type II Barricade, Temp, Furn & Oper	Ea	231	$	$
1102.00	Temporary Pedestrian Ramp, Furn & Oper	Ea	11	$	$
1103.00	Temporary Pedestrian Mat, Furn & Oper	Ft	55	$	$
1112.00	Pavt Mrkg Cover, Type R, Black	Ft	1017	$	$
1127.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., White, Temp	Ft	13723	$	$
1128.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., Yellow, Temp	Ft	5183	$	$
1146.00	Pavt Mrkg, Wet Reflective, Type R, Tape, Thru and Lt Turn Arrow Sym	Ea	1	$	$
1160.71	DS_Band, Sign	Ea	5	$	$
1160.72	DS_Sign, Type IIIA	Sft	342.75	$	$
1160.73	DS_Sign, Type IIIB	Sft	12	$	$
1160.74	DS_Sign, Type III, Rem	Ea	1	$	$
1160.75	DS_Perforated Steel Square Breakaway System	Ea	74	$	$
1160.76	DS_Mast Arm Cable Mount	Ea	2	$	$
1160.77	DS_In-Street Pedestrian Crossing Sign	Ea	25	$	$
2000	Removals				
2000.01	Tree, Rem, 6 In. - 12 In.	Ea	2	$	$
2000.02	Tree, Rem, 13 In. - 19 In.	Ea	3	$	$
2020.00	HMA, Any Thickness, Rem	Syd	6760	$	$
2021.00	HMA Surface, Rem	Syd	1511	$	$
2023.00	Cold-Milling HMA Surface	Syd	15993	$	$
2025.00	Concrete Pavt, Any Thickness, Rem	Syd	180	$	$
2030.00	Curb, Gutter, and Curb and Gutter, Any Type, Rem	Ft	2175	$	$
2040.00	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	Sft	8810	$	$
2050.00	Sign, Rem, Salv	Ea	177	$	$
3000	Earthwork				
3021.00	Subgrade Undercutting, Type II	Cyd	200	$	$
3030.01	Exploratory Excavation, SD-TD-1, (0-10' Deep)	Ea	2	$	$
3030.03	Exploratory Excavation, SD-TD-2, (0-10' Deep)	Ea	2	$	$
3040.00	Earth Excavation	Cyd	81	$	$
3050.00	Embankment	Cyd	48	$	$
4000	Sanitary Sewer				
4060.00	Sanitary Structure Cover	Ea	23	$	$
4061.00	Sanitary Structure Cover, Adjust	Ea	23	$	$
6000	Storm and Drainage				
6000.01	12 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	828	$	$
6000.03	18 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	42	$	$
6000.05	24 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	315	$	$
6000.09	48 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	380	$	$
6003.04	12 In., PE Storm Sewer, SD-TD-2	Ft	78	$	$
6003.06	18 In., PE Storm Sewer, SD-TD-2	Ft	77	$	$
6003.71	DS_ChamberMaxx System	LS	1	$	$
6030.04	Storm Sewer Tap, 12 In. Dia.	Each	15	$	$

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
6050.01	Storm Manhole, 48 In. Dia. (0-8' deep)	Ea	2	$	$
6050.02	Storm Manhole, 48 In. Dia. , Additional Depth	Ft	0.77	$	$
6050.05	Storm Manhole, 72 In. Dia. (0-8' deep)	Ea	2	$	$
6050.06	Storm Manhole, 72 In. Dia. , Additional Depth	Ft	8.07	$	$
6060.01	Storm Inlet-Junction, 36 In. Dia., (0-8' deep)	Ea	1	$	$
6060.03	Storm Inlet-Junction, 48 In. Dia., (0-8' deep)	Ea	2	$	$
6060.04	Storm Inlet-Junction, 48 In. Dia., Additional Depth	Ft	1.31	$	$
6070.01	Storm Single Inlet, 24 In. Dia., (0-8' deep)	Ea	22	$	$
6070.02	Storm Single Inlet, 24 In. Dia., Additional Depth	Ft	0.55	$	$
6080.01	Storm High Capacity Inlet, 48 In. Dia., (0-8' deep)	Ea	1	$	$
6090.01	Storm Manhole with Weir, 72 In. Dia. (0-8' deep)	Ea	2	$	$
6090.02	Storm Manhole with Weir, 72 In. Dia., Additional Depth	Ft	2.34	$	$
6100.01	Storm Manhole Over Existing ("Doghouse"), 48 In. Dia.	Ea	1	$	$
6100.02	Storm Manhole Over Existing ("Doghouse"), 60 In. Dia.	Ea	1	$	$
6110.03	Storm Sewer Pipe, 12 In. Dia., Abandon	Ft	642	$	$
6120.03	Storm Sewer Pipe, 12 In. Dia., Rem	Ft	526	$	$
6130.00	Storm Sewer Structure, Abandon	Ea	1	$	$
6140.00	Storm Sewer Structure, Rem	Ea	6	$	$
6150.00	Storm Sewer Drop Structure, Rem	Ea	15	$	$
6160.01	Storm Structure Cover	Ea	48	$	$
6160.02	Storm Structure Cover, Adjust	Ea	48	$	$
6160.03	Storm Structure Adjust, Additional Depth	Ft	5	$	$
6180.02	Underdrain, Subgrade, 6 In.	Ft	1155	$	$
7000	Water Mains				
7000.02	6 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	103	$	$
7000.03	8 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	692	$	$
7000.05	12 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	2886	$	$
7001.01	16 In., PC 250 DIP w/polywrap, SD-TD-1	Ft	19	$	$
7011.01	8 In. 90° DIP Bend	Ea	3	$	$
7011.02	8 In. 45° DIP Bend	Ea	45	$	$
7011.03	8 In. 22.5° DIP Bend	Ea	5	$	$
7011.04	8 In. 11.25° DIP Bend	Ea	1	$	$
7013.02	12 In. 45° DIP Bend	Ea	15	$	$
7013.03	12 In. 22.5° DIP Bend	Ea	2	$	$
7013.04	12 In. 11.25° DIP Bend	Ea	4	$	$
7014.02	16 In. 45° DIP Bend	Ea	2	$	$
7020.03	8 In. X 6 In. DIP Reducer	Ea	9	$	$
7020.14	16 In. X 12 In. DIP Reducer	Ea	1	$	$
7030.12	12 In. X 12 In. X 6 In. DIP Tee	Ea	1	$	$
7030.13	12 In. X 12 In. X 8 In. DIP Tee	Ea	19	$	$
7030.18	16 In. X 16 In. X 12 In. DIP Tee	Ea	1	$	$
7050.01	DS_Gate Valve in Box, 6 In.	Ea	9	$	$
7050.02	DS_Gate Valve in Box, 8 In.	Ea	4	$	$
7050.04	DS_Gate Valve in Box, 12 In.	Ea	6	$	$
7050.05	DS_Gate Valve in Box, 16 In.	Ea	2	$	$
7060.02	DS_Gate Valve in Well, 8 In.	Ea	5	$	$
7060.04	DS_Gate Valve in Well, 12 In.	Ea	3	$	$
7060.05	DS_Gate Valve in Well, 16 In.	Ea	1	$	$
7071.04	Tapping Sleeve & Valve in Well, 12 In.	Ea	1	$	$
7080.00	Excavate & Backfill For Water Service Tap and Lead	Ft	822	$	$
7090.00	Water Structure Cover	Ea	3	$	$
7091.00	Water Structure Cover, Adjust	Ea	3	$	$
7100.00	Fire Hydrant Assembly, Complete	Ea	9	$	$
7102.00	Fire Hydrant Assembly, Rem	Ea	6	$	$
7110.01	Sacrificial Anode, 17-pound	Ea	19	$	$
7110.02	Sacrificial Anode, 32-pound	Ea	4	$	$
7120.00	Gate Box, Adjust	Ea	3	$	$
7121.00	Curb Box, Adjust	Ea	3	$	$
7130.01	Temporary Water Main Line Stop, 8 In. or less	Ea	11	$	$
7130.03	Temporary Water Main Line Stop, 12 In.	Ea	1	$	$
7130.04	Temporary Water Main Line Stop, 16 In.	Ea	4	$	$
7131.00	Temporary Water Main Line Stop, Additional Rental Day	Ea	5	$	$
7140.02	Water Main Pipe, 6 In. Dia., Abandon	Ft	2636	$	$
7140.03	Water Main Pipe, 8 In. Dia., Abandon	Ft	415	$	$
7140.05	Water Main Pipe, 12 In. Dia., Abandon	Ft	14	$	$
7140.07	Water Main Pipe, 16 In. Dia., Abandon	Ft	7	$	$
7160.02	Gate Valve in Box, 6 In. Dia., Abandon	Ea	8	$	$
7160.03	Gate Valve in Box, 8 In. Dia., Abandon	Ea	1	$	$
7160.05	Gate Valve in Box, 12 In. Dia., Abandon	Ea	1	$	$

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
7180.02	Gate Valve in Well, 6 In. Dia., Abandon	Ea	5	$	$
7180.03	Gate Valve in Well, 8 In. Dia., Abandon	Ea	2	$	$
7180.06	Gate Valve in Well, 16 In. Dia., Abandon	Ea	1	$	$
8000	Streets, Driveways, & Sidewalks				
8000.00	Subbase, CIP	Cyd	279	$	$
8010.00	Aggregate Base Course, 21AA, CIP	Cyd	43	$	$
8010.01	Aggregate Base, 4 In., 21AA, CIP	Syd	3394	$	$
8010.02	Aggregate Base, 6 In., 21AA, CIP	Syd	1219	$	$
8010.03	Aggregate Base, 8 In., 21AA, CIP	Syd	6762	$	$
8010.71	DS_Aggregate Base, Conditioning	Syd	1600	$	$
8060.00	Hand Patching	Ton	110	$	$
8070.15	HMA, 4EML	Ton	2273	$	$
8070.19	HMA, 5EML	Ton	1844	$	$
8080.02	Conc Pavt, Non-Reinf, 7 In.	Syd	9	$	$
8080.03	Conc Pavt, Non-Reinf, 8 In.	Syd	156	$	$
8080.04	Conc Pavt, Non-Reinf, 9 In.	Syd	371	$	$
8110.00	Conc, Curb or Curb & Gutter, All Types	Ft	4843	$	$
8110.71	DS_Conc, Curb or Curb & Gutter, Monolithic	Ft	211	$	$
8120.01	Conc, Driveway Opening, Type M	Ft	174	$	$
8130.01	Conc, Sidewalk, 4 In.	Sft	4675	$	$
8131.01	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	Sft	2307	$	$
8150.00	Detectable Warning Surface	Ft	331	$	$
8150.71	DS_Detectable Directional Tile	Ea	16	$	$
8190.01	Pavt Mrkg, Polymer Cement Surface, Bike, Large Sym	Ea	1	$	$
8190.02	Pavt Mrkg, Polymer Cement Surface, Bike, Small Sym	Ea	36	$	$
8190.03	Pavt Mrkg, Polymer Cement Surface, Bike Thru Arrow Sym	Ea	29	$	$
8190.04	Pavt Mrkg, Polymer Cement Surface, Bike Lt Turn Arrow Sym	Ea	1	$	$
8190.05	Pavt Mrkg, Polymer Cement Surface, Bike Rt Turn Arrow Sym	Ea	2	$	$
8190.06	Pavt Mrkg, Polymer Cement Surface, Bike Lane Green	Sft	10734	$	$
8190.07	Pavt Mrkg, Polymer Cement Surface, Tan	Sft	820	$	$
8200.05	Pavt Mrkg, Polyurea, 12 In., Cross Hatching, White	Ft	162	$	$
8200.07	Pavt Mrkg, Polyurea, 12 In., Crosswalk	Ft	3493	$	$
8200.09	Pavt Mrkg, Polyurea, 24 In., Stop Bar	Ft	496	$	$
8200.12	Pavt Mrkg, Polyurea, 4 In., Yellow	Ft	4770	$	$
8200.13	Pavt Mrkg, Polyurea, 6 In., White	Ft	11156	$	$
8200.14	Pavt Mrkg, Polyurea, 6 In., Yellow	Ft	14900	$	$
8200.15	Pavt Mrkg, Polyurea, Lt Turn Arrow Sym	Ea	3	$	$
8200.17	Pavt Mrkg, Polyurea, Rt Turn Arrow Sym	Ea	2	$	$
8200.18	Pavt Mrkg, Polyurea, Thru Arrow Sym	Ea	1	$	$
8200.30	Pavt Mrkg, Polyurea, Yield Triangle Sym	Ea	36	$	$
8200.31	Pavt Mrkg, Polyurea, Speed Hump Chevron, White	Ea	36	$	$
8200.73	DS_Continuous Base Mid Span L60	Ea	1103	$	$
8200.74	DS_Continuous Base Front Span L61	Ea	75	$	$
8200.75	DS_Continuous Base Rear Span L62	Ea	75	$	$
8200.76	DS_Big Bollard MASH L125SHM	Ea	913	$	$
8200.77	DS_Bikeway Delineator Post Black	Ea	89	$	$
8200.78	DS_Bikeway Delineator Post Yellow	Ea	20	$	$
8251.00	Recessing Pavt Mrkg, Longit	Ft	24598	$	$
8252.00	Recessing Pavt Mrkg, Transv	Sft	4531	$	$
8300.00	Monument Box, Adjust	Ea	12	$	$
9000	Lighting and Electrical				
9013.02	Conduit, Schedule 80 HDPE, 3 In., Directional Drill	Ft	40	$	$
9020.00	Handhole, Rem	Ea	2	$	$
9030.01	Handhole Assembly, 17 In X 30 In X 18 In.	Ea	6	$	$
9122.00	Light Fixture, Rem and Salvage	Ea	1	$	$
9123.00	Light Fixture, Reinstall	Ea	1	$	$
9200.71	DS_Post, Steel, 3 lb	Ft	17	$	$
9200.72	DS_Ground Mtd Sign Support, Rem	Ea	2	$	$
9210.71	DS_Conduit, Directional Bore, 2, 3 inch	Ft	150	$	$
9210.72	DS_Conduit, DB, 1, 1 1/2 inch	Ft	140	$	$
9210.73	DS_Conduit, DB, 1, 3 inch	Ft	10	$	$
9210.74	DS_Conduit, DB, 2, 3 inch	Ft	75	$	$
9210.75	DS_Conduit, DB, 4, 3 inch	Ft	10	$	$
9211.71	DS_Cable Pole, TS and Sec, Disman	Ea	1	$	$
9211.72	DS_Cable, Sec, 600V, 1, 3/C#6	Ft	100	$	$
9211.73	DS_Wood Pole, Rem	Ea	1	$	$
9211.74	DS_Serv Disconnect	Ea	1	$	$
9211.75	DS_Serv Disconnect, Rem	Ea	1	$	$
9211.76	DS_Wood Pole, Fit Up, TS and Sec Cable Pole	Ea	1	$	$

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
9220.71	DS_Light Std Arm, Install Salv	Ea	1	$	$
9220.72	DS_Light Std Arm, Rem and Salv	Ea	1	$	$
9230.71	DS_Controller and Cabinet, Rem	Ea	2	$	$
9230.72	DS_Controller Fdn, Base Mount	Ea	1	$	$
9230.73	DS_Controller Fdn, Rem	Ea	1	$	$
9231.71	DS_Pedestal, Alum	Ea	6	$	$
9231.72	DS_Pedestal, Fdn	Ea	8	$	$
9231.73	DS_Pedestal Fdn, Rem	Ea	3	$	$
9231.74	DS_Pedestal, Rem	Ea	4	$	$
9231.75	DS_Pushbutton, Pedestal, Alum	Ea	1	$	$
9231.76	DS_Pushbutton, Rem	Ea	1	$	$
9231.77	DS_Pushbutton and Sign, Salv	Ea	1	$	$
9231.78	DS_Push Button Station and Sign	Ea	6	$	$
9232.71	DS_Span Wire, Rem	Ea	1	$	$
9232.72	DS_TS, Pedestrian, Bracket Arm Mtd, Rem	Ea	1	$	$
9232.73	DS_TS, Pedestrian, Pedestal Mtd, Rem	Ea	4	$	$
9232.74	DS_TS, Span Wire Mtd, Rem	Ea	2	$	$
9232.75	DS_TS, Pedestrian, One Way Pedestal Mtd, Salv	Ea	1	$	$
9232.76	DS_Pedestrian Signal System, Accessible	Ea	1	$	$
9232.77	DS_TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	Ea	4	$	$
9232.78	DS_TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	Ea	1	$	$
9233.71	DS_Bracket, Truss, With 12 Foot Arm	Ea	2	$	$
9233.72	DS_Wireless Vehicle Sensor Node, Rem	Ea	15	$	$
9233.73	DS_Hemispherical Video Detection Camera	Ea	1	$	$
9233.74	DS_Hemispherical Video Detection System	Ea	1	$	$
9234.71	DS_Casing	Ft	15	$	$
9234.72	DS_Backplate, TS	Ea	7	$	$
9235.71	DS_Mast Arm Pole, Cat III	Ea	1	$	$
9235.72	DS_Mast Arm, 25 foot, Cat III	Ea	1	$	$
9235.73	DS_Mast Arm, 40 foot, Cat III	Ea	1	$	$
9235.74	DS_Mast Arm Pole Fdn, Modified	Ft	18	$	$
9235.75	DS_TS, One Way Bracket Arm Mtd (LED), Long Life	Ea	1	$	$
9235.76	DS_TS, One Way Mast Arm Mtd (LED), Long Life	Ea	6	$	$
9235.77	DS_TS, One Way Mast Arm Mtd, FYA (LED), Long Life	Ea	1	$	$
9235.78	DS_TS, One Way Pedestal Mtd (LED), Long Life	Ea	3	$	$
9236.71	DS_Controller, NEMA, ATC Type, Modified	Ea	1	$	$
9236.72	DS_Cabinet, NEMA Type, Modified	Ea	1	$	$
9240.71	DS_St Name Sign, Two Way, LED, 6 foot	Ea	1	$	$
9240.72	DS_St Name Sign, Two Way, LED, 8 foot	Ea	1	$	$
9240.73	DS_Roadside Unit, Rem and Salv	Ea	1	$	$
9240.74	DS_Roadside Unit, Install Salv	Ea	1	$	$
10000	Landscaping				
10060.00	Turf Restoration	Syd	1243	$	$
	TOTAL BID AMOUNT			**$**	

DETAILED SPECIFICATIONS

An item number ending in X.7X and an item's description starting with "DS_" indicates a detailed specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

AA:JKA 4/29/24

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.

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

1. The Contractor shall begin the work of this project on or before **June 17, 2024**, and only upon receipt of the fully executed Contract and Notice to Proceed. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date.

2. This Contract requires water main, storm sewer, sidewalk replacement, road resurfacing, cycle track installation, and turf establishment, in three (3) phases: Phase 1 will include all work required on Miller Avenue from Newport Road to S. Seventh Street, with the exception of the cycle track and associated pavement markings and shall be substantially complete by **November 15, 2024.** (No longer than one hundred fifty-one (151) consecutive calendar days.) Phase 2 shall begin **June 16, 2025** and includes all work required on Miller Avenue from S. Seventh Street to Chapin Street, with the exception of the cycle track and associated pavement markings, and shall be substantially complete by **October 15 2025.** (No longer than one hundred twenty-one (121) consecutive calendar days.) Phase 3 includes the cycle track installation and final pavement markings and shall begin after Phase 2 work is substantially complete and shall be complete by **November 15, 2025.** (No longer than thirty-one (31) consecutive calendar days.) The total calendar days for this contract is three hundred three (303) days.

3. Contractor shall sequence the water and storm sewer installation in a way that does not interrupt service of other utilities.

4. Contractor shall provide all necessary sewer flow control to maintain flow at all existing sewer crossings, connections and lead transfers.

5. No work shall be performed during Holiday weekends as follows, unless approved by the City of Ann Arbor:

    - Fourth of July, from 3:00 p.m. Wednesday July 3, 2024, through 7:00 a.m. Friday July 5, 2024
    - Labor Day, from 3:00 p.m. Friday August 30, 2024 through 7:00 a.m. Tuesday September 3, 2024
    - Memorial Day, from 3:00 p.m. Friday May 23, 2025, through 7:00 a.m. Tuesday

May 27, 2025

- Fourth of July, from 3:00 p.m. Thursday July 3, 2024, through 7:00 a.m. Saturday July 5, 2024
- Labor Day, from 3:00 p.m. Friday August 29, 2025 through 7:00 a.m. Tuesday September 2, 2025

6. No work shall be performed during University of Michigan home football games.

City Council approval is expected on or before **June 3, 2024**. The Contractor shall not begin the work without approval from the Project Engineer, and in no case before the receipt of the Notice to Proceed.

Contractor will be furnished with two (2) copies of the Contract, for his/her execution, before the aforementioned City Council meeting. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificate, to the City within **ten (10) days.**

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 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.

Liquidated Damages

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, **$2,000.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the times for each sub-phase, as required by this 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.

Measurement and Payment

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

AA:JKA 4/29/24

If the construction Contract is not completed within the specified calendar day period including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor, this Contract may be terminated with no additional compensation due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, Contract items paid for on a Lump Sum basis shall be paid up to a maximum percentage equal to the percentage of the Contract work that has been completed.

Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be included in the bid price of the Contract Item “General Conditions, Max $300,000.00”.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
PERMANENT SIGN AND SUPPORT

HRC: NBN 1 of 2 4/29/2024

a. Description

This work consists of removing or furnishing all components for the Permanent Sign and Support as shown on the plans or as directed by the Engineer. The Sign and Support shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall remove or furnish materials in accordance with Section 810 and 919 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Permanent Sign and Support shall be manufactured using design standards from the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and/or engineering judgment. The model includes the Sign Panel (Type IIIA or Type IIIB), Support (Perforated Steel Square Tube Breakaway System, Sign Band, or Mast Arm Cable Mount), Reflective Panel, and all associated hardware, that includes, but not limited to, bolts, nuts, washers, and plates.

Sign Type IIIA and Sign Type IIIB shall meet the requirements as stated in Section 919 of the MDOT Standard Specifications for Construction.

Ground Mounted Sign Support shall meet the requirement as stated in Section 810 of the MDOT Standard Specifications for Construction and MDOT Standard Plan SIGN-200-X (latest plan).

The Perforated Steel Square Tube Breakaway System shall meet the requirements as stated in Section 810 of the MDOT Standard Specifications for Construction and MDOT Standard Plan SIGN-207-X (latest plan).

The Sign Band and Reflective Panel shall meet the requirements as stated in Section 810 of the MDOT Standard Specifications for Construction.

The Mast Arm Cable Mount shall be manufactured by Pelco Products, Inc. or an approved equal by the Engineer. The model includes the Galaxy Sign-Brac with stainless cable mount and formed tube (AG-0142), the clamp kit (AG-3055), and sign bracket with hardware (AB-0507).

c. Construction

The Contractor shall deliver the Permanent Sign and Support to the City of Ann Arbor Public Works Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108. The Contractor shall coordinate with the Signs and Signals Supervisor at (734) 794-6350 for delivery. The Contractor shall not be entitled to any extra compensation due to coordination or installation delays caused by the City of Ann Arbor personnel.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Sign, Type III, Rem	Ea
DS_Sign, Type IIIA	Sft
DS_Sign, Type IIIB	Sft
DS_Ground Mtd Sign Support, Rem	Ea
DS_Perforated Steel Square Tube Breakaway System	Ea
DS_Band, Sign	Ea
DS_Mast Arm Cable Mount, Rem	Ea
DS_Mast Arm Cable Mount	Ea
DS_Reflective Panel for Permanent Sign Support, 3 foot	Ea
DS_Reflective Panel for Permanent Sign Support, 6 foot	Ea

DS_Sign, Type __, Rem; DS_Sign, Type __; DS_Ground Mtd Sign Support, Rem; DS_Perforated Steel Square Tube Breakaway System; DS_Band, Sign; DS_Mast Arm Cable Mount, Rem; DS_Mast Arm Cable Mount and **DS_Reflective Panel for Permanent Sign Support,** __ will be measured by the quantity shown on the plans and as specified herein and includes payment for all materials to be delivered to the City of Ann Arbor Public Works Wheeler Service Center. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
IN-STREET PEDESTRIAN CROSSING SIGN

HRC: NBN 1 of 1 4/24/2024

a. Description

This work consists of furnishing and installing all components for the In-Street Pedestrian Crossing Sign as shown on the plans or as directed by the Engineer. The In-Street Pedestrian Crossing Sign shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 810 and 919 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the In-Street Pedestrian Crossing Sign shall be manufactured by Qwick Kurb, Inc. or an approved equal by the Engineer. The model includes the Mega Marker (L104), Stand Alone Base Unit (L50) or Base Unit (L54), two (2) Reflective Arcs (L65), and all associated hardware that includes, but not limited to, screws, nuts, washers, bolts, flex boots, marker mounts, pavement anchors, and connection hooks.

The face of Mega Marker shall include the legend of the R1-6a In-Street Pedestrian Crossing Sign on both sides. The legend shall read, LOCAL LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK. The legend shall be surrounded by a fluorescent yellow-green background on both sides. The sign support shall be designed to bend over and bounce back to its normal vertical position if it is struck by a vehicle.

c. Construction

The In-Street Pedestrian Crossing Sign shall be laid out for approval by the Engineer before installation. The In-Street Pedestrian Crossing Sign shall be placed in the roadway or median island at the crosswalk location as shown on the plans. The Mega Marker, Base Unit, and Reflective Arcs shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_In-Street Pedestrian Crossing Sign	Ea

DS_In-Street Pedestrian Crossing Sign will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CHAMBERMAXX SYSTEM

a. Description. This work consists of installing stormwater management as shown on the plans or as directed by the Engineer. Stormwater Retention Systems with ground infiltration are best management practices (BMPs) which are designed to capture stormwater and store it until some, or all, of the stormwater filters into the surrounding soil. This system is effective for removing fine grained pollutants. The removal of suspended solids from the runoff will improve the quality of the captured runoff. In addition, the retention system with infiltration will store water over the underlying soils and provide the potential for improving the infiltration while also decreasing the volume of stormwater entering the stormwater system at one time which also decreases flooding.

General

1. This item shall govern the furnishing and installation of ChamberMaxx underground detention and infiltration chamber systems.

2. Contractor shall furnish all labor, materials, equipment and incidentals necessary to install the ChamberMaxx system, appurtenances and incidentals in accordance with the Drawings and as specified herein.

3. The containment row of the ChamberMaxx system is recommended as the appropriate means of pretreating for the purpose of extending the maintenance interval on the ChamberMaxx system and reducing the life cycle cost. The containment row shall consist of a row of chambers which lays upon 2 layers of AASHTO M288 Class I woven geotextile between the chamber and stone bedding.

4. Applicable provisions of any Division shall govern work in this section.

5. Related Standards:

    a. ASTM 2418 “Standard Specification for Polypropylene Corrugated Wall Stormwater Collection Chambers”

    b. ASTM F-2787 “Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers”

6. Site layout drawings, product specifications, materials, hydraulic storage data and supported calculations of proposed alternatives shall be submitted to the Engineer of Record (EOR) for review at a minimum of 10 working days prior to bid closing.

7. Shop drawings shall be annotated to indicate all materials to be furnished and installed under this section, and all applicable standards for materials, required tests of materials and design assumptions for structural analysis:

8. Before installation of the ChamberMaxx system, Contractor shall obtain the written approval of the EOR for the stormwater system and the installation drawings.

9. All proposed alternatives to the ChamberMaxx system shall conform to applicable above referenced ASTM specifications.

b. Materials. The Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and install the retention system with infiltration as specified on the Drawings and manufactured by Contech as ChamberMaxx, or Engineer approved equivalent, as detailed in the Specifications.

1. The chamber shall be constructed of injection molded polypropylene copolymer formulated for high impact and stress cracking resistance and sustained structural performance during high temperatures. The chamber shall be designed and manufactured in accordance with ASTM F-2418 and F-2787.

2. The chamber shall be designed to AASHTO LRFD Bridge Design Specifications (Section 12), as applied to material and performance requirements for buried thermoplastic pipes. Design live load shall be the AASHTO HS-20 and HS-25 truck, including multiple lane presence factors, over a minimum cover of 18 inches and chamber row spacing of 5 inches or greater.

3. The chamber system shall be comprised of three chamber configurations: The MIDDLE chambers shall be open-ended to allow unobstructed hydraulic flow, inspection, and maintenance. The START and END chambers shall each have an integral end wall designed to resist loading at the start and end of the chamber rows. The chambers within a row shall be installed with overlapping end corrugations.

4. The nominal dimensions of the START chamber shall be 51.4 inches wide, 30.3 inches tall, and 98.4 inches long. The nominal dimensions of the MIDDLE chamber shall be 51.4 inches wide, 30.3 inches tall, and 91.0 inches long. The nominal dimensions of the END chamber shall be 51.4 inches wide, 30.3 inches tall, and 92.0 inches long. The nominal storage volume inside the chamber shall be 75 cubic feet when utilizing 6” of stone above and below chamber with 40% stone porosity per ChamberMaxx standard detail.

5. The chamber shall have a continuously-curved, arch-shaped section profile.

6. The START and END chamber integral end wall shall be structurally suitable for cutting and inserting inlet pipes and shall provide a range of pipe diameter indicants up to 24” diameter as cutting templates.

7. The chamber shall be a corrugated, open-bottom design and top vent orifices for hydraulic pressure equalization. Corrugation valleys and crests shall be sub-corrugated to increase stiffness.

8. The chamber shall have a circular cut line for an optional reinforced inspection port configured to accept a 4” Schedule 40 pipe.

9. The END chambers shall be capable of being cut to shorter lengths to accommodate site specific requirements.

10. The chamber shall be supported by integral structural footings comprised of load dispersing toe ribs and longitudinally aligned stiffening ribs.

11. The manufacturer of the ChamberMaxx system shall be one that has regularly been engaged in the engineering design and production of these systems for at least eight (8) years and which has a history of successful production, acceptable to the Engineer of Record (EOR). In accordance with the Drawings, the ChamberMaxx system shall be supplied by:

Contech Engineered Solutions
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

c. Performance.

1. The ChamberMaxx system proposal shall be sized in accordance with the design provided and approved by the Engineer of Record (EOR). Any Contractor deviating from the design shown on the plans, to include: material, footprint, etc., shall provide to the EOR a summary report on stage-storage curves, design calculations, HydroCAD modeling and engineering drawings.

2. ChamberMaxx row spacing, and stone base thickness cannot be altered with consultation from Contech Engineered Solutions, LLC.

3. The ChamberMaxx system shall be designed so as the hydraulic grade line will increase evenly throughout whereas transverse movement from one storage compartment to another shall not be permitted. All storage compartments shall be connected via manifold (or connecting pipe) versus by entirely transporting stormwater through stone.

4. The ChamberMaxx system shall include a containment row(s) for the collected of sediment in stormwater prior to flowing into the chamber array. The containment row shall be connected to a diversion structure with a 24-inch pipe. The initial flow of stormwater shall be diverted by a weir into the containment row. The containment row shall consist of a row of chambers which lays upon 2 layers of AASHTO M288 Class I woven geotextile between the chamber and stone bedding.

d. Execution

1. The ChamberMaxx system shall be installed per the Contech “ChamberMaxx Stormwater Retention System Standard Installation Detail”, available from local Contech representative or from www.conteches.com.

2. For temporary construction vehicle loads, an extra amount of compacted cover may be required over the top of the chambers. The Height-of-Cover shall meet the minimum requirements shown in the Contech “ChamberMaxx Stormwater Retention System Standard Installation Detail”. The use of heavy construction equipment necessitates greater protection for the chambers than finished grade cover minimums for normal highway traffic.

3. The contractor shall follow Occupational Safety and Health Association (OSHA) guidelines for safe practices in executing the installation process in accordance with the manufacturer/supplier installation recommendations.

4. Contractor is required to participate in an on-site preconstruction meeting with the supplier prior to the scheduled delivery date of the ChamberMaxx system.

The Contractor must notify the Engineer in advance when specific items are ready for observation. The construction shall not proceed without the approval of the Engineer at the specific points indicated below, unless the express consent of the Engineer is given to proceed. The Engineer may stop construction and/or have materials removed at the Contractor's expense if no notification or approval to proceed is given. Contractor responsibilities include:

- **Start of construction** – Locate utilities and layout sand filters, relocate utilities as required while providing the required separation of at least 2’, locate and install appropriate temporary erosion control measures.

- **Completion of excavation** – Excavate material and verify contours and that the base of the entire sand filter is level.

- **Placement of underdrain structures and gravel** – Place geofabric, underdrains, stormwater control structures, and stormwater storage chambers and make internal connections between stormwater control structures, place storage aggregate in compacted lifts with a middle geofabric layer, and place at least an additional 6” of storage aggregate above the middle geofabric. A top geofabric layers shall be installed on top of the final aggregate grade, or as specified in the manufacturer’s installation guide.

- **Install open cell pavers** – Place open cell pavers onto aggregate material for both curbs cut spillways and sand filter terraces. Install pavers according to manufacturer instructions.

- **Placement of filter soil** – Verify that material is approved prior to placement, install the filter soil and perform final grading to the needed contours.

- **Completion of construction** – Seeding of other restoration areas and installation of permanent erosion control measures, removal of excess or excavated materials, and general cleanliness and completeness of work areas.

e. Products

- Geofabric: Geofabric shall be constructed of a non-woven geotextile that meets AASHTO M288 Class 2. The geofabric shall be placed on the bottom, sides, and ends of the excavated sand filter with a minimum overlap of 2' at all joints. Geofabric will also be placed above the stormwater storage chambers as shown on the drawings.

- Perforated Pipe: Underdrain piping will consist of perforated single wall HDPE highway pipe with geofabric sock unless otherwise noted on Drawings. The perforations shall be slits in the corrugations spaced every 4 inches or an equivalent approved by the Engineer. A perforated pipe shall be installed on the geofabric within the base of the storage aggregate and shall originate 1 foot short of the sand filter wall and terminate in the specified catch basin structure.

- Stormwater Storage Chambers: The chambers shall meet the ASTM F 2922-12 standard specification for polyethylene (PE) corrugated wall stormwater storage chambers. The installed chamber system shall provide the load factors specified in the ASSHTO LRFD bridge design specifications section 12.12 for earth and live loads with consideration for impact and possible vehicle presence. Chambers shall be ChamberMaxx or equal.

- Storage Aggregate: Storage aggregate shall consist of ¾" – 2" crushed angular stone. The material shall be washed and contain no more than 1% fines, including silt, clay or organic material. No PreCenozoic limestone, dolomite, or stone containing phosphate shall be used.

- Filter Soil: Filter soil shall be composed of 75% by weight of sand and 25% compost. Sand shall be clean construction sand, free of deleterious materials including but not limited to clay, silt, organics, woody debris, construction debris or other materials that may negatively affect infiltration. Clean construction sand or clean river-run sand is acceptable. A sample of the sand shall be made available to the Engineer prior to mixing the amended soils. Any deleterious materials in the sand will be screened at the expense of the Contractor.

- Compost shall be aged yard-leaf compost and shall be free of deleterious materials including but not limited to clay, silt, manure solids, woody debris, plastics, construction debris or other materials that may negatively affect infiltration. The pH shall be between 5.5 and 8.5. Particles shall be able to pass through a 1-inch screen or smaller. Compost that smells putrid, has an ammonia odor, or shows visible signs of mold is unacceptable. A sample of the compost shall be made available to the Engineer prior to mixing the amended soils.

- Catch Basin Structure and Grate: The catch basin (structure) shall consist of a 3' x 3' precast structure with a depth and grate size as indicated on the drawings, cast as a single unit consisting of the base and side walls and fit with a top slab frame and grate. Structure, frames and covers shall support an H20 loading. Structure shall have a 6" inlet cast into the catch basin chamber that extends 6" from the exterior of the structure and shall include

a breakout panel for installation of the catch basin lead to the stormwater drainage system. Pipe connection to storm sewer shall be sealed with a rubber boot to limit infiltration or approved equal.

For locations with turf, the appropriate turf seed blend shall be installed in all areas containing filter soil.

All curb cuts, overland flow or other hydrologic inputs shall not be brought online and allowed to enter sand filters for at least 14 days following seeding, or until turf establishment is verified and approved by Engineer.

f. Maintenance and Guarantee

The Contractor shall assume responsibility for maintaining work to the end of the guarantee period. During this period, the Contractor shall make a minimum of one maintenance trip every 4 weeks during the growing season and as many more as necessary to keep the plantings and turf in a thriving condition.

Maintenance activities generally include but are not limited to: prescribed burns, herbicide applications of invasive species, spot-spraying or hand-pulling undesirable weeds, irrigation, debris removal, and supplemental plantings as determined to be appropriate by the Engineer.

- Watering shall be the responsibility of the Contractor. Seed shall be kept moist for optimum growth (1 inch of water each week, including rainfall) for the first growing season. Any erosion resulting from watering shall be repaired by the Contractor.
- Weeding will be the responsibility of the Contractor. The sand filters will be kept free of species other than the prescribed seed.
- Trash removal and maintenance of the drainage structures will be the responsibility of the Contractor. The drainage structures and inlets will be kept free of debris that may block storm flows and cause an overflow of the sand filters. Protection from foot traffic, mowing, or herbicide application is the responsibility of the Contractor. Appropriate signage and/or fencing may be used following approval by the Engineer to protect the plantings until they are fully established.

The Contractor shall replace, at no cost to the Owner, all dead vegetation during the maintenance period, and will maintain the sand filters to ensure uniform healthy plant growth, in order for the site to be released by the Engineer so that the Contractor may be paid the final retainage.

Maintenance Plan

During the period of the contract, the contractor shall perform the elements of the Maintenance Plan, as described below. This plan requires the following bi-annual inspection (Fall and Spring) to be performed:

- Inspect and maintain the sand filter catch basins – Vegetation, grass, bark, mulch, and accumulated leaves from the fall season, and grit from the winter season will accumulate in the sand filters. Perform inspections in the fall and spring and clear and remove these materials from the catch basin and catch basin sumps using a Vactor or alternative

methods.

- Inspect and maintain the curb cut energy dissipation pads – Solids and grit may accumulate on the energy dissipation pads downstream from the curb cuts that enter each sand filter. Areas with accumulation should be swept or vactored to remove deposited solids.
- Inspect and maintain the sand filter surfaces – The sand filter surface should be inspected, and if necessary, any leaves, trash, or other material removed. A motorized vacuum methods used for leaf collection shall be employed.
- Inspect the terraces for erosion – Some sand filters may have terraces to make sure that surface water is evenly distributed. These terraces shall be inspected to verify that they have not eroded and that the spillway pavers have adequate soil to support vegetation. Any eroded areas shall be repaired to make sure that the terraces are continuous and vegetated.
- Standing water and sediment inspection – Should standing water be observed, or if the base of the sand filter is less than 4" below the catch basin grate elevation, the surface of the sand filter may need to be removed and replaced with appropriate filter soils and replanted. The use of 75% sand and 25% compost shall be used, and a low maintenance turf blend used to minimize the amount of mowing or watering needed in the sand filter areas. If the discharge orifice is plugged, this should be unblocked, and material removed so that it will discharge flow at the required rate.

Guarantee

By May 31st of the year following seeding, the sand filter and surrounding disturbed areas shall show a uniform density of healthy specimens of turf or native cover. The sand filters shall also be free of weeds and trash, and covered in a uniform layer of mulch, as determined by the Engineer.

Uniform density is deemed as 85% coverage of all sand filter areas, with no bare patches greater than 4 square feet within the sand filters, or bare patches greater than I square foot within the areas of turf grass.

Any area in the sand filters that fails to show a uniform density of plants shall be replanted with appropriate native seed mix, temporary stabilization seed mix, or turf. Any bare patches around the borders will be reseeded with fescue until a uniform density of turf grass is established.

g. Measurement And Payment

The completed work as measured will be paid for at the Contract Unit Price for the following contract items (pay items):

PAY ITEM	PAY UNIT
DS_CHAMBERMAXX SYSTEM	LS

The unit price includes all labor, equipment, materials, and documents necessary to install the sand filter, catch basin, stop gate and control orifice as detailed in the plans.

ChamberMaxx Project Details

Description

The ChamberMaxx corrugated, open-bottom plastic infiltration chamber system allows you to meet stormwater runoff reduction requirements and maximize available land space by providing economic infiltration below grade. ChamberMaxx maximizes storage volume in a small footprint, and its low-profile shape is ideal for sites with shallow footprints.

Project Information

Project Name 47180 - West Park
Location Ann Arbor, MI
Date March 05 2024

Design Parameters	
Pretreatment Method	Hydrodynamic Separator
Storage Volume	6712ft³
Limiting Length	80ft
Limiting Width	40ft
Invert Depth	6ft
Number of Headers	1
Header Diameter	18in
Spacing Between Chambers	5.6in
Porous Stone Width at Sides	12in
Porous Stone Width at Ends	12in
Porous Stone Width at Above	6in
Porous Stone Width at Below	6in
Porosity	40%
Include Porous Storage Between Chambers	Yes

Chamber Information	
Start Units	8
Middle Units	64
End Units	8
Required Chambers	80
Manifold Tees	7
Manifold Elbows	1
Number of Rows	8
Chambers per Row	10
Storage Calculations	
Chamber Storage	3792ft³
Header Storage	221.63ft³
Porous Stone Storage	2809.28ft³
Total Storage Provided	6712.68ft³
Percentage of Storage Provided	100.01%
System Dimensions and Other Mat'l	
Rectangular Footprint	78.41x39.53ft
Total Excavation	746.23y³
Stone Backfill	260.12y³
Remaining Backfill to Pavement	341.55y³
Woven Geotextile Qty	0y²
Non-Woven Geotextile Qty	344.42y²
Scour Protection Fitting	39.53x7.5ft
Approximate Truckloads	1

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WATER STRUCTURES

Description

This work shall consist of furnishing all labor, tools, equipment, and material to construct drainage structures in accordance with 2024 Public Services Standard Specifications Article 3 and Article 10, Section II.K., as shown on the plans, and as specified herein.

Measurement and Payment

The completed work, as described, will be measured and paid for at the approved price for the following pay item:

Pay Item	Pay Unit
DS_Gate Valve in Well, __ In.	Each
DS_Gate Valve in Box, __ In.	Each

The gate well frame and cover shall be included in payment for **DS_Gate Valve in Well, ___ In.** and shall not be paid for separately.

The gate valve box shall be included in payment for **DS_Gate Valve in Box, ___ In.** and shall not be paid for separately.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
AGGREGATE BASE CONDITIONING

HRC: ENR 1 of 1 3/13/2024

a. Description

This work consists of compacting and grading the existing aggregate base as shown on plans or as directed by the Engineer. The aggregate base conditioning shall be in accordance with Section 302 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as specified herein.

b. Materials

The Aggregate material shall meet the aggregate series as shown on the plans.

c. Construction

Shall conform to subsections 302.03A and 302.03B of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	**Pay Unit**
DS_Aggregate Base, Conditioning	Square Yard

DS_Aggregate Base, Conditioning will be measured by the width and length shown on the plans and includes payment for all labor, equipment, and materials needed furnish, place, and compact the aggregate base.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
MONOLITHIC CURB AND GUTTER

HRC: ENR 1 of 1 3/13/2024

a. Description

This work consists of constructing concrete curb and gutter on the prepared base in accordance with Section 802 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction as shown on plans, except as specified herein.

b. Materials

The materials shall meet the requirements as specified in Section 802 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and specified herein:

All monolithic curb and gutter shall be grade 3500 with 6AA coarse aggregate. The Contractor may elect to add GGBFS to 3500 mixtures in accordance with the requirements of the contract documents. No additional payment will be made for concrete mixtures containing GGBFS.

c. Construction

DS_Conc, Curb or Cub & Gutter, Monolithic shall be constructed as shown on the plans.

Each section shall be poured as one continuous curb or curb and gutter and follow section 802.03 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as modified per the detail shown on the plans.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	**Pay Unit**
DS_Conc, Curb or Curb & Gutter, Monolithic	Foot

DS_Conc, Curb or Curb & Gutter, Monolithic will be measured by the unit installed and will be paid for at the contract unit price per Foot, for which price shall be payment in full for all labor, equipment, and materials.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
DETECTABLE DIRECTIONAL TILE

HRC: NBN 1 of 1 4/26/2024

a. Description

This work consists of furnishing and installing all components for the Detectable Directional Tile as shown on the plans or as directed by the Engineer. The Detectable Directional Tile shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The contractor shall furnish materials in accordance with Section 803 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Detectable Directional Tile shall be manufactured by Armor-Tile or an approved equal by the Engineer. The model includes the Detectable Bar Tile (ADD-504/ADA-D-448) and all associated hardware that includes, but not limited to, expansion anchors, adhesives, and sealants.

The Detectable Bar Tile shall be 6 inches by 48 inches, color Federal Yellow (#33538), and compliant with the Americans with Disabilities Act (ADA) standards. The Detectable Bar Tile consists of a polymer composite with a bar-like pattern.

c. Construction

The Detectable Directional Tile shall be laid out for approval by the Engineer before installation. The Detectable Directional Tile shall be placed adjacent to bus stop landings and perpendicular to the curb as shown on the plans. The Detectable Directional Tile shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_Detectable Directional Tile	Ea

DS_Detectable Directional Tile will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories, mounting hardware, and adhesive required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
MODULAR CURB SYSTEM

HRC: NBN 1 of 1 4/24/2024

a. Description

This work consists of furnishing and installing all components of the Modular Curb System as shown on the plans or as directed by the Engineer. The Modular Curb System shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 810 and 919 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Modular Curb System shall be manufactured by Qwick Kurb, Inc. or an approved equal by the Engineer. The model includes the Continuous Base Mid Span (L60), Continuous Base Front Span (L61), Continuous Base Rear Span (L62), Big Bollard (L125SHM), and all associated hardware that includes, but not limited to, screws, nuts, washers, bolts, flex boots, marker mounts, pavement anchors, and connection hooks.

The Big Bollard shall be white with yellow reflective sheeting.

c. Construction

The Modular Curb System shall be laid out for approval by the Engineer before installation. The Modular Curb System shall be placed in the roadway and gapped out at intersections (cross streets and driveways) as shown on the plans. The Continuous Base and Big Bollard shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_Continuous Base Mid Span L60	Ea
DS_Continuous Base Front Span L61	Ea
DS_Continuous Base Rear Span L62	Ea
DS_Big Bollard MASH L125SHM	Ea

DS_Continous Base __ Span __ and **DS_Big Bollard MASH L125SHM** will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
BIKEWAY DELINEATOR POST

HRC: NBN 1 of 1 4/24/2024

a. Description

This work consists of furnishing and installing all components for the Bikeway Delineator Post as shown on the plans or as directed by the Engineer. The Bikeway Delineator Post shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Section 807 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Bikeway Delineator Post shall be manufactured by Pexco or an approved equal by the Engineer. The model includes the City Post SM Surface Mount, Standard Top, Sheeting, and all associated hardware that includes, but not limited to, Anchor Bolts.

The Bikeway Delineator Post shall be 28 inches in height and 3 inches round with the bolt-down design. The color shall be black with white sheeting or yellow with gold sheeting as specified on the plans.

c. Construction

The Bikeway Delineator Post shall be laid out for approval by the Engineer before installation. The Bikeway Delineator Post shall be placed in the roadway, buffer space, bike lane, or cycle track as shown on the plans. The Bikeway Delineator Post shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_Bikeway Delineator Post Black	Ea
DS_Bikeway Delineator Post Yellow	Ea

DS_Bikeway Delineator Post __ will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
STEEL POST

AA:JKA 1 of 1 04/29/24

a. Description. This work consists of furnishing and installing foundation pedestals as shown on the plans or as directed by the Engineer. The foundation pedestals shall be in accordance with Section 810 and associated sections for materials of the *Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction.*

b. Materials. The Contractor shall furnish materials in accordance with Subsection 810.02, of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except where otherwise noted.

c. Construction. The **DS_Post, Steel, 3 lb** shall be installed in accordance Subsection 810.03 and of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except where otherwise noted.

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

Contract Item (Pay Item)	Pay Unit
DS_Post, Steel, 3 lb	Foot

The unit prices for fabricated items include the cost of providing dimensional information for the relevant fabricated item.

The Engineer will measure **DS_Post, Steel, 3lb** to the nearest commercial length required. The City will not pay for the portion of posts installed deeper than the depth shown on the plans, unless authorized by the Engineer.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
GROUND MOUNTED SIGN SUPPORTS, REMOVE

DES:DBP 1 of 1 APPR:AJU:MWB:06-28-22
FHWA:APPR:06-28-22

a. Description. This work consists of removing each ground mounted sign support including but not limited to steel posts, wood posts and breakaway sign supports per section 810.03 Standard Specifications for Construction. Complete this work in accordance with this special provision, the plans, sections 810 and 919 of the Standard Specifications for Construction, and as directed by the Engineer.

b. Materials. None specified.

c. Construction. Once the existing sign has been removed and addressed per the contract remove the ground mounted sign support.

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

Pay Item	**Pay Unit**
Ground Mtd Sign Support, Rem	Each

Ground Mtd Sign Support, Rem includes the cost of removing each support as shown on the plans or as directed by the Engineer.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
TRAFFIC, PEDESTRIAN, AND BIKE SIGNAL

HRC: NBN 1 of 2 4/29/2024

a. Description

This work consists of furnishing and installing all components of the Traffic, Pedestrian, and Bike Signal as shown on the plans or as directed by the Engineer. The Traffic, Pedestrian, and Bike Signal shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 820 and 921 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Traffic, Pedestrian, and Bike Signal shall be manufactured using MDOT standard plans (SIG-XXX-X) and/or engineering judgment. The model includes the Conduit, Cable, Service Disconnect, Light Standard Arm, Pedestal, Foundation, Signal, Casing, Mast Arm, and all associated hardware, that includes but not limited to, anchor bolts, fittings, mounting brackets, and wiring.

The Conduit, Cable, and Service Disconnect shall meet the requirements as stated in Section 818 of the MDOT Standard Specifications for Construction.

The Light Standard Arm Removal and Salvage shall meet the requirements as stated in Section 819 of the MDOT Standard Specifications for Construction.

The Pedestal, Foundation, Signal, Casing, and Mast Arm shall meet the requirements as stated in Section 820 of the MDOT Standard Specifications for Construction.

c. Construction

The Traffic, Pedestrian, and Bike Signal shall be placed, taken out, or saved in the intersection or road segment as shown on the plans. The Traffic, Pedestrian, and Bike Signal shall be installed, removed, or salvaged per MDOT 2020 Standard Specifications for Construction and standard plans (SIG-XXX-X).

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Conduit, Directional Bore, 2, 3 inch	Ft
DS_Conduit, DB, 1, 1 1/2 inch	Ft
DS_Conduit, DB, 1, 3 inch	Ft
DS_Conduit, DB, 2, 3 inch	Ft

DS_Conduit, DB 4, 3 inch ..... Ft
DS_Cable Pole, TS and Sec, Disman ..... Ea
DS_Cable, Sec, 600V, 1, 3/C#6 ..... Ft
DS_Wood Pole, Rem ..... Ea
DS_Serv Disconnect ..... Ea
DS_Serv Disconnect, Rem ..... Ea
DS_Wood Pole, Fit Up, TS and Sec Cable Pole ..... Ea
DS_Light Std Arm, Rem and Salv ..... Ea
DS_Controller and Cabinet, Rem ..... Ea
DS_Controller Fdn, Base Mount ..... Ea
DS_Controller Fdn, Rem ..... Ea
DS_Pedestal, Alum ..... Ea
DS_Pedestal, Fdn ..... Ea
DS_Pedestal, Fdn, Rem ..... Ea
DS_Pedestal, Rem ..... Ea
DS_Pushbutton, Pedestal, Alum ..... Ea
DS_Pushbutton, Rem ..... Ea
DS_Span Wire, Rem ..... Ea
DS_TS, Pedestrian, Bracket Arm Mtd, Rem ..... Ea
DS_TS, Pedestrian, Pedestal Mtd, Rem ..... Ea
DS_TS, Span Wire Mtd, Rem ..... Ea
DS_TS, Pedestrian, One Way Pedestal Mtd, Salv ..... Ea
DS_TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown ..... Ea
DS_TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown ..... Ea
DS_Bracket, Truss, With 12 Foot Arm ..... Ea
DS_Casing ..... Ft

DS_Conduit, __, __, __; **DS_Cable Pole, TS and Sec, Disman**; **DS_Cable, Sec, 600V, 1, 3/C#6**; **DS_Wood Pole, Rem**; **DS_Serv Disconnect**; **DS_Serv Disconnect, Rem**; **DS_Wood Pole, Fit Up, TS and Sec Cable Pole**; **DS_Light Std Arm, Rem and Salv**; **DS_Controller and Cabinet, Rem**; **DS_Controller Fdn, Base Mount**; **DS_Controller Fdn, Rem**; **DS_Pedestal Alum**; **DS_Pedestal, Fdn**; **DS_Pedestal, Fdn, Rem**; **DS_Pedestal, Rem**; **DS_Pushbutton, Pedestal, Alum**; **DS_Pushbutton, Rem**; **DS_Span Wire, Rem**; **DS_TS, Pedestrian, __, Rem**; **DS_TS, Span Wire Mtd, Rem**; **DS_TS, Pedestrian, One Way Pedestal Mtd, Salv**; **DS_TS, Pedestrian, __ Pedestal Mtd (LED) Countdown**; **DS_Bracket, Truss, With 12 Foot Arm**; and **DS_Casing** will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
LIGHT STANDARD ARM, INSTALL SALVAGED

a. Description. This work consists of installing an existing, salvaged light standard arm as specified herein and as shown on the plans. Ensure this work is done in accordance with the requirements of section 819 of the Standard Specifications for Construction, the details shown on the plans, and this special provision.

b. Materials. Furnish material in accordance with subsection 819.02 of the Standard Specifications for Construction.

Ensure nuts and washers are in accordance with subsections 908.14.A and 908.14.B of the Standard Specifications for Construction.

c. Construction. Install light standard arms and luminaires in accordance with subsections 819.03.B and 819.03.C of the Standard Specifications for Construction, respectively. Install the light standard arm and luminaire on the light standard shaft per the manufacturer's recommendation. All electrical connections must meet the *NEC* requirements and any applicable local electrical codes.

Coat exposed portions of hardware with an epoxy and urethane coating system in accordance with subsection 715.03.D.1 of the Standard Specifications for Construction. Use a black colored urethane meeting color number 17038 of Federal Standard 595C from the Qualified Products List (915).

Repair any damages to the galvanized coatings of any product used per subsection 716.03 of the Standard Specifications for Construction. Any repair costs incurred for the repairs are the responsibility of the Contractor.

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

Pay Item	**Pay Unit**
Light Std Arm, Install Salv	Each

Light Std Arm, Install Salv includes the cost of the anchor bolts and other miscellaneous hardware to install the light standard arm. The foundation, luminaire, and light standard shaft will be paid for separately.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
PUSHBUTTON AND SIGN, SALVAGE

HRC: NBN 1 of 1 4/24/2024

a. Description. This work consists of removing, storing, and reinstalling an existing pushbutton and sign at locations shown on the plans.

This work includes removal, storing and installation of interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit, and any other material required to ensure a complete removal and installation.

b. Materials. None specified.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction, as shown on the plans, and as directed by the Engineer. Remove an existing pushbutton and sign, store salvaged materials in a protected and clean environment, and re-install the materials.

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

Pay Item	**Pay Unit**
DS_Pushbutton and Sign, Salv	Each

DS_Pushbutton and Sign, Salv includes removing a pushbutton, and sign if one is present, storing the removed materials on site and reinstalling materials at a location shown on the plans. This pay item includes removing and re-installing, as applicable, interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit and any other material required to ensure a complete removal and installation.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
ACCESSIBLE PEDESTRIAN SIGNAL SYSTEM

a. Description. This work consists of either furnishing and installing an accessible pedestrian signal system and push button station(s) or removing a system and push button station(s) at locations as shown on the plans.

The following terminology is used in this special provision.

1. Accessible pedestrian signal system, or system hereafter, refers to central control unit (CCU) and multiple push button stations.

2. CCU, refers to the unit installed in an existing traffic signal controller cabinet, frame, and all required mounting hardware and the configurator. The CCU is the power supply and signaling interface, between the intersection traffic signal controller and the push button stations. Configurator refers to a handheld, password secure, infrared device capable of setting and resetting all push button stations on the intersection from a single push button station (global updating). Each CCU will control multiple push button stations. A complete system includes one CCU.

3. Push button station (PBS), refers to a Public Rights-of-Way Accessibility Guidelines (PROWAG) compliant push button station including signs when specified, installed at crosswalk termini, and all required mounting hardware. A system can include 2 to 12 PBS (maximum of 3 per phase).

b. Materials. Furnish an accessible pedestrian signal system including CCU and PBS meeting the requirements of this subsection. Furnish all hardware and other appurtenant materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. Accessible Pedestrian Signal System.

A. Furnish an accessible pedestrian signal system from the following list.

(1) Polara Navigator.

(2) Approved equal (AE). Ensure the AE is evaluated, tested, and approved per the MDOT New Traffic Signal Device Product Review Guidelines. The review time is not justification to delay the project.

2. The system must:

A. Furnish various audible features including but not limited to locator tones. All

locator tones must emanate from push button stations and be synchronized;

B. Have multiple language capability, selectable by user, and able to play an emergency preemption message;

C. Be able to self-test and report any faults to the traffic controller;

D. Furnish the following audible feature, each with a minimum and maximum volume independently settable using the configurator:

(1) One locating tone;

(2) Five walk sound choices (field selectable);

(3) Three pedestrian - clearance sound choices (field selectable) ensuring one of which is an audible countdown;

(4) Direction of travel (as standard feature with extended push); and

(5) Information message (custom feature with extended push).

E. Automatically adjust audible features to ambient noise levels over a 60 decibel (dB) range; and

F. Mute sounds on all crosswalks except the activated crosswalk (selectable feature).

3. The CCU must meet the following requirements:

A. Be compatible with solid-state pre-timed or actuated traffic signal control equipment and cabinet environments;

B. Be capable of controlling up to and including 12 PBSs and controlling up to and including 4 pedestrian phases;

C. Receive timing from the walk and don’t walk signals;

D. Have additional advanced configurations available by using general purpose inputs and outputs;

E. Ensure full optical isolation of all inputs and outputs and include transient voltage protection as follows:

(1) General Purpose Inputs. 10 to 36 VAC/VDC peak with a 10 milli Ampere (mA) maximum.

(2) General Purpose Outputs and Pedestrian Outputs. 36 VAC/VDC peak, 0.3 Ampere (A) solid state fused contact closure.

(3) Fault Output. Normally open and closed relay contacts, 125 VAC/VDC, 1 A maximum.

(4) Pedestrian Hand/Walking Person (Walk/Don't Walk) Inputs. 80-150 VAC/VDC, 5 mA maximum.

(5) A, B, C, D PBS Power Outputs. Nominal 22 VDC, short circuit protected, auto recovering.

(6) Environment Operation and Storage Range. -30 °F to 165 °F (-35 °C to 74 °C), 0 to 100 percent Humidity, Non-condensing.

(7) Line Power. 25 Watt (W) to 75 W typical, 120 W peak with 8 PBSs.

F. Include a 50-pin connector and cable that plugs into the CCU for termination to the traffic signal controller terminal facilities. Ensure the connector is a Positronic MD50F20Z0X or equivalent, provided with 20-24 gauge wire, which complies with the requirements of *UL 1061*.

4. The PBS must meet the following requirements:

A. Design each PBS in accordance with the following:

(1) Produce sounds emanating from the back of the unit via an 8 ohms 15 W, weather-proof speaker protected by a vandal resistant screen;

(2) Require only two wires coming from the traffic control cabinet for each phase/crosswalk;

(3) Include push buttons which are audibly locatable and equipped with tactile arrows pointing in the same direction as the associated crosswalk;

(4) PROWAG compliant, cast aluminum, nickel plated, powder coated with raised tactile arrow on button;

(5) Include solid-state switch rated to 20 million activations (minimum); and

(6) Include a two inch button with a tactile raised directional arrow on the button that can be changed to one of four directions to coincide with the direction of travel of the associated crosswalk.

B. The PBS must include the following standard features:

(1) The arrow/button must vibrate during the walk period, following a button push;

(2) Confirm a button push via a "vibratactile" bounce and a red LED, clearly visible in direct sunlight, which latches ON when the button is pushed;

(3) Indicate the direction of travel with extended button push;

(4) Transmit a standard locating tone, custom sound, or verbal countdown during pedestrian clearance;

(5) Ensure sounds automatically adjust to ambient over 60 dB range;

(6) Allow sounds to have minimum and maximum volume set independently;

(7) Synchronize all sounds;

(8) Extended button push can turn on, boost volumes, and/or mute all sounds except those on activated crosswalk; and

(9) Include message to clear the intersection when preemption is activated.

C. Ensure the PBS is capable of custom message and sound options for the following features:

(1) Custom locating tone;

(2) Custom clearance sound;

(3) Custom walk sounds/message;

(4) Informational message;

(5) Multiple languages (up to three, selected by user); and

(6) Street name in Braille on the sign.

D. Ensure the PBS is fabricated in accordance with the following:

(1) Available in three standard colors: Black, Green, and Yellow. The default color is yellow unless specified otherwise;

(2) Have an operational temperature range of -40 °F to 165 °F (-40 °C to 60 °C);

(3) Ensure the housing material is cast aluminum;

(4) Chemically filmed and powder coated;

(5) Face plate constructed of powder coated aluminum with ink marking; and

(6) Have pre-drilled mounting holes to hold a 9 inch by 12 inch, R10-3b, 3d, or 3e pedestrian sign.

E. PBS LED display operational requirements:

(1) Light when the button is pushed and remain lit until the next walk phase.

(2) Luminous intensity greater than 1200 maximum continuous discharge (mcd), sunlight visible, ultra bright red, with a 160 degree viewing angle.

F. PBS audio operational requirements:

(1) Audio amplifier power output of 10 W rms into 8 ohms.

(2) Volume control automatic adjustment range of 28 dB (maximum).

(3) Microphone ambient noise frequency range of approximately 170 Hertz (Hz) to 2.3 Kilo Hertz (kHz).

(4) Button tone provides a brief “tick” to confirm each button push.

(5) Audible locating tone operates during the pedestrian-clearance and don’t walk interval at an 880 Hz plus harmonic, 0.1 second duration, 1 second interval.

(6) Audible “chirp” operates only during walk intervals at 2700 Hz to 1700 Hz, 0.2 second duration, 1 second interval.

(7) Audible “cuckoo” operates only during walk intervals at 1250 Hz to 1000 Hz, 0.6 second duration, 1.8 second interval.

5. Ensure the configurator meets the following requirements:

A. Be a handheld, password protected, remote that configures the CCU or an individual PBS;

B. Communicate via infrared technology with the CCU and the PBS with an interactive operation to select various configuration options at the intersection(s), by standing adjacent to either the CCU or a PBS;

C. Feature a LCD display, with two 16-character lines, with backlight and adjustable contrast;

D. Be powered by four AA 1.5 Volt cell batteries, include a low battery warning, and have an auto or manual shut-off switch; and

E. Have an operating temperature range of 32 °F to 122 °F (0 °C to 50 °C).

6. Warranty. Furnish a manufacturer’s warranty, transferable to the MDOT, that the supplied materials will be free from all defects in materials and workmanship for a 2-year period from the date of shipment. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing date of shipment, to the Engineer at the time of delivery.

c. Construction. Complete this work in accordance with sections 818 and 820 of the Standard Specifications for Construction, typical signal construction details, and this special provision.

1. Furnish and Install. Furnish and install a system at an intersection as shown on the plans and in accordance with the *MMUTCD*. Ensure that the arrow on the PBS button(s) points in the direction of pedestrian travel for the associated crosswalk.

2. Remove. Remove an accessible pedestrian signal system or a PBS and store, as directed by the Engineer, or dispose of all removed materials.

A. Where removal of an accessible pedestrian signal system is specified on the plans, remove the CCU, hardware, cable, connectors, and other appurtenant material required to complete the work.

B. Where removal of a PBS is specified on the plans, remove the PBS, sign, associated assembly, hardware, cable, connectors, and other appurtenant material required to complete the work.

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

Pay Item	**Pay Unit**
DS_Pedestrian Signal System, Accessible	Each
DS_Push Button Station	Each
DS_Push Button Station and Sign	Each
DS_Pedestrian Signal System, Accessible, Rem	Each
DS_Push Button Station, Rem	Each

1. **DS_Pedestrian Signal System, Accessible** includes installing the accessible pedestrian signal system at an intersection, including a CCU, configurator, hardware, fittings, conduit(s), wiring, grounding and ground rod(s), and all appurtenant material required to complete the work.

2. **DS_Push Button Station** and **DS_Push Button Station and Sign** includes installing the push button station, sign (when specified), associated assembly, brackets, hardwire, fittings, conduit(s), cable to controller, wiring, grounding, ground rod(s), and all other appurtenant material required to complete the work.

3. **DS_Pedestrian Signal System, Accessible, Rem**, includes removing an accessible pedestrian signal system at an intersection including a CCU, configurator, hardware, fittings, hardware, cable, connectors, conduit(s), grounding, and other material required to complete the work. **DS_Pedestrian Signal System, Accessible, Rem** also includes storage or disposal of removed material.

4. **DS_Push Button Station, Rem**, includes removing a push button station, sign, associated assembly, brackets, hardware, fittings, cable, connectors, conduit(s), ground, and other material required to complete the work. **DS_Push Button Station, Rem** also includes storage or disposal of removed material.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
WIRELESS VEHICLE DETECTION SYSTEM

a. Description. This work consists of completing one or more of the following work types at locations shown on the plans:

1. Furnishing and installing a wireless vehicle detection system (VDS) including serial port protocol (SPP) radios, master interface access point contact closure (APCC) card, extension (EX) cards, and Isolator Module.

2. Furnishing and installing a repeater (RP).

3. Furnishing and installing a vehicle sensor node (VSN).

4. Removing and disposing of an existing wireless VDS.

5. Removing, storing, and reinstalling an existing wireless VDS.

6. Removing and disposing of an existing RP.

7. Removing, storing, and reinstalling an existing RP.

8. Removing and disposing of an existing VSN.

9. Removing, storing, and reinstalling an existing VSN.

As applicable, this work includes removal or installation of mounting brackets, hardware, cable, connectors, grounding, sensors and orange epoxy and any other material required to ensure a complete removal or installation, as specified for a location.

b. Materials. Furnish materials, as directed by the Engineer, necessary to provide a complete and operating job. Furnish materials in accordance with sections 918 and 921 of the Standard Specifications for Constructions and this special provision.

1. Vehicle Detection System (VDS).

A. Furnish a VDS from the following list.

(1) Sensys Flexmag.

(2) Approved equal (AE). Ensure the AE is evaluated, tested, and approved per the MDOT New Traffic Signal Device Product Review Guidelines. The review time is not justification to delay the project.

B. A complete VDS consists of:

(1) Master interface APCC card;

(2) EX card if required;

(3) Isolator Module;

(4) Mounting rack and hardware;

(5) The quantity of SPP radios as specified on the plans including *NEMA 4X type* enclosure with mounting bracket and hardware and Category 5e (CAT 5e) 600 volt (V) rated cable from the SSP to the Isolator Module;

(6) Any associated cable, connectors, and hardware necessary to complete the work.

C. Furnish a VDS that:

(1) Detects and counts vehicles using battery powered magnetometers utilizing wireless communications to transmit detection information;

(2) Furnishes vehicle counts per lane, lane occupancy, vehicle speed (when more than one VSN is installed per lane), and vehicle classification (when one or more VSN is installed per lane);

(3) Allows the time intervals for the above measurements to be user selectable from 30 seconds to 24 hours.

D. Furnish an SPP radio that:

(1) Consists of a 2.4 gigahertz (Ghz) Master transceiver powered via CAT 5e cable;

(2) Includes 600V rated CAT 5e cable from the SPP to the Isolator Module;

(3) Includes an enclosure with mounting bracket, and associated hardware;

(4) Transmits detection information to a 170, 2070 or *NEMA type* controller in real-time;

(5) Operates on 48 VDC at 3 watt power or via non-isolated external 10 to 15VDC at 2 watt power;

(6) Operates in an ambient temperature range of -37 °F to +176 °F (-38 °C to +80 °C);

(7) Furnishes 1500V isolation and 5 kilovolt (kV) surge protection;

(8) Is housed in a plastic enclosure, no larger than 12 inches high, 8 inches wide,

and 4 inches deep, meeting *NEMA 4X* and *International Protection Rating (IP67) standards*.

E. Furnish a master interface APCC card that functions as the hub of the sensor network, communicating with up to 96 VSN's transmitting detection information to the APCC.

2. Vehicle Sensor Node (VSN).

A. A complete VSN consists of:

(1) A magnetometer,

(2) A microprocessor,

(3) A wireless transceiver,

(4) A battery, and

(5) Orange epoxy for securing the node in the pavement.

B. Furnish a VSN that:

(1) Is 1.9 inches high, 2.9 inches square;

(2) Is contained in a fully encapsulated housing to prevent moisture from degrading the components;

(3) Operates in an ambient temperature range of -37 °F to +176 °F (-38 °C to +80 °C);

(4) Operates on battery power for a minimum of 10 years under normal traffic conditions;

(5) Detects a vehicle by measuring a change in the earth's magnetic field and transmits the detected information within 125 milliseconds (ms) of receiving the detected vehicle;

(6) Can be programmed with a unique identifying code and transmits this code and detector information via a wireless radio communication method;

(7) Automatically recalibrates in the event of a detector lock;

(8) Responds within 100 seconds after the APCC is powered up.

3. Wireless Repeater (RP).

A. A complete RP consists of:

(1) A battery operated transceiver;

(2) A battery with a minimum 8 year life; and

(3) An enclosure with mounting bracket and associated hardware.

B. Furnish an RP that:

(1) Is housed in a plastic enclosure, no larger than 12 inches high, 8 inches wide, and 4 inches deep, meeting *NEMA 4X* and *International Protection Rating (IP67) standards*;

(2) Extends the effective communication range of the VSN to the SPP up to 1000 feet; and

(3) Operates in an ambient temperature range of -37 °F to +176 °F (-38 °C to +80 °C).

4. Bus Interface Unit (BIU). Furnish a BUI that meets the requirements of *Section 8 of the NEMA TS2-Specification*. Furnish one 6 foot Port 1 communications cable to connect from the detector rack BIU to the controller unit.

5. Wireless Communication. Furnish a VDS, RP, or VSN that operates in the unlicensed Industrial, Scientific, and Medical (ISM) 2.4 GHz band. Ensure the SPP and VSN operate in any one of the 16 channels available in the band. Furnish two-way communication between the SPP and VSN to ensure integrity over the RP interface. Furnish a VSN that uses a Time Division Multiple Access (TDMA) protocol wherein each sensor is assigned a time slot during which it transmits and receives one or more data packets. Ensure all system components are synchronized to the same time reference sourced by the APCC.

6. Software. Furnish a VDS that can accept software and firmware upgrades. Furnish software required to configure the VSN, SPP and RP units and to store and retrieve the detection data. Ensure the VSN and RP are reconfigurable by a user over the wireless communication interface.

7. Warranty. Furnish materials with a manufacturer's warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Complete the work in accordance with sections 818 and 820 of the Standard Specifications for Construction, as shown on the plans, and as directed by the Engineer. Remove, store, and dispose of material in accordance with section 204 of the Standard Specifications for Construction.

1. Installation. When installing new equipment is specified, furnish and install the VDS, RP or VSN as shown on the plans. Installation includes master interface APCC card, EX card as required, Isolator Module, mounting brackets, hardware, cable, connectors, grounding, sensors, and other appurtenances required for a complete system.

Install the VSN in a 4 inch by 2¼ inch hole, cored in the pavement in the traffic lane as shown on the plans, or as directed by the Engineer. Encapsulate the VSN with orange epoxy.

Install the SPP and RP within range of the sensors and as shown on the plans, or as directed by the Engineer.

2. Removal. When removal is specified, remove the existing VDS, VSN or RP units, associated enclosures, mounting brackets, hardware, and other appurtenances required for a complete removal. Dispose of removed materials.

3. Salvage. When salvage is specified, remove the existing VDS, VSN, or RP units, associated enclosures, mounting brackets, hardware, and other appurtenances required for a complete removal, store salvaged materials in a protected and clean environment, and re-install the materials. Complete reinstallation in accordance with subsection c.1 of this special provision.

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

Pay Item	**Pay Unit**
DS_Wireless Vehicle Detection System	Each
DS_Wireless Vehicle Sensor Node	Each
DS_Wireless Repeater	Each
DS_Wireless Vehicle Detection System, Rem	Each
DS_ Wireless Vehicle Sensor Node, Rem	Each
DS_Wireless Repeater, Rem	Each
DS_Wireless Vehicle Detection System, Salv	Each
DS_Wireless Repeater, Salv	Each
DS_Wireless Vehicle Sensor Node, Salv	Each

1. **DS_Wireless Vehicle Detection System** includes installing a wireless vehicle detection system including the SPP radios, the master interface APCC card, BIU, the EX cards, and the Isolator Module. The work includes all mounting brackets, hardware, cable, connectors, grounding, and all appurtenant material required to complete the work.

2. **DS_Wireless Vehicle Sensor Node** includes installing a wireless vehicle sensor node including the sensors, orange epoxy, and all appurtenant material required to complete the work.

3. **DS_Wireless Repeater** includes installing a wireless repeater including the RP, mounting brackets, hardware, and all appurtenant material required to complete the work.

4. **DS_Wireless Vehicle Detection System, Rem** includes removing a wireless vehicle detection system including the SPP radios, the master interface APCC card, the EX cards, and the Isolator Module. The work includes removing all mounting brackets, hardware, cable, connectors, grounding, and all appurtenant material required to complete the work. **DS_Wireless Vehicle Detection System, Rem** also includes storage or disposal of removed material.

5. **DS_Wireless Vehicle Sensor Node, Rem** includes:

A. Remove a wireless vehicle sensor node including the sensor, epoxy, and all appurtenant material required to complete the work;

B. Storage and or disposal of removed material;

C. Filling the old hole with black epoxy;

6. **DS_Wireless Repeater, Rem** includes removing a wireless repeater including the RP, mounting brackets, hardware, and all appurtenant material required to complete the work. **DS_Wireless Repeater, Rem** also includes storage or disposal of removed material.

7. **DS_Wireless Vehicle Detection System, Salv** includes removing a wireless vehicle detection system including the SPP radios, the master interface APCC card, the EX cards, and the Isolator Module. The work includes removing all mounting brackets, hardware, cable, connectors, grounding, and all appurtenant material required to complete the work. **DS_Wireless Vehicle Detection System, Salv** also includes storage and reinstallation on the project;

8. **DS_Wireless Repeater, Salv** includes removing a wireless repeater including the RP, mounting brackets, hardware, and all appurtenant material required to complete the work. **DS_Wireless Repeater, Salv** also includes storage and reinstallation on the project;

9. **DS_Wireless Vehicle Sensor Node, Salv** includes:

A. Removing a wireless vehicle sensor node including the sensor, epoxy, and all appurtenant material required to complete the work;

B. Storage and reinstallation on the project;

C. Core drilling a new 4 inch by 2¼ inch hole, as shown on the plans, or as directed by the Engineer, and encapsulating the VSN with orange epoxy; and

D. Filling the old hole with black epoxy.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
HEMISPHERICAL VIDEO DETECTION

a. Description. This work consists of installing or removing a single hemispherical video detection system and/or camera which detects vehicles on multiple roadway approaches at an intersection using only video images of vehicle traffic and is compatible with solid state pre-timed or actuated traffic signal control equipment and cabinet environments.

As applicable, this work includes installing or removing the necessary wiring, mounting brackets, mounting hardware, conduit, cable connectors, grounding and any other material required to ensure a complete installation or removal as specified for a location.

b. Material. Provide materials, as directed by the Engineer, necessary to provide a complete and operating job. Provide materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. System Requirements.

A. System Hardware. Provide a hemispherical video detection system that is composed of these principal items:

(1) Hemispherical camera(s);

(2) A field communications link consisting of a single Category 5 (CAT5)e cable between each camera and the video imaging vehicle detection system (VIVDS) processor;

(3) VIVDS processor along with a video monitor or associated equipment required to setup the VIVDS processor and software to communicate to the VIVDS processor.

B. System Software. Provide a VIVDS processor that is either *NEMA TS 2 TYPE 1* or *NEMA TS 2 TYPE 2* with a recommended standard (RS) 485 synchronous data link control (SDLC). Ensure the VIVDS processor has at least four processing cores of 2.8 Gigahertz (GHz) or greater, a minimum of 3 Gigabyte (GB) random access memory (RAM), and at least 32GB of onboard storage.

2. Functional Capabilities.

A. Provide system software that is able to detect either approaching or departing vehicles in multiple traffic lanes and have a minimum of 24 detector outputs per VIVDS processor. Ensure each zone and output is user definable through interactive graphics by drawing arbitrarily shaped polygons using the field setup computer or central control. Ensure the user is able to redefine previously defined detection zones.

B. Ensure the VIVDS processor provides real time vehicle detection (within 500 milliseconds (ms) of vehicle arrival).

C. Ensure the system can detect the presence of vehicles in up to 64 detection zones per camera.

D. Ensure detection zones are sensitive to the direction of vehicle travel and the direction to be detected by each detection zone is user programmable.

E. Ensure the VIVDS processor unit can compensate for minor camera movement (up to 2 percent of the field of view at 400 feet) without falsely detecting vehicles and that the camera movement is measured on the unprocessed video input to the VIVDS processor.

F. Provide a camera that operates while directly connected to VIVDS processor unit.

G. Ensure the video detection system operates with the monitoring equipment (monitor and/or laptop) disconnected or on-line once the detector configuration has been downloaded or saved into the VIVDS processor.

H. Ensure when the monitoring equipment is directly connected to the VIVDS processor, it can view vehicle detections in real time as they occur on the field setup computer's color video graphics adapter (VGA) display or the video monitor.

I. Provide a VIVDS processor that supports 1 or 2 omnidirectional view cameras. If equipped with 1 omnidirectional view camera, ensure the VIVDS processor is also capable of simultaneously supporting up to four more traditional view cameras for special needs such as advance detection or underpass detection.

3. Vehicle Detection.

A. Detection Zone Placement.

(1) Provide a hemispherical video detection system with flexible detection zone placement anywhere within the combined field of view of the image sensors. Ensure that preferred presence detector configurations are arbitrarily shaped polygons, including simple boxes, drawn across lanes of traffic or placed in line with lanes of traffic.

(2) Ensure a single detector is able to replace one or more conventional detector loops.

B. Detection Zone Programming.

(1) Ensure that a graphical interface video image of the roadway is used for the placement of detection zones.

(2) Ensure the monitor shows images of the detection zones superimposed outlined or filled, with a visible change indicating detection on the video image of traffic while the VIVDS processor is running verifying proper operation of the detection

system. Provide a VIVDS processor with a display that will indicate proper operation of the detection zones with the absence of video.

(3) Ensure the detection zones are created using the mouse or keypad to draw detection zones on the monitor and are capable of being sized and shaped to provide optimal road coverage and detection. Ensure that detector configurations can be uploaded to the VIVDS processor and that the detector configuration that is currently running can be retrieved from the VIVDS processor.

(4) Ensure that the mouse or keypad can be used to edit previously defined detector configurations so as to fine tune the detection zone placement, size and shape. Ensure that detection continues to operate from the detector configuration that is currently called while fine-tuning is being done.

(5) Ensure that the hemispherical video detection system is sensitive to the direction of vehicle travel with the direction to be detected by each detection zone to be user programmable. Ensure the vehicle detection zone does not activate from cross-street traffic, wrong way traffic, or from a vehicle traveling any direction other than the one specified for detection occupies the detection zone.

(6) Ensure detection zones have the option for the user to define that calls can be made with a side entrance (90 degrees or less angled entrance).

C. Design Field of View. Ensure the hemispherical video detection system can reliably detect vehicle presence in the design field of view. Ensure the design field of view is defined as the sensor view when the image sensor is mounted 30 feet or higher above the roadway, when the camera is adjacent (within 15 feet) to the edge of the nearest vehicle travel lane, and when the length of the detection area is not greater than 5 times the mounting height of the image sensor. Within this design field of view, ensure the VIVDS processor unit is capable of setting up a single detection zone for point detection (equivalent to the operation of a 6 foot by 6 foot inductive loop). Ensure a single camera, placed at the proper mounting height, is able to monitor up to and including 5 traffic lanes simultaneously. Ensure a single omnidirectional camera, placed at the proper mounting height, is able to monitor detection zones in at least intersection approaches.

D. Detection Performance. Ensure detection accuracy of the video detection system is comparable to properly operating inductive loops. Detection accuracy must include the presence of any vehicle in the defined detection zone regardless of the lane which the vehicle is occupying. Occlusion produced by vehicles in the same or adjacent lanes is not considered a failure of the VIVDS processor, but a limitation of the camera placement. Ensure detection accuracy (a minimum of 95 percent) is enforced for the entire design field of view on a lane by lane and on a time period basis. When specified on the plans, furnish up to 24 continuous hours of recorded video of all installed intersection cameras within the 30 day test period for verification of proper camera placement, field of view, focus, detection zone placement, processor setup and operation. The video from each camera must show vehicle detections for all zones.

4. VIVDS Processor.

A. Provide a VIVDS processor that is shelf mountable.

B. Provide a VIVDS processor that has a modular electrical design.

(1) The VIVDS processor must operate within a range of 89 to 135 volts alternating current (VAC), 60 Hertz (Hz) single phase. Ensure power to the VIVDS processor is from the transient protected side of the AC power distribution system in the traffic control cabinet in which the VIVDS processor is installed.

(2) Ensure communications to the field setup computer are through an Ethernet port. Ensure this port is able to download the real time detection information needed to show detector actuations.

(3) Ensure the VIVDS processor has an Ethernet connection on the front of the unit for the connection to the first camera. If a second camera is installed at the intersection, the camera will connect with the VIVDS processor through a connector mounted on the side of the processor.

(4) Provide a unit that is equipped with a single VGA video output. Ensure this output is capable of displaying the operation and detections of the VIVDS processor.

(5) Ensure the change log for all software upgrades and/or changes are presented on a readily assessable internet site with unencumbered public access.

(6) The unit software and the supervisor software must include diagnostic software to allow testing the VIVDS functions. This must include the capability to set and clear individual detector outputs and display the status of inputs to enable setup and troubleshooting in the field.

C Provide camera interface panel capable of being mounted to sidewalls of a controller cabinet for protection of the VIVDS processor and camera CAT5e connection. The panel must consist of, as a minimum, two CAT5e cable surge protection connections.

D. Environmental Requirements.

(1) Provide a VIVDS processor that is designed to operate reliably in the adverse environment found in the typical roadside traffic cabinet.

(2) Ensure that the VIVDS processor meets the environmental requirements set forth by the latest *NEMA TS1* and *TS2* standards as well as the environmental requirements for Type 170, Type 179 and 2070 controllers.

(3) Ensure the operating temperature is from -30 degrees Fahrenheit (F) to +165 degrees F at 0 percent to 95 percent relative humidity, non-condensing.

5. Hemispherical Camera Assembly.

A. Provide a hemispherical camera that:

(1) Uses high resolution, color image sensors as the video source for real time vehicle detection;

(2) Uses cameras that are approved for use with the VIVDS processor unit by the

supplier of the hemispherical video detection system.

(3) As a minimum, provides the following capabilities:

(a) Ensure images are produced with a complementary metal-oxide semiconductor (CMOS) sensing element with horizontal resolution of at least 2580 lines and vertical resolution of at least 1920 lines. Ensure images are output in digital format as Motion Joint Photographic Experts Group (MJPEG) image.

(b) Ensure the useable video and resolvable features in the video image are produced when those features have luminance levels as low 1.0 lux for color, for night use and as high as 10,000 lux during the day.

(c) Ensure the camera includes an electronic shutter control based upon average scene luminance and is equipped with fixed field of view and fixed focus lens which does not require opening the camera enclosure. Ensure the fixed focus lens is always in focus without any required end-user adjustments.

B. Provide a camera and lens assembly that is housed in an environmental enclosure that provides the following capabilities:

(1) Ensure the enclosure is waterproof and dust tight to the *NEMA* 4 specifications.

(2) Ensure the enclosure allows the camera to operate satisfactorily over an ambient temperature range from -30 degrees F to +165 degrees F while exposed to precipitation as well as direct sunlight.

(3) Ensure the enclosure includes a provision for connection of the CAT5e cable. Ensure input power to the environmental enclosure is included in the Ethernet interface.

(4) Provides a thermostatically controlled heater at the front of the enclosure to prevent the formation of ice and condensation. The heater must not interfere with the operation of the camera electronics, and it must not cause interference with the video signal.

(5) Ensure the enclosure is light colored or unfinished and is designed to minimize solar heating. Any plastics used in the enclosure must include ultra violet inhibitors.

(6) Ensure the total weight of the image sensor in the environmental enclosure is less than 10 pounds.

(7) Provides waterproof quick disconnect connectors to the camera for the CAT5e connection.

(8) Provides camera mounting hardware that allows for vertical or horizontal mounting to the camera enclosure.

6. Field Communication Link.

A. Provide a field communications link that supports a two way communications

connection from the camera to the VIVDS processor.

B. In locations where the plans indicate CAT5e cable is required as the primary communications link, ensure this cable is burial grade as well as suitable for above ground direct sunlight applications.

C. Ensure all connection cables are continuous from the equipment cabinet to the camera connector.

D. Install lightning and transient surge suppression devices on the processor side of the field communications link to protect the peripheral devices. Ensure the suppression devices are all solid state. The devices must present high impedance to, and must not interfere with, the communications lines during normal operation. The suppression devices must not allow the peak voltage on any line to exceed 300 percent of the normal operating peak voltage at any time. The response time of the devices must not exceed 5 nanoseconds.

7. Warranty. Provide materials with a 3-year manufacturer's warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Install and/or remove the hemispherical video detection system and/or hemispherical video detection camera as indicated on the plans or as directed by the Engineer. All work must comply with sections 819 and 820 of the Standard Specifications for Construction, the applicable "typical" signal construction detail, and this special provision. Storage and/or disposal of the removed material is included and must comply with section 204 of the Standard Specifications for Construction or as directed by the Engineer.

1. Ensure the hemispherical video detection system is installed as recommended by the manufacturer and documented in installation materials provided by the manufacturer.

2. Ensure the camera equipment is not installed until all other signal equipment has been installed and inspected for correctness. Premature installations of camera equipment that need to be moved in order to make the system operate will be moved at the Contractor's cost. This movement will not qualify for extra payment or for time extensions. Deliver the VIVDS processor to the MDOT Statewide Signal shop or the inspecting agency representing MDOT for setup and installation in the controller cabinet.

3. Install or remove the hemispherical video detection system as indicated on the plans which includes the VIVDS processor, hardware, fittings, cable, connectors, grounding and all other material required to complete the work.

4. Install or remove the hemispherical video detection camera as indicated on the plans which includes the video detection camera, enclosure, mounting bracket, hardware, cable, connectors, and other material required to complete the work.

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

Pay Item	Pay Unit
DS_Hemispherical Video Detection Camera	Each
DS_Hemispherical Video Detection System	Each
DS_Hemispherical Video Detection Camera, Rem	Each
DS_Hemispherical Video Detection System, Rem	Each
DS_Hemispherical Video Detection Camera, Salv	Each
DS_Hemispherical Video Detection System, Salv	Each

1. **DS_Hemispherical Video Detection Camera** includes everything necessary to ensure a complete and operating job, which detects vehicles on multiple roadway approaches at an intersection, as shown on the plans or as directed by the Engineer.

2. **DS_Hemispherical Video Detection System** includes everything necessary to ensure a complete and operating job, as shown on the plans or as directed by the Engineer.

3. **DS_Hemispherical Video Detection Camera, Rem** includes removing, storing and disposing of removed material for a hemispherical video detection camera.

4. **DS_Hemispherical Video Detection System, Rem** includes removing, storing and disposing of removed material for a hemispherical video detection system.

5. **DS_Hemispherical Video Detection Camera, Salv** includes removing an existing hemispherical video detection camera, storing the removed materials on site, and reinstalling materials at a location shown on the plans.

6. **DS_Hemispherical Video Detection System, Salv** includes removing an existing hemispherical video detection system, storing the removed materials on site, and reinstalling materials at a location shown on the plans.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL BACKPLATE

HRC: NBN 1 of 2 4/25/2024

a. Description. This work consists of completing one or more of the following work types at location(s) shown on the plans:

1. Furnishing and installing a traffic signal backplate.

2. Removing and disposing of an existing traffic signal backplate.

3. Removing, storing and reinstalling an existing traffic signal backplate.

As applicable, this work includes removal or installation of hardware, connectors, fittings and all material necessary to complete the work.

b. Materials. Material must meet sections 819, 820, and 921 of the Standard Specifications for Construction.

1. Provide a one-piece backplate for three or four section traffic signal heads as indicated on the plans or as directed by the Engineer. Ensure that five section (doghouse) signal head combinations are provided with no more than three vacuum formed pieces.

2. Provide backplates that are designed to precisely fit the manufacturer's signal heads and supplied with necessary hardware to attach the backplate to the signal.

3. Provide backplates that are vacuum formed from 0.125 inch thick black acrylonitrile butadiene styrene (ABS) plastic with a hair cell finish on the front side (facing approaching traffic) to reduce glare.

4. Provide backplates that are constructed with a minimum 5/8 inch flange on all sides to provide structural rigidity. Ensure the backplates are provided with a three inch corner radius.

5. Ensure that all backplates extend approximately five inches around the perimeter of the traffic signal combinations after installation.

6. Provide backplates with an *ASTM Type IV* reflective yellow tape border. Ensure that a one inch border is used with yellow signal heads and visors, and a two inch border is used with black signal heads and visors.

7. Warranty. Provide materials with a manufacturer's warranty/guarantee, transferable to MDOT, that the supplied materials will be free from all defects in materials and workmanship for the stated time period from the date of shipment. Supply the Engineer with any warranty or guarantee documents from the manufacturer and a copy of the invoice showing date of

shipment.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specification for Construction, as shown on the plans, and as directed by the Engineer. Remove, store, and dispose of material in accordance with section 204 of the Standard Specification for Construction.

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

Pay Item	**Pay Unit**
DS_Backplate, TS	Each
DS_Backplate, TS, Rem	Each
DS_Backplate, TS, Salv	Each

1. **DS_Backplate, TS** includes installing the backplate on existing or new signal head(s) at location(s) shown on the plans where installation is specified. Furnish and install a traffic signal backplate, as indicated on the plans or as directed by the Engineer.

2. **DS_Backplate, TS, Rem** includes removing the existing backplate, hardware, and other appurtenances, required for a complete removal where removal is specified. Dispose of removed materials.

3. **DS_Backplate, TS, Salv** includes removing the existing backplate, hardware, and other appurtenances required for a complete removal, storing salvaged materials in a clean environment, and reinstalling the materials where salvage is specified. Complete reinstallation in accordance with subsection c. of this special provision.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL MAST ARM POLE AND MAST ARM

HRC: NBN 1 of 4 4/25/2024

a. Description. This work consists of furnishing, fabricating, and erecting a traffic signal mast arm pole and mast arm as shown on the plans, in accordance with the standard specifications, and as specified herein. This special provision is for an anchor base type steel mast arm pole, including mast arms, and other associated hardware required to complete the work.

b. Material. Furnish material in accordance with sections 906 and 908 (as modified by 20SP-908A - Miscellaneous Metal Products Revisions) of the Standard Specifications for Construction and this special provision.

Material specifications for the traffic signal mast arm pole and mast arm are included in Table 1.

Table 1: Material and Coating Specifications

Component	Specifications
Pole Tube	*ASTM A595/A595M GR A or ASTM A572/A572M GR 50*
Mast Arm Tube	*ASTM A595/A595M GR A or ASTM A572/A572M GR 50*
Mast Arm Clamp	*ASTM A36/A36M*
Gusset Plate	*ASTM A36/A36M*
Hand Hole Frame	*ASTM A705/A705M* or *ASTM A572/A572M GR 50*
Lifting Pipe	*ASTM A53/A53M GR B or ASTM A501/A501M*
Hand Hole Cover	*ASTM A1011/A1011M GR 36*
Pole Top	*ASTM B26/B26M (356F or 43)*
Stainless Steel Hardware	*AISI 300 SERIES (18-8)*
Luminaire Arm Bolts	*ASTM F3125/F3125M GR A325*
Mast Arm Studs	*ASTM A449*
Mast Arm Shear Bolts	*ASTM F3125/F3125M GR A325*
“ANCO” Lock Nuts or Equivalent	*ASTM A563 GR DH*
Flat Washers	*ASTM F436/F436M*
Lock Washers	*ANSI B18.21.1*
Base Plate	*ASTM A36/A36M*
Bottom Steel Template	*ASTM A36/A36M*
Back Plate	*ASTM A36/A36M*
Mast Arm Plate	*ASTM A36/A36M*
Steel Plate and Shape Finish	*ASTM A123/A123M*
Hardware Finish	*ASTM A153/A153M*

Telescopic Field Splice Bolt	*ASTM A307*
C-Hook	*ASTM A36/A36M*
J-Hook	*ASTM A36/A36M*

Use high strength bolts, nuts, and washers in accordance with subsection 906.07 of the Standard Specifications for Construction.

Blast clean fabricated components with a nominal thickness greater than 1/2 inch to remove mill scale and welding slab before galvanizing. For components with a nominal thickness of 1/2 inch or less, blast cleaning can be waived if the galvanizer inspects the material and provides a written statement to the fabricator that blast cleaning is not required. Otherwise blast cleaning is required.

Furnish a vibration mitigation device as shown on the plans. Ensure the device is an active, non-aerodynamic vibration damper system. Ensure the installed device can reduce the loaded maximum vertical movement at the tip of the arm to 8 inches measured from the highest to the lowest point of deflection at wind speeds of 5-20 mph. The device must furnish and the documentation must show an 85 percent or greater excitation reduction for the structures where the device is being installed. Ensure effectiveness is proven through an analytical model and approved by the Engineer. Test the device to withstand over 15 million large amplitude cycles with no deterioration of the dampening performance. Ensure the device can dampen large displacements and small displacements, be self-adapting, and not require structure-specific tuning.

Structural steel material used to fabricate the traffic signal mast arm pole and mast arm will be accepted based on “Fabrication Inspection” per the *MQAP Manual*. Mast arm studs, mast arm shear bolts, and luminaire arm bolts will be accepted based on “Test” per the *MQAP Manual.*

c. Fabrication. Fabricate and weld in accordance with section 707 of the Standard Specifications for Construction.

1. Fabricate structure in accordance with City Standard Plan 50400-B83.

2. Ensure anchor bolt pattern follows Traffic Signal Pole Foundation City Standard SD-SL-2.

3. Ensure the pole and arm tubes have a uniform taper.

4. Ensure the pole and mast arm tubes are single ply and round or 16-sided.

5. Tolerance for overall length of pole tube and arm tube(s) is ±1/8 inch. Tolerance for sweep and camber of pole tube and arm tube(s) is 1/8 inch per 10 foot. Tolerance for twist of pole tube and arm tube(s) is ±10 degrees.

6. The pole and mast arm tubes cannot have more than two longitudinal welds. Roll or grind flush the longitudinal seam weld. Transverse welds in the pole and arm tubes are prohibited.

7. Attach the arm tube to a mast arm plate by a full penetration weld. Shop drill holes in mast arm back plate and shop weld pipes to the mast arm back plate.

8. Ensure all welds are 100 percent VT inspected by an *AWS* CWI.

9. Ensure all fillet welds are MT inspected in accordance with subsection 707.03.D.12 of the Standard Specifications for Construction, except testing frequency must be 25 percent.

10. Ensure all PJP longitudinal seam welds are MT inspected in accordance with subsection 707.03.D.12 of the Standard Specifications for Construction, except testing frequency must be 10 percent.

11. Ensure all CJP welds are 100 percent UT inspected per subsection 819.03.D.2 of the Standard Specifications for Construction. Acceptance criteria for material thickness equal to or greater than 5/16 inch will be in accordance with the cyclically loaded nontubular connections in tension criteria stated in *AWS Clause 6*.

12. Evenly space the pole base plate holes so the pole may be bolted to a concrete foundation as shown on the plans. Finish the lower surface of the base plate flat and at 90 degrees to the pole axis.

13. Furnish a handhole opening and cover. Weld a reinforcing frame to the pole for the handhole opening. Ensure the placement of the hand hole does not reduce the strength of the pole. Securely fasten the handhole cover using stainless steel hex head cap screws or by an approved locking device.

14. Furnish a suitable pole top with means for securing it to the top of the pole.

15. Furnish a hook or other suitable device for the support of cable on the inside of the pole near the top.

16. Weld square stock that has been drilled and tapped to the inside of the handhole so that it is readily accessible from the handhole for grounding purposes.

17. Fabricate the arm to pole upright connection to compensate for mast arm deflection. Show this detail on shop drawings for approval by the Engineer.

18. The manufacturer must submit all the necessary documentation and testing of the vibration mitigation device to prove the device is effective for their structures.

19. Ensure steel plates and shapes are hot-dip galvanized in accordance with subsection 716.03.B.4 of the Standard Specifications for Construction. If mast arms are required to have a duplex coating, ensure the coating is in accordance with 20SP-716A - Coating of Galvanized Lighting, Signal, Sign, and Miscellaneous Support Structures.

20. Submit shop drawings in accordance with subsection 707.03.A of the Standard Specifications for Construction.

21. Ultrasonically test (UT) the toe of the weld connecting the upright to the transverse base plate after galvanizing at each corner of multi-sided uprights. Perform UT in accordance with AWS D1.1 using a small angle beam transducer capable of detecting shallow toe cracks.

d. Erection. Tighten anchor bolts in accordance with subsections 810.03.N.2 and 810.03.N.3 of the Standard Specifications for Construction (as modified by 20SP-810H - Permanent Traffic Signs and Supports Revisions).

Bolt the arm tube to the pole tube as shown on the plans. Field drill holes through the pole tube using the pipes shop welded to the mast arm back plate as guides. Do not field drill the mast arm back plate. Repair the galvanization coating after any field drilling. Control distortion of flange

plates for flatness to assure full contact between mating surfaces in an unbolted, relaxed condition.

Tighten pole cap, mast arm cap, and luminaire arm high strength bolts to a snug tight condition in accordance with 707.03.E.6.c of the Standard Specifications for Construction.

Furnish the Engineer 5 working days notification prior to the start of installation so they may witness or monitor the contractor's activities.

e. Construction. Ensure all work complies with sections 818, 820, and subsection 810.03 (as modified by 20SP-810H – Permanent Traffic Signs and Supports Revisions) of the Standard Specifications for Construction, the applicable signal construction plan sheets, and this special provision.

Perform repairs to galvanized surfaces in accordance with subsection 716.03.E of the Standard Specifications for Construction.

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

Pay Item	**Pay Unit**
DS_Mast Arm Pole, Cat___	Each
DS_Mast Arm, __ foot, Cat __	Each

DS_Mast Arm Pole, Cat __ and **DS_Mast Arm, __ foot, Cat** __ includes furnishing all materials, fabrication, shop cleaning, galvanizing, shipping, and erection. Payment for providing and installing the vibration mitigation device where required and submitting all required information is included in the pay item **DS_Mast Arm, __ foot, Cat __.**

No extension of time or additional compensation will be granted due to obtaining the proper *AISC* certifications and/or endorsements required for this project.

Construction of the foundation will be included in other items.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
MAST ARM POLE FOUNDATION

HRC: NBN 1 of 1 4/25/2024

a. Description

This work consists of furnishing and installing all components of the Mast Arm Pole Foundation as shown on the plans or as directed by the Engineer. The Mast Arm Pole Foundation shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 718, 818, 819, and 820 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Mast Arm Pole Foundation shall be manufactured following the Traffic Signal Pole Foundation City Standard SD-SL-2.

c. Construction

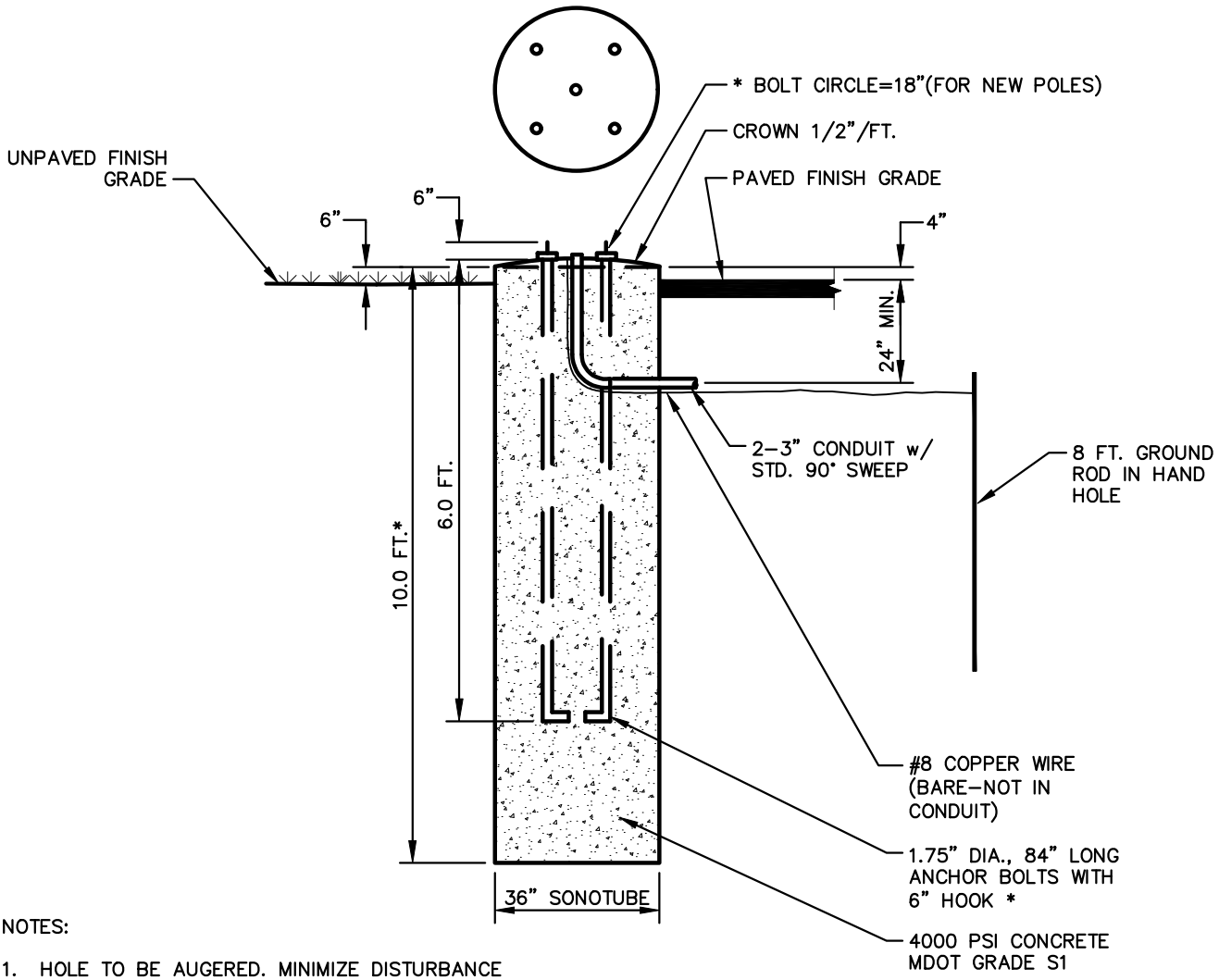
The Mast Arm Pole Foundation shall be laid out for approval by the Engineer before installation. The Mast Arm Pole Foundation shall be placed at the intersection as shown on the plans. The Mast Arm Pole Foundation shall be installed per Traffic Signal Pole Foundation City Standard SD-SL-2.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_Mast Arm Pole Fdn, Modified	Ft

DS_Mast Arm Pole Fdn, Modified will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories required for installation shall not be paid separately but shall be included in the corresponding pay item.



NOTES:

1. HOLE TO BE AUGERED. MINIMIZE DISTURBANCE OF IN-SITU SOILS DURING AUGERING.
2. CONTRACTOR TO PROVIDE PREFABRICATED ANCHOR BOLT BUILD-UP.
3. THE CITY WILL INSPECT THE AUGERED HOLE AND THE ANCHOR BOLT BUILD-UP AND PROVIDE WRITTEN APPROVAL PRIOR TO THE PLACEMENT OF CONCRETE.
4. NO WATER IS TO BE IN HOLE AT TIME OF CONCRETE PLACEMENT.
5. CONCRETE SHALL BE VIBRATED DURING PLACEMENT.
6. CONTRACTOR WILL PROVIDE NECESSARY CONDUIT FOR CABLE ENTRY. THE CONDUIT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THIS ITEM OF WORK.

* UNLESS OTHERWISE NOTED ON THE PLANS OR CONTRACT DOCUMENTS

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org

REV. NO.	DATE	DRAWN BY	CHECKED BY

TRAFFIC SIGNAL POLE FOUNDATION

DR. ENG	CH. ENG	DRAWING NO.
SCALE N.T.S.	DATE 11/1/2022	**SD-SL-2**

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
LONG LIFE LIGHT EMITTING DIODE TRAFFIC SIGNAL

a. Description. This work consists of installing long life LED traffic signals. Adhere to the standard specifications for all other requirements for traffic signals not specifically listed in the requirements of this special provision.

b. Materials. Ensure materials are in accordance with sections 918 and 921 of the Standard Specifications for Construction, the *MMUTCD* and the requirements of this special provision.

1. LED Module. Furnish LED modules consisting of high flux LEDs mounted on a metal core circuit board and LED electrical contacts soldered to the circuit board. Furnish all power supplies with conformal coating for additional protection and solid connections (no connectors) between driver and LED light engine. Furnish non-electrolytic capacitors to enhance long life.

Furnish green LEDs that use indium gallium nitride technology. Furnish green LED traffic signal modules that do not illuminate if the applied voltage is less than 35 VAC.

Furnish yellow LEDs that use indium gallium nitride technology, absorbing substrate or transparent substrate. Furnish yellow LED traffic signal modules that do not illuminate if the applied voltage is less than 35 VAC.

Furnish LED modules for traffic signals with the following maximum power consumption:

A. Eight inch and 12-inch red ball traffic signal modules with a maximum power consumption no greater than 8 watts and 9 watts respectively, at 120 VAC, at 77 °F;

B. Eight inch and 12-inch yellow ball traffic signal modules with a maximum power consumption no greater than 8 watts and 13 watts, respectively, at 120 VAC, at 77 °F;

C. Eight inch and 12-inch green ball traffic signal modules with a maximum power consumption no greater than 7 watts and 9 watts, respectively, at 120 VAC, at 77 °F;

D. Twelve inch red arrows with a maximum power consumption no greater than 7 watts at 120 VAC, at 77 °F;

E. Twelve inch yellow arrows with a maximum power consumption no greater than 14 watts at 120 VAC, at 77 °F; and

F. Twelve inch green arrows with a maximum power consumption no greater than 9 watts at 120 VAC, at 77 °F.

2. Lens. Furnish an LED signal module lens made from UV-stabilized polycarbonate. Use lenses that are color tinted red, yellow, and green. Furnish a hard-coated lens or a lens that otherwise complies with the material exposure and weathering effects requirements of *SAE J576*.

For arrows incorporate a black arrow mask behind the outer lens to define the arrow icon. Furnish an outer lens with raised optical detail on the inner surface to distribute the light rays to meet the intensity and distribution standards required by this subsection.

3. Operational Requirements. Furnish LED traffic signal modules that meet the minimum intensity requirements while operating from temperatures of -40 °F to 165 °F for 15 years.

4. Warranty. Furnish materials with a manufacturer's warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Furnish and install the long life LED traffic signals as shown on the plans or as directed by the Engineer. All work must comply with sections 819 and 820 of the Standard Specifications for Construction and this special provision. Storage and/or disposal of removed material is included and must comply with section 204 of the Standard Specifications for Construction or as directed by the Engineer.

Install, direct, and mask the signal indication(s) in accordance with the manufacturer's recommendation and the visibility requirements as directed by the Engineer.

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

Pay Item	**Pay Unit**
DS_TS, __ Way __ Mtd (LED), Long Life	Each
DS_TS, __ Way __ Mtd, __ (LED), Long Life	Each

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL CONTROLLER

HRC: NBN 1 of 1 4/25/2024

a. Description

This work consists of furnishing and installing all components of the Traffic Signal Controller as shown on the plans or as directed by the Engineer. The Traffic Signal Controller shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Section 820 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Traffic Signal Controller shall be manufactured by Siemens or an approved equal by the Engineer. The model includes the Siemens m60 Series ATC for a NEMA-style cabinet and all associated hardware that includes, but not limited to, adaptor cables and connectors.

For further Traffic Signal Controller information, contact Shane Foster at Yunex Traffic, (586) 488-8073 or shane.foster@yunextraffic.com.

c. Construction

The Traffic Signal Controller shall be laid out for approval by the Engineer before installation. The Traffic Signal Controller shall be placed in the cabinet as shown on the plans. The Traffic Signal Controller shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_Controller, NEMA, ATC Type, Modified	Ea

DS_Controller, NEMA, ATC Type, Modified will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item. Furnishing and delivering the controller to the City of Ann Arbor Signs and Signals for controller timing setup and transporting the controller from the maintaining agency to the job site for installation is also included in the corresponding pay item. City of Ann Arbor Signs and Signals is located at the Wheeler Service Center, 4251 Stone School Rd, Ann Arbor, MI 48108. Contact Signs and Signals Supervisor, Marc Moreno at (734) 794-6350 x 43322 or mmoreno@a2gov.org.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL CABINET

HRC: NBN 1 of 2 4/25/2024

a. Description

This work consists of furnishing and installing all components of the Traffic Signal Cabinet as shown on the plans or as directed by the Engineer. The Traffic Signal Cabinet shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Section 820 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Traffic Signal Cabinet shall be manufactured by Mobotrex or an approved equal by the Engineer. The model includes the Smart P Cabinet NEMA Size 6, and all associated hardware that includes, but not limited to, the PS-250 Heavy Duty Cabinet Power Supply from Eberle Design (EDI), BIU-700 NEMA TS-2 BUS Interface Unit from EDI, MMU2-16LEip with Ethernet Port Smart Monitor from EDI, SSS-87IO Data Sheet from PDC, SSF-87 Data Sheet from PDC, 295 Power Relay from Delta Controls, riser, and anchor bolt assembly.

For further Traffic Signal Cabinet information, contact Shane Foster at Yunex Traffic, (586) 488-8073 or shane.foster@yunextraffic.com.

c. Construction

The Traffic Signal Cabinet shall be laid out for approval by the Engineer before installation. The Traffic Signal Cabinet shall be placed at the intersection as shown on the plans. The Traffic Signal Cabinet shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Cabinet, NEMA Type, Modified	Ea

DS_Cabinet, NEMA Type, Modified will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item. Furnishing and delivering the cabinet to the City of Ann Arbor Signs and Signals for cabinet setup and transporting the cabinet from the maintaining agency to the job site for installation is also included in the corresponding pay item. City of Ann Arbor Signs and Signals is located at the

Wheeler Service Center, 4251 Stone School Rd, Ann Arbor, MI 48108. Contact Signs and Signals Supervisor, Marc Moreno at (734) 794-6350 x 43322 or mmoreno@a2gov.org.

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
TWO-WAY ILLUMINATED STREET NAME SIGNS, LIGHT EMITTING DIODE

a. Description. This work consists of installing a LED illuminated street name sign, which includes the associated assembly, brackets, hardware, fittings, cable, connectors, wiring, grounding, and all other material required to complete the work.

b. Materials. Material must meet sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. General Requirements. The sign assembly must consist of a 6 or 8 foot aluminum body with white LEDs. The sign assembly must consist of two faces, as specified. Overall sign dimensions must be 72⅜ inches long by $22^{5}/_{16}$ inches high for the 6 foot sign and 96⅜ inches long by $22^{5}/_{16}$ inches high for the 8 foot sign. Signs must be 10¾inches deep at the top (including the drip edge) and 5⅞ inches deep at the bottom. The 6 foot sign must weigh no more than 75 pounds and the 8 foot sign must weight no more than 90 pounds. When mounted, the sign must provide a five degree downward angle for increased visibility.

The body of the sign must consist of an aluminum housing. Extrude the top from 6063-T5 aluminum alloy with a minimum thickness of 0.140 inches. Ensure there are drip rails overhanging the sign face to prevent water from entering the electrical housing.

Extrude the bottom of the sign from 6063-T5 aluminum alloy with a minimum thickness of 0.09 inches. Cast the ends of the sign from 356 aluminum having a minimum thickness of 0.250 inches.

Continuously weld all seams for a weather tight seal. Locate four drain holes in the bottom of the body, two at each end of the sign.

Etch and prime the exterior of the sign in accordance with industry standards before receiving two color coats of industrial enamel. Ensure all fasteners and hardware are corrosion resistant.

Ensure the legend of the sign is as indicated on the plans.

Ensure the size of the sign is as indicated on the plans.

2. Door Requirements. The aluminum doors must have one side removable for access to the sign face. Each door must have a full length 0.040 inch by 1⅛ inch open stainless steel hinge on the bottom edge. Secure the door from opening by six quarter turn air lock fasteners. Install PVC foam gaskets or a neoprene gasket, 5/32 inch thick by 1 inch wide, to provide a watertight seal between the door and housing.

3. Sign Face Requirements. Construct the sign face of 0.125 inch thick Lexan (a transparent plastic (polycarbonate) of high impact strength) SG404-7329 white translucent

polycarbonate. Ensure letter style is Clearview Highway 2W font with 12 inch upper case and proportional lower case letters. Ensure the sign face legend background is translucent with vinyl green electrically cuttable film applied to the front of the sign face. Frame the legend by a white polycarbonate border.

4. Electrical. Design the LED case sign to operate on 120 Volt, 60 Hertz, single phase alternating current (AC) power. Ensure the input voltage is reduced and power-conditioning circuitry is provided so that the LED's current will operate at the manufacturer's recommended current.

The LED light module must consist of adequate LED's to provide a minimum of 200 nits or an equivalence of 660 lux over a -40 ºF to 165 ºF ambient temperature consistent with the *NEMA* temperature specifications. Ensure there are a sufficient quantity of white LEDs to uniformly illuminate the viewing area.

The LED light module must consist of a circuit board comprised of an insulate aluminum substrate, with a minimum thickness of 0.050 inch.

The LED light module must operate for a minimum of 50,000 hour life with no more than 30 percent lumen depreciation. The LED supplier must provide operational documentation, if requested, based on actual temperature measurements (taken after 12 continuous hours of operation) correlated against lumen depreciation and LED mortality curves.

Ensure the LED light engine electronics are entirely coated not thinner than 0.002 inch (dry), to adequately protect the light engine from moisture and corrosion. Ensure the LED module is Reduction of Hazardous Substances (ROHS) compliant.

Provide a sufficient quantity of white LED's to uniformly illuminate the view area. The failure of one LED must not reduce the light output by more than eight percent per foot of sign face.

Ensure circuit conductors and LED attachment adhesive is minimally 90 percent silver to ensure optimal electrical and thermal conductivity.

Attach the LED light module to the case sign housing in such a manner that it will remain properly in place during maintenance or retro-fit activities. The LED light module must pass the following tests per *NEMA* standards:

A. Thermal Shock Test. 85/-40 ºF with 2 hour dwells for five cycles with a 2 hour presoak at -40 ºF.

B. Salt Spray and Soak Test. The LED light module must endure 48 hours on continuous salt spray and 240 hours of salt-water soak.

Burn-in all LED light modules for 24 hours and certified for compliance by the manufacturer. Ensure the manufacturer's name, date of manufacture, and a QC tracking sticker are mounted on the inside of the LED light module.

The LED light modules must not exceed a 59 ºF (15 ºC) temperature rise under continuous operating conditions.

Provide power supplies rated for 100 watts by UL for Class 2 operation (24 VDC) and IP66 rated for outdoor use. Ensure two power supply are used for two-way signs. Ensure the temperature rise of the LED panel does not exceed 59 ºF (15 ºC) under continuous operating conditions at the rated output.

5. Mounting Brackets. Mount the signs as specified on the plans.

6. Warranty. Provide materials with a manufacturer's warranty/guarantee, transferable to MDOT, that the supplied materials will be free from all defects in materials and workmanship for the stated time period from the date of shipment. Supply the Engineer with warranty/guarantee documents from the manufacturer and a copy of the invoice showing the date of shipment.

c. Construction. Furnish and install, an LED street name sign, as indicated on the plans or as directed by the Engineer. Ensure work complies with sections 819 and 820 of the Standard Specifications for Construction and this special provision.

Design the wiring for 600 volts at 90 ºF using a minimum #18 AWG stranded soft annealed copper wire. Secure all wiring using insulated wire compression nuts. Furnish a wire entrance junction box with the sign assembly which provides a weather-tight seal. No wiring is allowed within the optical cavity.

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

Pay Item	**Pay Unit**
DS_St Name Sign, Two Way, LED, __ foot	Each

CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
ROADSIDE UNIT, REMOVE AND SALVAGE

HRC: NBN 1 of 1 4/25/2024

a. Description

This work consists of removing, storing, and reinstalling an existing Roadside Unit at the location shown on the plans.

This work includes removal, storing, and installation of interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit, and any other material required to ensure a complete removal and installation. The removal and salvage of the Roadside Unit shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

None specified.

c. Construction

The Roadside Unit shall be place on a pole as shown on the plans and as directed by the Engineer. Remove the existing Roadside Unit, store salvaged materials in a protected and clean environment, and reinstall the materials.

d. Measurement and Payment

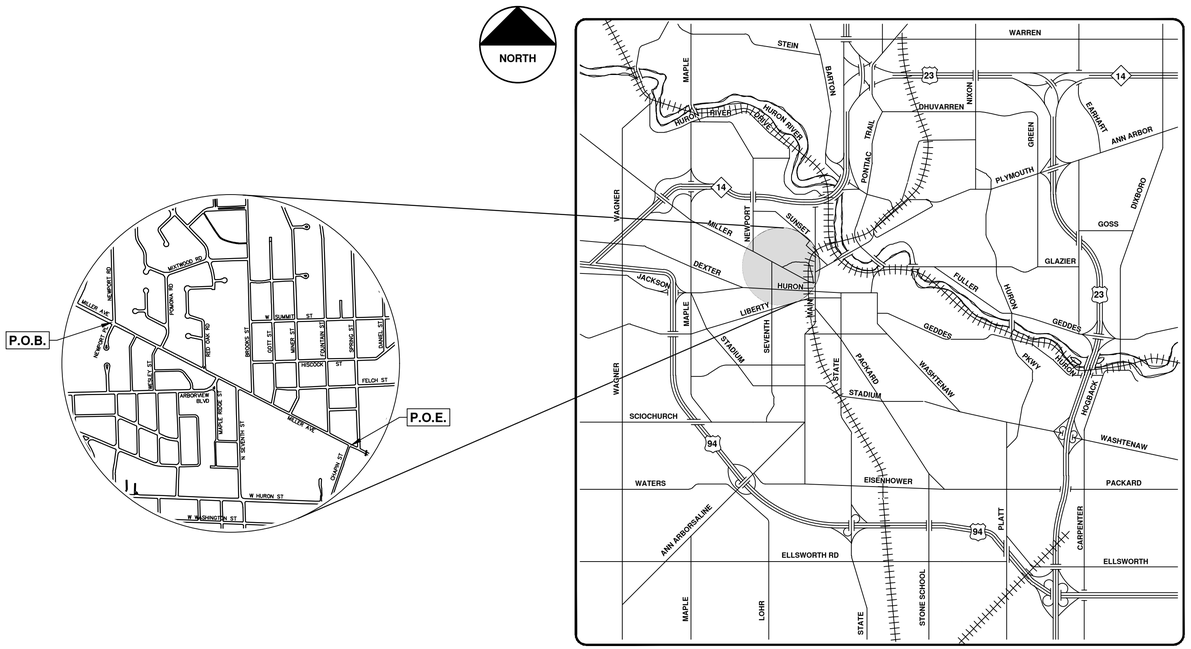
The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	**Pay Unit**
DS_Roadside Unit, Rem and Salv	Ea
DS_Roadside Unit, Install Salv	Ea

DS_Roadside Unit, Rem and Salv and DS_Roadside Unit, Install Salv will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
ENGINEERING
MILLER AVENUE REHABILITATION

RFP No 24-19, FILE No. 2022034



VICINITY MAP

NOTES:

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE CITY OF ANN ARBOR PUBLIC SERVICES AREA DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS ("STANDARDS"). THE OMISSION OF ANY STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR OF THEIR OBLIGATION TO CONSTRUCT ITEMS IN COMPLETE ACCORDANCE WITH THOSE STANDARDS.

Sheet List Table

PREPARED UNDER THE SUPERVISION OF

JANE KATHERINE ALLEN, P.E. - MI LICENSE No. 57254
PROJECT MANAGER

04 / 09 / 2024
DATE

STATE OF MICHIGAN
JANE KATHERINE ALLEN
ENGINEER No. 57254
LICENSED PROFESSIONAL ENGINEER

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

Description:
The Miller Avenue Improvement Project consists of installing approximately 2900 feet of new water main and 1700 feet of new storm sewer between Newport Road and Chapin Street, the installation of a new Cycle Track from Maple Road to First Street, the realignment of the intersections at Miller / S Red Oak and Miller / S Seventh with the installation of new Rectangular Rapid Flashing Beacons (RRFBs) at Red Oak, along with associated concrete work, pavement markings, and restoration.

SCALE

DRAWING No. 2022034-1

SHEET No. 1 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034cov.dwg — _a2 standard bw.stb — Plot Date: 4/30/2024 9:22:38 AM

CONSTRUCTION NOTES:

1. Driveways and entrances to buildings, real property, and the like shall not be blocked except for short durations and only when approved by the Engineer. Vehicular and pedestrian access shall be maintained at all times. It shall be the Contractor's responsibility to coordinate all necessary driveway closures with the property owner(s) and resident(s) in the areas of construction.

2. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.

3. Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.

4. The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.

5. During non-working hours no trench shall remain open; any open trench shall be properly secured with protective fencing. This work shall be included in the item of work "General Conditions".

6. Trenches for new water services shall be excavated to MIOSHA and City of Ann Arbor Public Works requirements.

7. City of Ann Arbor Public Works will install the corporation and copper service lead(s) to transfer the connection(s). If an existing water service is found to be failing or is not copper, the lead will be replaced to the curb box by Public Works.

8. For the installation of corporations, or any other related activities, the Contractor shall not receive additional compensation for delays due to the scheduling of or coordination with the City of Ann Arbor Public Works.

9. The Contractor shall backfill trenches in accordance with Trench Detail specified on plans. This work shall be included in the item of work "Excavate and Backfill for Water Service Tap and Lead". All concrete removals and replacements required for this work will be paid for separately.

10. Water main fittings, other than those specifically listed as separate pay items, which are required to complete the work, such as blow-off assemblies, concrete thrust blocks, solid sleeves and mechanical plugs, shall not be paid for separately, but shall be included in the pipe pay items.

11. "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specifications.

12. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.

13. All fittings, hydrants, valves and castings removed during construction are the property of the City of Ann Arbor. The Contractor within 48 hours shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.

14. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.

15. The Contractor shall be responsible for the continuous maintenance of the temporary road surface and soil erosion control measures within the construction area until the full completion of the project. This work shall be included in the item of work "General Conditions".

16. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.

17. The location of material stock piles and on-site staging areas to be approved by the Engineer.

18. All structures shall receive new castings as directed by the Engineer, as specified on the standard casting schedule. The existing castings are the property of the City of Ann Arbor. The Contractor shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.

19. Existing street name, guide, and regulatory signs, and mailboxes which conflict with the proposed construction shall be removed prior to construction, stored in a manner which will prevent damage, and re-set in locations as directed by the Engineer.

MILLER AVENUE REHAB BENCHMARKS

BM #	ELEV	DESCRIPTION
1	797.186	S.W. ANCHOR BOLT ON SUPPORT POLE FOR SIGNALS @ N.E. CORNER OF MILLER AND FIRST
2	792.872	SET RR SPIKE IN S. SIDE OF L.P. ON N. SIDE OF MILLER @ ENTRANCE TO FIRST MILLER BUSINESS CENTER
3	794.390	N.E. CORNER OF MAIL BOX PAD @ N.W. CORNER OF MILLER AND SPRING
4	798.274	SET RR SPIKE IN S. SIDE OF L.P. ON N. SIDE OF MILLER AT CHAPIN
5	818.597	SET RR SPIKE IN S.W. SIDE OF L.P. @ N.E. CORNER OF MILLER AND FOUNTAIN
6	833.388	SET RR SPIKE IN N. SIDE OF U.P. ON S. SIDE OF MILLER ACROSS FROM HSE NO. 620
7	839.564	SET RR SPIKE IN S. SIDE OF U.P. @ N.W. CORNER OF MILLER AND MINER
8	845.877	SET RR SPIKE IN N. SIDE OF L.P. ON S. SIDE OF MILLER IN FRONT OF MILLER APARTMENTS @ 801 MILLER
9	852.358	RR SPIKE IN N. SIDE OF U.P. ON S. SIDE OF MILLER @ BROOKS. (BROOKS STREET PROJECT, BK 1124 P55)
10	855.314	SET RR SPIKE IN N. SIDE OF U.P. @ S.E. CORNER OF MILLER AND SEVENTH
11	845.506	SET RR SPIKE IN S. SIDE OF U.P. ON N. SIDE OF MILLER AT ARBORVIEW
12	852.220	SET RR SPIKE IN N. SIDE OF U.P. ON S. SIDE OF MILLER AT RED OAK
13	864.548	SET RR SPIKE IN N. SIDE OF U.P. ON S. SIDE OF MILLER IN FRONT OF HSE NO. 1107
14	872.353	SET RR SPIKE IN S. SIDE OF U.P. AT NW CORNER OF MILLER AND POMONA
15	881.960	FND 60D NAIL IN N. SIDE OF U.P. ON S. SIDE OF MILLER BETWEEN HSE NO'S 1305 AND 1309
16	889.525	FND BOAT SPIKE IN U.P. @ SE CORNER OF MILLER & LINDA VISTA
17	900.375	SET RR SPIKE IN S. SIDE OF L.P. AT NE CORNER OF MILLER AND NEWPORT

IMPERVIOUS PROJECT AREA

PRIOR TO CONSTRUCTION = x.xx ACRES

POST CONSTRUCTION = x.xx ACRES

AREA OF PROPOSED DISTURBANCE = x.xx ACRES

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
"NO PARKING" SIGNS PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE

* NO COST TO CONTRACTOR

PERMITS REQUIRED TO BE OBTAINED BY THE CITY OF ANN ARBOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
WATER MAIN CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE)
SANITARY SEWER CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE)

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER SANITARY STORM FORESTRY	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350
SIGNS SIGNALS STREET LIGHTS		MARK MORENO (734) 794-6361
FIBER OPTIC	CITY OF ANN ARBOR INFORMATION TECHNOLOGY LARCOM CITY HALL 301 E. HURON STREET ANN ARBOR, MI 48107	(734) 794-6550
PRIVATE UTILITIES	**OWNER**	**CONTACT**
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	ANTHONY IGNASIAK (734) 397-4447
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	STEPHEN BECK (248) 972-7511
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	STEVEN ALLSHOUSE (734) 996-5381
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016
FIBER OPTIC	WINDSTREAM 1295 S LINDEN ROAD, SUITE B FLINT, MI 48532	GREG SERICH (810) 244-3500
STREET LIGHTING	DTE ENERGY 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	LANCE ALLEY (734) 397-4188

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

CITY OF ANN ARBOR
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

NOTES

SCALE: NTS

DRAWING No. 2022034-2

SHEET No.

2 OF 131

EXISTING LEGEND

EX = EXISTING

- FIRE HYDRANT
- GATE VALVE IN BOX
- GATE VALVE IN WELL
- STOP BOX
- WATER VAULT
- WELL
- CATCH BASIN (SQ)
- CATCH BASIN (RD)
- STORM MANHOLE
- NON-CURB CATCH BASIN (SQ)
- END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- POST
- PEDESTRIAN SIGNAL
- SIGN
- HAND HOLE
- ORNAMENTAL LIGHT
- FLOOD LIGHT
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE RISER
- GAS VALVE
- GAS VENT
- GAS BOX
- ELECTRICAL RISER
- TRANSFORMER
- UTILITY POLE
- LAMP POLE
- GUY ANCHOR
- GUY POLE
- MONITORING WELL
- MAILBOX
- SOIL BORING
- TRAVERSE POINT
- BENCH MARK
- IRON PIPE
- MON BOX

- WATER MAIN
- WATER MAIN ABANDONED
- STORM SEWER
- STORM SEWER ABANDONED
- SANITARY SEWER
- SANITARY SEWER ABANDONED
- GAS MAIN
- GAS MAIN (DEAD)
- ELECTRICAL OVER HEAD
- ELECTRICAL UNDER GROUND
- ELECTRICAL DUCT BANK
- TELEPHONE OVER HEAD
- TELEPHONE UNDER GROUND
- TELEPHONE DUCT BANK
- CABLE TV OVER HEAD
- CABLE TV UNDER GROUND
- FIBER OPTIC
- FIBER OPTIC DUCT BANK
- BOUNDARY
- BUILDING
- CENTERLINE OF DITCH
- CENTERLINE/CROWN OF ROAD
- CONTOUR MAJOR
- CONTOUR MINOR
- EDGE OF WATER
- FLOODPLAIN
- FENCE
- GRAVEL
- GUARDRAIL
- STONE WALL
- R.O.W.
- TREELINE
- WETLAND
- EDGE OF BRUSH
- HEDGE
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- SHRUB (DECIDUOUS)
- STUMP
- TREE TO REMAIN & PROTECT (DECIDUOUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10
- TREE TO REMAIN & PROTECT (CONIFEROUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10

PROPOSED LEGEND

PROP = PROPOSED

- HYDRANT (PLAN)
- WATER GATE WELL
- REDUCER
- WATER GATE VALVE
- WATER STOP BOX
- WATER VAULT
- INLET
- DOUBLE INLET
- INLET JUNCTION CHAMBER
- ROUND CATCH BASIN
- STORM MANHOLE
- DRAIN ARROW
- FLARED END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- BARREL
- SIGN
- PUSH BUTTON
- HAND HOLE

- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- FIBER OPTIC
- ELECTRICAL
- CENTERLINE OF DITCH
- CENTERLINE OF ROAD
- FENCE
- GRAVEL
- SILT FENCE
- PROTECTIVE FENCE
- GUARDRAIL
- LOT/UNIT
- CURB
- TEMPORARY GRADING PERMIT
- CONTOUR MAJOR
- CONTOUR MINOR
- WATER EASMENT
- STORM EASEMENT
- SANITARY EASEMENT
- R.O.W.
- LIMITS OF CONSTRUCTION
- LIMIT OF GRADING
- STONE WALL
- DETECTABLE WARNING
- ASPHALT
- CONCRETE
- SIDEWALK
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- TREE TO BE REMOVED (DECIDUOUS)
- TREE TO BE REMOVED (CONIFEROUS)
- STUMP TO BE REMOVED

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

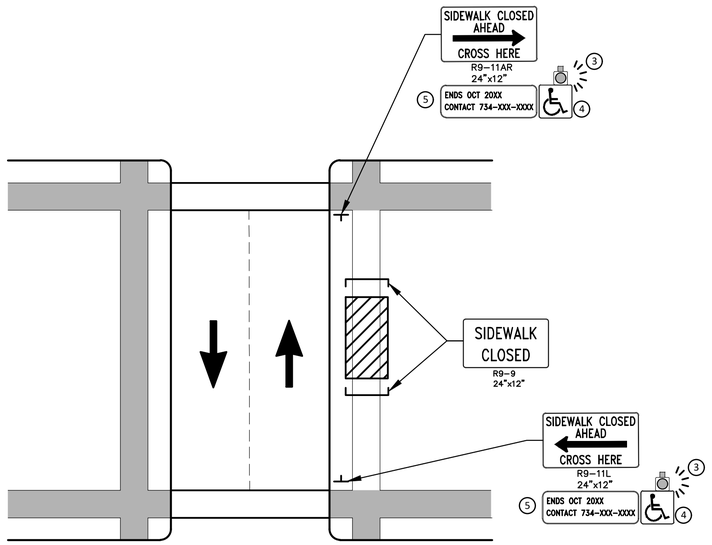
MILLER AVENUE REHABILITATION

LEGEND

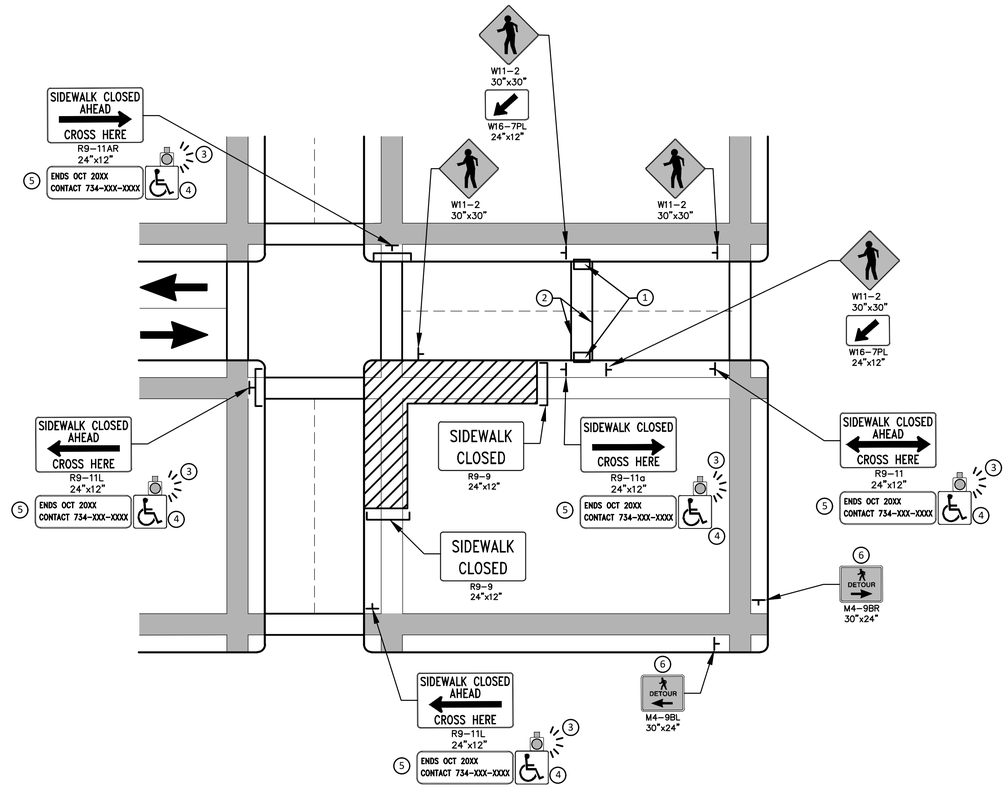
SCALE: NTS

DRAWING No. 2022034-3

SHEET No. 3 OF 131



PEDESTRIAN DETOUR USING OPPOSITE SIDE OF STREET



OTHER SIDE OF STREET DETOUR OR DETOUR WITH TRAILBLAZING SIGNS
(FOR CORNER SIDEWALK CLOSURE WITH OPTIONAL TEMPORARY CROSSWALK)

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, THE CONTRACTOR SHALL PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED. PROVIDE A FIRM, STABLE, AND SLIP RESISTANT TEMPORARY WALKWAY SURFACE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND.

THE PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS SHALL BE COVERED OR DEACTIVATED BY THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE THIS WORK WITH THE ENGINEER A MINIMUM OF 72 HOURS (NOT INCLUDING WEEKENDS & HOLIDAYS) PRIOR TO THE BEGINNING OF WORK THAT REQUIRES A SIDEWALK CLOSURE.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

WHEN THE ENGINEER DETERMINES THAT THE CONTRACTOR'S OPERATIONS OR PLACEMENT OF TRAFFIC CONTROL DEVICES HAS CAUSED A SITUATION THAT THE VISIBILITY OF IS REDUCED ENOUGH TO CREATE A HAZARD, THE TRAFFIC CONTROL DEVICES SHALL BE DELINEATED WITH FLAGS OR OTHER ENGINEER-APPROVED DEVICES AT NO ADDITIONAL COST TO THE PROJECT.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

1. PROVIDE THE APR ON THE SAME SIDE OF THE STREET AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME SIDE APR, PROVIDE A DETOUR ON THE OTHER SIDE OF THE STREET.
3. WHERE IT IS NOT FEASIBLE TO PROVIDE AN APR ON THE OTHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS AS SHOWN ON THE PROJECT PLANS.

SPECIFIC NOTES

(1) TEMPORARY CURB RAMPS WITH DETECTABLE WARNINGS.

(2) TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.

(3) AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE SHALL BE PROVIDED FOR SIGHT-IMPAIRED PEDESTRIANS.

(4) THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHOULD BE DISPLAYED WHEN ANY WALKWAY THROUGH A WORK ZONE HAS BEEN DETERMINED TO BE TPAR COMPLIANT. THE SYMBOL OF ACCESSIBILITY SHALL NOT BE DISPLAYED IF PERSONS WITH DISABILITIES SHOULD NOT USE THE PRIMARY TEMPORARY PEDESTRIAN DETOUR. THE REASON FOR THE NON-COMPLIANCE SHALL BE POSTED AND AN ALTERNATE ROUTE SHALL BE POSTED WHEN THE PRIMARY TEMPORARY PEDESTRIAN DETOUR IS NON-COMPLIANT TO TPAR STANDARDS.

(5) TYPICAL SIGN MESSAGE FOR A TEMPORARY PEDESTRIAN DETOUR SHALL INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24 / 7 QUESTIONS OR REPORTING HAZARDS.

(6) PEDESTRIAN DETOUR TRAILBLAZING SIGNS SHALL BE USED IF THE PEDESTRIAN DETOUR IS IN A LOCATION OTHER THAN ACROSS THE STREET FROM THE SIDEWALK CLOSURE.

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER, ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MMUTCD, PART 6.
2. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES AND COMMERCIAL PROPERTIES AT ALL TIMES. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.
3. IF SIDEWALKS ARE CLOSED, A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4 FEET. IF THE TPAR IS LESS THAN 5 FEET IN WIDTH, A 5 FOOT BY 5 FOOT PASSING SPACE SHALL BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACE OF THE TPAR SHALL BE SMOOTH AND CONTINUOUS FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.
4. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASH WORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF NCHRP 350 AND THE MMUTCD SHALL BE USED.
5. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.
6. THE CONTRACTOR'S OPERATIONS SHALL NOT OCCUPY SIDEWALKS EXCEPT WHERE PROPER PROTECTION AND A TPAR HAVE BEEN PROVIDED.
7. WHEN DIRECTED BY THE ENGINEER, OR STATED ON THE PLANS, THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN FOR REVIEW AND WRITTEN APPROVAL BY THE ENGINEER A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING AND SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TPARS AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC. NO WORK SHALL BE ALLOWED TO BEGIN UNTIL THIS PLAN IS APPROVED BY THE ENGINEER IN WRITING.
8. PROVISION OF THE TPAR AND ALL OF ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO, CREATION OF THE TEMPORARY PEDESTRIAN CONTROL PLAN, SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "MINOR TRAF DEVICES."

LEGEND

- SIGN
- EXISTING PEDESTRIAN SURFACE
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- BARRIER
- SIDEWALK BARRICADE
- DIRECTION OF TRAFFIC
- TRAFFIC CONTROL DEVICE

811 Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

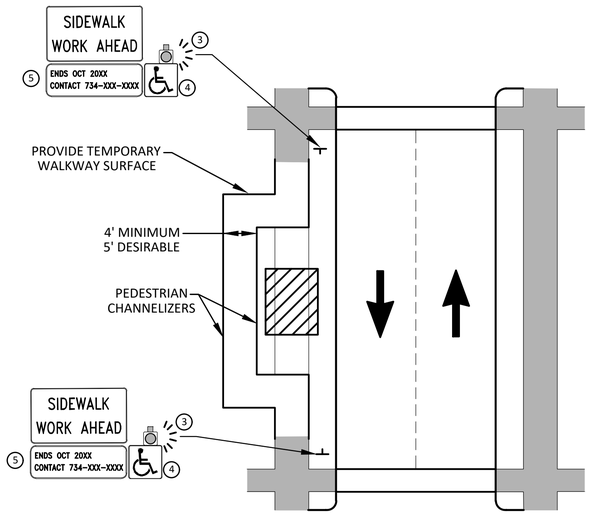
MILLER AVENUE REHABILITATION

ALTERNATE PEDESTRIAN ROUTE (APR) DETOUR

SCALE : N.T.S.

DRAWING No. 2022034-4

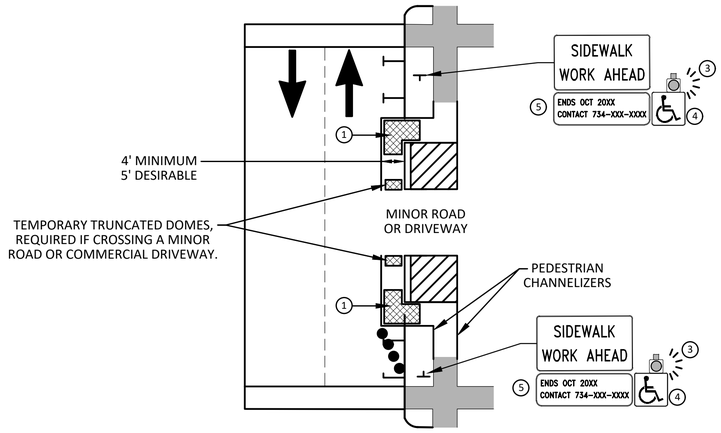
SHEET No. 4 OF 131



BYPASS ON ADJACENT AVAILABLE
RIGHT OF WAY

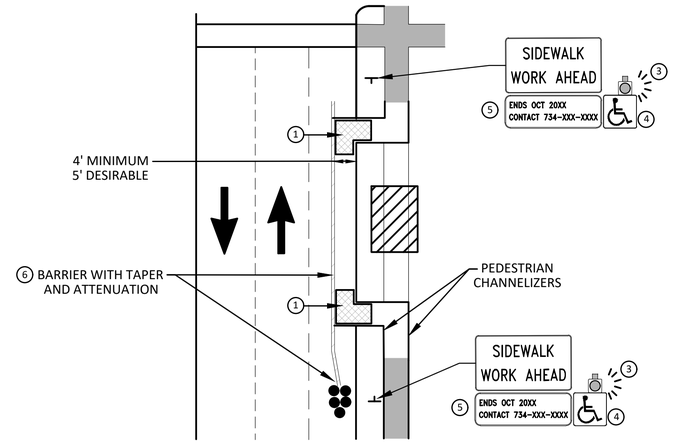
BYPASS TYPE A

NOTE: MAY ONLY BE USED ON ROADWAY WITH POSTED
SPEED OF 45 MPH OR LESS.



SIDEWALK BYPASS USING PARKING OR
SHOULDER ON LOW SPEED ROADWAY

BYPASS TYPE B



SIDEWALK BYPASS USING
SHOULDER OR PARKING LANE ON
HIGH SPEED ROADWAY

BYPASS TYPE C

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, THE CONTRACTOR SHALL PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED. PROVIDE A FIRM, STABLE, AND SLIP RESISTANT TEMPORARY WALKWAY SURFACE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND.

THE PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS SHALL BE COVERED OR DEACTIVATED BY THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE THIS WORK WITH THE ENGINEER A MINIMUM OF 72 HOURS (NOT INCLUDING WEEKENDS & HOLIDAYS) PRIOR TO THE BEGINNING OF WORK THAT REQUIRES A SIDEWALK CLOSURE.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

WHEN THE ENGINEER DETERMINES THAT THE CONTRACTOR'S OPERATIONS OR PLACEMENT OF TRAFFIC CONTROL DEVICES HAS CAUSED A SITUATION THAT THE VISIBILITY OF A TRAFFIC CONTROL DEVICE IS REDUCED ENOUGH TO CREATE A HAZARD, THE TRAFFIC CONTROL DEVICES SHALL BE DELINEATED WITH FLAGS OR OTHER ENGINEER-APPROVED DEVICES AT NO ADDITIONAL COST TO THE PROJECT.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

1. PROVIDE THE APR ON THE SAME SIDE OF THE STREET AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME SIDE APR, PROVIDE A DETOUR ON THE OTHER SIDE OF THE STREET.
3. WHERE IT IS NOT FEASIBLE TO PROVIDE AN APR ON THE OTHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS AS SHOWN ON THE PROJECT PLANS.

SPECIFIC NOTES

1. TEMPORARY CURB RAMPS WITH DETECTABLE WARNINGS.
2. 5 DEVICE TAPER 25 FEET LONG, RECOMMENDED WHEN THE CLOSED AREA WAS USED AS AN INTERMITTENT TRAFFIC LANE OR BYPASS LANE. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.
3. AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE SHOULD BE PROVIDED FOR SIGHT-IMPAIRED PEDESTRIANS.
4. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE DISPLAYED WHEN ANY WALKWAY THROUGH A WORK ZONE HAS BEEN DETERMINED TO BE TPAR COMPLIANT. THE SYMBOL OF ACCESSIBILITY SHALL NOT BE DISPLAYED IF PERSONS WITH DISABILITIES SHOULD NOT USE THE PRIMARY TEMPORARY PEDESTRIAN DETOUR. THE REASON FOR THE NON-COMPLIANCE SHALL BE POSTED AND AN ALTERNATE ROUTE SHALL BE POSTED WHEN THE PRIMARY TEMPORARY PEDESTRIAN DETOUR IS NON-COMPLIANT TO TPAR STANDARDS.
5. TYPICAL SIGN MESSAGE FOR A TEMPORARY PEDESTRIAN DETOUR SHALL INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24 / 7 QUESTIONS OR REPORTING HAZARDS.
6. SEE MMUTCD FOR GUIDANCE ON PLACEMENT AND USAGE OF BARRIER.

LEGEND

- SIGN
- EXISTING PEDESTRIAN SURFACE
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- BARRIER
- SIDEWALK BARRICADE
- DIRECTION OF TRAFFIC
- TRAFFIC CONTROL DEVICE

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00	BID SET	4-9-24	A2D	JKA
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

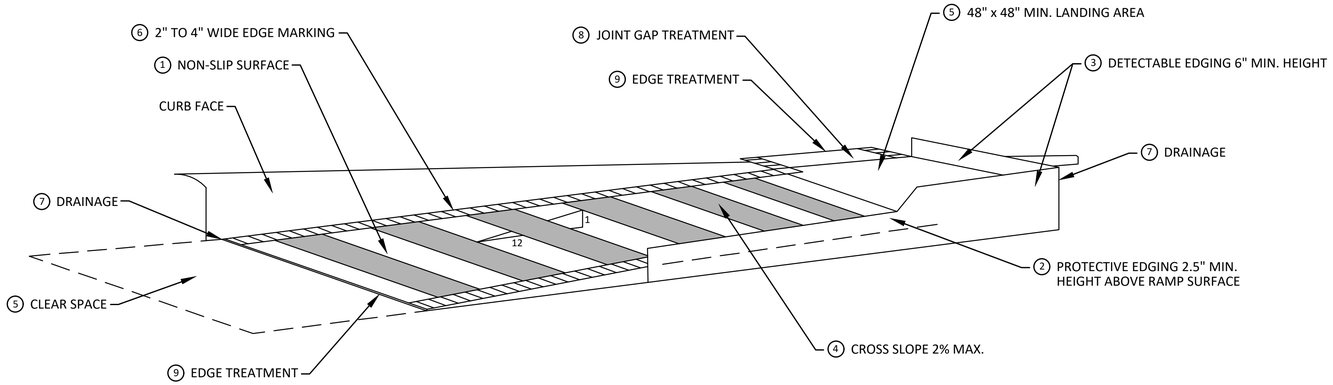
MILLER AVENUE REHABILITATION

ALTERNATE PEDESTRIAN ROUTE (APR) BYPASS

SCALE : N.T.S.

DRAWING No. 2022034-5

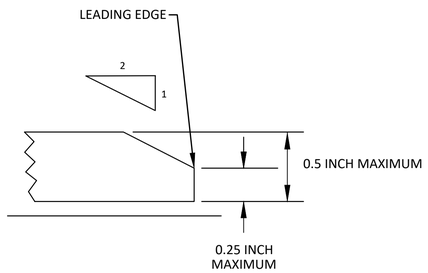
SHEET No.
5 OF 131



TEMPORARY CURB RAMP
PARALLEL TO CURB

SPECIFIC NOTES

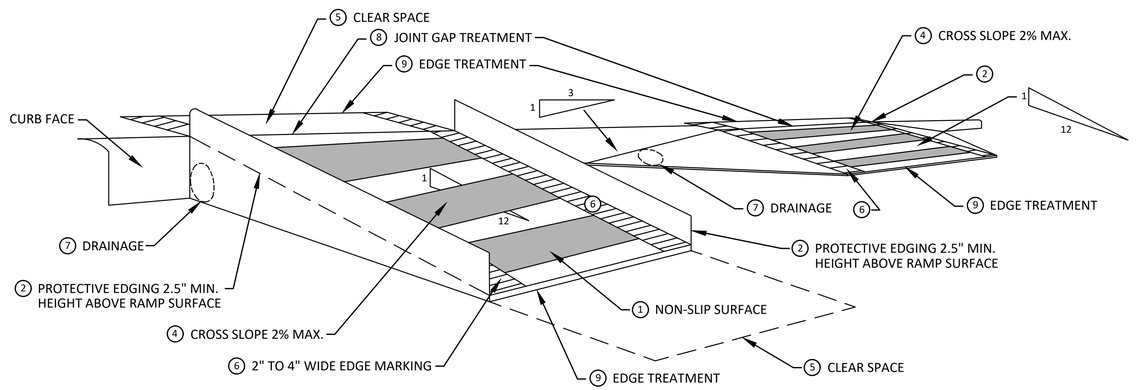
1. CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.
2. PROTECTIVE EDGING WITH A 2.5" MIN. HEIGHT ABOVE THE RAMP SHALL BE PLACED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3. PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
3. DETECTABLE EDGING ANYTIME A HANDRAIL IS REQUIRED, AND ANYTIME THE PATH CHANGES DIRECTION. THIS INCLUDES A TURN ONTO THE RAMP FROM THE PATH. DETECTABLE EDGING MUST BEGIN A MAXIMUM OF 2.5" ABOVE THE RAMP SURFACE, AND EXTEND AT LEAST 6" ABOVE THE RAMP SURFACE. CONTRASTING COLOR SHALL BE PLACED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. CURB RAMPS AND LANDINGS SHALL HAVE A 2% MAX. CROSS SLOPE.
5. CLEAR SPACE OF 48" x 48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
6. THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A CONTRASTING COLOR, 2" TO 4" WIDE MARKING. THE MARKING IS OPTIONAL WHERE COLOR CONTRASTING EDGING IS USED.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL NOT BE IMPEDED.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHOULD BE VERTICAL UP TO 1/4" HIGH, AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2" HEIGHT.



9 EDGE TREATMENT

SHOWN WITH PROTECTIVE EDGE

SHOWN WITH SIDE APRON



TEMPORARY CURB RAMP
PERPENDICULAR TO CURB

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

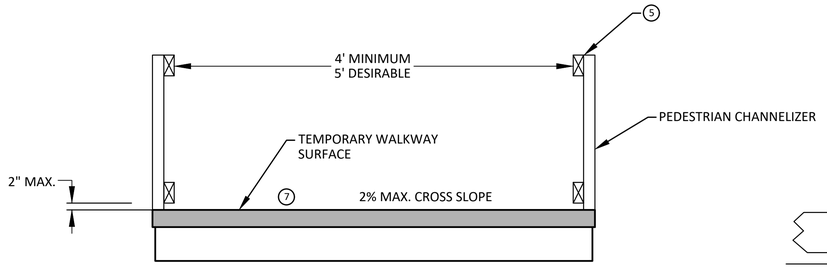
MILLER AVENUE REHABILITATION

TPAR RAMPS

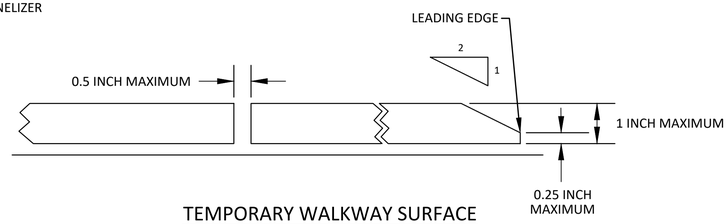
SCALE : N.T.S.

DRAWING No. 2022034-6

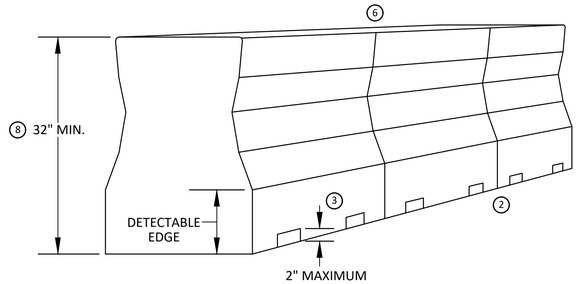
SHEET No. 6 OF 131



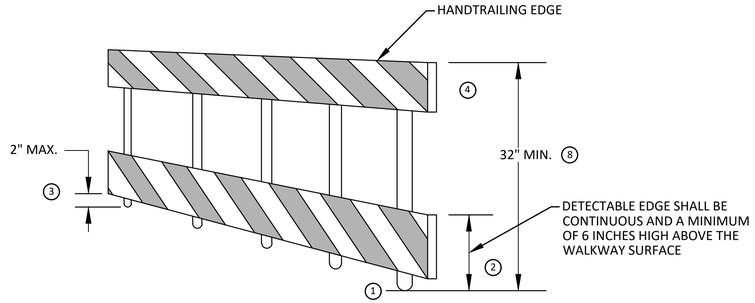
TEMPORARY PEDESTRIAN ACCESS



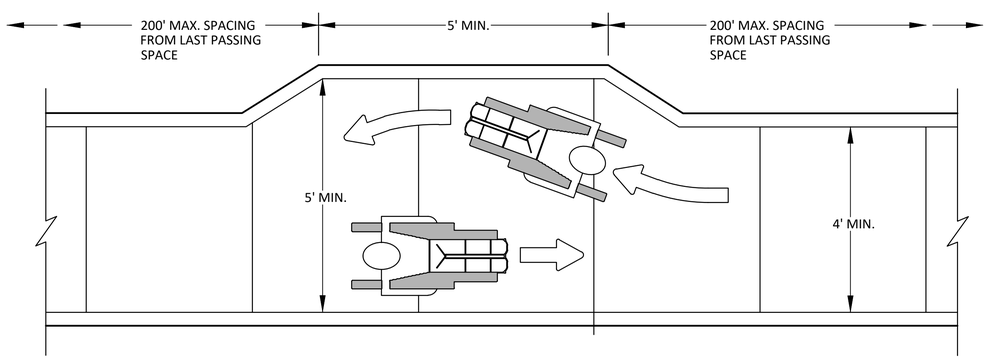
TEMPORARY WALKWAY SURFACE



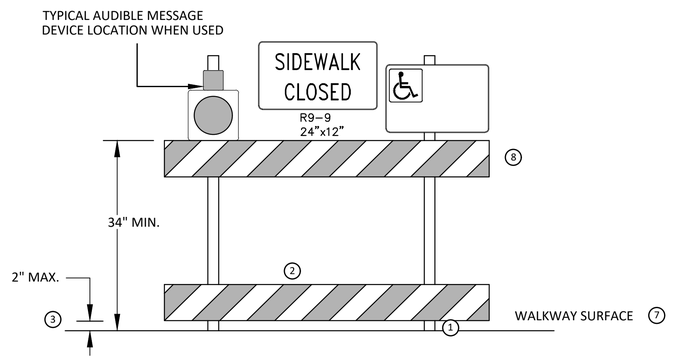
PEDESTRIAN CHANNELIZER USING A BARRIER (MINIMUM REQUIREMENTS)



PEDESTRIAN CHANNELIZER (MINIMUM REQUIREMENTS)



NARROW TEMPORARY PEDESTRIAN ACCESS ROUTE PASSING DETAIL



SIDEWALK BARRICADE

GENERAL NOTES

RAILINGS OR OTHER OBJECTS MAY PROTRUDE A MAXIMUM OF 4 INCHES INTO THE WALKWAY CLEAR SPACE WHEN LOCATED A MINIMUM OF 27 INCHES ABOVE THE WALKWAY SURFACE.

ANY PEDESTRIAN DEVICES USED TO PROVIDE POSITIVE PROTECTION FOR PEDESTRIANS OR WORKERS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS APPROPRIATE FOR THE BARRIER'S APPLICATION.

BARRICADES SHALL BE PLACED CONTINUOUSLY ACROSS THE ENTIRE WIDTH OF THE WALKWAY SURFACE BEING CLOSED.

SPECIFIC NOTES

(1) ANY TRIPPING HAZARD IN THE WALKWAY NEEDS A DETECTABLE EDGE. BALLAST SHALL BE LOCATED BEHIND OR INTERNAL TO THE DEVICE. ANY SUPPORT ON THE FRONT OF THE DEVICE SHALL NOT EXTEND INTO THE 48 INCH MINIMUM WALKWAY CLEAR SPACE AND SHALL NOT EXCEED 0.5 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.

(2) DETECTABLE EDGES SHALL BE CONTINUOUS AND A MINIMUM OF 6 INCHES IN HEIGHT ABOVE WALKWAY SURFACE AND HAVE COLOR MARKINGS CONTRASTING WITH THE WALKWAY SURFACE.

(3) DEVICES SHALL NOT BLOCK WATER DRAINAGE FROM THE WALKWAY. A GAP HEIGHT OR OPENING FROM THE WALKWAY SURFACE UP TO A MAXIMUM OF 2 INCHES IS ALLOWED FOR DRAINAGE PURPOSES.

(4) PROVIDE A HANDRAIL ON BOTH SIDES OF THE RAMP IF THE RAMP IS NOT EXPOSED TO VEHICLE TRAFFIC AND HAS A TOTAL RISE GREATER THAN 6 INCHES, AND A LENGTH GREATER THAN 72 INCHES.

- ENSURE THE HANDRAIL IS 1.25 AND 1.5 INCHES WIDE AND CONFIGURED TO BE A "GRASPABLE" CROSS-SECTION.

SEE CONSTRUCTION SUBSECTION 2.A FOR ADDITIONAL DETAILS.

WHEN THE RAMP IS EXPOSED TO TRAFFIC, IN LIEU OF HANDRAILS, USE A PROTECTIVE EDGE 2.5 INCHES MINIMUM HEIGHT ABOVE THE RAMP SURFACE OR 1:10 FLARE ON BOTH SIDES OF THE RAMP.

(5) ALL DEVICES SHALL BE FREE OF SHARP OR ROUGH EDGES, AND FASTENERS (BOLTS) SHALL BE ROUNDED TO PREVENT HARM TO HANDS, ARMS OR CLOTHING OF PEDESTRIANS.

(6) ALL DEVICES USED TO CHANNELIZE PEDESTRIAN FLOW SHOULD INTERLOCK SUCH THAT GAPS DO NOT ALLOW PEDESTRIANS TO STRAY FROM THE INTENDED CHANNELIZED PATH.

(7) A WALKWAY SURFACE SHALL BE FIRM, STABLE, AND SLIP RESISTANT. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED.

(8) LONGITUDINAL CHANNELIZING DEVICES FOR PEDESTRIANS SHALL BE 32 INCHES IN HEIGHT OR GREATER.

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00	BID SET	4-9-24	A2D	JKA
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

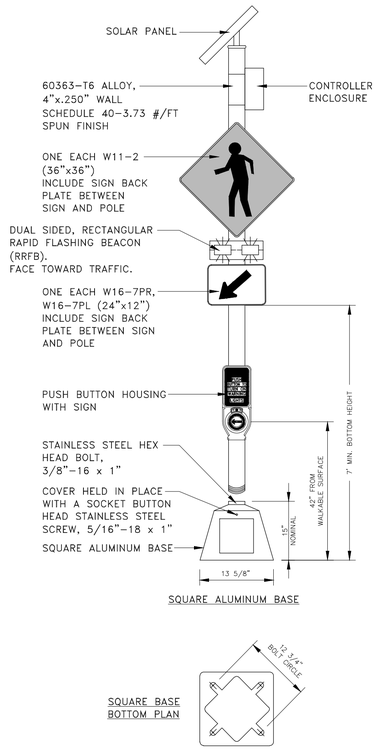
MILLER AVENUE REHABILITATION

TPAR WALKWAY DEVICES

SCALE : N.T.S.

DRAWING No. 2022034-7

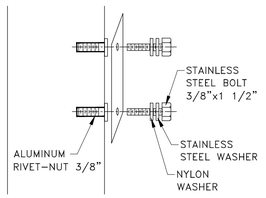
SHEET No. 7 OF 131



SQUARE ALUMINUM BASE

SQUARE BASE BOTTOM PLAN

ALL PEDESTRIAN & PUSHBUTTON SIGNS (SIDE MOUNT DETAIL)



SIDE VIEW

RECTANGULAR RAPID FLASHING BEACON ASSEMBLY

R:\2022034 Miller Ave Rehab\Plan Production\2022034pet.dwg Dwg Created: 29-Mar-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
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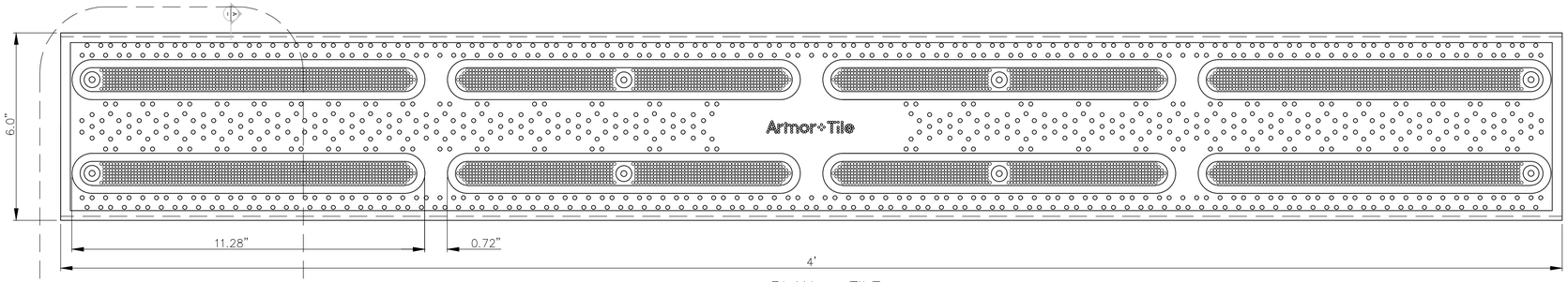
MILLER AVENUE REHABILITATION

RECTANGULAR RAPID FLASHING BEACON ASSEMBLY

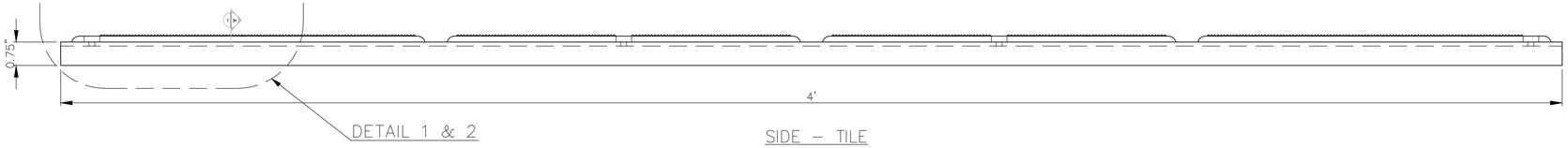
SCALE : NTS

DRAWING No. 2022034-8

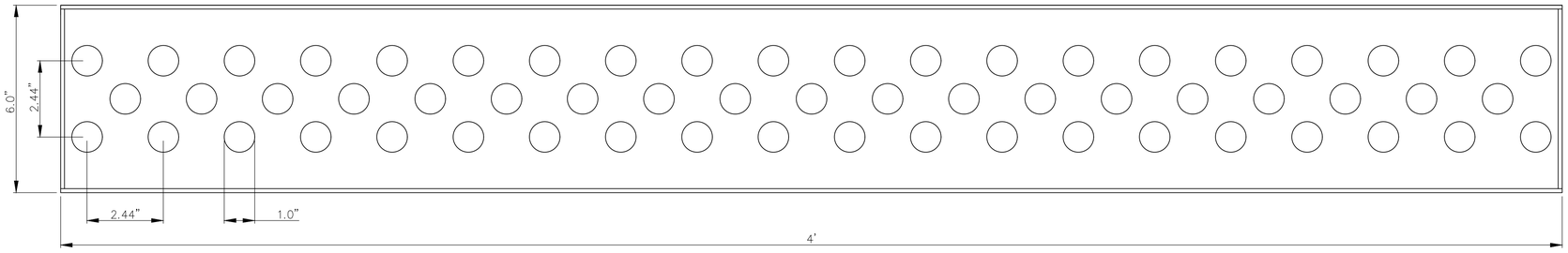
SHEET No. 8 OF 131



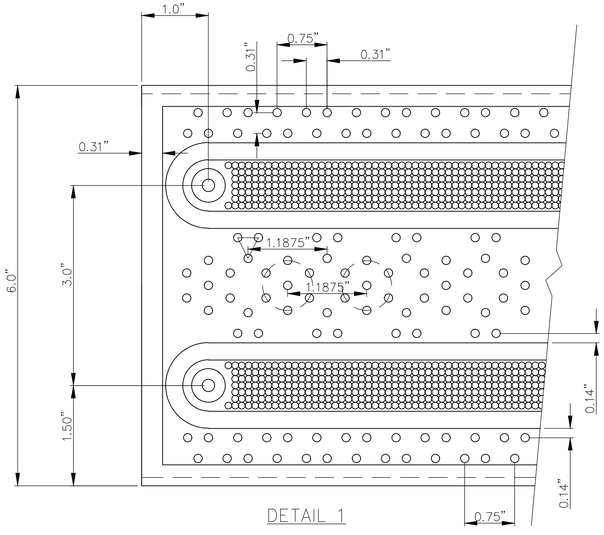
PLAN – TILE



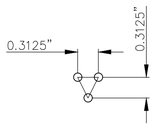
SIDE – TILE



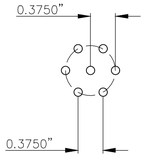
REFLECTED PLAN



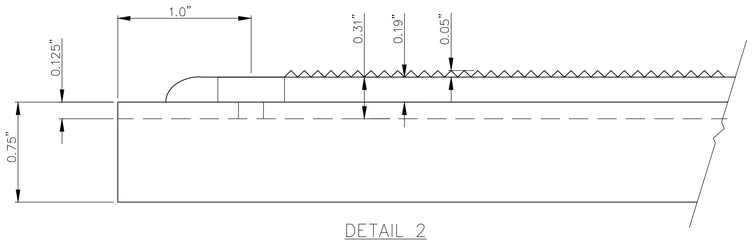
DETAIL 1



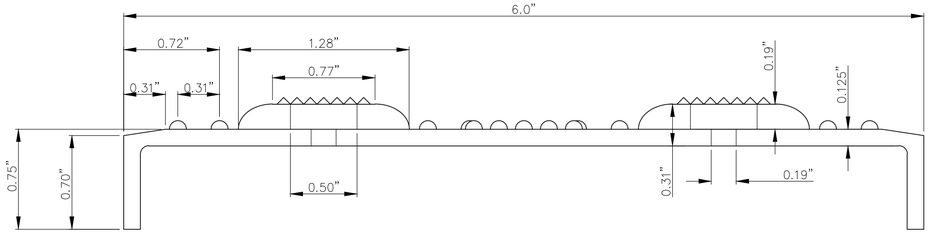
PATTERN DETAIL A



PATTERN DETAIL B



DETAIL 2



SECTION A–A

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ENGINEERED PLASTICS

MATERIAL LIST

#	DESCRIPTION	PART No:	QT'Y
1	ARMOR–TILE	ADD–504	1
2	EXPANSION ANCHOR	ADA–FAST	8
3	ARMOR–BOND	ADA–ADHE–EA	1
4	ARMOR–SEAL	ADA–SEAL–EA	1

No:	DATE	REVISION	APPR.
02	4–29–24	ADDENDUM No. 2 PLANS	JKA
01	4–25–24	ADDENDUM PLANS	JKA
00	4–9–24	BID SET	JKA
REV.	DATE	DESCRIPTION	CHECKED
	A2D		DRAWN

SCALE

DESIGNED	BY K.S.	DATE 08/90
DRAWN	D.G.	2/22/2006
CHECKED		
PROJECT MANAGER		
TRADE: DETECTABLE WARNING SURFACE	PART No: ADA–D–448	
MATERIAL: VITRIFIED POLYMER COMPOSITE		

SUBJECT

Armor-Tile™ ADA

SOUND AMPLIFYING DETECTABLE/TACTILE WARNING SURFACE TILE

PROJECT

Armor-Tile™

DETECTABLE/TACTILE DIRECTIONAL TILE
6" x 48" SURFACE APPLIED BAR TILE
PLANS AND DETAILS

DRAWING No: ADD–504

REV. No: 0

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

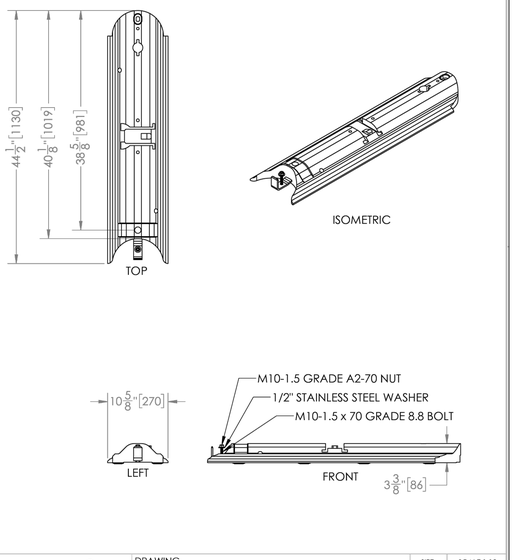
DETECTABLE TACTILE DIRECTIONAL TILE

SCALE: NTS

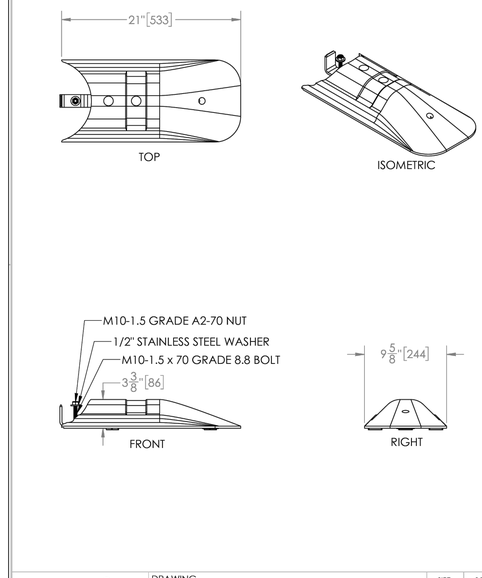
DRAWING No. 2022034-9

SHEET No. 9 OF 131

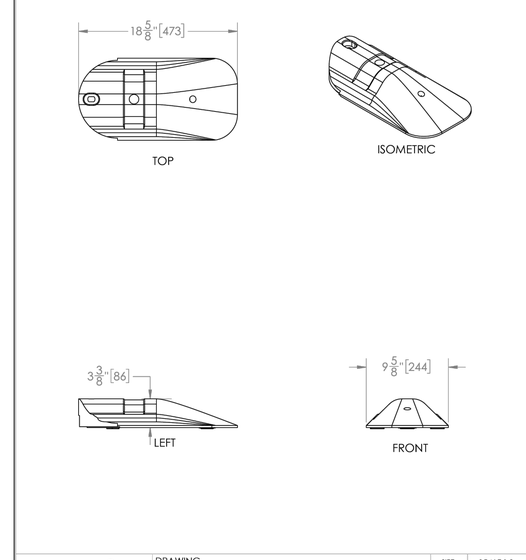
R:\2022034 Miller Ave Rehab\Plan Production\2022034Det4.dwg Dwg Created: 26-Apr-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24



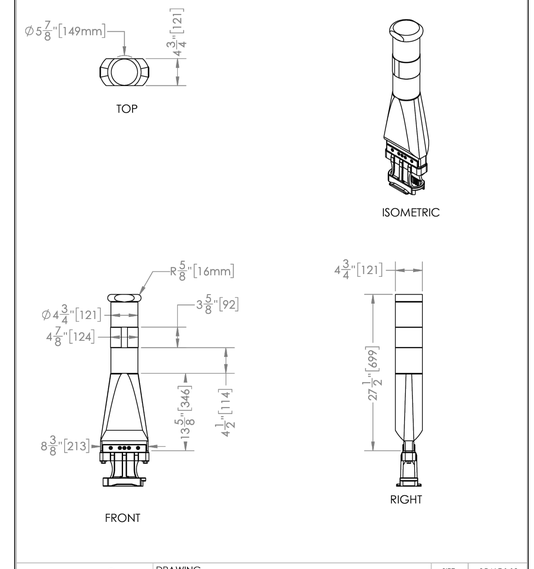
QWICK KURB®, INC. | DRAWING L60 | SIZE A | SCALE:1:12 | SHEET 1 OF 1



QWICK KURB®, INC. | DRAWING L61 | SIZE A | SCALE:1:8 | SHEET 1 OF 1



QWICK KURB®, INC. | DRAWING L62 | SIZE A | SCALE:1:8 | SHEET 1 OF 1



QWICK KURB®, INC. | DRAWING L125shM | SIZE A | SCALE:1:12 | SHEET 1 OF 1

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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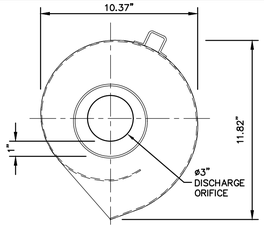
MILLER AVENUE REHABILITATION

QWICKKURB

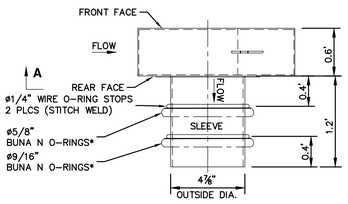
SCALE PLAN: NTS

DRAWING No. 2022034-10

SHEET No. 10 OF 131



SECTION A-A VIEW



*SEE SLEEVE GASKET INSTALLATION INSTRUCTION

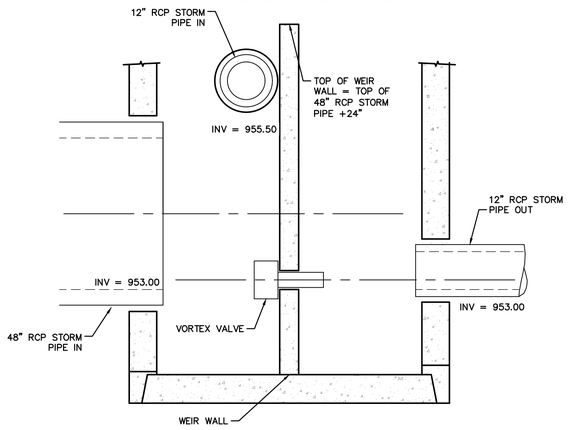
TOP VIEW

NOTES:

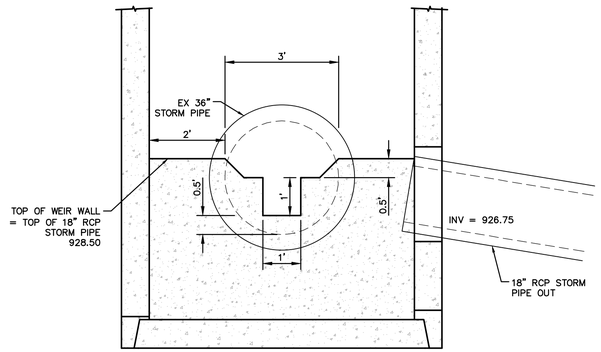
1. ALL WELDS CONTINUOUS UNLESS NOTED OTHERWISE.
2. MATERIALS:
   - 12 GA. 304L STAINLESS STEEL
   - (1) ø5/8" AND (1) ø9/16" BUNA N, 50 DUROMETER O-RINGS.
3. MANUFACTURE HOUSING AND BYPASS DOOR AND ASSEMBLE PER DRAWING "2 mm FLUIDIC-AMP FABRICATION DETAILS FA1012-FA2023 HOUSING AND INLET"
4. DISCHARGE ORIFICE LOCATED REAR FACE. ø4" BYPASS OPENING LOCATED FRONT FACE.
5. INCLUDES 20' BYPASS DOOR PULL CABLE.

FLUIDIC-AMP VORTEX VALVE MODEL FA1012 WITH SLEEVE ATTACHMENT FOR Ø6" OPENING

FABRICATION DRAWING



SECTION



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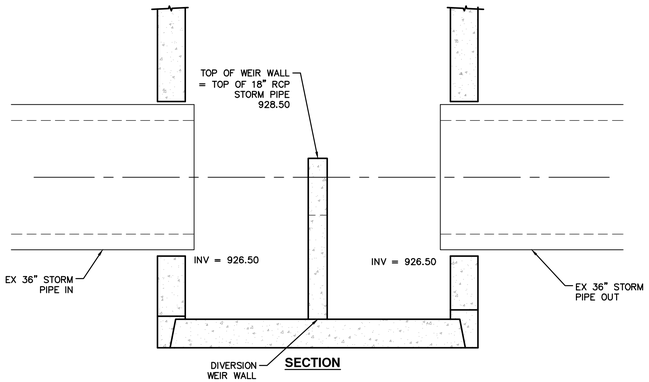

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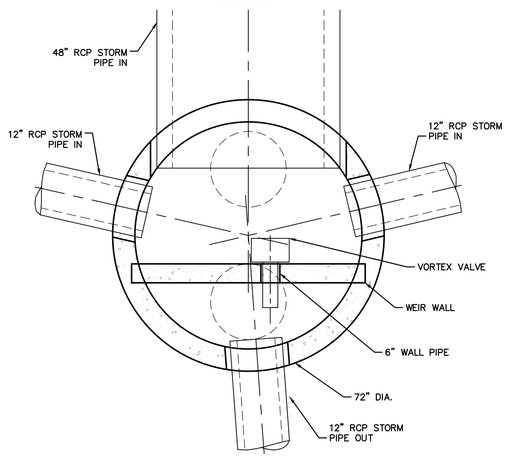
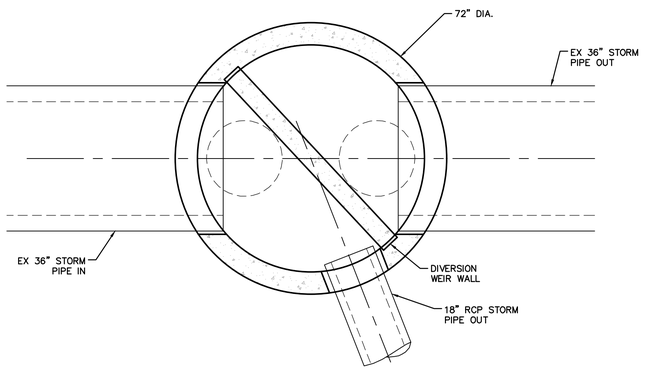


PLAN

R401 UNDERGROUND STORMWATER STORAGE CONTROL STRUCTURE

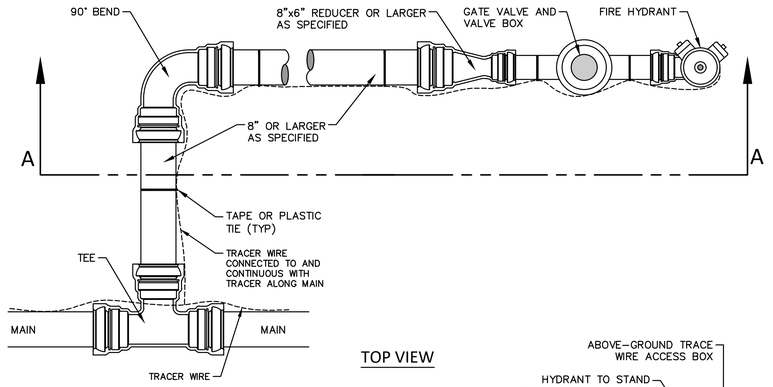
NOT TO SCALE



PLAN

R301 & R317 UNDERGROUND STORMWATER STORAGE CONTROL STRUCTURE

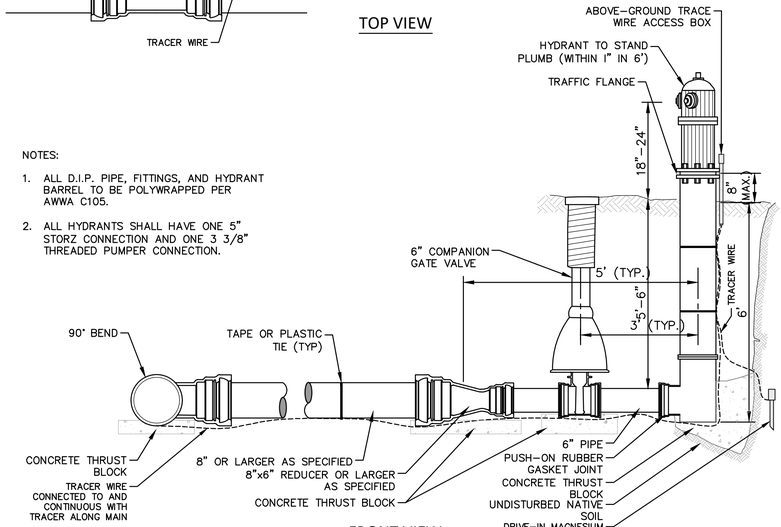
NOT TO SCALE



TOP VIEW

NOTES:

1. ALL D.I.P. PIPE, FITTINGS, AND HYDRANT BARREL TO BE POLYWRAPPED PER AWWA C105.
2. ALL HYDRANTS SHALL HAVE ONE 5" STORZ CONNECTION AND ONE 3 3/8" THREADED PUMPER CONNECTION.



FRONT VIEW

SECTION A-A

MISC. DETAILS - SPECIAL DETAIL

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

MISC. DETAILS

SCALE: NTS

DRAWING No. 2022034-11

SHEET No. 11 OF 131

PROJECT SUMMARY

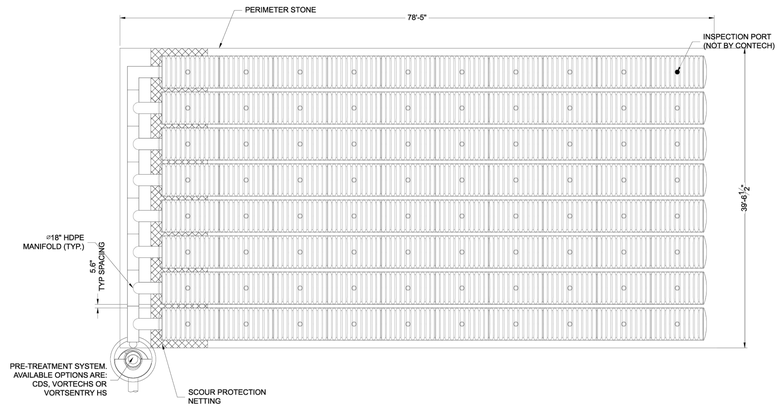
DESIGN PARAMETERS
- PRETREATMENT METHOD = Hydrodynamic Separator
- STORAGE VOLUME REQUIRED = 6712ft³
- INVERT DEPTH = 6ft
- MANIFOLD DIAMETER = 18in.
- SPACING BETWEEN CHAMBERS = 5.6in.
- SIDE PERIMETER STONE WIDTH = 12in.
- END PERIMETER STONE WIDTH = 12in.
- TOP PERIMETER STONE WIDTH = 6in.
- BOTTOM PERIMETER STONE WIDTH = 6in.
- STONE POROSITY = 40%

SYSTEM DETAILS
- TOTAL ELBOW MANIFOLDS = 1
- TOTAL TEE MANIFOLDS = 7
- TOTAL START CHAMBERS = 8
- TOTAL MID CHAMBERS = 64
- TOTAL END CHAMBERS = 8
- TOTAL NUMBER OF CHAMBERS = 80
- NUMBER OF ROWS = 8
- CHAMBERS PER ROW = 10
- CHAMBER STORAGE VOLUME = 3792ft³
- MANIFOLD STORAGE VOLUME = 111.4ft³
- BACKFILL STORAGE VOLUME = 2809.28ft³
- TOTAL STORAGE PROVIDED = 6712.68ft³

SYSTEM DIMENSIONS AND OTHER MATERIALS
- RECTANGULAR FOOTPRINT = 78.41x39.53ft
- TOTAL EXCAVATION = 746.23y³
- STONE BACKFILL = 260.12y³
- REMAINING BACKFILL TO PAVEMENT = 341.55y³
- WOVEN GEOTEXTILE QTY = 0y²
- NON-WOVEN GEOTEXTILE QTY = 344.42y²
- SCOUR PROTECTION FITTING = 39.53x7.5ft
- APPROXIMATE TRUCKLOADS = 1

GENERAL NOTES

1. ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS SHALL BE VERIFIED BY THE ENGINEER OF RECORD.
2. PRIOR TO INSTALLATION OF THE CHAMBERMAXX SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE SYSTEM, THE GENERAL CONTRACTOR, SUB-CONTRACTORS AND THE ENGINEER.
3. CHAMBERMAXX CHAMBERS ARE MANUFACTURED FROM POLYPROPYLENE PLASTIC.
4. CHAMBERMAXX SYSTEM TO MEET AASHTO HS20/HS25 LIVE LOADING, PER AASHTO LRFD SECTION 12.
5. ACCESS COVERS TO MEET AASHTO HS20/HS25 LIVE LOADING.
6. MINIMUM COVER IS 18-INCHES TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. FOR COVER HEIGHTS GREATER THAN 96-INCHES CONTACT YOUR LOCAL REPRESENTATIVE.
7. ALL PARTS PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.
8. FOR INFORMATION ON PRE-TREATMENT SYSTEMS, REFERENCE CONTECH PRE-TREATMENT SYSTEM STANDARD DETAILS OR CONTACT YOUR LOCAL REPRESENTATIVE.
9. CHAMBERMAXX BY CONTECH ENGINEERED SOLUTIONS (800) 925-5240



ASSEMBLY
SCALE: 1"=10'

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DRAWING

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West Park
Ann Arbor, MI
CHAMBERMAXX

PROJECT No.:	SEQ. No.:	DATE:
32607	47180	03/05/2024
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1 OF D4		

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	JKA	JKA
01	ADDENDUM PLANS	4-25-24	JKA	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	JKA	JKA

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MILLER AVENUE REHABILITATION
CONTECH CHAMBEMAXX

SCALE PLAN: 1" = 5'

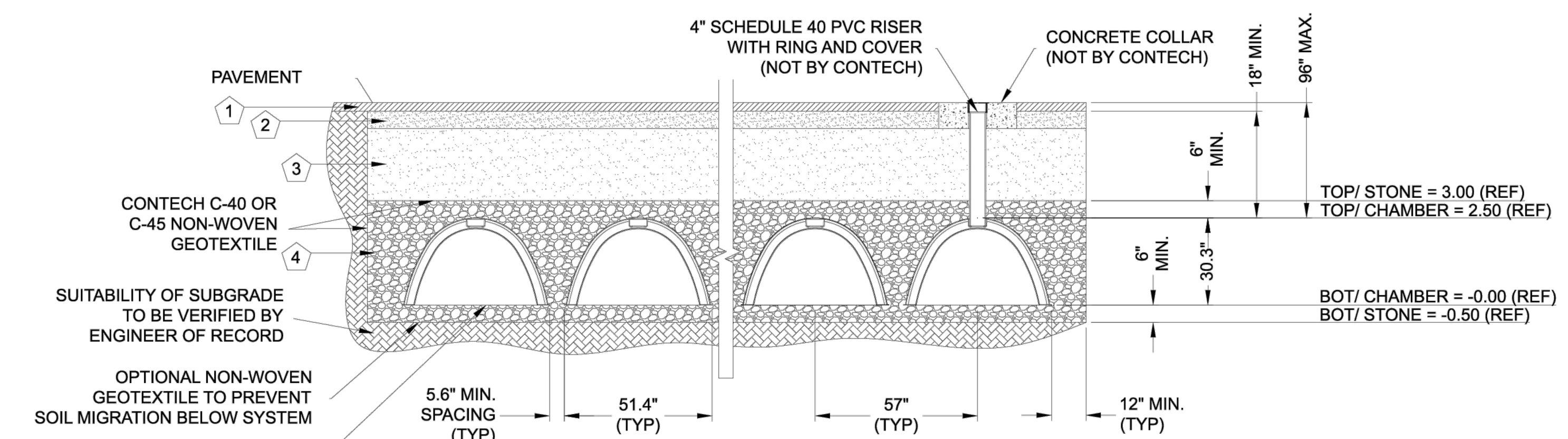
DRAWING No.
2022034-12

SHEET No.
12 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\20220340et5.dwg Dwg Created: 29-Mar-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24

INSTALLATION NOTES

1. CHAMBERMAXX INSTALLATION GUIDE TO BE REVIEWED BY CONTRACTOR PRIOR TO INSTALLATION.
2. PRIOR TO PLACING BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, UNSUITABLE MATERIAL SHALL BE REMOVED AND BROUGHT BACK TO GRADE WITH FILL MATERIAL AS APPROVED BY THE ENGINEER OF RECORD. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE BEDDING MATERIAL CAN BE PLACED.
3. THE SCOUR PROTECTION NETTING TO EXTEND 1'-0" BEYOND OUTSIDE EDGE OF INLET CHAMBERS.
4. COVER ANY OPEN VOID SPACES GREATER THAN 3/4" ON CHAMBERS WITH A NON-WOVEN GEOTEXTILE TO PREVENT INFILTRATION OF BACKFILL MATERIAL.
5. STONE EMBEDMENT MATERIAL SHALL BE INSTALLED TO 95% STANDARD PROCTOR DENSITY AND PLACED IN 6-INCH TO 8-INCH LIFTS SUCH THAT THERE IS NO MORE THAN A TWO LIFT DIFFERENTIAL BETWEEN ANY OF THE CHAMBERS AT ANY TIME. GRANULAR BACKFILL MATERIAL SHALL BE COMPACTED TO 90% SPD. BACKFILLING SHALL BE ADVANCED ALONG THE LENGTH OF THE CHAMBER ROWS AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING AND DISPLACEMENT OF THE CHAMBERS. THE MINIMUM CHAMBER SPACING MUST BE MAINTAINED.
6. REFER TO CHAMBERMAXX INSTALLATION GUIDE FOR TEMPORARY CONSTRUCTION LOADING GUIDELINES.
7. IT IS ALWAYS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.
8. GENERAL INSTALLATION METHODS AND MATERIALS TO BE IN ACCORDANCE WITH ASTM D2321.



TYPICAL SECTION DETAIL

NOT TO SCALE

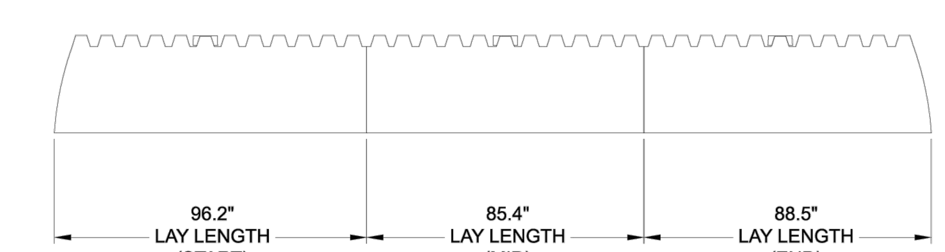
KEY
1. FLEXIBLE PAVEMENT.
2. GRANULAR ROAD BASE.
3. ANY SUITABLE NATIVE OR GENERAL BACKFILL, SEE ENGINEER PLANS.
4. THE BACKFILL MATERIAL SHALL BE FREE-DRAINING ANGULAR WASHED STONE 3/4" - 2" PARTICLE SIZE. MATERIAL SHALL BE PLACED IN 8"-10" MAXIMUM LIFTS. MATERIAL SHALL BE WORKED INTO THE CHAMBER SPACING BY MEANS OF SHOVEL-SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE PROJECT ENGINEER OR THEIR REPRESENTATIVE IS SATISFIED WITH THE LEVEL OF COMPACTION. INADEQUATE COMPACTION CAN LEAD TO EXCESSIVE DEFLECTIONS WITHIN THE SYSTEM AND SETTLEMENT OF THE SOILS OVER THE SYSTEM. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF ANY CHAMBER IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.

EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTORT, DAMAGE, OR DISPLACE THE CHAMBERS. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT, AND MAINTAIN BALANCED LOADING ON ALL CHAMBERS IN THE SYSTEM, DURING ALL SUCH OPERATIONS.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. CONTACT YOUR LOCAL CONTECH REPRESENTATIVE FOR DETAILS.

CHAMBERMAXX DESIGN DETAILS

FEATURE	START CHAMBER	MIDDLE CHAMBER	END CHAMBER
OVERALL CHAMBER HEIGHT - IN	30.3	30.3	30.3
OVERALL CHAMBER WIDTH - IN	51.4	51.4	51.4
ACTUAL LENGTH - IN	98.4	91.0	92.0
INSTALLED LAY LENGTHS - IN	96.2	85.4	88.5
CHAMBER STORAGE VOLUME - CF	50.2	47.2	46.2
CHAMBER STORAGE PER LINEAR FOOT - CF/LF	6.3	6.6	6.3
*MIN. INSTALLED CHAMBER VOLUME - CF	78.1	75.1	74.1
*MIN. INSTALLED CHAMBER VOLUME PER LINEAR FOOT - CF/LF	9.7	10.6	10.0
CHAMBER WEIGHT - LB	83	73	76
*6" OF STONE ABOVE AND BELOW CHAMBER, 5.6" CHAMBER SPACING AND 40% POROSITY			



TYPICAL ELEVATION VIEW

NOT TO SCALE

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CHAMBERMAXX

PROJECT No.: 32607	SEQ. No.: 47180	DATE: 03/05/2024
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D2 OF D4		

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02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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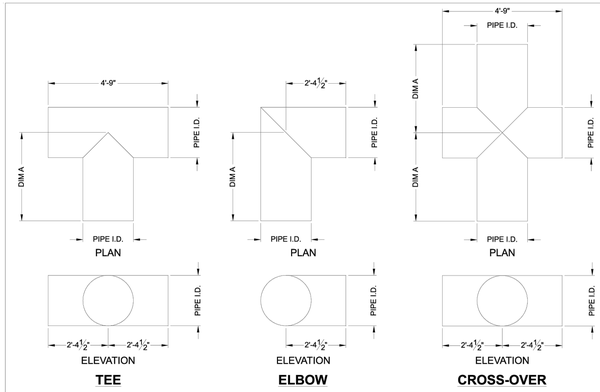
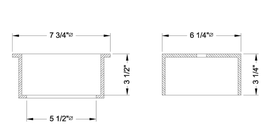
SCALE PLAN: N.T.S.

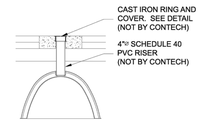
DRAWING No. 2022034-13





RING AND COVER DETAIL

NOT TO SCALE



INSPECTION PORT DETAIL

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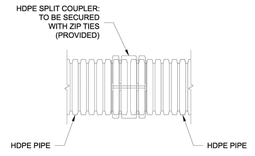

HDPE SPLIT COUPLER DETAIL

STANDARD MANIFOLD COMPONENTS - NOT TO SCALE				
	AVAILABLE DIAMETERS - INCHES			
TEE	12	15	18	24
ELBOW	12	15	18	24
DIM A	42	42	48	48

HDPE SPLIT COUPLERS	
COUPLER SIZE	PART NUMBER
12"ID SPLIT COUPLER	PEF12SPCP
15"ID SPLIT COUPLER	PEF15SPCP
18"ID SPLIT COUPLER	PEF18SPCP
24"ID SPLIT COUPLER	PEF24SPCP

GENERAL NOTES:
1. FITTING MATERIAL TO BE MANUFACTURED FROM CORRUGATED HIGH DENSITY POLYETHYLENE, AASHTO M294 PIPE.
2. FITTINGS TO BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENT OF AASHTO M294.
3. FITTINGS DESIGNED TO PROTRUDE 6" INTO THE END OF THE INLET CHAMBERS.
4. MANIFOLD TEE AND ELBOW JOINT TO BE CONNECTED UTILIZING HDPE SPLIT COUPLERS.

TYPICAL MANIFOLD DETAILS

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01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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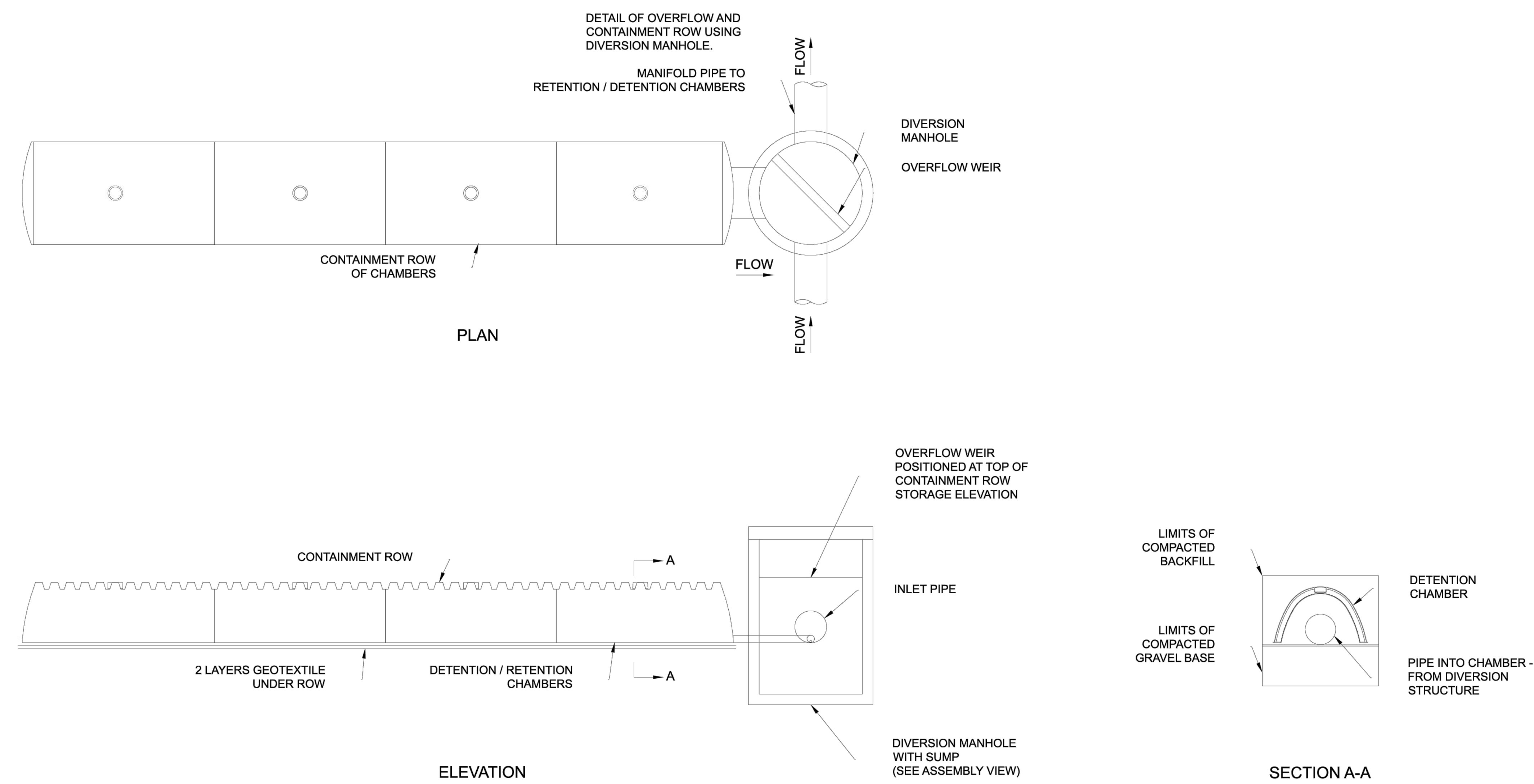
CONTECH CHAMBEMAXX

SCALE PLAN: N.T.S.

DRAWING No. 2022034-14

SHEET No. 14 OF 131



CONTAINMENT ROW DETAILS

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PROJECT No.: 32607	SEQ. No.: 47180	DATE: 03/05/2024
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CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D4 OF D4		

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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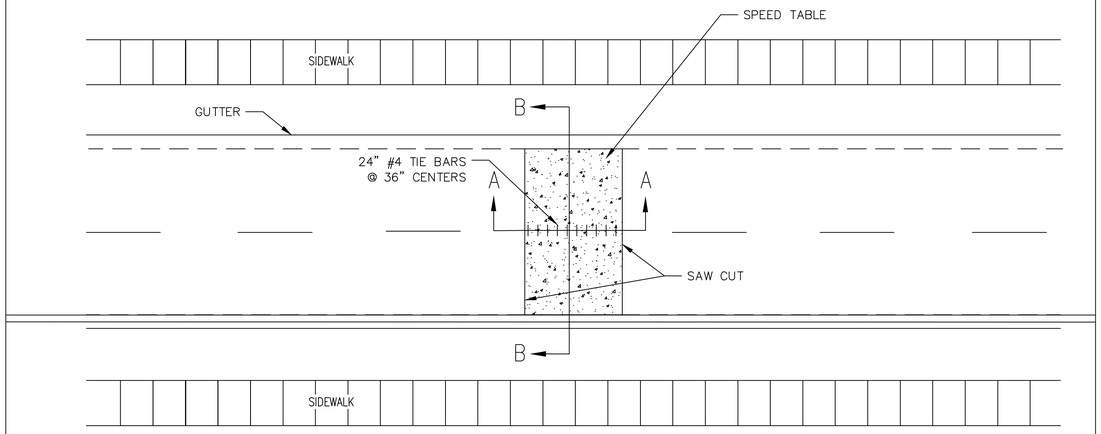
CONTECH CHAMBEMAXX

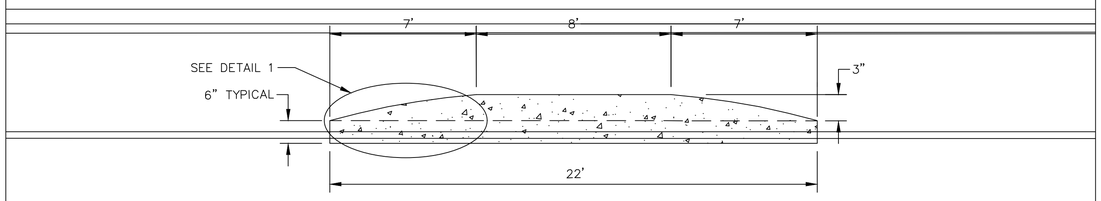
SCALE PLAN: N.T.S.

DRAWING No. 2022034-15

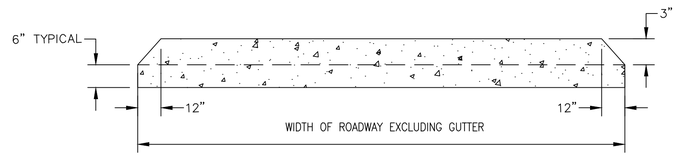
R:\2022034 Miller Ave Rehab\Plan Production\2022034Det5.dwg Dwg Created: 29-Mar-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24



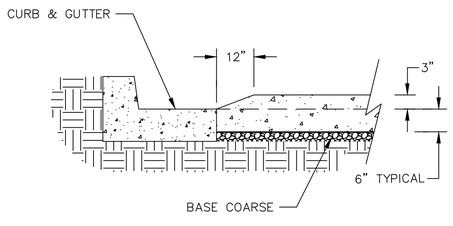
PLAN VIEW



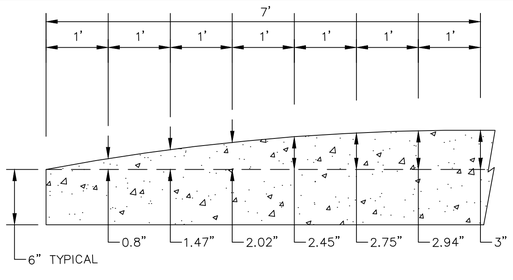
SECTION AA



SECTION BB



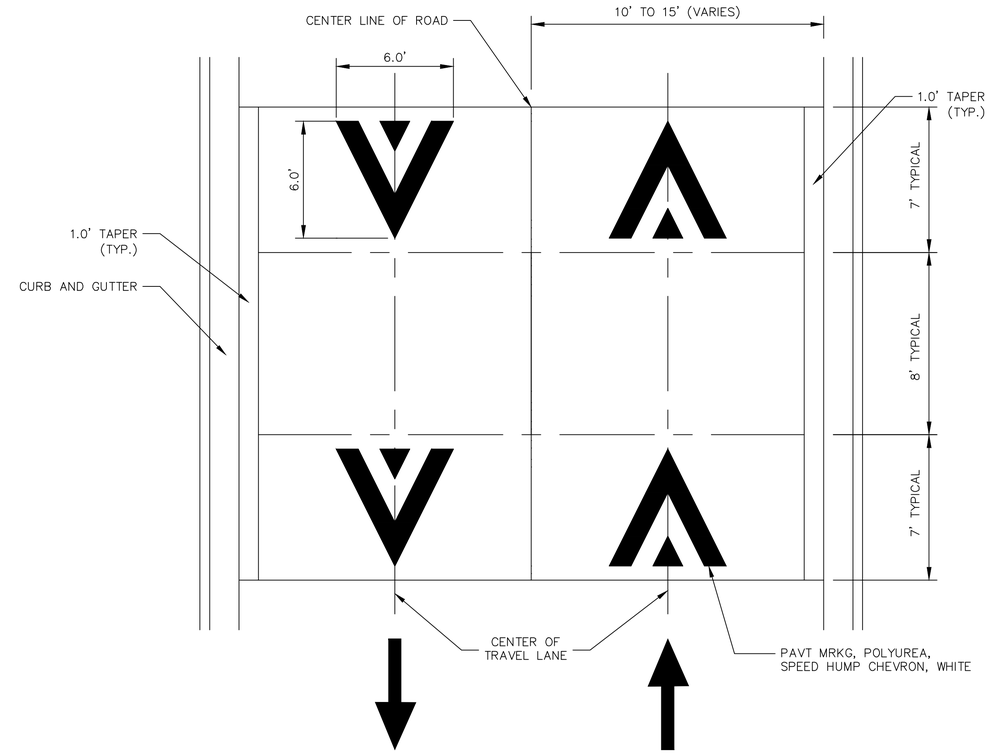
CURB DETAIL



DETAIL 1

CONCRETE SPEED TABLE DETAIL

SCALE: NOT TO SCALE



PAVEMENT MARKING DETAIL

SCALE: NOT TO SCALE

GENERAL NOTES

1. RAISED INTERSECTIONS SHALL FOLLOW THE SAME TAPER REQUIREMENT AS THE SPEED HUMPS DETAILED HEREIN.

2. PAYMENT FOR PAVEMENT MARKINGS FOR SPEED HUMPS AND RAISED INTERSECTIONS SHALL BE INCLUDED IN THE RESPECTIVE BID ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.

811 Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

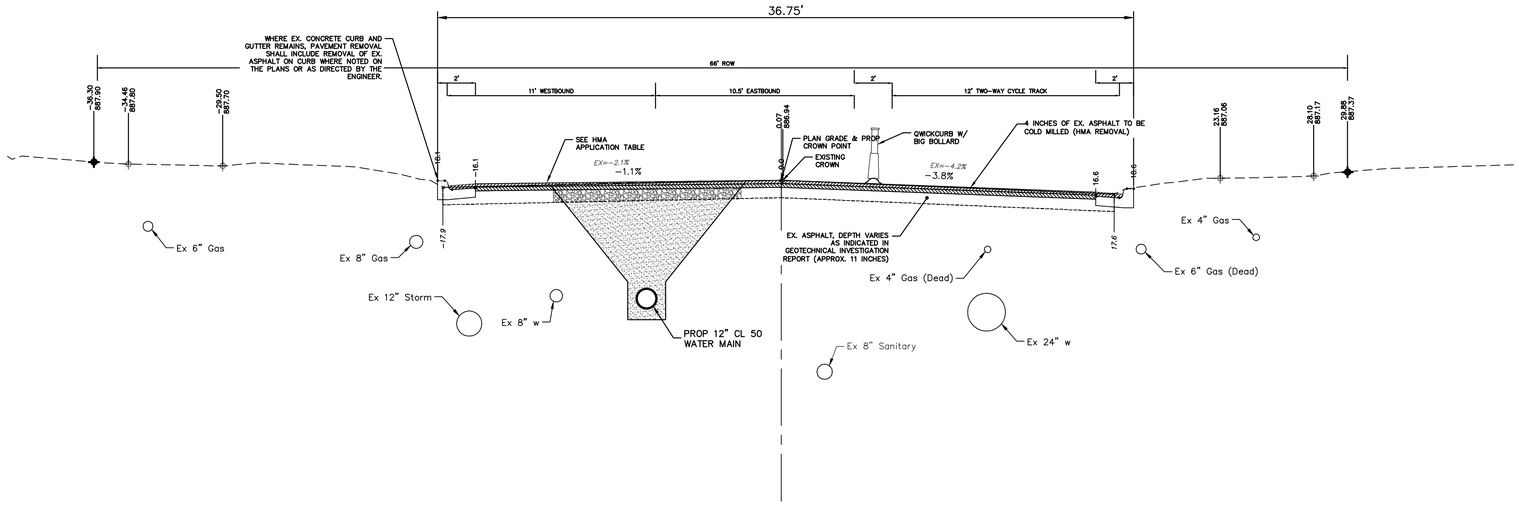
MILLER AVENUE REHABILITATION

CONCRETE SPEED TABLE DETAIL

SCALE : NTS

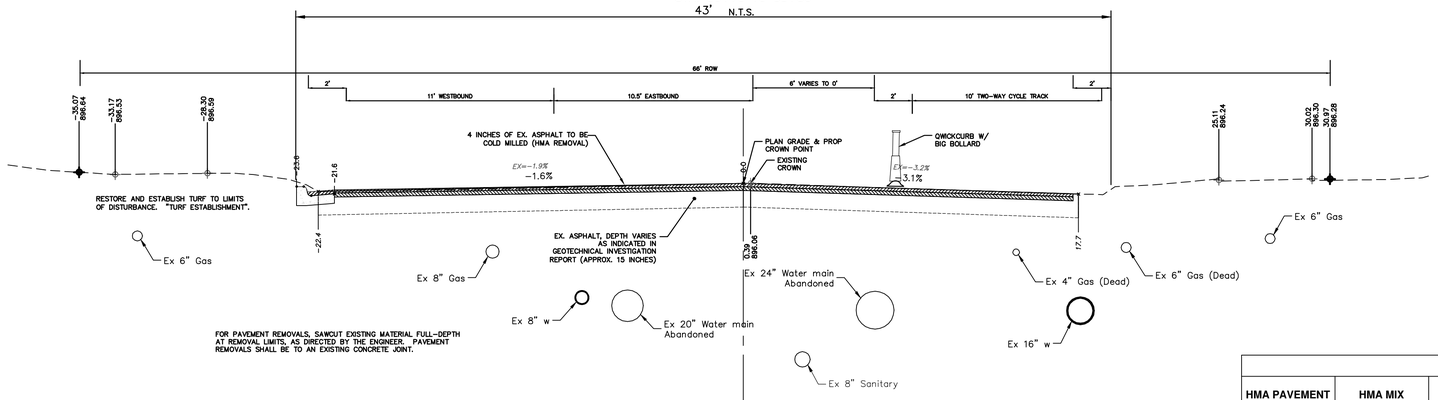
DRAWING No. 2022034-16

SHEET No. 16 OF 131



MILLER AVENUE
TYPICAL SECTION
STA. 50+75 TO 58+50

43' N.T.S.



FOR PAVEMENT REMOVALS, SAWCUT EXISTING MATERIAL FULL-DEPTH AT REMOVAL LIMITS, AS DIRECTED BY THE ENGINEER. PAVEMENT REMOVALS SHALL BE TO AN EXISTING CONCRETE JOINT.

MILLER AVENUE
TYPICAL SECTION
P.O.B. TO STA. 50+75

N.T.S.

HMA APPLICATION ESTIMATE						
HMA PAVEMENT	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)	AWI (MIN.)	BINDER	LOCATION/NOTES
HMA PAVEMENT TOP	5EML	220 LB/SYD	2.0	220 (TOP)	PG 64-28	TOP COURSE
HMA PAVEMENT LEVELING	4EML	275 LB/SYD	2.5	-	PG 64-28	LEVELING COURSE
HMA APPROACH TOP	4EML	220 LB/SYD	2	220 (TOP)	PG 64-28	TOP COURSE
HMA APPROACH LEVELING	4EML	220 LB/SYD	2	-	PG 64-28	LEVELING COURSE
HAND PATCHING	4EML	0 - 440 LB/SYD			PG 64-28	HAND PATCHING
ASPHALT EMULSION	SS-1h	0.05 - 0.15 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

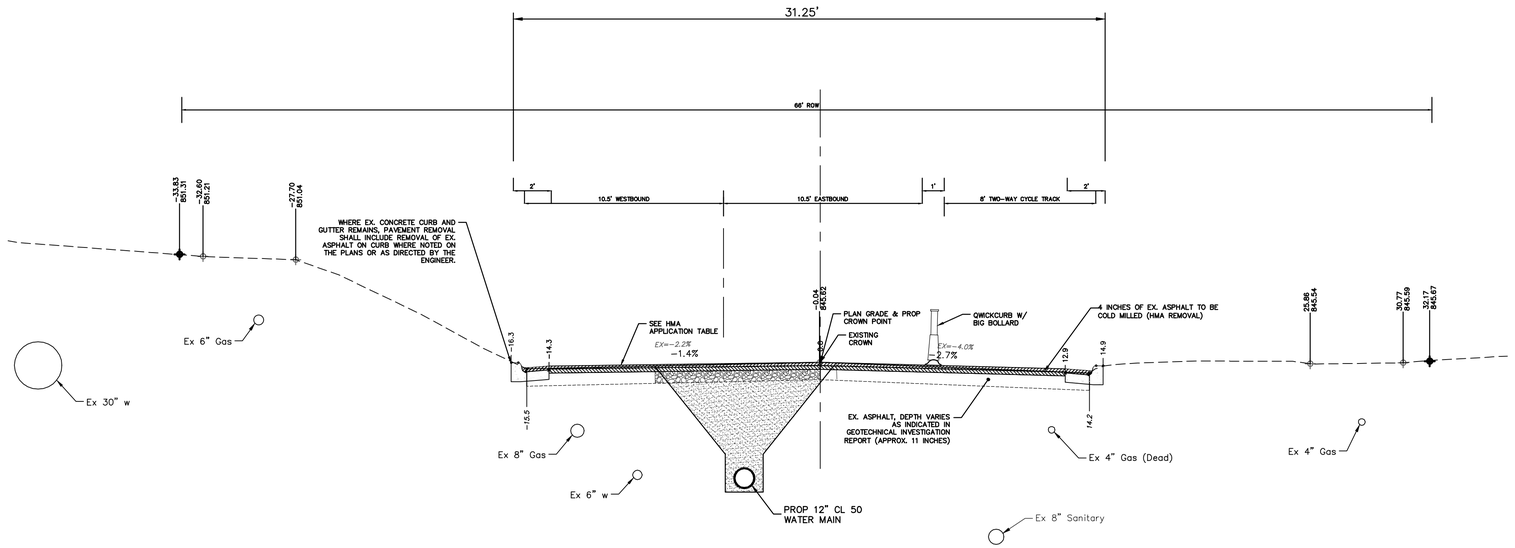
MILLER SECTIONS 1

SCALE PLAN: 1" = 4' PROFILE: 1" = 4'

DRAWING No. 2022034-17

SHEET No. 17 OF 131

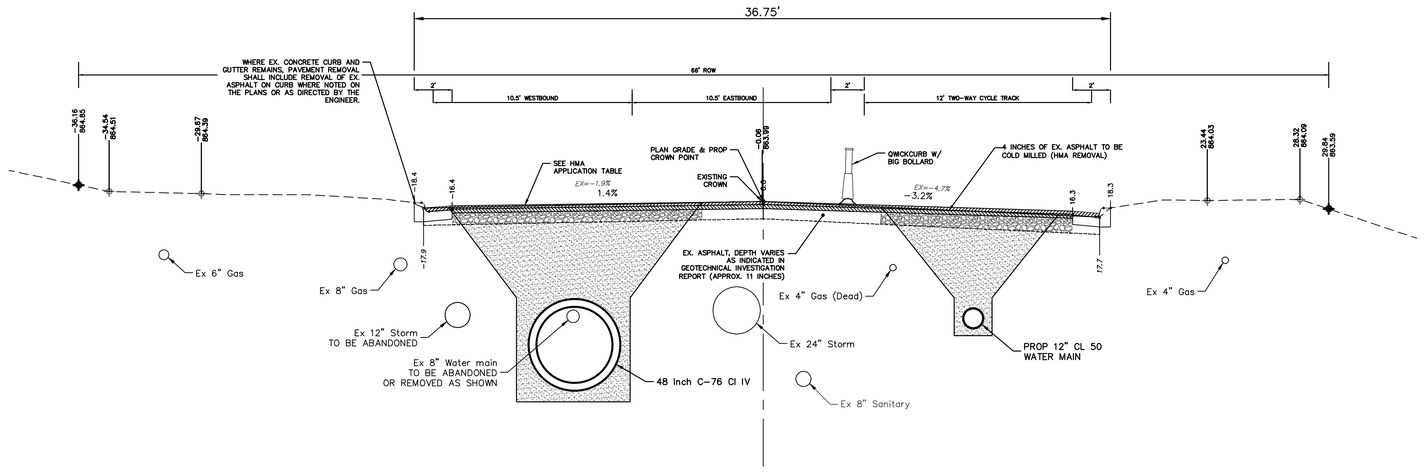
R:\2022034 Miller Ave Rehab\Source Drawings\Align-Corridor\2022034 Xsctn.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24



MILLER AVENUE
TYPICAL SECTION

STA. 63+85 TO 68+75

N.T.S.



MILLER AVENUE
TYPICAL SECTION

STA 58+50 TO STA.63+85

N.T.S.

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

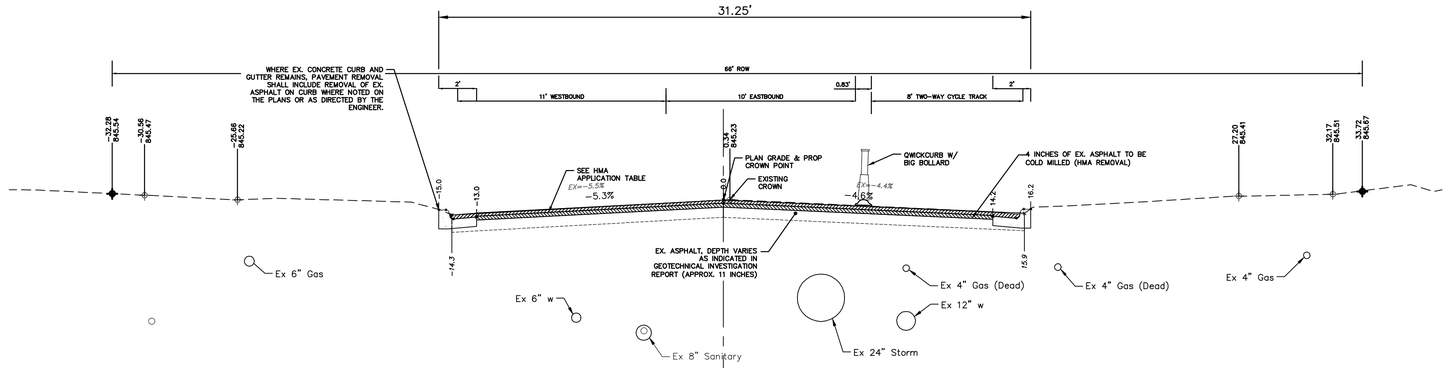
MILLER SECTIONS 2

SCALE PLAN: 1" = 4' PROFILE: 1" = 4'

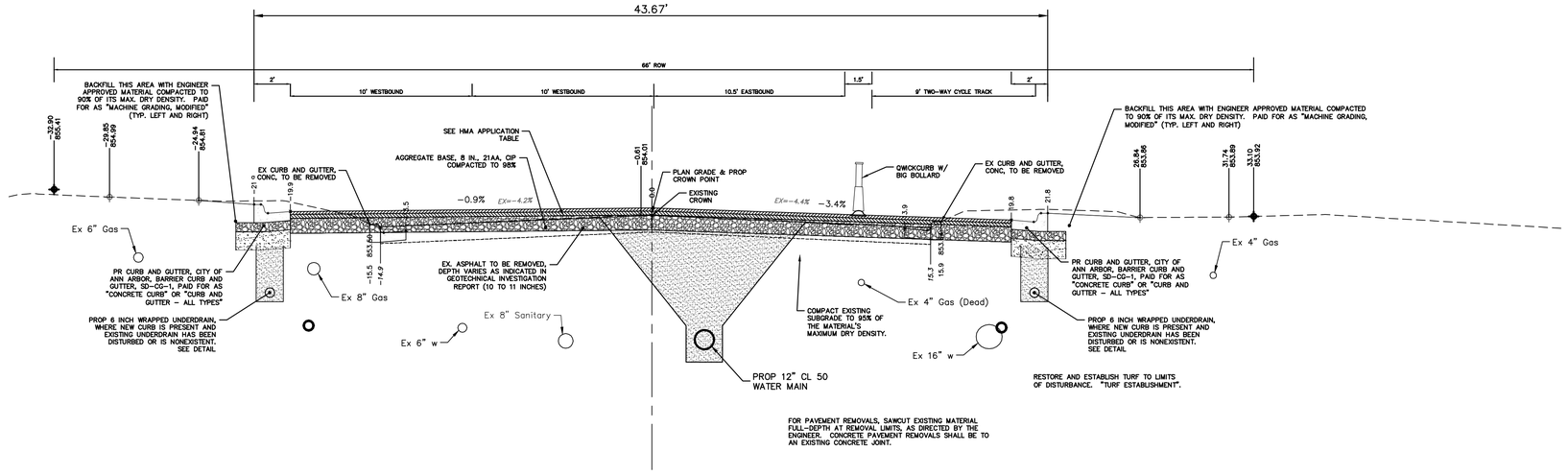
DRAWING No. 2022034-18

SHEET No. 18 OF 131

R:\2022034 Miller Ave Rehab\Source Drawings\Align-Corridor\2022034 Xsctn.dwg Dwg Created: 29-Apr-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24



MILLER AVENUE
TYPICAL SECTION
STA. 72+85 TO P.O.E.
N.T.S.



MILLER AVENUE
TYPICAL SECTION
STA 68+75. TO STA.72+85
N.T.S.

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

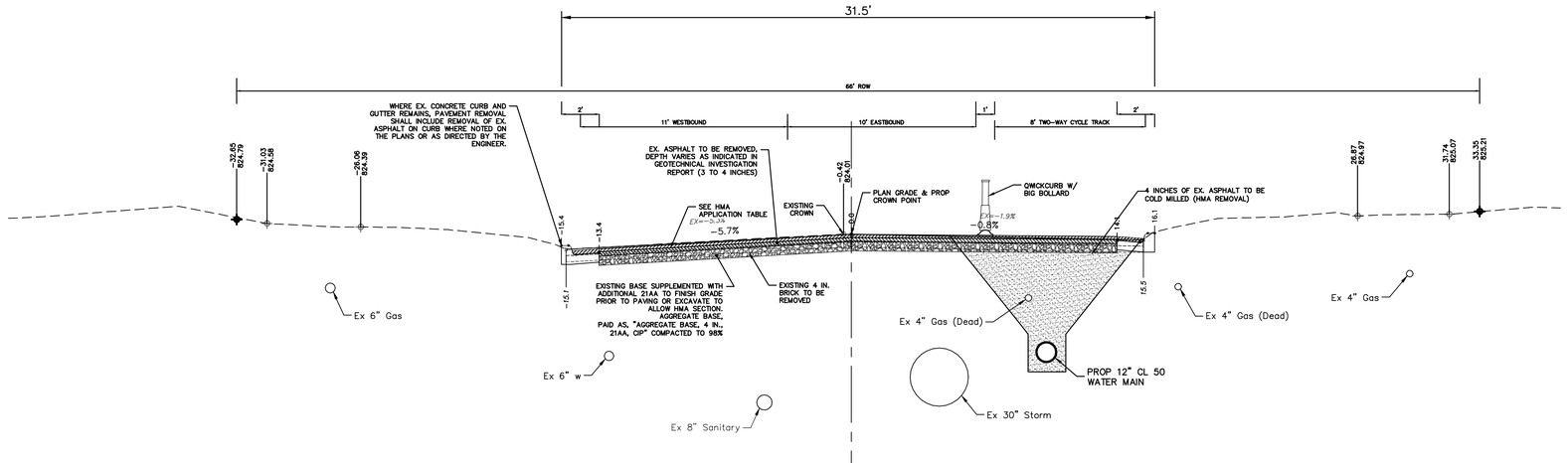
MILLER SECTIONS 3

SCALE PLAN: 1" = 4' PROFILE: 1" = 4'

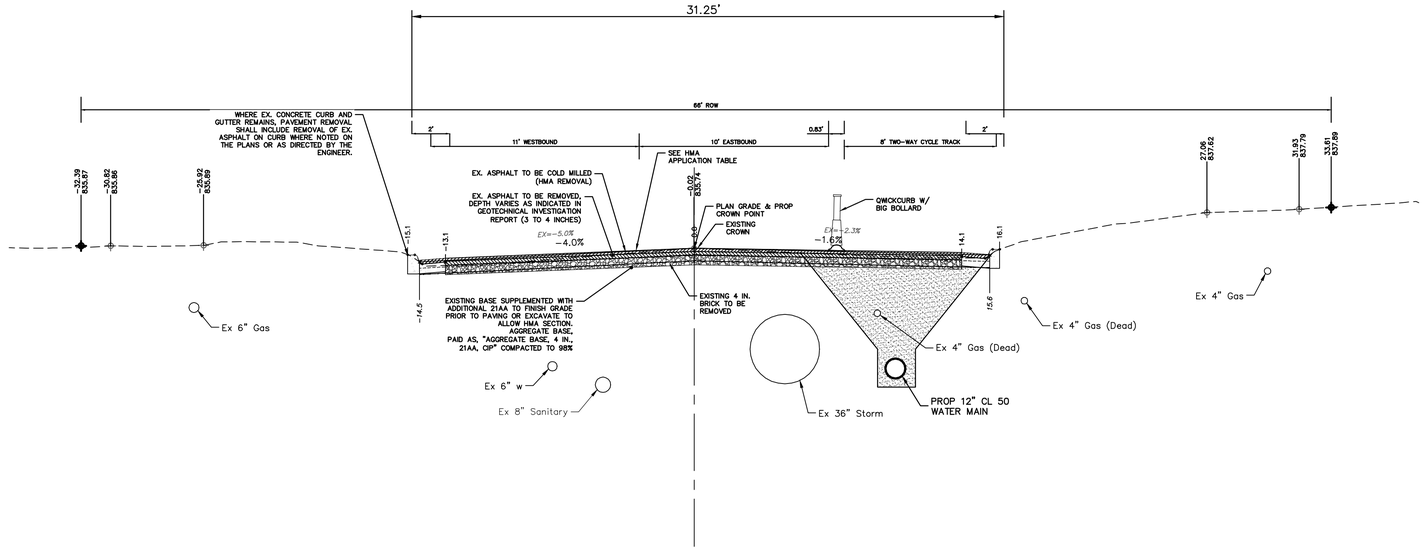
DRAWING No. 2022034-19

SHEET No. 19 OF 131

R:\2022034 Miller Ave Rehab\Source Drawings\Align-Corridor\2022034 Xsctn.dwg Dwg Created: 29-Apr-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24



MILLER AVENUE
TYPICAL SECTION
STA. 82+50 TO P.O.E.
N.T.S.



MILLER AVENUE
TYPICAL SECTION
STA 79+00. TO STA.82+50
N.T.S.

R:\2022034 Miller Ave Rehab\Source Drawings\Align-Corridor\2022034 Xsctn.dwg Dwg Created: 29-Apr-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

MILLER SECTIONS 4

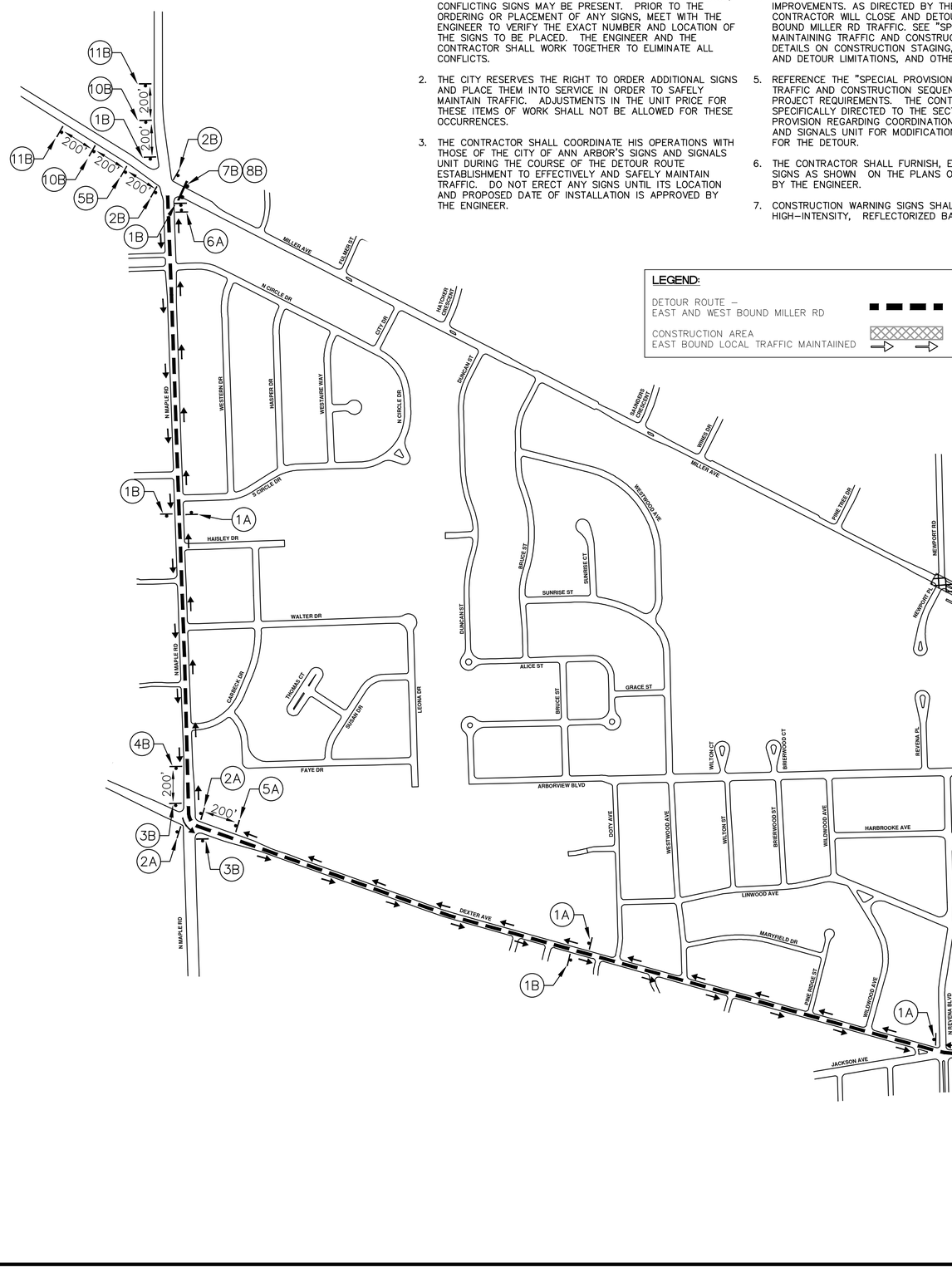
SCALE PLAN: 1" = 4' PROFILE: 1" = 4'

DRAWING No. **2022034-20**

SHEET No. **20 OF 131**

DETOUR CONSTRUCTION NOTES:

1. DEPENDING ON THE DETOUR ROUTE THAT IS PUT IN PLACE, CONFLICTING SIGNS MAY BE PRESENT. PRIOR TO THE ORDERING OR PLACEMENT OF ANY SIGNS, MEET WITH THE ENGINEER TO VERIFY THE EXACT NUMBER AND LOCATION OF THE SIGNS TO BE PLACED. THE ENGINEER AND THE CONTRACTOR SHALL WORK TOGETHER TO ELIMINATE ALL CONFLICTS.
2. THE CITY RESERVES THE RIGHT TO ORDER ADDITIONAL SIGNS AND PLACE THEM INTO SERVICE IN ORDER TO SAFELY MAINTAIN TRAFFIC. ADJUSTMENTS IN THE UNIT PRICE FOR THESE ITEMS OF WORK SHALL NOT BE ALLOWED FOR THESE OCCURRENCES.
3. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THOSE OF THE CITY OF ANN ARBOR'S SIGNS AND SIGNALS UNIT DURING THE COURSE OF THE DETOUR ROUTE ESTABLISHMENT TO EFFECTIVELY AND SAFELY MAINTAIN TRAFFIC. DO NOT ERECT ANY SIGNS UNTIL ITS LOCATION AND PROPOSED DATE OF INSTALLATION IS APPROVED BY THE ENGINEER.
4. THE DETOUR IS TO BE IN PLACE DURING MILLER RD IMPROVEMENTS. AS DIRECTED BY THE ENGINEER, THE CONTRACTOR WILL CLOSE AND DETOUR EAST AND WEST BOUND MILLER RD TRAFFIC. SEE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR DETAILS ON CONSTRUCTION STAGING, SEQUENCING, CLOSURE AND DETOUR LIMITATIONS, AND OTHER DETAILS.
5. REFERENCE THE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR ADDITIONAL PROJECT REQUIREMENTS. THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO THE SECTION OF SAME SPECIAL PROVISION REGARDING COORDINATION WITH THE CITY SIGNS AND SIGNALS UNIT FOR MODIFICATIONS TO TRAFFIC SIGNALS FOR THE DETOUR.
6. THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN SIGNS AS SHOWN ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.
7. CONSTRUCTION WARNING SIGNS SHALL HAVE AN ORANGE, HIGH-INTENSITY, REFLECTORIZED BACKGROUND.
8. SIGNS SHALL CONFORM TO THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. THE CONTRACTOR SHALL DRIVE ALL SIGNS INTO EXPOSED GROUND OR INSERT INTO A BORED HOLE IN PAVEMENT AS NECESSARY TO PERMANENTLY SECURE. ALL HOLES IN PAVEMENT SHALL BE FILLED WITH ENGINEER-APPROVED MORTAR WHEN THE SIGN IS REMOVED AND NO LONGER NEEDED. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "SIGN, TYPE B, TEMP, PRISMATIC, FURN AND OPER"
10. ADVANCE WARNING SIGNS SHALL BE PROVIDED WITH TWO (2) TYPE A FLASHING LIGHTS AND ONE (1) DAY-GLOW ORANGE FLAG.
11. CITY TO BE NOTIFIED A MINIMUM OF 7 DAYS PRIOR TO IMPLEMENTING EAST AND WEST BOUND MILLER RD DETOUR. MESSAGE BOARDS TO BE PLACED 7 DAYS PRIOR TO IMPLEMENTATION OF DETOUR.



PRCMS MESSAGE PHASING

PRIOR TO CONSTRUCTION	DURING CONSTRUCTION	DURING CONSTRUCTION
MILLER RD CONSTRUCTION	EB MILLER RD CLSD TO THRU TRAFFIC AT NEWPORT RD	WB MILLER RD CLSD TO THRU TRAFFIC AT N SEVENTH ST
MONTH DATE *	FOLLOW POSTED DETOUR	FOLLOW POSTED DETOUR

NOTE: PRCMS LOCATIONS AND MESSAGES WILL BE AS DIRECTED BY THE ENGINEER. TO BE PLACED ONE WEEK PRIOR TO CONSTRUCTION.

*THE CONTRACTOR SHALL PLACE THE APPROPRIATE DATE AS APPROVED BY THE ENGINEER.

EAST BOUND MILLER RD

	SIGN	NUMBER	QUANTITY
1B	EB MILLER RD / DETOUR ↑	D3-1 36"x6"	6
		M4-9S 30"x24"	6
2B	EB MILLER RD / DETOUR →	D3-1 36"x6"	3
		M4-9R 30"x24"	3
3B	EB MILLER RD / DETOUR ←	D3-1 36"x6"	4
		M4-9L 30"x24"	4
4B	EB MILLER RD / DETOUR ↰	D3-1 36"x6"	2
		M4-9L (MOD) 30"x24"	2
5B	EB MILLER RD / DETOUR ↱	D3-1 36"x6"	1
		M4-9R (MOD) 30"x24"	1
6B	EB MILLER RD / END DETOUR	D3-1 36"x6"	1
		M4-8A 24"x18"	1
7B	ROAD CLOSED TO THRU TRAFFIC	R11-4 60"x30"	1
8B	DETOUR ←	M4-10R 48"x18"	1
9B	MILLER AVE CLOSED AT N SEVENTH ST FOLLOW DETOUR	SPECIAL 48x66	1
10B	EB MILLER RD / DETOUR AHEAD	D3-1 36"x6"	2
		W20-2 36"x36"	2
11B	EB MILLER RD / ROAD WORK AHEAD	D3-1 36"x6"	2
		W20-1 36"x36"	2
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED – 2 EACH		
	SIGN, PORTABLE, CHANGEABLE MESSAGE, NTCIP-COMPLIANT – 2 EACH VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING		

WEST BOUND MILLER RD

	SIGN	NUMBER	QUANTITY
1A	WB MILLER RD / DETOUR ↑	D3-1 36"x6"	8
		M4-9S 30"x24"	8
2A	WB MILLER RD / DETOUR →	D3-1 36"x6"	4
		M4-9R 30"x24"	4
3A	WB MILLER RD / DETOUR ←	D3-1 36"x6"	6
		M4-9L 30"x24"	6
4A	WB MILLER RD / DETOUR ↰	D3-1 36"x6"	3
		M4-9L (MOD) 30"x24"	3
5A	WB MILLER RD / DETOUR ↱	D3-1 36"x6"	2
		M4-9R (MOD) 30"x24"	2
6A	WB MILLER RD / END DETOUR	D3-1 36"x6"	1
		M4-8A 24"x18"	1
7A	ROAD CLOSED TO THRU TRAFFIC	R11-4 60"x30"	1
8A	DETOUR →	M4-10L 48"x18"	1
9A	WEST BOUND MILLER AVE CLOSED AT N SEVENTH ST FOLLOW DETOUR	SPECIAL 48x66	6
10A	WB MILLER RD / DETOUR AHEAD	D3-1 36"x6"	5
		W20-2 36"x36"	5
11A	WB MILLER RD / ROAD WORK AHEAD	D3-1 36"x6"	3
		W20-1 36"x36"	3
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED – 2 EACH		
	SIGN, PORTABLE, CHANGEABLE MESSAGE, NTCIP-COMPLIANT – 2 EACH VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING		

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

DETOUR ROUTE

PHASE I STAGE I & II (WATER MAIN)

SCALE PLAN: 1" = 300'

DRAWING No. 2022034-21

SHEET No. 21 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Dtr.dwg Dwg Created: 29-Mar-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24

DETOUR CONSTRUCTION NOTES:

1. DEPENDING ON THE DETOUR ROUTE THAT IS PUT IN PLACE, CONFLICTING SIGNS MAY BE PRESENT. PRIOR TO THE ORDERING OR PLACEMENT OF ANY SIGNS, MEET WITH THE ENGINEER TO VERIFY THE EXACT NUMBER AND LOCATION OF THE SIGNS TO BE PLACED. THE ENGINEER AND THE CONTRACTOR SHALL WORK TOGETHER TO ELIMINATE ALL CONFLICTS.
2. THE CITY RESERVES THE RIGHT TO ORDER ADDITIONAL SIGNS AND PLACE THEM INTO SERVICE IN ORDER TO SAFELY MAINTAIN TRAFFIC. ADJUSTMENTS IN THE UNIT PRICE FOR THESE ITEMS OF WORK SHALL NOT BE ALLOWED FOR THESE OCCURRENCES.
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4. THE DETOUR IS TO BE IN PLACE DURING MILLER RD IMPROVEMENTS. AS DIRECTED BY THE ENGINEER, THE CONTRACTOR WILL CLOSE AND DETOUR EAST AND WEST BOUND MILLER RD TRAFFIC. SEE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR DETAILS ON CONSTRUCTION STAGING, SEQUENCING, CLOSURE AND DETOUR LIMITATIONS, AND OTHER DETAILS.
5. REFERENCE THE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR ADDITIONAL PROJECT REQUIREMENTS. THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO THE SECTION OF SAME SPECIAL PROVISION REGARDING COORDINATION WITH THE CITY SIGNS AND SIGNALS UNIT FOR MODIFICATIONS TO TRAFFIC SIGNALS FOR THE DETOUR.
6. THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN SIGNS AS SHOWN ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.
7. CONSTRUCTION WARNING SIGNS SHALL HAVE AN ORANGE, HIGH-INTENSITY, REFLECTORIZED BACKGROUND.
8. SIGNS SHALL CONFORM TO THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. THE CONTRACTOR SHALL DRIVE ALL SIGNS INTO EXPOSED GROUND OR INSERT INTO A BORED HOLE IN PAVEMENT AS NECESSARY TO PERMANENTLY SECURE. ALL HOLES IN PAVEMENT SHALL BE FILLED WITH ENGINEER-APPROVED MORTAR WHEN THE SIGN IS REMOVED AND NO LONGER NEEDED. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "SIGN, TYPE B, TEMP, PRISMATIC, FURN AND OPER"
10. ADVANCE WARNING SIGNS SHALL BE PROVIDED WITH TWO (2) TYPE A FLASHING LIGHTS AND ONE (1) DAY-GLOW ORANGE FLAG.
11. CITY TO BE NOTIFIED A MINIMUM OF 7 DAYS PRIOR TO IMPLEMENTING EAST AND WEST BOUND MILLER RD DETOUR. MESSAGE BOARDS TO BE PLACED 7 DAYS PRIOR TO IMPLEMENTATION OF DETOUR.

LEGEND:

DETOUR ROUTE –
EAST AND WEST BOUND MILLER RD

CONSTRUCTION AREA
EAST BOUND LOCAL TRAFFIC MAINTAIINED

PRCMS MESSAGE PHASING

PRIOR TO CONSTRUCTION	DURING CONSTRUCTION	DURING CONSTRUCTION
MILLER RD CONSTRUCTION	EB MILLER RD CLSD TO THRU TRAFFIC AT N SEVENTH ST	WB MILLER RD CLSD TO THRU TRAFFIC AT CHAPIN ST
MONTH DATE *	FOLLOW POSTED DETOUR	FOLLOW POSTED DETOUR

NOTE: PRCMS LOCATIONS AND MESSAGES WILL BE AS DIRECTED BY THE ENGINEER. TO BE PLACED ONE WEEK PRIOR TO CONSTRUCTION.

*THE CONTRACTOR SHALL PLACE THE APPROPRIATE DATE AS APPROVED BY THE ENGINEER.

EAST BOUND MILLER RD

	SIGN	NUMBER	QUANTITY
1B	EB MILLER RD / DETOUR ↑	D3-1 36"x6"	6
		M4-9S 30"x24"	6
2B	EB MILLER RD / DETOUR →	D3-1 36"x6"	3
		M4-9R 30"x24"	3
3B	EB MILLER RD / DETOUR ←	D3-1 36"x6"	4
		M4-9L 30"x24"	4
4B	EB MILLER RD / DETOUR ↰	D3-1 36"x6"	2
		M4-9L (MOD) 30"x24"	2
5B	EB MILLER RD / DETOUR ↱	D3-1 36"x6"	1
		M4-9R (MOD) 30"x24"	1
6B	EB MILLER RD / END DETOUR	D3-1 36"x6"	1
		M4-8A 24"x18"	1
7B	ROAD CLOSED TO THRU TRAFFIC	R11-4 60"x30"	1
8B	DETOUR →	M4-10R 48"x18"	1
9B	MILLER AVE CLOSED AT N SEVENTH ST FOLLOW DETOUR	SPECIAL 48x66	1
10B	EB MILLER RD / DETOUR AHEAD	D3-1 36"x6"	2
		W20-2 36"x36"	2
11B	EB MILLER RD / ROAD WORK AHEAD	D3-1 36"x6"	2
		W20-1 36"x36"	2
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED – 2 EACH		
	SIGN, PORTABLE, CHANGEABLE MESSAGE, NTCIP-COMPLIANT – 2 EACH VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING		

WEST BOUND MILLER RD

	SIGN	NUMBER	QUANTITY
1A	WB MILLER RD / DETOUR ↑	D3-1 36"x6"	8
		M4-9S 30"x24"	8
2A	WB MILLER RD / DETOUR →	D3-1 36"x6"	4
		M4-9R 30"x24"	4
3A	WB MILLER RD / DETOUR ←	D3-1 36"x6"	6
		M4-9L 30"x24"	6
4A	WB MILLER RD / DETOUR ↰	D3-1 36"x6"	3
		M4-9L (MOD) 30"x24"	3
5A	WB MILLER RD / DETOUR ↱	D3-1 36"x6"	2
		M4-9R (MOD) 30"x24"	2
6A	WB MILLER RD / END DETOUR	D3-1 36"x6"	1
		M4-8A 24"x18"	1
7A	ROAD CLOSED TO THRU TRAFFIC	R11-4 60"x30"	1
8A	← DETOUR	M4-10L 48"x18"	1
9A	WEST BOUND MILLER AVE CLOSED AT CHAPIN ST FOLLOW DETOUR	SPECIAL 48x66	6
10A	WB MILLER RD / DETOUR AHEAD	D3-1 36"x6"	5
		W20-2 36"x36"	5
11A	WB MILLER RD / ROAD WORK AHEAD	D3-1 36"x6"	3
		W20-1 36"x36"	3
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED – 2 EACH		
	SIGN, PORTABLE, CHANGEABLE MESSAGE, NTCIP-COMPLIANT – 2 EACH VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING		

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

DETOUR ROUTE

PHASE II STAGE I & II (WATER MAIN)

SCALE PLAN: 1" = 300'

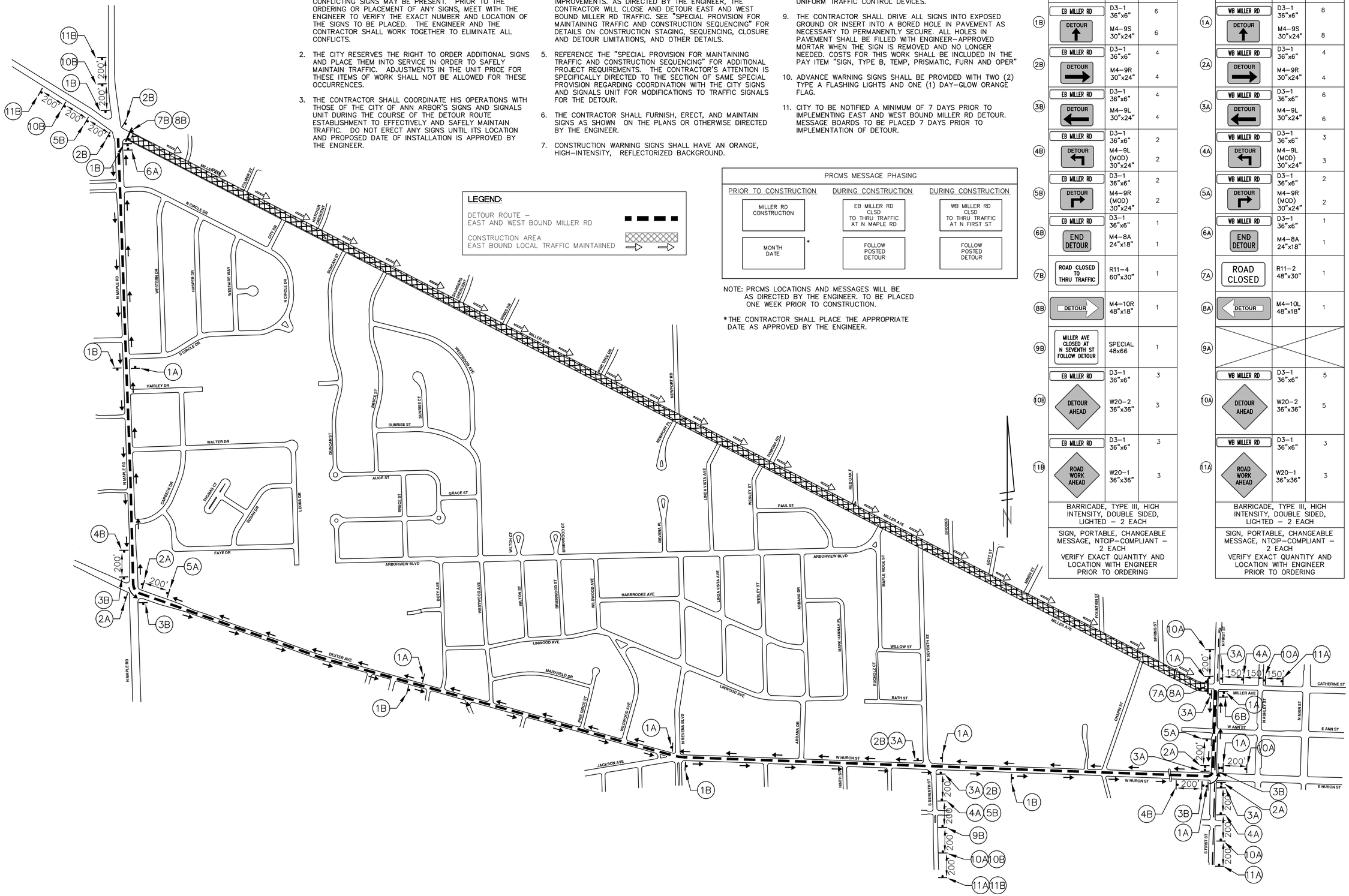
DRAWING No. 2022034-22

SHEET No. 22 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Dtr1.dwg Dwg Created: 29-Mar-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24

DETOUR CONSTRUCTION NOTES:

1. DEPENDING ON THE DETOUR ROUTE THAT IS PUT IN PLACE, CONFLICTING SIGNS MAY BE PRESENT. PRIOR TO THE ORDERING OR PLACEMENT OF ANY SIGNS, MEET WITH THE ENGINEER TO VERIFY THE EXACT NUMBER AND LOCATION OF THE SIGNS TO BE PLACED. THE ENGINEER AND THE CONTRACTOR SHALL WORK TOGETHER TO ELIMINATE ALL CONFLICTS.
2. THE CITY RESERVES THE RIGHT TO ORDER ADDITIONAL SIGNS AND PLACE THEM INTO SERVICE IN ORDER TO SAFELY MAINTAIN TRAFFIC. ADJUSTMENTS IN THE UNIT PRICE FOR THESE ITEMS OF WORK SHALL NOT BE ALLOWED FOR THESE OCCURRENCES.
3. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THOSE OF THE CITY OF ANN ARBOR'S SIGNS AND SIGNALS UNIT DURING THE COURSE OF THE DETOUR ROUTE ESTABLISHMENT TO EFFECTIVELY AND SAFELY MAINTAIN TRAFFIC. DO NOT ERECT ANY SIGNS UNTIL ITS LOCATION AND PROPOSED DATE OF INSTALLATION IS APPROVED BY THE ENGINEER.
4. THE DETOUR IS TO BE IN PLACE DURING MILLER RD IMPROVEMENTS. AS DIRECTED BY THE ENGINEER, THE CONTRACTOR WILL CLOSE AND DETOUR EAST AND WEST BOUND MILLER RD TRAFFIC. SEE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR DETAILS ON CONSTRUCTION STAGING, SEQUENCING, CLOSURE AND DETOUR LIMITATIONS, AND OTHER DETAILS.
5. REFERENCE THE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR ADDITIONAL PROJECT REQUIREMENTS. THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO THE SECTION OF SAME SPECIAL PROVISION REGARDING COORDINATION WITH THE CITY SIGNS AND SIGNALS UNIT FOR MODIFICATIONS TO TRAFFIC SIGNALS FOR THE DETOUR.
6. THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN SIGNS AS SHOWN ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.
7. CONSTRUCTION WARNING SIGNS SHALL HAVE AN ORANGE, HIGH-INTENSITY, REFLECTORIZED BACKGROUND.
8. SIGNS SHALL CONFORM TO THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. THE CONTRACTOR SHALL DRIVE ALL SIGNS INTO EXPOSED GROUND OR INSERT INTO A BORED HOLE IN PAVEMENT AS NECESSARY TO PERMANENTLY SECURE. ALL HOLES IN PAVEMENT SHALL BE FILLED WITH ENGINEER-APPROVED MORTAR WHEN THE SIGN IS REMOVED AND NO LONGER NEEDED. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "SIGN, TYPE B, TEMP, PRISMATIC, FURN AND OPER"
10. ADVANCE WARNING SIGNS SHALL BE PROVIDED WITH TWO (2) TYPE A FLASHING LIGHTS AND ONE (1) DAY-GLOW ORANGE FLAG.
11. CITY TO BE NOTIFIED A MINIMUM OF 7 DAYS PRIOR TO IMPLEMENTING EAST AND WEST BOUND MILLER RD DETOUR. MESSAGE BOARDS TO BE PLACED 7 DAYS PRIOR TO IMPLEMENTATION OF DETOUR.



PRCMS MESSAGE PHASING		
PRIOR TO CONSTRUCTION	DURING CONSTRUCTION	DURING CONSTRUCTION
MILLER RD CONSTRUCTION	EB MILLER RD CLSD TO THRU TRAFFIC AT N MAPLE RD	WB MILLER RD CLSD TO THRU TRAFFIC AT N FIRST ST
MONTH DATE *	FOLLOW POSTED DETOUR	FOLLOW POSTED DETOUR

NOTE: PRCMS LOCATIONS AND MESSAGES WILL BE AS DIRECTED BY THE ENGINEER. TO BE PLACED ONE WEEK PRIOR TO CONSTRUCTION.

*THE CONTRACTOR SHALL PLACE THE APPROPRIATE DATE AS APPROVED BY THE ENGINEER.

EAST BOUND MILLER RD

	SIGN	NUMBER	QUANTITY
1B	EB MILLER RD / DETOUR ↑	D3-1 36"x6"	6
		M4-9S 30"x24"	6
2B	EB MILLER RD / DETOUR →	D3-1 36"x6"	4
		M4-9R 30"x24"	4
3B	EB MILLER RD / DETOUR ←	D3-1 36"x6"	4
		M4-9L 30"x24"	4
4B	EB MILLER RD / DETOUR	D3-1 36"x6"	2
		M4-9L (MOD) 30"x24"	2
5B	EB MILLER RD / DETOUR	D3-1 36"x6"	2
		M4-9R (MOD) 30"x24"	2
6B	EB MILLER RD / END DETOUR	D3-1 36"x6"	1
		M4-8A 24"x18"	1
7B	ROAD CLOSED TO THRU TRAFFIC	R11-4 60"x30"	1
8B	DETOUR →	M4-10R 48"x18"	1
9B	MILLER AVE CLOSED AT N SEVENTH ST FOLLOW DETOUR	SPECIAL 48x66	1
10B	EB MILLER RD / DETOUR AHEAD	D3-1 36"x6"	3
		W20-2 36"x36"	3
11B	EB MILLER RD / ROAD WORK AHEAD	D3-1 36"x6"	3
		W20-1 36"x36"	3
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED – 2 EACH		
	SIGN, PORTABLE, CHANGEABLE MESSAGE, NTCIP-COMPLIANT – 2 EACH VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING		

WEST BOUND MILLER RD

	SIGN	NUMBER	QUANTITY
1A	WB MILLER RD / DETOUR ↑	D3-1 36"x6"	8
		M4-9S 30"x24"	8
2A	WB MILLER RD / DETOUR →	D3-1 36"x6"	4
		M4-9R 30"x24"	4
3A	WB MILLER RD / DETOUR ←	D3-1 36"x6"	6
		M4-9L 30"x24"	6
4A	WB MILLER RD / DETOUR	D3-1 36"x6"	3
		M4-9L (MOD) 30"x24"	3
5A	WB MILLER RD / DETOUR	D3-1 36"x6"	2
		M4-9R (MOD) 30"x24"	2
6A	WB MILLER RD / END DETOUR	D3-1 36"x6"	1
		M4-8A 24"x18"	1
7A	ROAD CLOSED	R11-2 48"x30"	1
8A	DETOUR ←	M4-10L 48"x18"	1
9A			
10A	WB MILLER RD / DETOUR AHEAD	D3-1 36"x6"	5
		W20-2 36"x36"	5
11A	WB MILLER RD / ROAD WORK AHEAD	D3-1 36"x6"	3
		W20-1 36"x36"	3
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED – 2 EACH		
	SIGN, PORTABLE, CHANGEABLE MESSAGE, NTCIP-COMPLIANT – 2 EACH VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING		

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

DETOUR ROUTE

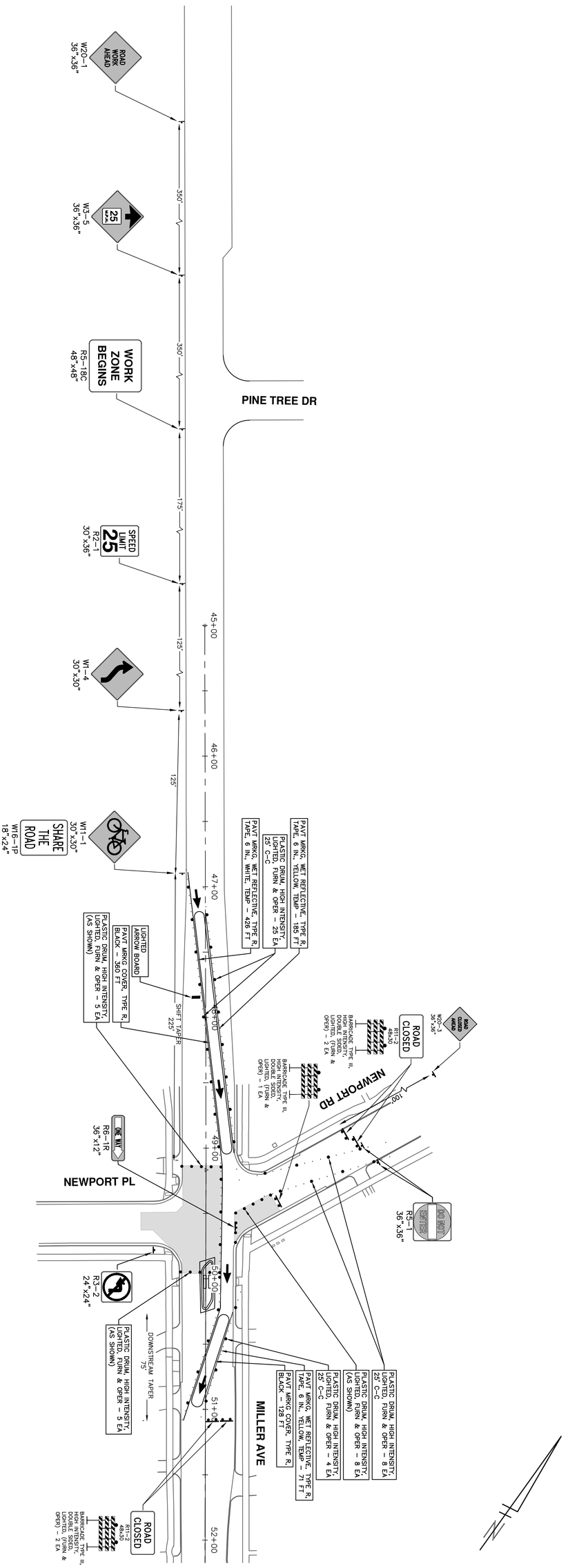
PHASE II STAGE III (CYCLE TRACK)

SCALE FLAN: 1" = 300'

DRAWING No. 2022034-23

SHEET No. 23 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Dtr2.dwg Dwg Created: 29-Mar-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24



SHEET No.
24 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No.
2022034-24

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE I STAGE I (NEWPORT WATER MAIN CONN)

P.O.B. - STA. 61+00

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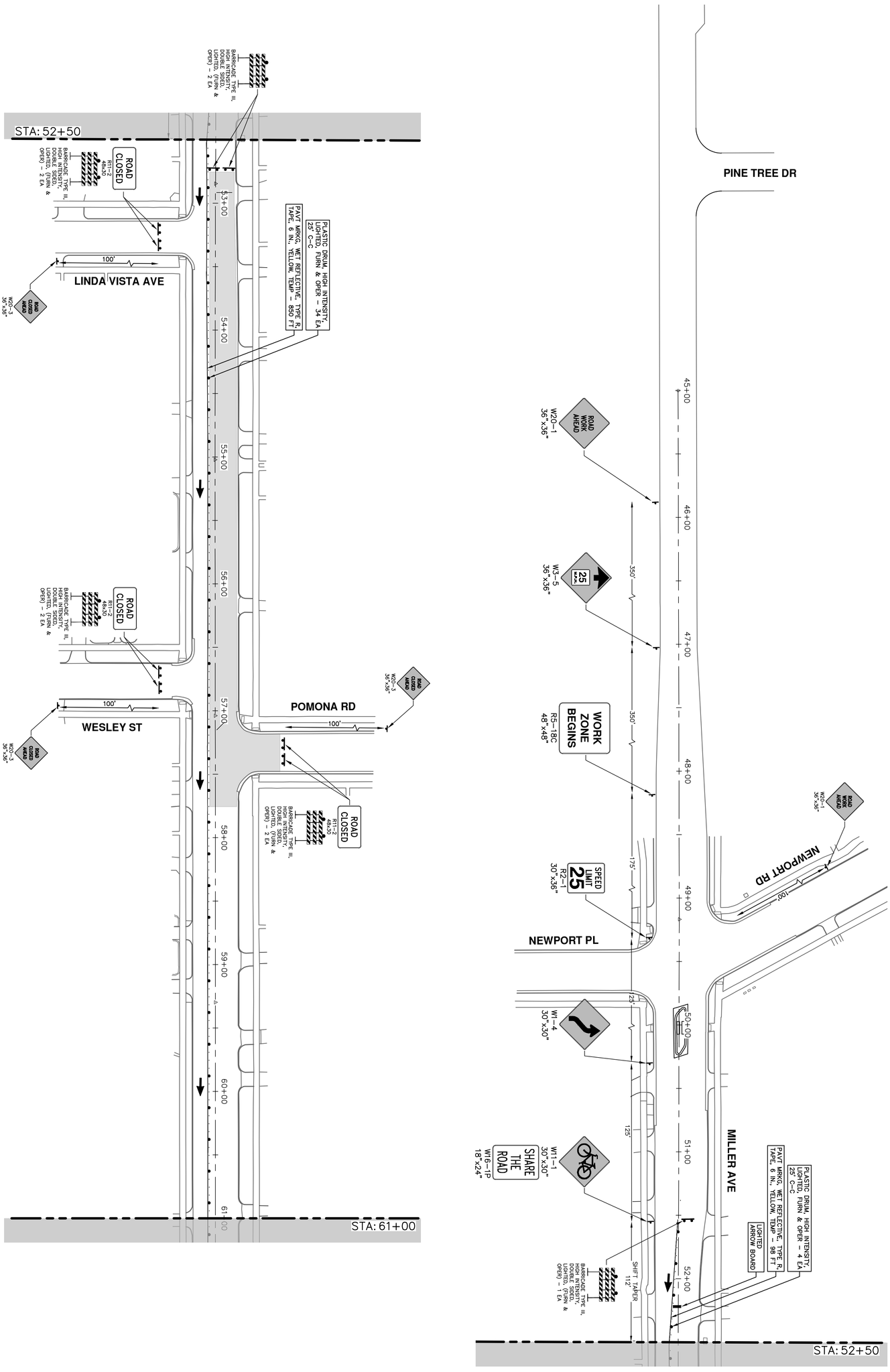
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA



SHEET No. 25 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No. 2022034-25

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE I STAGE II (WATER MAIN)

P.O.B. - STA. 61+00

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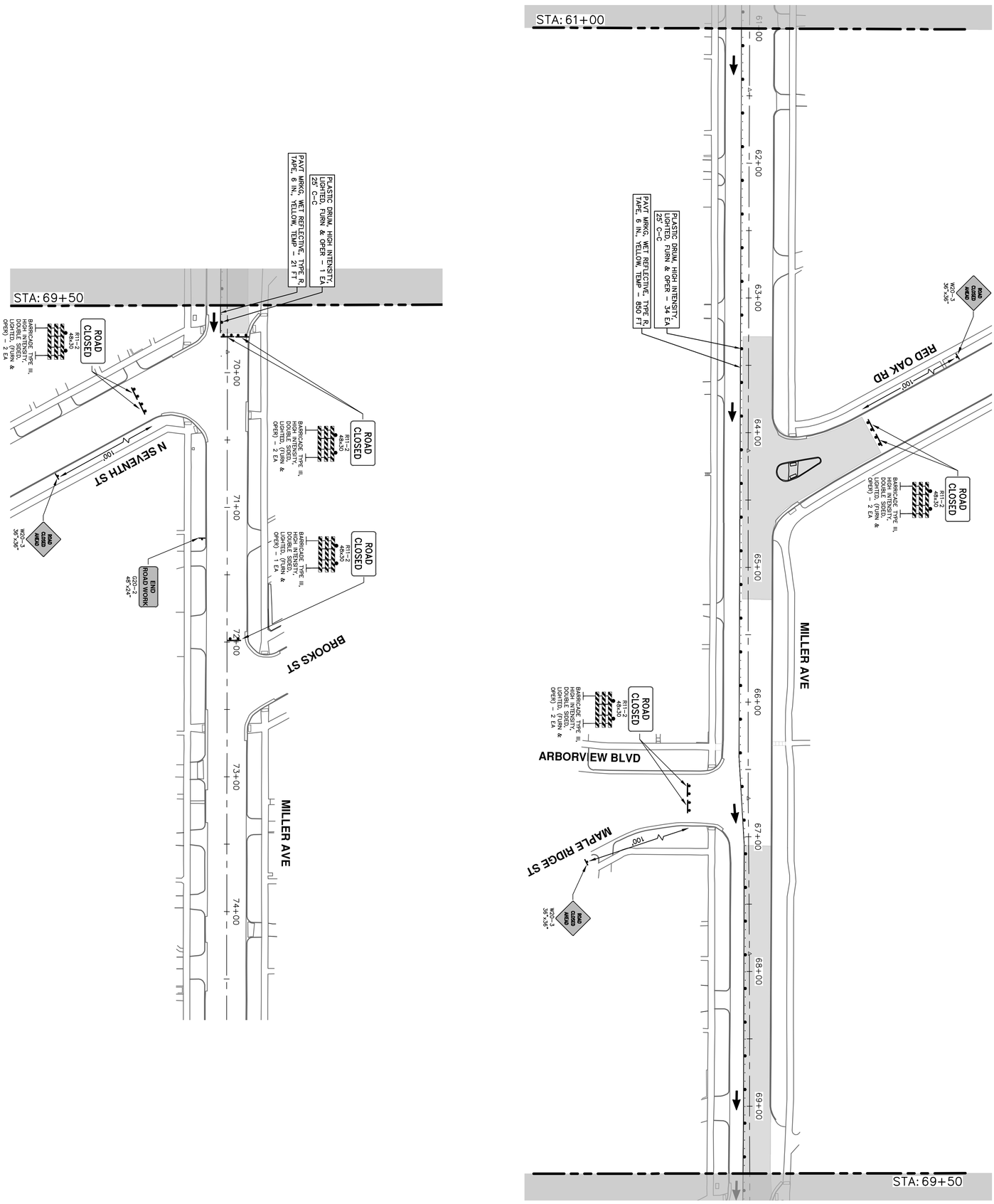
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No. 2022034-26

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE I STAGE II (WATER MAIN)

STA. 61+00 - P.O.E.

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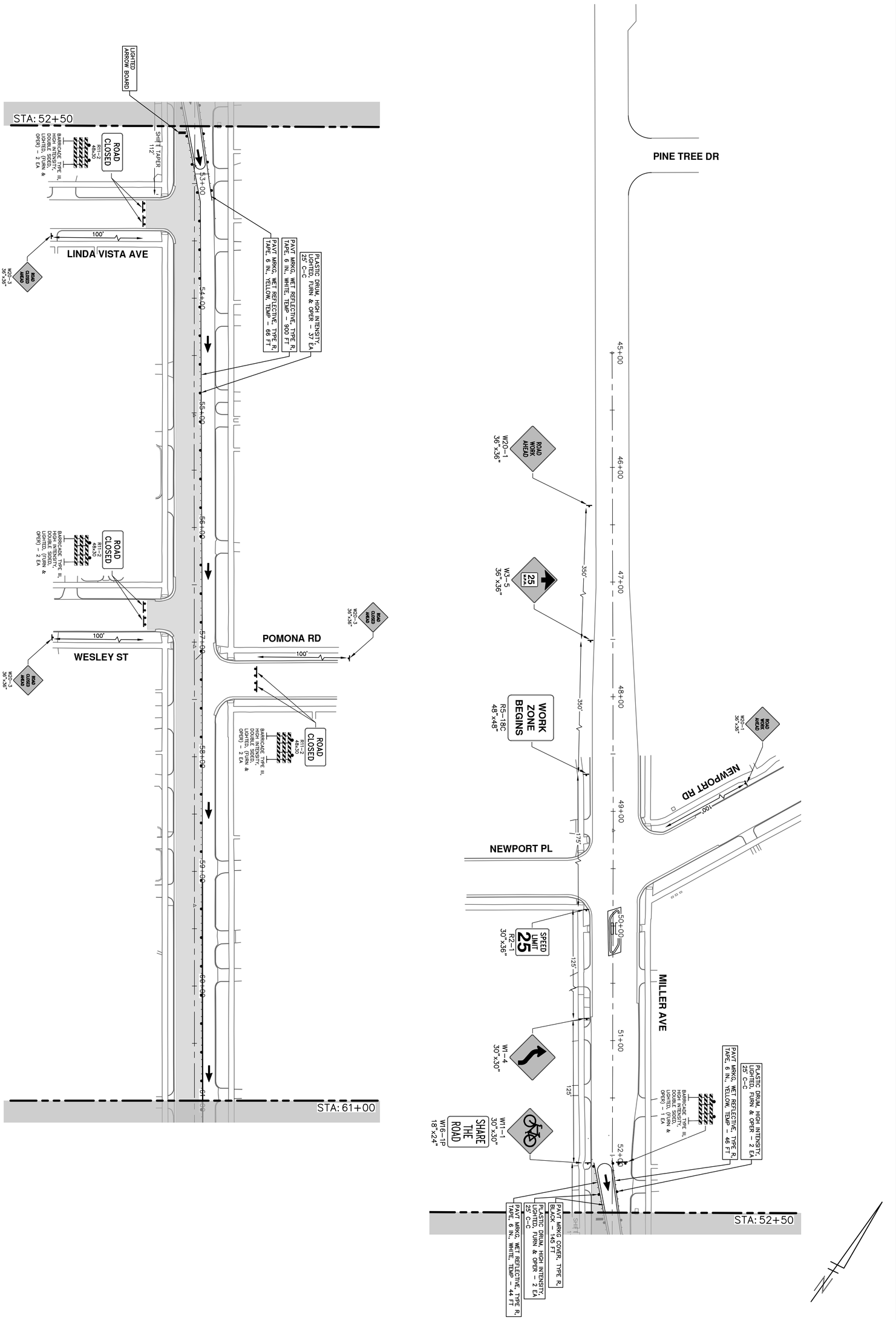
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA



SHEET No. 27 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No. 2022034-27

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE I STAGE III (WATER MAIN)

P.O.B. - STA. 61+00

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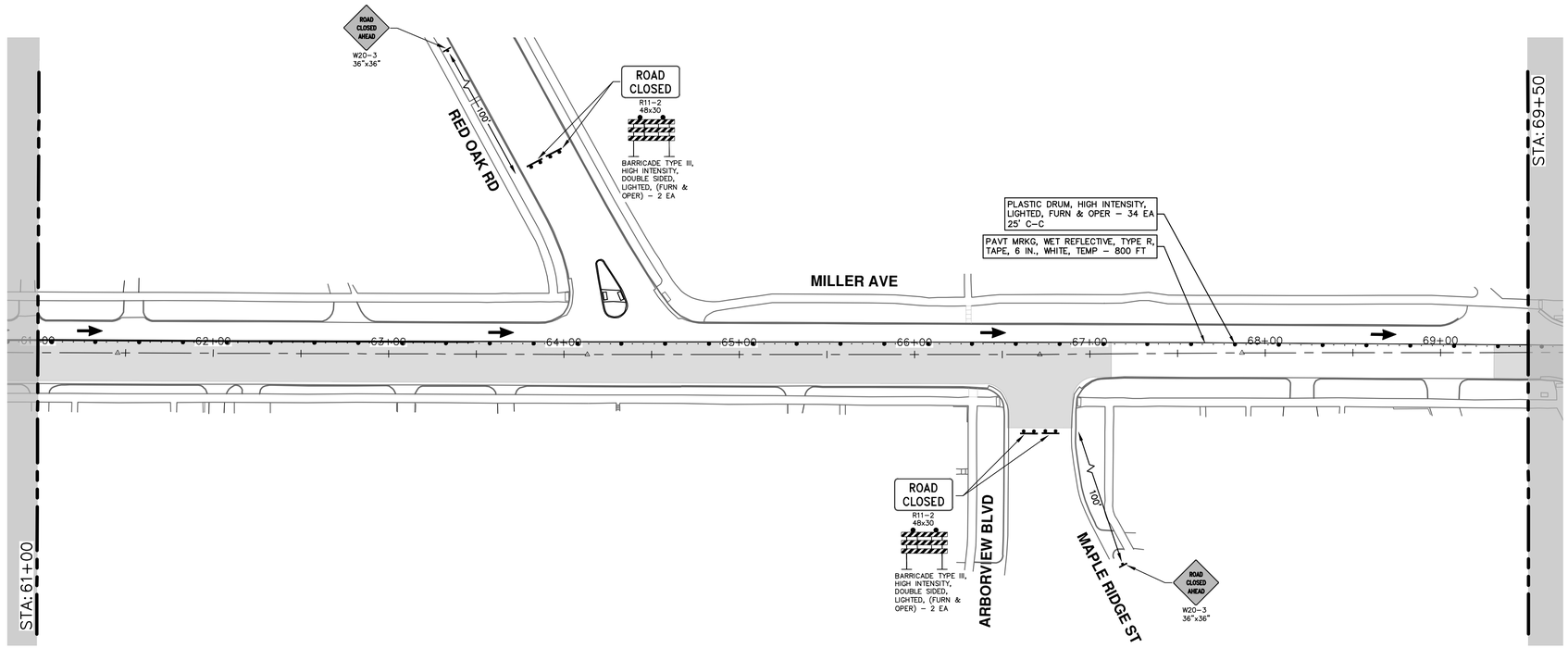
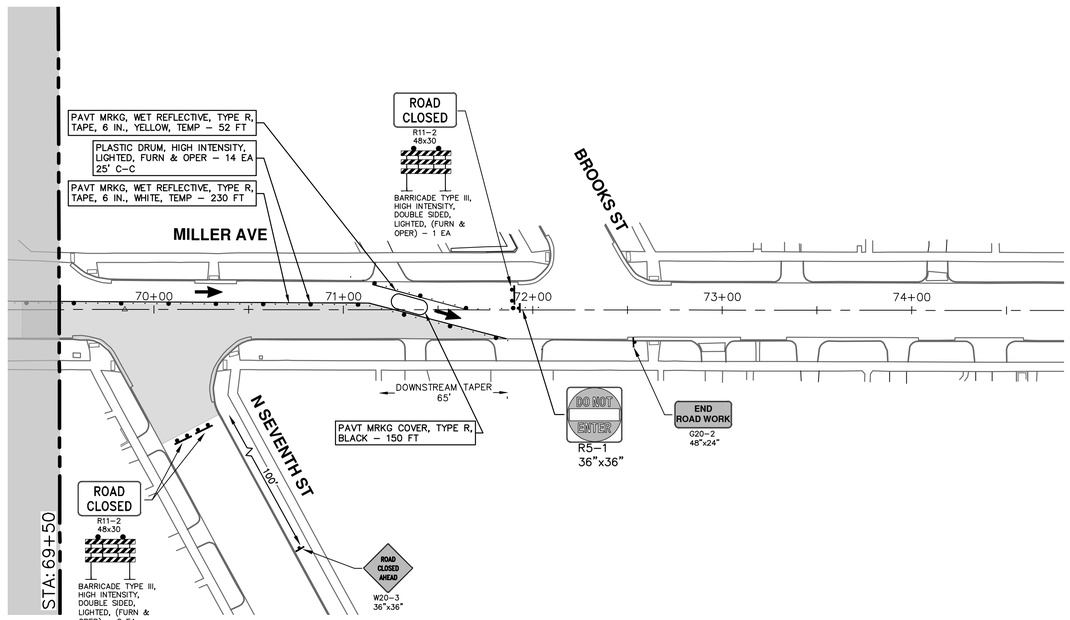
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA





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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

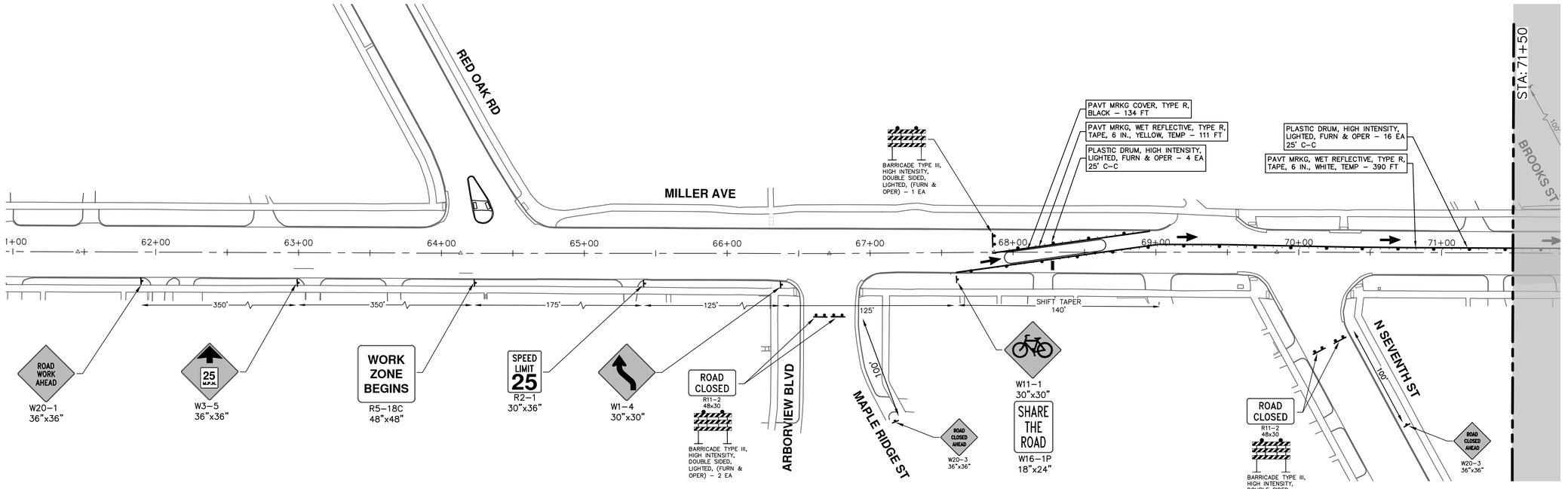
TRAFFIC CONTROL - PHASE I STAGE III (WATER MAIN)

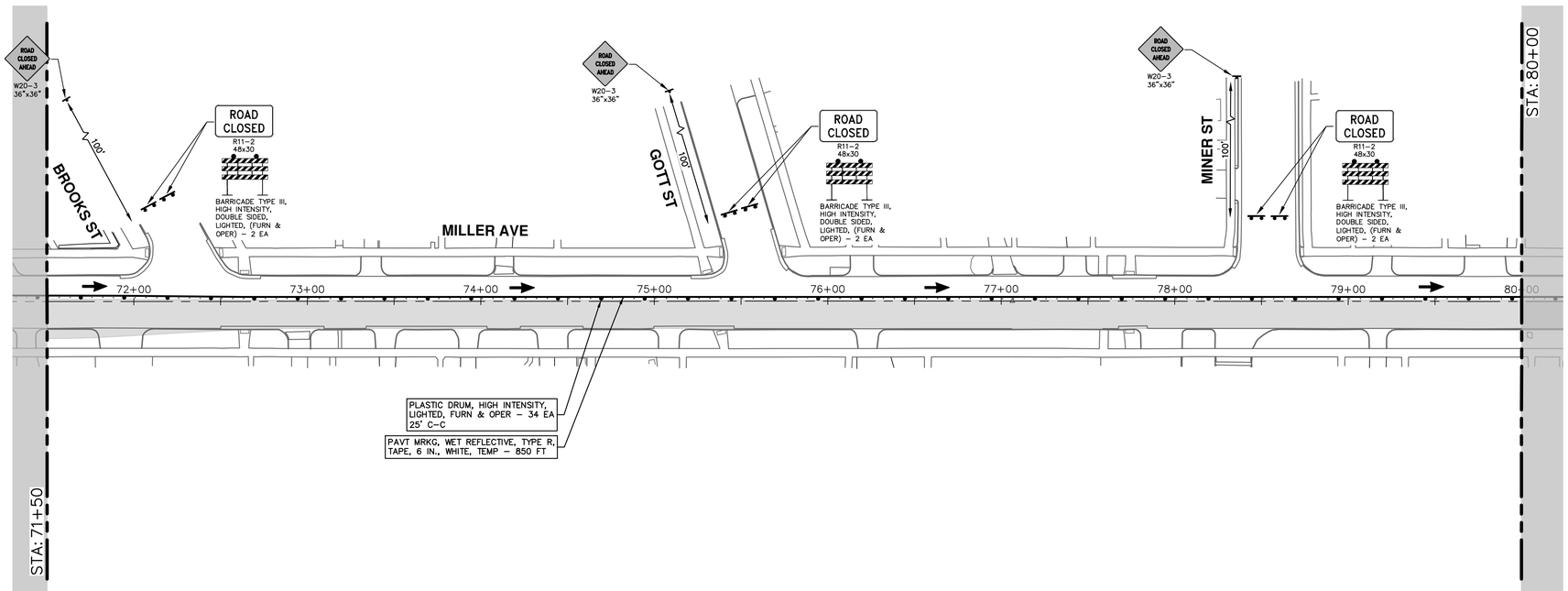
STA. 61+00 - P.O.E.

SCALE : 1" = 40'

DRAWING No.
2022034-28

SHEET No.
28 OF 131





811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4–9–24	A2D	JKA
01	ADDENDUM PLANS	4–25–24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4–29–24	A2D	JKA

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MILLER AVENUE REHABILITATION

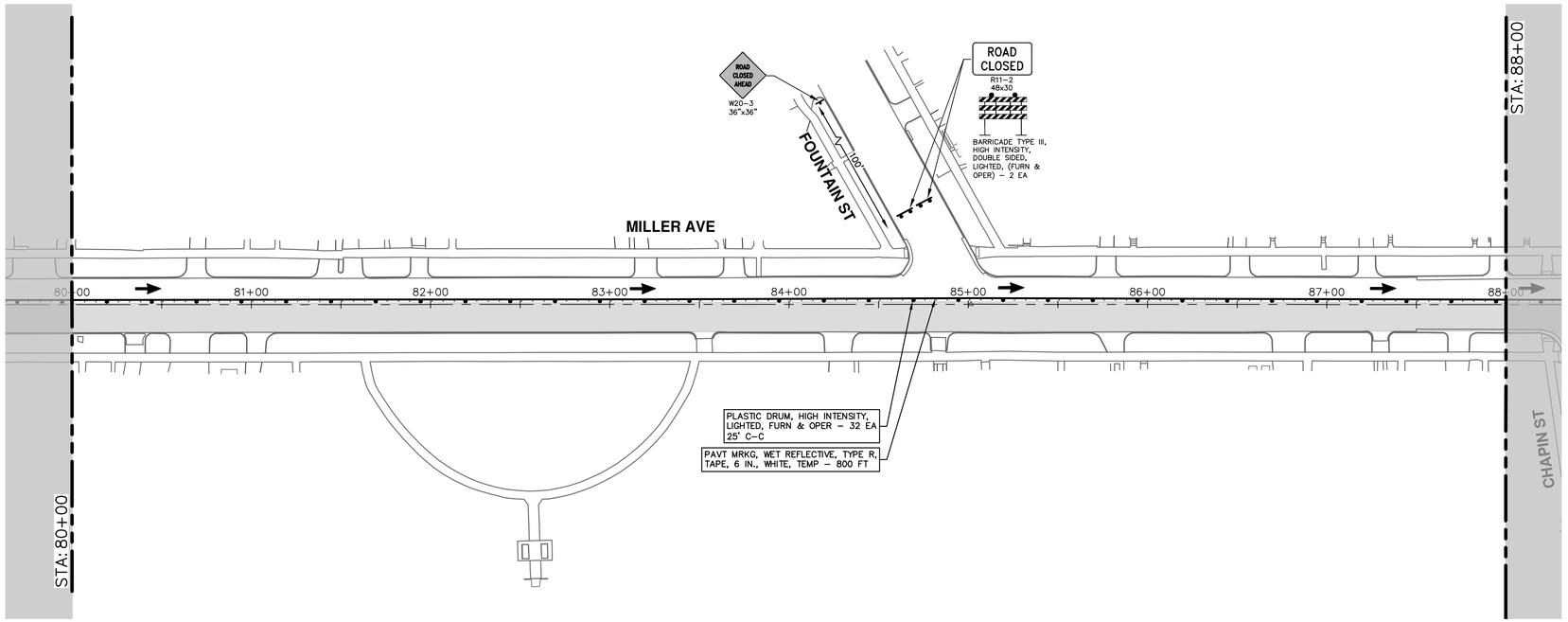
TRAFFIC CONTROL - PHASE II STAGE I (WATER MAIN)

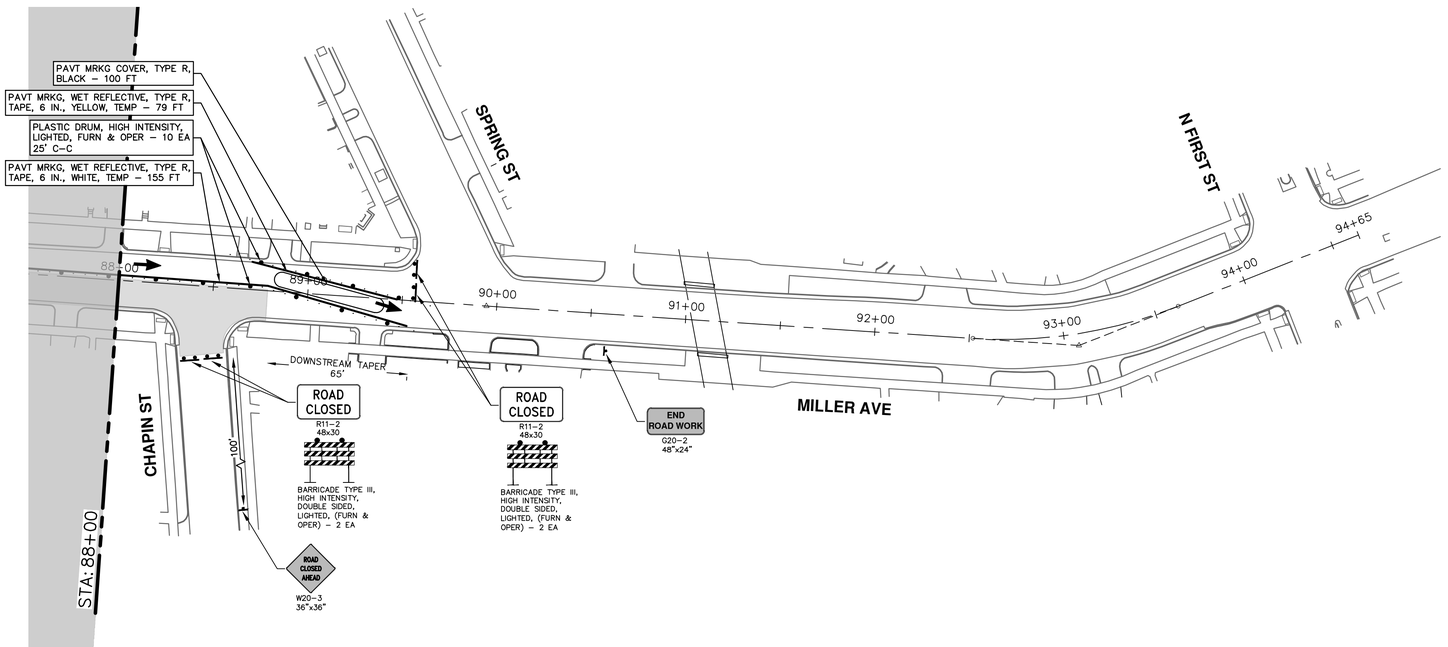
P.O.B. - STA. 80+00

SCALE : 1" = 40'

DRAWING No. **2022034-29**

SHEET No. **29 OF 131**





R:\2022034 Miller Ave Rehab\Plan Production\2022034MtrflC.dwg Dwg Created: 29-Mar-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

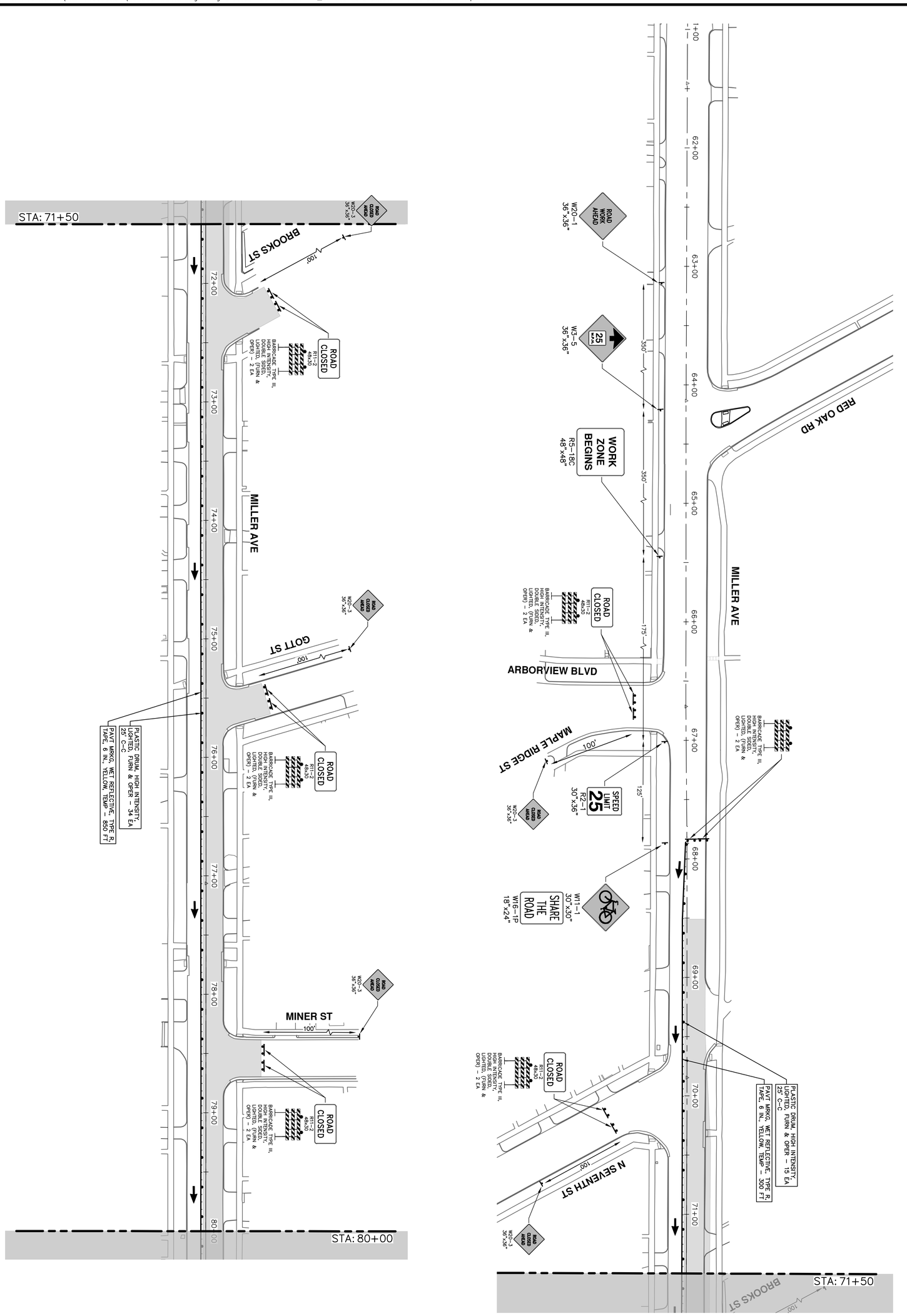
TRAFFIC CONTROL - PHASE II STAGE I (WATER MAIN)

STA. 80+00 - P.O.E.

SCALE : 1" = 40'

DRAWING No.
2022034-30

SHEET No.
30 OF 131



SHEET No. 31 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No. 2022034-31

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE II STAGE II (WATER MAIN)

P.O.B. - STA. 80+00

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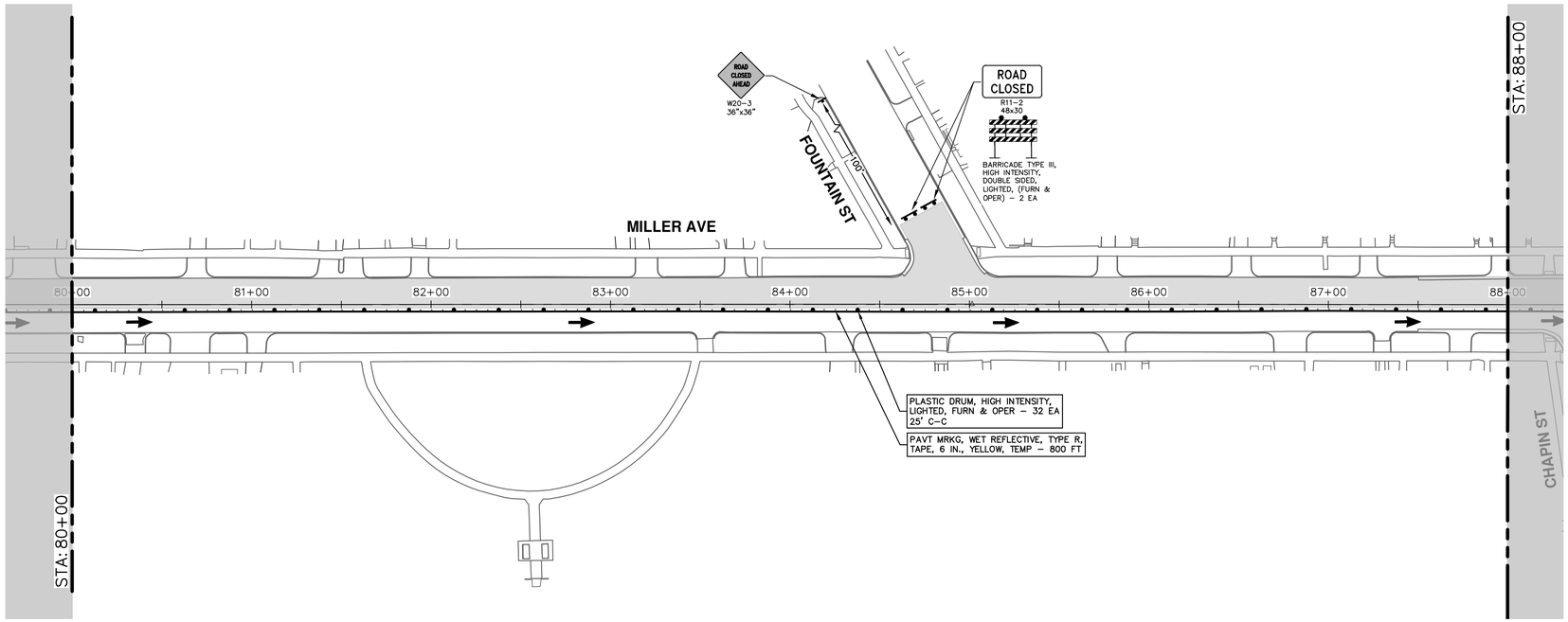
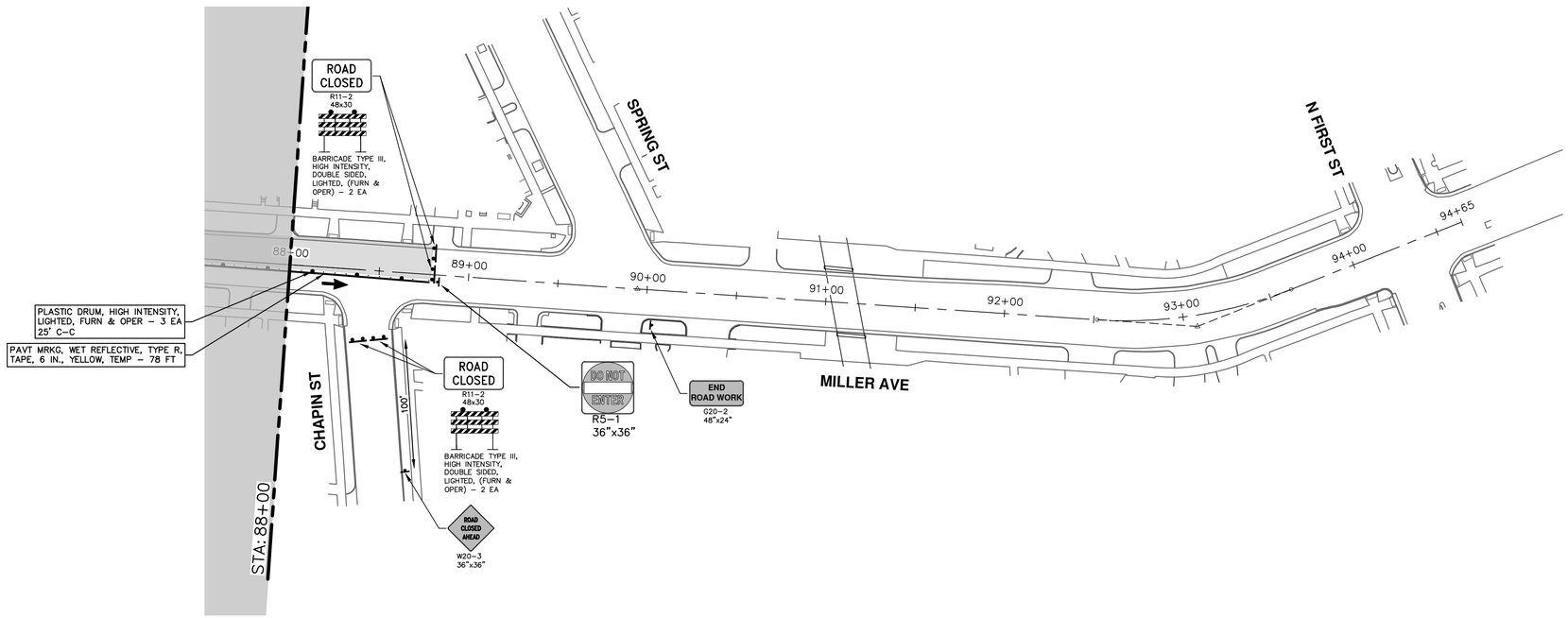
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA





811 Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE II STAGE II (WATER MAIN)

STA. 80+00 - P.O.E.

SCALE : 1" = 40'

DRAWING No. 2022034-32

SHEET No.

32 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034MtrP1D.dwg Dwg Created: 29-Mar-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

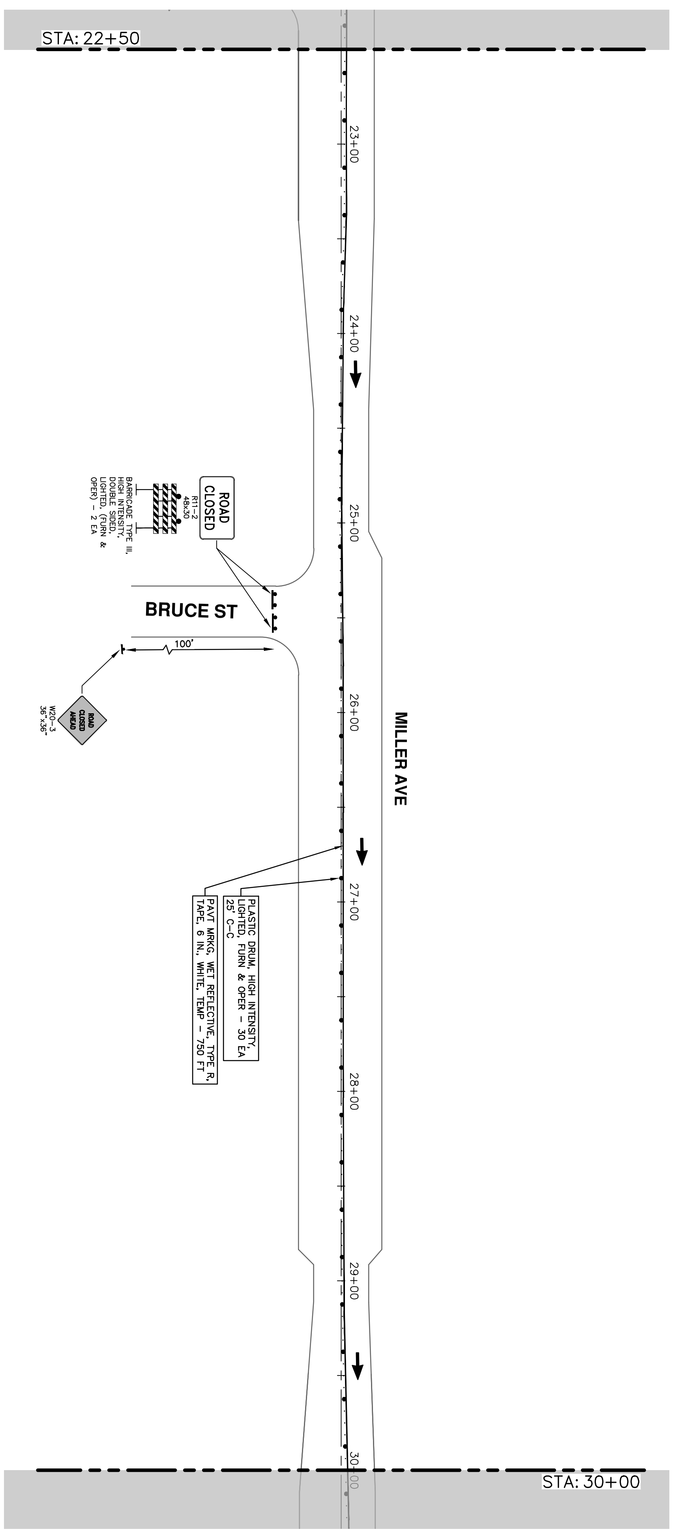
TRAFFIC CONTROL - PHASE II STAGE III (CYCLE TRACK)

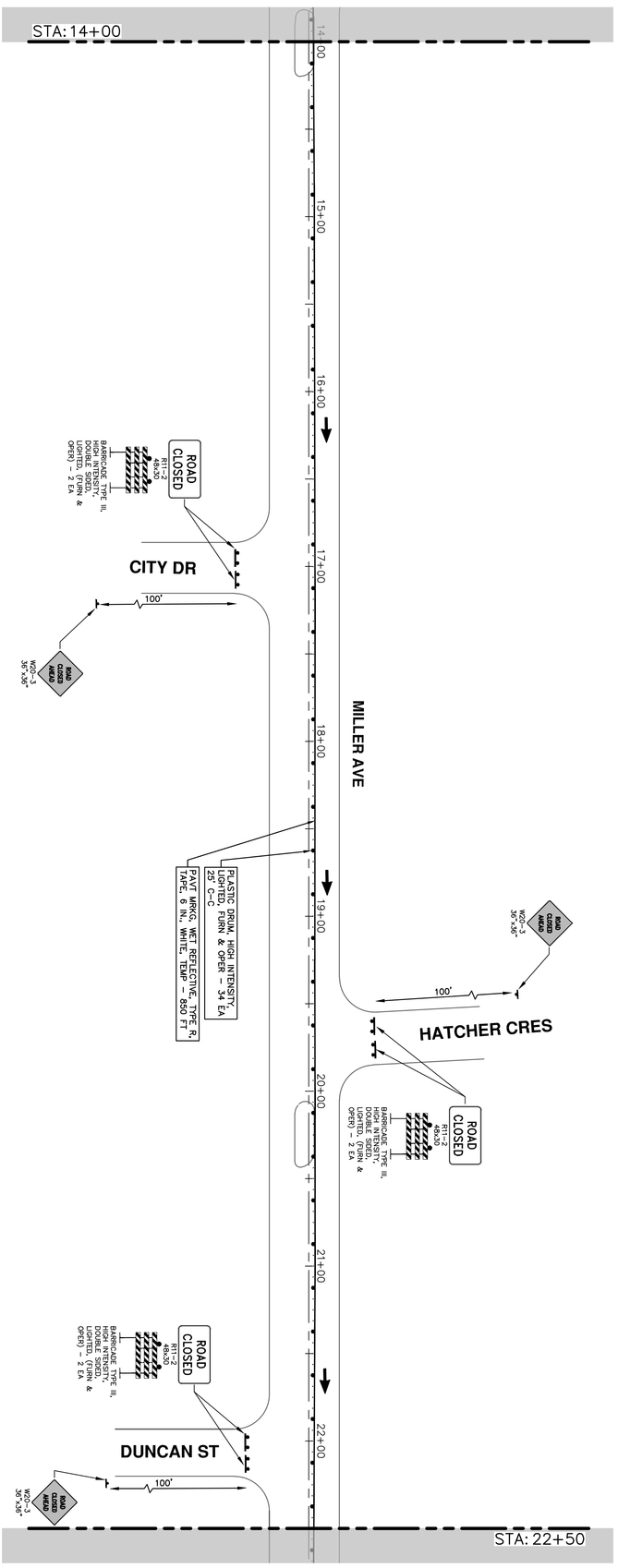
P.O.B. - STA. 14+00

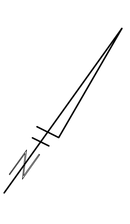
SCALE : 1" = 40'

DRAWING No. **2022034-33**

SHEET No. **33 OF 131**







SHEET No.
34 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No.
2022034-34

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE II STAGE III (CYCLE TRACK)

STA. 14+00 - STA. 30+00

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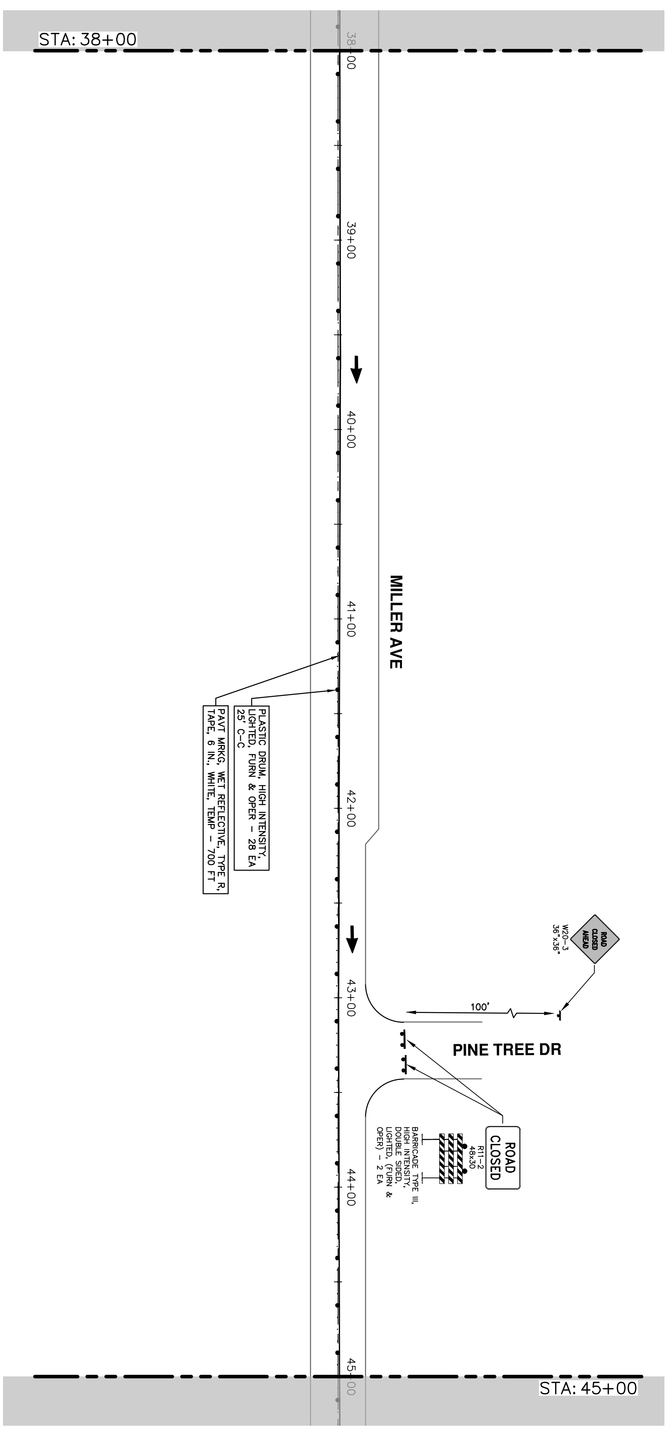
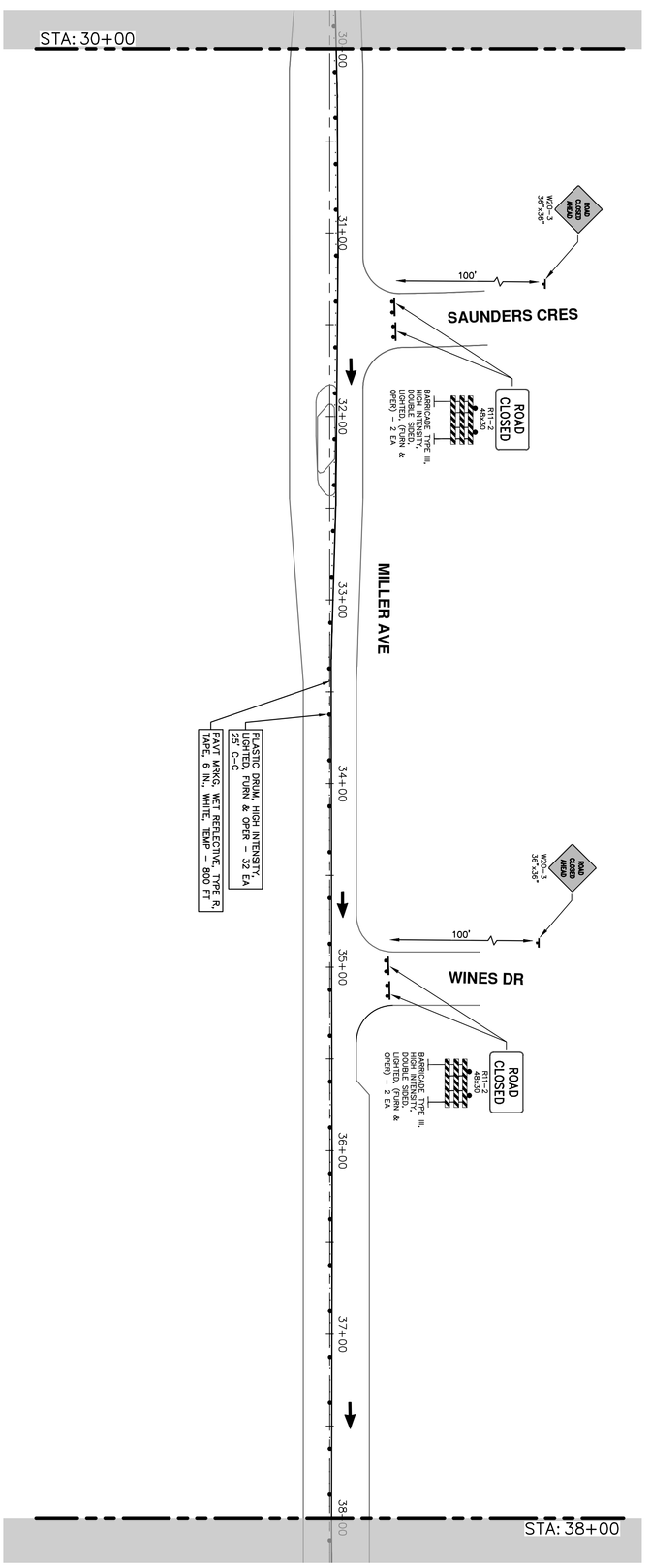
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA





CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No. 2022034-35

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE II STAGE III (CYCLE TRACK)

STA. 30+00 - STA. 45+00

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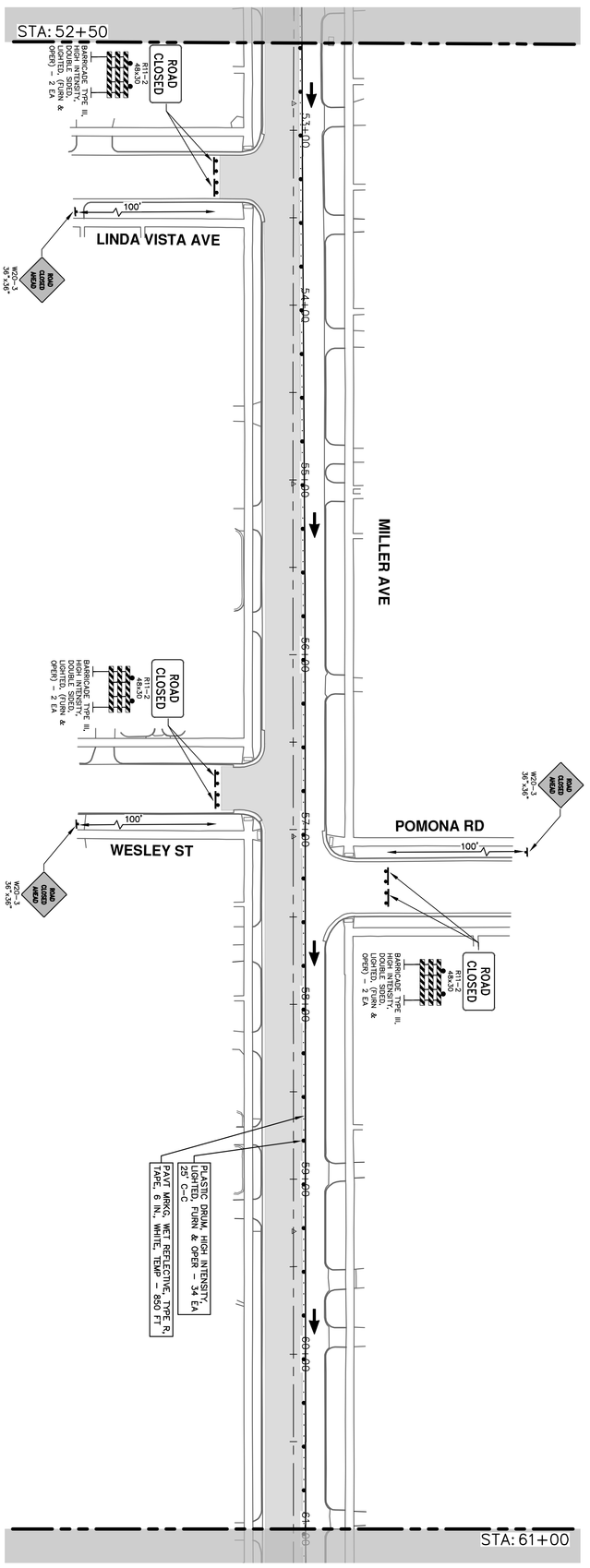
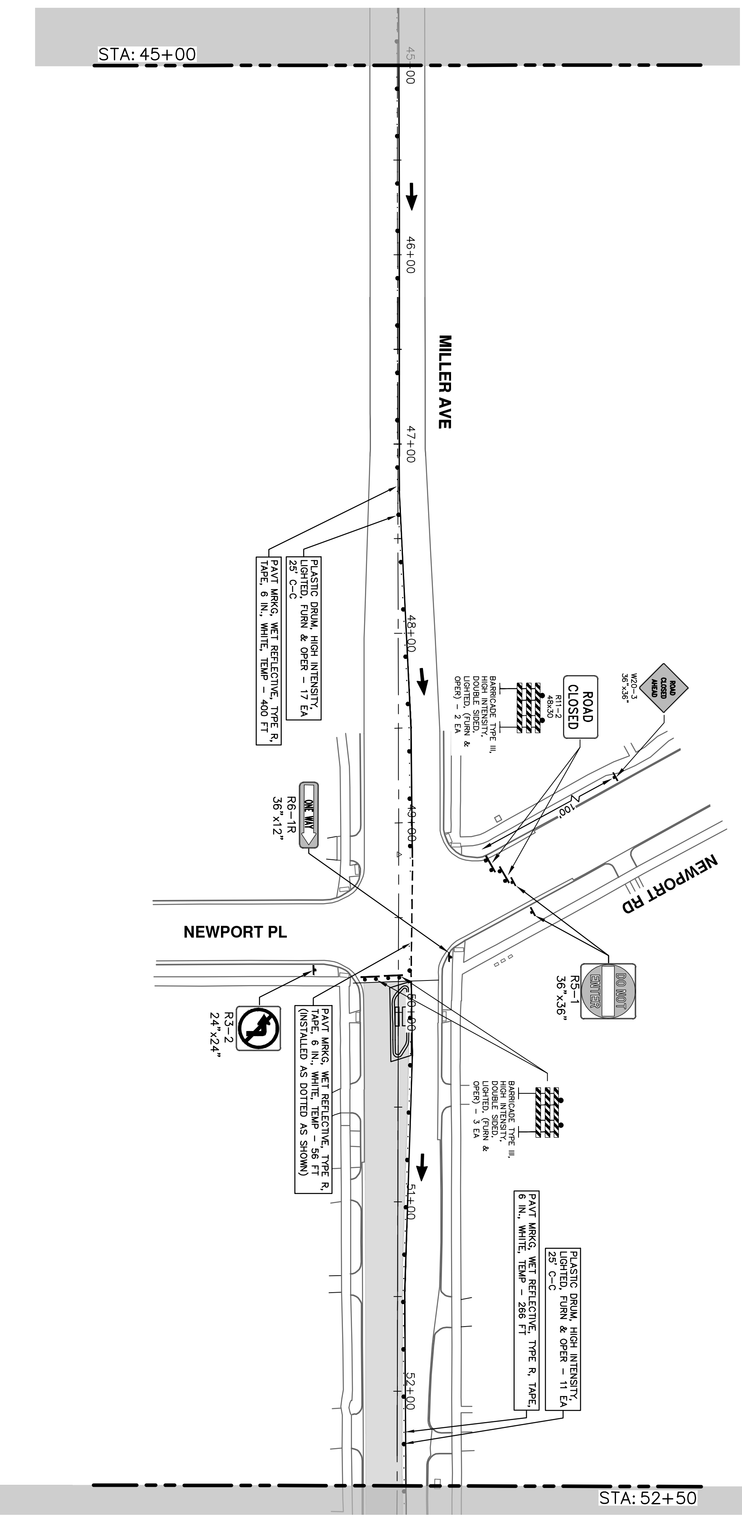
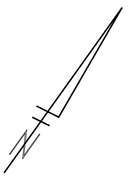
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA







SHEET No. 36 OF 131	CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING			
SCALE : 1" = 40'	MILLER AVENUE REHABILITATION			
DRAWING No. 2022034-36	TRAFFIC CONTROL - PHASE II STAGE III (CYCLE TRACK)			
	STA. 45+00 - STA. 61+00			

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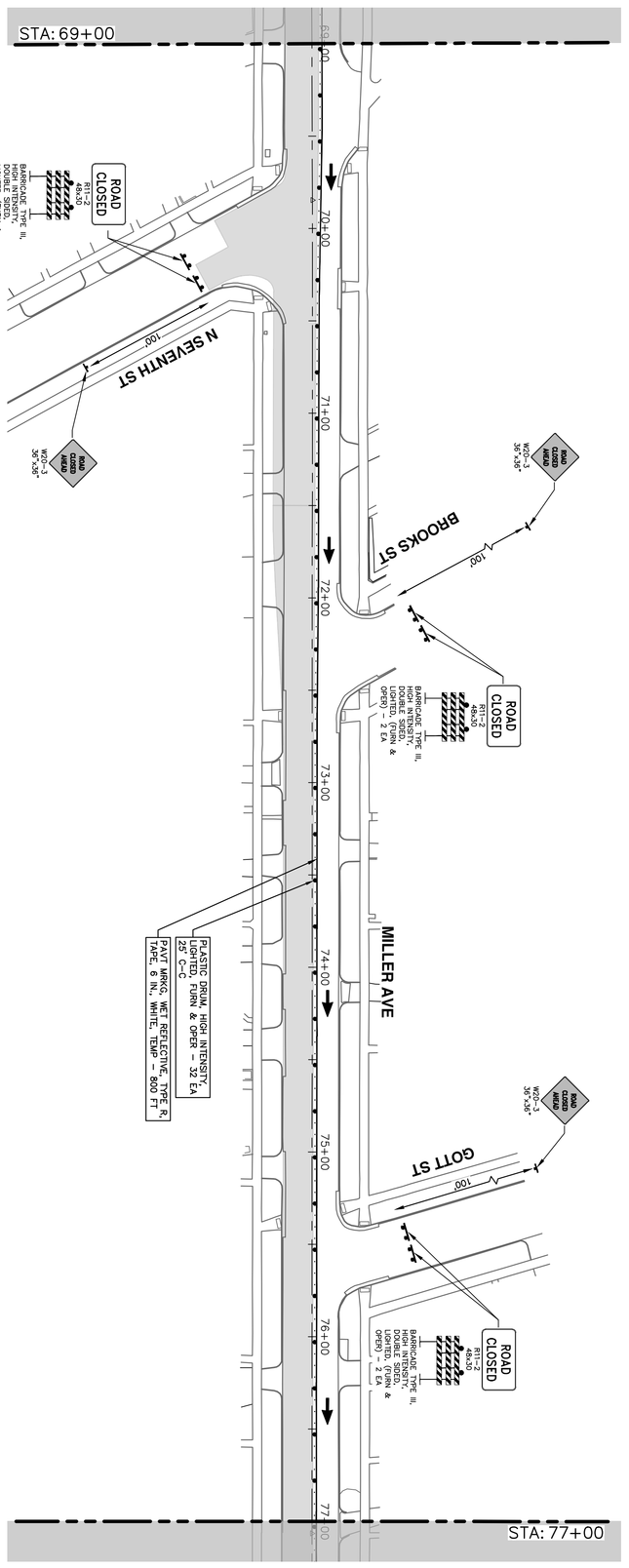
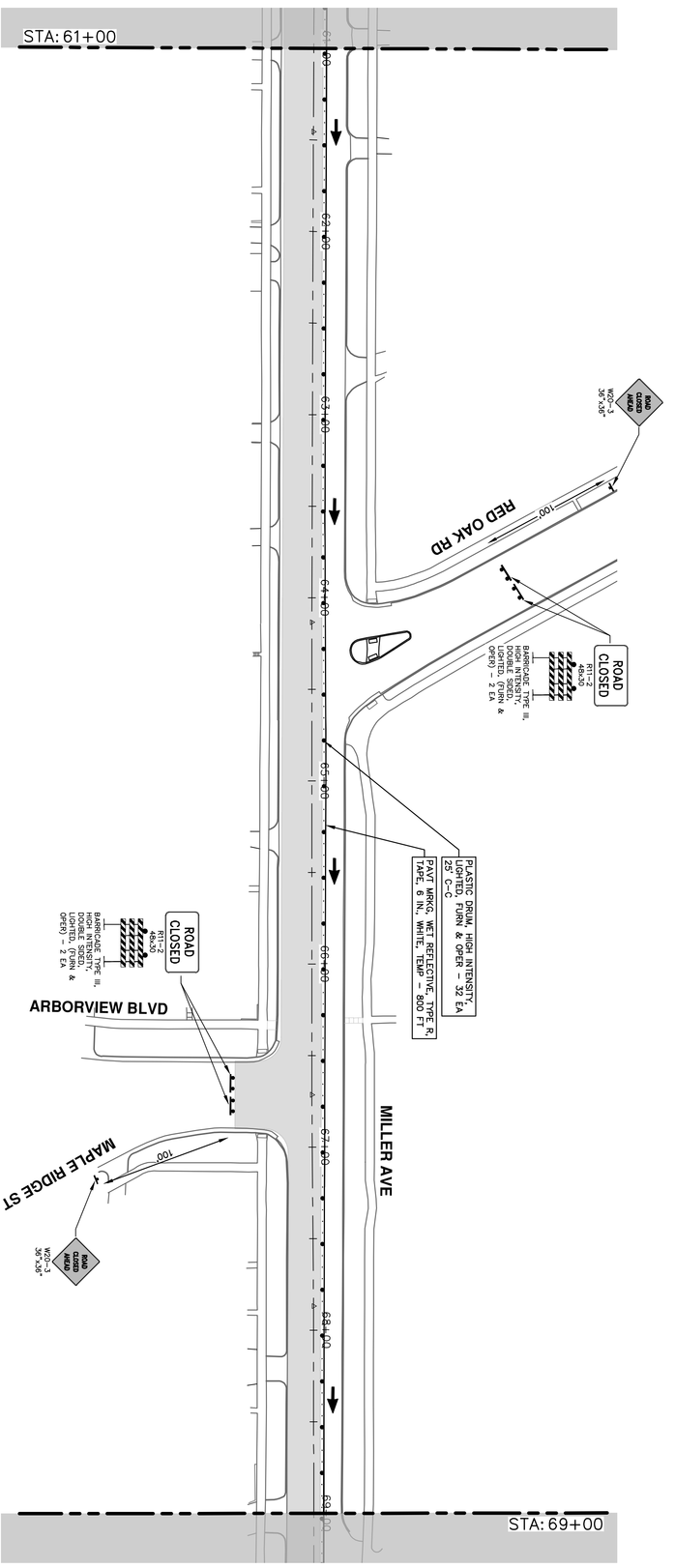
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

811 Know what's below. Call before you dig.





SHEET No. 37 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 40'

DRAWING No. 2022034-37

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE II STAGE III (CYCLE TRACK)

STA. 61+00 - STA. 77+00

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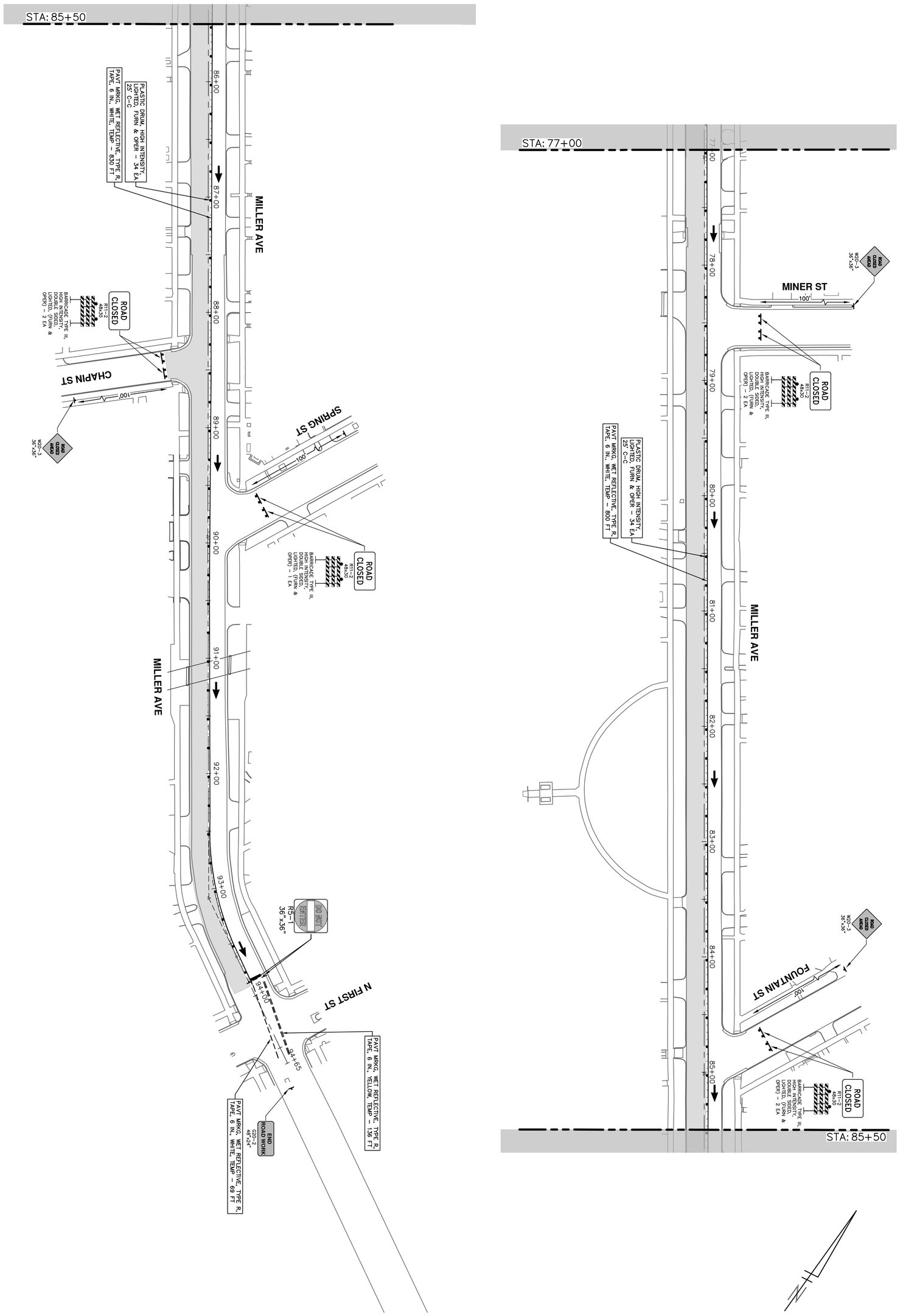
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA



02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA	
01	ADDENDUM PLANS	4-25-24	A2D	JKA	
00	BID SET	4-9-24	A2D	JKA	
REV.	DESCRIPTION	DATE	DRAWN	CHECKED	

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Know what's **below.** **Call** before you dig.

SHEET No. 38 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

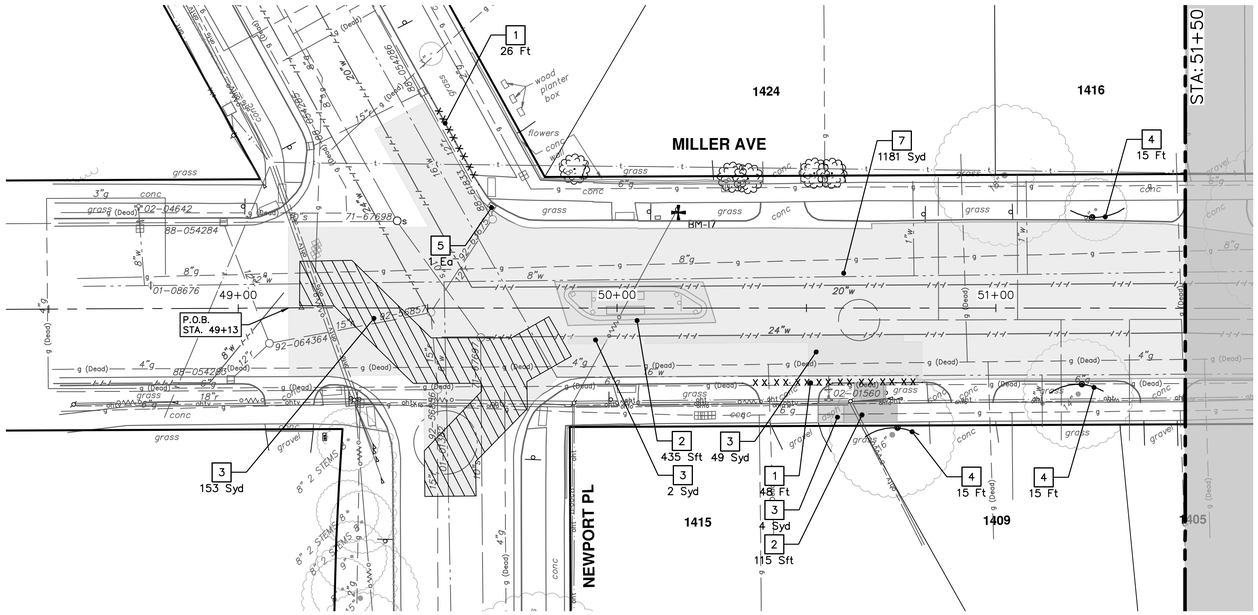
SCALE : 1" = 40'

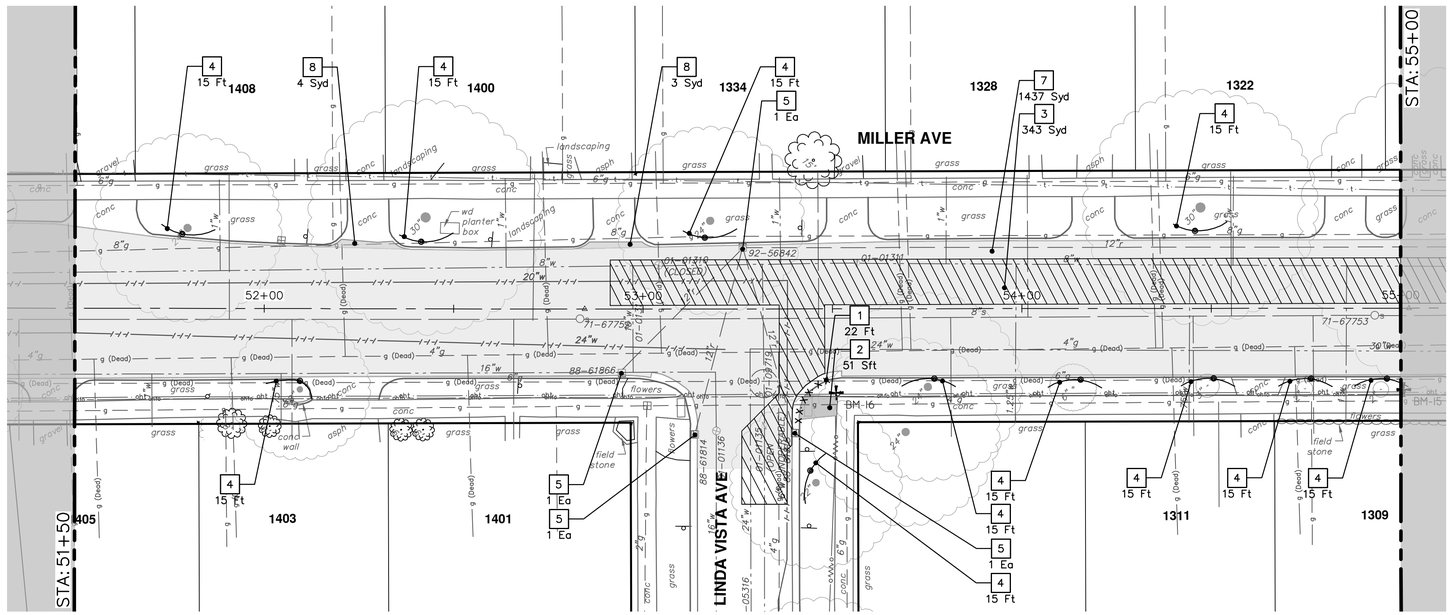
DRAWING No. **2022034-38**

MILLER AVENUE REHABILITATION

TRAFFIC CONTROL - PHASE II STAGE III (CYCLE TRACK)

STA. 77+00 - P.O.E.





REMOVAL KEY

KEY	DESCRIPTION
1	Curb, Gutter, and Curb and Gutter, Any Type, Rem *
2	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem
3	HMA, Any Thickness, Rem *
4	Tree Protective Fence
5	Erosion Control, Inlet Protection, Fabric Drop
6A	Tree, Rem, 6 In. – 12 In.
6B	Tree, Rem, 13 In. – 19 In.
6C	Tree, Rem, 20 In. – 29 In.
6D	Tree, Rem, 40 In. and Larger
7	Cold-Milling HMA Surface
8	HMA Surface, Rem

* SAWCUT FULL DEPTH AT REMOVAL LIMITS AS DIRECTED BY ENGINEER

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

REMOVALS

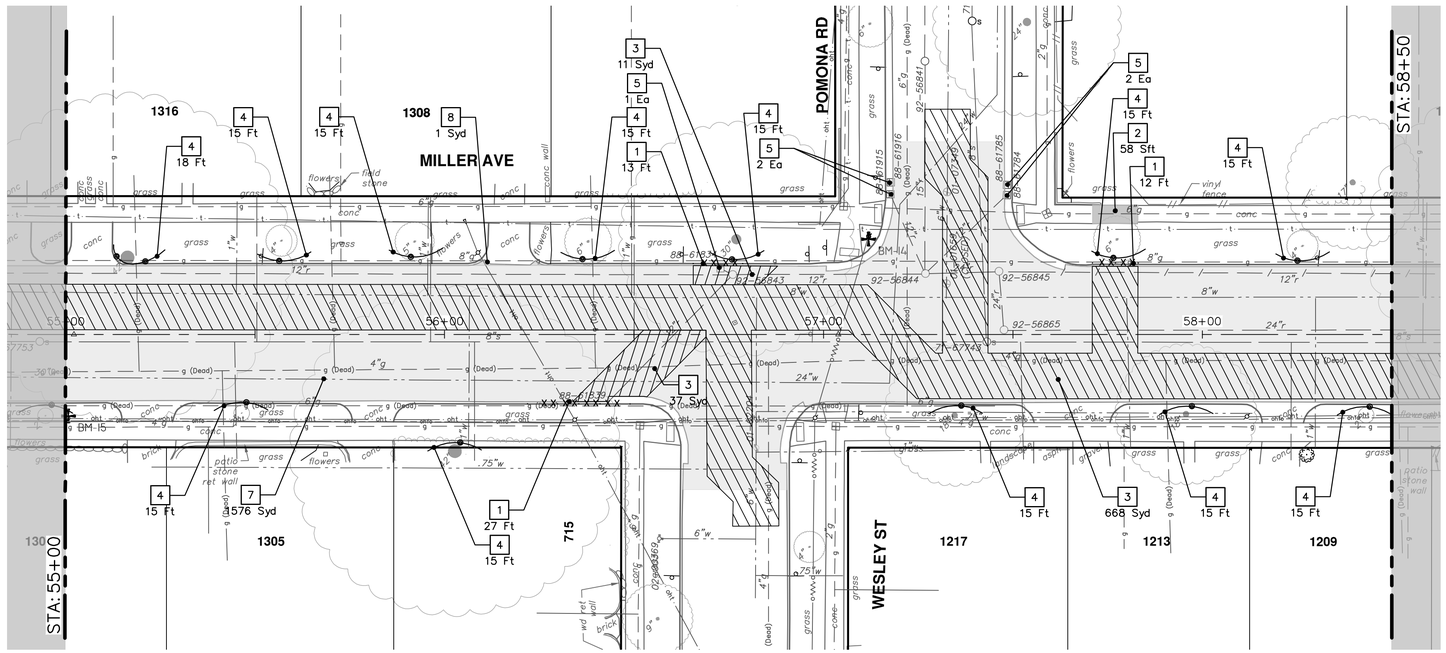
STA. 49+13 - STA. 55+00

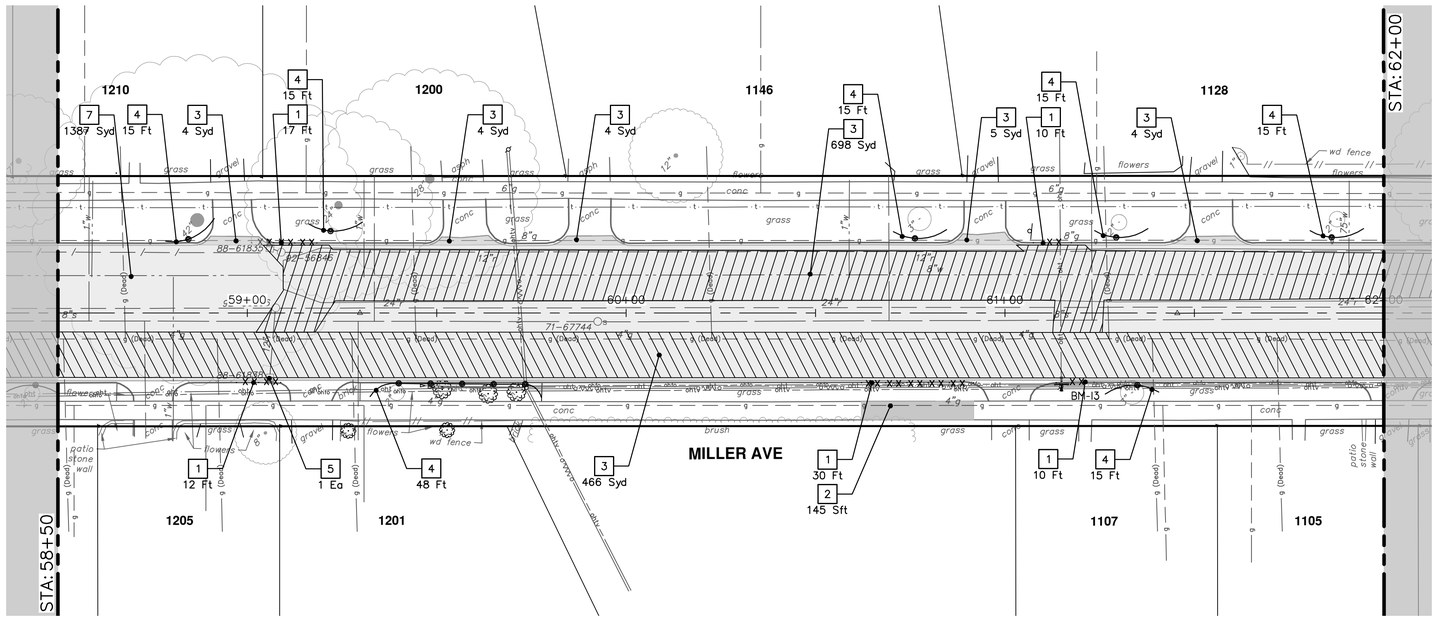
SCALE : 1" = 20'

DRAWING No. 2022034-39

SHEET No. 39 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Rem1.dwg Dwg Created: 29-Mar-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





REMOVAL KEY

KEY	DESCRIPTION
1	Curb, Gutter, and Curb and Gutter, Any Type, Rem *
2	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem
3	HMA, Any Thickness, Rem *
4	Tree Protective Fence
5	Erosion Control, Inlet Protection, Fabric Drop
6A	Tree, Rem, 6 In. – 12 In.
6B	Tree, Rem, 13 In. – 19 In.
6C	Tree, Rem, 20 In. – 29 In.
6D	Tree, Rem, 40 In. and Larger
7	Cold-Milling HMA Surface
8	HMA Surface, Rem

* SAWCUT FULL DEPTH AT REMOVAL LIMITS AS DIRECTED BY ENGINEER

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

REMOVALS

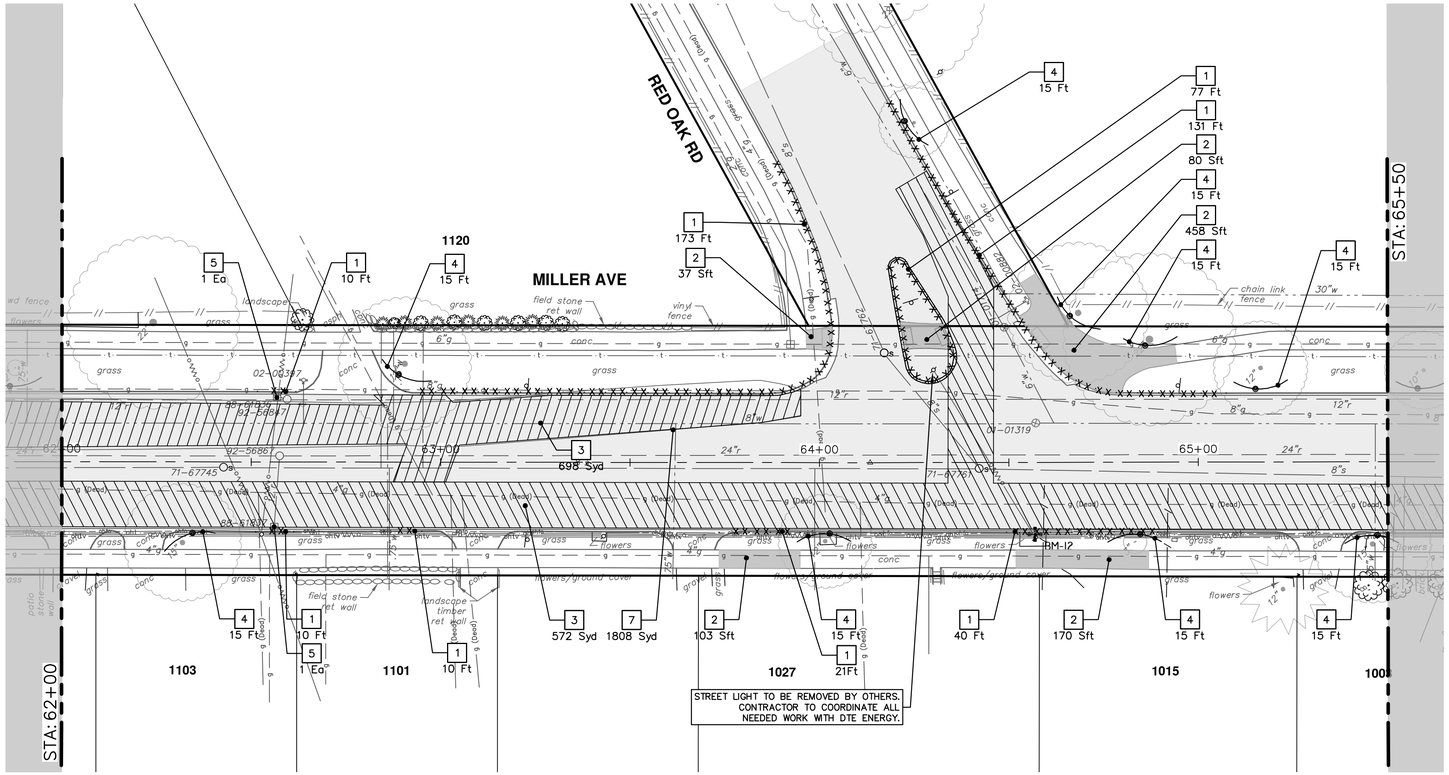
STA. 55+.00 - STA. 62+00

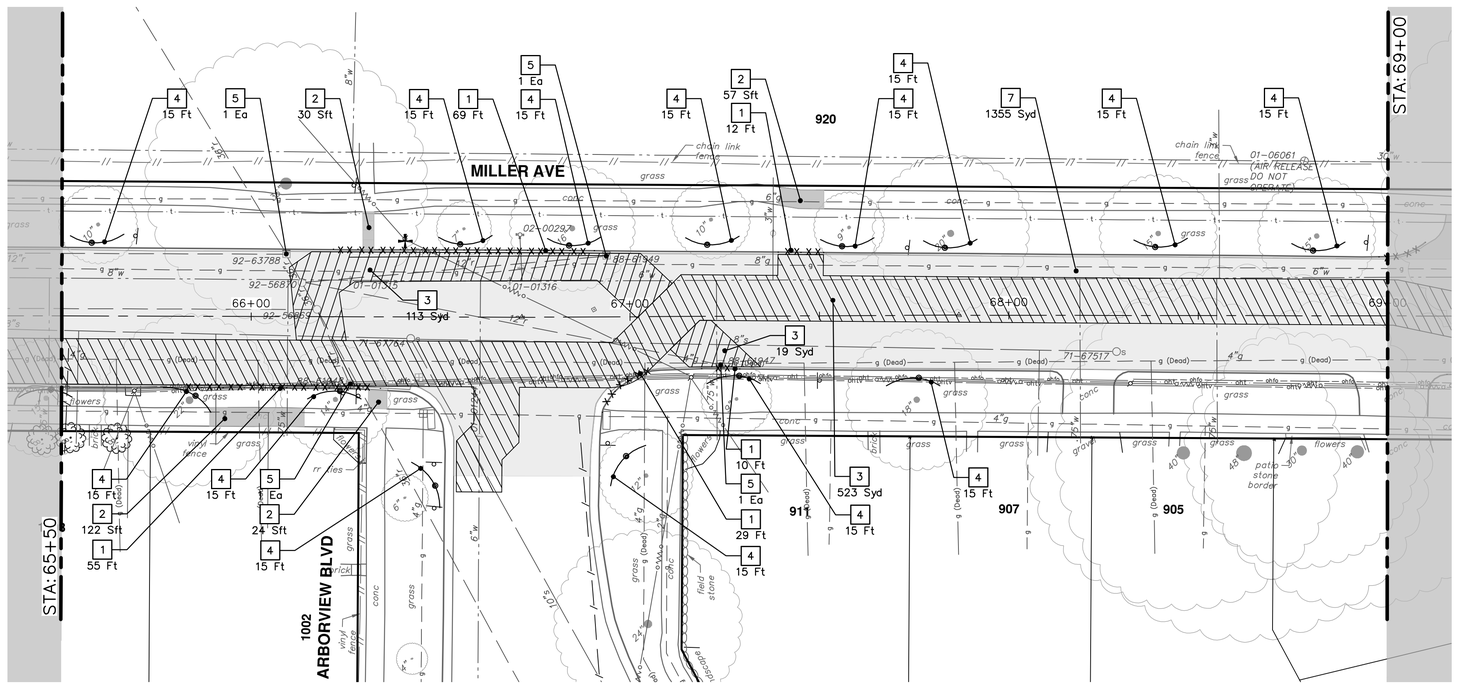
SCALE : 1" = 20'

DRAWING No. 2022034-40

SHEET No. 40 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Rem1.dwg Dwg Created: 29-Mar-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





REMOVAL KEY

KEY	DESCRIPTION
1	Curb, Gutter, and Curb and Gutter, Any Type, Rem *
2	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem
3	HMA, Any Thickness, Rem *
4	Tree Protective Fence
5	Erosion Control, Inlet Protection, Fabric Drop
6A	Tree, Rem, 6 In. – 12 In.
6B	Tree, Rem, 13 In. – 19 In.
6C	Tree, Rem, 20 In. – 29 In.
6D	Tree, Rem, 40 In. and Larger
7	Cold-Milling HMA Surface
8	HMA Surface, Rem

* SAWCUT FULL DEPTH AT REMOVAL LIMITS AS DIRECTED BY ENGINEER

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

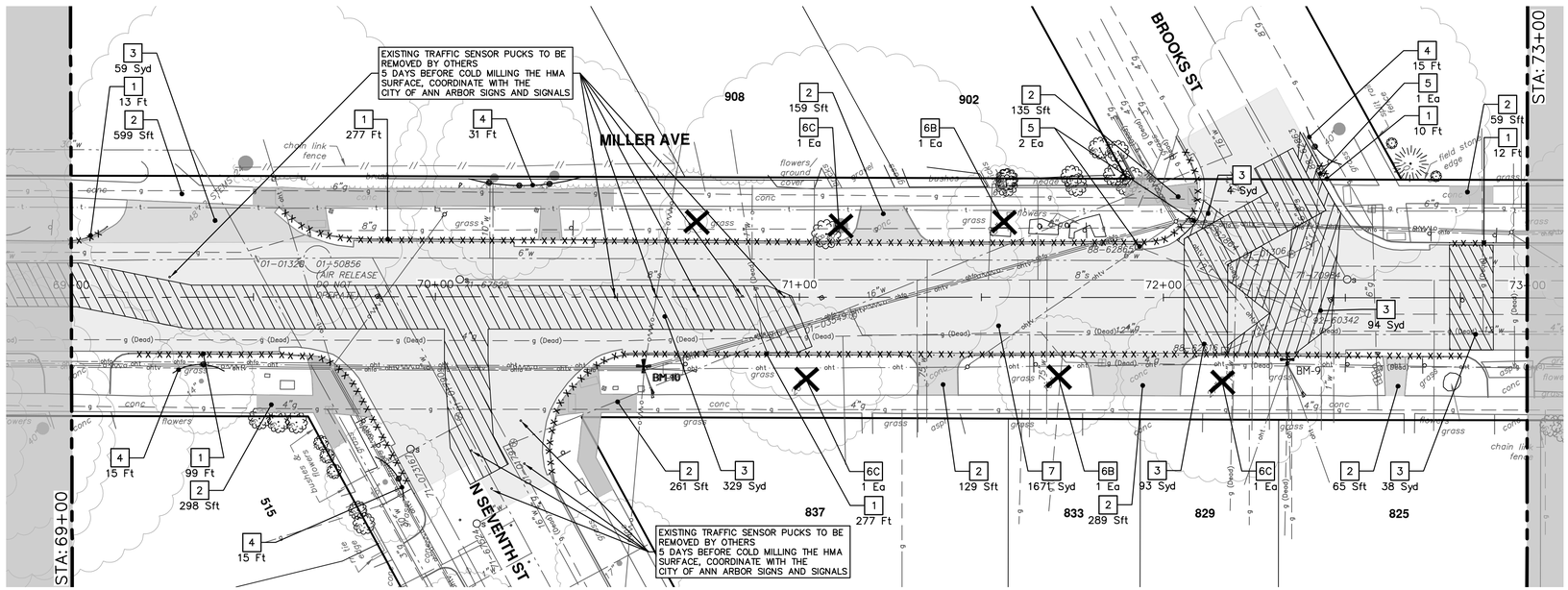
REMOVALS

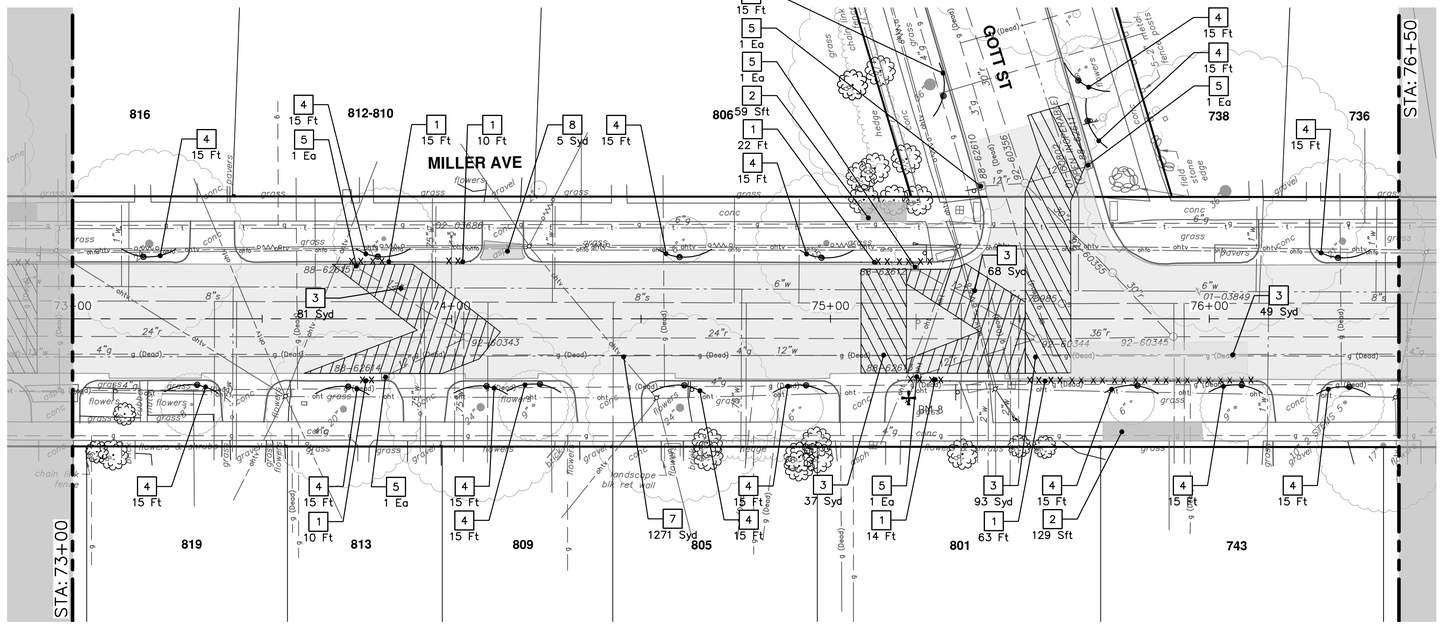
STA. 62+00 - STA. 69+00

SCALE : 1" = 20'

DRAWING No. 2022034-41

SHEET No. 41 OF 131





REMOVAL KEY

KEY	DESCRIPTION
1	Curb, Gutter, and Curb and Gutter, Any Type, Rem *
2	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem
3	HMA, Any Thickness, Rem *
4	Tree Protective Fence
5	Erosion Control, Inlet Protection, Fabric Drop
6A	Tree, Rem, 6 In. – 12 In.
6B	Tree, Rem, 13 In. – 19 In.
6C	Tree, Rem, 20 In. – 29 In.
6D	Tree, Rem, 40 In. and Larger
7	Cold–Milling HMA Surface
8	HMA Surface, Rem

* SAWCUT FULL DEPTH AT REMOVAL LIMITS AS DIRECTED BY ENGINEER

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

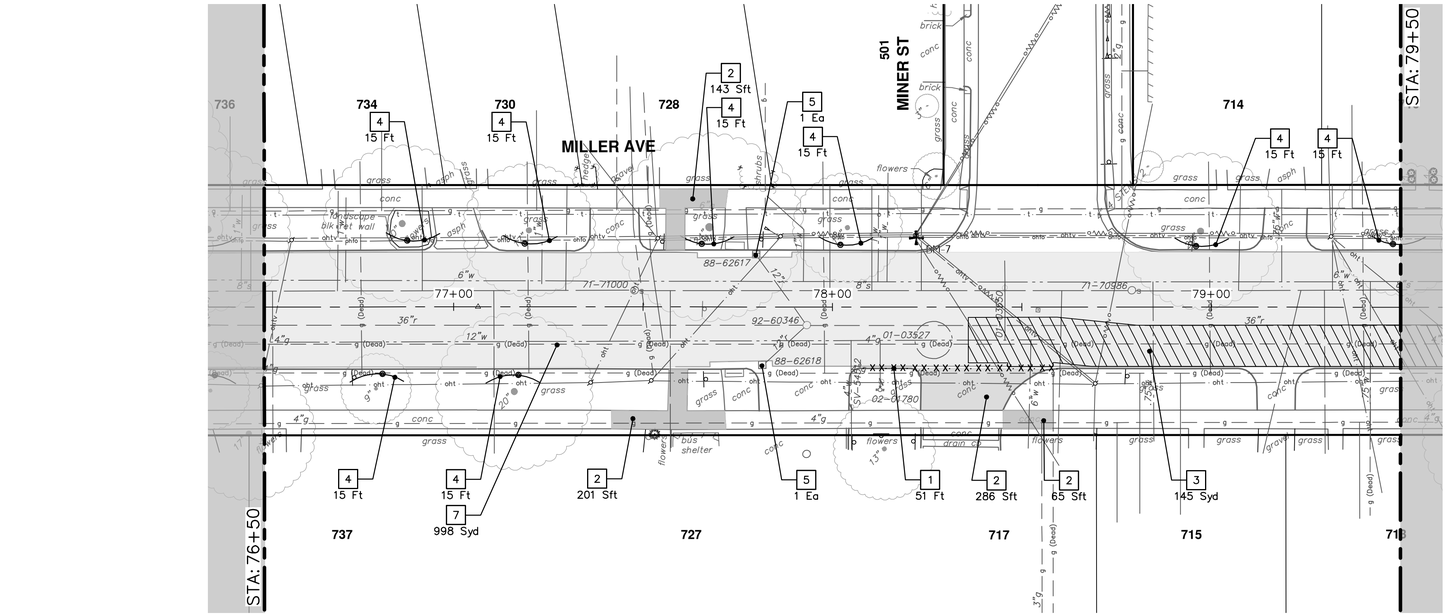
REMOVALS

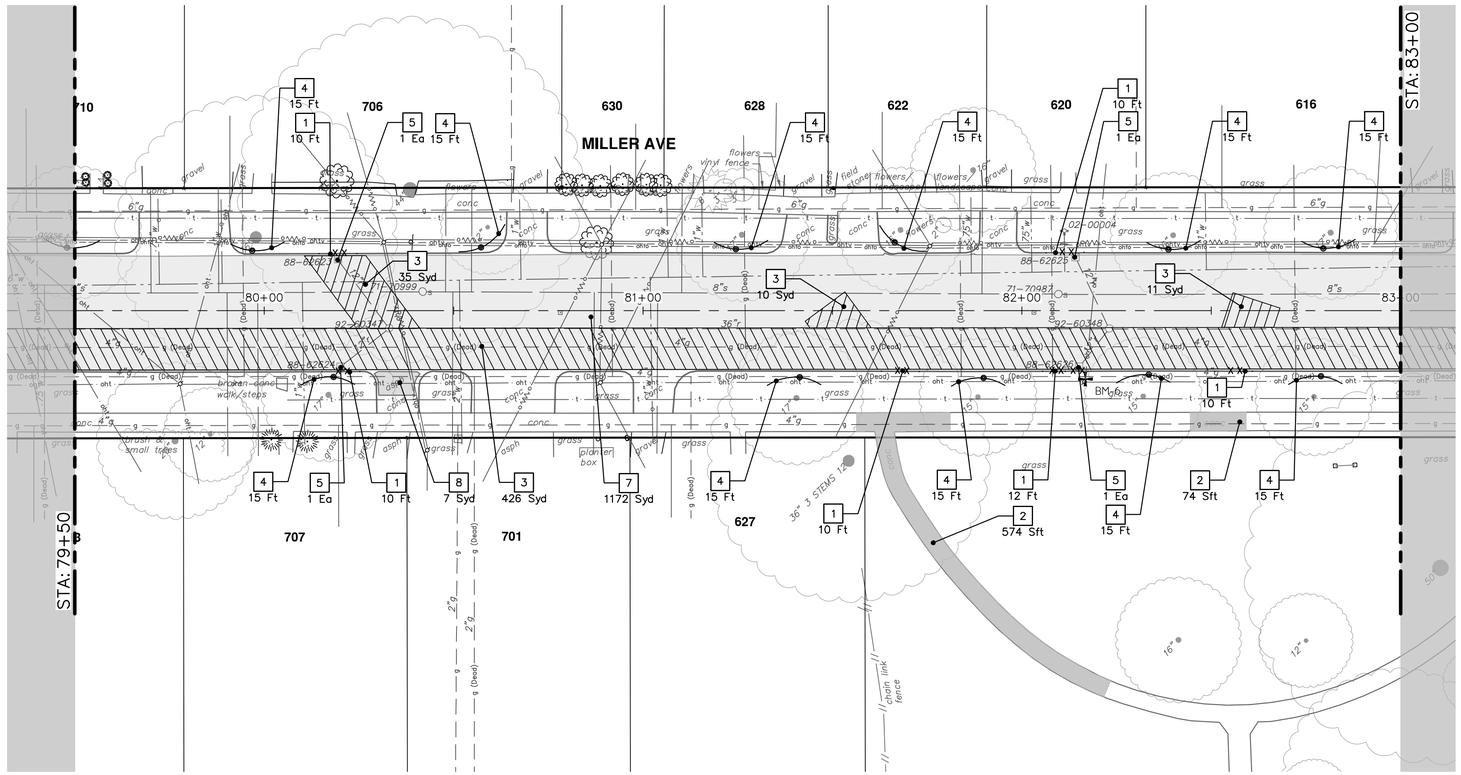
STA. 69+00 - STA. 76+50

SCALE: 1" = 20'

DRAWING No. 2022034-42

SHEET No. 42 OF 131





REMOVAL KEY

KEY	DESCRIPTION
1	Curb, Gutter, and Curb and Gutter, Any Type, Rem *
2	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem
3	HMA, Any Thickness, Rem *
4	Tree Protective Fence
5	Erosion Control, Inlet Protection, Fabric Drop
6A	Tree, Rem, 6 In. – 12 In.
6B	Tree, Rem, 13 In. – 19 In.
6C	Tree, Rem, 20 In. – 29 In.
6D	Tree, Rem, 40 In. and Larger
7	Cold–Milling HMA Surface
8	HMA Surface, Rem

* SAWCUT FULL DEPTH AT REMOVAL LIMITS AS DIRECTED BY ENGINEER

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

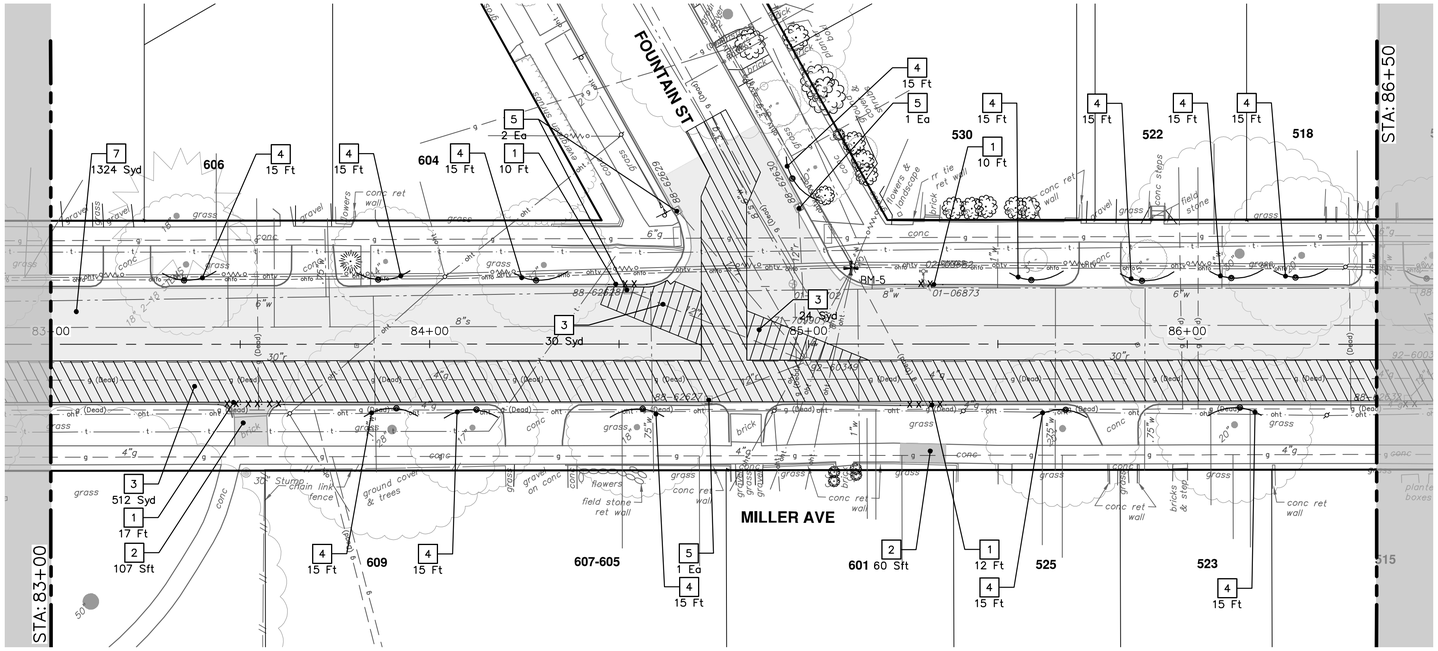
REMOVALS

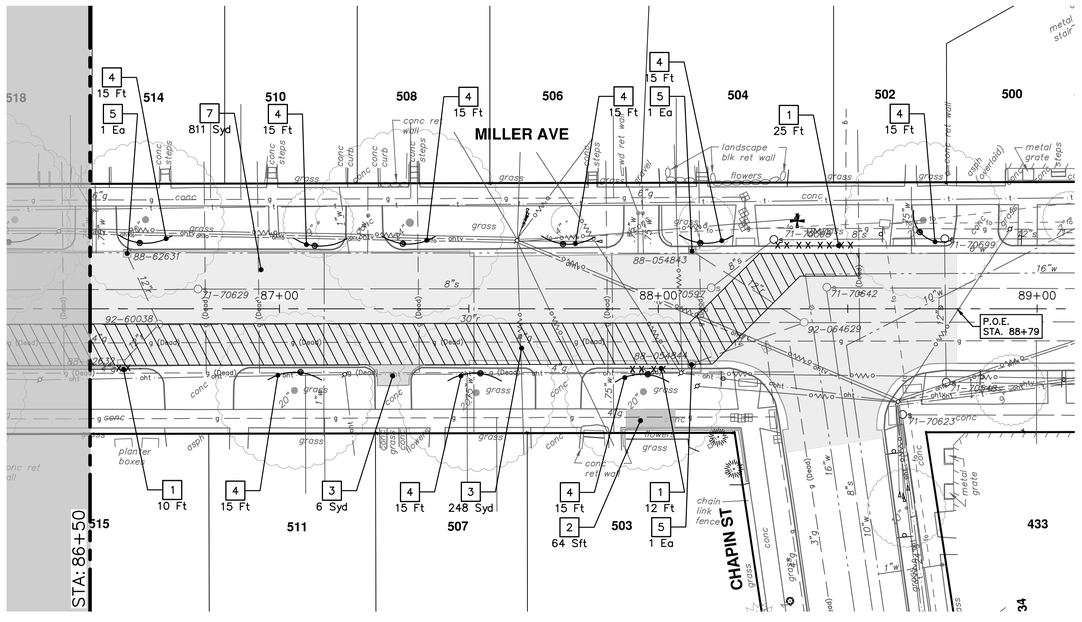
STA. 76+50 - STA. 83+00

SCALE: 1" = 20'

DRAWING No. 2022034-43

SHEET No. 43 OF 131





REMOVAL KEY

KEY	DESCRIPTION
1	Curb, Gutter, and Curb and Gutter, Any Type, Rem *
2	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem
3	HMA, Any Thickness, Rem *
4	Tree Protective Fence
5	Erosion Control, Inlet Protection, Fabric Drop
6A	Tree, Rem, 6 In. – 12 In.
6B	Tree, Rem, 13 In. – 19 In.
6C	Tree, Rem, 20 In. – 29 In.
6D	Tree, Rem, 40 In. and Larger
7	Cold-Milling HMA Surface
8	HMA Surface, Rem

* SAWCUT FULL DEPTH AT REMOVAL LIMITS AS DIRECTED BY ENGINEER

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

REMOVALS

STA. 83+00 - STA. 88+79

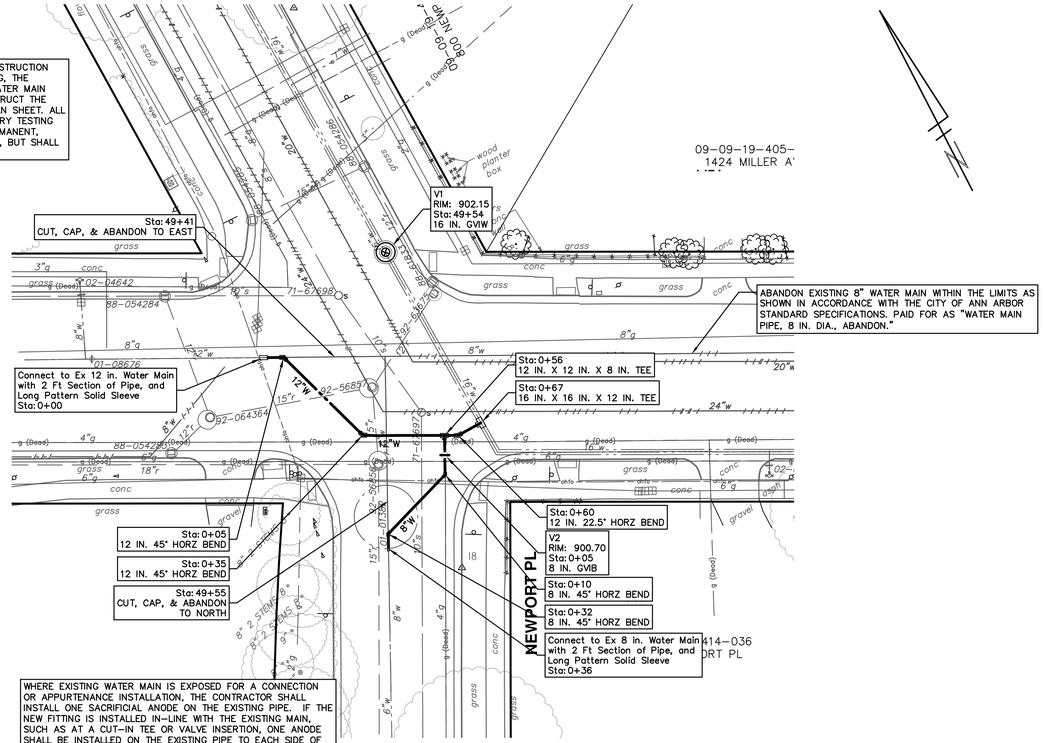
SCALE : 1" = 20'

DRAWING No. 2022034-44

SHEET No. 44 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Rem1.dwg Dwg Created: 29-Mar-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24

UPON COMPLETION OF THE 12" WATER MAIN CONSTRUCTION AND HYDROSTATIC AND BACTERIOLOGICAL TESTING, THE CONTRACTOR SHALL REMOVE THE TEMPORARY WATER MAIN TESTING AND CONNECTION ASSEMBLY AND CONSTRUCT THE PERMANENT WATER MAIN AS SHOWN ON THE PLAN SHEET. ALL WORK ASSOCIATED WITH REMOVING THE TEMPORARY TESTING CONNECTION AND CONSTRUCTING THE FINAL, PERMANENT, CONNECTION WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.



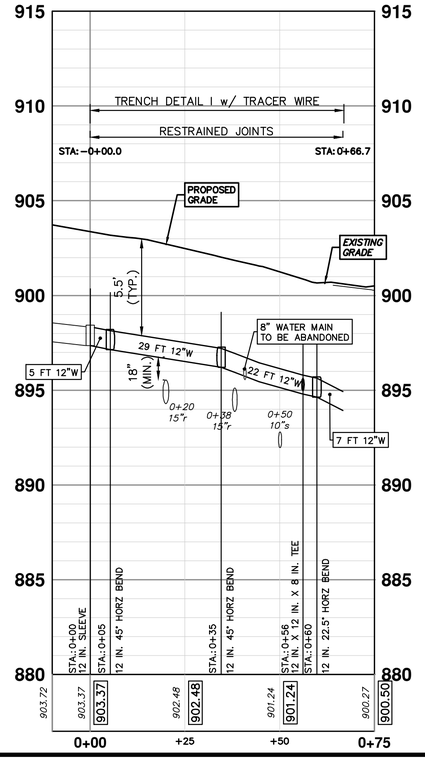
WHERE EXISTING WATER MAIN IS EXPOSED FOR A CONNECTION OR APPURTENANCE INSTALLATION, THE CONTRACTOR SHALL INSTALL ONE SACRIFICIAL ANODE ON THE EXISTING PIPE. IF THE NEW FITTING IS INSTALLED IN-LINE WITH THE EXISTING MAIN, SUCH AS AT A CUT-IN TEE OR VALVE INSERTION, ONE ANODE SHALL BE INSTALLED ON THE EXISTING PIPE TO EACH SIDE OF THE NEW FITTING. EACH ANODE INSTALLED ON EXISTING WATER MAIN WILL BE PAID FOR AS 'SACRIFICIAL ANODE, XX LB"

THE CONTRACTOR SHALL REMOVE AND ABANDON THE NECESSARY PORTIONS OF THE EXISTING WATER MAINS IN ORDER TO FACILITATE THE PROPOSED WATER MAIN INTER-CONNECTION. ALL COSTS ASSOCIATED WITH PERFORMING THE INTER-CONNECTION, COORDINATING UTILITY SHUTDOWNS, ABANDONING WATER MAIN, RE-ABANDONING THE WATER MAIN AND ALL RELATED WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

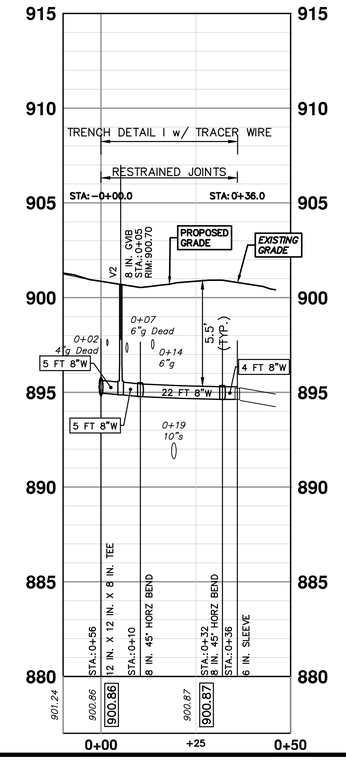
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	RIM
V2	8 in. GVIB	0+05	900.70
V1	16 in. GVIW	49+54	902.15

NEWPORT CONNECTION



NEWPORT PLACE CONN



811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

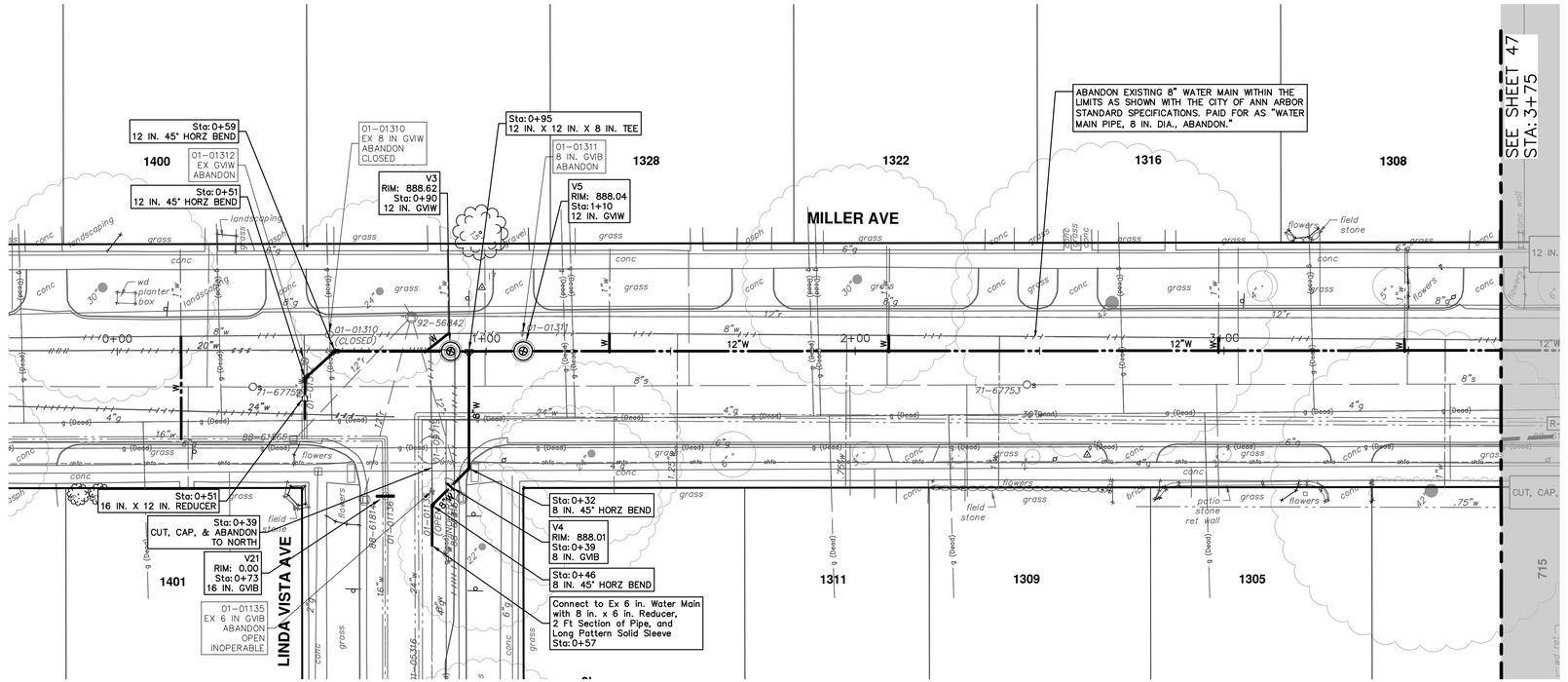
PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

NEWPORT AND NEWPORT PL CONNECTIONS

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-45

SHEET No. 45 OF 131

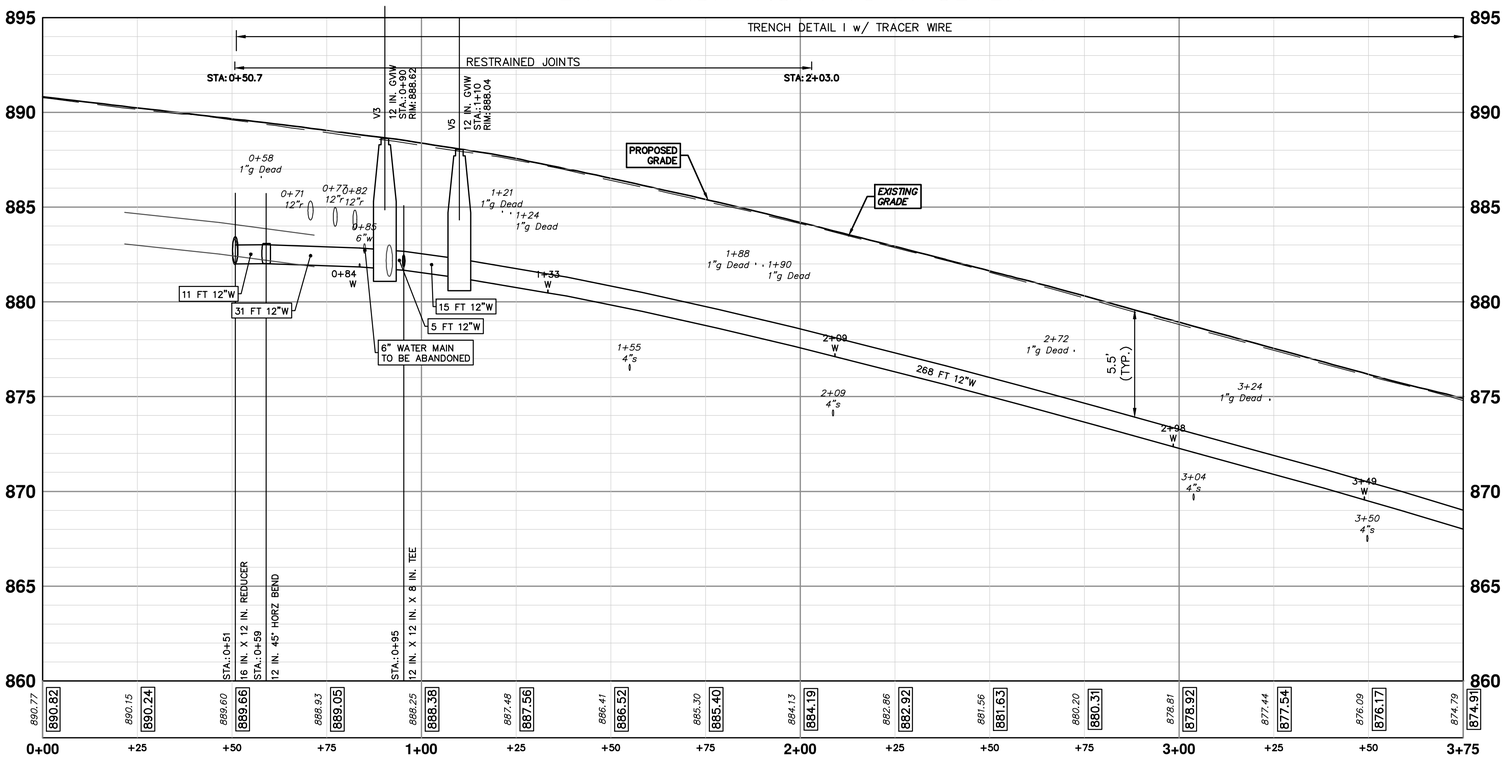


WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	RIM
V4	8 in. GVIB	0+39	888.01
V21	16 in. GVIB	0+73	0.00
V3	12 in. GVIW	0+90	888.62
V5	12 in. GVIW	1+10	888.04

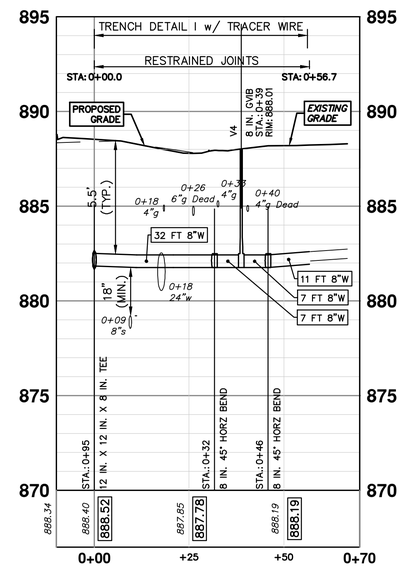
WHERE EXISTING WATER MAIN IS EXPOSED FOR A CONNECTION OR APPURTENANCE INSTALLATION, THE CONTRACTOR SHALL INSTALL ONE SACRIFICIAL ANODE ON THE EXISTING PIPE. IF THE NEW FITTING IS INSTALLED IN-LINE WITH THE EXISTING MAIN, SUCH AS AT A CUT-IN TEE OR VALVE INSERTION, ONE ANODE SHALL BE INSTALLED ON THE EXISTING PIPE TO EACH SIDE OF THE NEW FITTING. EACH ANODE INSTALLED ON EXISTING WATER MAIN WILL BE PAID FOR AS 'SACRIFICIAL ANODE, XX LB'

THE CONTRACTOR SHALL REMOVE AND ABANDON THE NECESSARY PORTIONS OF THE EXISTING WATER MAINS IN ORDER TO FACILITATE THE PROPOSED WATER MAIN INTER-CONNECTION. ALL COSTS ASSOCIATED WITH PERFORMING THE INTER-CONNECTION, COORDINATING UTILITY SHUTDOWNS, ABANDONING WATER MAIN, RE-ABANDONING THE WATER MAIN AND ALL RELATED WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

PR WATER – LINDA VISTA TO N SEVENTH



LINDA VISTA CONN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

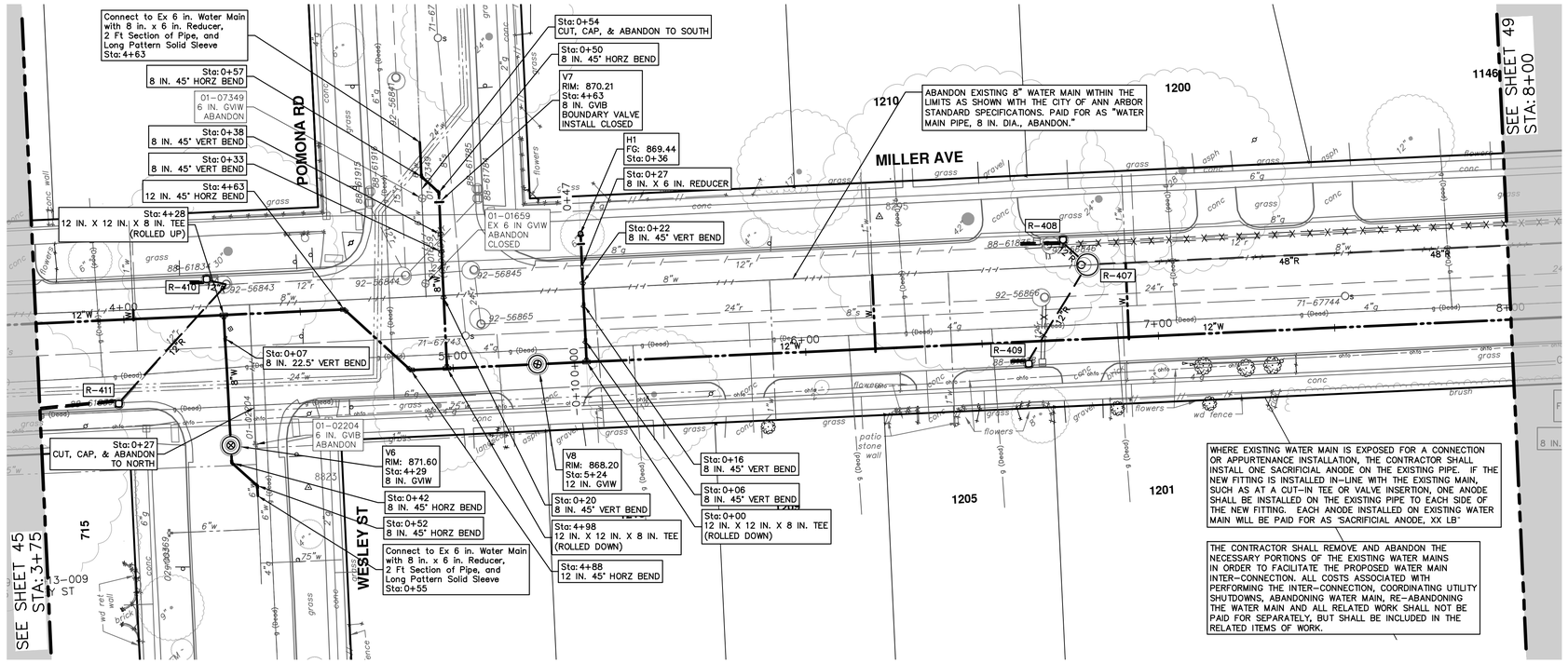
PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

STA. 0+51 - STA. 3+75

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-46

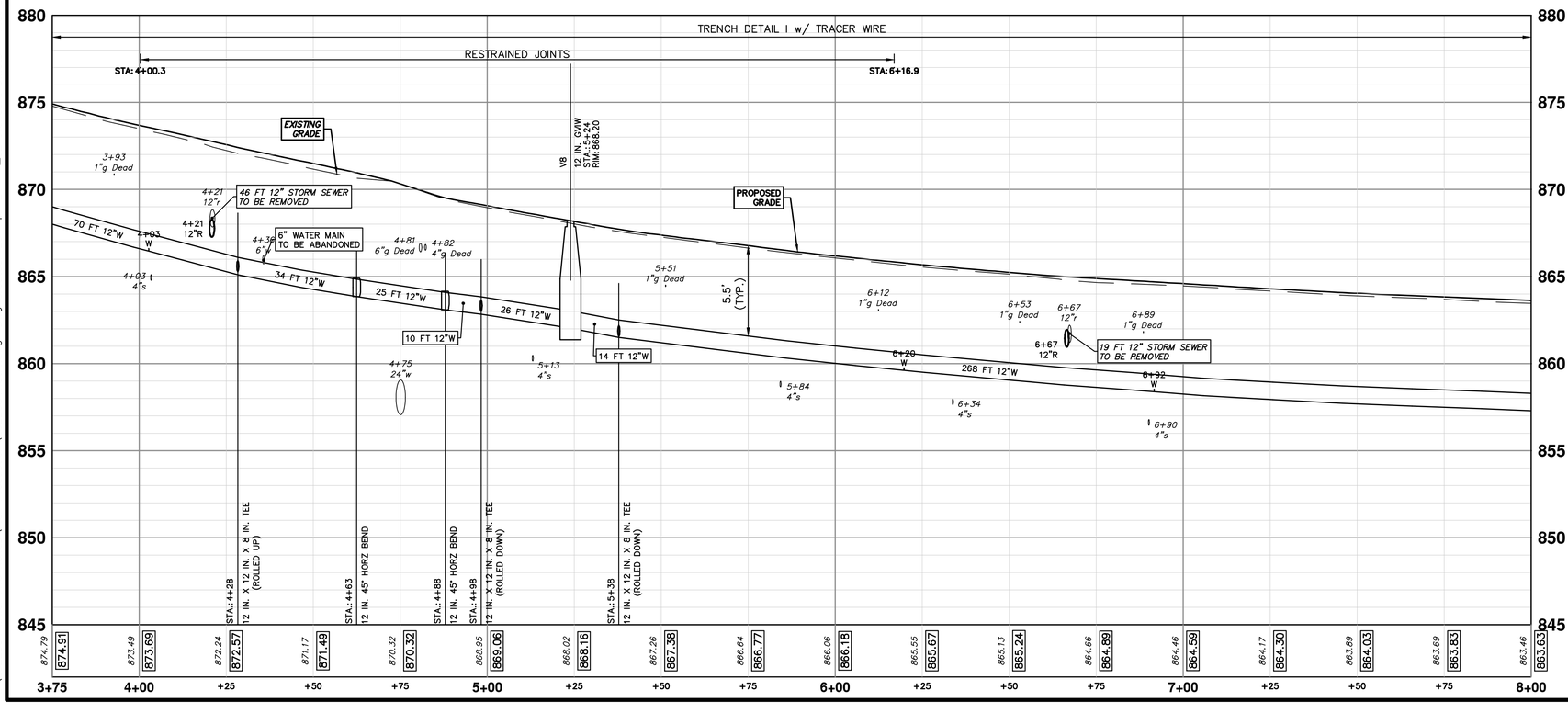
SHEET No. 46 OF 131



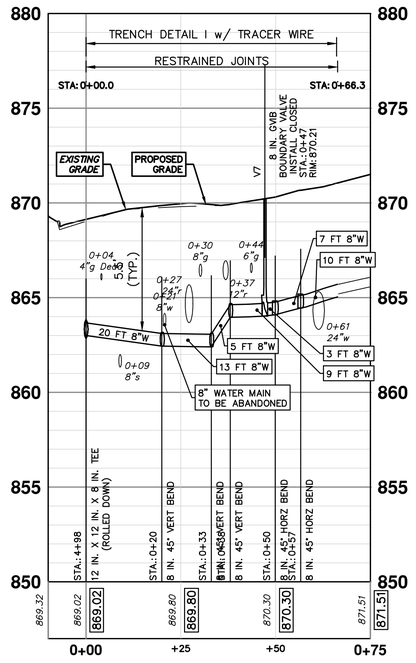
WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	RIM
V6	8 in. GVIW	0+37	871.60
V7	8 in. GVIB BOUNDARY VALVE INSTALL CLOSED	0+47	870.21
V8	12 in. GVIW	5+24	868.20

WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	FG
H1	HYDRANT	0+36	869.44

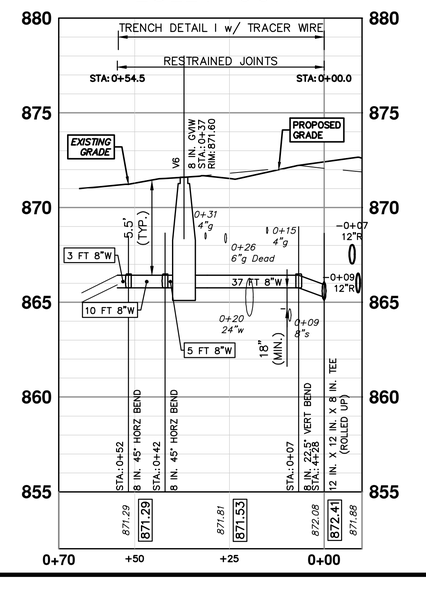
PR WATER – LINDA VISTA TO N SEVENTH



POMONA CONN



WESLEY CONN



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MILLER AVENUE REHABILITATION

PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

STA. 3+75 - STA. 8+00

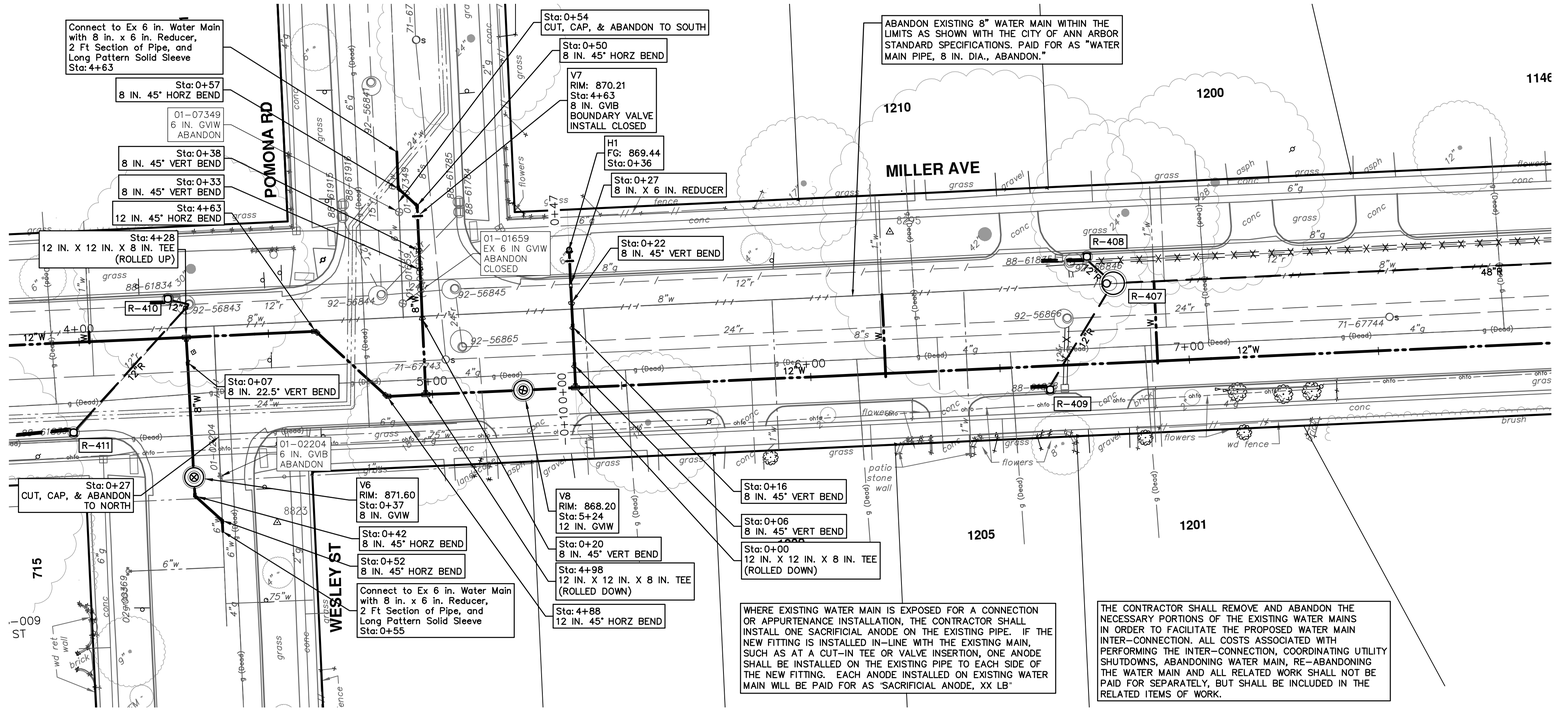
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-47

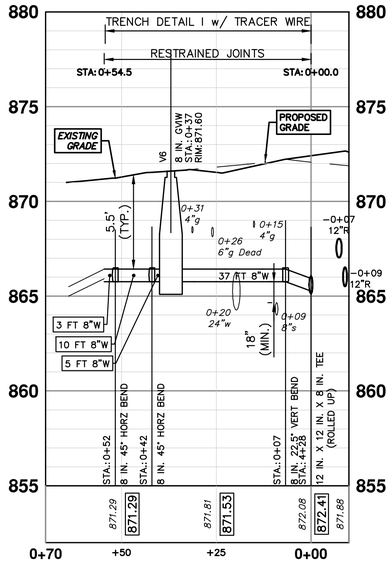
SHEET No. 47 OF 131

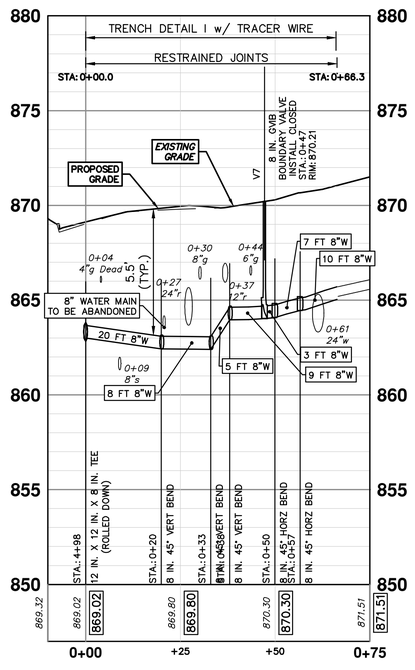
R:\2022034 Miller Ave Rehab\Plan Production\2022034Watr1.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24

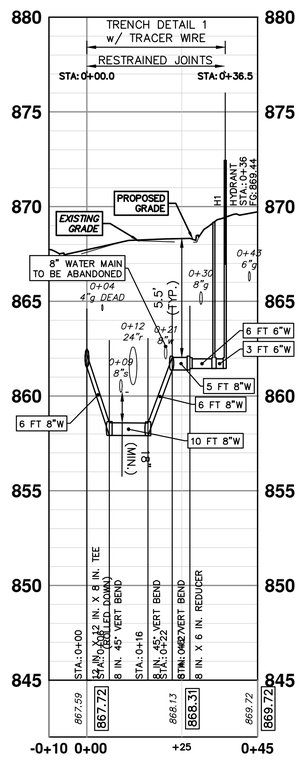


WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	FG
H1	HYDRANT	0+36	869.44

WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	RIM
V7	8 in. GVIB BOUNDARY VALVE INSTALL CLOSED	0+47	870.21







811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-48

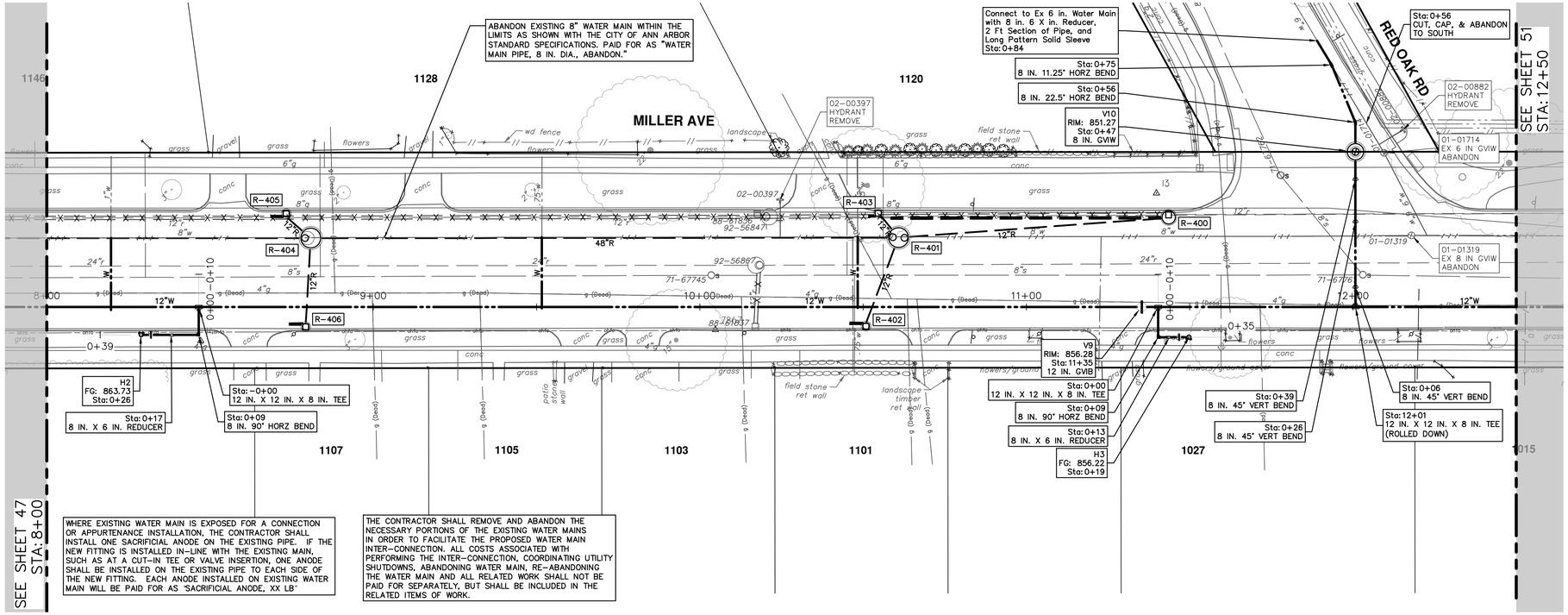
SHEET No. 48 OF 131

MILLER AVENUE REHABILITATION

PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

POMONA AND WESLEY CONNECTIONS AND H1 PROFILE

R:\2022034 Miller Ave Rehab\Plan Production\2022034Watr2.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24



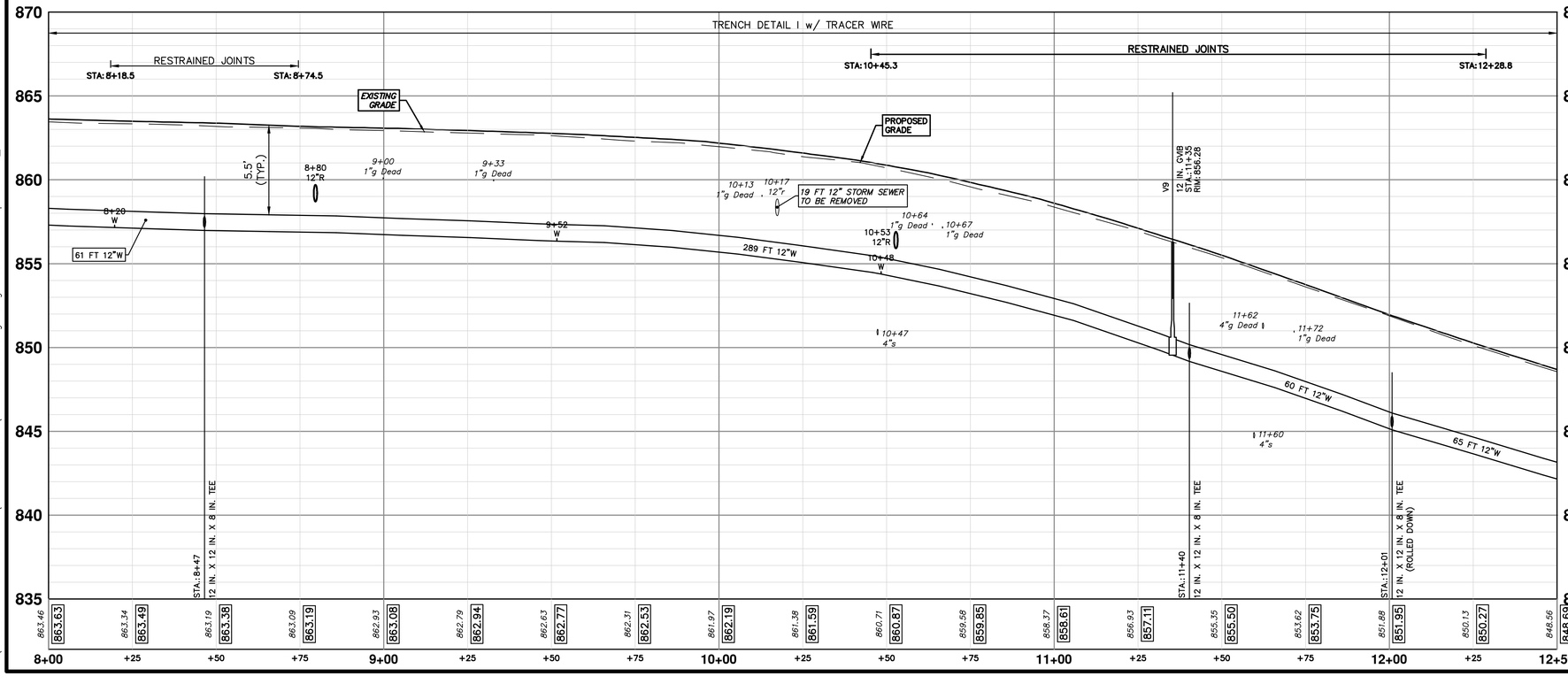
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	RIM
V10	8 in. GVIW	0+47	851.27
V9	12 in. GVIB	11+35	856.28

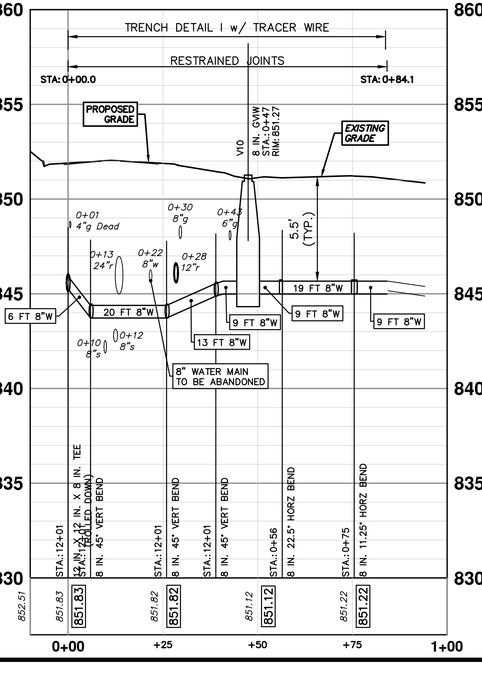
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	FG
H2	HYDRANT	0+26	863.73
H3	HYDRANT	0+19	856.22

PR WATER – LINDA VISTA TO N SEVENTH



RED OAK CONN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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MILLER AVENUE REHABILITATION

PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

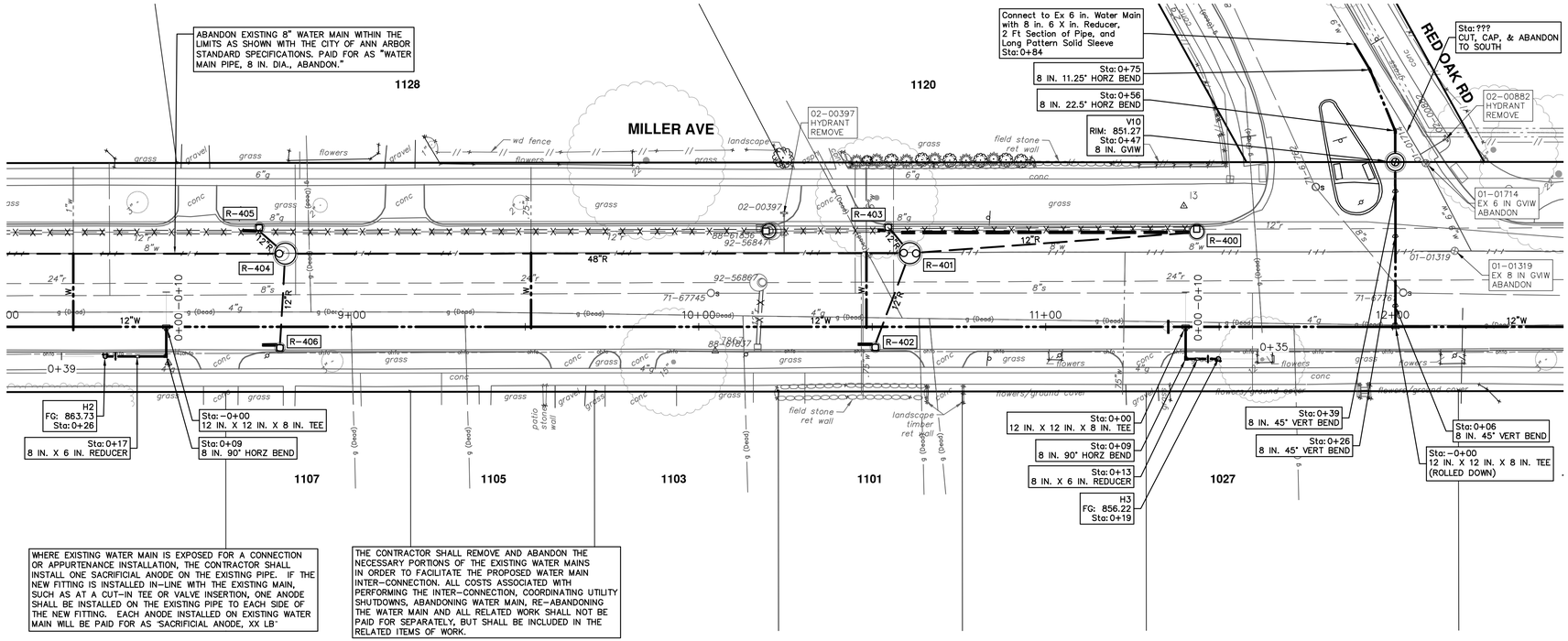
STA. 8+00 - STA. 12+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-49

SHEET No. 49 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Watr1.dwg Dwg Created: 29-Apr-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24



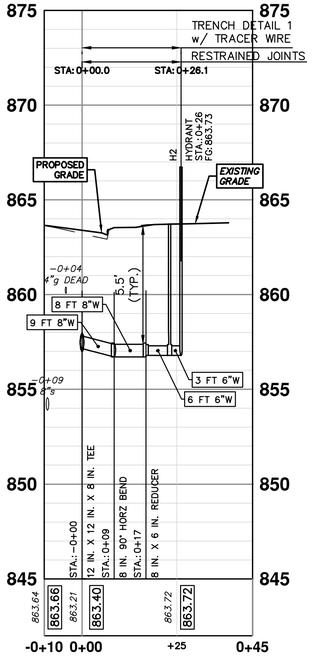
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	FG
H2	HYDRANT	0+26	863.73
H3	HYDRANT	0+19	856.22

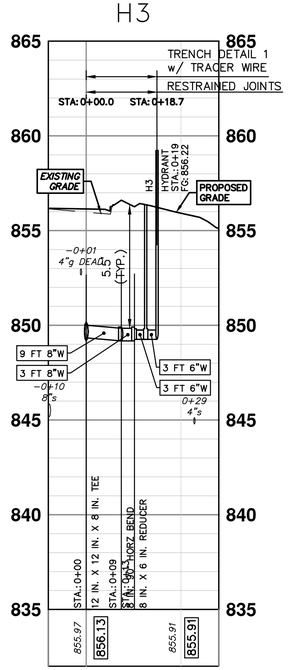
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	RIM
V10	8 in. GVIW	0+47	851.27

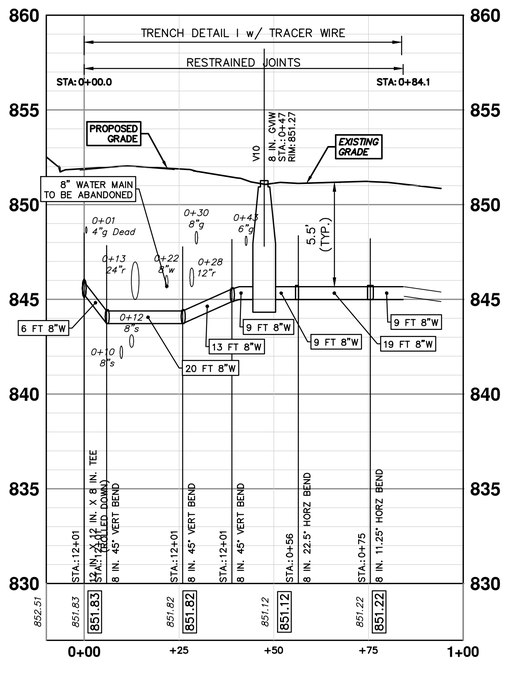
H2



H3



RED OAK CONN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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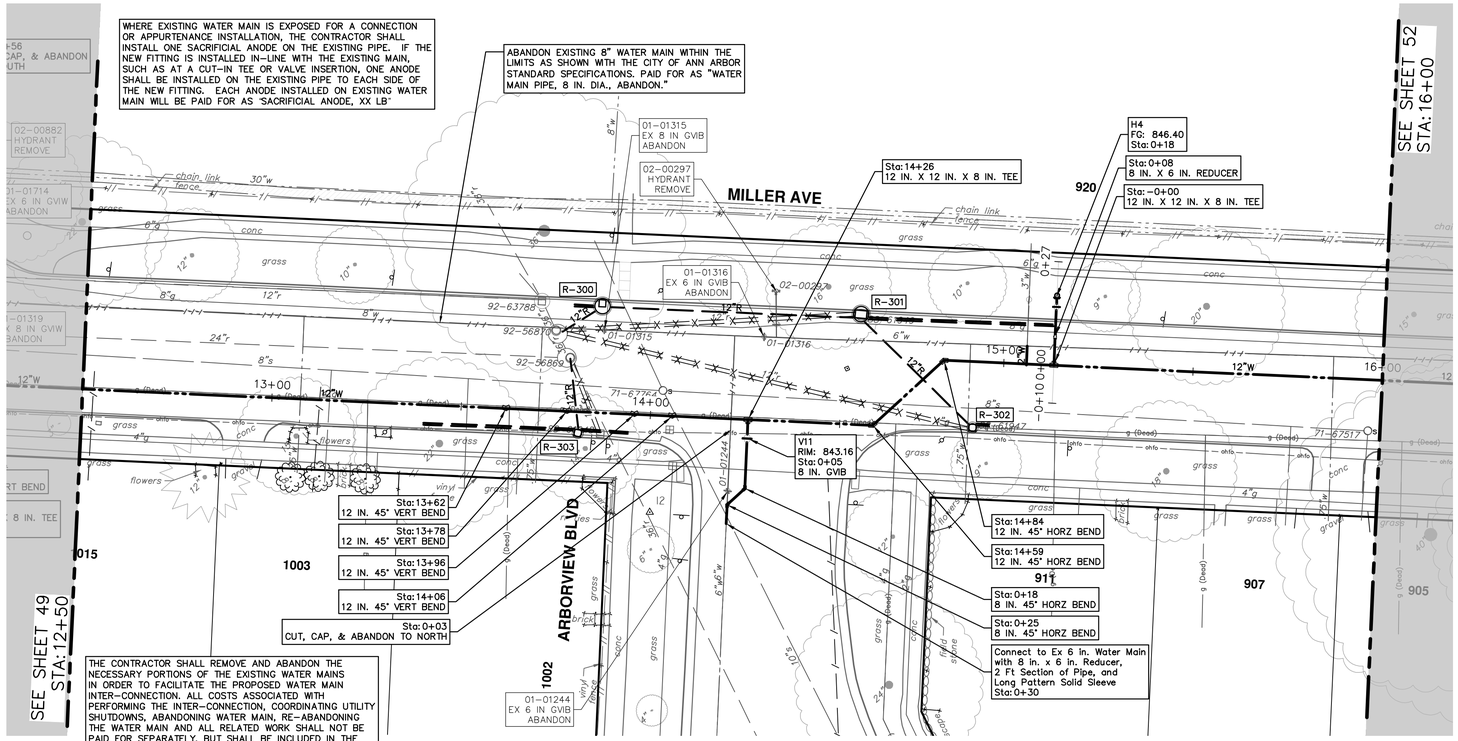
MILLER AVENUE REHABILITATION

PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

RED OAK CONNECTION AND H2 AND H3 PROFILES

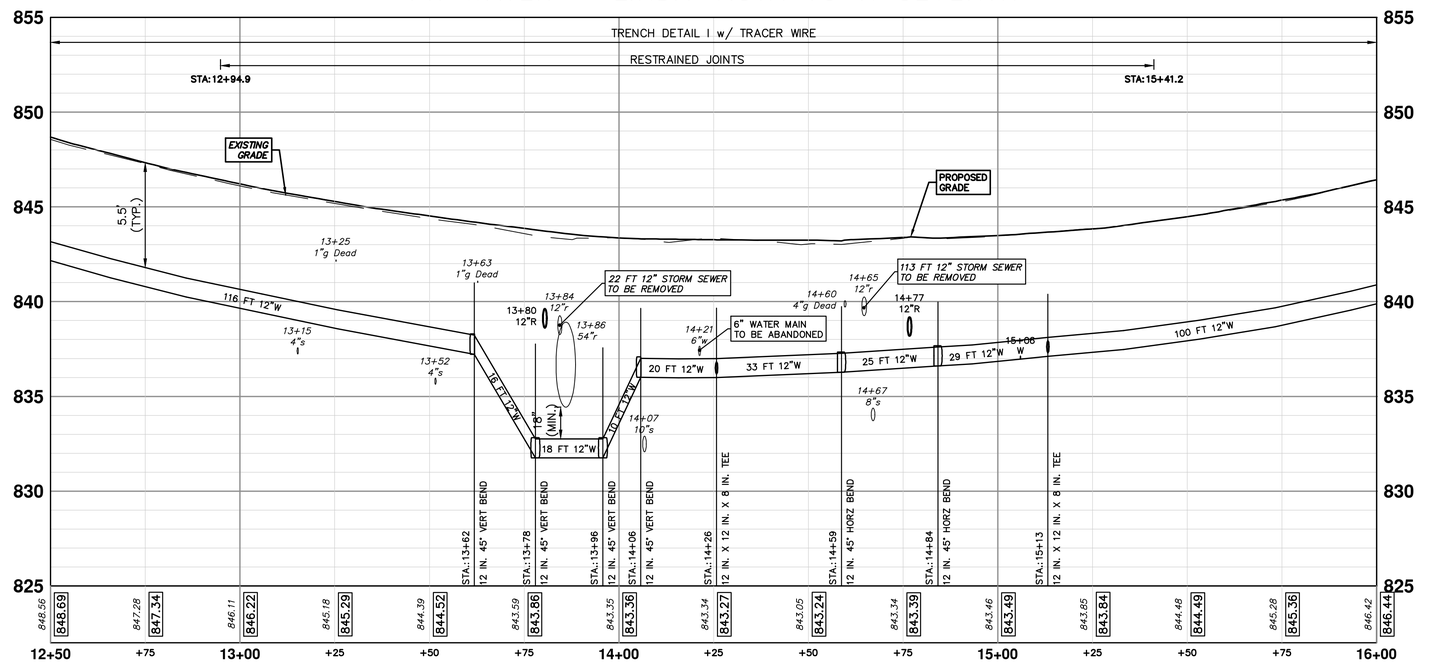
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

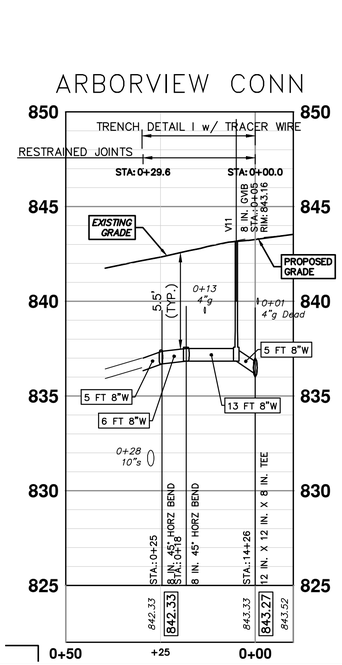
DRAWING No. 2022034-50

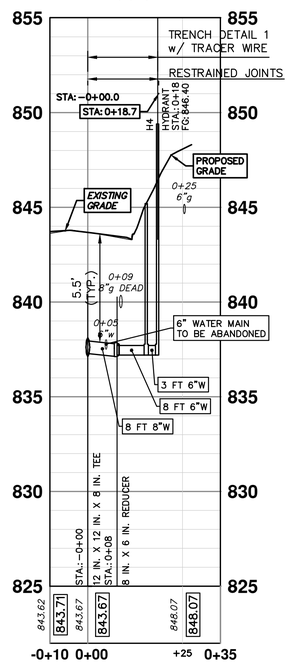


WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	RIM
V11	8 in. GVIB	0+05	843.16

WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	FG
H4	HYDRANT	0+18	846.40







REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

Know what's **below.** **Call before you dig.** 811

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

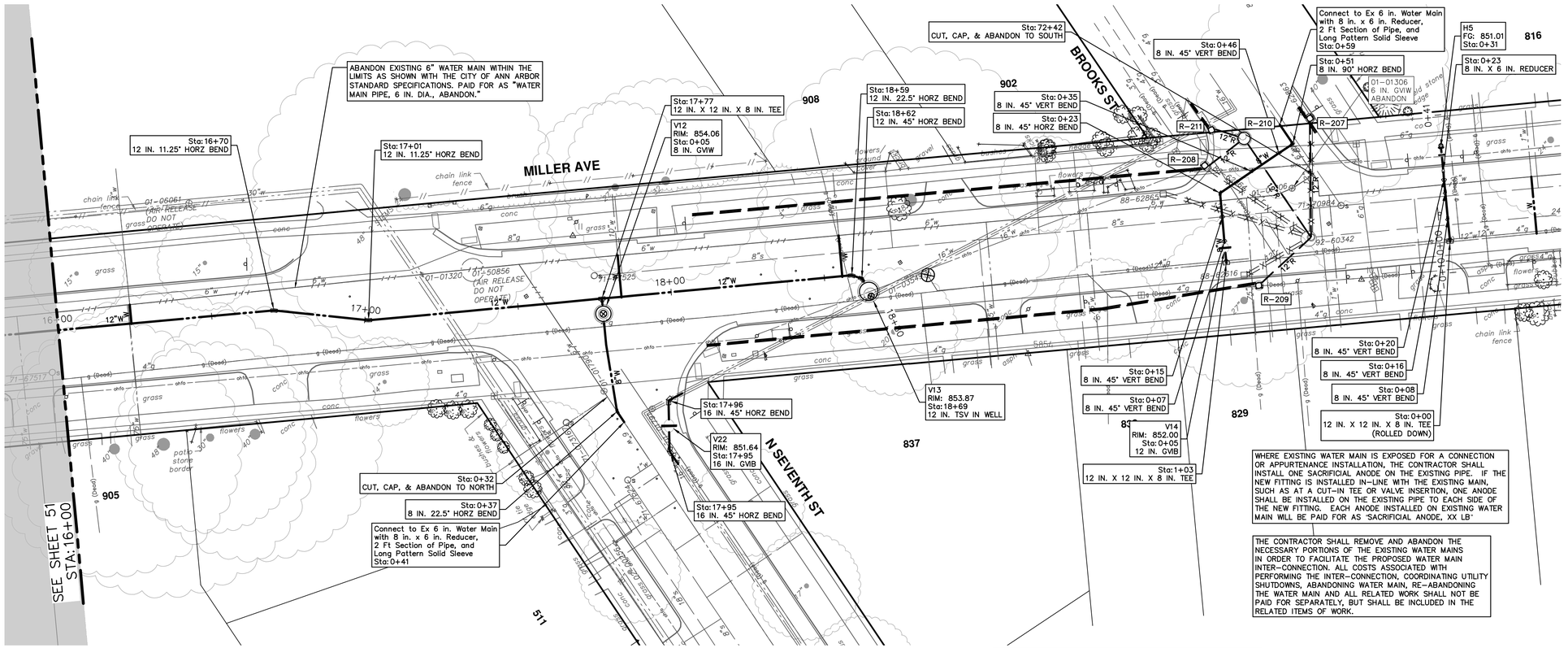
STA. 12+50 - STA. 16+00

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

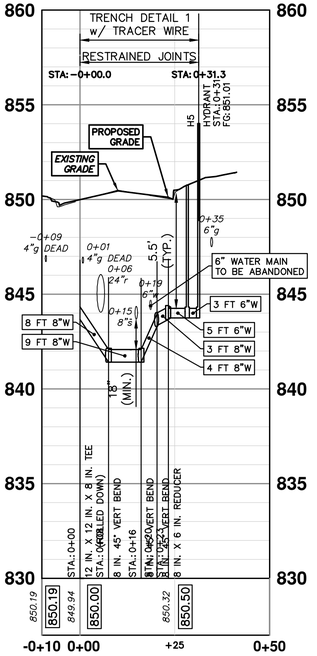
DRAWING No. 2022034-51

SHEET No. 51 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Watr1.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24



H5



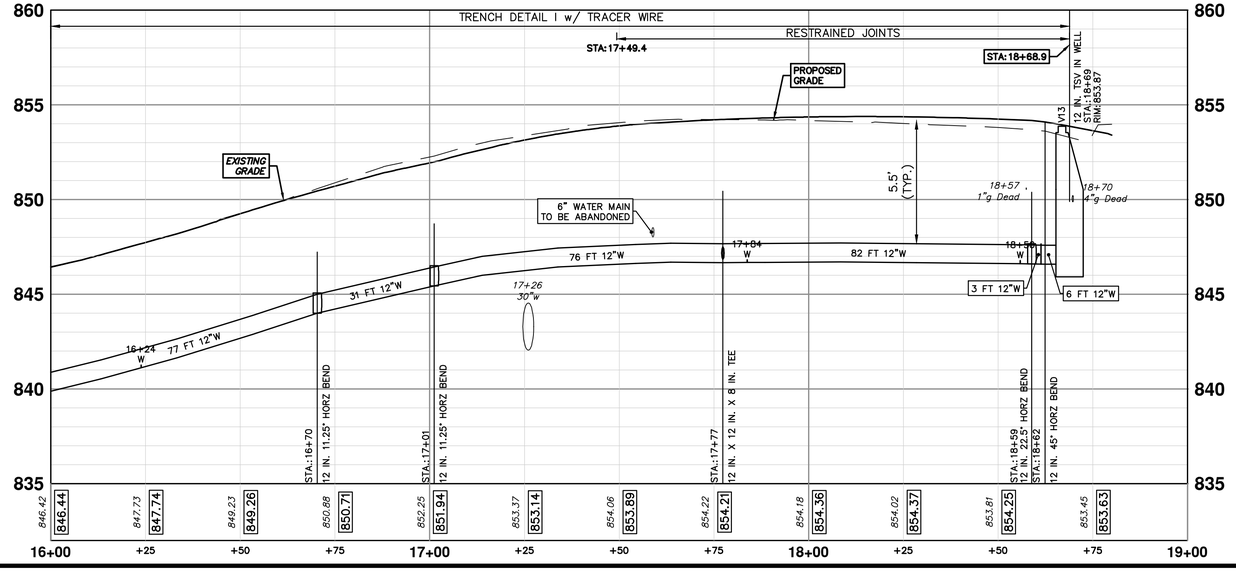
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	RIM
V14	12 in. GVIB	0+05	852.00
V12	8 in. GVIW	0+05	854.06
V22	16 in. GVIB	17+95	851.64
V13	12 IN. TSV in Well	18+69	853.87

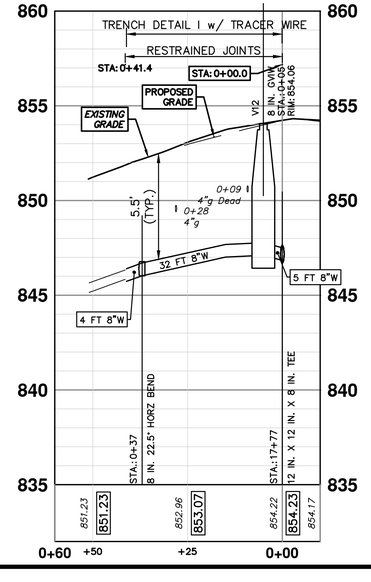
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	FG
H5	HYDRANT	0+31	851.01

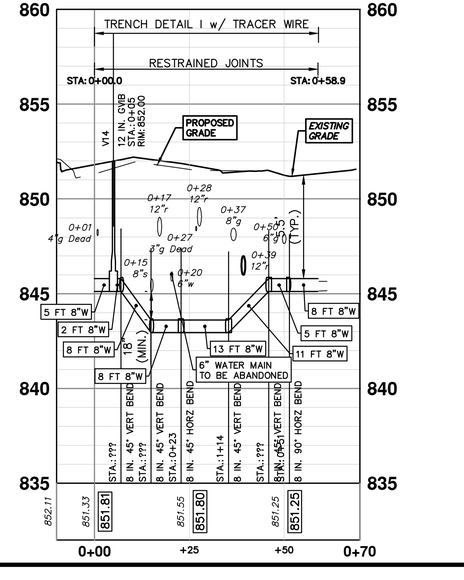
PR WATER – LINDA VISTA TO N SEVENTH



N SEVENTH CONN



BROOKS CONN



R:\2022034 Miller Ave Rehab\Plan Production\2022034Watr1.dwg Dwg Created: 29-Apr-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24

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CHECKED	DRAWN	DATE	DESCRIPTION	REV.
JKA	A2D	4-29-24	ADDENDUM No. 2 PLANS	02
JKA	A2D	4-25-24	ADDENDUM PLANS	01
JKA	A2D	4-9-24	BID SET	00

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

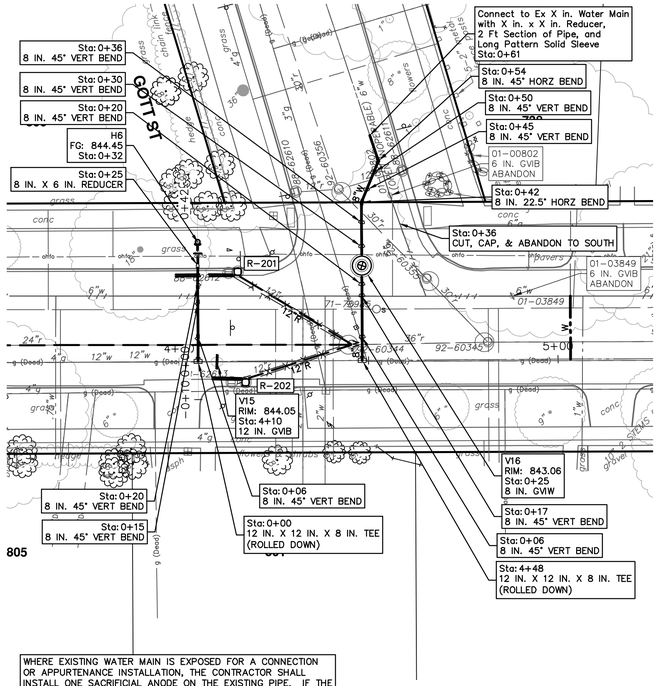
PROPOSED WATER MAIN - NEWPORT TO N SEVENTH - PHASE I

STA. 16+00 - STA. 18+69

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-52

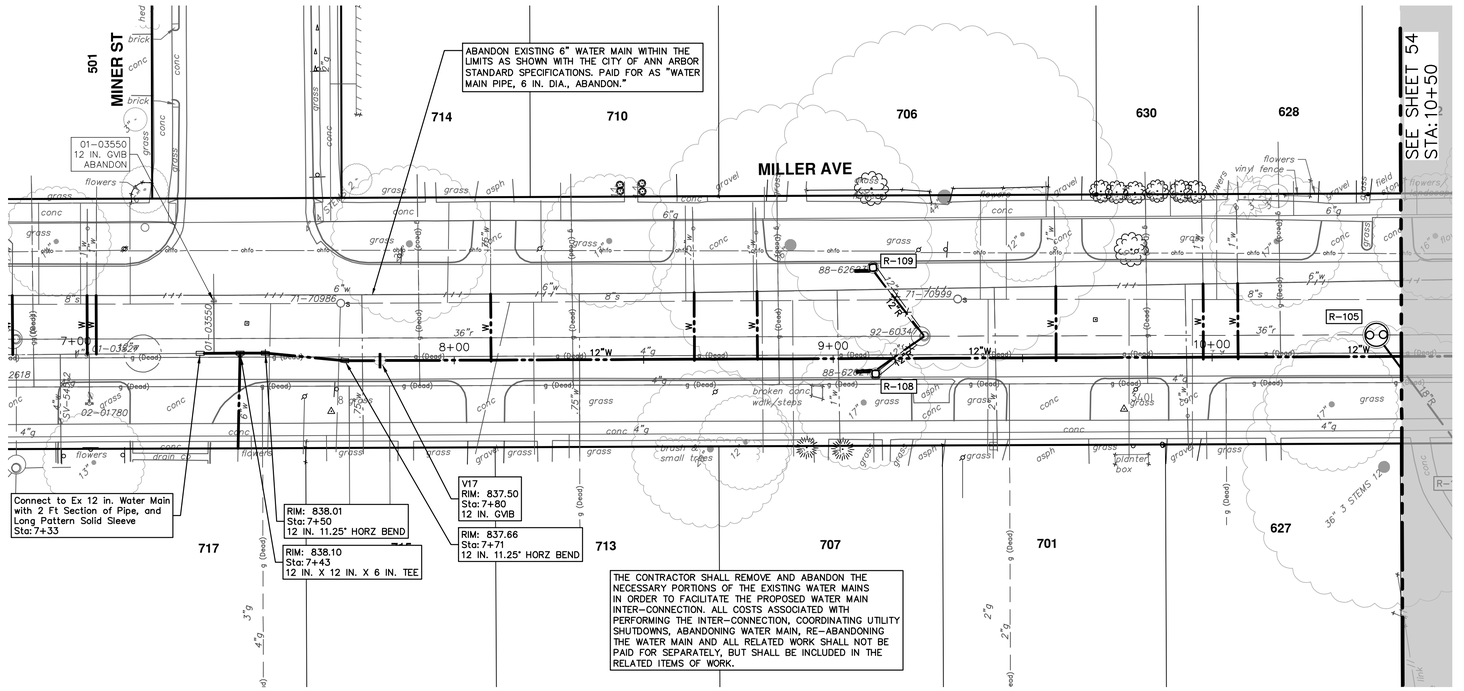
SHEET No. 52 OF 131



WHERE EXISTING WATER MAIN IS EXPOSED FOR A CONNECTION OR APPURTENANCE INSTALLATION, THE CONTRACTOR SHALL INSTALL ONE SACRIFICIAL ANODE ON THE EXISTING PIPE. IF THE NEW FITTING IS INSTALLED IN-LINE WITH THE EXISTING MAIN, SUCH AS AT A CUT-IN TEE OR VALVE INSERTION, ONE ANODE SHALL BE INSTALLED ON THE EXISTING PIPE TO EACH SIDE OF THE NEW FITTING. EACH ANODE INSTALLED ON EXISTING WATER MAIN WILL BE PAID FOR AS "SACRIFICIAL ANODE, XX LB"

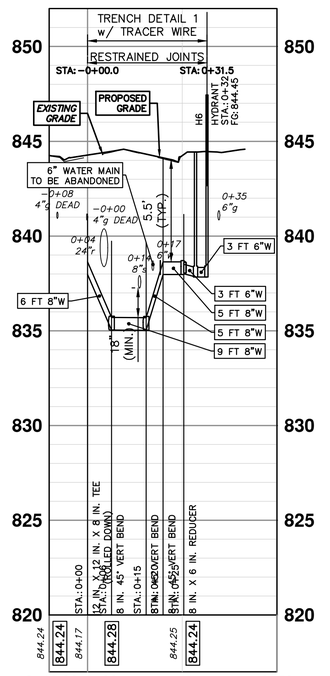
WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	RIM
V16	8 in. GVIW	0+25	843.06
V15	12 in. GVIB	4+10	844.05
V17	12 in. GVIB	7+80	837.50

WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	FG
H6	HYDRANT	0+32	844.45

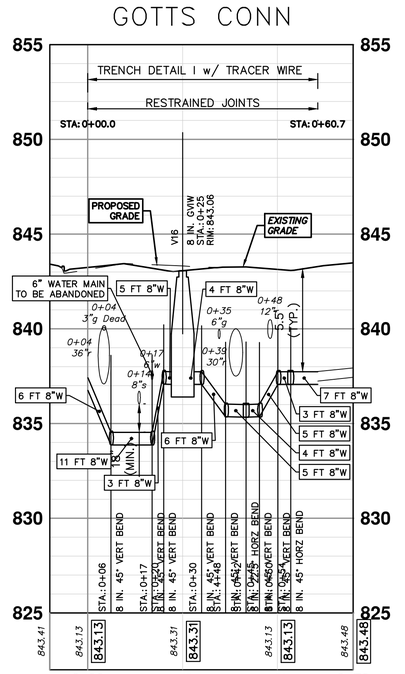


THE CONTRACTOR SHALL REMOVE AND ABANDON THE NECESSARY PORTIONS OF THE EXISTING WATER MAINS IN ORDER TO FACILITATE THE PROPOSED WATER MAIN INTER-CONNECTION. ALL COSTS ASSOCIATED WITH PERFORMING THE INTER-CONNECTION, COORDINATING UTILITY SHUTDOWNS, ABANDONING WATER MAIN, RE-ABANDONING THE WATER MAIN AND ALL RELATED WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

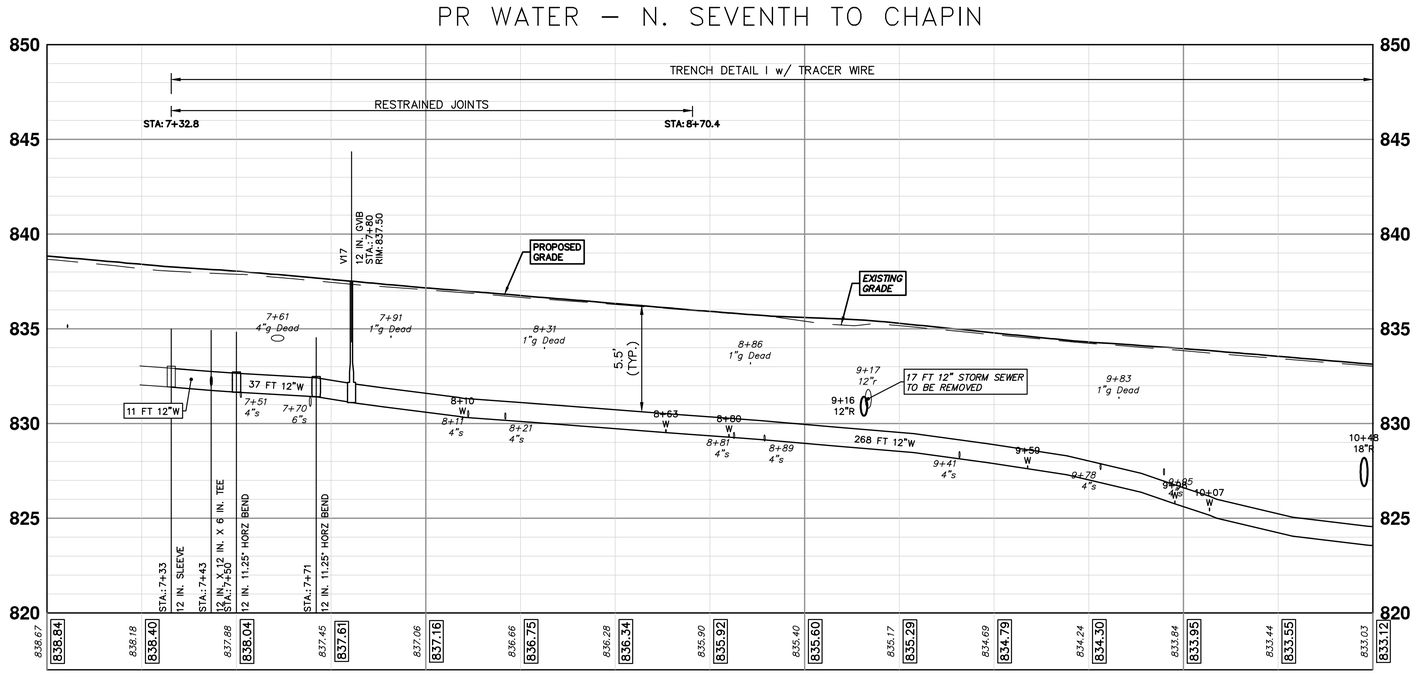
H6



GOTTS CONN



PR WATER – N. SEVENTH TO CHAPIN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

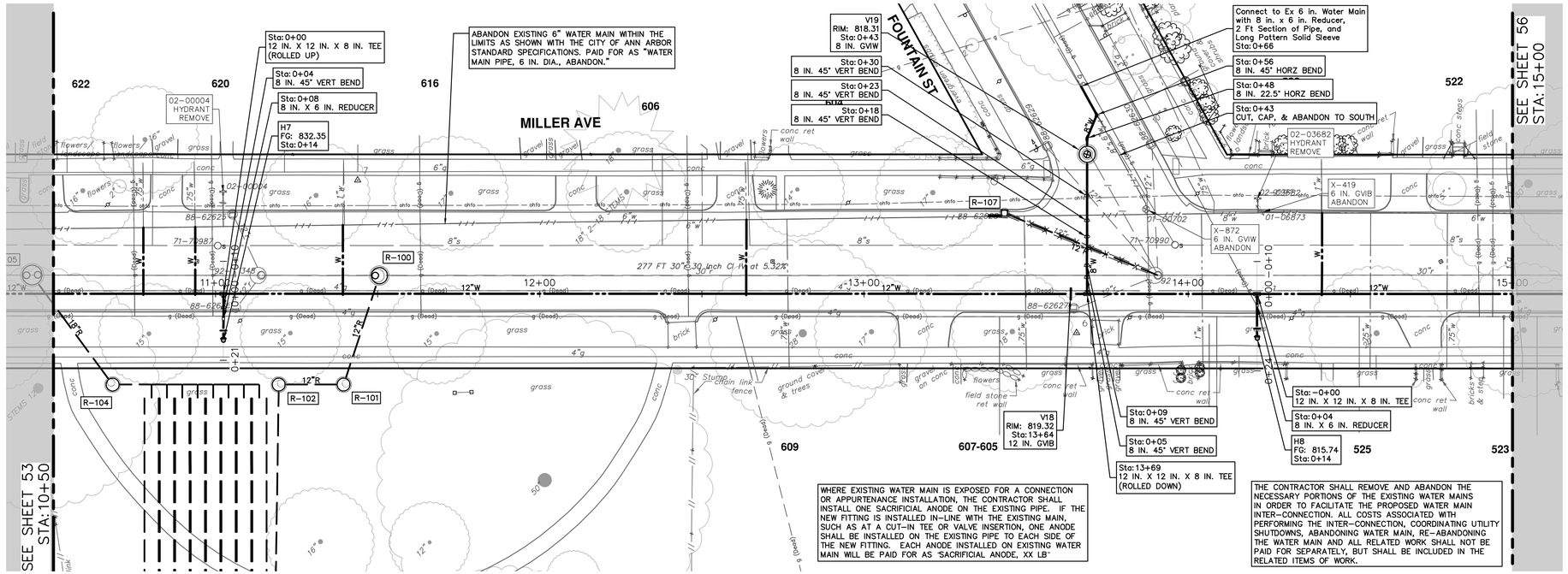
PROPOSED WATER MAIN - N SEVENTH TO CHAPIN - PHASE II

STA. 7+33 - STA. 10+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-53

SHEET No. 53 OF 131



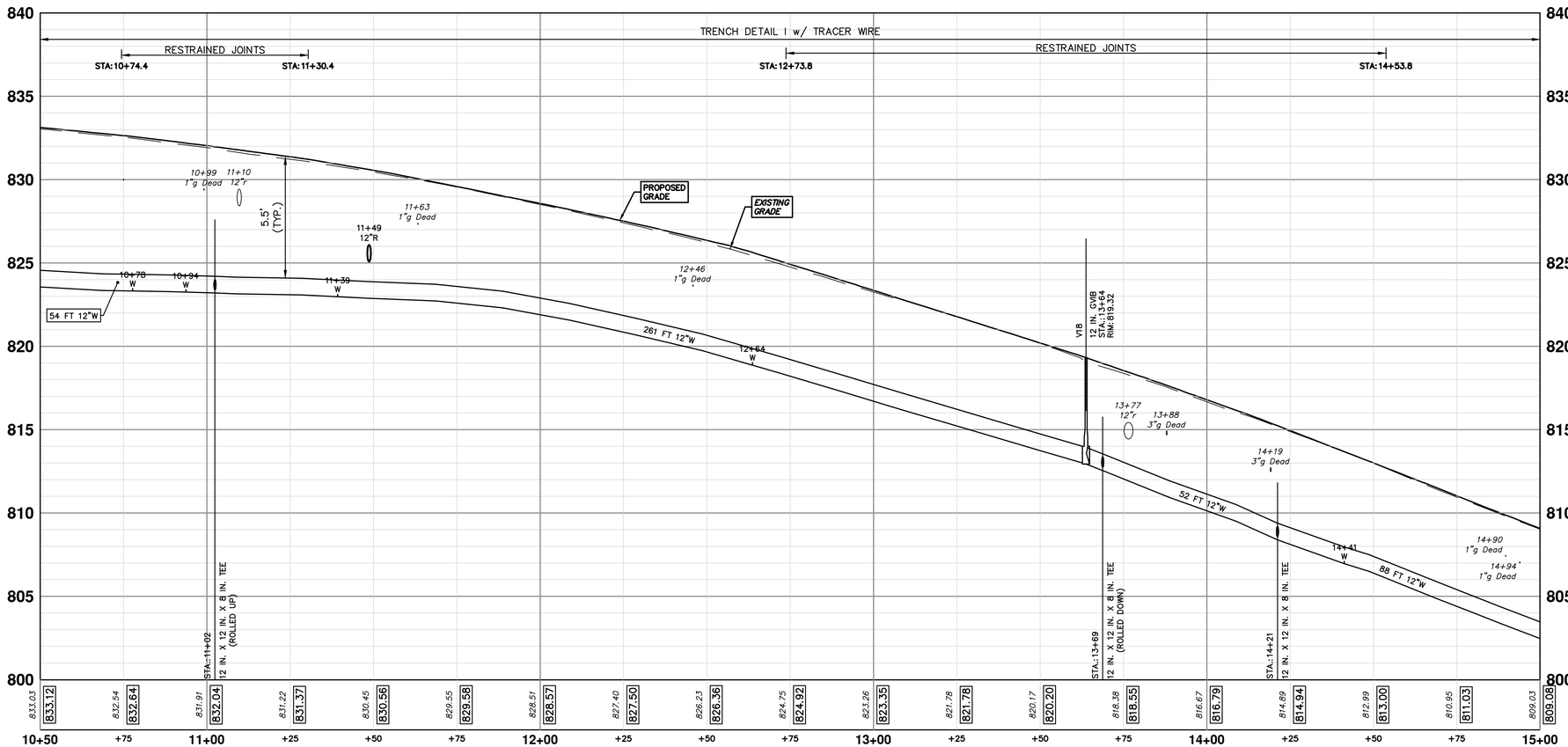
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	RIM
V19	8 in. GVIW	0+43	818.31
V18	12 in. GVIB	13+64	819.32

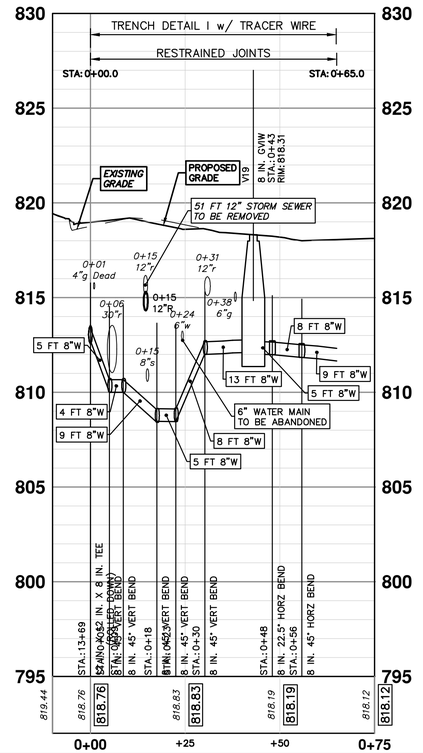
WATER MAIN STRUCTURES

STRUCTURE	TYPE	STATION	FG
H7	HYDRANT	0+14	832.35
H8	HYDRANT	0+14	815.74

PR WATER – N. SEVENTH TO CHAPIN



FOUNTAIN CONN



	REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
	01	ADDENDUM PLANS	4-25-24	A2D	JKA
	00	BID SET	4-9-24	A2D	JKA

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MILLER AVENUE REHABILITATION

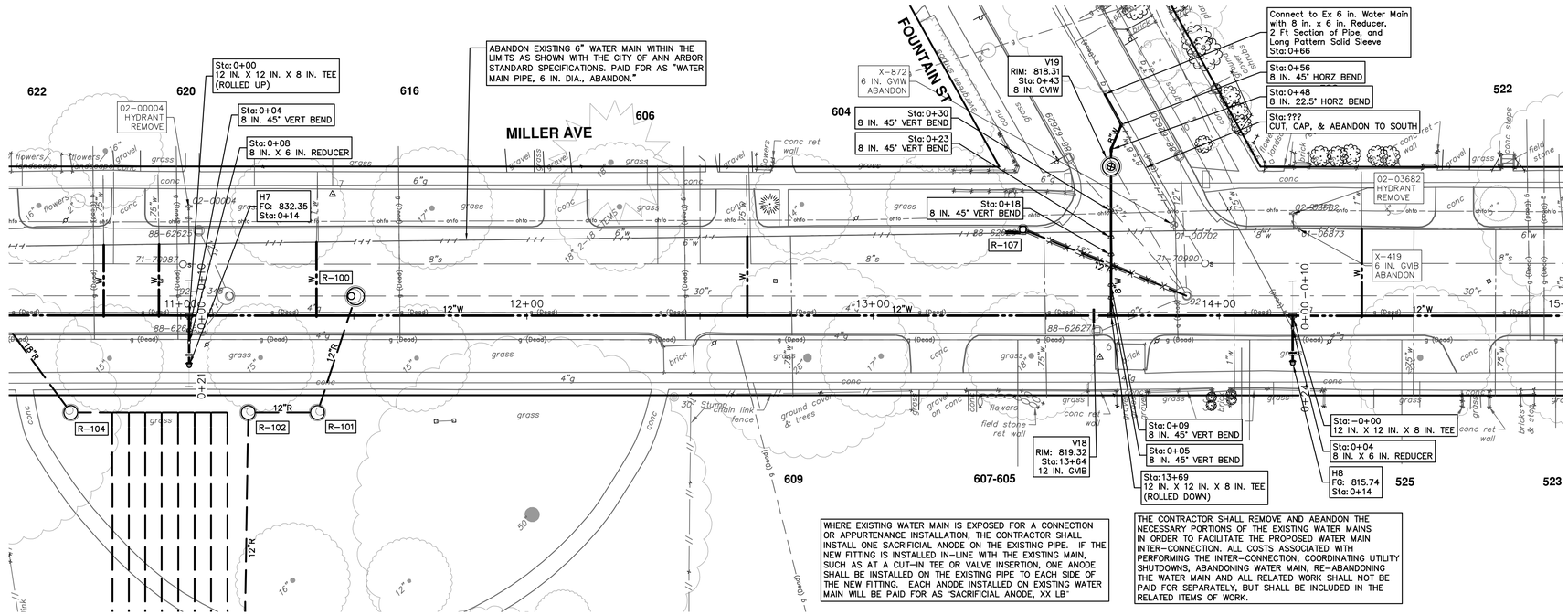
PROPOSED WATER MAIN - N SEVENTH TO CHAPIN - PHASE II

STA. 10+50 - STA 15+00

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-54

SHEET No. 54 OF 131



WHERE EXISTING WATER MAIN IS EXPOSED FOR A CONNECTION OR APPURTENANCE INSTALLATION, THE CONTRACTOR SHALL INSTALL ONE SACRIFICIAL ANODE ON THE EXISTING PIPE. IF THE NEW FITTING IS INSTALLED IN-LINE WITH THE EXISTING MAIN, SUCH AS AT A CUT-IN TEE OR VALVE INSERTION, ONE ANODE SHALL BE INSTALLED ON THE EXISTING PIPE TO EACH SIDE OF THE NEW FITTING. EACH ANODE INSTALLED ON EXISTING WATER MAIN WILL BE PAID FOR AS "SACRIFICIAL ANODE, XX LB"

THE CONTRACTOR SHALL REMOVE AND ABANDON THE NECESSARY PORTIONS OF THE EXISTING WATER MAINS IN ORDER TO FACILITATE THE PROPOSED WATER MAIN INTER-CONNECTION. ALL COSTS ASSOCIATED WITH PERFORMING THE INTER-CONNECTION, COORDINATING UTILITY SHUTDOWNS, ABANDONING WATER MAIN, RE-ABANDONING THE WATER MAIN AND ALL RELATED WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

WATER MAIN STRUCTURES

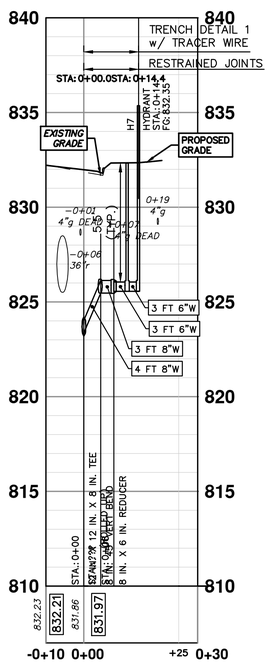
STRUCTURE	TYPE	STATION	FG
H7	HYDRANT	0+14	832.35
H8	HYDRANT	0+14	815.74

WATER MAIN STRUCTURES

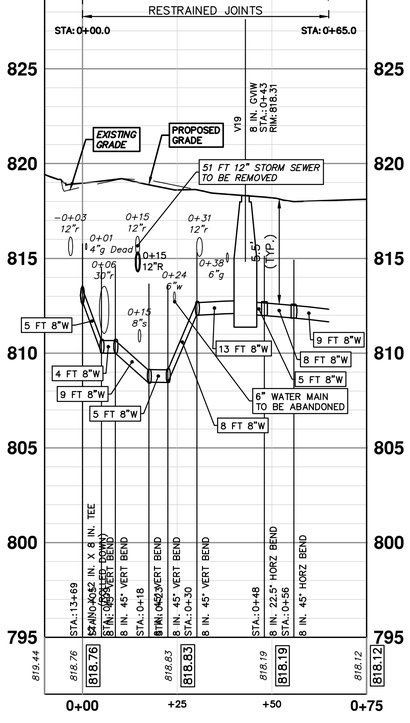
STRUCTURE	TYPE	STATION	RIM
V19	8 in. GVIW	0+43	818.31

FOUNTAIN CONN

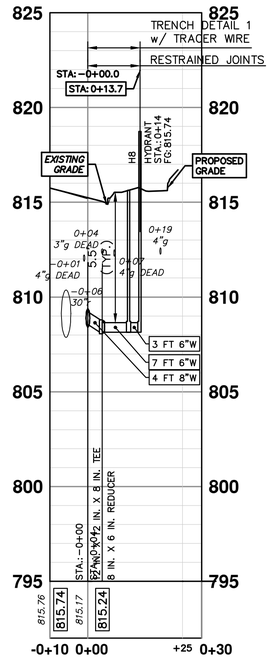
H7



FOUNTAIN CONN



H8



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

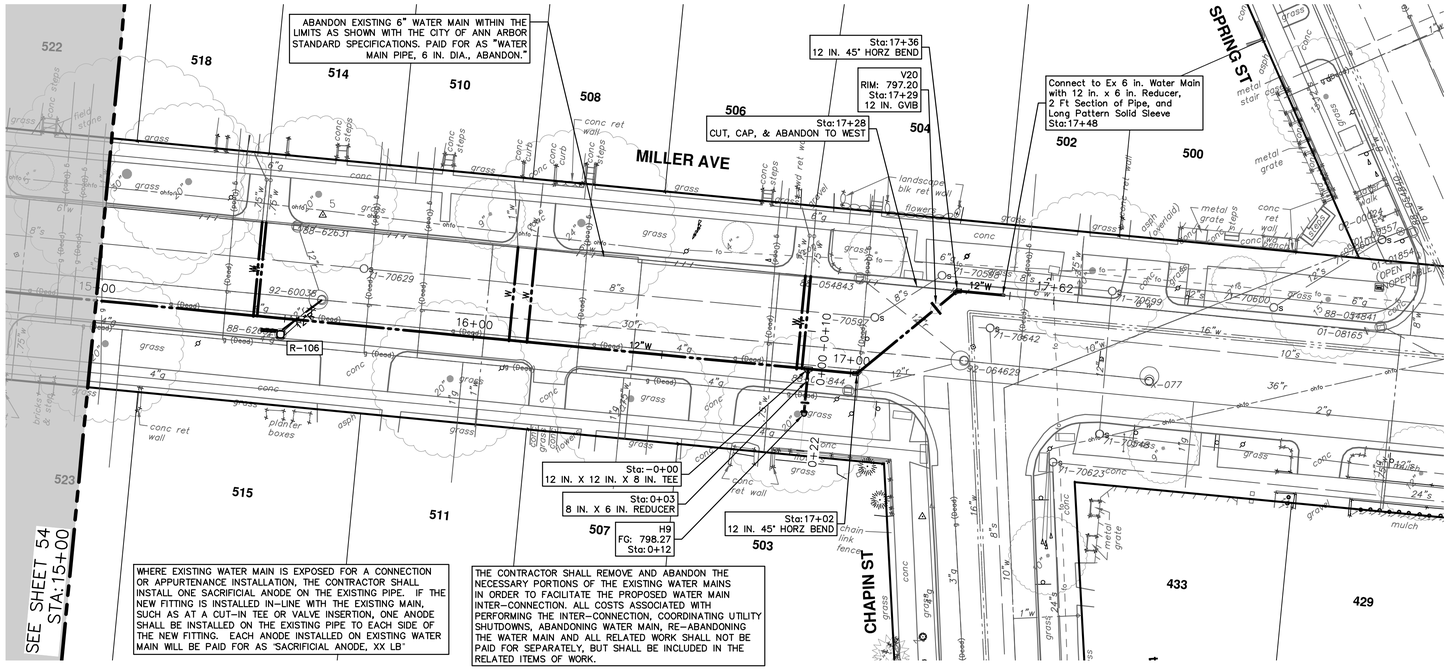
DRAWING No. 2022034-55

SHEET No. 55 OF 131

MILLER AVENUE REHABILITATION

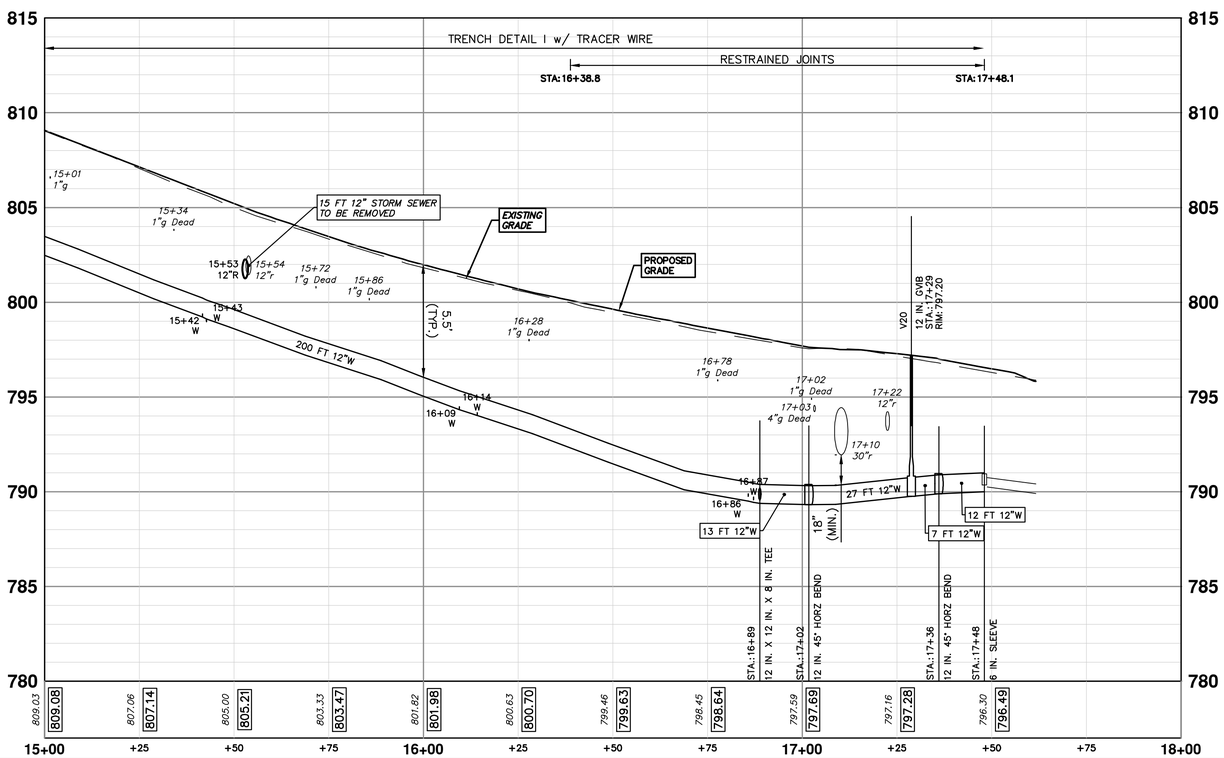
PROPOSED WATER MAIN - N SEVENTH TO CHAPIN - PHASE II

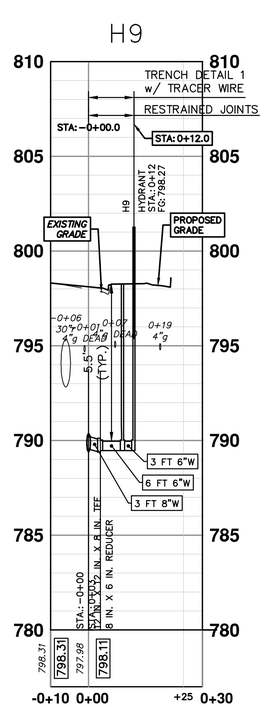
FOUNTAIN CONNECTION AND H7 AND H8 PROFILES



WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	RIM
V20	12 in. GVIB	17+29	797.20

WATER MAIN STRUCTURES			
STRUCTURE	TYPE	STATION	FG
H9	HYDRANT	0+12	798.27





811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

PROPOSED WATER MAIN - N SEVENTH TO CHAPIN - PHASE II

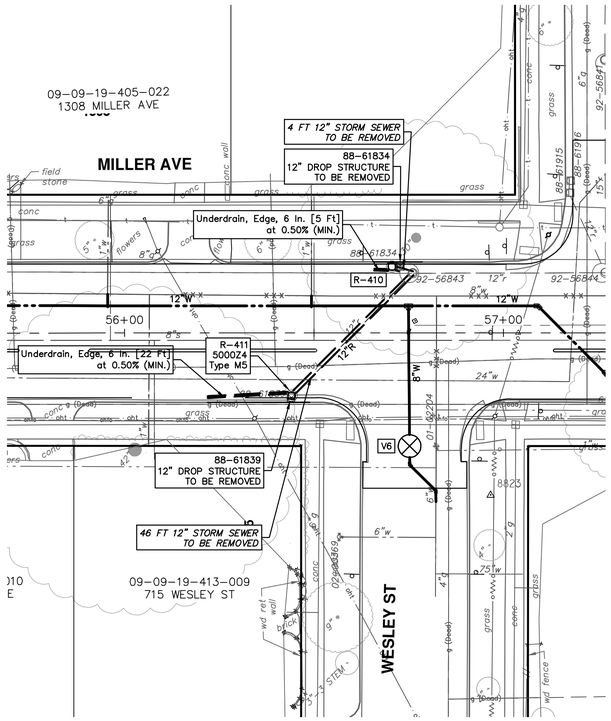
STA. 15+00 - STA. 17+48

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-56

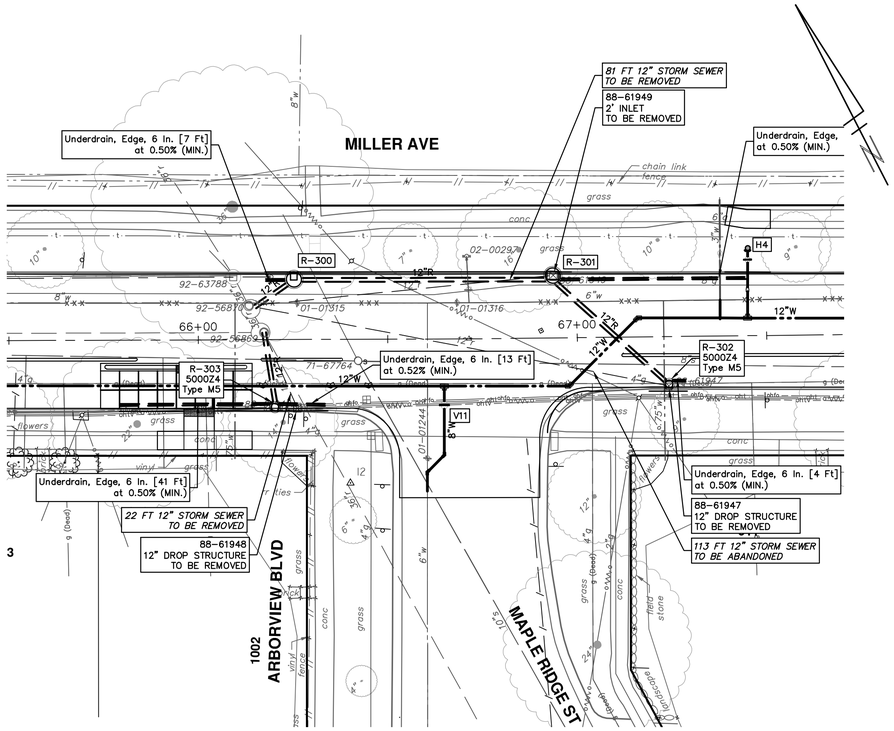
SHEET No. 56 OF 131

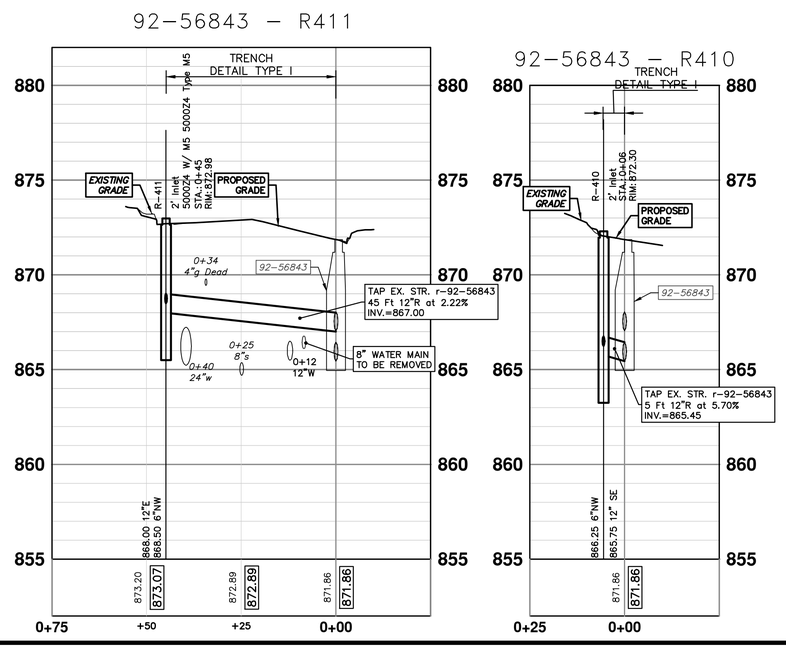
R:\2022034 Miller Ave Rehab\Plan Production\2022034Watr1.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24

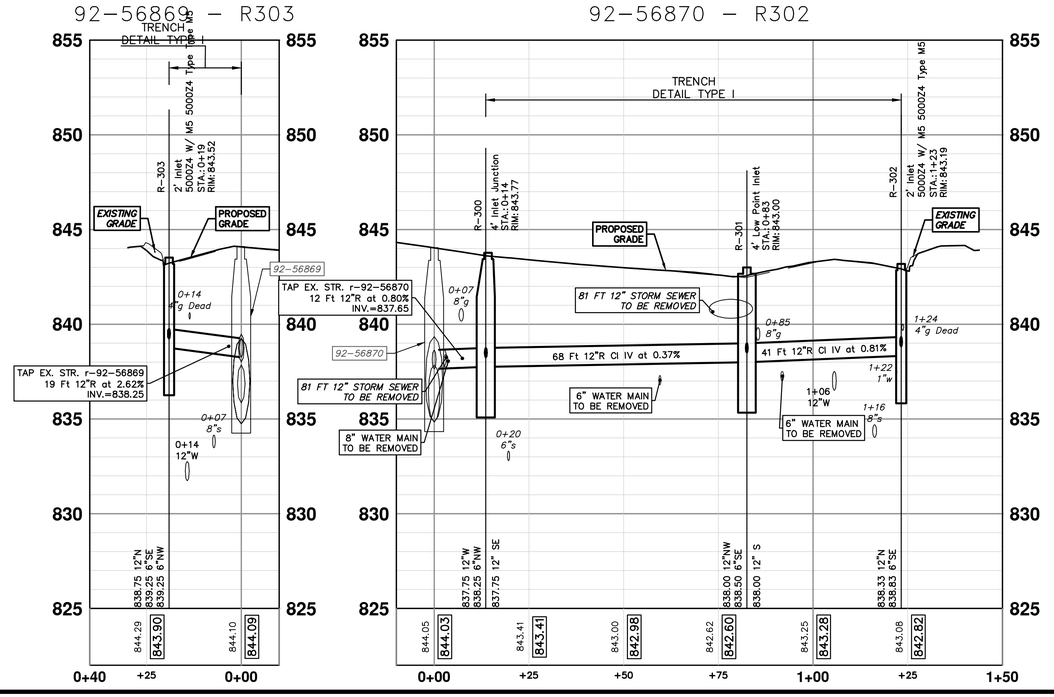


EXISTING STORM SEWER STRUCTURE REMOVAL TABLE		
STRUCTURE	DEPTH (Feet)	REMOVE
88-61949	2.00	2' Inlet TO BE REMOVED
88-61947	3.22	12" Drop Structure TO BE REMOVED
88-61834	2.90	12" Drop Structure TO BE REMOVED
88-61839	2.56	12" Drop Structure TO BE REMOVED
88-61948	4.71	12" Drop Structure TO BE REMOVED

STORM SEWER STRUCTURE TABLE						
STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)	SUMP
R-300	0+14	4' Inlet Junction	843.77	12" SE 837.75 12" W 837.75 6" NW 838.25	8.02	2'
R-301	0+83	4' Low Point Inlet	843.00	12" S 838.00 12" NW 838.00 6" SE 838.50	7.00	2'
R-302	1+23	2' Inlet 5000Z4 W/ M5	843.19	12" N 838.33 6" SE 838.83	6.86	2'
R-303	0+19	2' Inlet 5000Z4 W/ M5	843.52	12" N 838.75 6" SE 839.25 6" NW 839.25	6.77	2'
R-410	0+06	2' Inlet	872.30	12" SE 865.75 6" NW 866.25	8.55	2'
R-411	0+45	2' Inlet 5000Z4 W/ M5	872.98	12" E 868.00 6" NW 868.50	6.98	2'







R: \2022034 Miller Ave Rehab\Plan Production\2022034Strm.dwg Dwg Created: 29-Apr-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

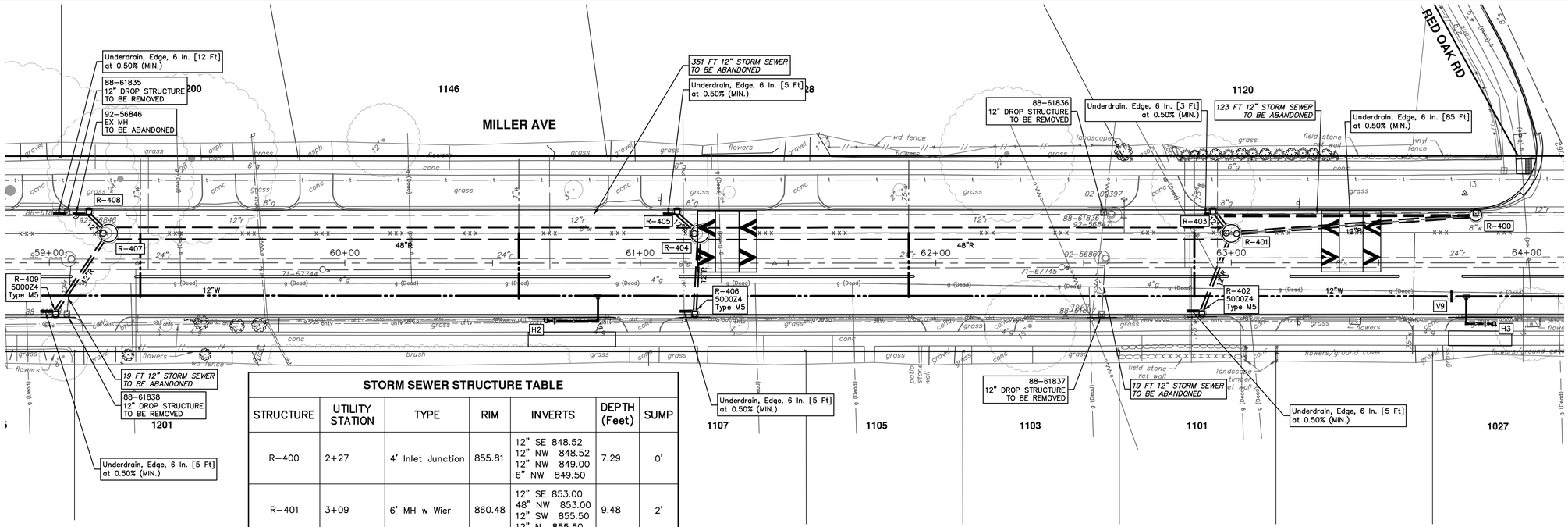
PROPOSED STORM SEWER

R300,R301,R302,R303,R410,R411

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-57

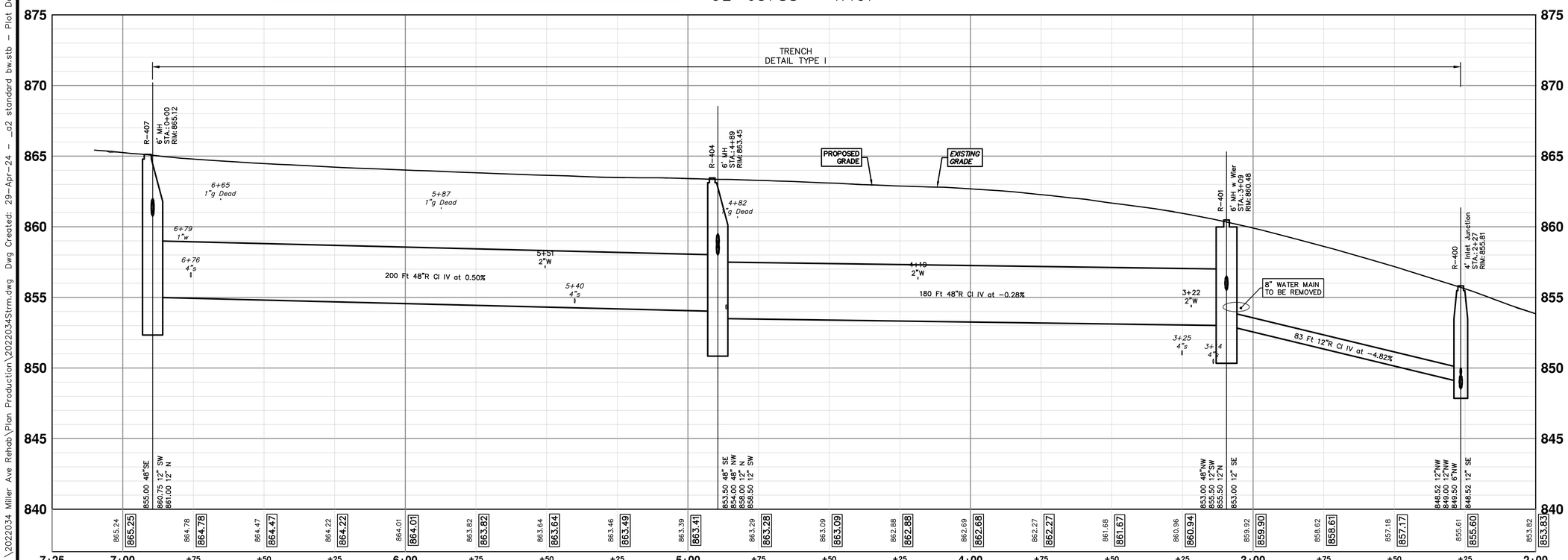
SHEET No. 57 OF 131



STORM SEWER STRUCTURE TABLE

STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)	SUMP
R-400	2+27	4' Inlet Junction	855.81	12" SE 848.52 12" NW 848.52 12" NW 849.00 6" NW 849.50	7.29	0'
R-401	3+09	6' MH w Wier	860.48	12" SE 853.00 48" NW 853.00 12" SW 855.50 12" N 855.50	9.48	2'
R-404	4+89	6' MH	863.45	48" SE 853.50 48" NW 854.00 12" N 858.00 12" SW 858.50	11.95	2'
R-407	0+00	6' MH	865.12	12" SW 860.75 12" N 861.00 48" SE 855.00	12.12	2'

92-63788 - R407



811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

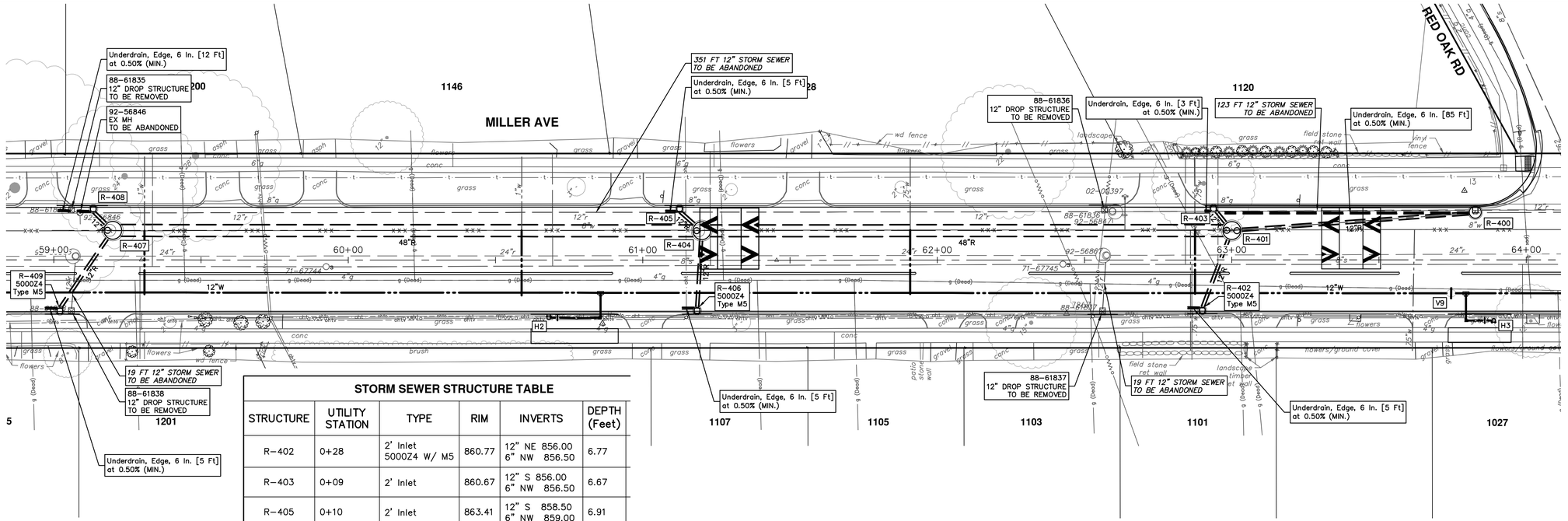
PROPOSED STORM SEWER

R400,R401,R404,R407

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-58

SHEET No. 58 OF 131



STORM SEWER STRUCTURE TABLE

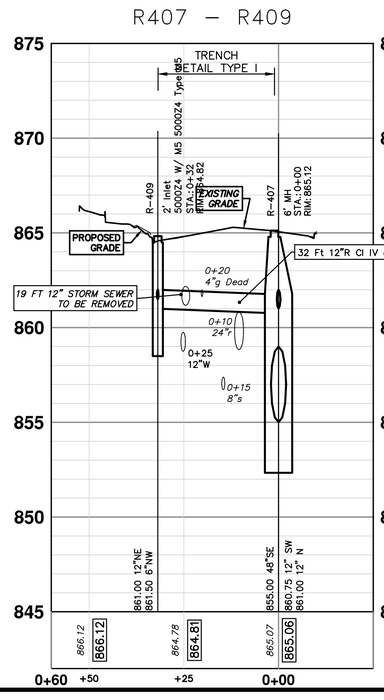
STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)
R-402	0+28	2' Inlet 5000Z4 W/ M5	860.77	12" NE 856.00 6" NW 856.50	6.77
R-403	0+09	2' Inlet	860.67	12" S 856.00 6" NW 856.50	6.67
R-405	0+10	2' Inlet	863.41	12" S 858.50 6" NW 859.00	6.91
R-406	0+26	2' Inlet 5000Z4 W/ M5	862.99	12" NE 858.75 6" NW 859.25	6.24
R-408	0+09	2' Inlet	865.19	12" S 861.55 6" NW 862.05	5.64
R-409	0+32	2' Inlet 5000Z4 W/ M5	864.82	12" NE 861.00 6" NW 861.50	5.82

EXISTING STORM SEWER STRUCTURE REMOVAL TABLE

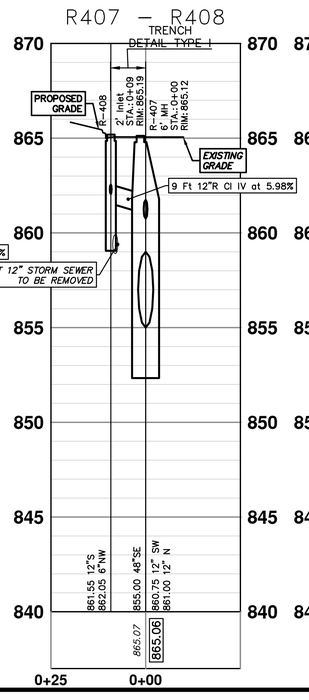
STRUCTURE	DEPTH (Feet)	REMOVE
88-61837	3.31	12" Drop Structure TO BE REMOVED
88-61836	3.71	12" Drop Structure TO BE REMOVED
88-61838	2.91	12" Drop Structure TO BE REMOVED
88-61835	4.12	12" Drop Structure TO BE REMOVED
92-56846	6.21	EX MH TO BE ABANDONED

R404 – R406

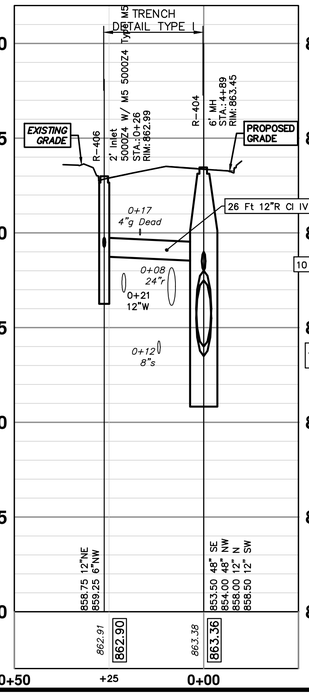
R407 – R409



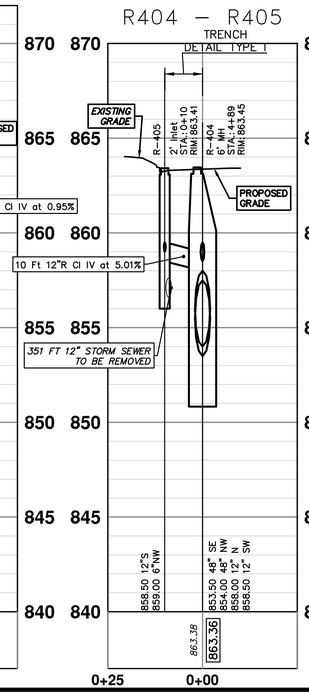
R407 – R408



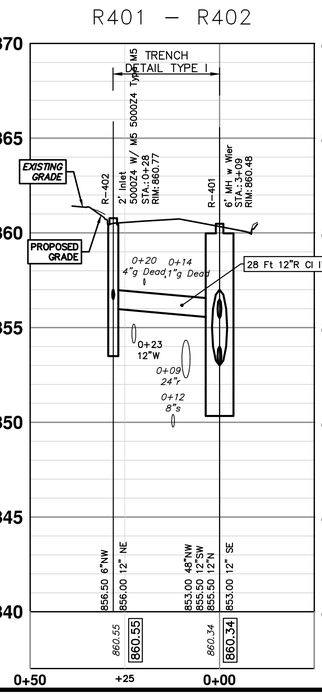
R404 – R405



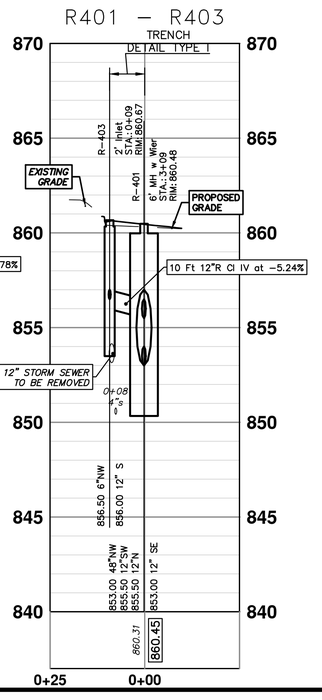
R404 – R405



R401 – R402



R401 – R403



Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

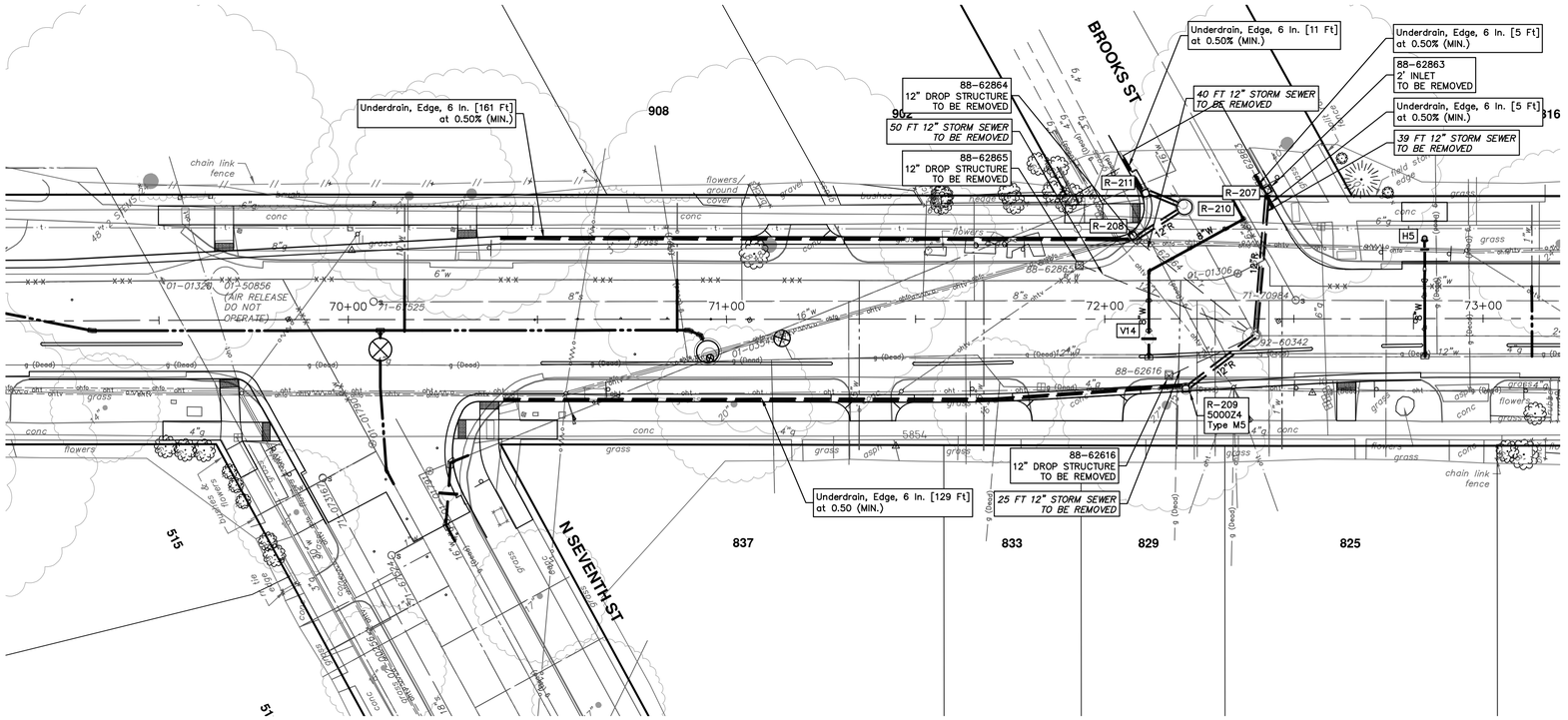
PROPOSED STORM SEWER

R402,R403,R405,R406,R408,R409

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-59

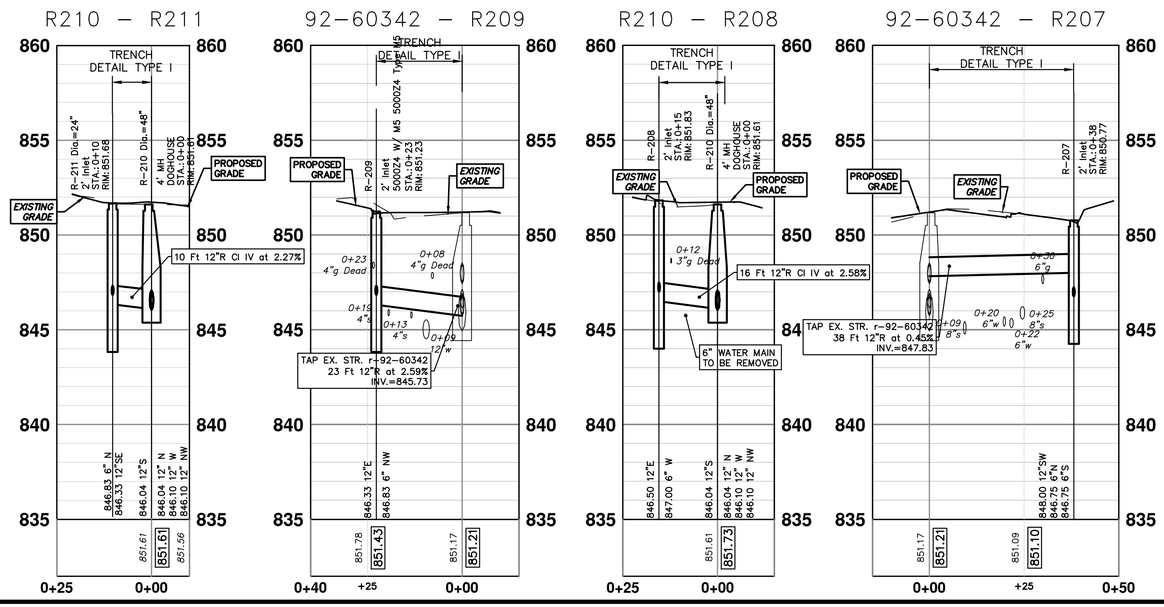
SHEET No. 59 OF 131



EXISTING STORM SEWER STRUCTURE REMOVAL TABLE		
STRUCTURE	DEPTH (Feet)	REMOVE
88-62863	2.00	2' Inlet TO BE REMOVED
88-62616	3.32	12" Drop Structure TO BE REMOVED
88-62864	2.51	12" Drop Structure TO BE REMOVED
88-62865	2.20	12" Drop Structure TO BE REMOVED

STORM SEWER STRUCTURE TABLE

STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)	SUM
R-207	0+38	2' Inlet	850.77	12" SW 848.00 6" N 846.75 6" S 846.75	6.02	2'
R-208	0+15	2' Inlet	851.83	6" W 847.00 12" E 846.50	7.33	2'
R-209	0+23	2' Inlet 5000Z4 W/ M5	851.23	6" NW 846.83 12" E 846.33	6.90	2'
R-210	0+00	4' MH DOGHOUSE	851.61	12" N 846.04 12" W 846.10 12" NW 846.10 12" S 846.04	5.57	0'
R-211	0+10	2' Inlet	851.68	6" N 846.83 12" SE 846.33	7.35	2'



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

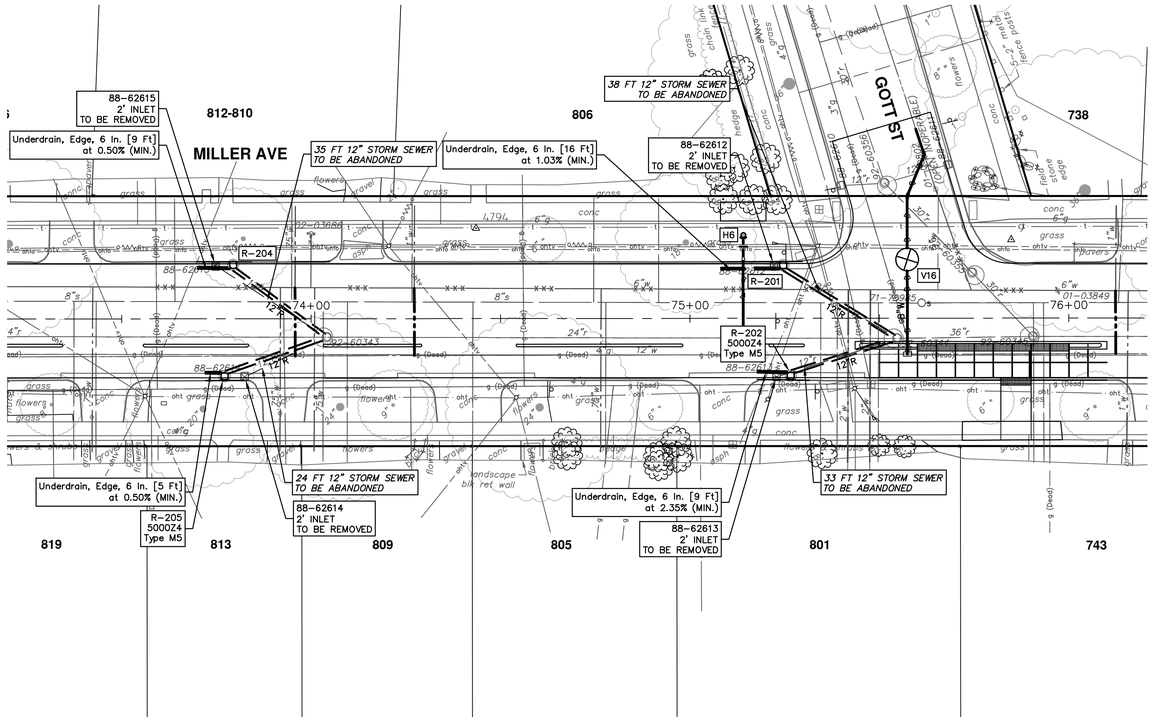
PROPOSED STORM SEWER

R207,R208,R209,R210,211

SCALE PLAN: ######## PROFILE: 1" = 4'

DRAWING No. 2022034-60

SHEET No. 60 OF 131

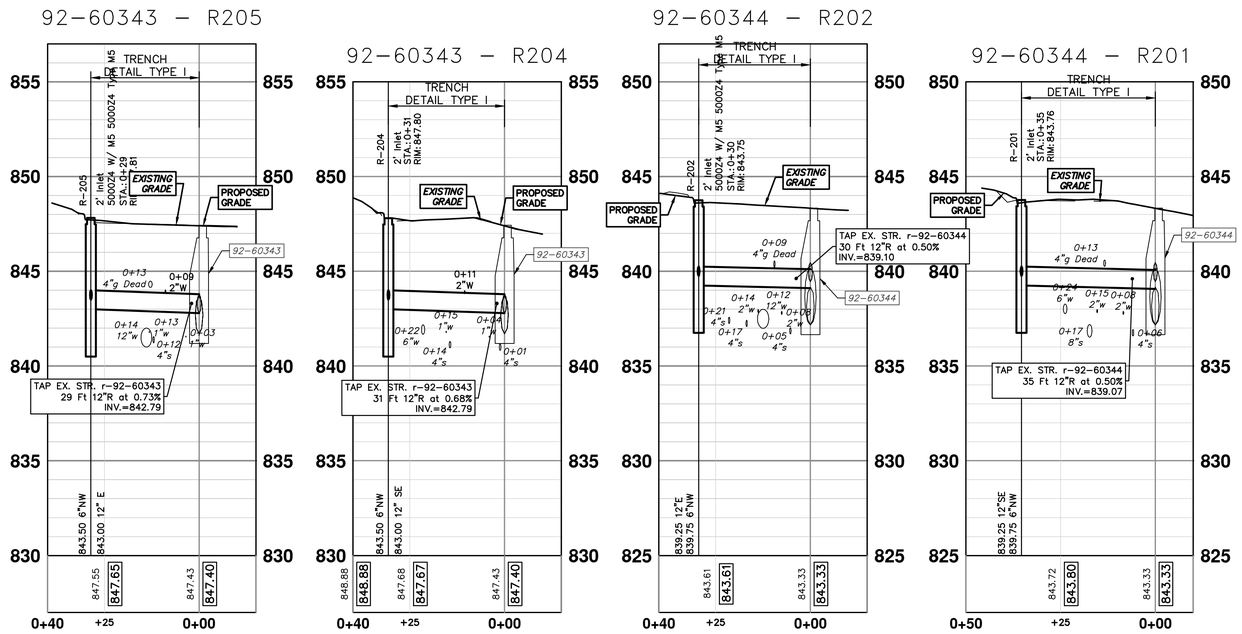


EXISTING STORM SEWER STRUCTURE REMOVAL TABLE

STRUCTURE	DEPTH (Feet)	REMOVE
88-62614	3.61	2' Inlet TO BE REMOVED
88-62615	4.10	2' Inlet TO BE REMOVED
88-62612	3.60	2' Inlet TO BE REMOVED
88-62613	2.90	2' Inlet TO BE REMOVED

STORM SEWER STRUCTURE TABLE

STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)
R-201	0+35	2' Inlet	843.76	12" SE 839.25 6" NW 839.75	6.51
R-202	0+30	2' Inlet 5000Z4 W/ M5	843.75	12" E 839.25 6" NW 839.75	6.50
R-204	0+31	2' Inlet	847.80	12" SE 843.00 6" NW 843.50	6.80
R-205	0+29	2' Inlet 5000Z4 W/ M5	847.81	12" E 843.00 6" NW 843.50	6.81



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

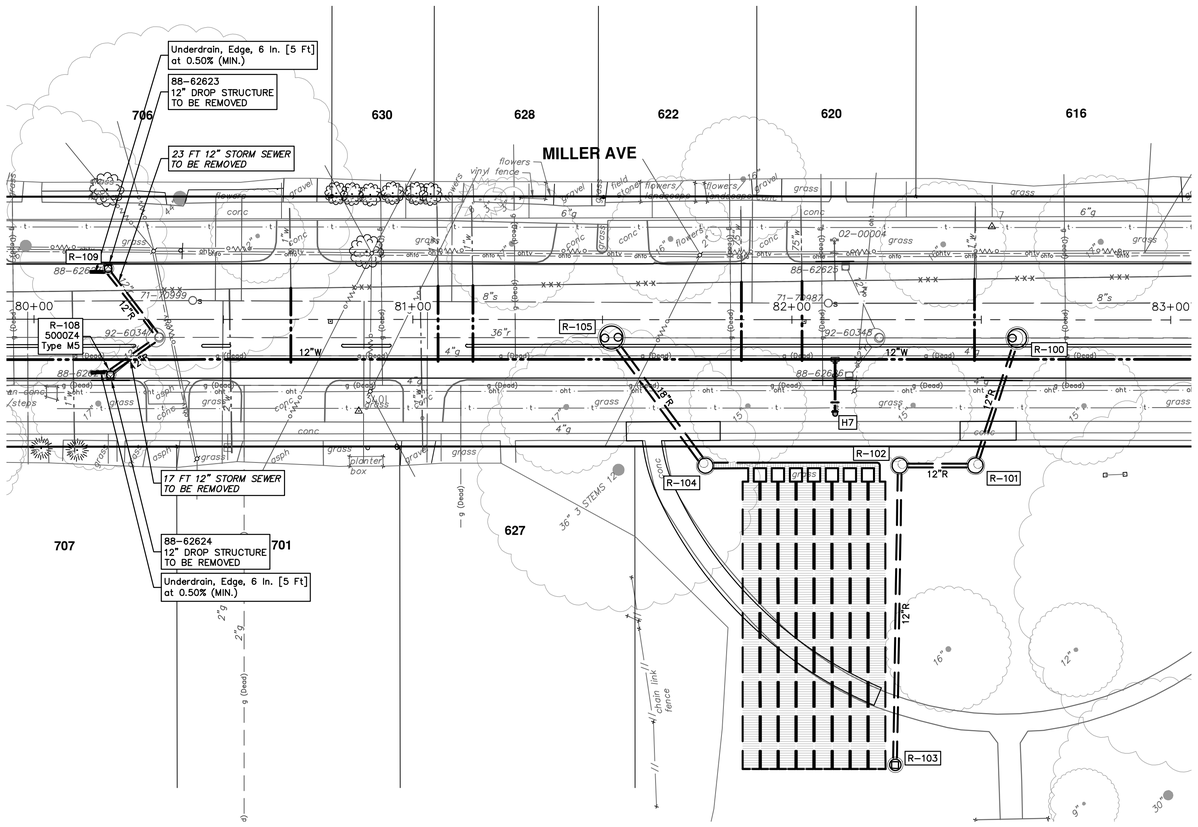
PROPOSED STORM SEWER

R201 R202 R204 R205

SCALE PLAN: ######## PROFILE: 1" = 4'

DRAWING No. 2022034-61

SHEET No. 61 OF 131

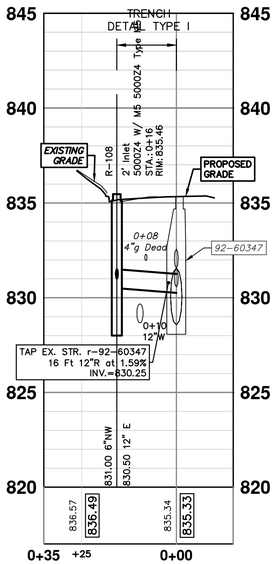


EXISTING STORM SEWER STRUCTURE REMOVAL TABLE		
STRUCTURE	DEPTH (Feet)	REMOVE
88-62623	2.21	12" Drop Structure TO BE REMOVED
88-62624	4.00	12" Drop Structure TO BE REMOVED

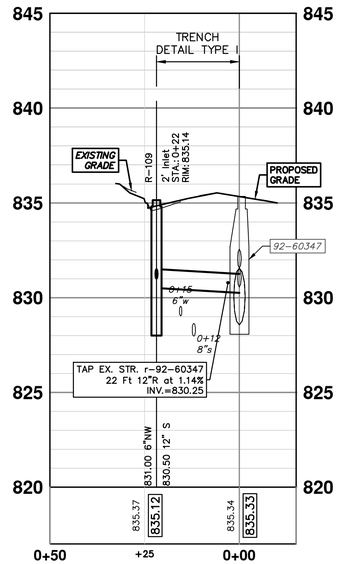
STORM SEWER STRUCTURE TABLE

STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)	SUMP
R-100	0+00	5' MH DOGHOUSE	830.63	30" NW 822.67 12" SW 825.00 30" SE 822.67	7.96	0'
R-101	0+35	4' MH	831.68	12" NW 825.50 12" NE 825.50	8.18	2'
R-102	0+55	4' MH	832.26	12" SW 825.67 12" SE 825.67	8.59	2'
R-103	1+34	3' Inlet Junction	830.49	12" NE 826.00	6.49	2'
R-104	0+51	PRE-TREATMENT STRUCTURE	833.68	18" N 826.42 18" SE 826.42	9.26	2'
R-105	0+93	6' MH w Diversion	833.36	36" NW 826.50 18" S 826.75 36" SE 826.50	8.86	2'
R-108	0+16	2' Inlet 5000Z4 W/ M5	835.46	12" E 830.50 6" NW 831.00	6.96	2'
R-109	0+22	2' Inlet	835.14	12" S 830.50 6" NW 831.00	6.64	2'

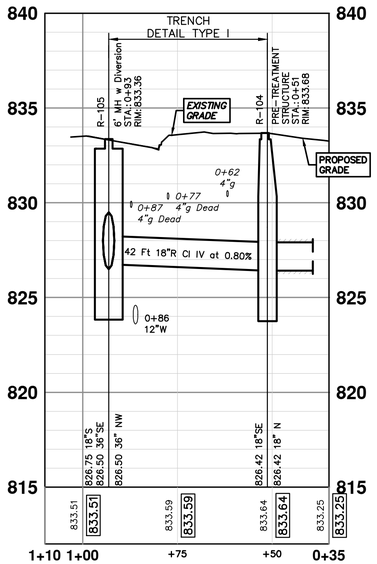
92-60347 – R108



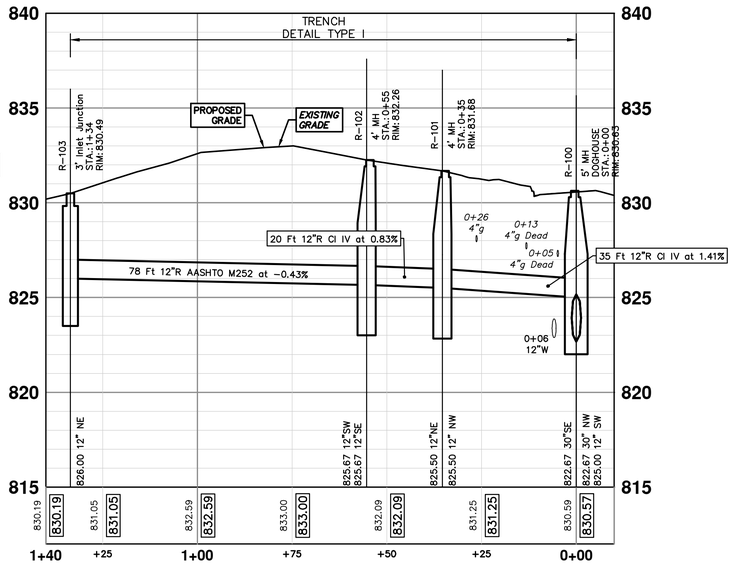
92-60347 – R109



R104 – R105



R100 – R103



811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

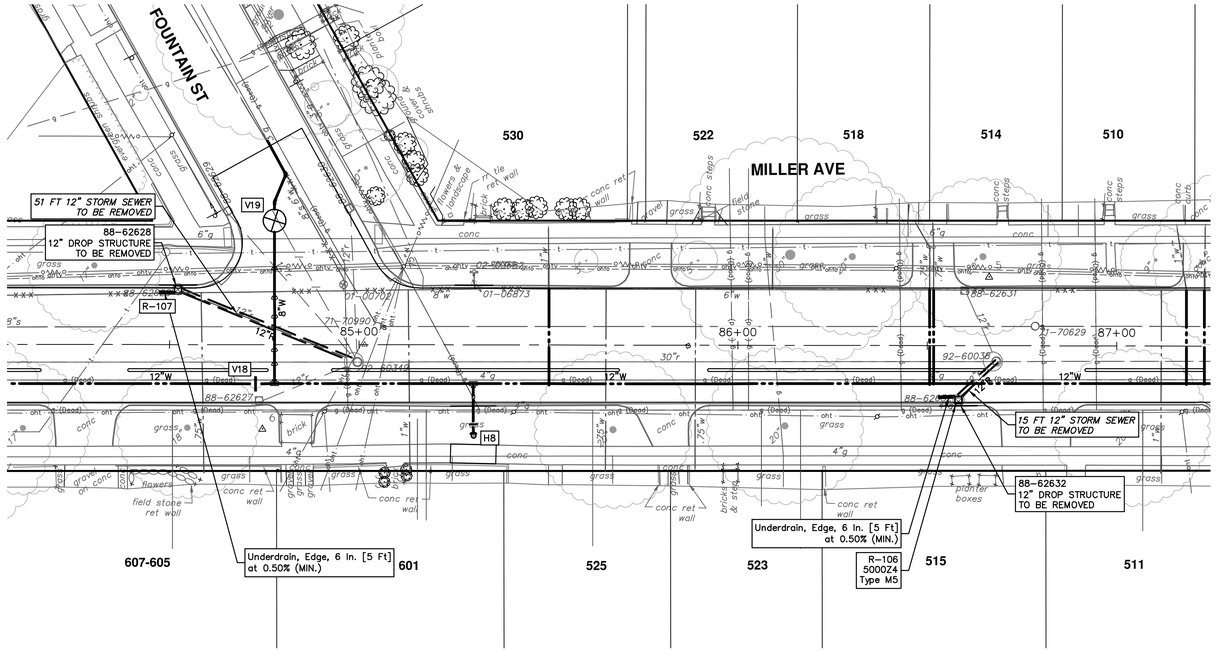
PROPOSED STORM SEWER

R100,R101,R102,R103,R104,R105,R108,R109

SCALE PLAN: ######## PROFILE: 1" = 4'

DRAWING No. 2022034-62

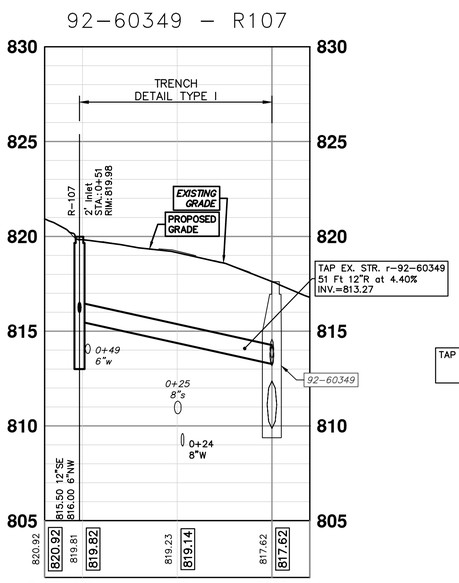
SHEET No. 62 OF 131

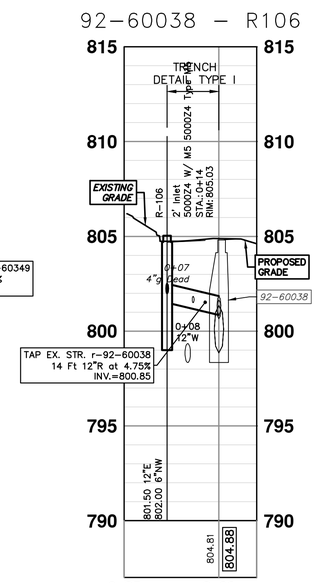


EXISTING STORM SEWER STRUCTURE REMOVAL TABLE		
STRUCTURE	DEPTH (Feet)	REMOVE
88-62628	2.41	12" Drop Structure TO BE REMOVED
88-62632	2.71	12" Drop Structure TO BE REMOVED

STORM SEWER STRUCTURE TABLE

STRUCTURE	UTILITY STATION	TYPE	RIM	INVERTS	DEPTH (Feet)	S
R-106	0+14	2' Inlet 5000Z4 W/ M5	805.03	12" E 801.50 6" NW 802.00	5.53	
R-107	0+51	2' Inlet	819.98	12" SE 815.50 6" NW 816.00	6.48	





NO	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

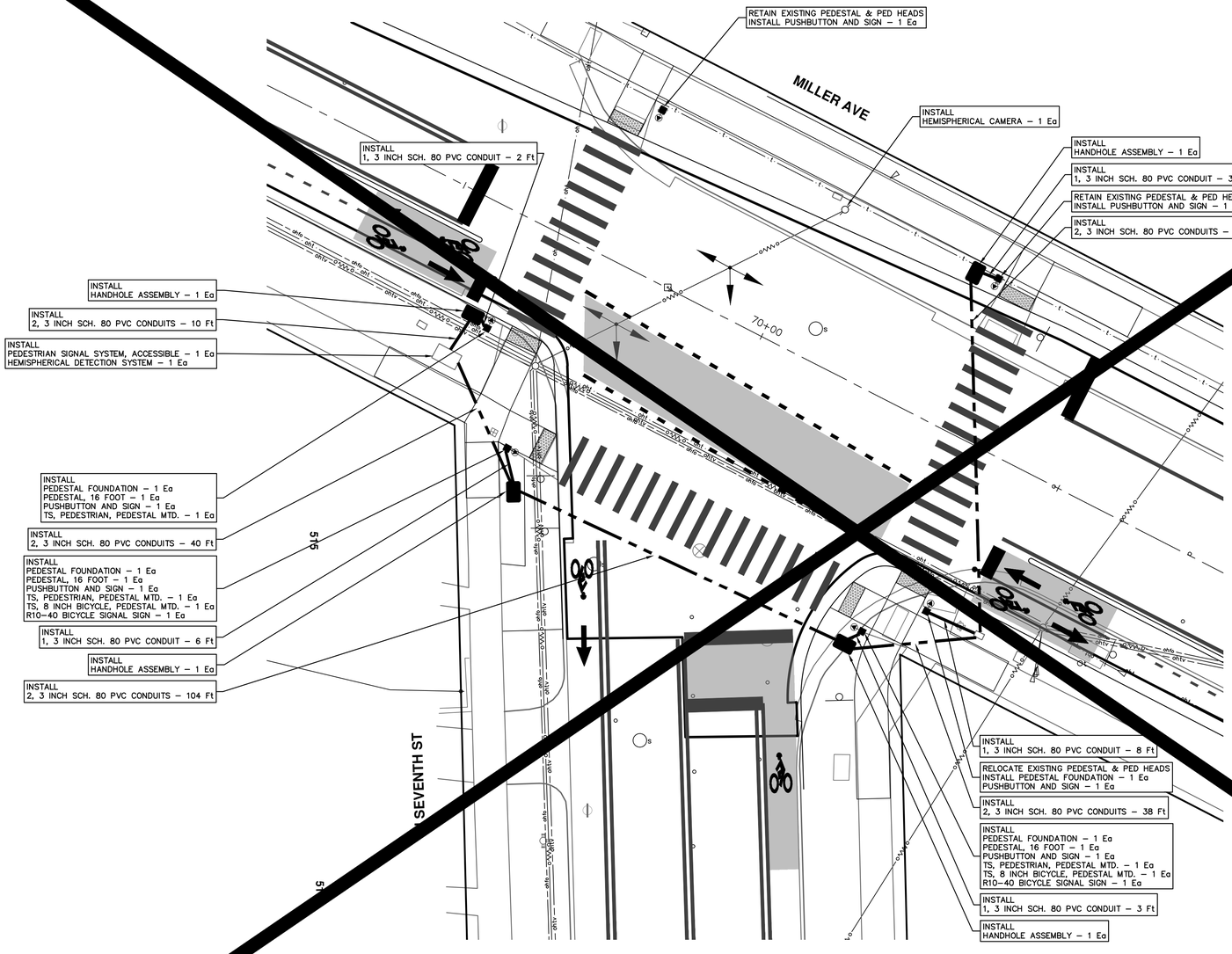
PROPOSED STORM SEWER

R106,R107

SCALE PLAN: ######## PROFILE: 1" = 4'

DRAWING No. 2022034-63

SHEET No. 63 OF 131



Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

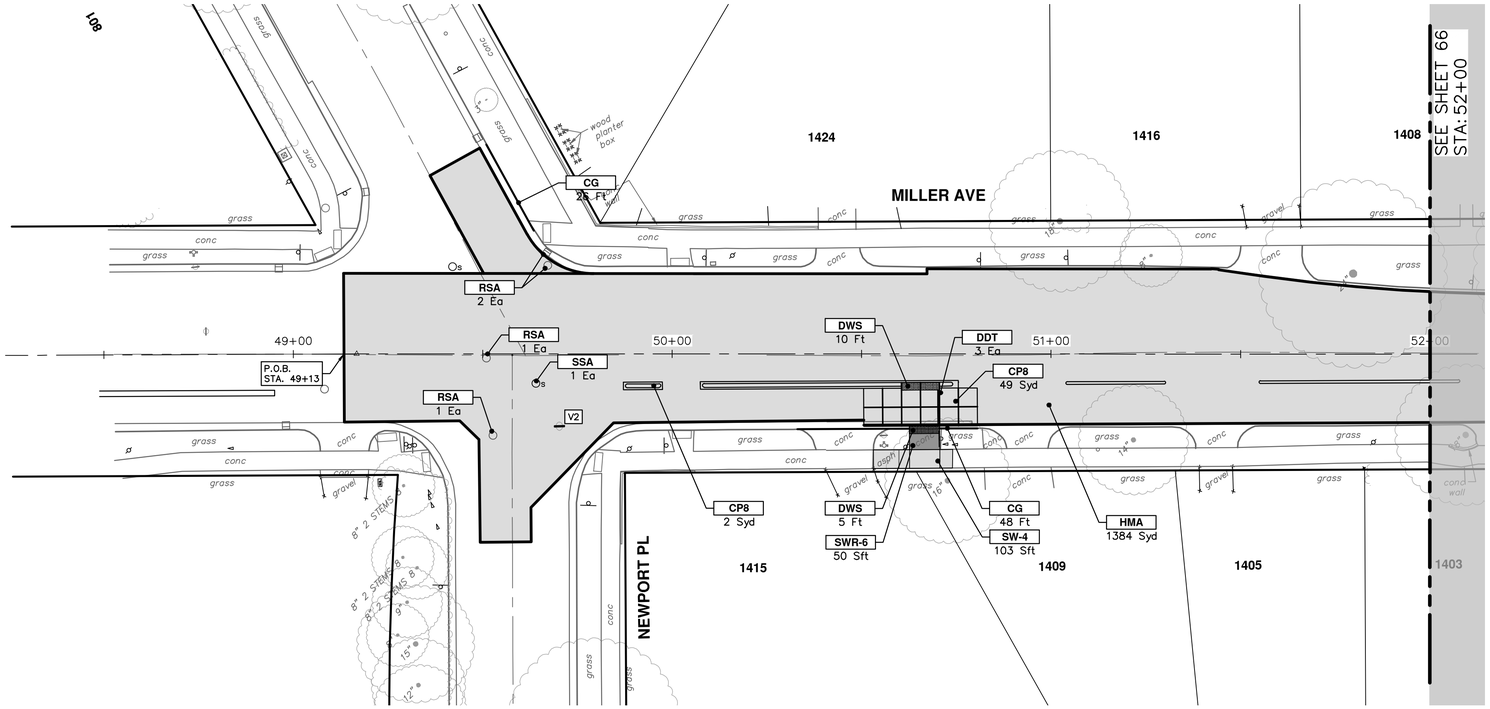
TRAFFIC SIGNAL PLAN
N SEVENTH ST & MILLER AVE

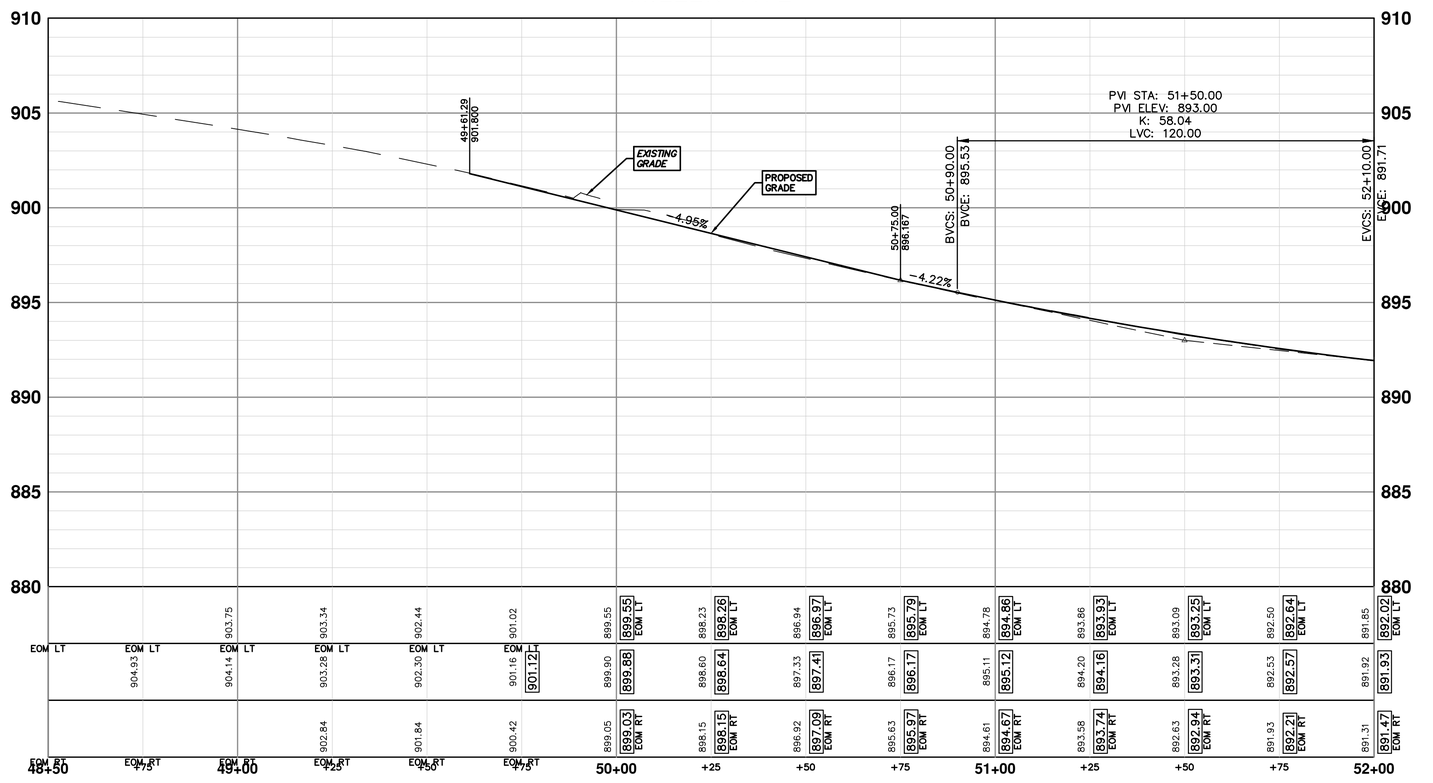
SCALE PLAN: 1" = 10'

DRAWING No.
2022034-64

SHEET No.
64 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\20220341sg.dwg Dwg Created: 25-Apr-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 In.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 In., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non-Reinf, 8 In.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

ROAD PLAN & PROFILE

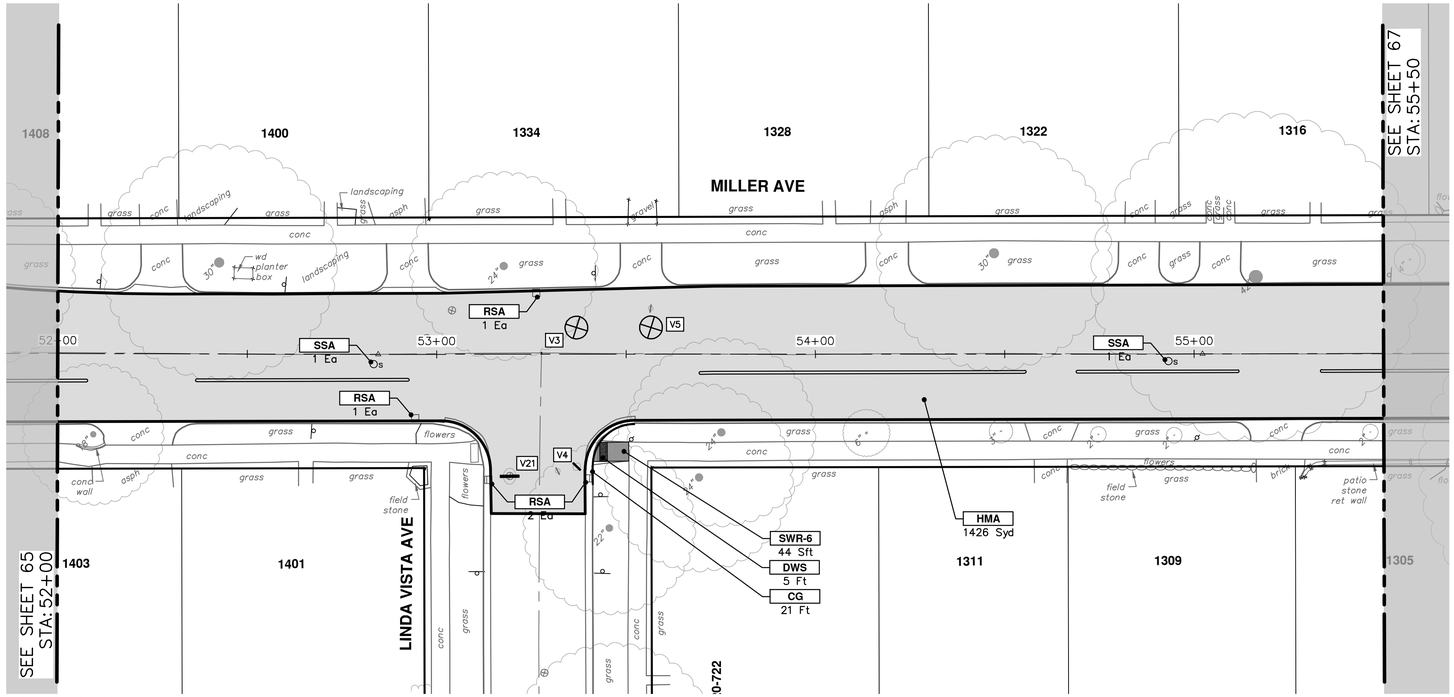
STA. 49+13 - STA. 52+00

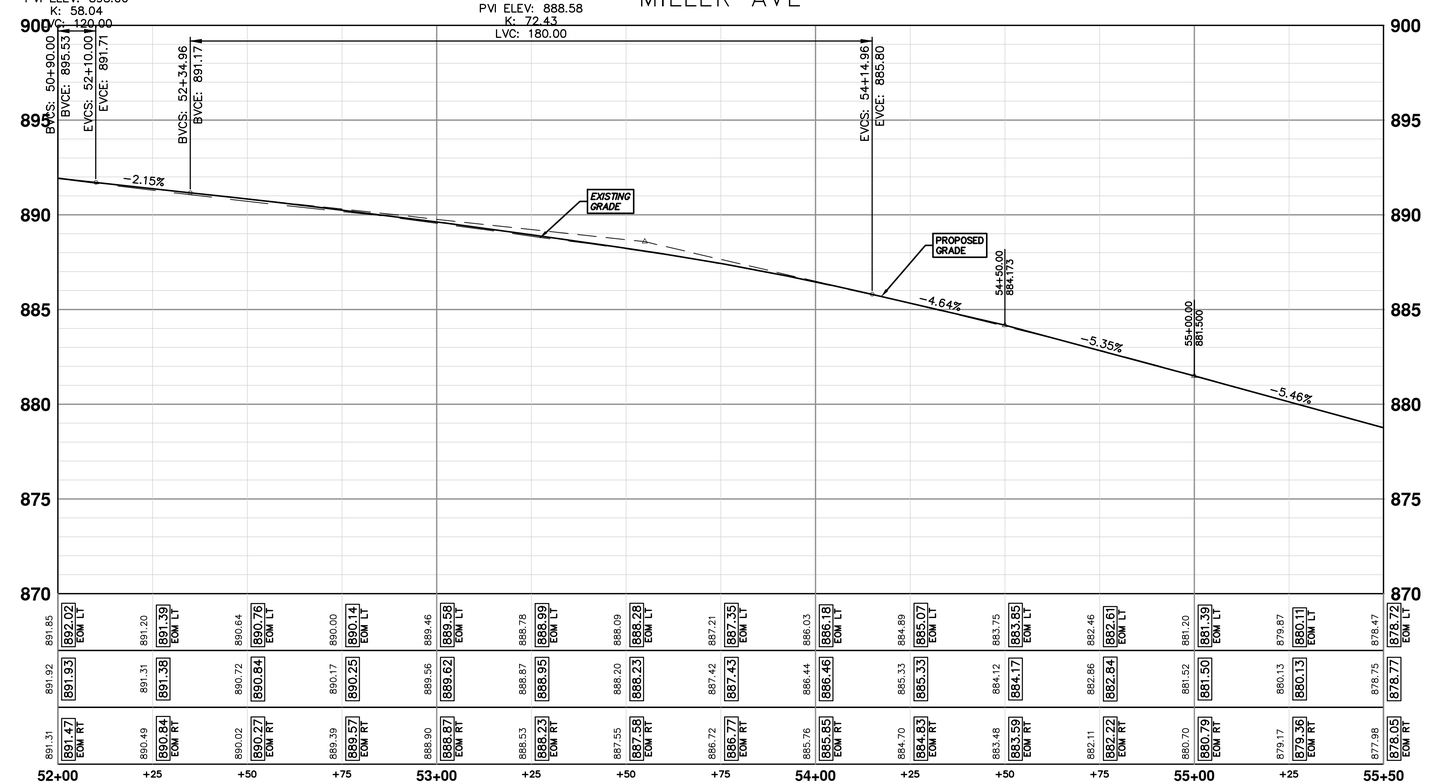
SCALE: PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-65

SHEET No. 65 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Prd.dwg Dwg Created: 23-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 in.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 In., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non−Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4−29−24	A2D	JKA
01	ADDENDUM PLANS	4−25−24	A2D	JKA
00	BID SET	4−9−24	A2D	JKA

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MILLER AVENUE REHABILITATION

ROAD PLAN & PROFILE

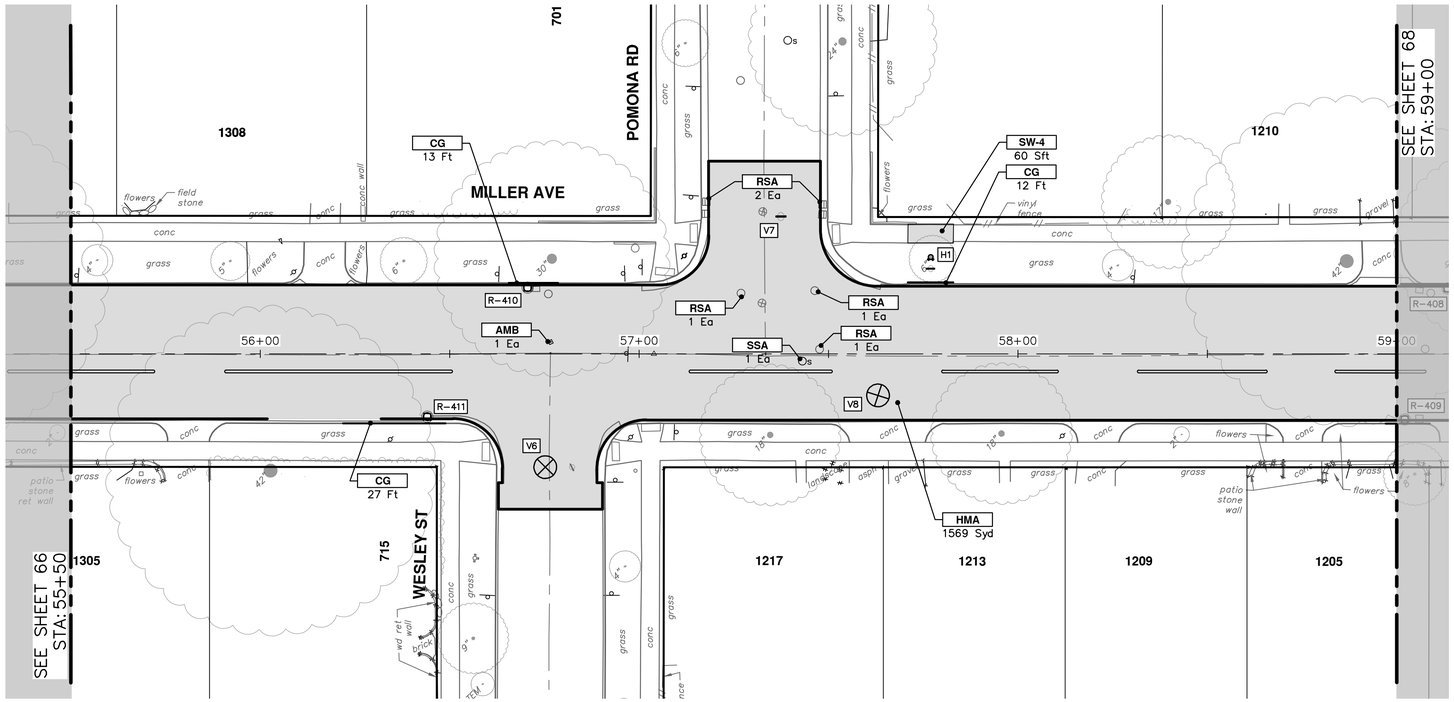
STA. 52+00 - STA. 55+50

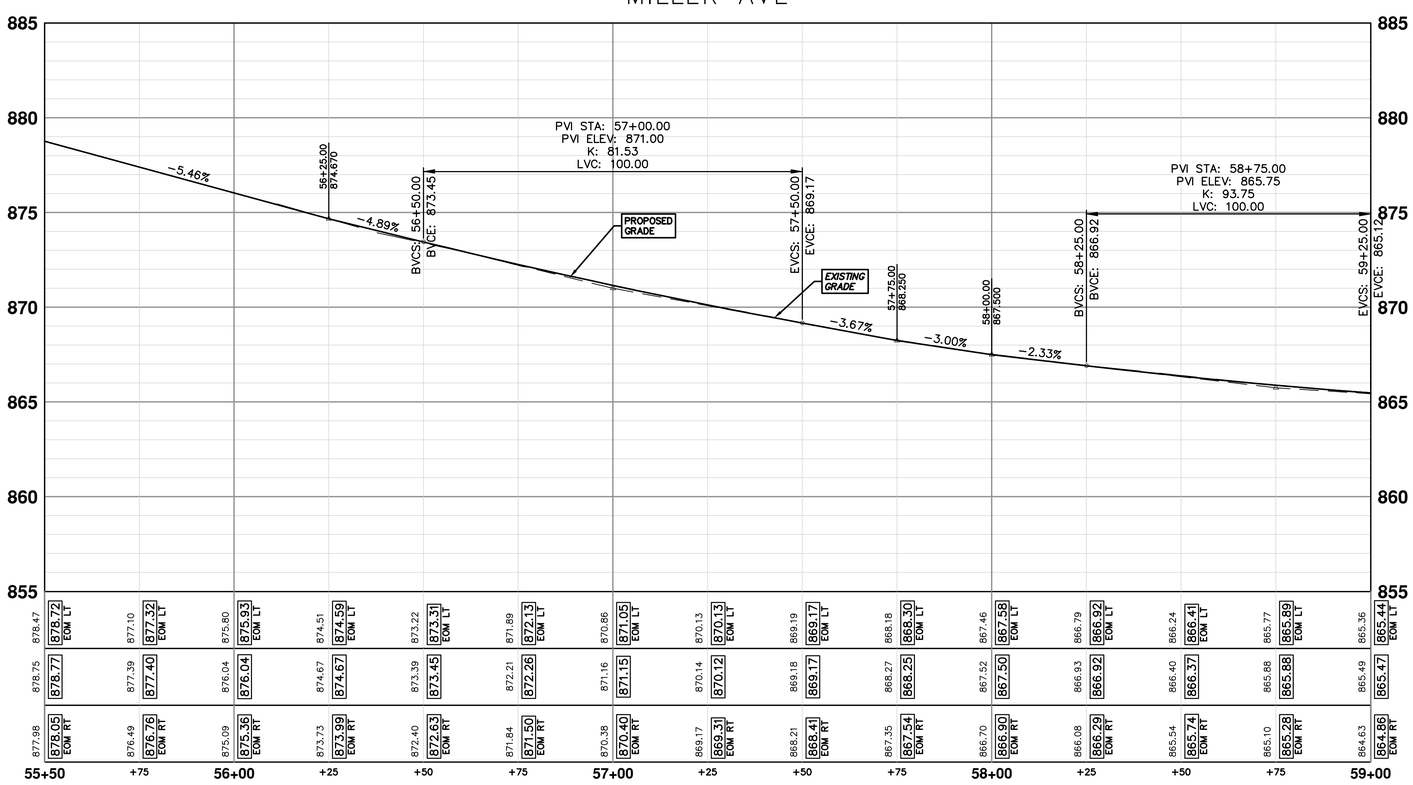
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-66

SHEET No. 66 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PRrd.dwg Dwg Created: 23−Apr−24 — _a2 standard bw.stb — Plot Date: 30−Apr−24





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 in.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 in.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 in., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 in.
CP8	Conc Pavt, Non-Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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MILLER AVENUE REHABILITATION

ROAD PLAN & PROFILE

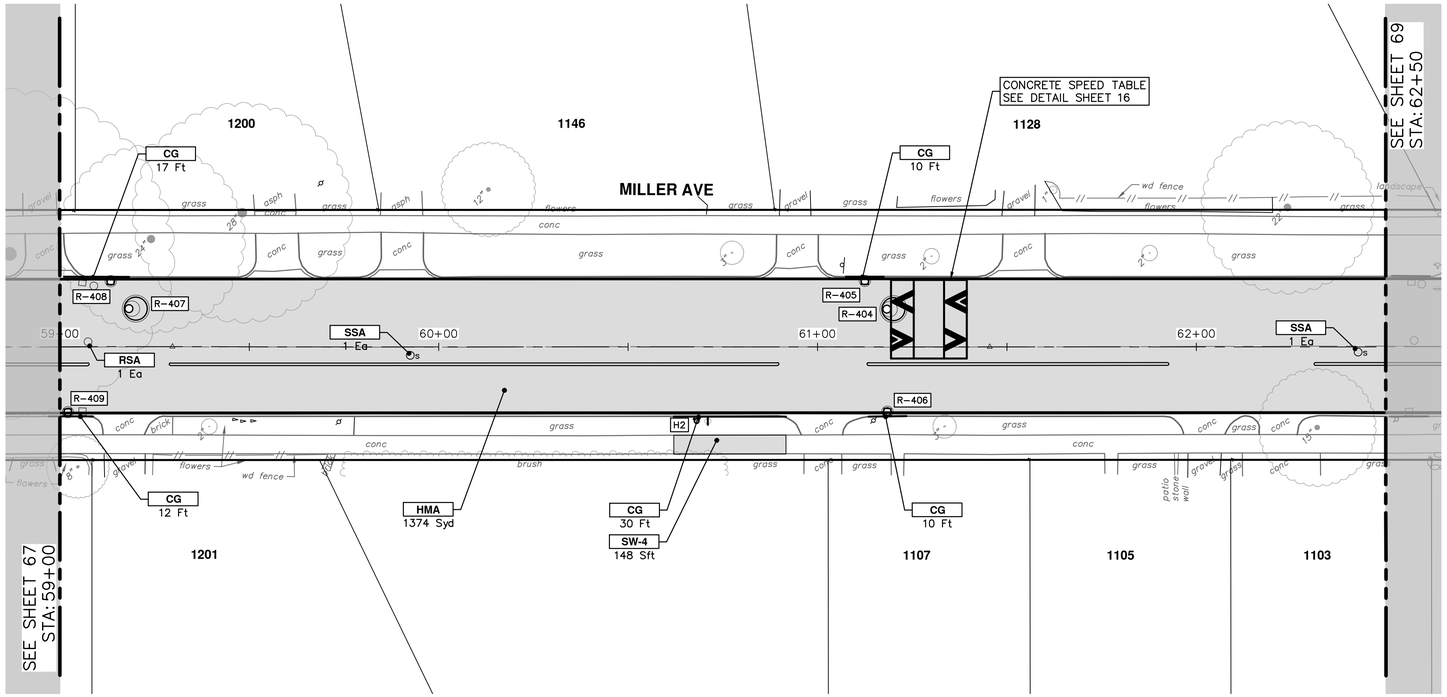
STA. 55+50 - STA. 59+00

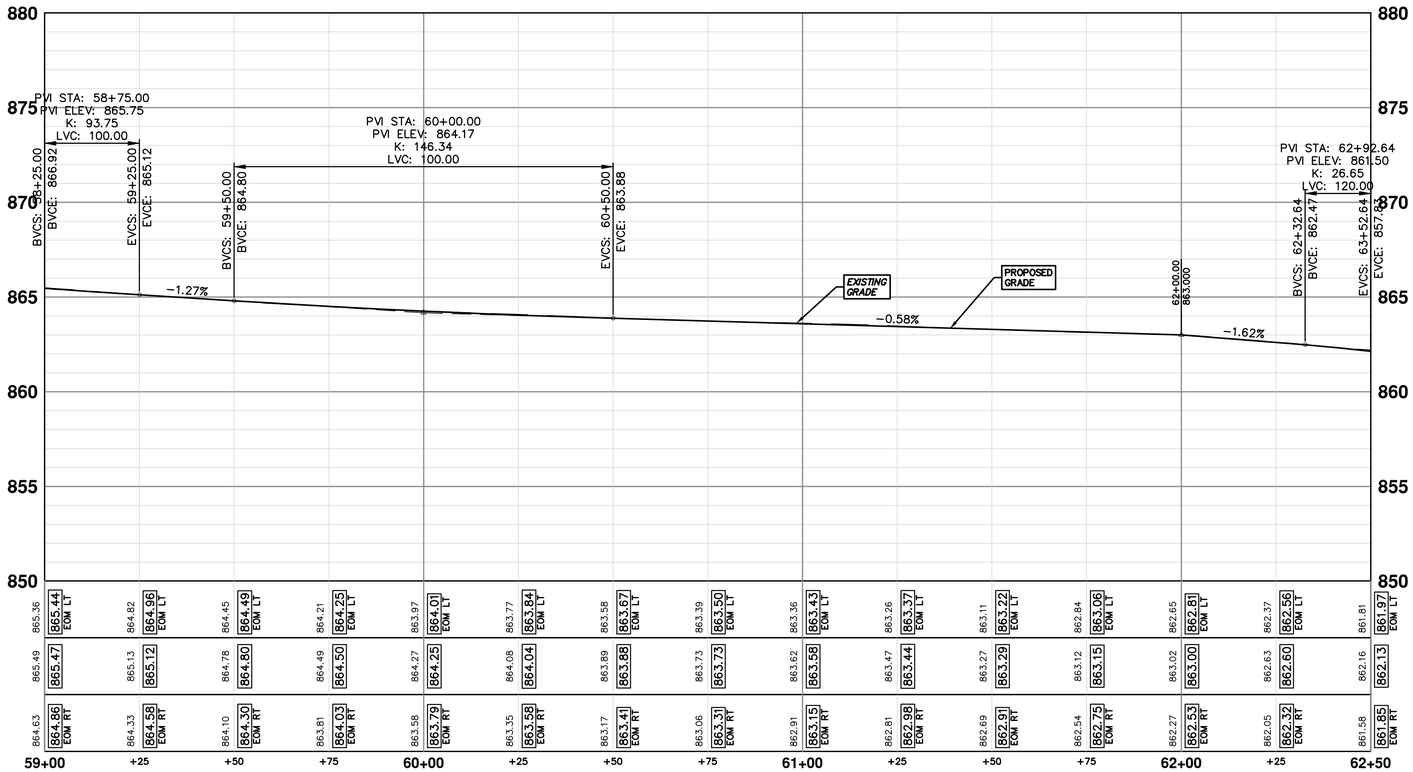
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-67

SHEET No. 67 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PPrd.dwg Dwg Created: 23-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 In.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 In., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non-Reinf, 8 In.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

ROAD PLAN & PROFILE

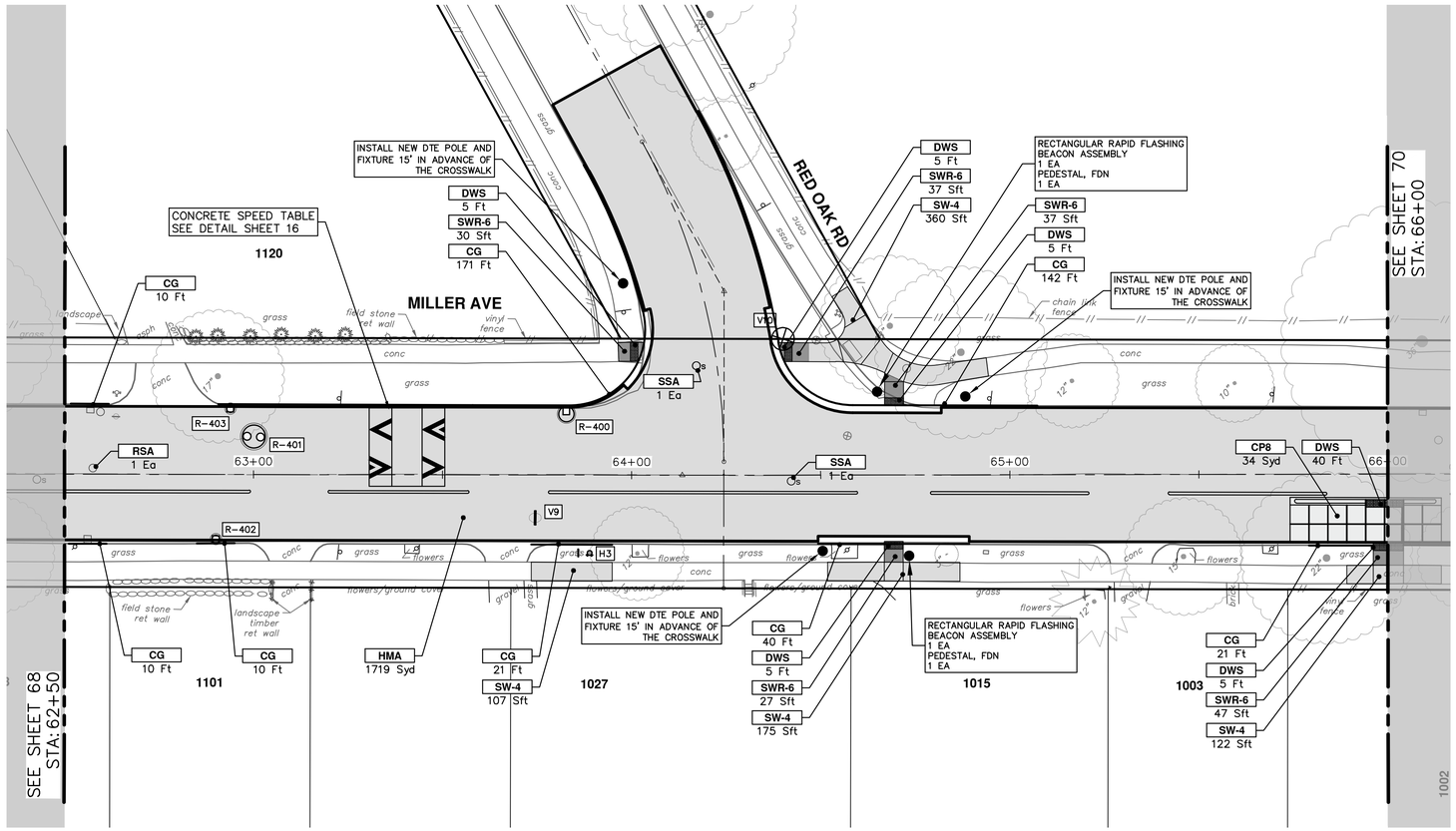
STA. 59+00 - STA. 62+50

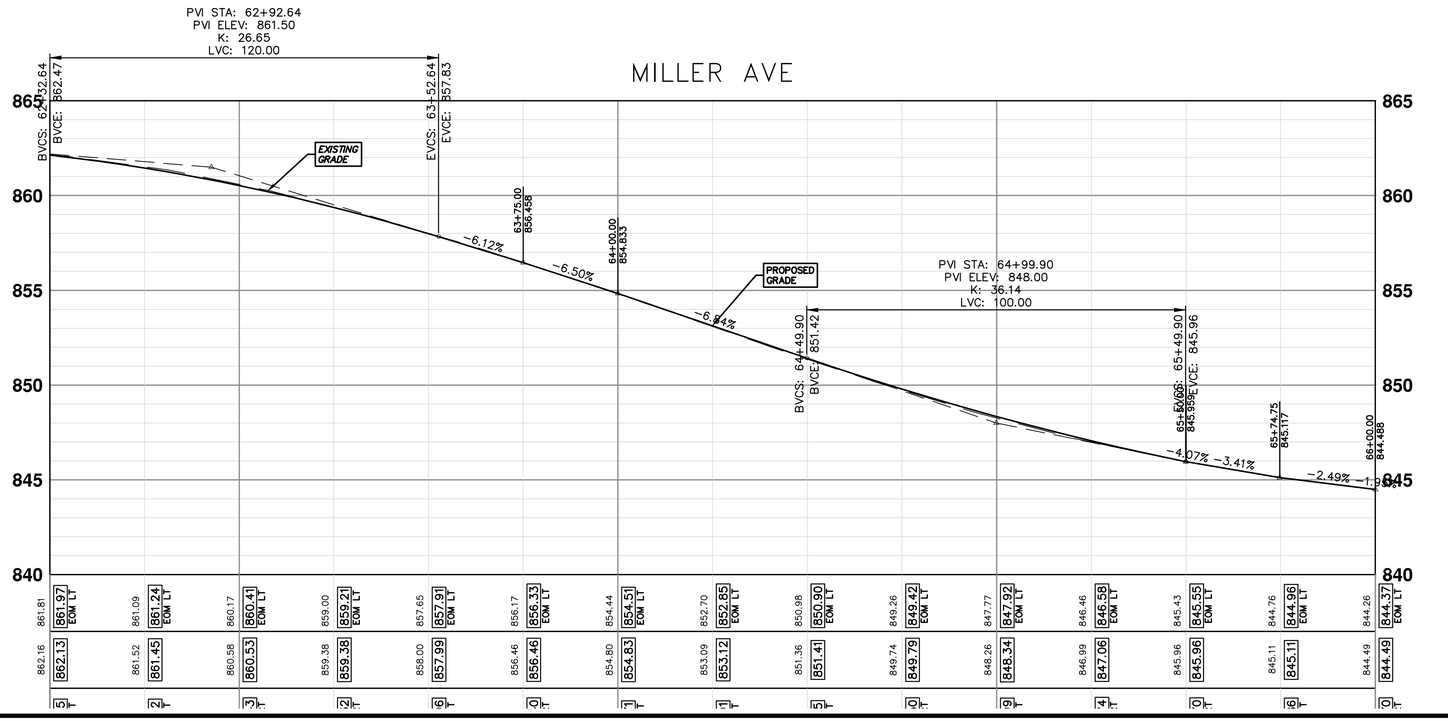
SCALE: PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-68

SHEET No. 68 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PPrd.dwg Dwg Created: 23-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 in.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 in.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 in., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 in.
CP8	Conc Pavt, Non-Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
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SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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MILLER AVENUE REHABILITATION

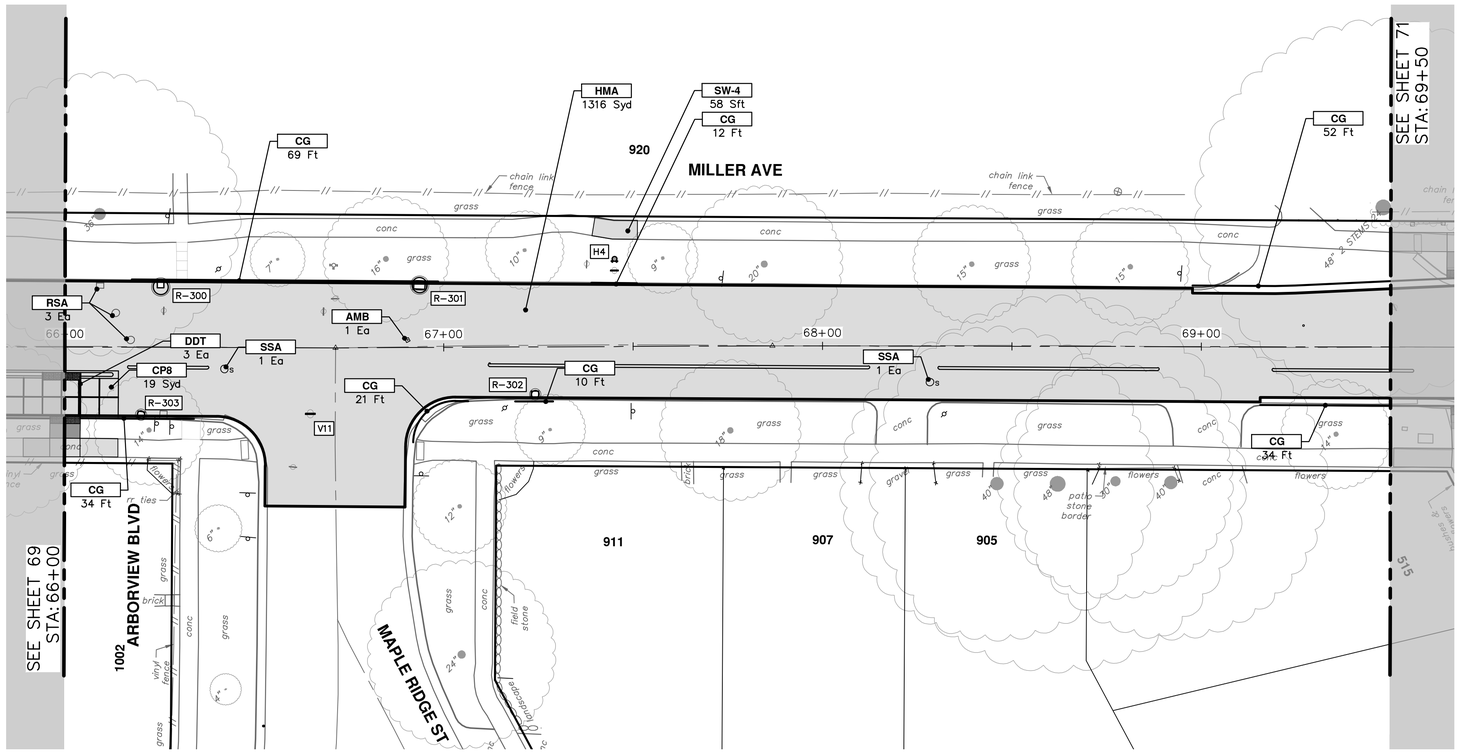
ROAD PLAN & PROFILE

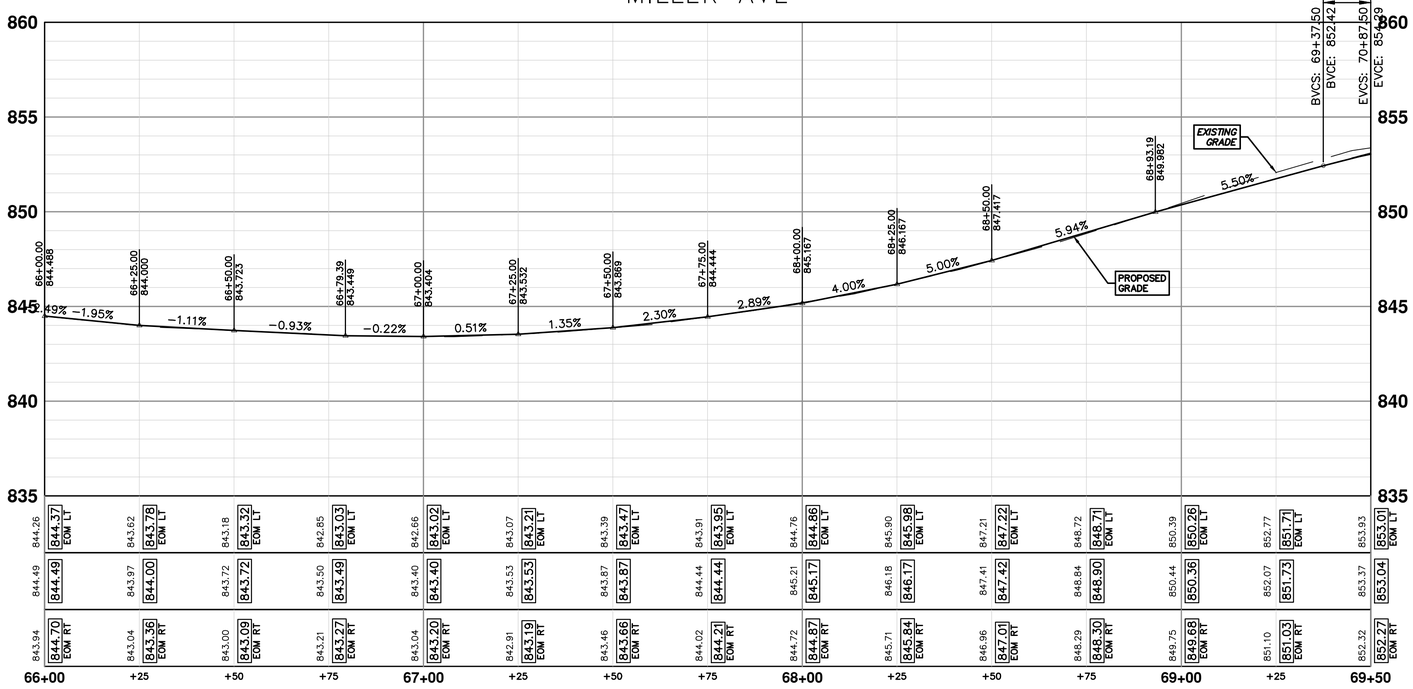
STA. 62+50 - STA. 66+00

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-69

SHEET No. 69 OF 131





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
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HP	Hand Patching
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SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non-Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
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Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

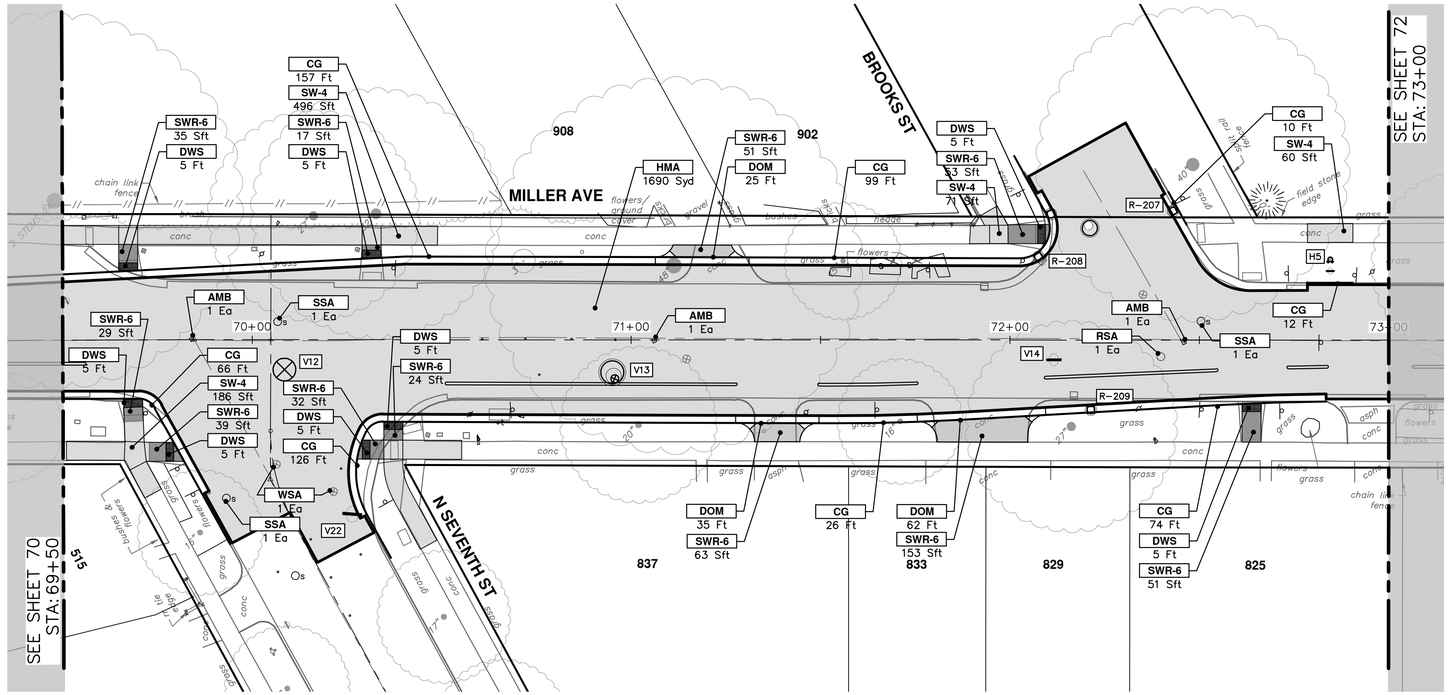
ROAD PLAN & PROFILE

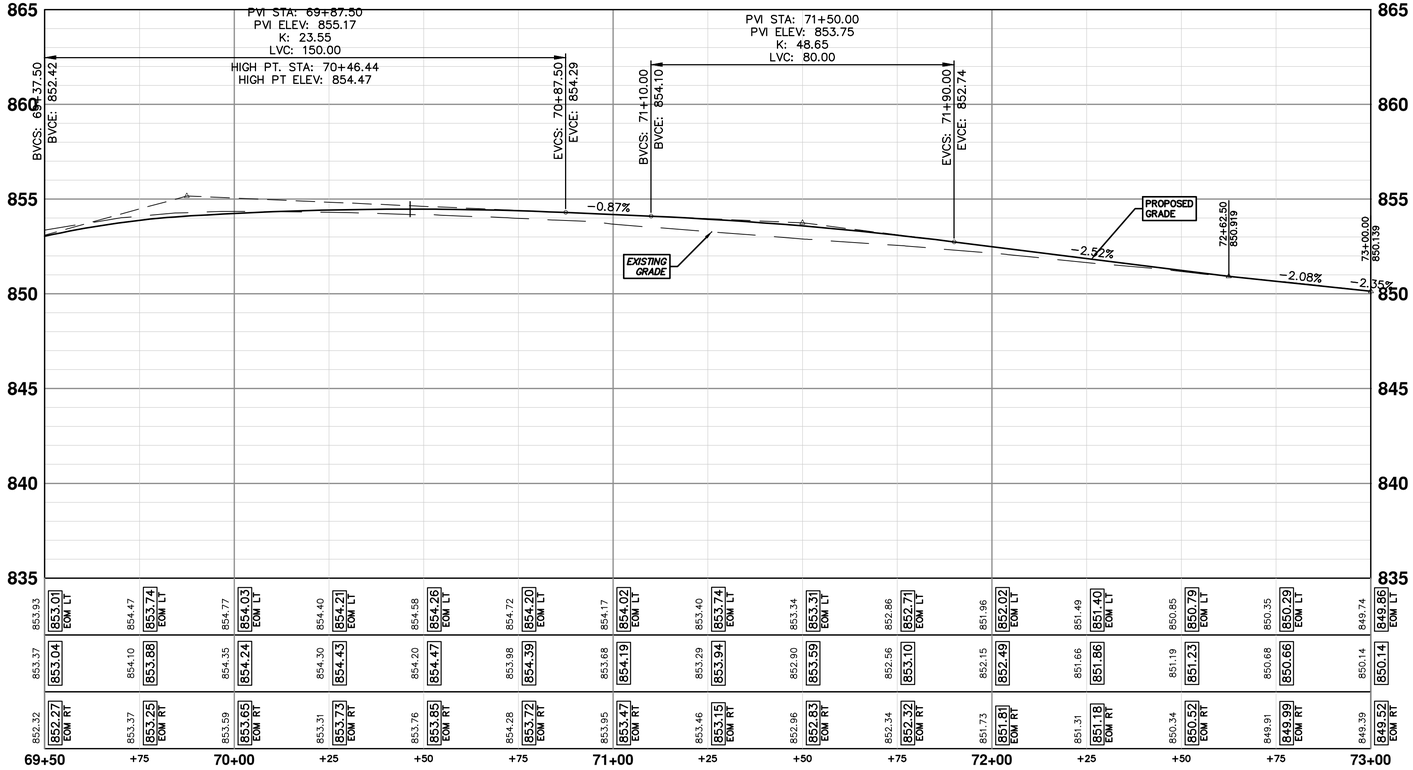
STA. 66+00 - STA. 69+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-70

SHEET No. 70 OF 131





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 In.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 In., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non-Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

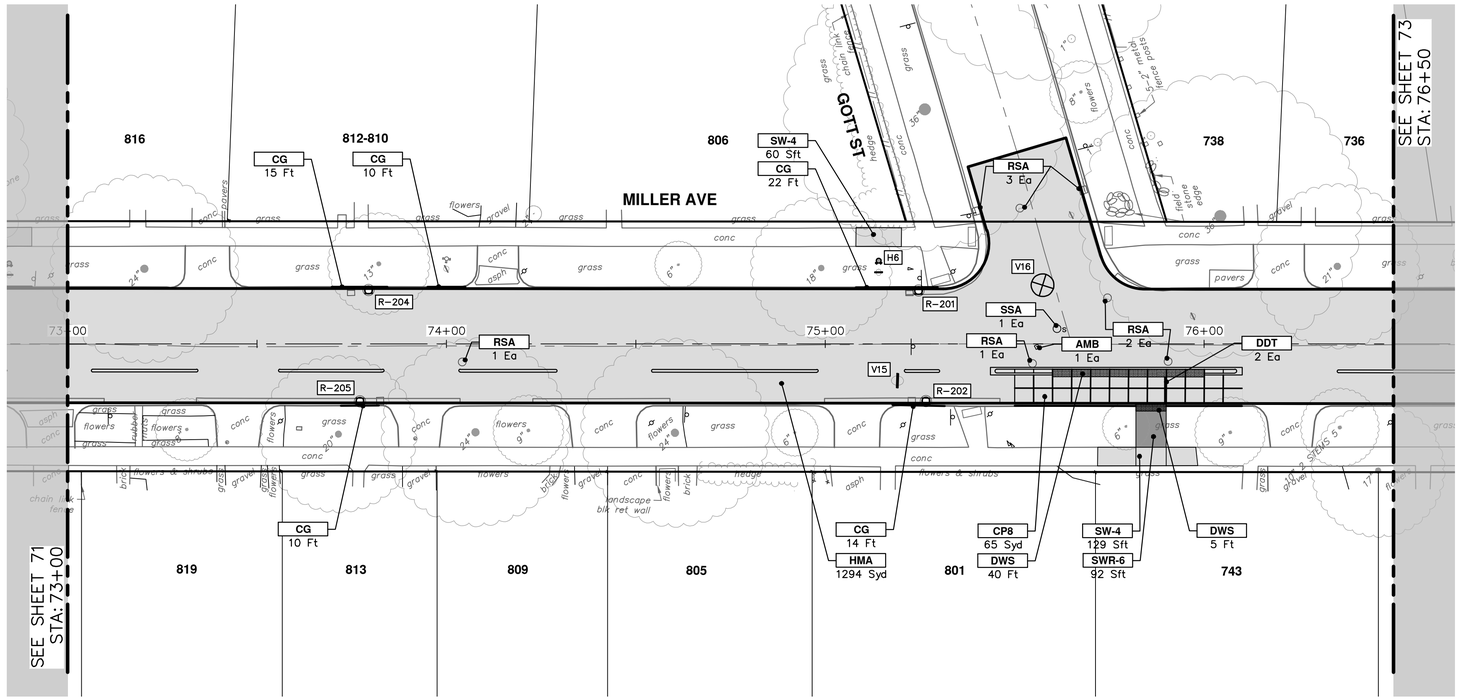
MILLER AVENUE REHABILITATION

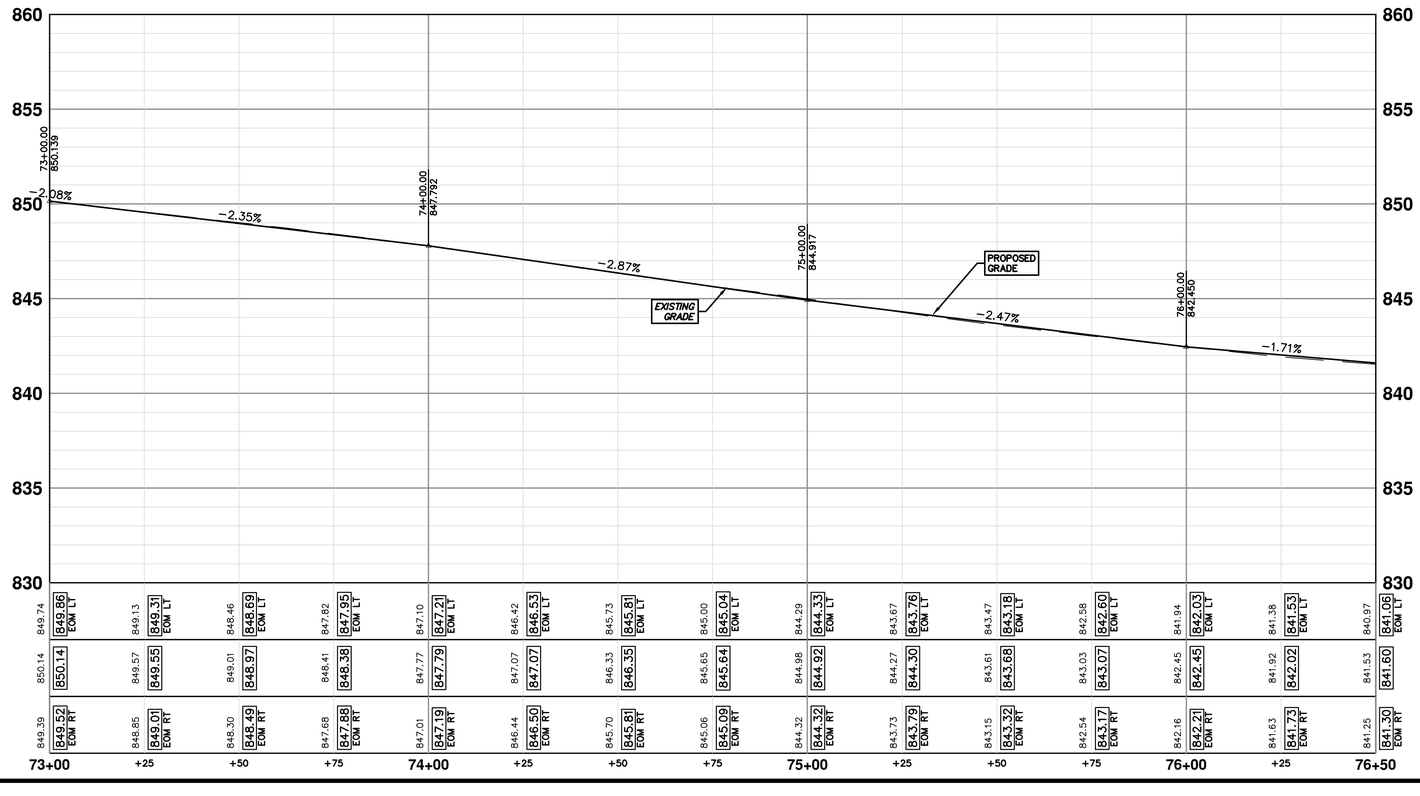
ROAD PLAN & PROFILE

STA. 69+50 - STA. 73+00

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-71





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 In.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 In., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non−Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4−29−24	A2D	JKA
01	ADDENDUM PLANS	4−25−24	A2D	JKA
00	BID SET	4−9−24	A2D	JKA

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MILLER AVENUE REHABILITATION

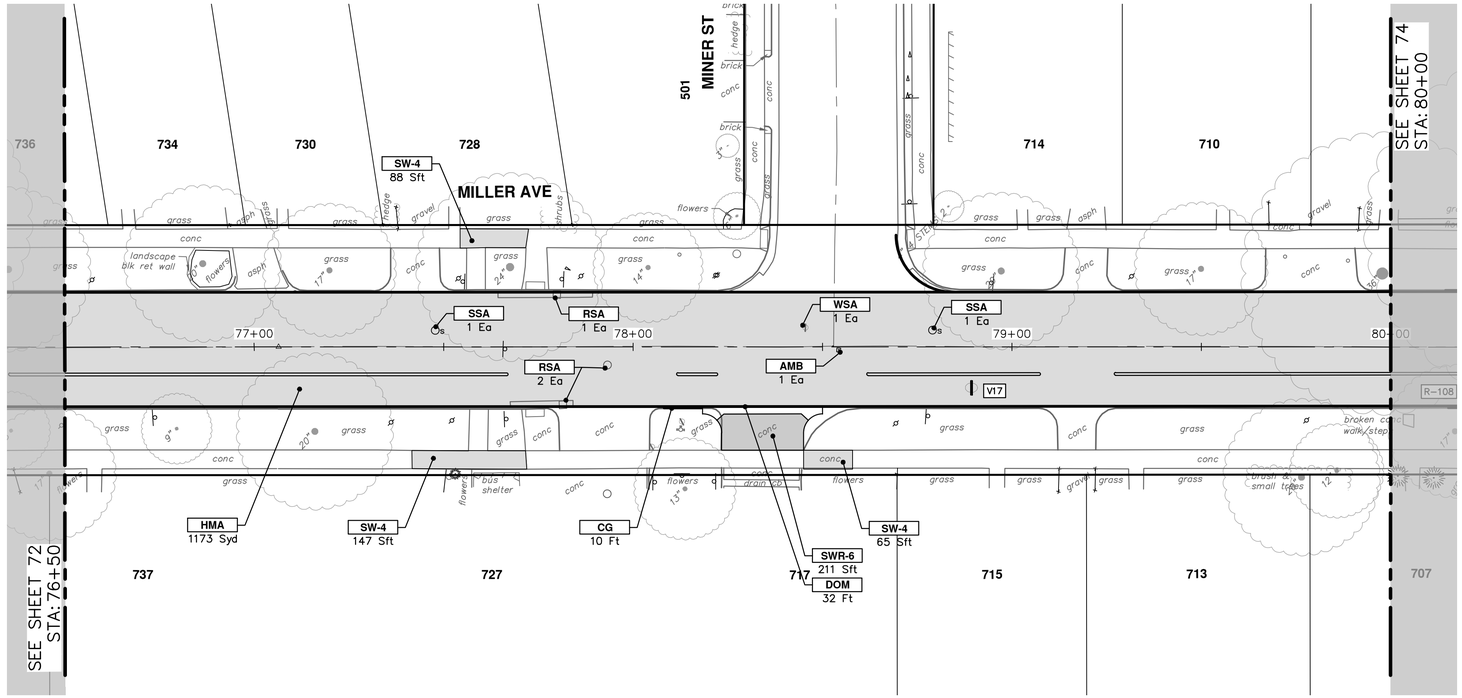
ROAD PLAN & PROFILE

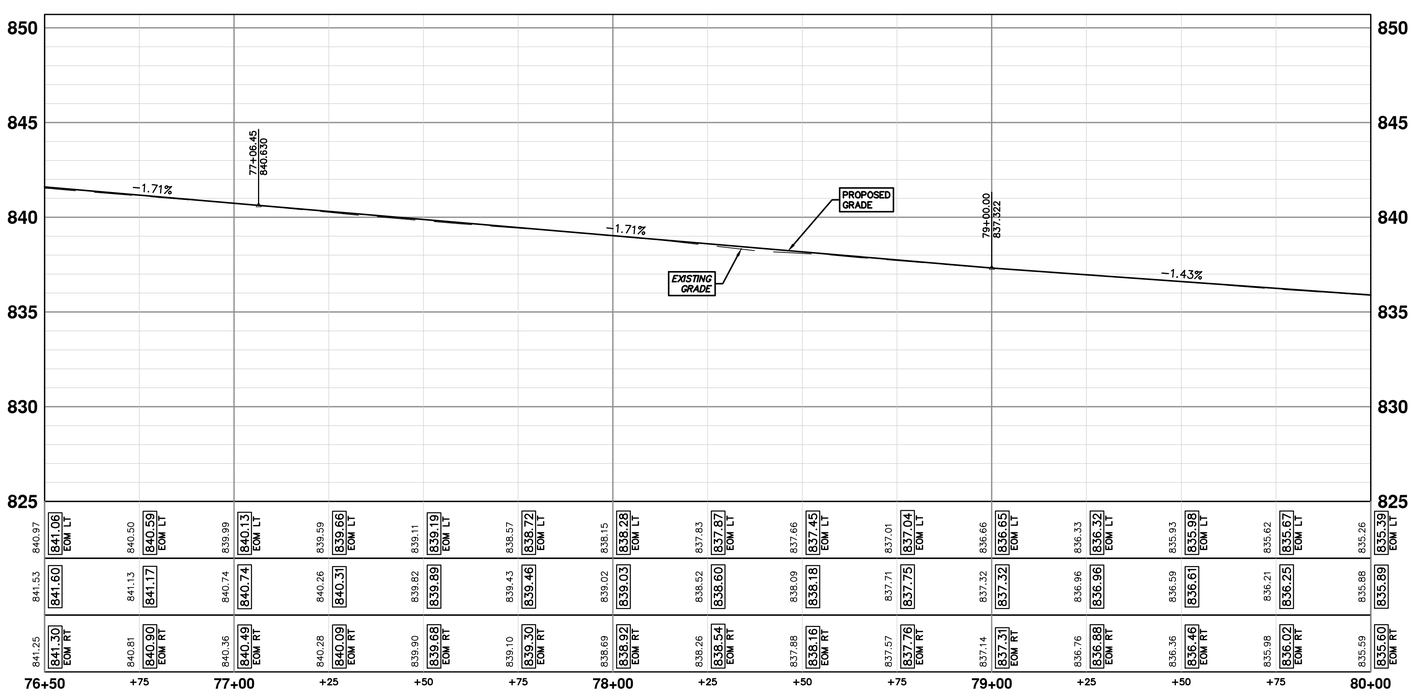
STA. 73+00 - STA. 76+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-72

SHEET No. 72 OF 131





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
CG	Conc, Curb or Curb & Gutter, All Types
DOM	Conc, Driveway Opening, Type M
DOM-HE	Conc, Driveway Opening, Type M, High Early
DG-6	DRIVEWAY GRAVEL 6 INCH 21AA LIMESTONE, C.I.P.
MGD	MACHINE GRADING, DRIVEWAY
SW-4	Conc, Sidewalk, 4 In.
SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
SW6-HE	Conc, Sidewalk, Drive Approach, or Ramp, 6 In., High Early
SW8	Conc, Sidewalk, Drive Approach, or Ramp, 8 In.
CP8	Conc Pavt, Non-Reinf, 8 in.
DWS	Detectable Warning Surface
DDT	Detectable Directional Tiles
ABO	ADJUST BY OTHERS
AMB	Monument Box, Adjust
AGB	Gate Box, Adjust
RSA	Storm Structure Cover, Adjust
SSA	Sanitary Structure Cover, Adjust
WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

ROAD PLAN & PROFILE

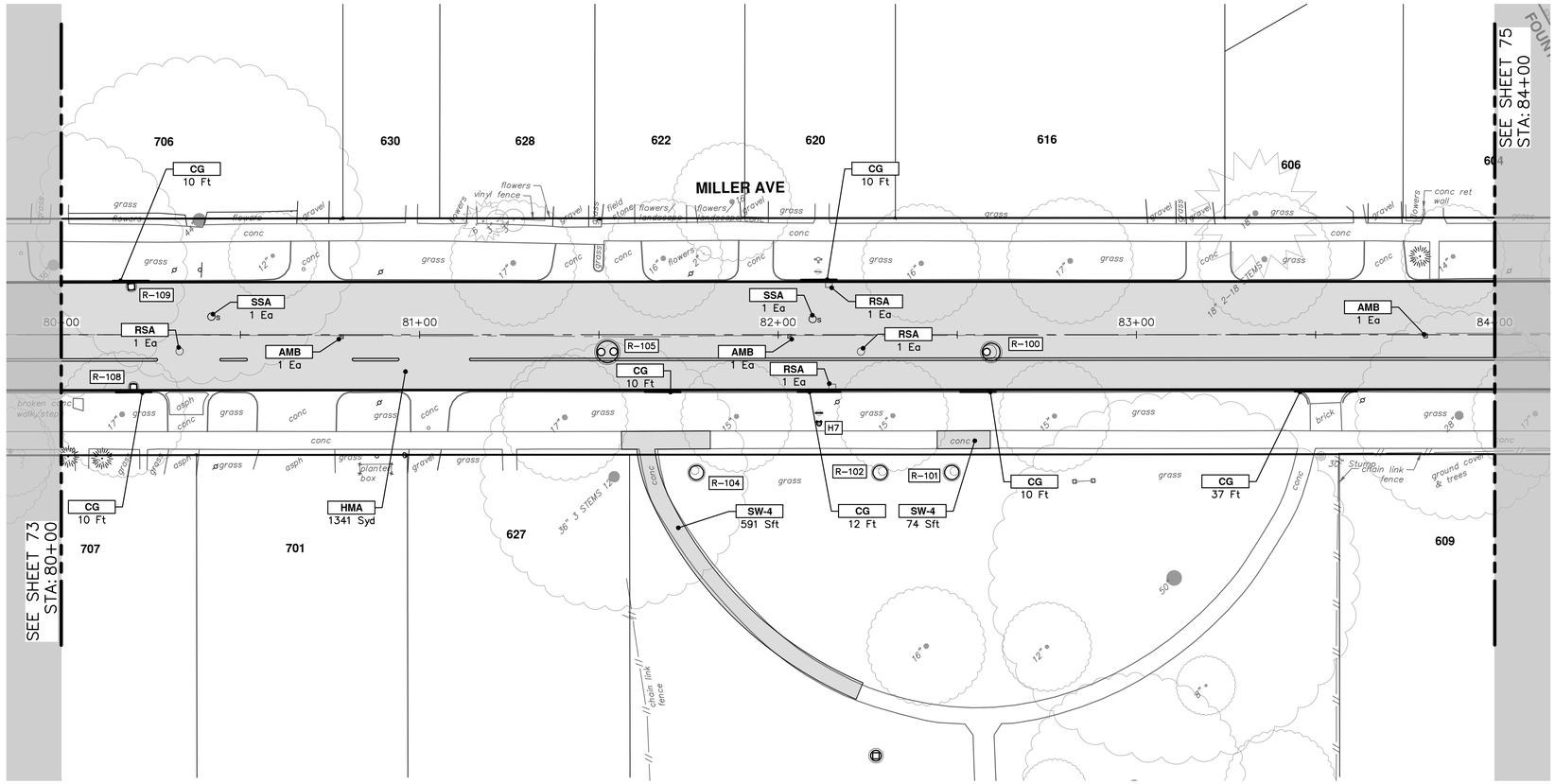
STA. 76+50 - STA. 80+00

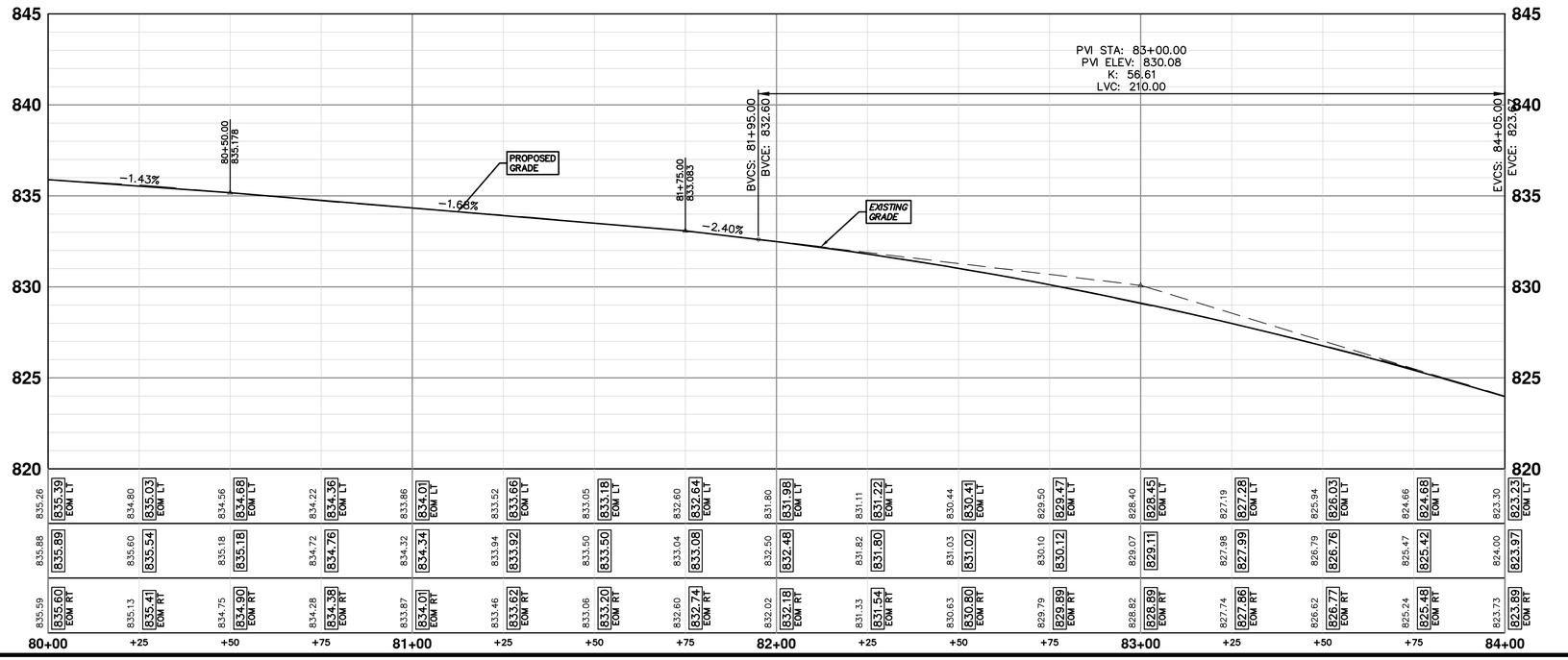
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-73

SHEET No. 73 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PPrd.dwg Dwg Created: 23-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	HMA Approach
HP	Hand Patching
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DOM-HE	Conc, Driveway Opening, Type M, High Early
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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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ROAD PLAN & PROFILE

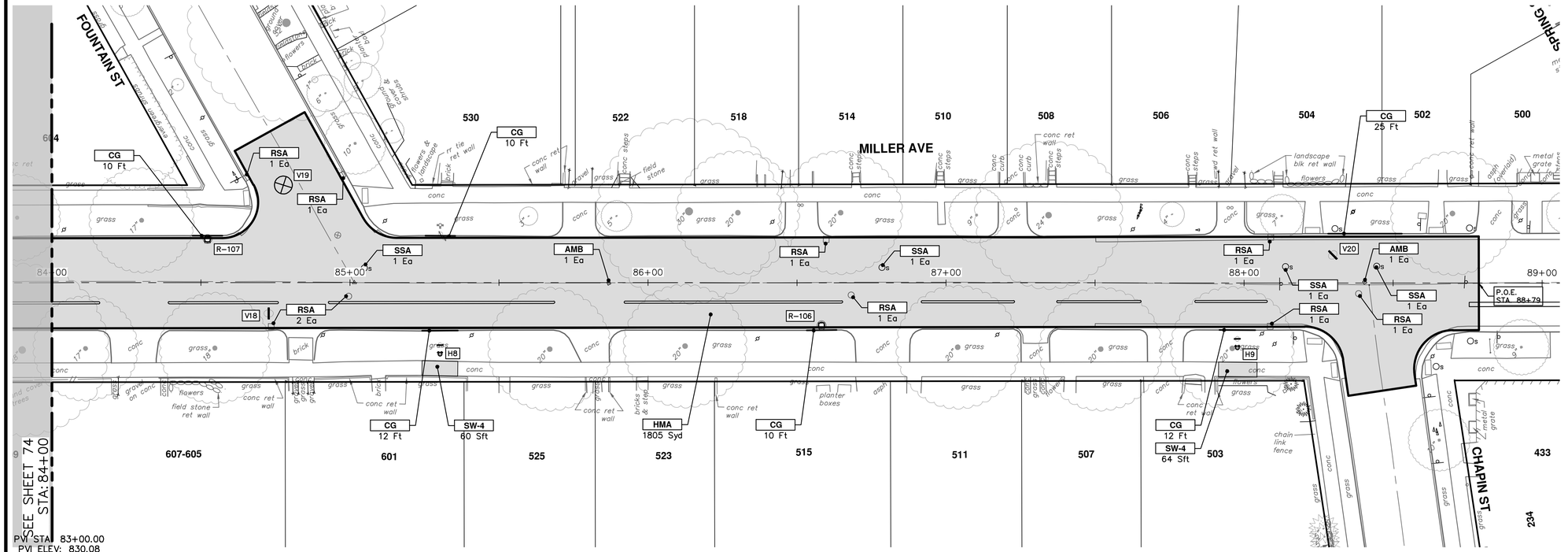
STA. 80+00 - STA. 84+00

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

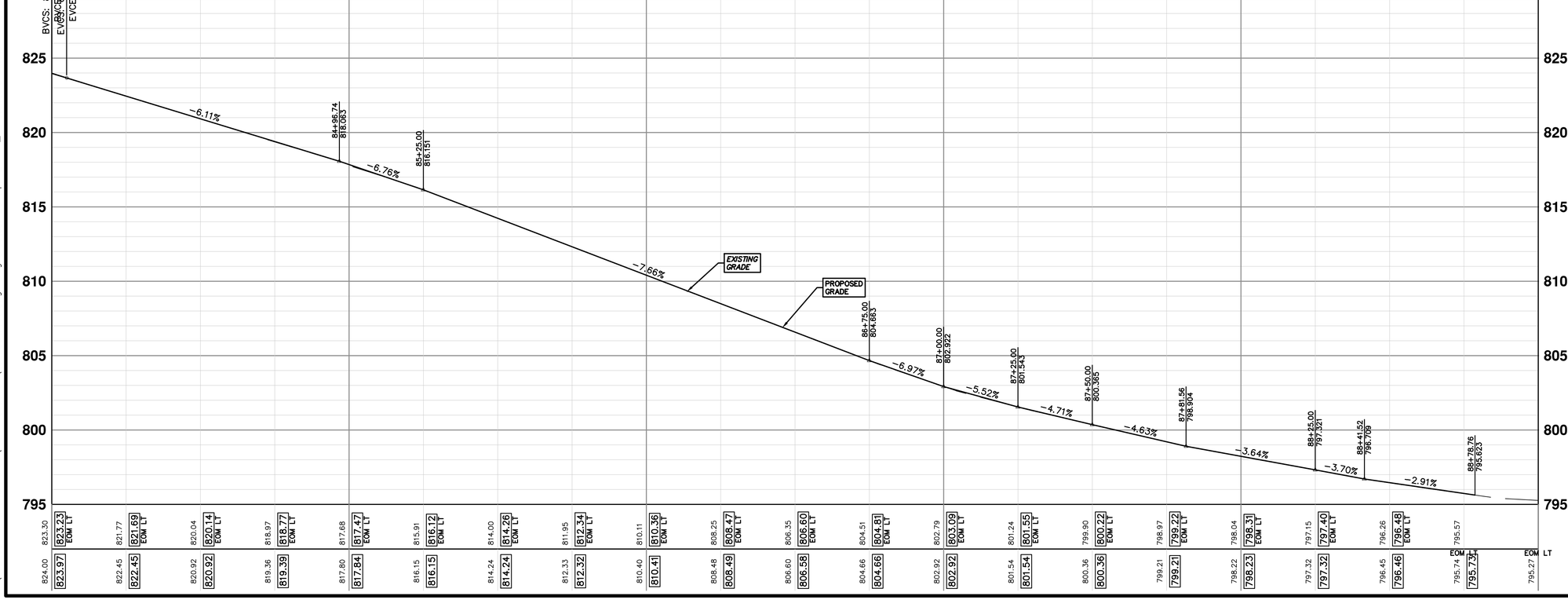
DRAWING No. 2022034-74

SHEET No. 74 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PPrd.dwg Dwg Created: 23-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24



PVI STA: 83+00.00
PVI ELEV: 830.08
K: 56.61
LVC: 210.00
BVCS: 81[illegible]
EVCS: 83+66.61
EVCE: 823.67



CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
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SWR-6	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.
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WSA	Water Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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MILLER AVENUE REHABILITATION

ROAD PLAN & PROFILE

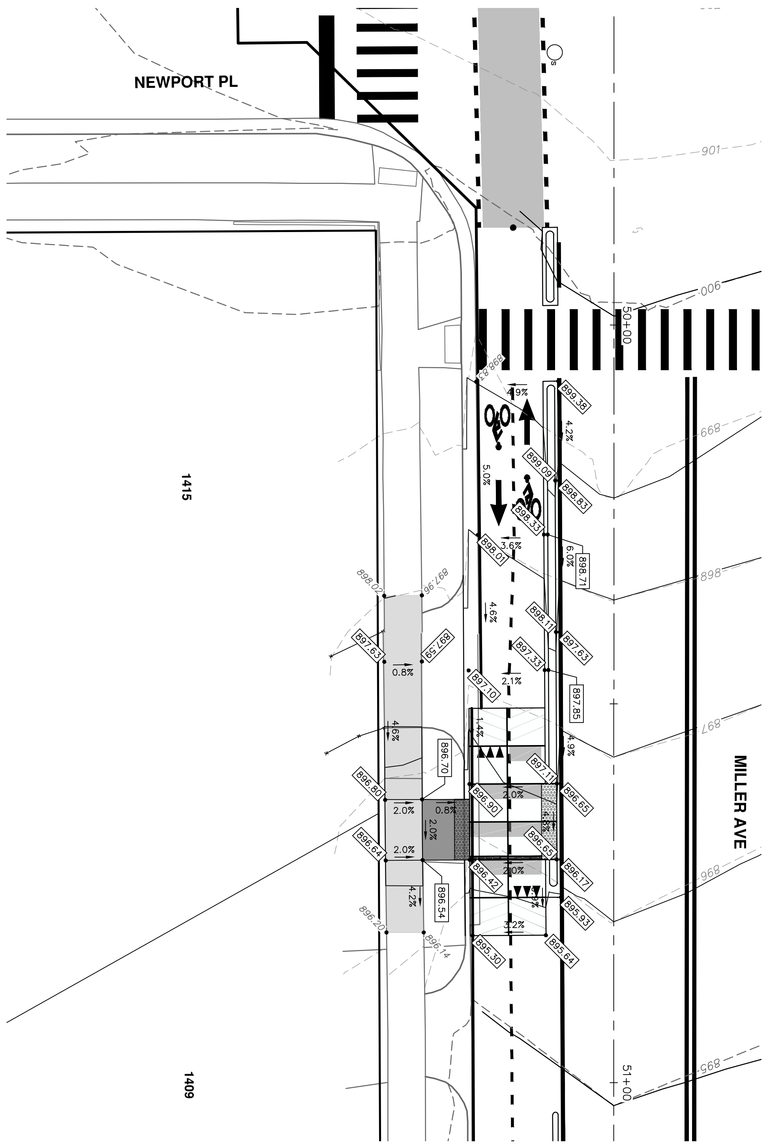
STA. 84+00 - SA. 88+79

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2022034-75

SHEET No. 75 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PPrd.dwg Dwg Created: 23-Apr-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE PLAN: 1" = 10'

DRAWING No. 2022034-76

MILLER AVENUE REHABILITATION

INTERSECTION GRADES

BUS STOP NEAR NEWPORT PL.

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

RED OAK RD

MILLER AVE

ARBORVIEW BLVD

1027

1015

1003

64+00

65+00

66+00

R:\2022034 Miller Ave Rehab\Plan Production\2022034IG.dwg Dwg Created: 22-Apr-24 — _02 standard bw.stb — Plot Date: 30-Apr-24

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

INTERSECTION GRADES

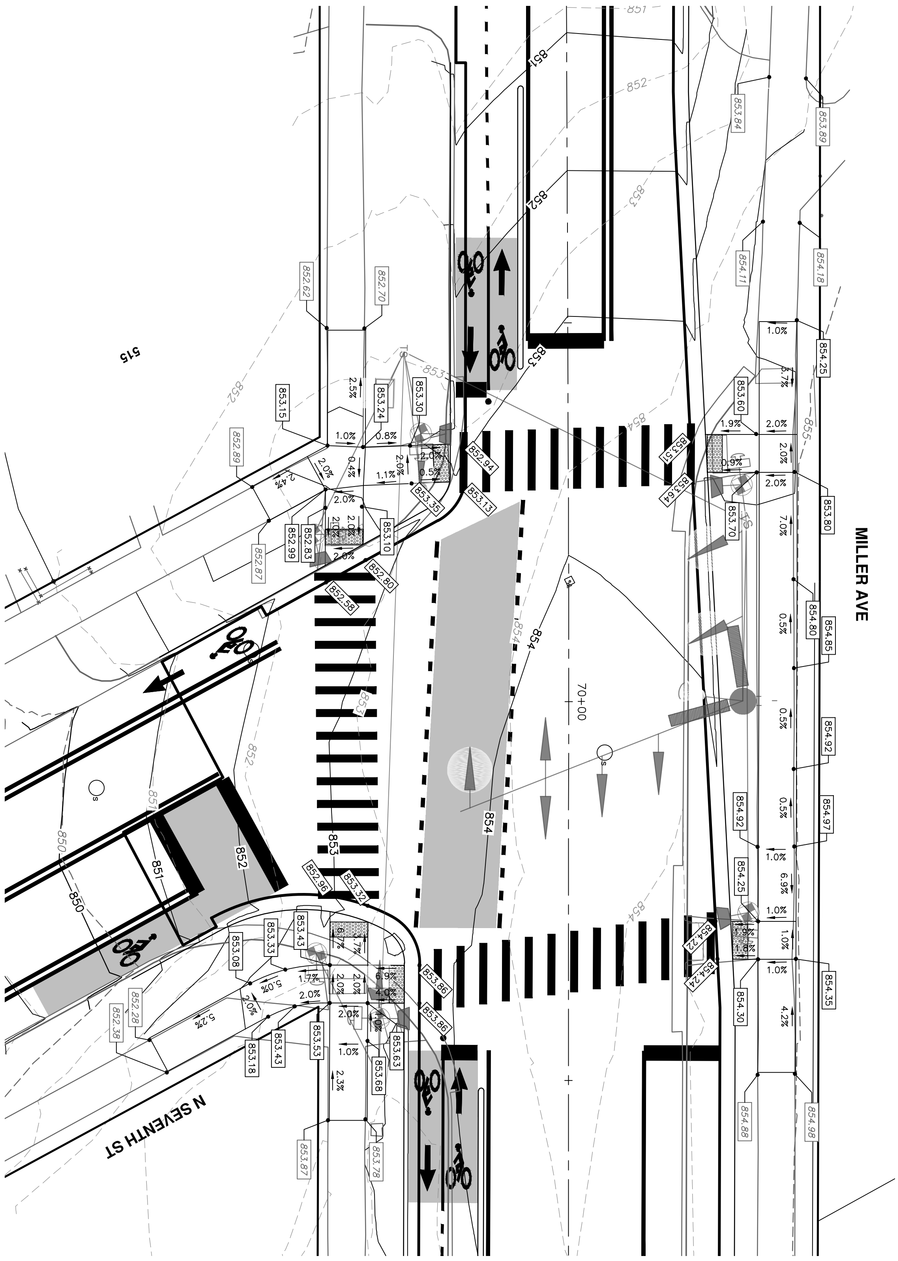
RED OAK RD., BUS STOP NEAR ARBORVIEW BLVD.

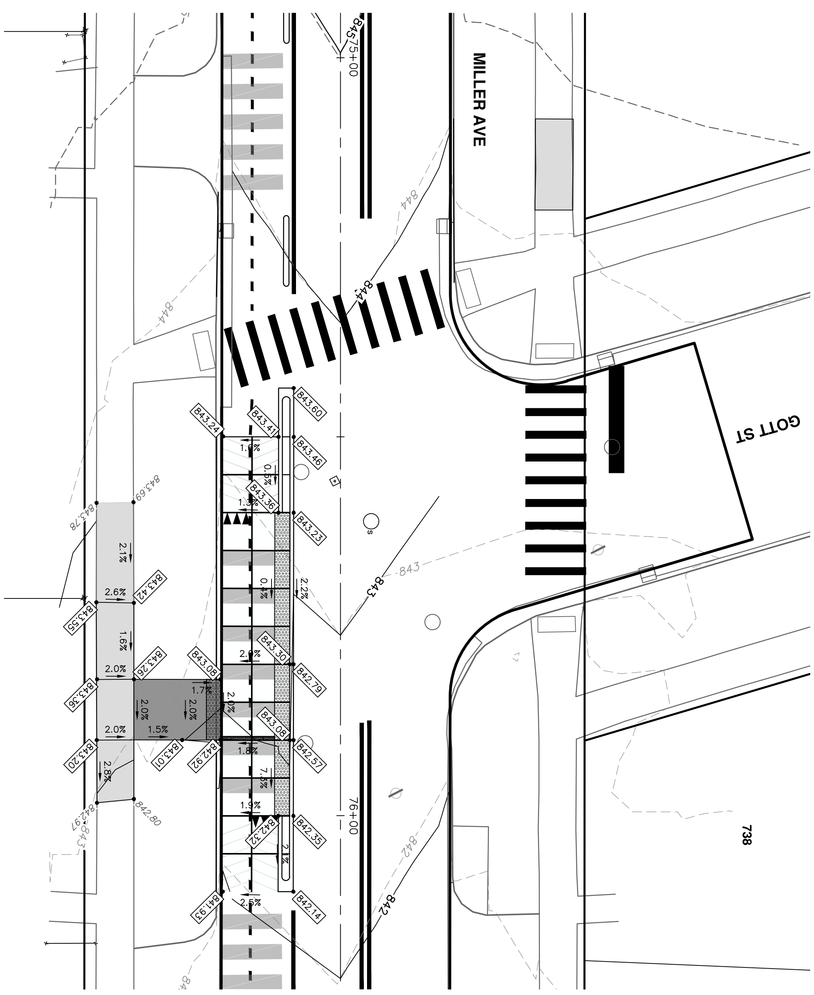
SCALE **PLAN:** 1" = 10'

DRAWING No. **2022034-77**

SHEET No. **77 OF 131**

R:\2022034 Miller Ave Rehab\Plan Production\20220341G.dwg Dwg Created: 22-Apr-24 - _a2 standard bw.stb - Plot Date: 30-Apr-24





SHEET No. 78 OF 131

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE PLAN: 1" = 10'

DRAWING No. 2022034-78

MILLER AVENUE REHABILITATION

INTERSECTION GRADES

N SEVENTH ST, BUS STOP NEAR GOTT ST

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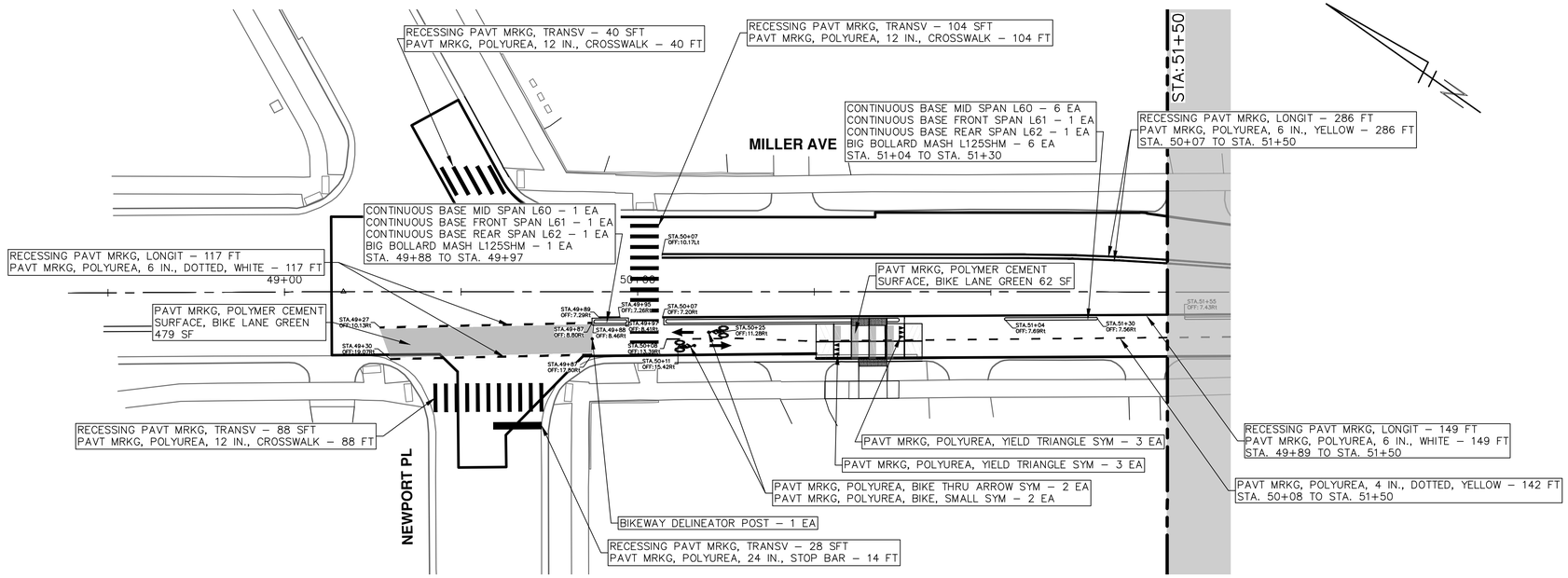
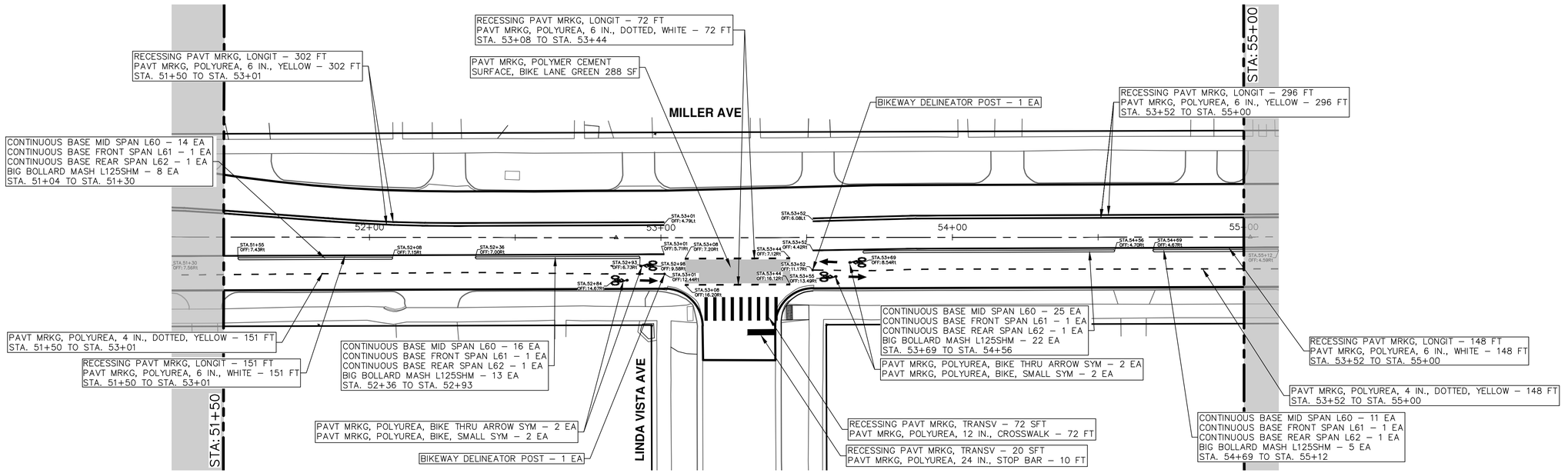
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA





811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

PAVEMENT MARKINGS

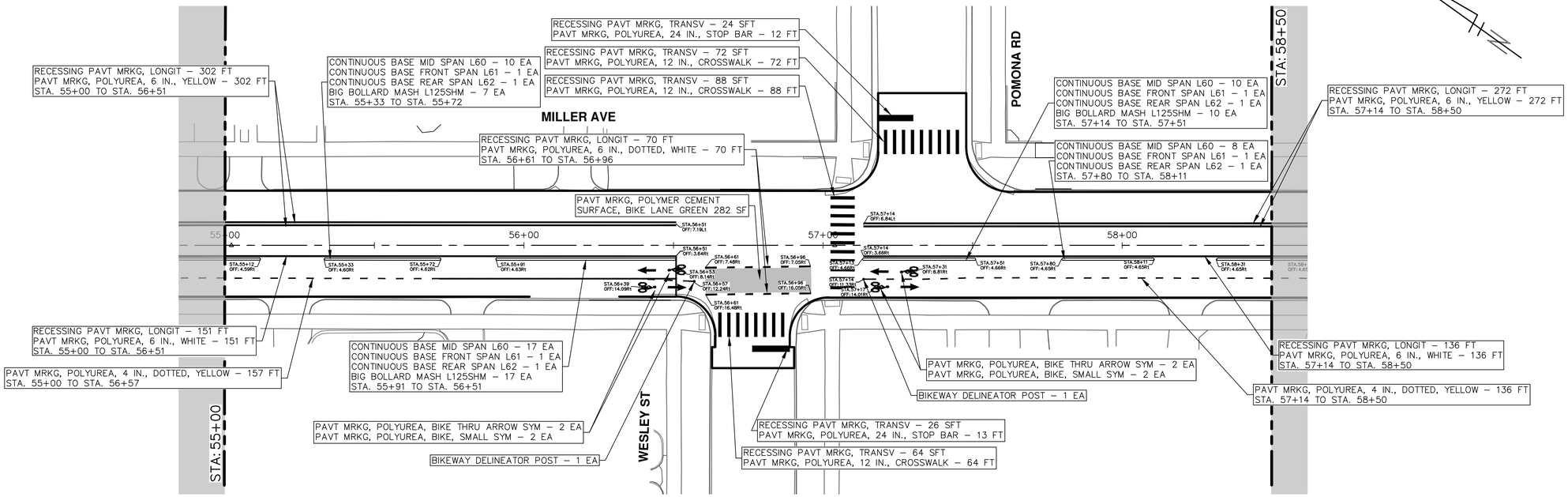
P.O.B. - STA. 55+00

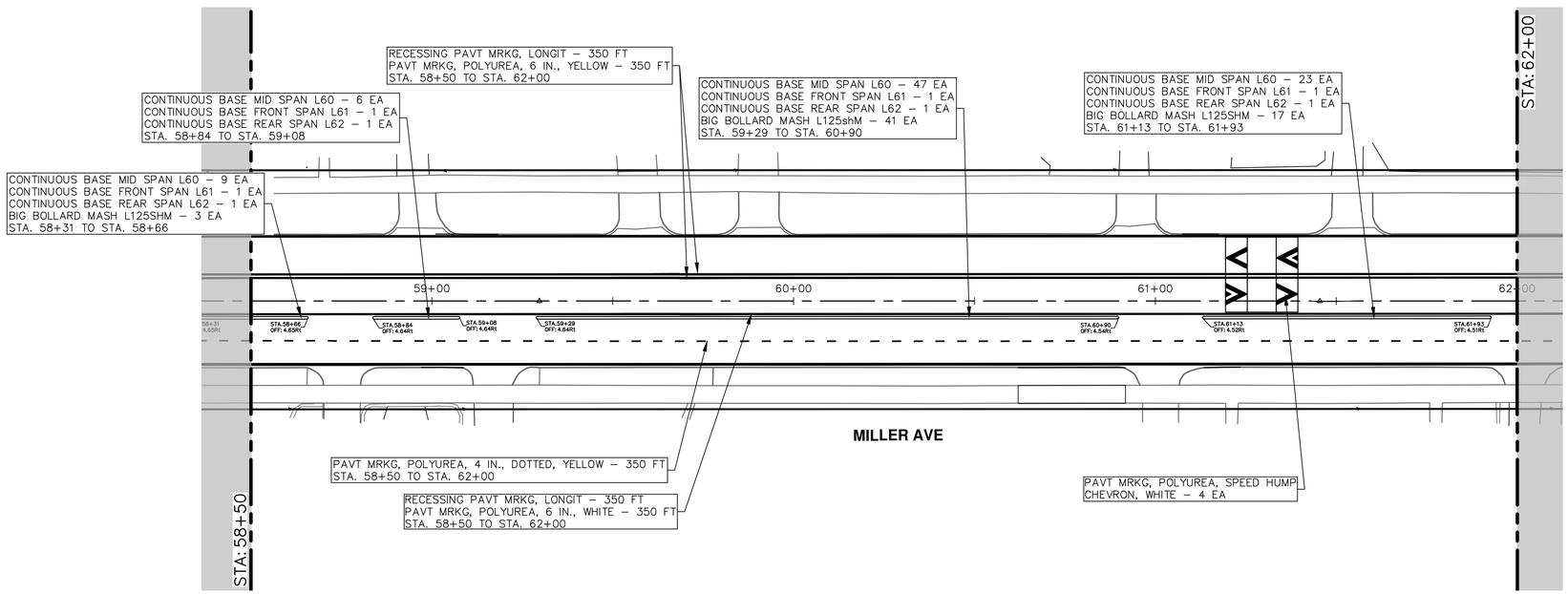
SCALE : 1" = 20'

DRAWING No. 2022034-79

SHEET No. 79 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034Pmk.dwg Dwg Created: 29-Mar-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24





Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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MILLER AVENUE REHABILITATION

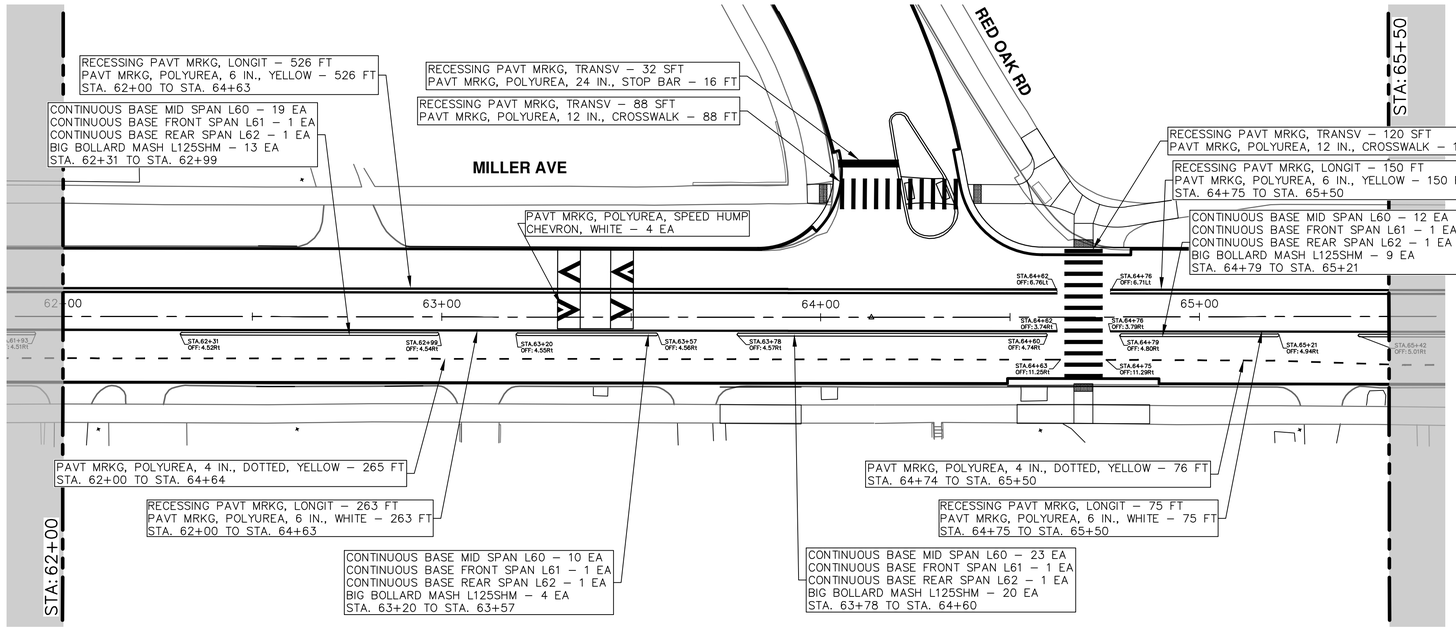
PAVEMENT MARKINGS

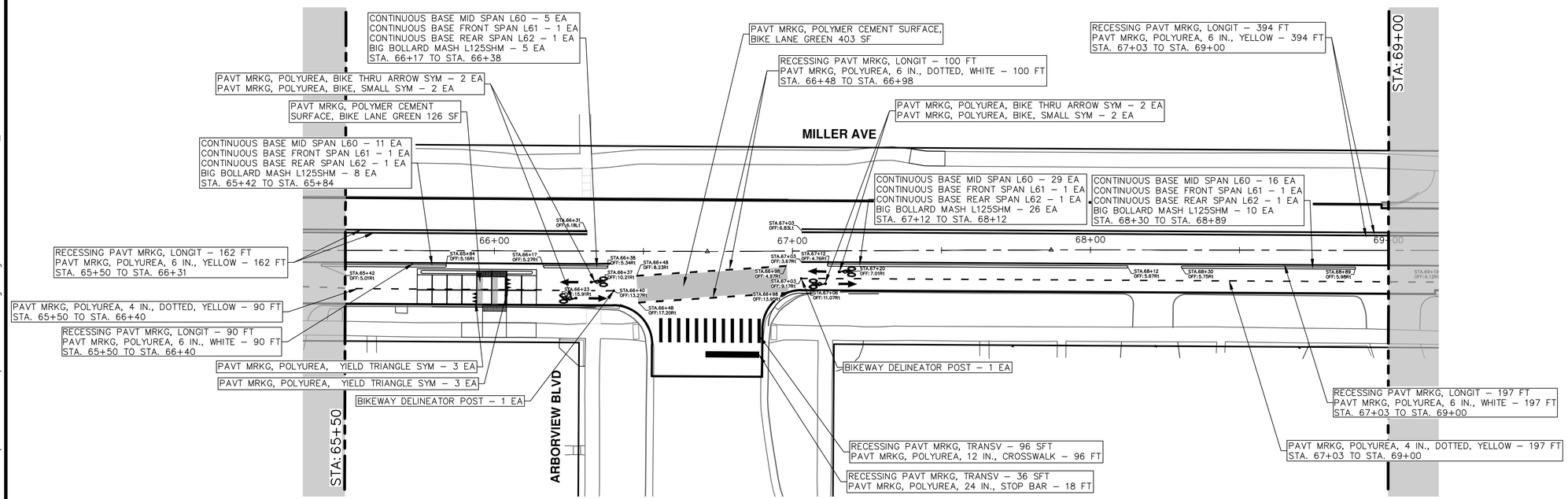
STA. 55+.00 - STA. 62+00

SCALE : 1" = 20'

DRAWING No. **2022034-80**

SHEET No. **80 OF 131**





REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

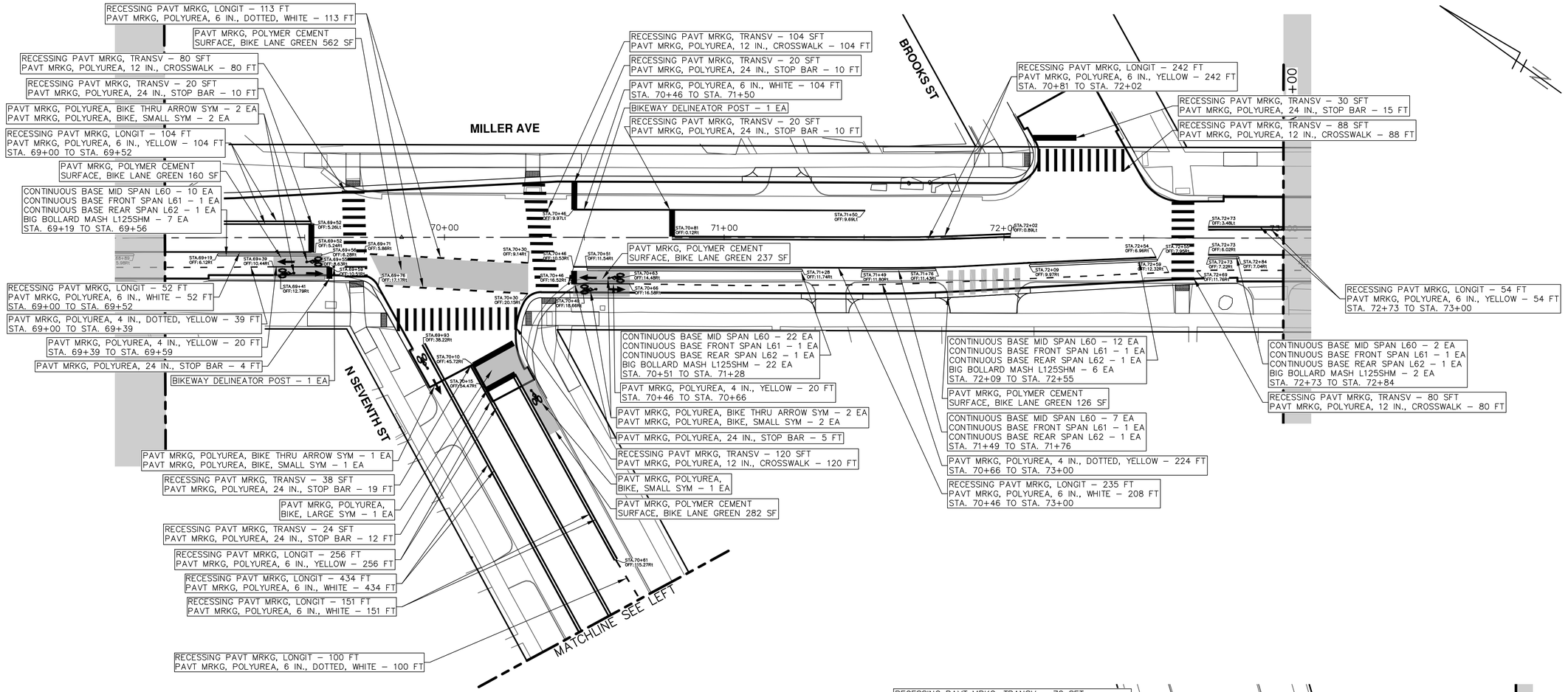
PAVEMENT MARKINGS

STA. 62+00 - STA. 69+00

SCALE : 1" = 20'

DRAWING No. 2022034-81

SHEET No. 81 OF 131



R:\2022034 Miller Ave Rehab\Plan Production\2022034Pmk.dwg Dwg Created: 29-Mar-24 – _a2 standard bw.stb – Plot Date: 30-Apr-24

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CHECKED	DRAWN	DATE	DESCRIPTION	REV.
JKA	A2D	4-29-24	ADDENDUM No. 2 PLANS	02
JKA	A2D	4-25-24	ADDENDUM PLANS	01
JKA	A2D	4-9-24	BID SET	00

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

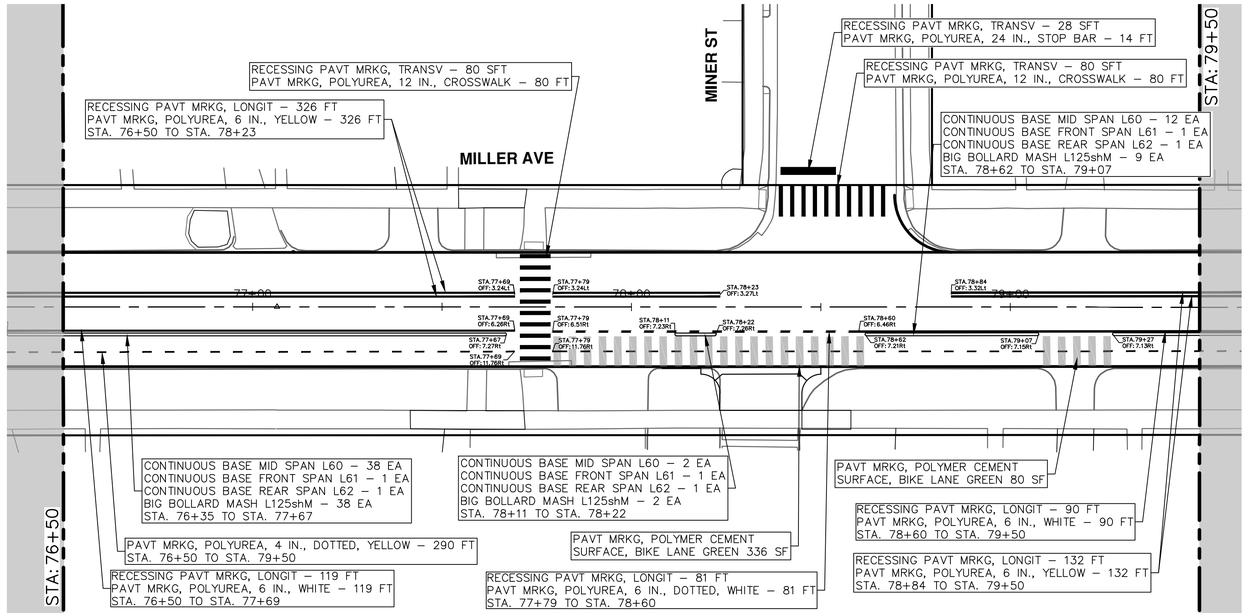
PAVEMENT MARKINGS

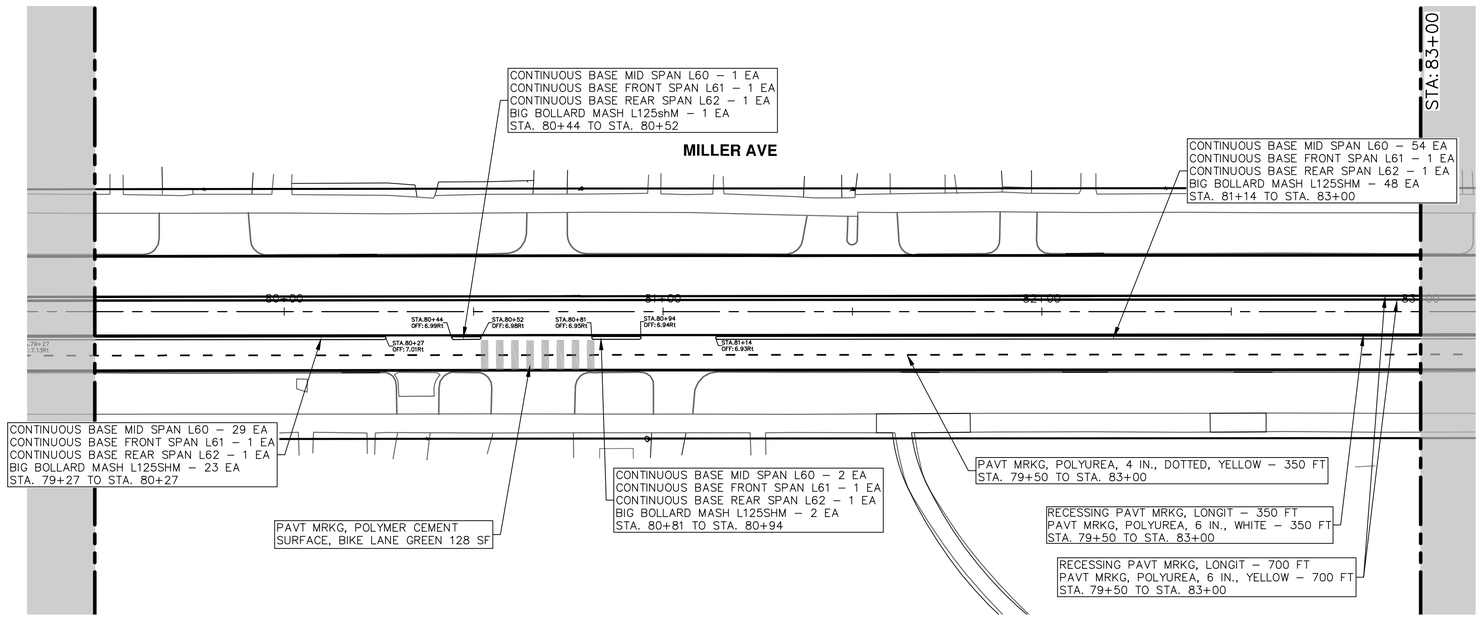
STA. 69+00 - STA. 76+50

SCALE: 1" = 20'

DRAWING No. 2022034-82

SHEET No. 82 OF 131





REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

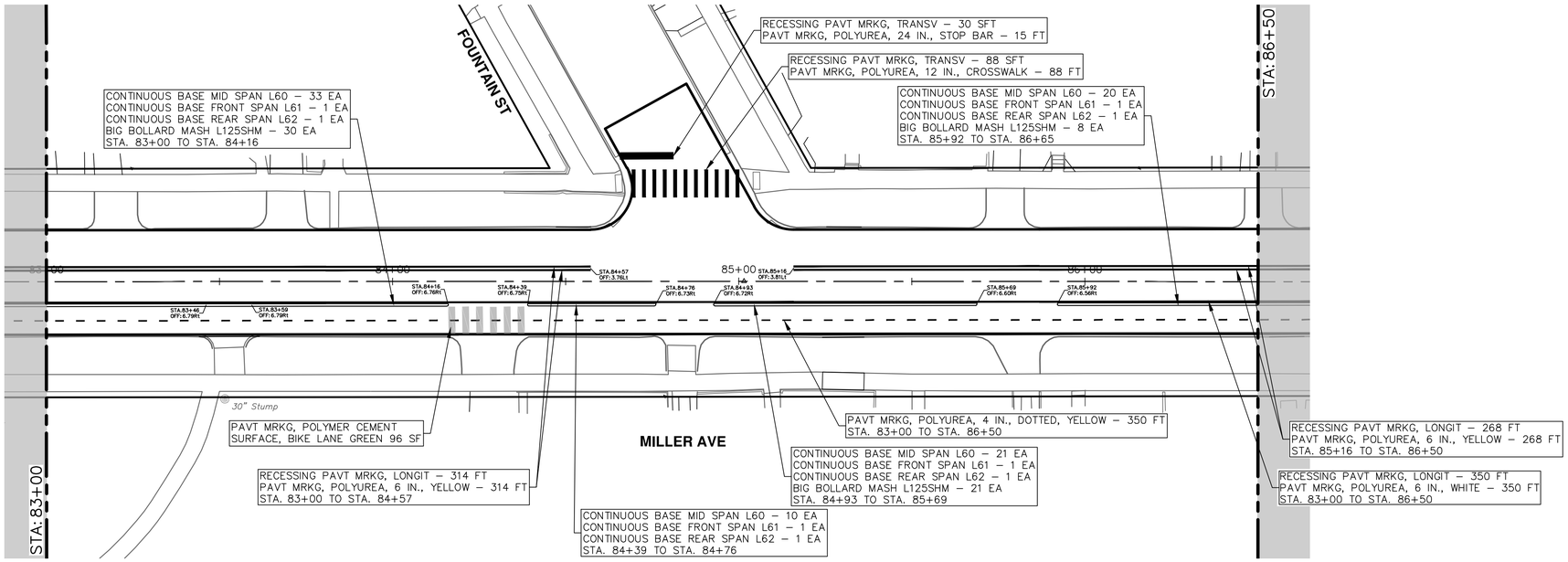
PAVEMENT MARKINGS

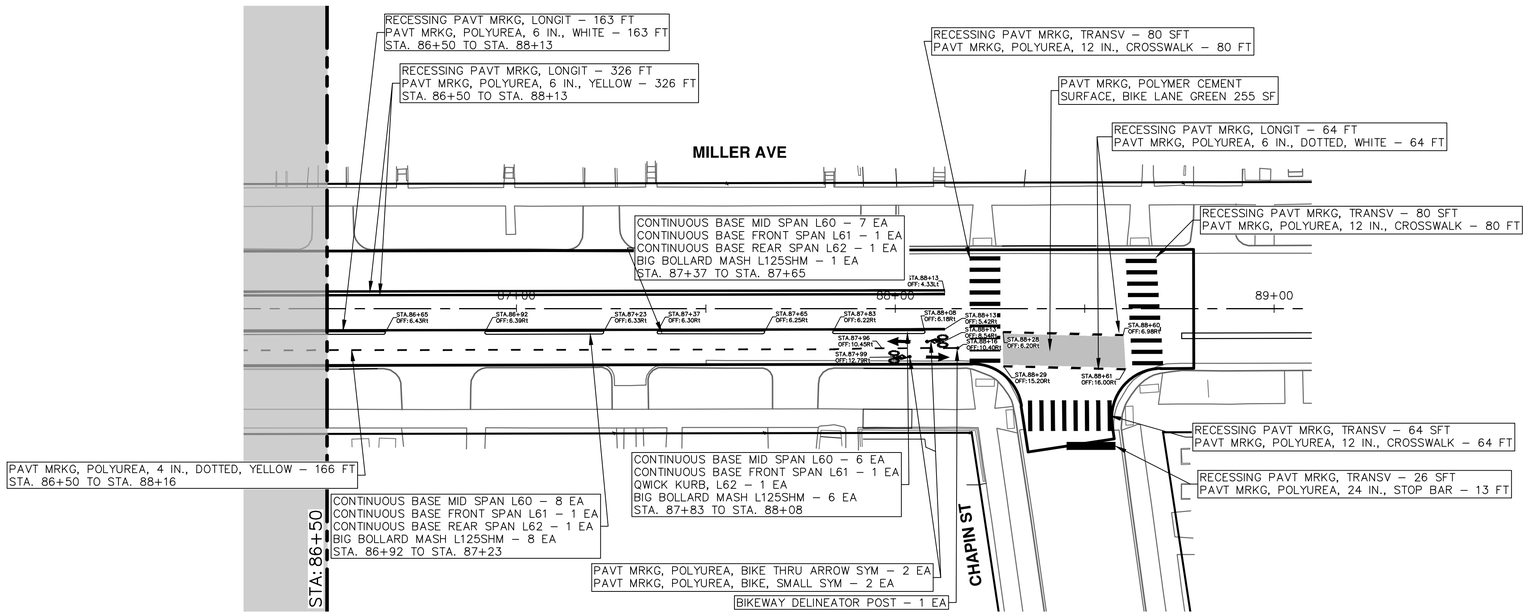
STA. 76+50 - STA. 83+00

SCALE : 1" = 20'

DRAWING No. **2022034-83**

SHEET No. **83 OF 131**





Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

PAVEMENT MARKINGS

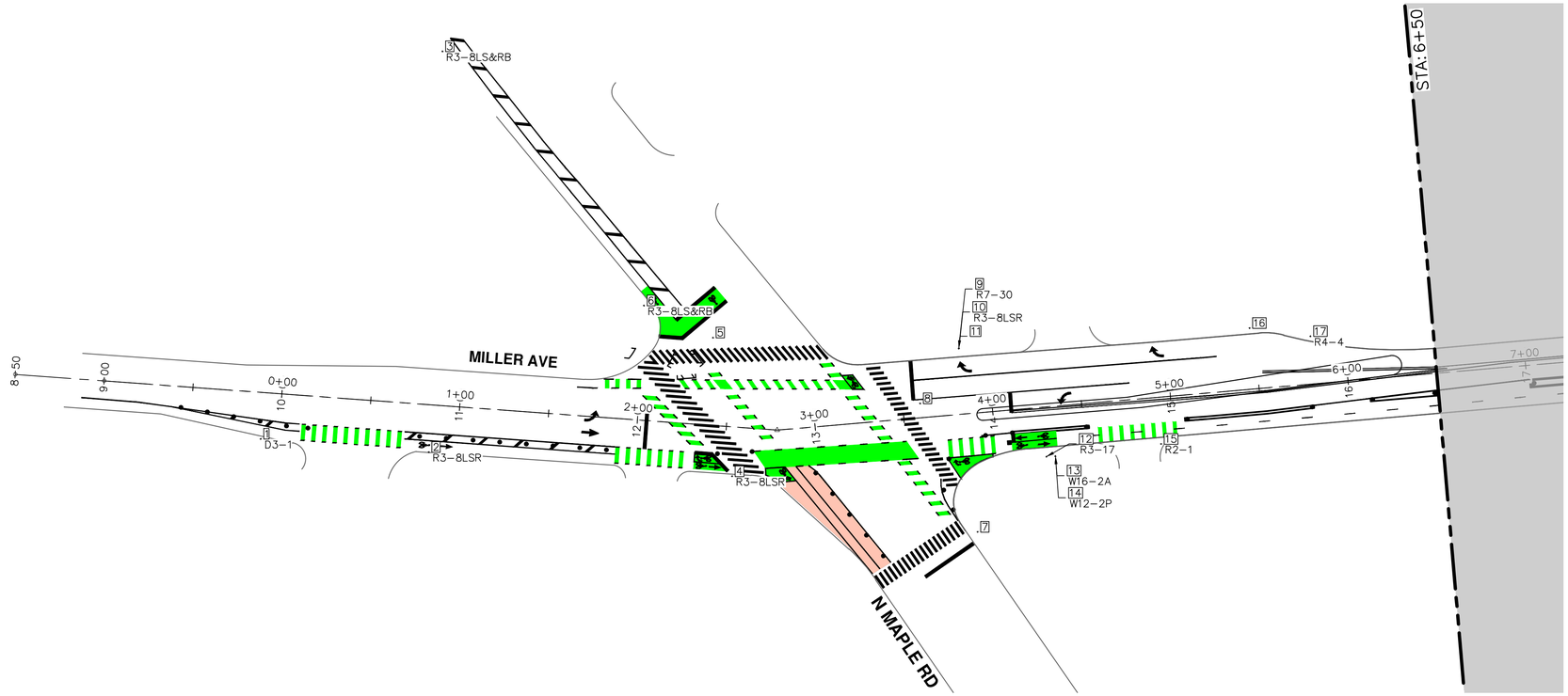
STA. 83+00 - P.O.E.

SCALE : 1" = 20'

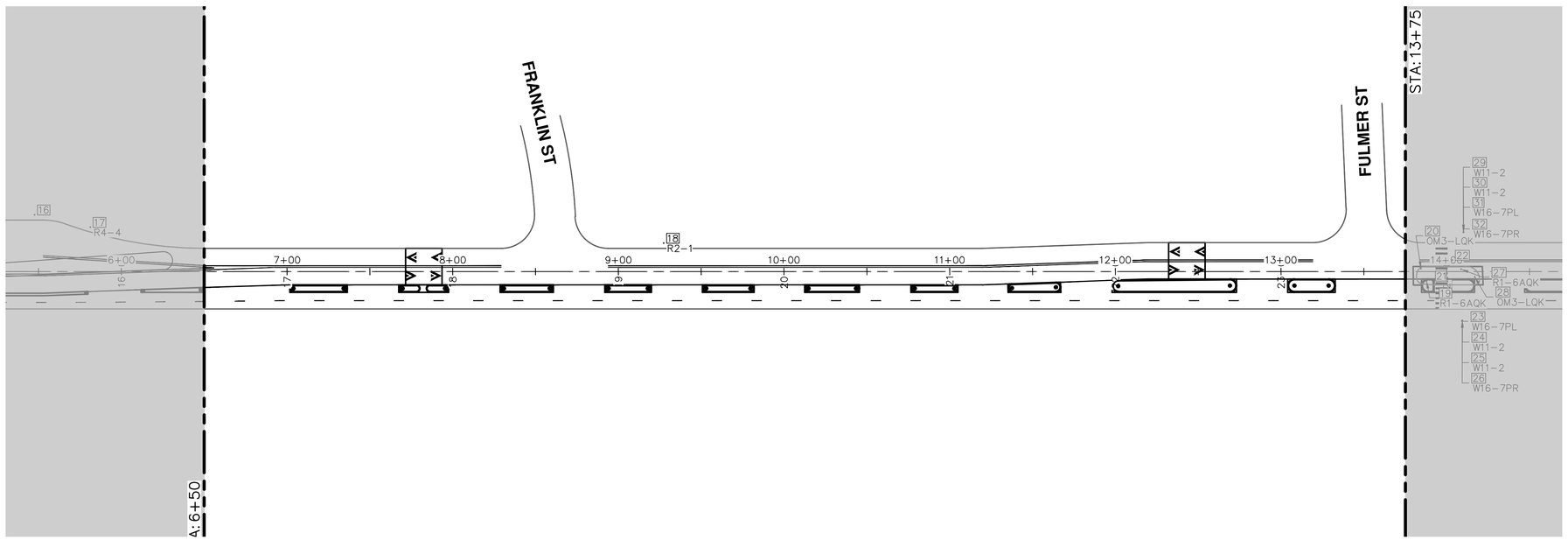
DRAWING No. 2022034-84

SHEET No.

84 OF 131



Point #	REMOVE EXISTING	INSTALL NEW
1	Y	
2	Y	LEFT, THRU RIGHT, BIKE (R3-8)
3	Y	LEFT, THRU RIGHT, BIKE (R3-8)
4	Y	R10-1B, POST MOUNTED, 24"X24"
5	N	R10-1B, MAST-ARM MOUNTED, (FACING SB), 24"X24"
6	Y	LEFT, THRU RIGHT, BIKE (R3-8)
7	N	R10-1B, POST MOUNTED, 24"X24"
8	N	R10-1B, MAST-ARM MOUNTED, (FACING WB), 24"X24"
9	Y	
10	Y	
11	N	LEFT, THRU RIGHT (R3-8)
12	Y	
13	Y	W16-2A
14	Y	W12-2P
15	Y	R2-1
16	N	LEFT, THRU RIGHT (R3-8)
17	Y	
18	Y	R2-1



SIGN	EA (THIS SHEET)
R2-1	2
LEFT, THRU RIGHT (R3-8)	2
LEFT, THRU RIGHT, BIKE (R3-8)	3
R10-1B	4
W12-2P	1
W16-2A	1

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

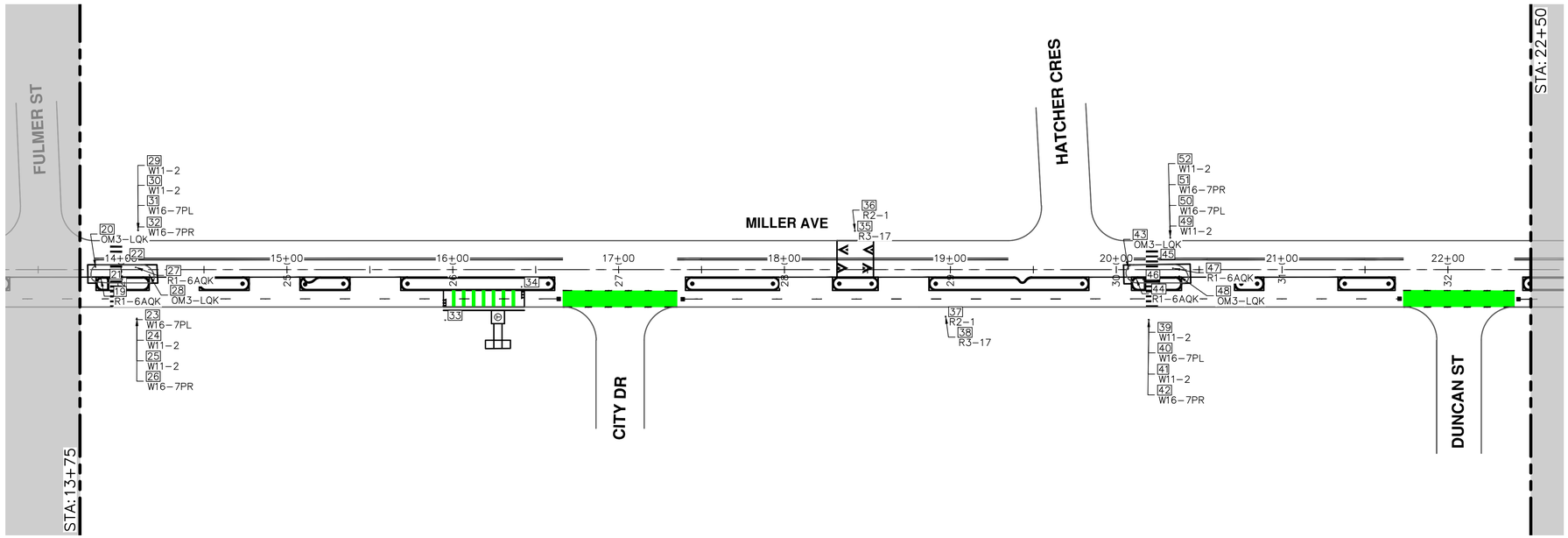
PERMANENT SIGNING

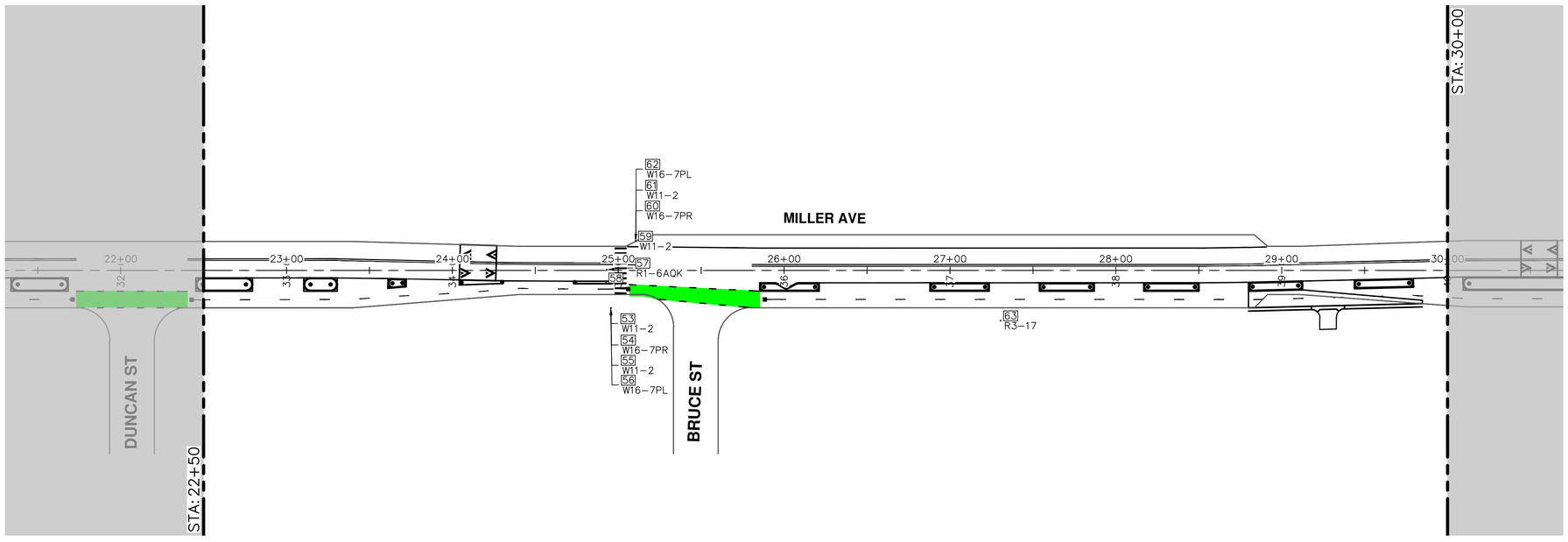
P.O.B. - STA 14+00

SCALE: 1" = 40'

DRAWING No. 2022034-85

SHEET No. 85 OF 131





Point #	REMOVE EXISTING	INSTALL NEW
19	Y	
20	Y	
21	N	QWICK KURB SIGN, R1-6A, BUFFER
22	N	QWICK KURB SIGN, R1-6A, CENTERLINE
23	N	
24	N	
25	N	
26	N	
27	Y	
28	Y	
29	N	
30	N	
31	N	
32	N	
33	N	R9-6
34	N	QWICK KURB SIGN, R9-6, BUFFER
35	Y	
36	Y	R2-1
37	Y	R2-1
38	Y	
39	N	
40	N	
41	N	
42	N	
43	Y	
44	Y	
45	N	QWICK KURB SIGN, R1-6A, CENTERLINE
46	N	QWICK KURB SIGN, R1-6A, BUFFER
47	Y	
48	Y	
49	N	
50	N	
51	N	
52	N	
53	N	
54	N	
55	N	
56	N	
57	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
58	N	QWICK KURB SIGN, R1-6A, BUFFER
59	N	
60	N	
61	N	
62	N	
63	Y	

SIGN	EA (THIS SHEET)
QWICK KURB SIGN, R1-6A	6
R2-1	2
R9-6	1
QWICK KURB SIGN, R9-6	1

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

PERMANENT SIGNING

STA. 14+00 - STA. 30+00

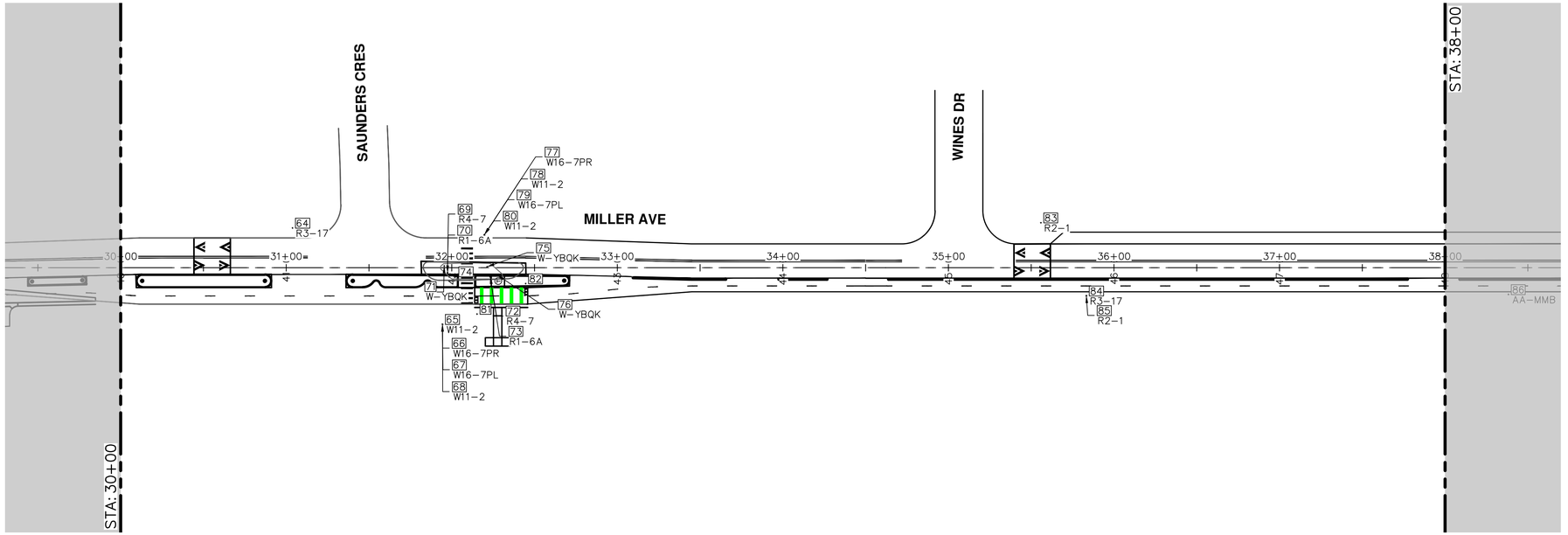
SCALE : 1" = 40'

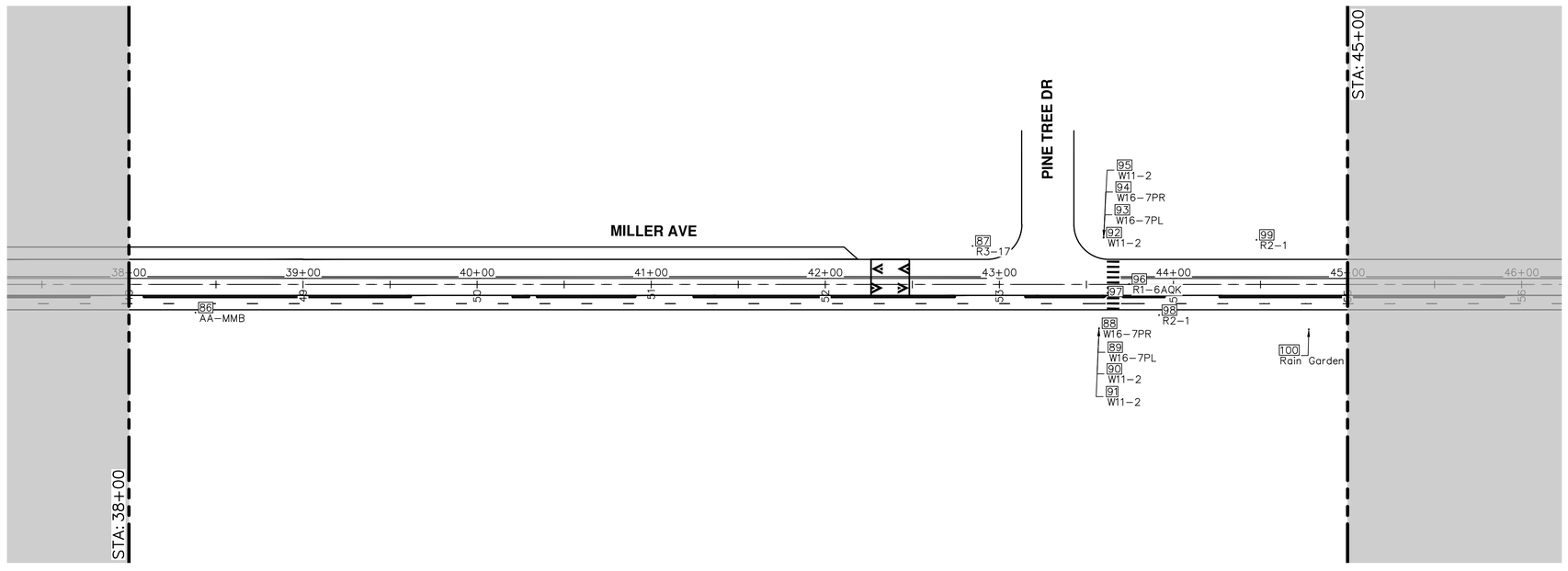
DRAWING No. 2022034-86

SHEET No.

86 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PSgn.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





SIGN	EA (THIS SHEET)
QWICK KURB SIGN, R1-6A	4
R2-1	4
R9-6	1
QWICK KURB SIGN, R9-6	1

Point #	REMOVE EXISTING	INSTALL NEW
64	Y	
65	N	
66	N	
67	N	
68	N	
69	Y	
70	Y	
71	Y	
72	Y	
73	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
74	N	QWICK KURB SIGN, R1-6A, BUFFER
75	Y	
76	Y	
77	N	
78	N	
79	N	
80	N	
81	N	R9-6
82	N	QWICK KURB SIGN, R9-6
83	Y	R2-1
84	Y	
85	Y	R2-1
86	Y	
87	Y	
88	N	
89	N	
90	N	
91	N	
92	N	
93	N	
94	N	
95	N	
96	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
97	N	QWICK KURB SIGN, R1-6A, BUFFER
98	Y	R2-1
99	Y	R2-1
100	Y	

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

PERMANENT SIGNING

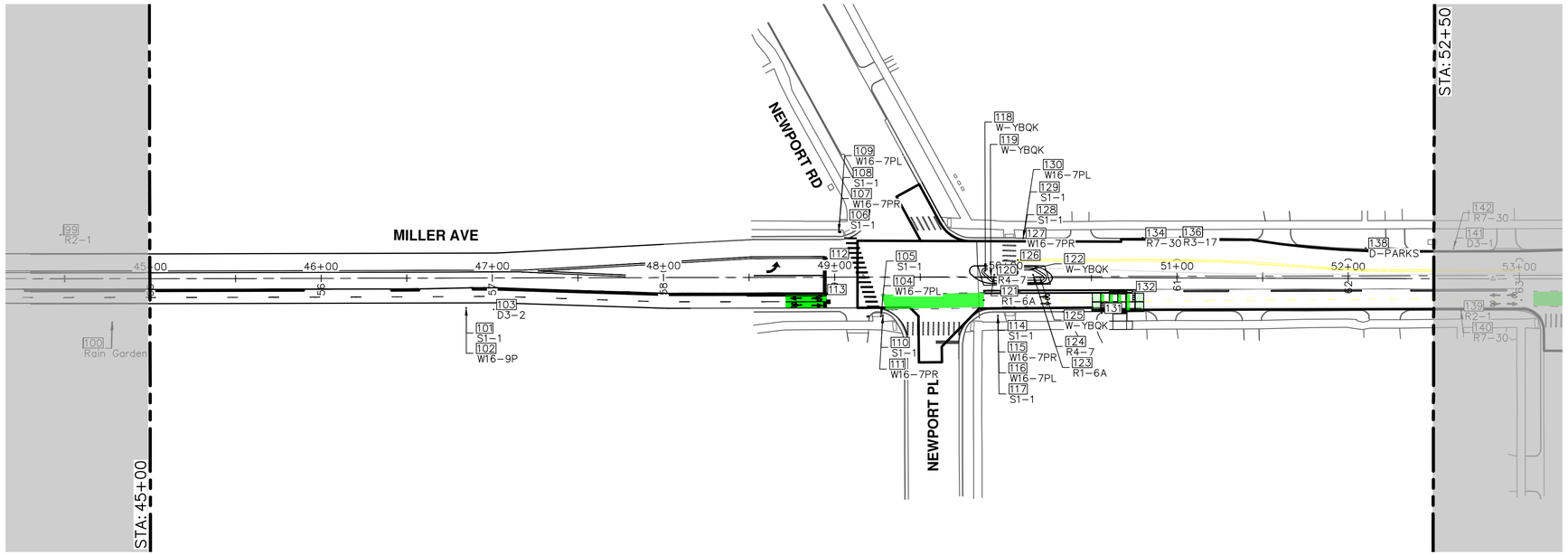
STA. 30+00 - STA. 45+00

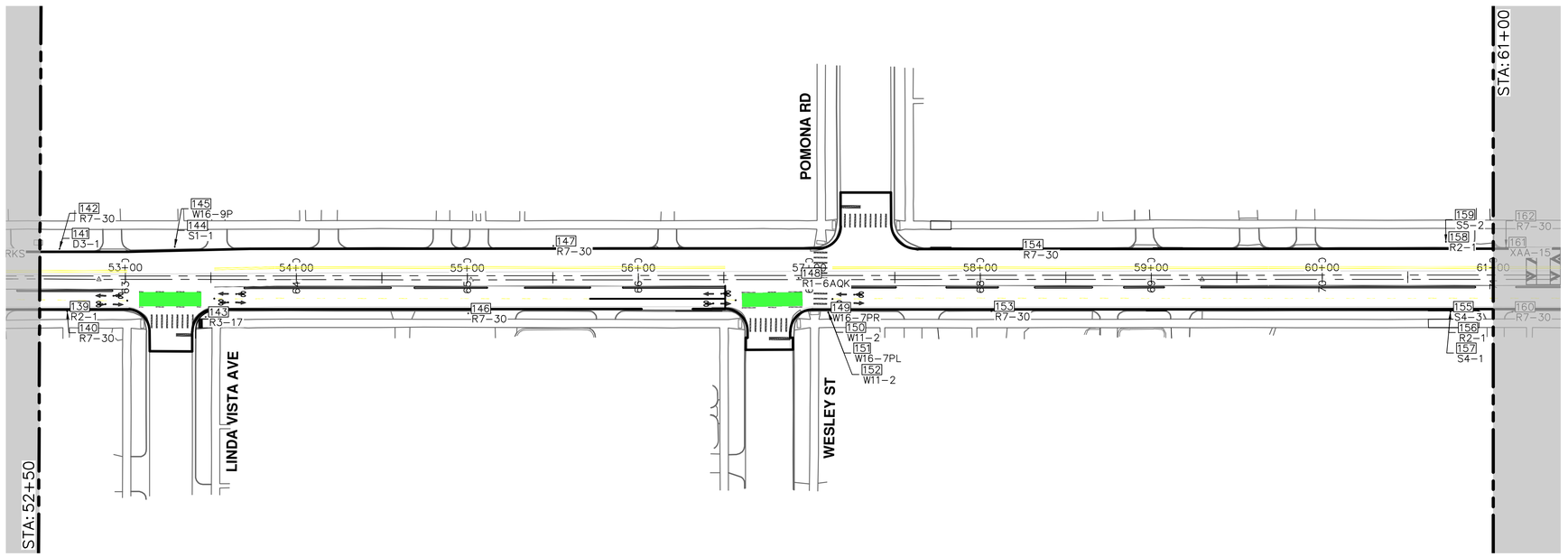
SCALE : 1" = 40'

DRAWING No. 2022034-87

SHEET No. 87 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\20220334PSgn.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





SIGN	EA (THIS SHEET)
QWICK KURB SIGN, R16A	4
R2-1	3
R9-6	1
QWICK KURB SIGN, R9-6	1

Point #	REMOVE EXISTING	INSTALL NEW
101	Y	
102	Y	
103	Y	
104	N	
105	N	
106	N	
107	N	
108	N	
109	N	
110	N	
111	N	
112	N	QWICK KURB SIGN, R16A, CENTERLINE
113	N	QWICK KURB SIGN, R16A, BUFFER
114	N	
115	N	
116	N	
117	N	
118	Y	
119	Y	
120	Y	
121	Y	
122	Y	
123	Y	
124	Y	
125	Y	
126	N	QWICK KURB SIGN, R16A, IN NEW HARDENED CENTERLINE
127	N	
128	N	
129	N	
130	N	
131	N	R9-6
132	N	QWICK KURB SIGN, R9-6, BUFFER
133	Y	
134	Y	
135	Y	
136	Y	
137	Y	
138	Y	
139	Y	R2-1
140	Y	
141	Y	
142	Y	
143	Y	
144	Y	
145	Y	
146	Y	
147	Y	
148	Y	QWICK KURB SIGN, R16A, CENTERLINE
149	N	
150	N	
151	N	
152	N	
153	Y	
154	Y	
155	Y	
156	Y	R2-1
157	Y	
158	Y	R2-1
159	Y	

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

PERMANENT SIGNING

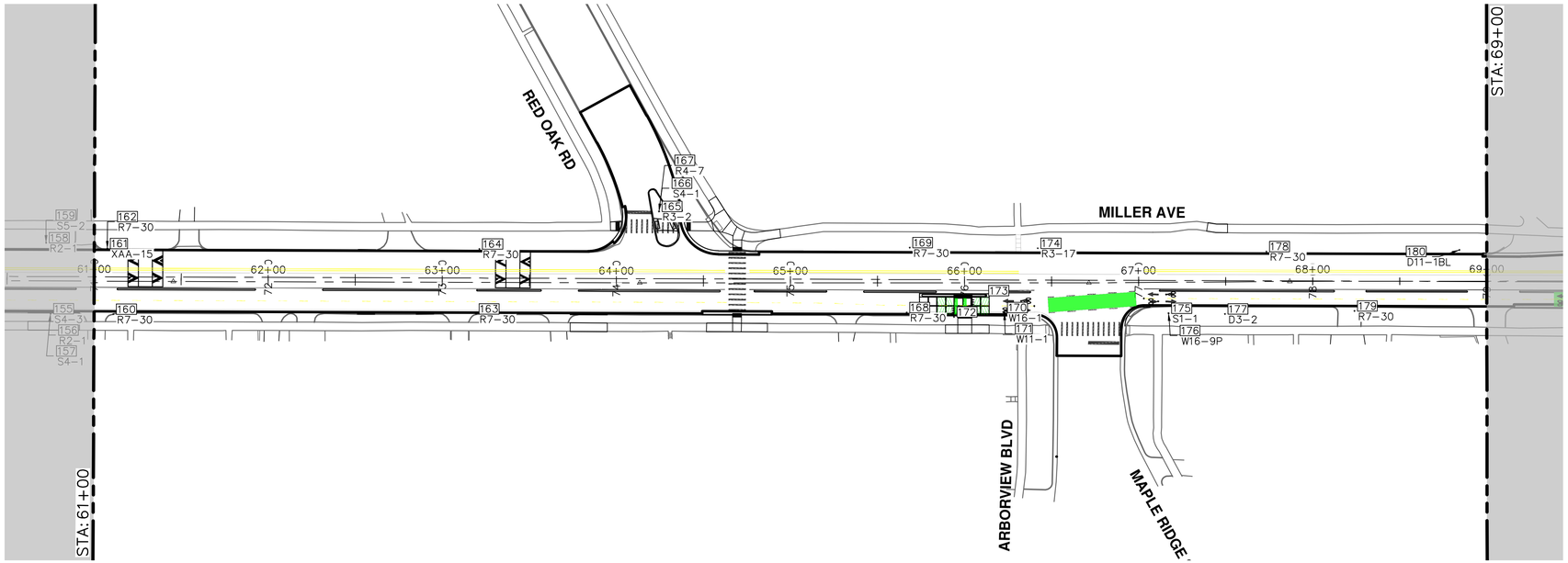
STA 45+00 - STA. 61+00

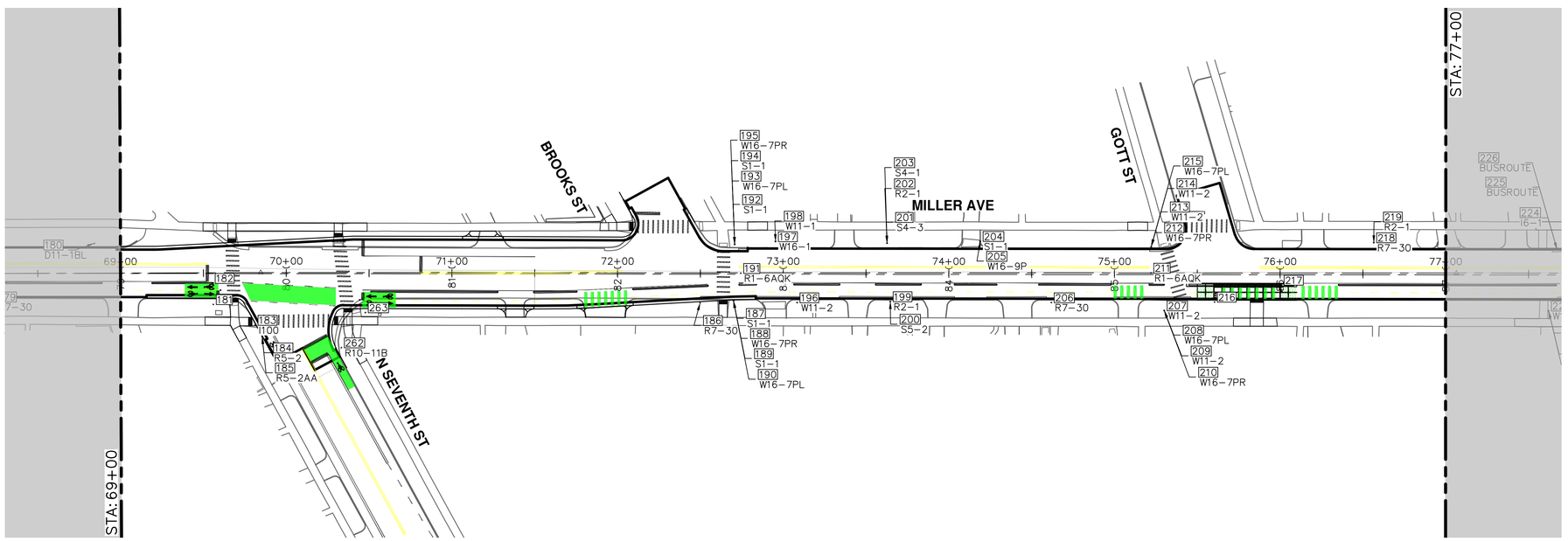
SCALE: 1" = 40'

DRAWING No. 2022034-88

SHEET No. 88 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PSgn.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





SIGN	EA (THIS SHEET)
QWICK KURB SIGN, R1-6A	2
R2-1	3
R9-6	2
QWICK KURB SIGN, R9-6	2
R10-1B	3
QWICK KURB SIGN, NO TURN ON RED	1
S1-1	4
W11-2	4
W16-7PL	4
W16-7PR	4

Point #	REMOVE EXISTING	INSTALL NEW
160	Y	
161	Y	
162	Y	
163	Y	
164	Y	
165	Y	
166	Y	
167	Y	
168	Y	
169	Y	
170	Y	
171	Y	
172	N	R9-6
173	N	QWICK KURB SIGN, R9-6, BUFFER
174	Y	
175	Y	
176	Y	
177	Y	
178	Y	
179	Y	
180	Y	
181	N	R10-1B
182	N	QWICK KURB SIGN, NO TURN ON RED
262	N	R10-1B
263	N	R10-1B
183	Y	
184	Y	R5-2 (RELOCATE)
185	Y	R5-2AA (RELOCATE)
186	Y	
187	Y	S1-1
188	Y	W16-7PR
189	Y	S1-1
190	Y	W16-7PL
191	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
192	Y	S1-1
193	Y	W16-7PL
194	Y	S1-1
195	Y	W16-7PR
196	Y	
197	Y	
198	Y	
199	Y	R2-1
200	Y	
201	Y	
202	Y	R2-1
203	Y	
204	Y	
205	Y	
206	Y	
207	Y	W11-2
208	Y	W16-7PL
209	Y	W11-2
210	Y	W16-7PR
211	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
212	Y	W16-7PR
213	Y	W11-2
214	Y	W11-2
215	Y	W16-7PL
216	N	R9-6
217	N	QWICK KURB SIGN, R9-6, BUFFER
218	Y	
219	Y	R2-1

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
00	BID SET	4-9-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA

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MILLER AVENUE REHABILITATION

PERMANENT SIGNING

STA. 61+00 - STA. 77+00

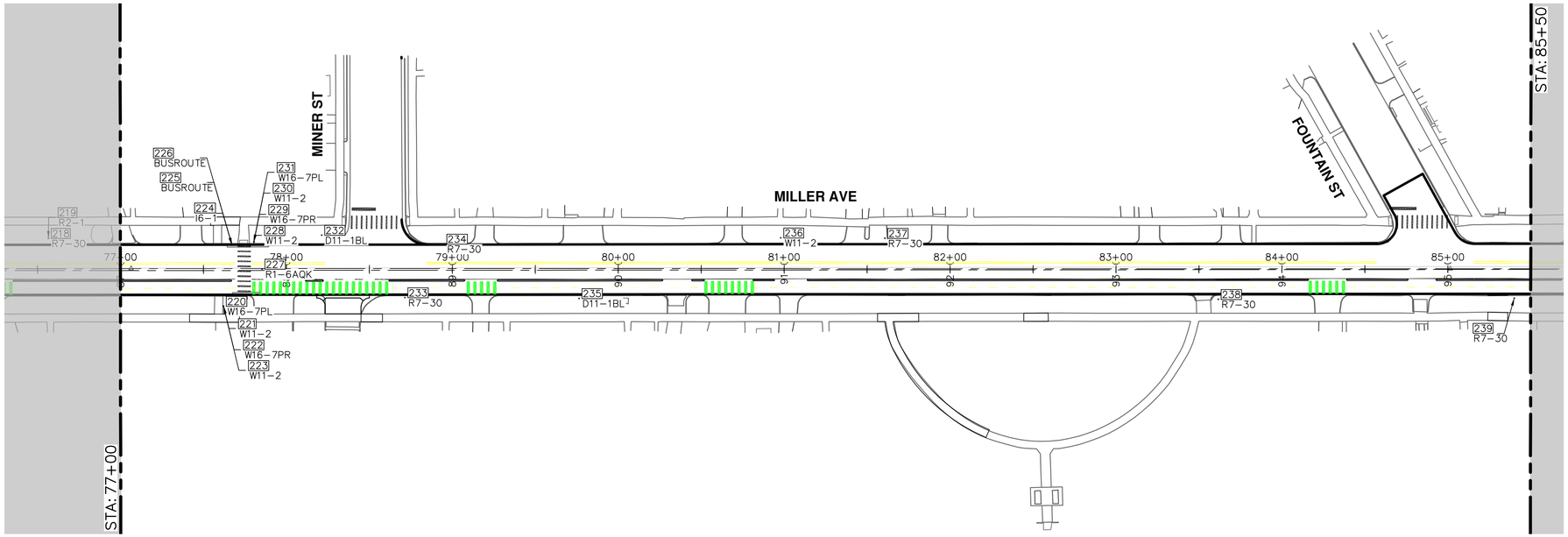
SCALE: 1" = 40'

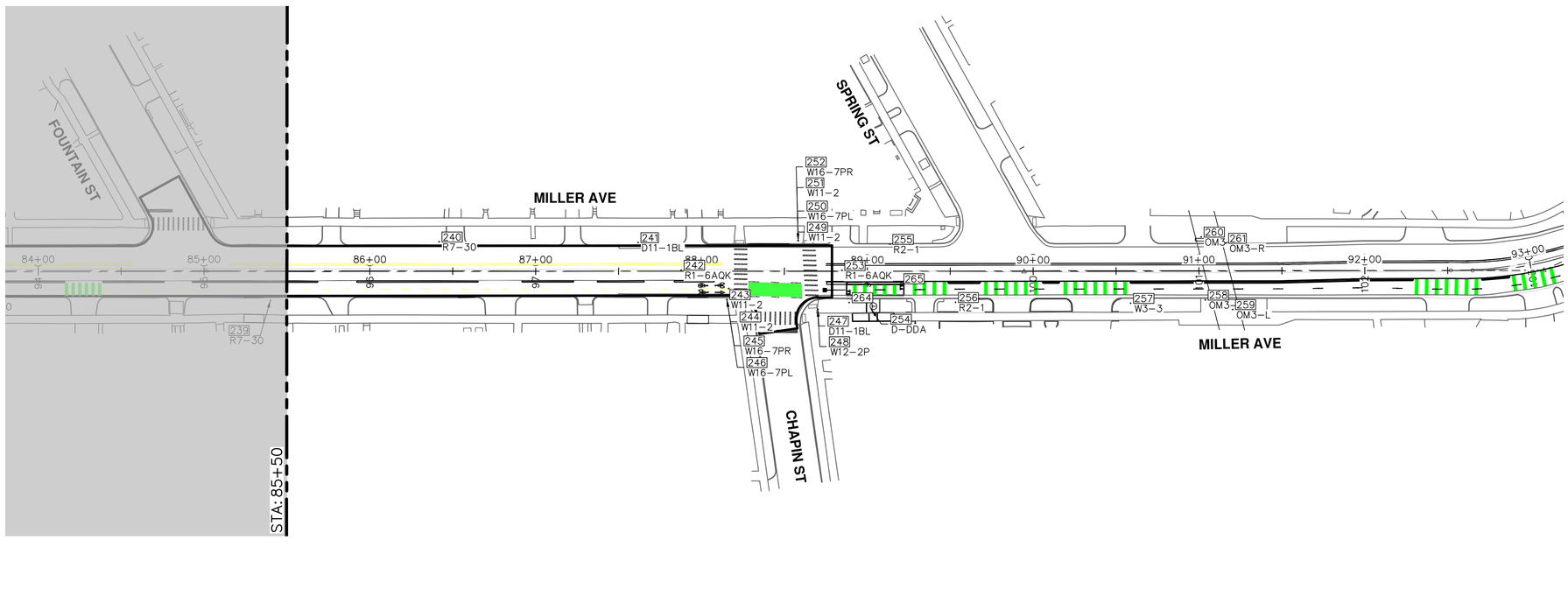
DRAWING No. 2022034-89

SHEET No.

89 OF 131

R:\2022034 Miller Ave Rehab\Plan Production\2022034PSgn.dwg Dwg Created: 29-Apr-24 — _a2 standard bw.stb — Plot Date: 30-Apr-24





Point #	REMOVE EXISTING	INSTALL NEW
220	Y	W16-7PL
221	Y	W11-2
222	Y	W16-7PR
223	Y	W11-2
224	Y	
225	Y	
226	Y	
227	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
228	Y	W11-2
229	Y	W16-7PR
230	Y	W11-2
231	Y	W16-7PL
232	Y	
233	Y	
234	Y	
235	Y	
236	Y	
237	Y	
238	Y	
239	Y	
240	Y	
241	Y	
242	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
243	Y	W11-2
244	Y	W11-2
245	Y	W16-7PR
246	Y	W16-7PL
247	Y	
248	Y	W12-2P
249	Y	W11-2
250	Y	W16-7PL
251	Y	W11-2
252	Y	W16-7PR
253	Y	QWICK KURB SIGN, R1-6A, CENTERLINE
254	N	
255	Y	R2-1
256	Y	R2-1
264	N	R9-6
265	N	QWICK KURB SIGN, R9-6, BUFFER
257	Y	W3-3
258	Y	OM3-R
259	Y	OM3-L
260	Y	OM3-L
261	Y	OM3-R

SIGN	EA (THIS SHEET)
OM3-L	2
OM3-R	2
QWICK KURB SIGN, R1-6A	3
R2-1	2
R9-6	1
QWICK KURB SIGN, R9-6	1
W3-3	1
W11-2	8
W12-2P	1
W16-7PL	4
W16-7PR	4

811 Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
02	ADDENDUM No. 2 PLANS	4-29-24	A2D	JKA
01	ADDENDUM PLANS	4-25-24	A2D	JKA
00	BID SET	4-9-24	A2D	JKA

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER AVENUE REHABILITATION

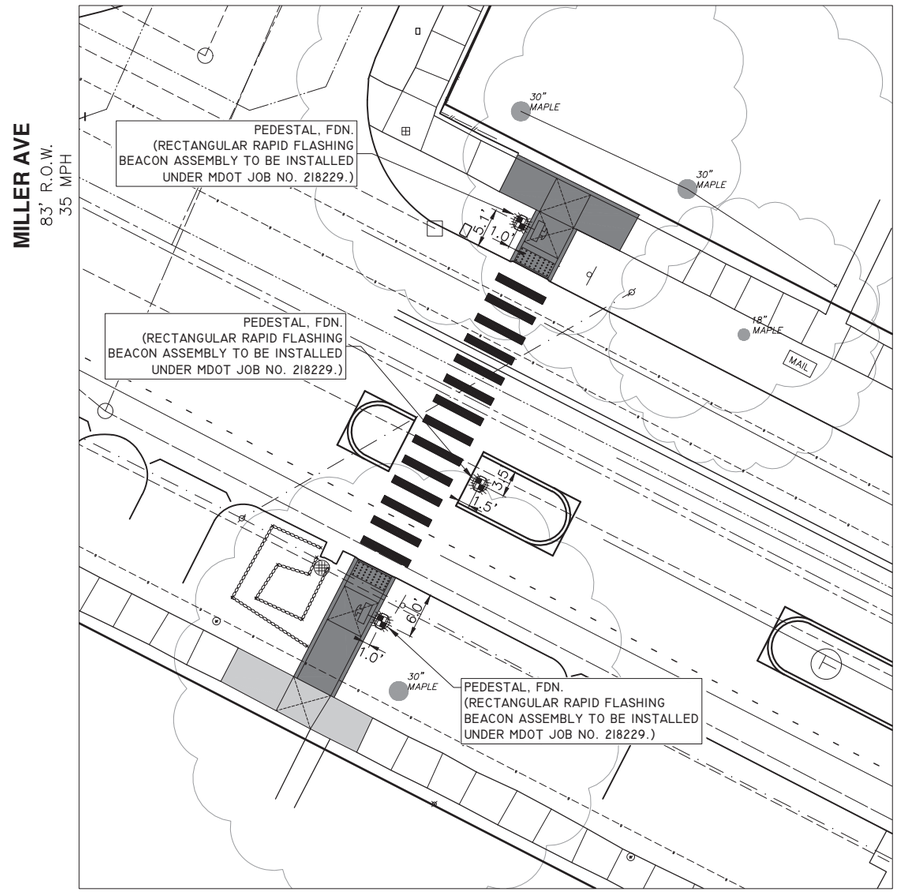
PERMANENT SIGNING

STA. 77+00 - P.O.E. STA. 85+50

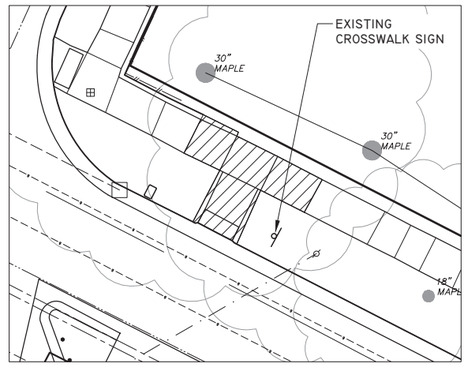
SCALE: 1" = 40'

DRAWING No. 2022034-90

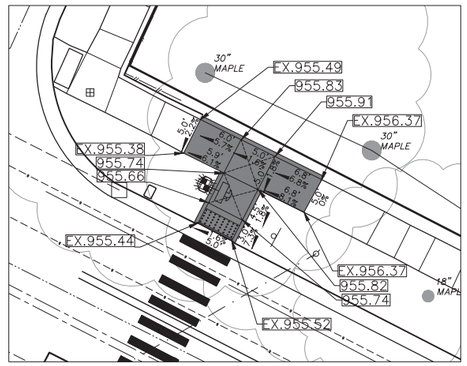
SHEET No. 90 OF 131



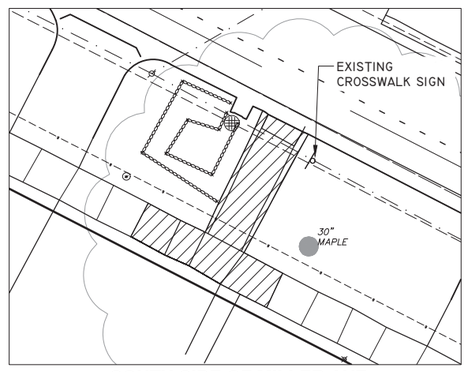
MILLER AVE @ FULMER ST



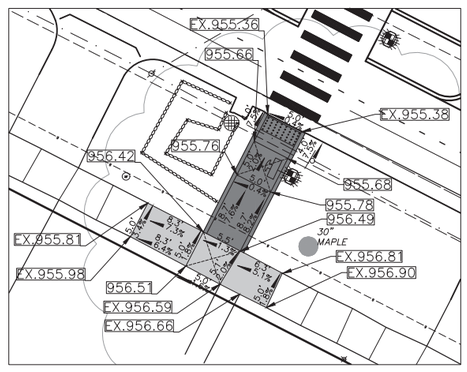
NORTH SIDE OF MILLER AVE



NORTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE

MILLER AVE @ FULMER ST - REMOVALS

SIDEWALK, SIDEWALK RAMP, & DRIVEWAY APPROACH, ANY THICK, REM

MILLER AVE @ FULMER ST - GRADING DETAILS

CONC, SIDEWALK, 4 IN.

CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN.

DETECTABLE WARNING SURFACE

BENCHMARK AND CONTROL POINT INFORMATION:

BENCHMARK 208
ELEVATION = 955.43
TOP OF ARROW ON HYDRANT AT NORTHWEST INTERSECTION CORNER OF MILLER AVENUE AND FULMER STREET.

BENCHMARK 211
ELEVATION = 954.99
SOUTHEAST CORNER OF CATCH BASIN RIM LOCATED AT NORTHEAST QUADRANT OF FULMER STREET & MILLER AVENUE, 17' +/- NORTH FROM CENTERLINE MILLER AVENUE, 32' +/- EAST FROM CENTERLINE FULMER STREET.

CONTROL POINT 117
NORTHING = 289660.641/EASTING = 13282821.500
ELEVATION = 957.05
SET BAR WITH CAP 5 FEET NORTH OF 30 INCH MAPLE TREE, 8 FEET SOUTH OF SOUTH BACK OF CURB FOR MILLER AVENUE, 37 FEET EAST OF CENTERLINE DRIVEWAY #2235.

CONTROL POINT 118
NORTHING = 289719.857/EASTING = 13282829.070
ELEVATION = 988.41
SET BAR WITH CAP 4 FEET NORTH OF NORTH BACK OF CURB FOR MILLER AVENUE, 36 FEET EAST OF CENTERLINE FULMER STREET, 15 FEET SOUTH OF 30 INCH MAPLE TREE.

CONTROL POINT 119
NORTHING = 289748.556/EASTING = 13282775.380
ELEVATION = 953.26
SET BAR WITH CAP AT NORTHWEST INTERSECTION CORNER OF MILLER AVENUE AND FULMER STREET, 4 FEET NORTH OF NORTH BACK OF CURB FOR MILLER, 6 FEET EAST OF HYDRANT.

NORTH

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

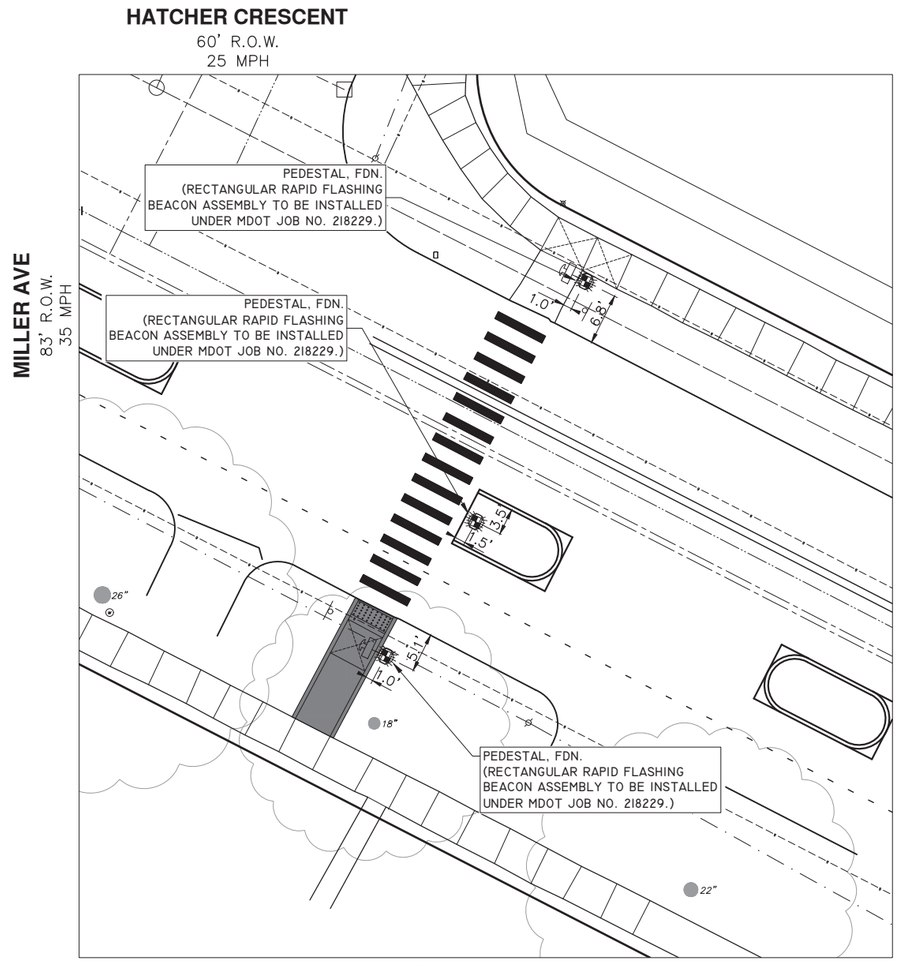
MILLER ROAD CYCLE TRACK

RRFB CROSSING - DETAIL GRADES
MILLER AVE @ FULMER ST

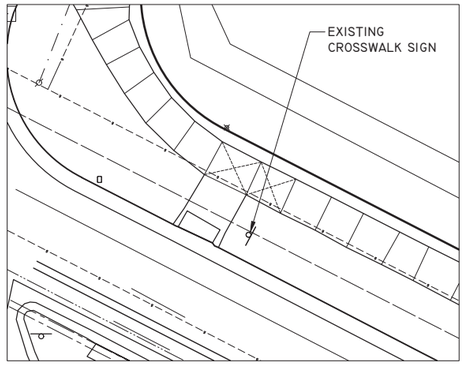
SCALE: 1"=20'

DRAWING No.

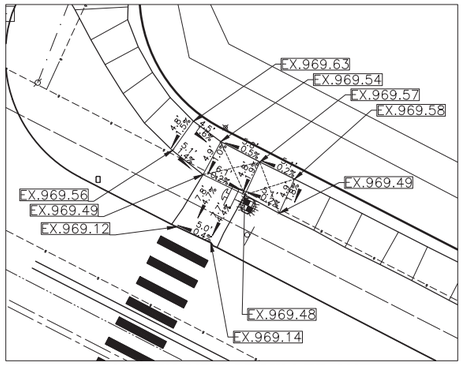
SHEET No.



MILLER AVE @ HATCHER CRESCENT - RRFB

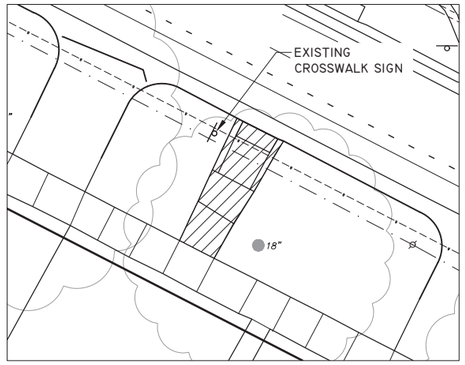


NORTH SIDE OF MILLER AVE

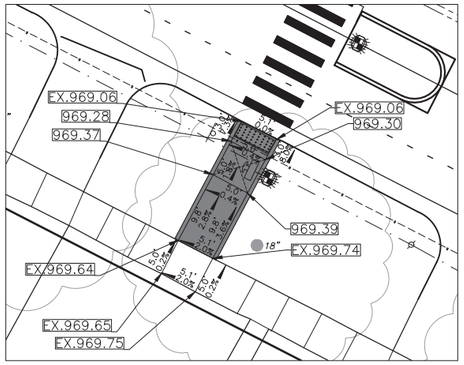


NORTH SIDE OF MILLER AVE

DETAILED GRADES SHOWN FOR INFORMATION ONLY.
NO SIDEWALK WORK BEING DONE HERE.



SOUTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE

BENCHMARK AND CONTROL POINT INFORMATION:

BENCHMARK 200
ELEVATION = 970.44
TOP OF RAILROAD SPIKE IN SOUTHWEST FACE OF LIGHT POLE ON THE NORTHEAST INTERSECTION CORNER OF MILLER AVENUE AND HATCHER CRESCENT.

BENCHMARK 210
ELEVATION = 971.61
ARROW ON TOP OF HYDRANT LOCATED AT THE NORTHWEST QUADRANT OF MILLER AVENUE AND HATCHER CRESCENT.

CONTROL POINT 100
NORTHING = 289438.758/EASTING = 13283381.310
ELEVATION = 969.61
SET BAR WITH CAP 6 FEET NORTH OF BACK OF CURB MILLER AVENUE, 12 FEET EAST OF UTILITY POLE AT NORTHEAST INTERSECTION CORNER OF MILLER AVENUE AND HATCHER CRESCENT, 50 FEET SOUTH SOUTHEAST OF 18 INCH MAPLE TREE THAT IS 75 FEET NORTH OF MILLER AVENUE ON THE EAST SIDE OF HATCHER CRESCENT.

CONTROL POINT 101
NORTHING = 289467.753/EASTING = 13283324.540
ELEVATION = 969.62
SET BAR WITH CAP AT NORTHWEST INTERSECTION CORNER OF MILLER AVENUE AND HATCHER CRESCENT, 12 FEET EAST OF FIRE HYDRANT, 55 FEET SOUTH OF 3 INCH DECORATIVE TREE ON WEST SIDE OF HATCHER CRESCENT NORTH OF MILLER AVENUE, 30 FEET NORTHWEST OF CENTER OF INTERSECTION.

CONTROL POINT 102
NORTHING = 289400.881/EASTING = 13283336.770
ELEVATION = 969.56
SET BAR WITH CAP 4 FEET SOUTH SOUTH BACK OF CURB ON MILLER AVENUE, 12 FEET NORTHWEST OF 26 INCH MAPLE TREE, 17 FEET WEST OF CENTERLINE DRIVEWAY #2045.

MILLER AVE @ HATCHER CRESCENT - REMOVALS

SIDEWALK, SIDEWALK RAMP, & DRIVEWAY APPROACH, ANY THICK, REM

MILLER AVE @ HATCHER CRESCENT - GRADING DETAILS

CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN.

DETECTABLE WARNING SURFACE

NORTH

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

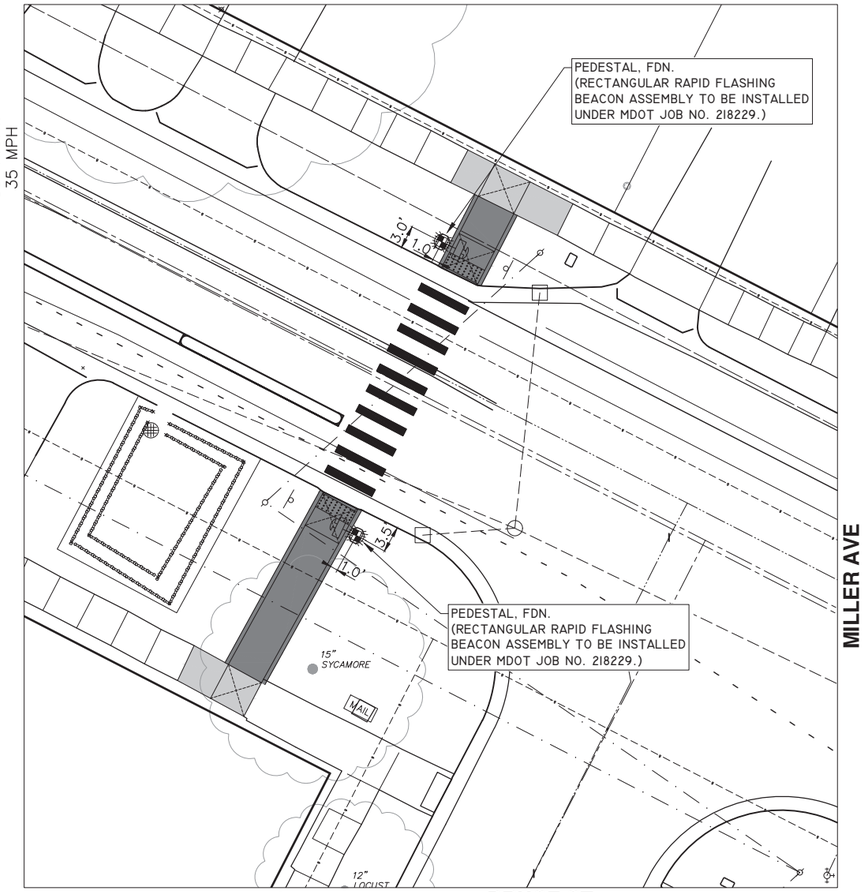
MILLER ROAD CYCLE TRACK

RRFB CROSSING - DETAIL GRADES
MILLER AVE @ HATCHER CRESCENT

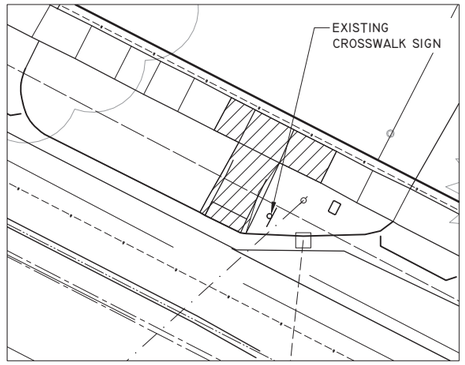
SCALE: 1"=20'

DRAWING No.

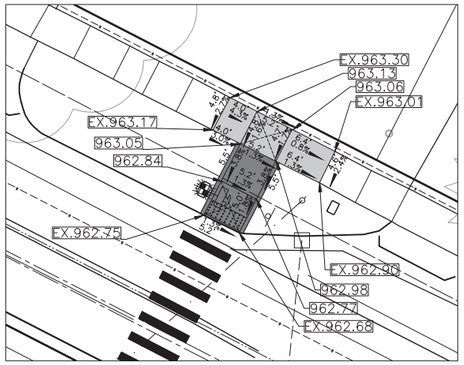
SHEET No.



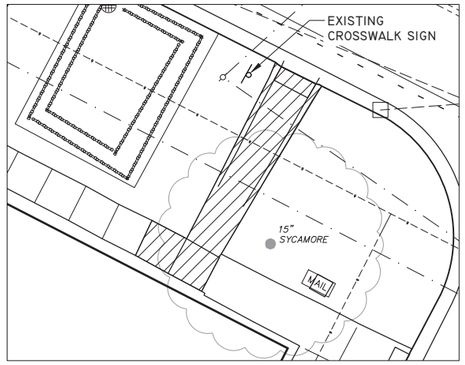
MILLER AVE @ BRUCE ST - RRFB



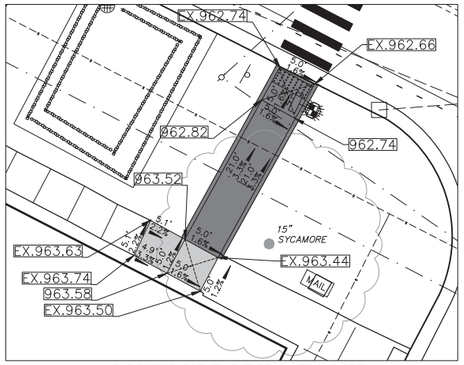
NORTH SIDE OF MILLER AVE



NORTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE

BENCHMARK AND CONTROL POINT INFORMATION:

BENCHMARK 201
ELEVATION = 963.61
TOP OF ARROW ON HYDRANT AT SOUTHEAST INTERSECTION CORNER OF MILLER AVENUE AND BRUCE STREET.

BENCHMARK 209
ELEVATION = 962.53
SOUTHEAST CORNER OF CATCH BASIN RIM LOCATED AT THE SOUTHWEST QUADRANT OF MILLER AVENUE AND BRUCE STREET, SOUTH SIDE MILLER AVENUE, 15 FEET ± SOUTHWEST FROM CENTERLINE MILLER AVENUE, 37 FEET ± NORTHWEST FROM CENTERLINE BRUCE STREET.

CONTROL POINT 103
NORTHING = 288160.657/EASTING = 13283816.54
ELEVATION = 963.05
SET BAR WITH CAP ON SOUTHWEST INTERSECTION CORNER OF MILLER AVENUE AND BRUCE STREET, 8 FEET SOUTHEAST OF ROAD CATCH BASIN ON SOUTH SIDE OF MILLER AVENUE JUST WEST OF BRUCE STREET, 20 FEET NORTHEAST OF 18 INCH SYCAMORE, TREE 20 FEET NORTH OF US POST OFFICE MAILBOX.

CONTROL POINT 104
NORTHING = 289121.629/EASTING = 13283859.300
ELEVATION = 961.86
SET BAR WITH CAP ON SOUTHEAST INTERSECTION OF MILLER AVENUE AND BRUCE STREET, 5 FEET NORTH OF BACK OF WALK FOR SOUTH SIDE OF MILLER AVENUE SOUTHWEST OF HYDRANT AT THE SOUTHEAST CORNER OF MILLER AVENUE AND BRUCE STREET, 10 FEET NORTHWEST OF TELEPHONE MANHOLE.

CONTROL POINT 105
NORTHING = 289204.007/EASTING = 13283836.520
ELEVATION = 962.62
SET BAR WITH CAP IN GRASS BETWEEN BACK OF CURB AND SIDEWALK ON THE NORTH SIDE OF MILLER AVENUE, 10 FEET WEST OF CENTER OF DRIVE OF #1950, 2 FEET EAST OF FIBER OPTIC BOX AND 37 FEET NORTHWEST OF CENTER OF INTERSECTION FOR MILLER AVENUE AND BRUCE STREET.

MILLER AVE @ BRUCE ST - REMOVALS

SIDEWALK, SIDEWALK RAMP, & DRIVEWAY APPROACH, ANY THICK, REM

MILLER AVE @ BRUCE ST - GRADING DETAILS

CONC, SIDEWALK, 4 IN.

CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN.

DETECTABLE WARNING SURFACE

NORTH

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

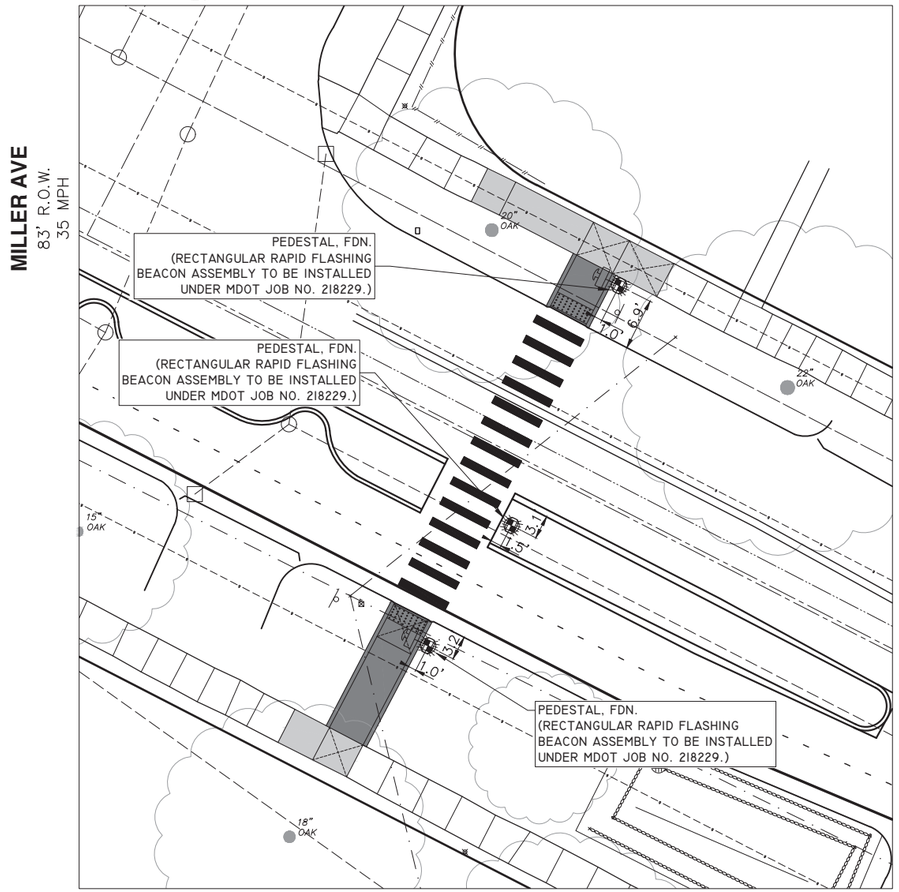
MILLER ROAD CYCLE TRACK

RRFB CROSSING - DETAIL GRADES
MILLER AVE @ BRUCE ST

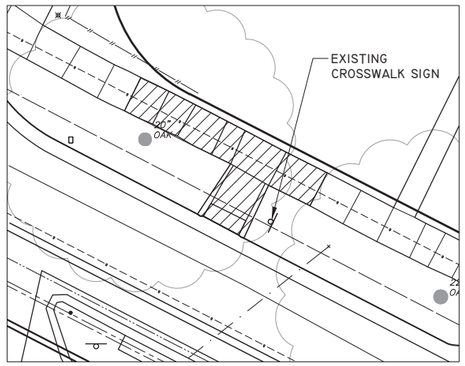
SCALE: 1"=20'

DRAWING No.

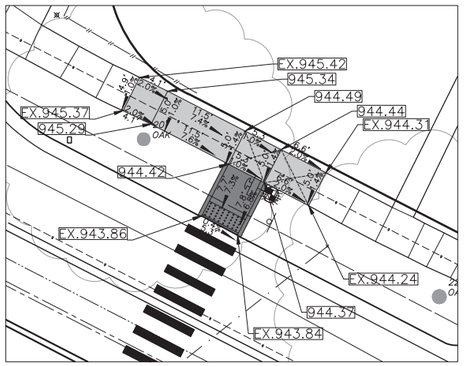
SHEET No.



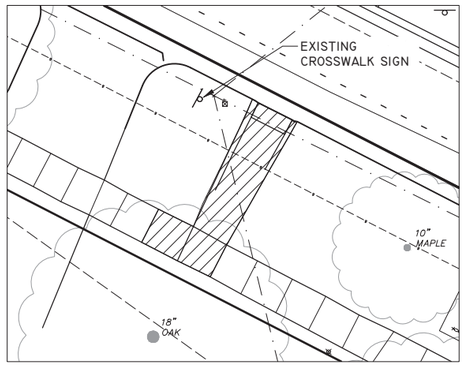
MILLER AVE @ SAUNDERS CRESCENT - RRFB



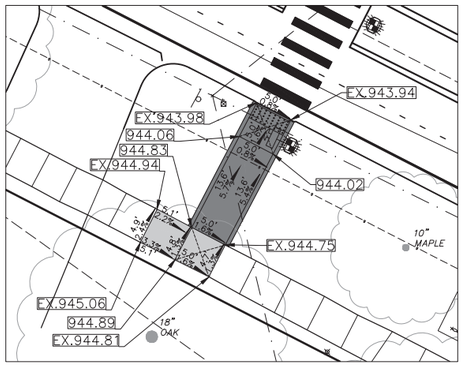
NORTH SIDE OF MILLER AVE



NORTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE

BENCHMARK AND CONTROL POINT INFORMATION:

BENCHMARK 202
ELEVATION = 949.70
TOP OF ARROW ON HYDRANT AT NORTHWEST CORNER OF MILLER AVENUE AND SAUNDERS CRESCENT.

BENCHMARK 203
ELEVATION = 948.13
TOP OF RAILROAD SPIKE IN NORTH FACE OF UTILITY POLE ON SOUTH SIDE OF MILLER AVENUE OPPOSITE 10 FEET WEST OF CENTERLINE SAUNDERS CRESCENT.

CONTROL POINT 106
NORTHING = 288929.449/EASTING = 13284370.950
ELEVATION = 947.24
SET BAR WITH CAP 4 FEET NORTH OF BACK OF CURB FOR NORTH SIDE OF MILLER AVENUE, 10 FEET EAST OF HYDRANT AT NORTHWEST CORNER OF MILLER AVENUE AND SAUNDERS CRESCENT, 45 FEET SOUTH SOUTHWEST UTILITY POLE AT NORTHWEST INTERSECTION CORNER MILLER AVENUE AND SAUNDERS CRESCENT.

CONTROL POINT 107
NORTHING = 288855.704/EASTING = 13284394.000
ELEVATION = 945.89
SET BAR WITH CAP 6 FEET SOUTH BACK OF CURB ON SOUTH SIDE OF MILLER AVENUE, 12 FEET WEST OF CENTERLINE DRIVEWAY #1797, 7 FEET NORTHEAST OF 15" OAK TREE.

CONTROL POINT 108
NORTHING =288901.187/EASTING =13284451.720
ELEVATION = 945.49
SET BAR WITH CAP 4 FEET NORTH OF BACK OF SIDEWALK FOR NORTH SIDE OF MILLER AVENUE, 27 FEET EAST OF BACK OF SIDEWALK, EAST SIDE OF SAUNDERS.

MILLER AVE @ SAUNDERS CRESCENT - REMOVALS

SIDEWALK, SIDEWALK RAMP, &
DRIVEWAY APPROACH, ANY THICK, REM

MILLER AVE @ SAUNDERS CRESCENT - GRADING DETAILS

CONC, SIDEWALK, 4 IN.

CONC, SIDEWALK, DRIVE
APPROACH, OR RAMP, 6 IN.

DETECTABLE WARNING SURFACE

NORTH

811 Know what's **below.** **Call** before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICES
301 E. HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

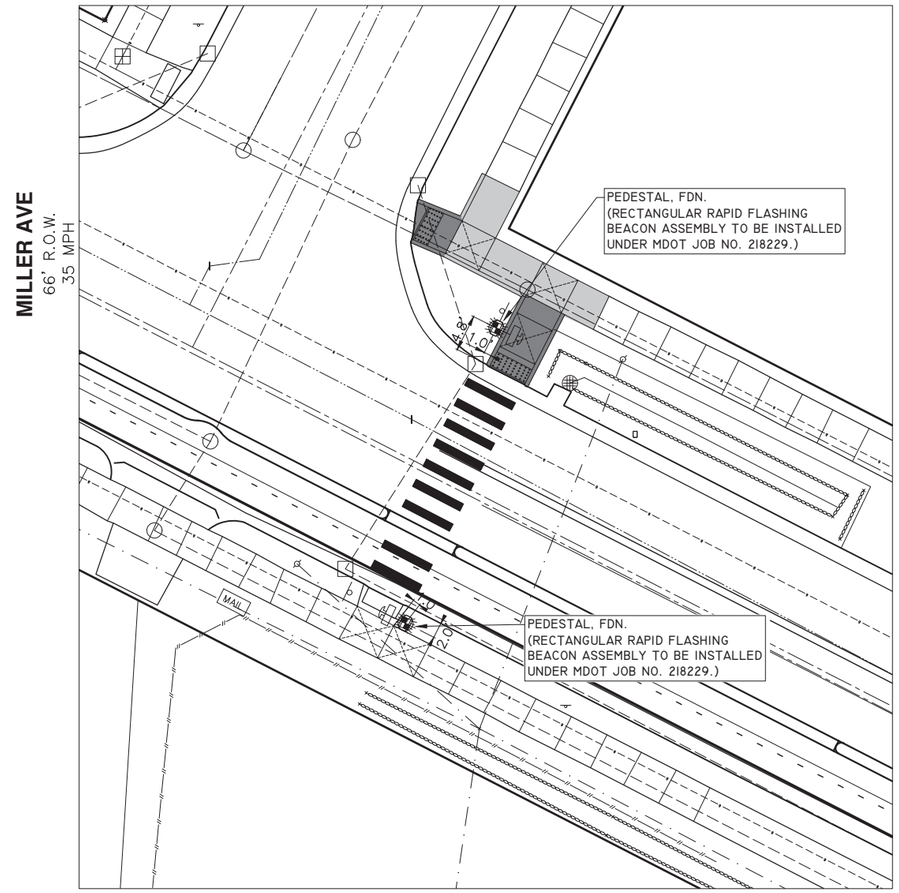
MILLER ROAD CYCLE TRACK

RRFB CROSSING - DETAIL GRADES
MILLER AVE @ SAUNDERS CRESCENT

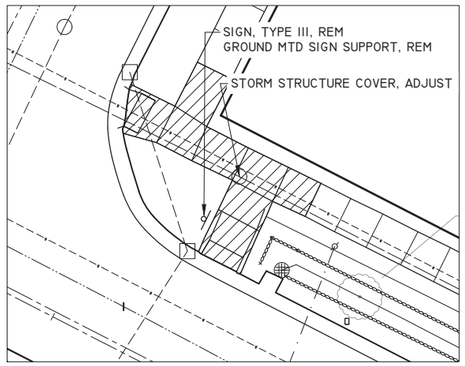
SCALE: 1"=20'

DRAWING No.

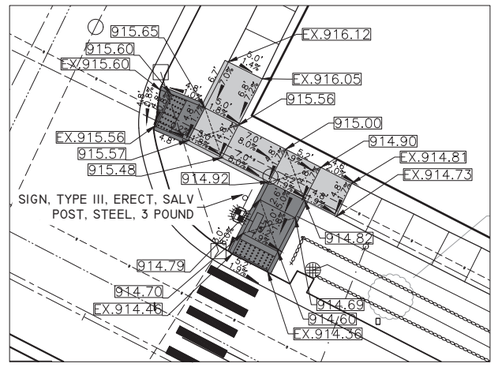
SHEET No.



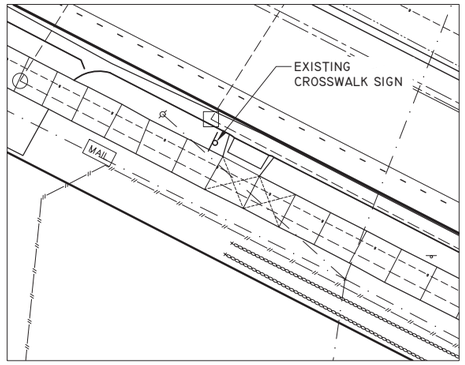
MILLER AVE @ PINE TREE DR - RRFB



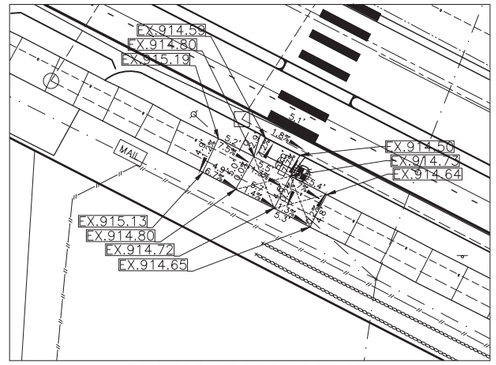
NORTH SIDE OF MILLER AVE



NORTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE

DETAILED GRADES SHOWN FOR INFORMATION ONLY.
NO SIDEWALK WORK BEING DONE HERE.

MILLER AVE @ PINE TREE DR - REMOVALS

SIDEWALK, SIDEWALK RAMP, &
DRIVEWAY APPROACH, ANY THICK, REM

MILLER AVE @ PINE TREE DR - GRADING DETAILS

CONC, SIDEWALK, 4 IN.

CONC, SIDEWALK, DRIVE
APPROACH, OR RAMP, 6 IN.

DETECTABLE WARNING SURFACE

BENCHMARK AND CONTROL POINT INFORMATION:

BENCHMARK 204
ELEVATION = 920.03
TOP OF ARROW ON HYDRANT AT NORTHWEST INTERSECTION CORNER OF PINE TREE DRIVE AND MILLER AVENUE.

BENCHMARK 205
ELEVATION = 914.87
NORTHWEST CORNER OF CATCH BASIN RIM LOCATED ON THE SOUTH SIDE OF MILLER AVENUE, 15'+/- SOUTH FROM CENTERLINE MILLER AVENUE, 33' +/- EAST FROM CENTERLINE PINE TREE STREET.

CONTROL POINT 110
NORTHING = 288362.318/EASTING = 13285473.570
ELEVATION = 915.36
SET BAR WITH CAP 33 FEET EAST OF CENTERLINE FOR PINE TREE DRIVE, 9 FEET NORTH NORTHWEST OF ROAD CATCH BASIN AT NORTHEAST CORNER OF PINE TREE DRIVE AND MILLER AVENUE, 7 FEET SOUTHWEST OF SANITARY SEWER MANHOLE AT NORTHEAST CORNER OF PINE TREE DRIVE AND MILLER AVENUE.

CONTROL POINT 111
NORTHING = 288389.683/EASTING = 13285419.400
ELEVATION = 917.59
SET BAR WITH CAP 8 FEET NORTH OF ROAD CATCH BASIN ON NORTH SIDE OF MILLER AVENUE, 33 FEET WEST OF CENTERLINE PINE TREE DRIVE, 7 FEET EAST OF HYDRANT ON NORTHWEST INTERSECTION CORNER OF PINE TREE DRIVE AND MILLER AVENUE.

CONTROL POINT 112
NORTHING = 288316.847/EASTING = 13285469.650
ELEVATION = 914.66
SET BAR AND CAP IN GRASS HALFWAY BETWEEN BACK OF CURB FOR SOUTH SIDE OF MILLER AND SIDEWALK, 100 FEET WEST OF CENTERLINE DRIVEWAY #1575, 12 FEET NORTHWEST OF UTILITY POLE, 17 FEET EAST SOUTHEAST OF ROAD CATCH BASIN ON SOUTH SIDE OF MILLER AVENUE.

NORTH

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PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

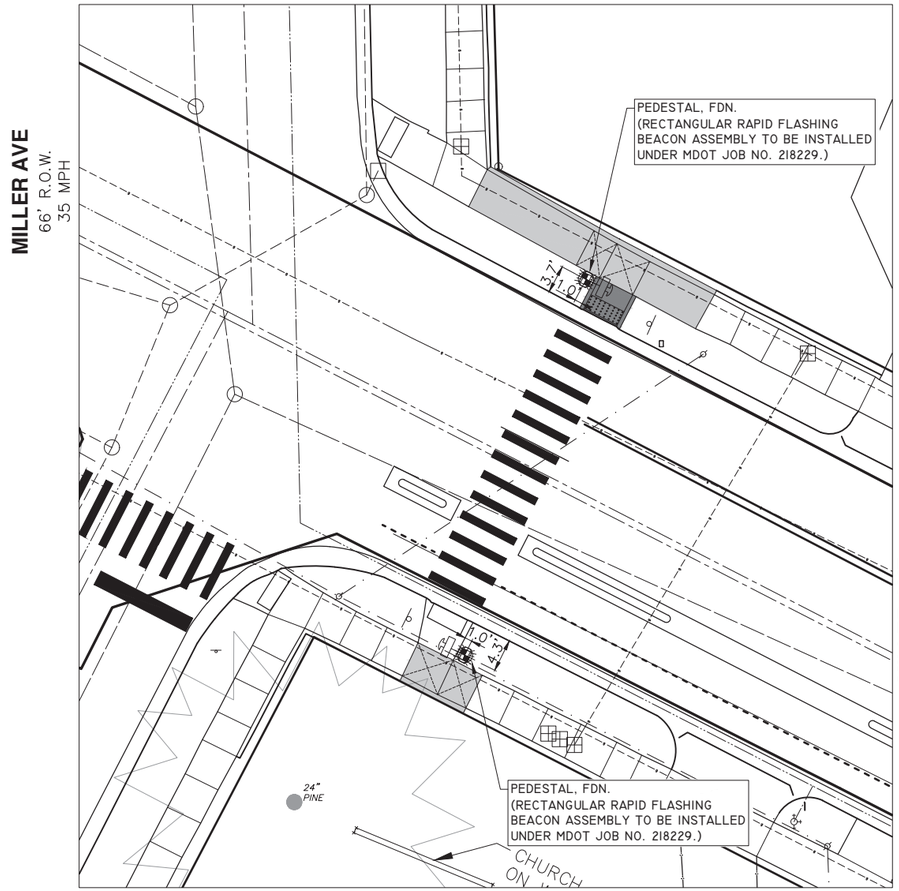
MILLER ROAD CYCLE TRACK

RRFB CROSSING - DETAIL GRADES
MILLER AVE @ PINE TREE DR

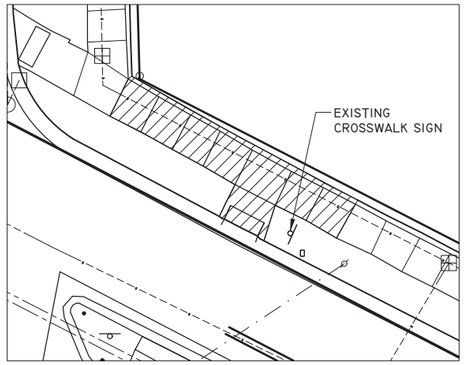
SCALE: 1"=20'

DRAWING No.

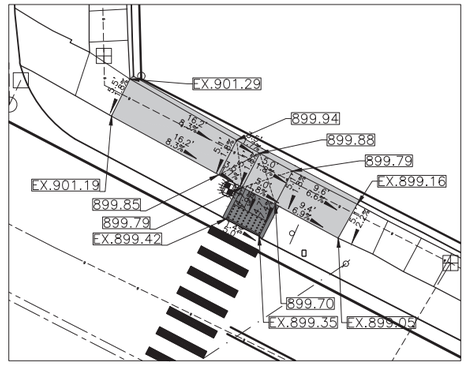
SHEET No.



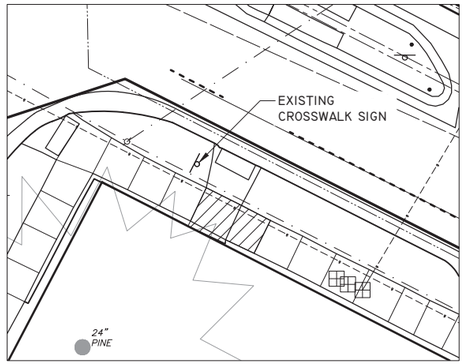
MILLER AVE @ NEWPORT RD - RRFB



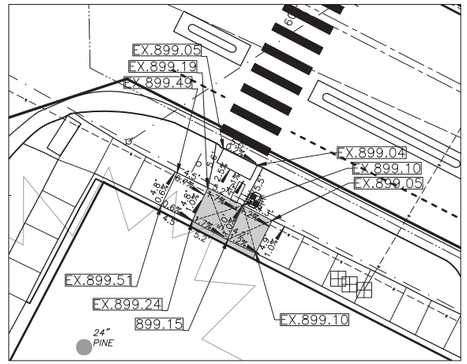
NORTH SIDE OF MILLER AVE



NORTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE



SOUTH SIDE OF MILLER AVE

MILLER AVE @ NEWPORT RD - REMOVALS

SIDEWALK, SIDEWALK RAMP, & DRIVEWAY APPROACH, ANY THICK, REM

MILLER AVE @ NEWPORT RD - GRADING DETAILS

CONC, SIDEWALK, 4 IN.

CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN.

DETECTABLE WARNING SURFACE

BENCHMARK AND CONTROL POINT INFORMATION:

BENCHMARK 206
ELEVATION = 907.49
TOP OF ARROW ON HYDRANT 2 FEET NORTH OF NORTH BACK FOR MILLER AVENUE, 30 FEET WEST OF NORTHWEST INTERSECTION CORNER NEWPORT ROAD AND MILLER AVENUE.

BENCHMARK 207
ELEVATION = 900.25
TOP OF RAILROAD FIGHT IN SOUTH FACE OF UTILITY POLE ON NORTH SIDE OF MILLER AVENUE, 50 FEET EAST OF NORTHEAST INTERSECTION CENTER OF MILLER AVENUE AND NEWPORT ROAD.

CONTROL POINT 113
NORTHING = 288023.226/EASTING = 13286030.480 ELEVATION = 899.33
SET BAR AND CAP IN GRASS HALF WAY BETWEEN SIDEWALK AND BACK OF CURB ON SOUTH SIDE MILLER AVENUE, 9 FEET WEST OF HYDRANT IN FRONT OF HURON RIVER METHODIST CHURCH.

CONTROL POINT 114
NORTHING = 288077.933/EASTING = 13286032.290 ELEVATION = 900.82
SET BAR AND CAP IN GRASS BETWEEN BACK OF CURB AND SIDEWALK ON NORTH SIDE OF MILLER AVENUE, 21 FEET EAST OF BASIN AT NORTHEAST CORNER OF NEWPORT ROAD AND MILLER AVENUE.

CONTROL POINT 115
NORTHING = 288121.797/EASTING = 13285976.420 ELEVATION = 904.17
SET BAR AND CAP 4 FEET WEST OF CATCH BASIN ON WEST SIDE OF NEWPORT ROAD AT THE NORTHWEST INTERSECTION CORNER OF NEWPORT ROAD AND MILLER AVENUE, 9 FEET NORTH OF CENTERLINE SIDEWALK FOR NORTH SIDE OF MILLER AVENUE.

CONTROL POINT 116
NORTHING = 288071.614/EASTING = 13285937.120 ELEVATION = 903.95
SET BAR WITH CAP 6 FEET SOUTHEAST OF CATCH BASIN THAT IS 25 FEET WEST OF THE SOUTHWEST CORNER OF NEWPORT ROAD AND MILLER AVENUE, 6 FEET NORTH OF CENTERLINE OF SIDEWALK ON SOUTH SIDE OF MILLER AVENUE, 25 FEET NORTH OF 54 INCH OAK TREE.

NORTH

811 Know what's **below.** **Call** before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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ANN ARBOR, MI 48107-8647
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK
RRFB CROSSING - DETAIL GRADES
MILLER AVE @ NEWPORT RD

SCALE: 1"=20'

DRAWING No.

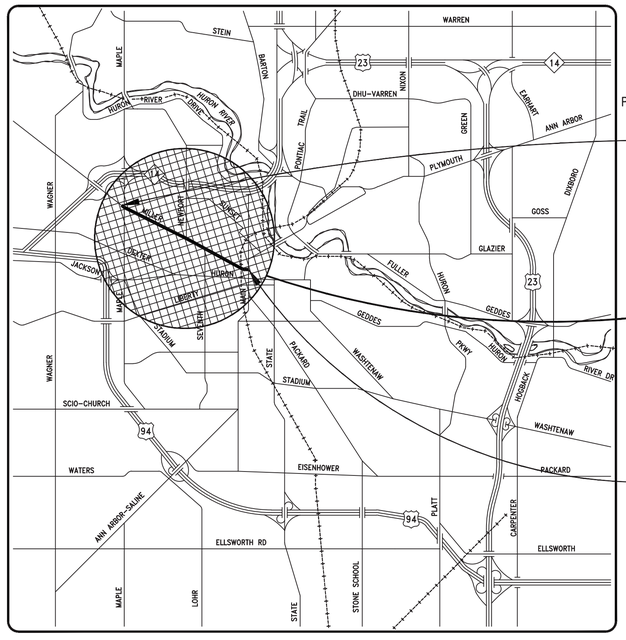
SHEET No.

CITY OF ANN ARBOR
PROJECT MANAGEMENT
MILLER AVENUE CYCLE TRACK
MAPLE ROAD TO NEWPORT ROAD
AND CHAPIN STREET TO FIRST STREET

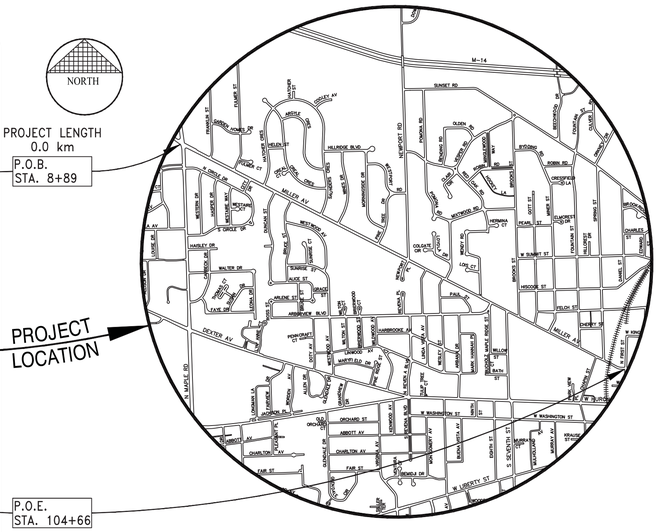
ADDENDUM No. 2 PLANS - 04/29/24

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
97	COVER SHEET
98	NOTES & LEGEND
99 – 100	TYPICAL SECTIONS
101 – 103	DETAILS
104 – 110	REMOVAL SHEETS
111 – 117	CONSTRUCTION SHEETS
118	DETAIL GRADES
119 – 126	PAVEMENT MARKING SHEETS
127–131	SIGNAL SHEETS

"THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE CITY OF ANN ARBOR PUBLIC SERVICES AREA DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS ("STANDARDS"). THE OMISSION OF ANY STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR OF THEIR OBLIGATION TO CONSTRUCT ITEMS IN COMPLETE ACCORDANCE WITH THOSE STANDARDS."



VICINITY MAP



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL DIAL 1–800–482–7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

PREPARED BY:

HRC
HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

555 HULET DRIVE **P.O. BOX 824**
BLOOMFIELD HILLS, MI. **48303 - 0824**

PREPARED UNDER THE SUPERVISION OF:

STATE OF MICHIGAN
Nicholas Brandon Nicita
ENGINEER
No. 6201063628
LICENSED PROFESSIONAL ENGINEER

NICHOLAS NICITA, P.E., PTOE
PROJECT MANAGER

PROJECT MANAGEMENT SERVICE UNIT

CITY OF ANN ARBOR MICHIGAN

TREVOR BRYDON, AICP
TRANSPORTATION PROGRAM MANAGER

APRIL 29, 2024
DATE

DRAWING NO.
20230643-CV01
SHEET 97 OF

PROJECT NAME: MILLER AVE. CYCLE TRACK

ABBREVIATIONS

A	
ABD	ABANDONED
AC	ACRES
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B	
B.M.	BENCHMARK
BIT	BITUMINOUS
BLDG	BUILDING
B/F	BOTTOM OF FOOTING
B/S	BOTTOM OF SWALE
B/W	BOTTOM OF WALL (FINISH GRADE)
C	
CB	CATCH BASIN
C	CURB INLET
CIP	CAST IRON PIPE
CL	CLASS
CMP	CORRUGATED METAL PIPE
CON	CONDENSATE
CO	CLEANOUT
CONC	CONCRETE
CONTR	CONTRACTOR
CU FT	CUBIC FOOT
CURV	CURVATURE
CU YD	CUBIC YARD
D	
DEMO	DEMOLISH
DEPT	DEPARTMENT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
E	
E	EAST, EASTING COORDINATE
EA	EACH
EG	EXISTING GRADE
ELEV	ELEVATION
E/M	EDGE OF METAL (EDGE OF GUTTER)
EQ	EQUAL
EX	EXISTING
F	
FF:	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FLASH	FLASHING
FM	FORCE MAIN
FT	FOOT, FEET
FURN	FURNISHING
G	
GALV	GALVANIZED
GAS	NATURAL GAS
G/C:	GUTTER OF CURB (FLOWLINE)
GVL	GRAVEL
H	
H	HIGH
HB	HOSE BIBB
HCAP	ADA HANDICAP
HDPE	HIGH-DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HORZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
I	
I.D.	INNER DIAMETER
IN	INCH, INCHES
INCL	INCLUDE, INCLUDING
INL	INLET PIPE
INV:	INVERT ELEVATION
IRR	IRRIGATION
J	
JT	JOINT
L	
L	LENGTH
LF	LINEAR FEET
LPT	LOW POINT
LN	LANE
LT	LIGHT
LTG	LIGHTING
M	
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
M.E.	MATCH EXISTING
MED	MEDIUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODIFIED
N	
N	NORTH, NORTHING COORDINATE
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O	
O.C.	ON CENTER
O.D.	OUTER DIAMETER
OFF	OFFSET
OPT	OPTIONAL
P	
PC	POINT OF CURVATURE (POC)
PED	PEDESTRIAN
PERF	PERFORATED
PERP	PERPENDICULAR
PLMB	PLUMBING
PREFAB	PREFABRICATED
PREP	PREPARATION
PROJ	PROJECTED
PROP	PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY (POT)
Pv?	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL
PVMT	INTERSECTION PAVEMENT
PWR	POWER
Q	
QTY	QUANTITY
R	
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCPT	RECEPTACLE
RD	ROAD
REF	REFERENCE
REINF	REINFORCED, REINFORCEMENT
REM	REMOVE
REQD	REQUIRED
RIM:	RIM ELEVATION
ROW	RIGHT OF WAY
S	
S	SOUTH
SAN	SANITARY SEWER
SCH	SCHEDULE
SECT	SECTION
SESC	SOIL EROSION AND SEDIMENTATION CONTROL
SIM	SIMILAR
SP	SPACE, SPACED, SPACING
SQ FT	SQUARE FEET
SQ YD	SQUARE YARD
ST LT	STREET STREET LIGHT
STA	STATION
STAG	STAGGER, STAGGERED
STD STL	STANDARD STEEL
SSL	STAINLESS STEEL
STM	STORM SEWER
STRUCT	STRUCTURAL
SUBCONTR	SUBCONTRACTOR
T	
T	TELECOM
T/C	TOP OF CURB
TEMP	TEMPORARY
T/F	TOP OF FOOTING
T/S	TOP OF SWALE
T/W	TOP OF WALL
TYP.	TYPICAL
U	
UD	UNDERDRAIN
UTIL	UTILITY
V	
V/B:	VALVE BOX
VERT	VERTICAL
W	
W	WEST
WM	WATER MAIN
W/O	WITHOUT
WWF	WELDED WIRE FABRIC
Y	
YARD DRAIN	

CONSTRUCTION NOTES

1. THIS PROJECT IS BEING COMPLETED BY THE ANN ARBOR TRANSPORTATION DEPARTMENT AND IS LOCATED IN THE CITY OF ANN ARBOR (CITY).
2. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 2024 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND ITS DETAILS WHICH ARE INCLUDED BY REFERENCE.
3. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT. THE WORK SHALL BE PERFORMED IN COMPLETE CONFORMANCE WITH THE CURRENT PUBLIC SERVICES STANDARD SPECIFICATIONS AND DETAILS.
4. DRIVEWAYS AND ENTRANCES TO BUILDINGS, REAL PROPERTY, AND THE LIKE SHALL NOT BE BLOCKED EXCEPT FOR SHORT DURATIONS AND ONLY WHEN APPROVED BY THE ENGINEER. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL NECESSARY DRIVEWAY CLOSURES WITH THE PROPERTY OWNER(S) AND RESIDENT(S) IN THE AREAS OF CONSTRUCTION.
5. THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND SERVICE LEADS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. LOCATION AND DEPTH OF UTILITIES AS DEPICTED ON THE PLANS IS APPROXIMATE AND SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE AHEAD AND ADJUST DEPTH OF CONFLICT UTILITIES ACCORDINGLY. ANY DAMAGE TO UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY TO AVOID AND/OR REPAIR AS NECESSARY.
7. THE CONTRACTOR IS TO TAKE SPECIAL CARE TO PROTECT THE EXISTING WATER MAIN AND BE RESPONSIBLE FOR MAINTAINING CONSISTENT WATER SERVICE.
8. DURING NON-WORKING HOURS, NO TRENCH SHALL REMAIN OPEN; ANY OPEN TRENCH SHALL BE PROPERLY SECURED WITH PROTECTIVE FENCING.
9. FOR THE INSTALLATION OF CORPORATIONS, OR ANY OTHER RELATED ACTIVITIES, THE CONTRACTOR SHALL NOT RECEIVE ADDITIONAL COMPENSATION FOR DELAYS DUE TO THE SCHEDULING OF OR COORDINATION WITH THE CITY OF ANN ARBOR FIELD SERVICES.
10. THE CONTRACTOR SHALL BACKFILL TRENCHES IN ACCORDANCE WITH TRENCH DETAIL SPECIFIED ON PLANS. ALL CONCRETE REMOVALS AND REPLACEMENTS REQUIRED FOR THIS WORK WILL BE PAID FOR SEPARATELY.
11. POSTAL DELIVERY AND REFUSE PICKUP SERVICE SHALL BE MAINTAINED AT ALL TIMES BY THE CONTRACTOR.
12. ALL LIGHT POLES, LUMINAIRES, SIGNS, FITTINGS, HYDRANTS, VALVES AND CASTINGS REMOVED DURING CONSTRUCTION ARE THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR WITHIN 48 HOURS SHALL DELIVER TO CITY OF ANN ARBOR FIELD OPERATIONS AND MAINTENANCE FACILITY AT THE W.R. WHEELER SERVICE CENTER LOCATED AT 4251 STONE SCHOOL ROAD.
13. WHERE STREET CURBS ARE UNDERMINED DUE TO CONSTRUCTION ACTIVITIES, THEY SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY ROAD SURFACE AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE FULL COMPLETION OF THE PROJECT.
15. ALL NEW AND EXISTING STORM INLETS WITHIN THE PROJECT SHALL HAVE INLET FILTER PROTECTION FOR THE DURATION CONSTRUCTION.
16. ALL CURB, SIDEWALK, DRIVEWAY APPROACH REMOVALS SHALL BE APPROVED BY ENGINEER BEFORE THE WORK IS DONE.
24. THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER.
25. FOR MAINLINE PAVING, THE WIDTH OF THE MAT FOR EACH PASS OF THE PAVER SHALL BE NOT LESS THAN 10.5' OR GREATER THAN 15', AS DIRECTED BY THE ENGINEER. THE ENGINEER WILL DIRECT THE LAYOUT OF THE LONGITUDINAL JOINTS DURING CONSTRUCTION.
26. ALL STRUCTURES SHALL RECEIVE NEW CASTINGS AS DIRECTED BY THE ENGINEER, AS SPECIFIED ON THE STANDARD CASTING SCHEDULE. THE EXISTING CASTINGS ARE THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL DELIVER TO CITY OF ANN ARBOR FIELD OPERATIONS AND MAINTENANCE FACILITY AT THE W.R. WHEELER SERVICE CENTER LOCATED AT 4251 STONE SCHOOL ROAD. STRUCTURES SHALL BE ADJUSTED AS DIRECTED BY ENGINEER.
27. PAYMENT FOR DRAINAGE STRUCTURE SUMPS, WHERE SPECIFIED, SHALL BE INCLUDED IN THE PAYMENT FOR THE VARIOUS DRAINAGE STRUCTURE SIZES AND OR TYPES.
28. EXISTING STREET NAME, GUIDE, AND REGULATORY SIGNS, AND MAILBOXES WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED PRIOR TO CONSTRUCTION, STORED IN A MANNER WHICH WILL PREVENT DAMAGE, AND RE-SET IN LOCATIONS AS DIRECTED BY THE ENGINEER.
29. PAVEMENT MARKINGS DISTURBED AS A RESULT OF PAVEMENT CUTS OR CONSTRUCTION ACTIVITIES SHALL BE REPLACED AS DIRECTED BY PROJECT MANAGEMENT. REPLACEMENT DURING CONSTRUCTION OF THE PROJECT MAY BE CONSIDERED TEMPORARY, WITH FINAL PAVEMENT MARKING RESTORATION TO OCCUR AT THE END OF THE PROJECT.
30. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING PUBLIC ROAD PAVEMENT. DAMAGE TO THE PUBLIC ROAD PAVEMENT DURING THE COURSE OF CONSTRUCTION MAY NECESSITATE MILLING AND RESURFACING OF THE DAMAGED AREAS PRIOR TO ACCEPTANCE.
31. ACCESS TO ALL RESIDENTIAL AND COMMERCIAL DRIVEWAYS MUST BE MAINTAINED AT ALL TIMES.
32. ALL TRAFFIC CONTROL DEVICES AND THEIR USAGE MUST CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD), 2011 EDITION.
33. DURING THE LANE CLOSURES, ACCESS FOR EMERGENCY VEHICLES (FIRE, AMBULANCE, POLICE) MUST BE MAINTAINED TO ADJACENT HOMES, BUSINESSES, AND SUBDIVISIONS AT ALL TIMES.
34. ALL EXISTING PAVEMENT MARKINGS THAT ARE REMOVED FOR TRAFFIC CONTROL OR OBLITERATED DURING CONSTRUCTION OPERATIONS MUST BE REPLACED WITH WATERBORNE MARKINGS.THIS INCLUDES THE SPECIAL MARKINGS – OVERLAY COLD PLASTIC – (SPECIAL EMPHASIS CROSSWALK ARROWS, 24 INCH STOP BAR).
35. ANY MDOT SIGNS THAT ARE REMOVED FOR TRAFFIC CONTROL OR OBLITERATED DURING CONSTRUCTION OPERATIONS MUST BE REPLACED IN KIND ON NEW SUPPORTS.
36. ALL SIGN MATERIALS AND SUPPORTS MUST MEET NCHRP-350 CRASH WORTHY REQUIREMENTS.
37. CONTRACTOR SHALL NOT STORE OR PLACE EQUIPMENT AND/OR MATERIALS INSIDE DRIP LINE OF ANY CITY TREE. MECHANICAL DAMAGE TO CITY OWNED TREES (I.E. BARK DAMAGE, BRANCH BREAKAGE) IS NOT PERMITTED. CONTRACTOR IS RESPONSIBLE FOR PROPERLY PRUNING TREES TO PREVENT DAMAGE. IF BRANCHES GREATER THAN 2" IN DIAMETER REQUIRE PRUNING, CONTRACTOR TO CONTACT FORESTRY FOR CONSULTATION AND EVALUATION AT (734) 794-6320. NO ROOTS OF THE CITY-OWNED TREES GRATER THAN 2 INCHES IN DIAMETER ARE TO BE CUT. IF CONTRACTOR ENCOUNTERS CITY-OWNED TREES WITH ROOTS GREATER THAN 2 INCHES IN DIAMETER THAT THEY DETERMINE NEED TO BE CUT. CONTACT FORESTRY IMMEDIATELY FOR EVALUATION. ALL TRENCHING AND BORE PITS OF ANY KIND SHALL BE CLEAR OF TREE DRIP LINES. IF ANY CITY-OWNED STREET TREES ARE DAMAGED BY THIS WORK, THE CONTRACTOR MUST CONTACT FORESTRY AS SOON AS POSSIBLE SO THAT THE DAMAGE CAN BE ASSESSED. CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH DAMAGE REMEDIATION.
38. PAVEMENT REMOVAL LIMITS TO BE DISCUSSED AND APPROVED BY ENGINEER PRIOR TO WORK BEING DONE. DURING UTILITY CONSTRUCTION ONLY REMOVE PAVEMENT NEEDED FOR INSTALLATION.

S.E.S.C. NOTES

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:
NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
4. EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.
5. ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.
6. RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE.
7. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.
8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLATIVE AS REQUIRED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.
11. THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.
12. TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.

SEQUENCE OF EROSION CONTROL MEASURES:

1. THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.

SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

1.1. INSTALL SILT FENCE, TREE PROTECTION FENCING, MUD MATS, INLET FILTERS ON EXISTING DRAINAGE FEATURES, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.
1.2. STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.
1.3. PERFORM ALL CURB AND GUTTER AND PAVEMENT REMOVALS IN ACCORDANCE WITH CONSTRUCTION SEQUENCE CONTAINED WITHIN THE SPECIAL PROVISION FOR MAINTAINING TRAFFIC.
1.4. INSTALL STORM SEWERS AND OTHER ENCLOSED DRAINAGE FEATURES IN ACCORDANCE WITH CONSTRUCTION SEQUENCE CONTAINED WITHIN THE SPECIAL PROVISION FOR MAINTAINING TRAFFIC. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS AND CATCH BASINS.
1.5. PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.) IN ACCORDANCE WITH CONSTRUCTION SEQUENCE CONTAINED WITHIN THE SPECIAL PROVISION FOR MAINTAINING TRAFFIC.
1.6. CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.
1.7. COMPLETE ALL DITCH GRADING AND FINE GRADING.
1.8. RESTORE ALL DISTURBED AREAS IN ACCORDANCE WITH SLOPE RESTORATION SPECIAL PROVISION.
1.9. REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.
1.10. ALL TEMP. SOIL EROSION CONTROL MEASURES MUST BE REMOVED WITH ENGINEERS APPROVAL PRIOR TO FINAL INSPECTION

NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT, AND APPROVAL.

TRAFFIC SIGNAL

- ANTENNA
- CASE SIGN, 1-WAY - EXISTING
- CASE SIGN, 1-WAY
- CASE SIGN, 2-WAY - EXISTING
- CASE SIGN, 2-WAY
- CASE SIGN, 3-WAY - EXISTING
- CASE SIGN, 3-WAY
- CASE SIGN, 4-WAY - EXISTING
- CASE SIGN, 4-WAY
- DEDICATED SHORT RANGE COMMUNICATIONS
- CONTROLLER CABINET - PAD MOUNTED
- CONTROLLER CABINET - POLE MOUNTED
- CONTROL EMERGENCY PREEMPTION OPTICOM
- DILEMMA ZONE DETECTION
- GLOBAL POSITIONING SYSTEM MODULE
- HANDHOLE - 2 FOOT ROUND
- HANDHOLE - 2 FOOT SQUARE
- HANDHOLE - 3 FOOT ROUND
- HANDHOLE - 4 FOOT SQUARE
- HANDHOLE - POLYMER CONCRETE
- PEDESTAL
- PEDESTRIAN PUSHBUTTON
- POLE MAST ARM (LENGTH VARIES) - EXISTING
- POLE MAST ARM (LENGTH VARIES)
- POLE STRAIN
- POLE WOOD
- ROAD SIGN W/ FLASHING SIGN OPTICAL (1-WAY)
- SIGNAL HEAD PEDESTRIAN - EXISTING
- SIGNAL HEAD PEDESTRIAN 1-WAY
- SIGNAL HEAD PEDESTRIAN 2-WAY
- SIGNAL HEAD VEHICLE 1-WAY - EXISTING
- SIGNAL HEAD VEHICLE 1-WAY
- SIGNAL HEAD VEHICLE 2-WAY - EXISTING
- SIGNAL HEAD VEHICLE 2-WAY
- SIGNAL HEAD VEHICLE 3-WAY - EXISTING
- SIGNAL HEAD VEHICLE 3-WAY
- SIGNAL HEAD VEHICLE 4-WAY - EXISTING
- SIGNAL HEAD VEHICLE 4-WAY
- SIGNAL HEAD VEHICLE BAGGED
- SIGNAL HEAD VEHICLE PROGRAMMABLE
- VEHICLE DETECTION CAMERA
- VEHICLE DETECTION CAMERA - HEMISPHERICAL
- VEHICLE DETECTION LOOP
- VEHICLE DETECTION - RADAR
- WIRELESS VEHICLE DETECTION RADIO RECEIVER
- WIRELESS VEHICLE DETECTION RADIO REPEATER
- WIRELESS VEHICLE DETECTION SENSOR - EXISTING
- WIRELESS VEHICLE DETECTION SENSOR

CABLING / WIRING DIAGRAM

- CIRCUIT BREAKER
- COILED WIRE
- FUSE
- FUSE SWITCH
- GROUND
- ILLUMINATED CASE SIGN
- METER
- SERVICE DISCONNECT
- SIGNAL HEAD

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
PUBLIC WORKS MANAGER	CITY OF ANN ARBOR 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	PAUL MATTHEWS (734) 794-6350
ENGINEERING	CITY OF ANN ARBOR 301 E. HURON STREET ANN ARBOR, MI 48104	(734) 794-6410
TRAFFIC SIGNS, MARKINGS AND SIGNALS	CITY OF ANN ARBOR 301 E. HURON STREET ANN ARBOR, MI 48104	CYNTHIA REDINGER (734) 794-6410 x43632

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

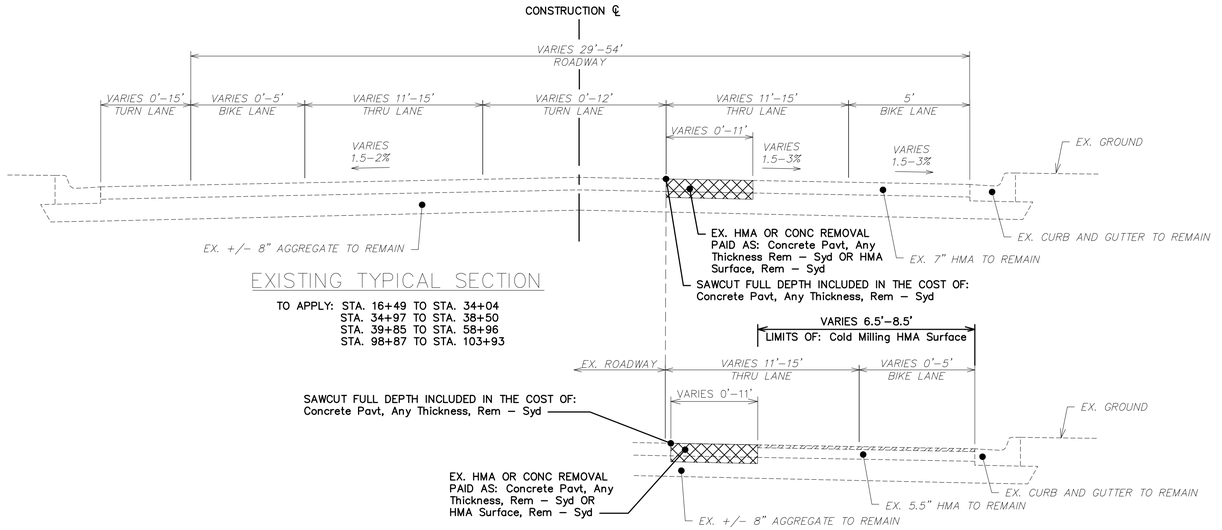
PROJECT NOTES

SCALE: NOT TO SCALE

DRAWING No. 20230643-NT01

SHEET No. 98

v:\2023\20230643\V\Sheets\nt01.dwg Dwg Created: 14-Mar-24 - a2 standard bw.stb - Plot Date: 29-Apr-24

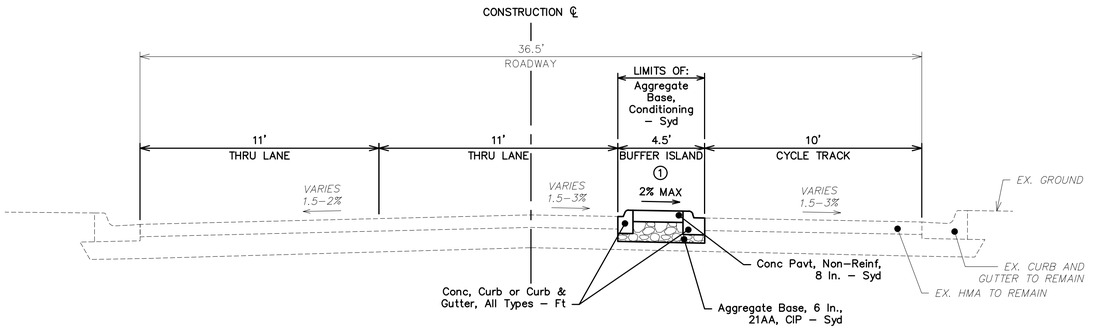


EXISTING TYPICAL SECTION

TO APPLY: STA. 16+49 TO STA. 34+04
STA. 34+97 TO STA. 38+50
STA. 39+85 TO STA. 58+96
STA. 98+87 TO STA. 103+93

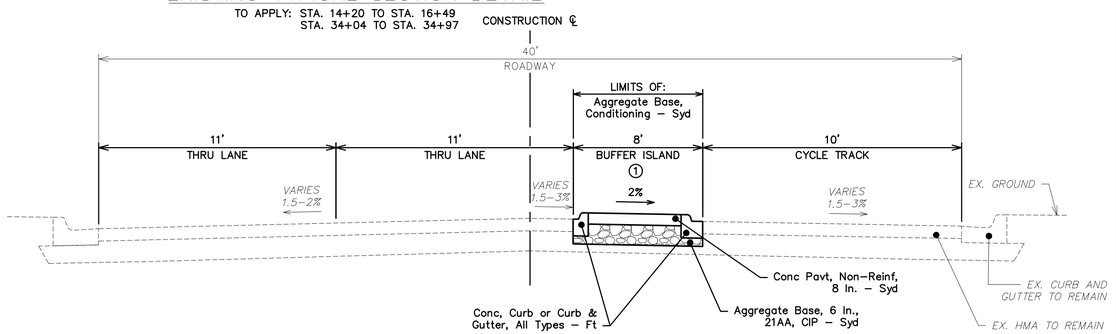
EXISTING TYPICAL SECTION DETAIL

TO APPLY: STA. 14+20 TO STA. 16+49
STA. 34+04 TO STA. 34+97



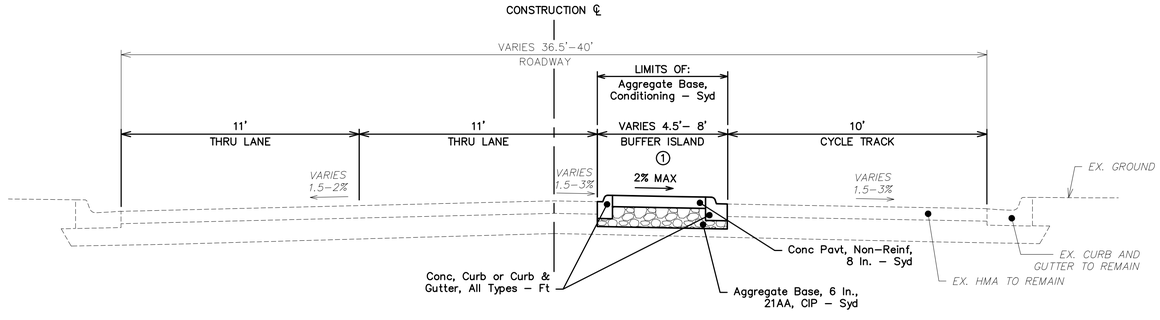
PROPOSED TYPICAL SECTION

TO APPLY: STA. 17+02 TO STA. 21+05



PROPOSED TYPICAL SECTION

TO APPLY: STA. 21+98 TO STA. 33+30
STA. 40+09 TO STA. 42+71



PROPOSED TYPICAL SECTION

TO APPLY: STA. 21+35 TO STA. 21+67
STA. 33+61 TO STA. 33+72

NOTES:

① SEE PLANS FOR EXACT LIMITS OF BUFFER.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

Know what's below. Call before you dig. 811

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

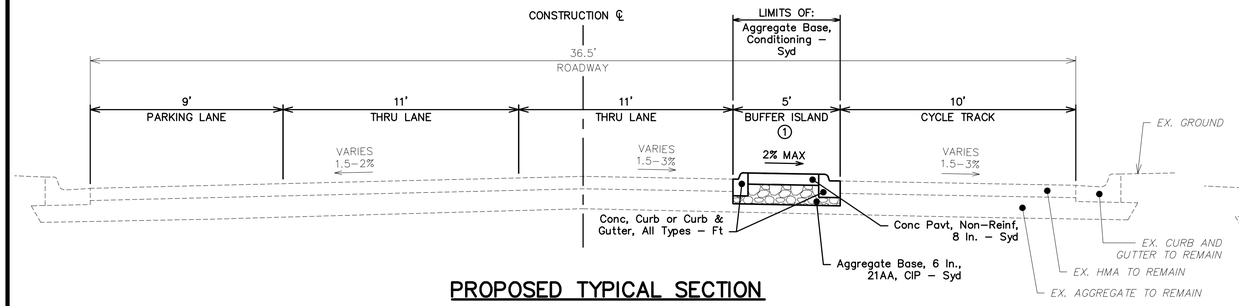
TYPICAL SECTIONS

SCALE: NOT TO SCALE

DRAWING No. 20230643-TYP01

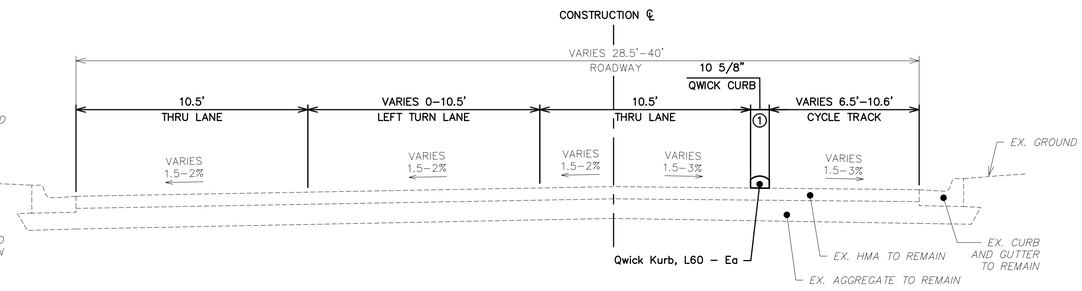
SHEET No. 99

V:\20230\20230643\V\Sheets\typ01.dwg Dwg Created: 24-Apr-24 — _a2 standard bw.stb — Plot Date: 29-Apr-24



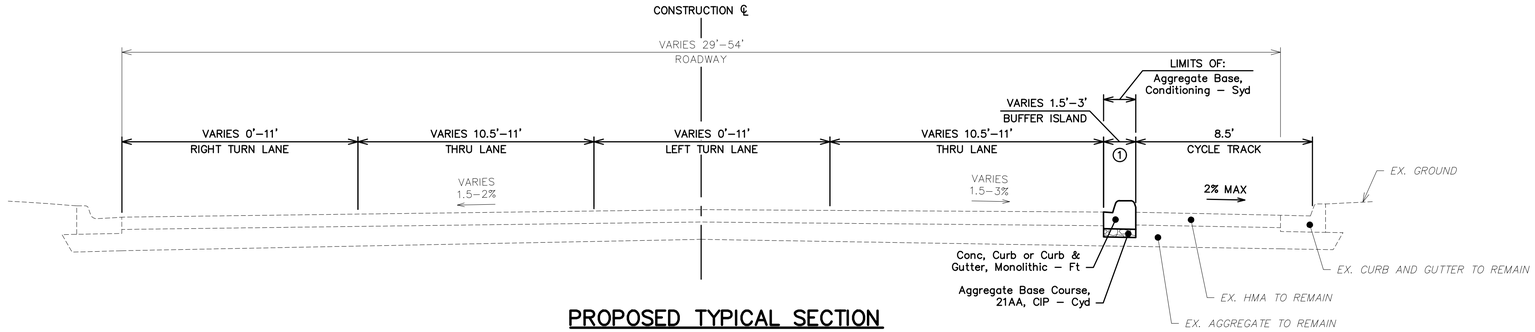
PROPOSED TYPICAL SECTION

TO APPLY: STA. 35+85 TO STA. 38+50



PROPOSED TYPICAL SECTION

TO APPLY: STA. 43+09 TO STA. 58+96
STA. 98+87 TO STA. 103+93



PROPOSED TYPICAL SECTION

TO APPLY: STA. 34+04 TO STA. 34+97
STA. 14+20 TO STA. 16+49

NOTES:

① SEE PLANS FOR EXACT LIMITS OF BUFFER.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

Know what's below. Call before you dig. 811

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

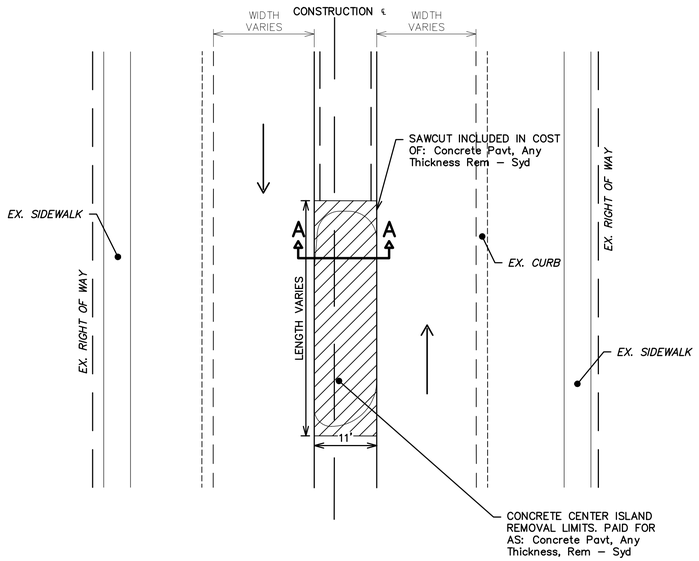
TYPICAL SECTIONS

SCALE : NOT TO SCALE

DRAWING No. 20230643-TYP02

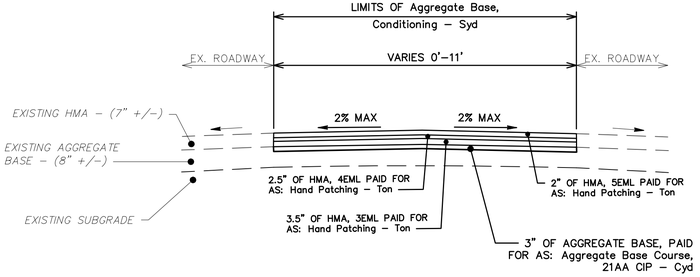
SHEET No. 100

V: \202306\20230643\V\Sheets\typ02.dwg Dwg Created: 6-Mar-24 - _a2 standard bw.stb - Plot Date: 29-Apr-24



EXISTING DETAIL LEGEND

REMOVE CONCRETE PAVEMENT

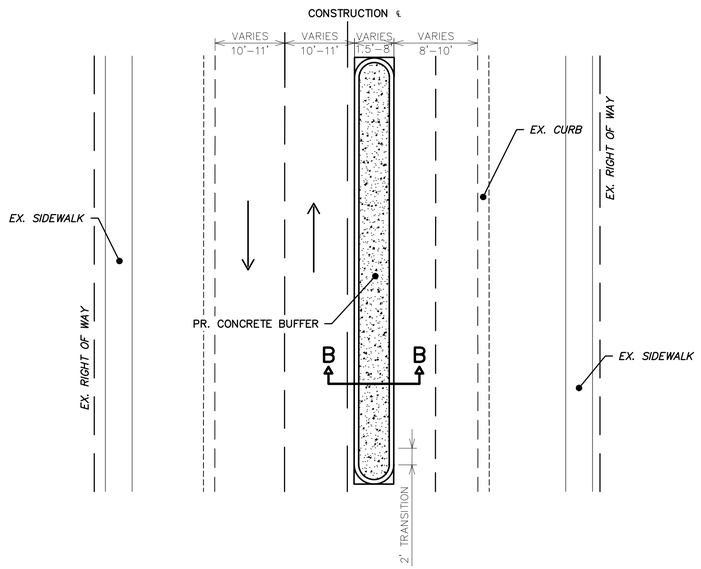


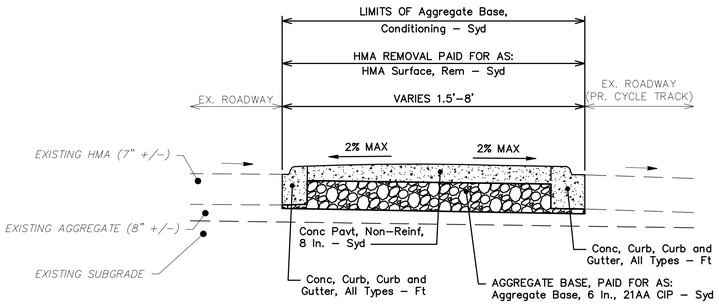
SECTION A–A
NOT TO SCALE

EXISTING PEDESTRIAN ISLAND REMOVAL DETAIL

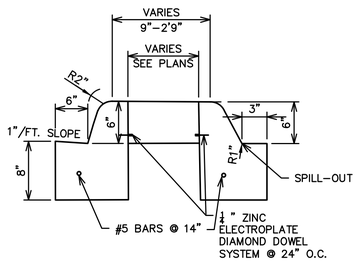
NOT TO SCALE

HMA APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)	AWI (MIN.)	BINDER	LOCATION/NOTES
HAND PATCHING	5EML	220 Lb/Syd	2	220 (TOP)	PG 64–28	TOP COURSE, HAND PATCHING
HAND PATCHING	4EML	275 Lb/Syd	2.5	–	PG 64–28	LEVELING COURSE, HAND PATCHING
HAND PATCHING	3EML	385 Lb/Syd	3.5	–	PG 64–28	BASE COURSE, HAND PATCHING
ASPHALT EMULSION	88–1H	0.05–0.15 GAL/SYD	–	–	–	INCLUDED IN COST OF HMA ITEM





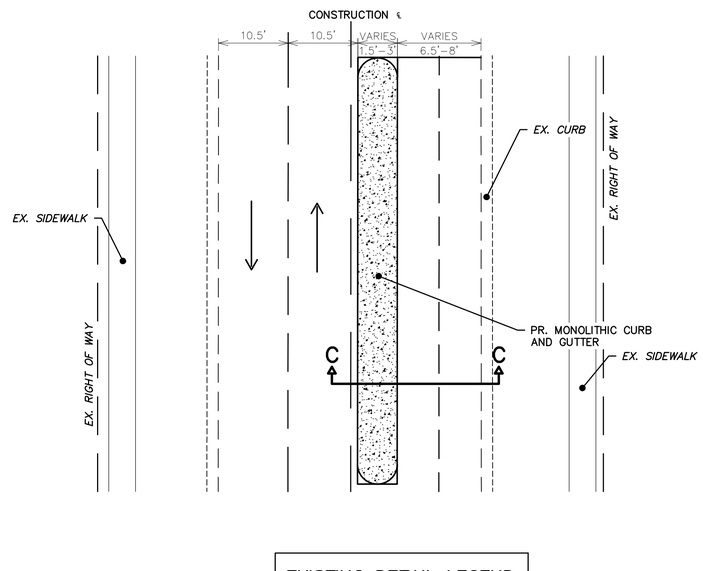
SECTION B–B
NOT TO SCALE



SECTION B–B CURB DIMENSIONS
NOT TO SCALE

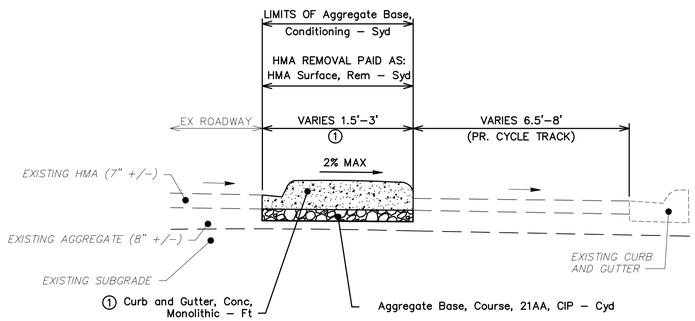
PROPOSED BUFFER ISLAND DETAIL

NOT TO SCALE



EXISTING DETAIL LEGEND

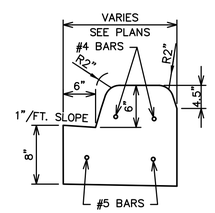
LIMITS OF MILL AND OVERLAY



SECTION C–C
NOT TO SCALE

NOTES:

① CONCRETE CURB TO PITCH AWAY FROM ROADWAY CROWN AT A 2% (MAX) CROSS SLOPE.



SECTION C–C CURB DIMENSIONS
NOT TO SCALE

PROPOSED MONOLITHIC CURB AND GUTTER DETIAL

NOT TO SCALE

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

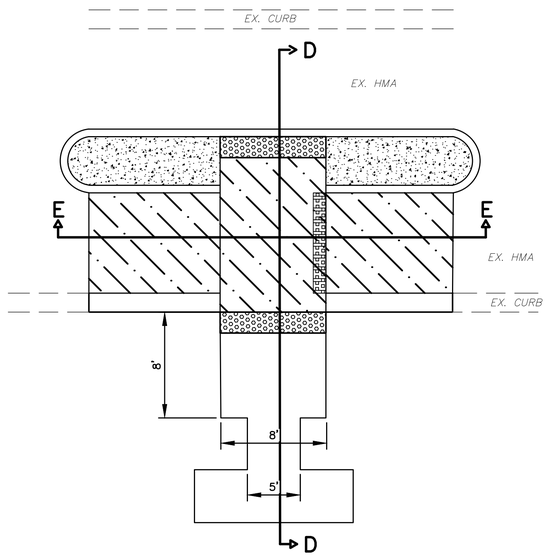
PROJECT DETAILS

SCALE : NOT TO SCALE

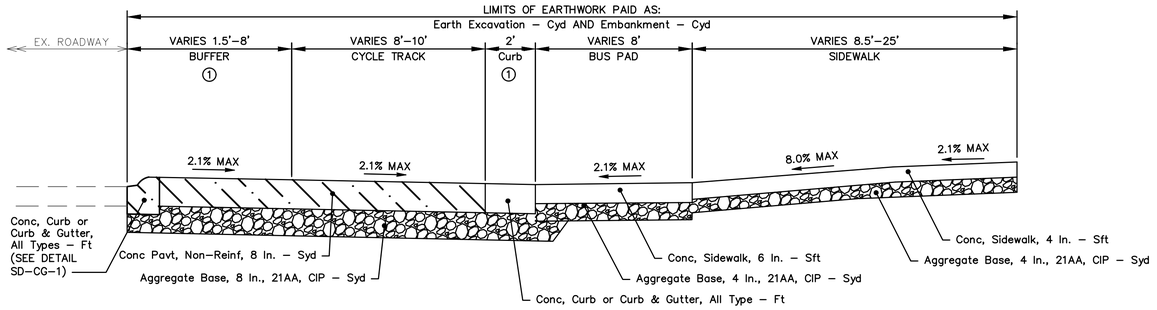
DRAWING No. 20230643-DT01

SHEET No. 101

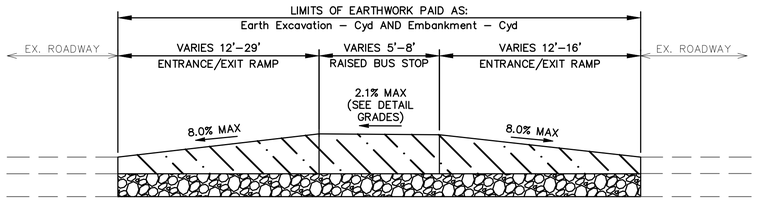
V:\20306\20230643\V\Sheets\dt01.dwg Dwg Created: 25-Apr-24 — _02 standard bw.stb — Plot Date: 29-Apr-24



PLAN VIEW
NOT TO SCALE



SECTION D–D
NOT TO SCALE



SECTION E–E
NOT TO SCALE

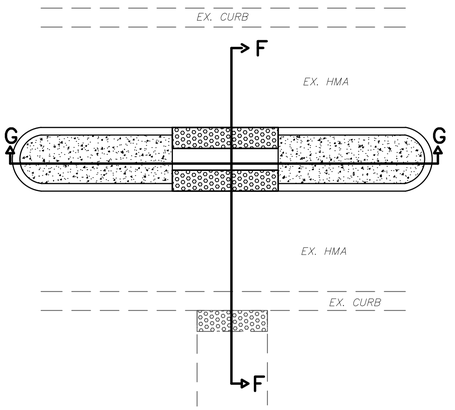
RAISED CONCRETE BUS STOP DETAIL

NOT TO SCALE

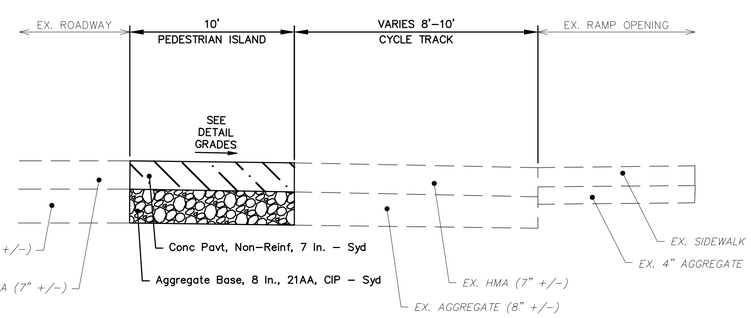
TO APPLY: STA. 25+69 TO STA. 26+61
STA. 42+14 TO STA. 42+71
STA. 98+87 TO STA. 99+23

NOTES:

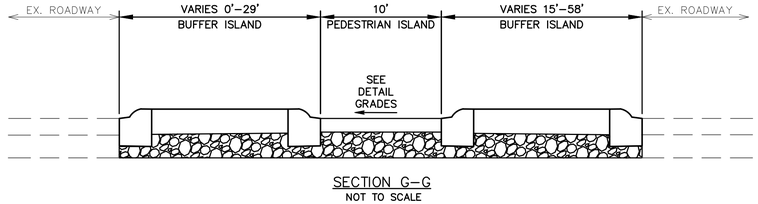
① CONCRETE CURB AND GUTTER TO SLOPE UP WITH CONCRETE SECTION. SEE DETAIL GRADES.



PLAN VIEW
NOT TO SCALE



SECTION F–F
NOT TO SCALE



SECTION G–G
NOT TO SCALE

PEDESTRIAN ISLAND DETAIL

NOT TO SCALE

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

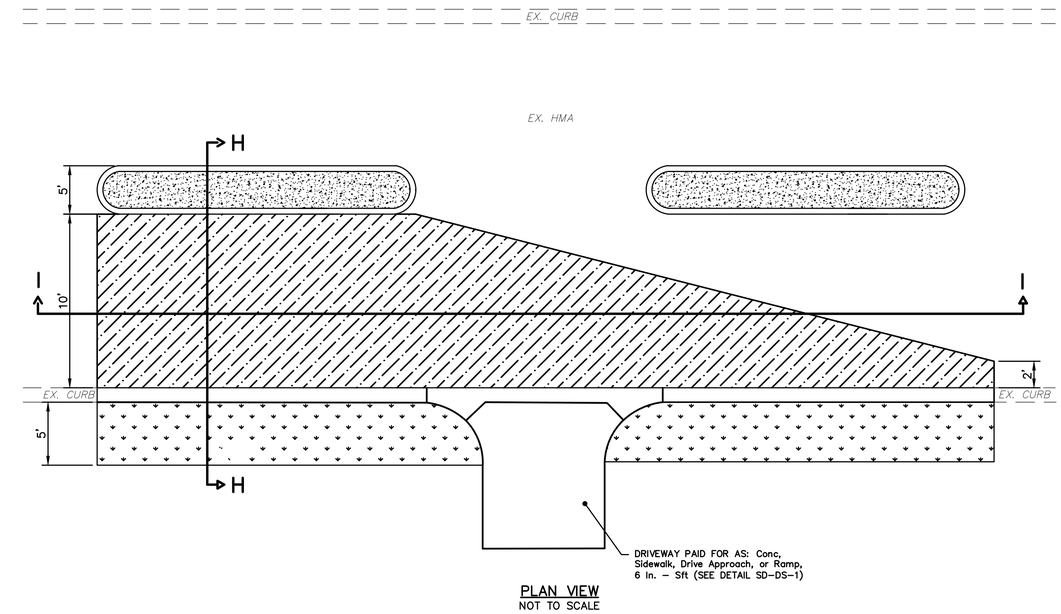
MILLER ROAD CYCLE TRACK

PROJECT DETAILS

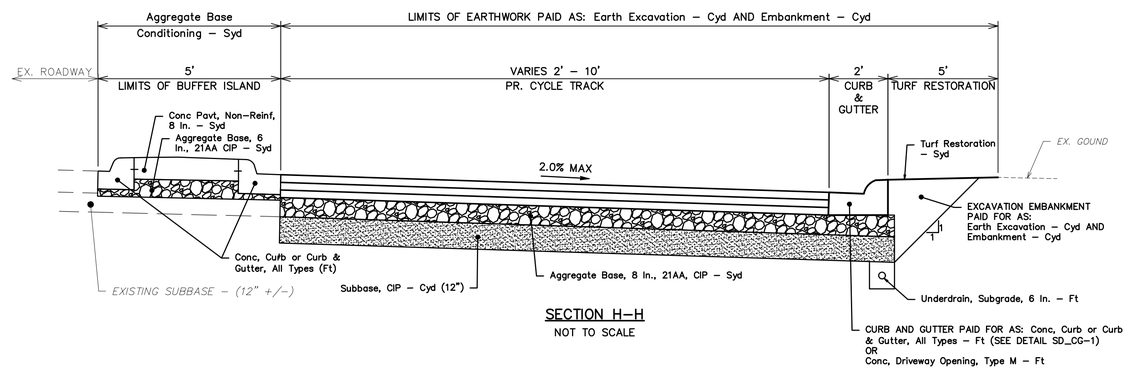
SCALE: NOT TO SCALE

DRAWING No. 20230643-DT02

SHEET No. 102



PLAN VIEW
NOT TO SCALE



SECTION H–H
NOT TO SCALE

SECTION I–I
NOT TO SCALE

CURB ALIGNMENT RECONSTRUCT

NOT TO SCALE

TO APPLY: STA. 38+80 TO STA. 39+85

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

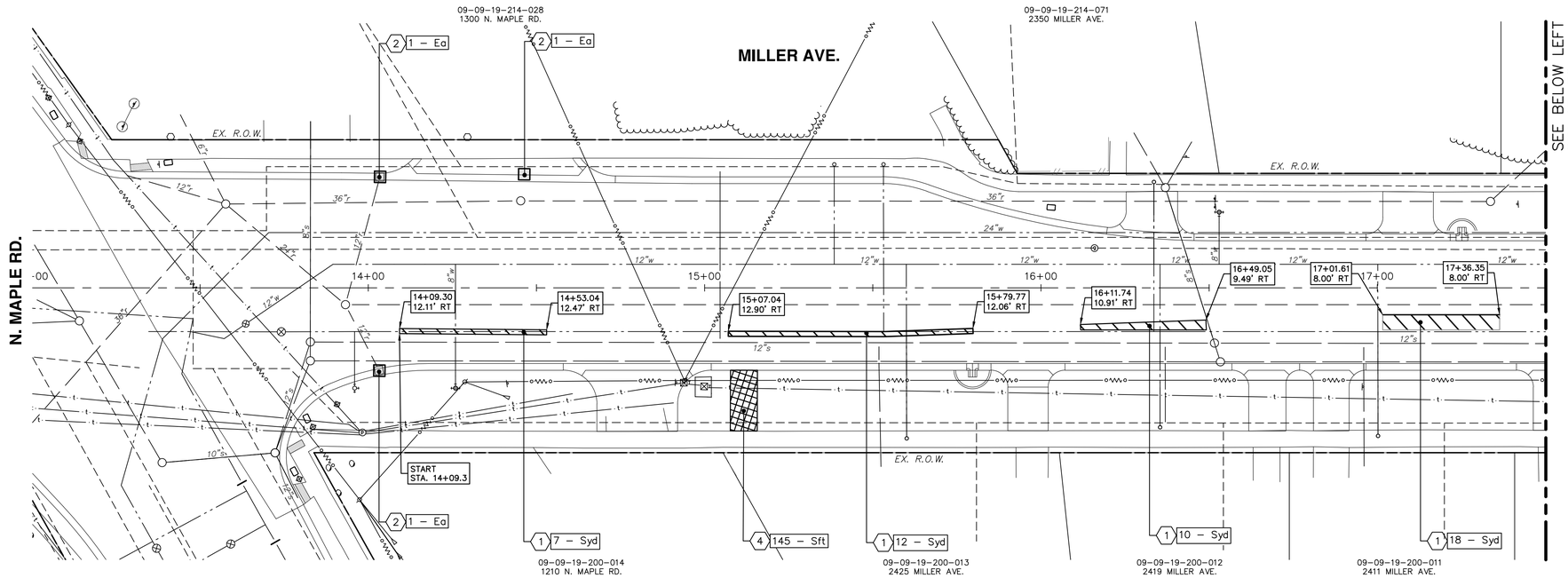
MILLER ROAD CYCLE TRACK

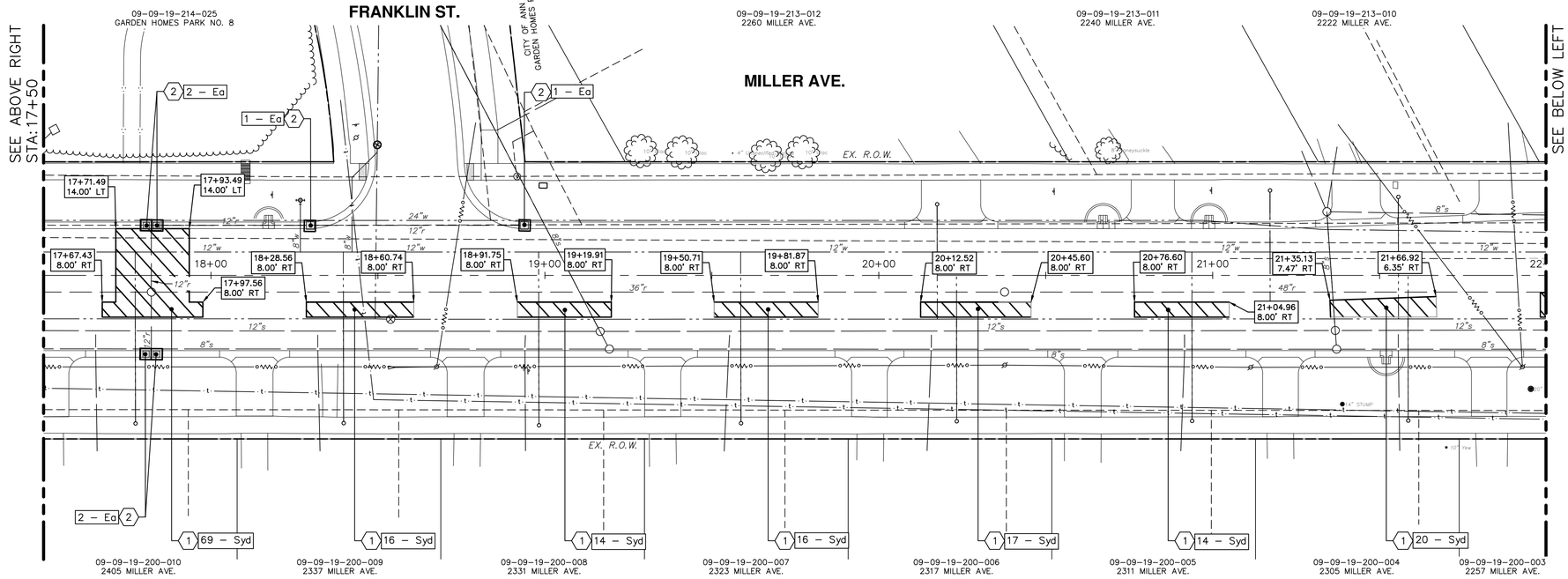
PROJECT DETAILS

SCALE : NOT TO SCALE

DRAWING No. 20230643-DT03

SHEET No. 103





CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5	· X X· X X· X X· X X· X X·	Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

811 Know what's **below.** **Call** before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

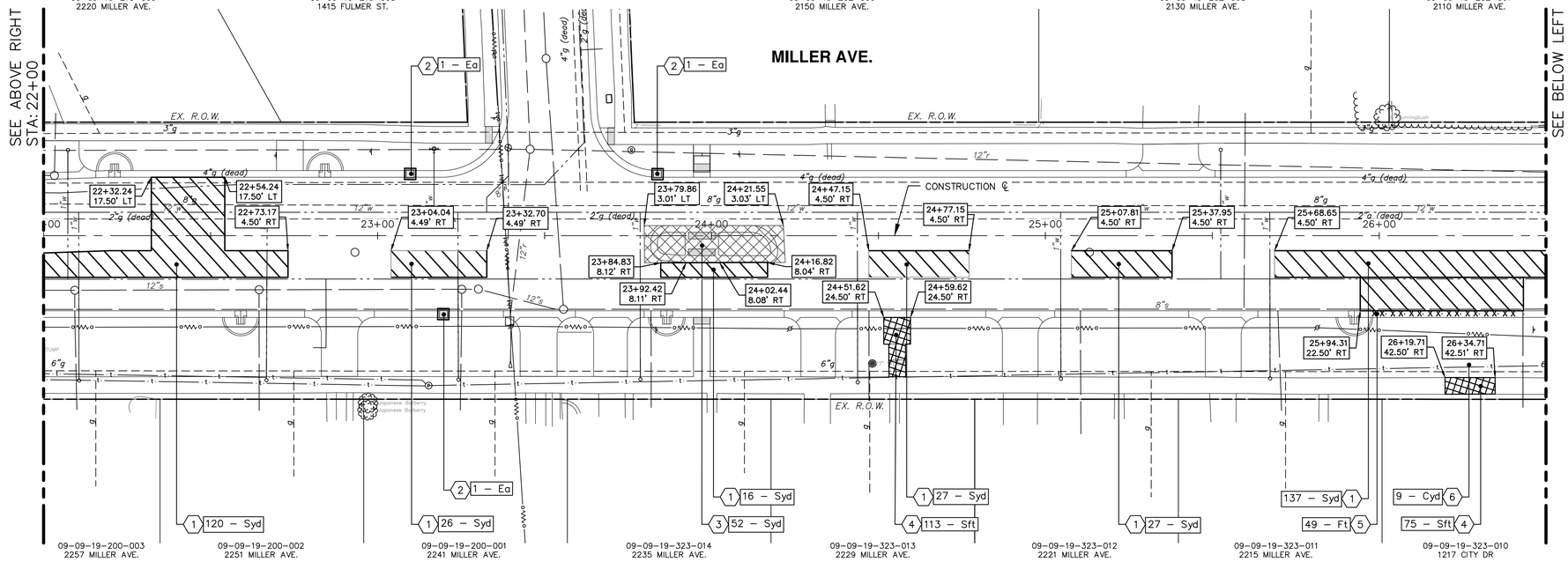
REMOVAL PLAN SHEET

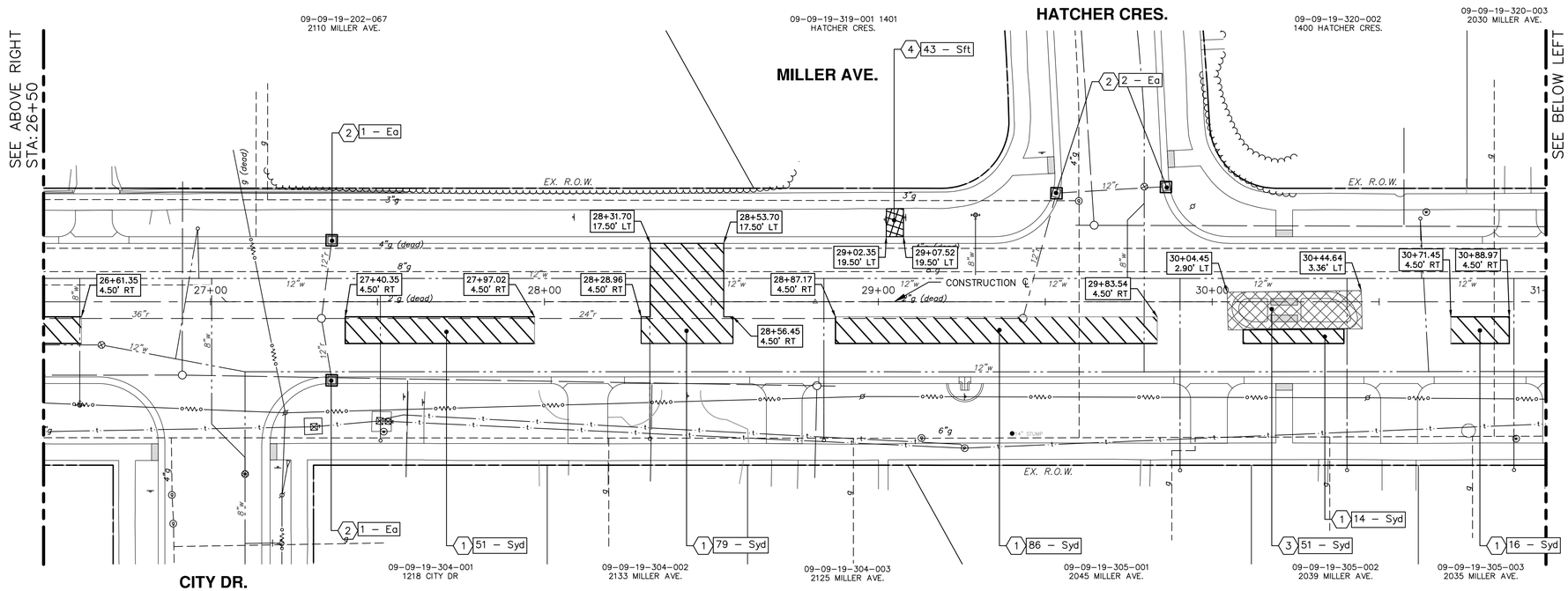
START (STA. 14+09) TO STA. 22+00

SCALE : 1" = 20'

DRAWING No. **20230643-RM01**

SHEET No. 104





CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5	· X X· X X· X X· X X· X X·	Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

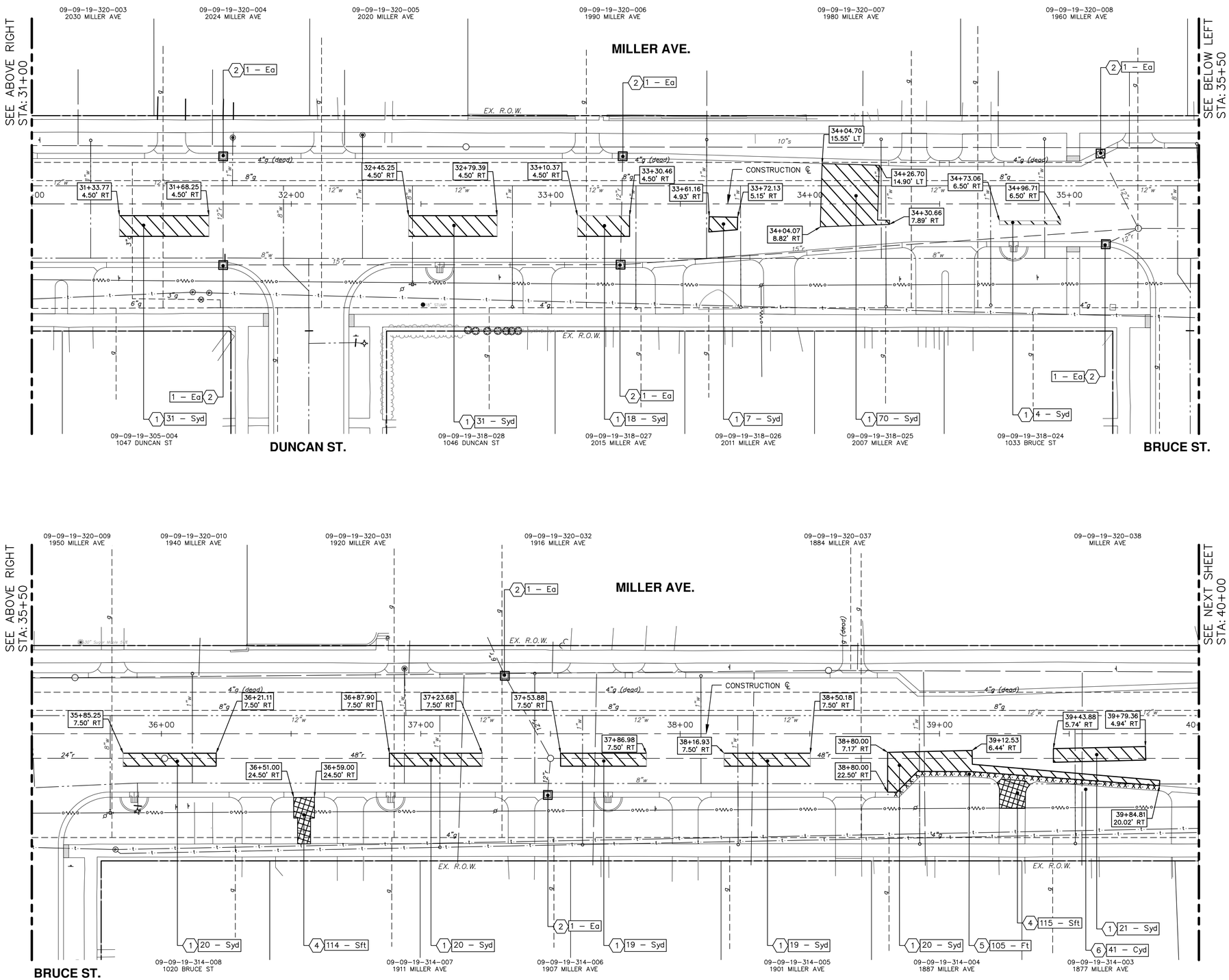
REMOVAL PLAN SHEET

STA. 22+00 TO STA. 31+00

SCALE : 1" = 20'

DRAWING No. 20230643-RM02

SHEET No. 105



CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5		Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

REMOVAL PLAN SHEET

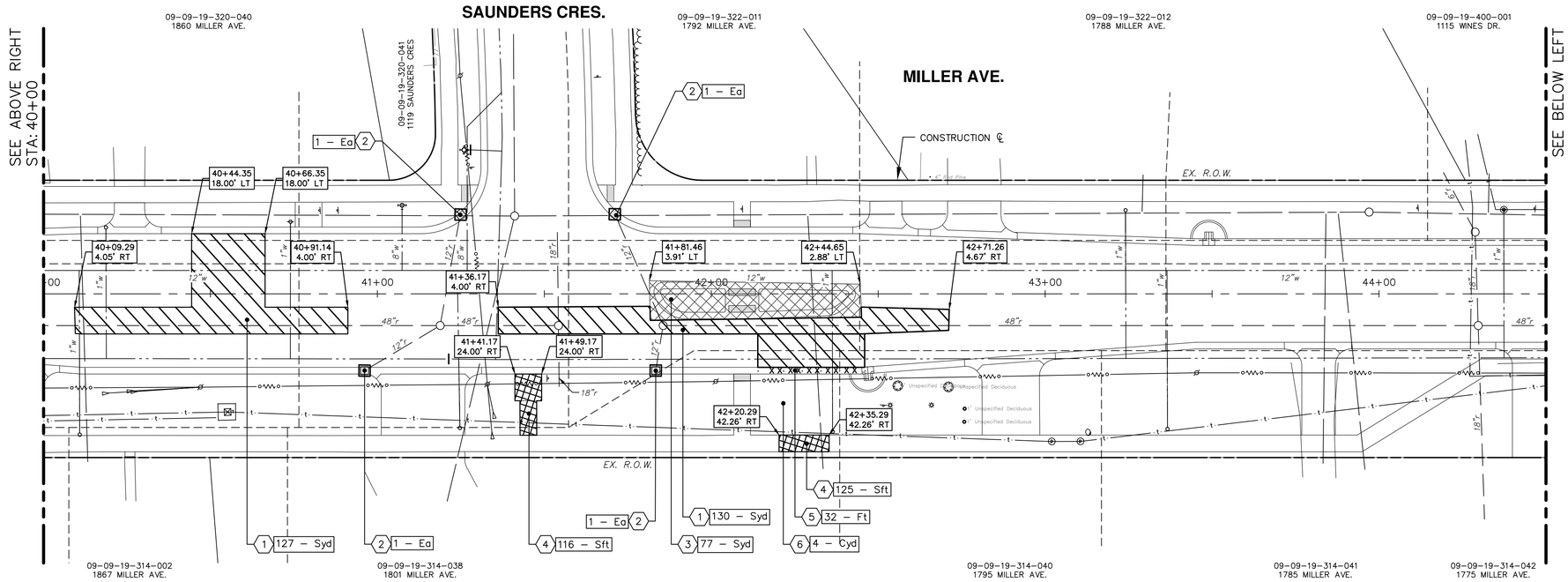
STA. 31+00 TO STA. 40+00

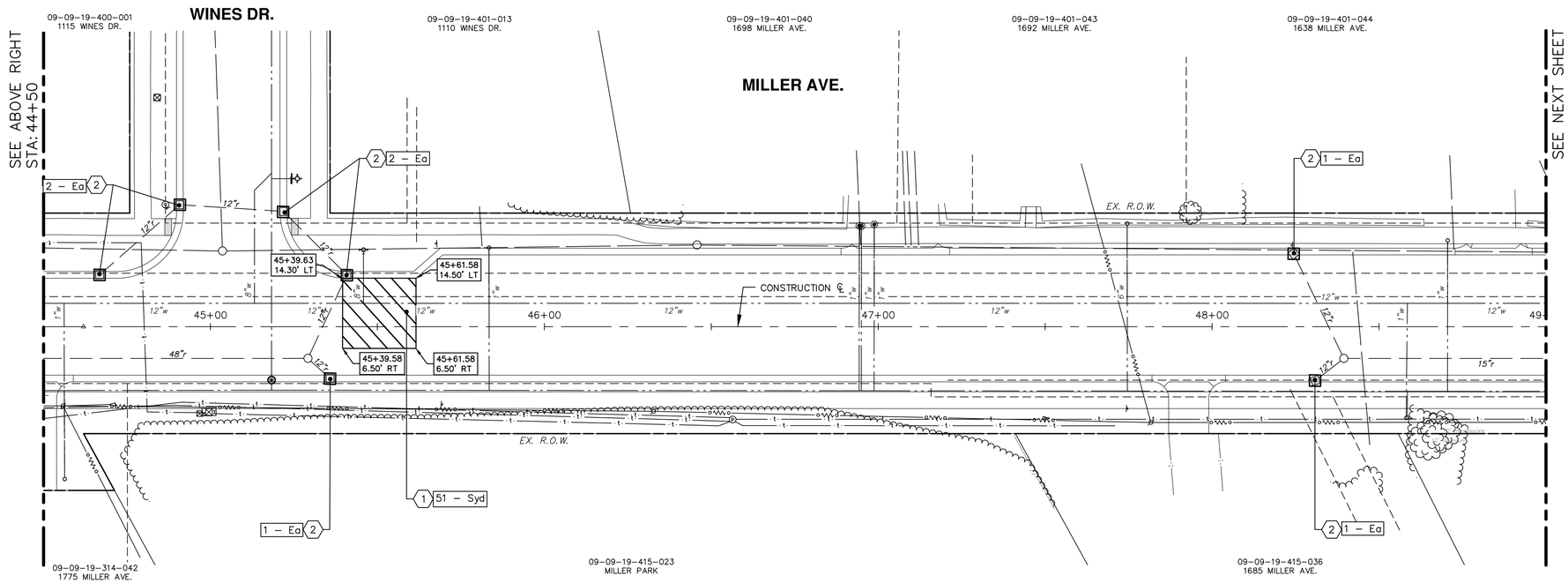
SCALE : 1" = 20'

DRAWING No. **20230643-RM03**

SHEET No. 106

V:\2023\06\20230643\V\Sheets\rm03.dwg Dwg Created: 19-Mar-24 — _a2 standard bw.stb — Plot Date: 29-Apr-24





CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5		Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

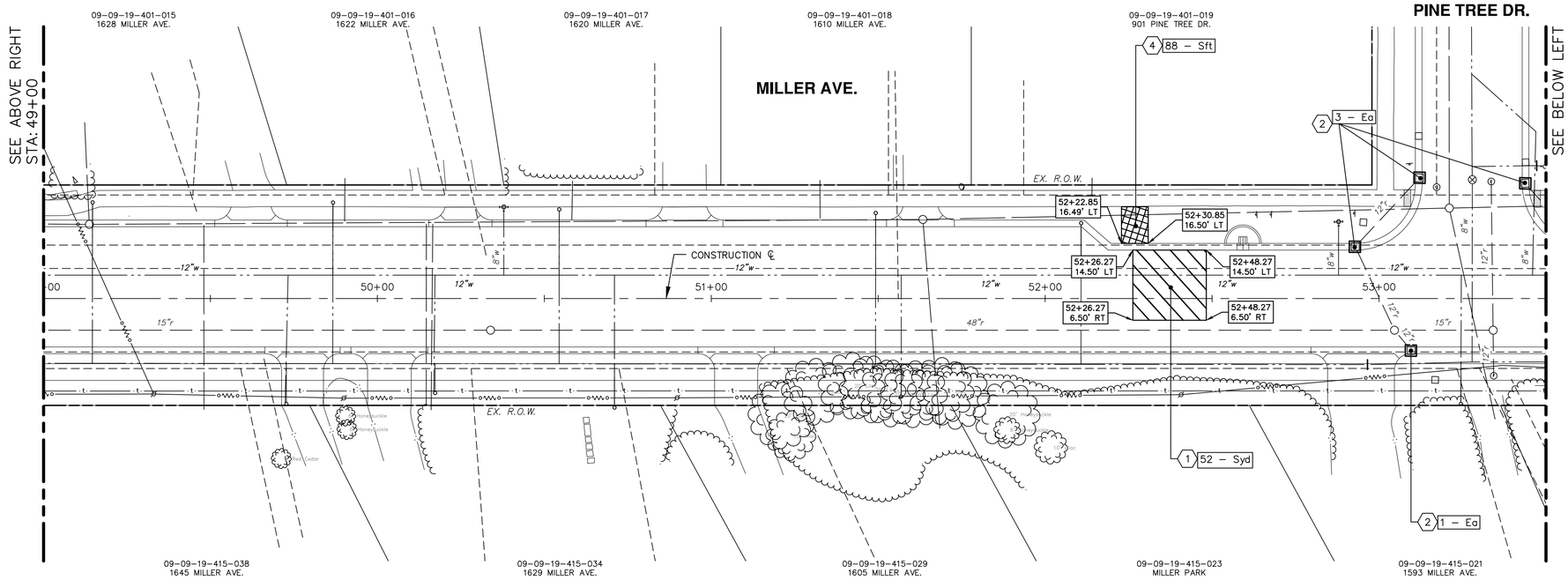
REMOVAL PLAN SHEET

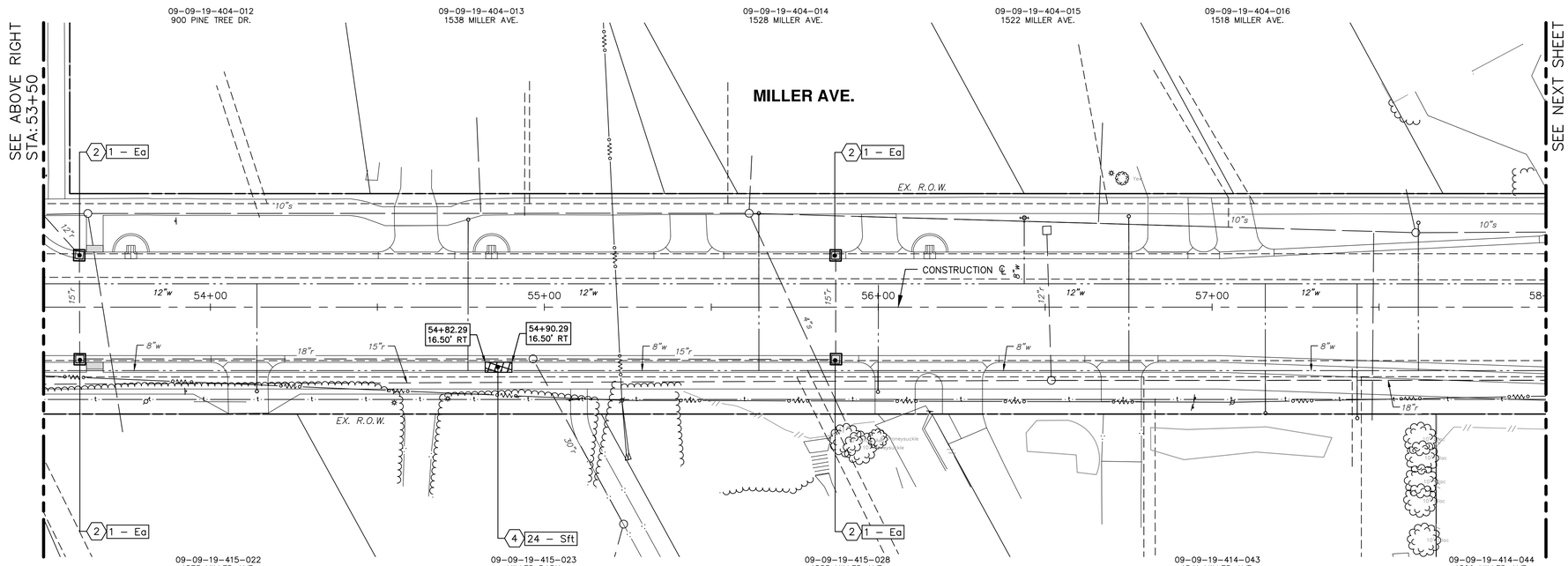
STA. 40+00 TO STA. 49+00

SCALE : 1" = 20'

DRAWING No. 20230643-RM04

SHEET No. 107





CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5	· X X· X X· X X· X X· X X·	Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

811 Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

REMOVAL PLAN SHEET

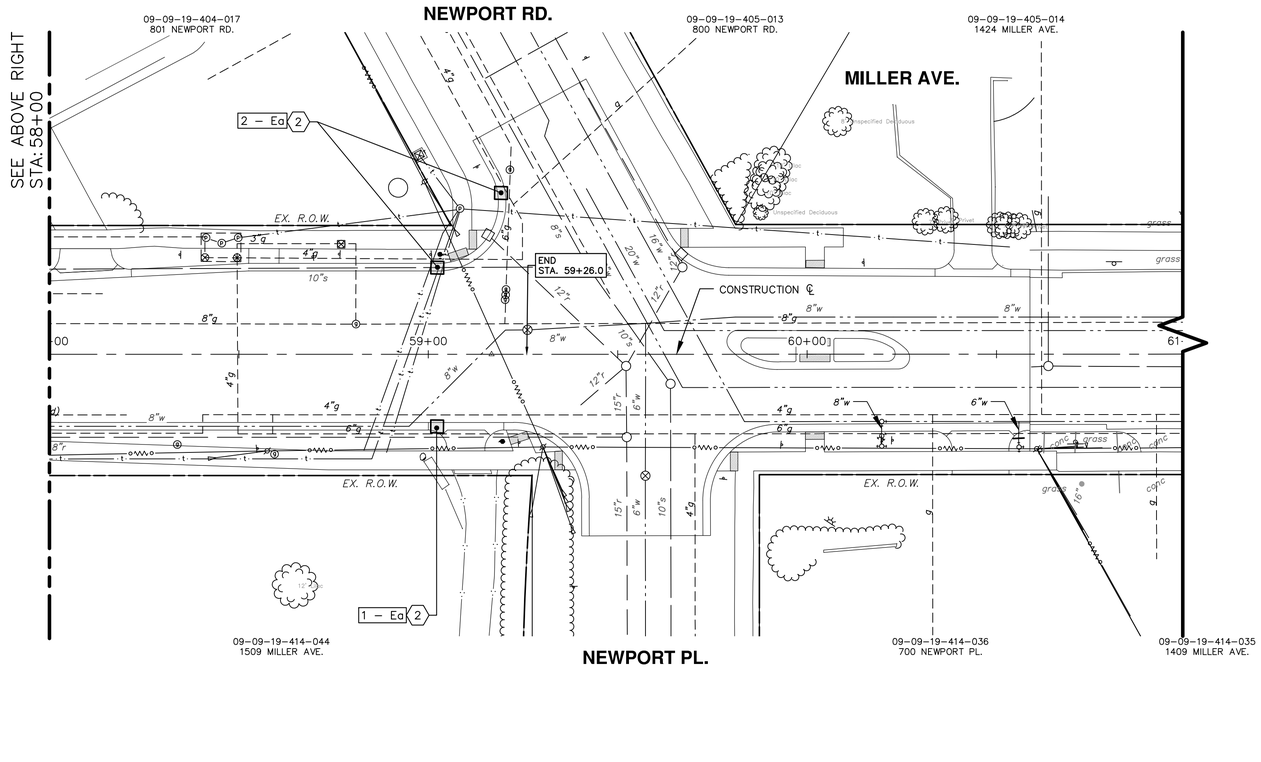
STA. 49+00 TO STA. 58+00

SCALE : 1" = 20'

DRAWING No. 20230643-RM05

SHEET No. 108

V:\2023\06\20230643\V\Sheets\rm05.dwg Dwg Created: 12-Mar-24 — _a2 standard bw.stb — Plot Date: 29-Apr-24



CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5	· X X· X X· X X· X X· X X·	Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/3/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

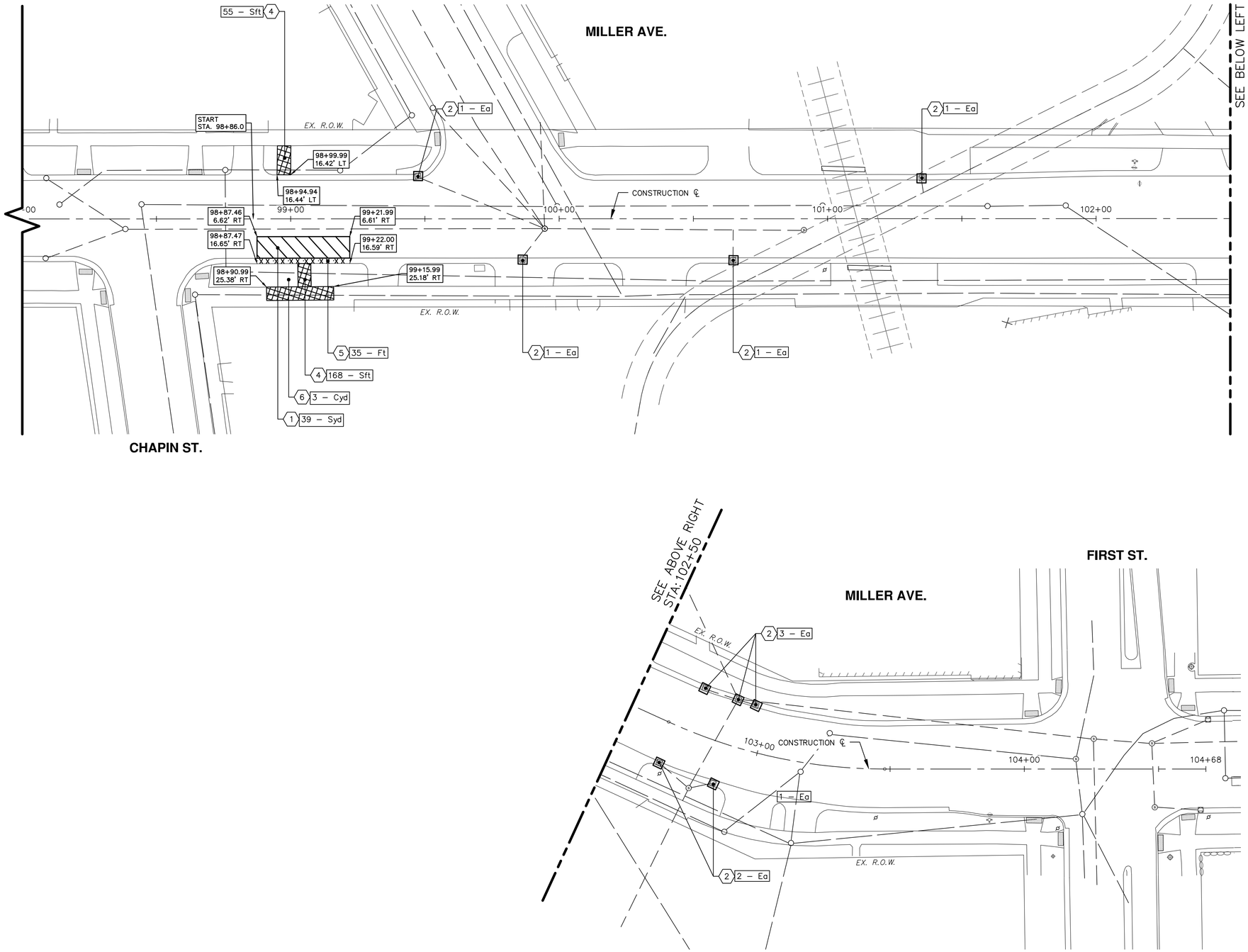
REMOVAL PLAN SHEET

STA. 58+00 TO END (STA. 59+26)

SCALE : 1" = 20'

DRAWING No. 20230643-RM06

SHEET No.



CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		HMA Surface, Rem – Syd
2		Erosion Control, Inlet Protection, Fabric Drop – Ea
3		Concrete Pavt, Any Thickness, Rem – Syd
4		Sidewalk, Sidewalk Ramp, & Driveway Approach, Any Thick, Rem – Sft
5	· X X· X X· X X· X X· X X·	Curb, Gutter, Curb and Gutter, Any Type, Rem – Ft
6		Earth Excavation – Cyd

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

CITY OF ANN ARBOR
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

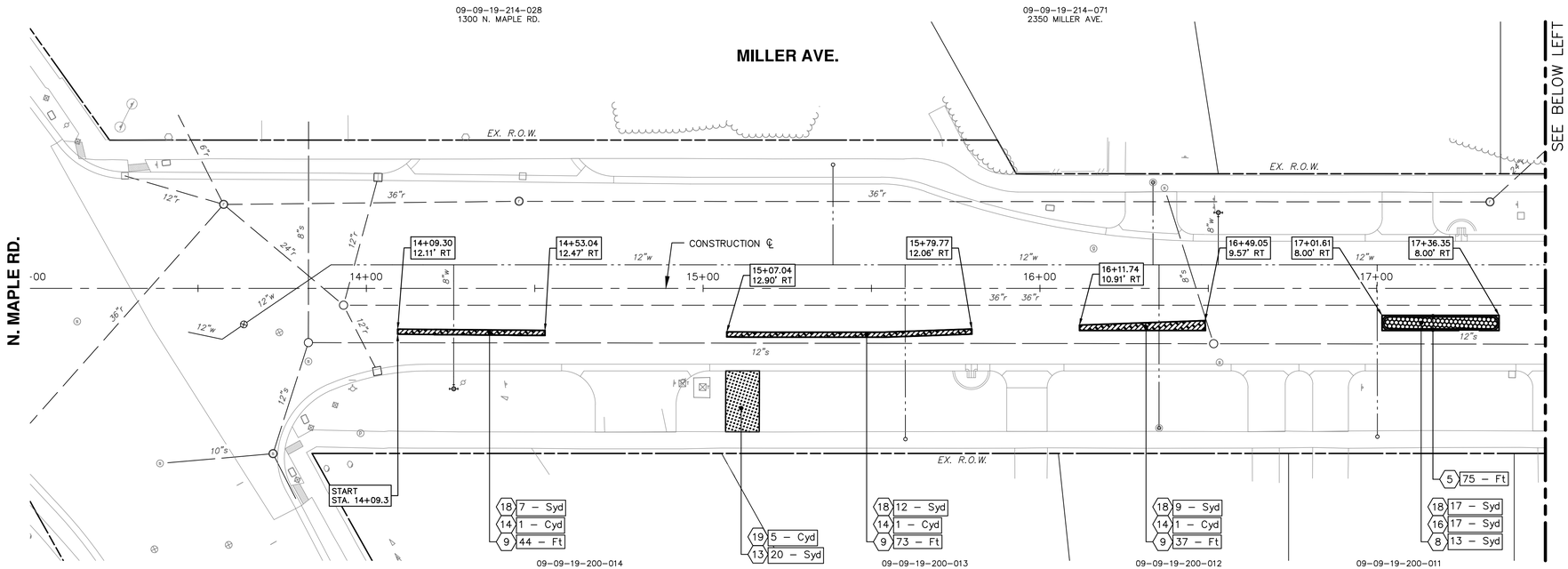
REMOVAL PLAN SHEET

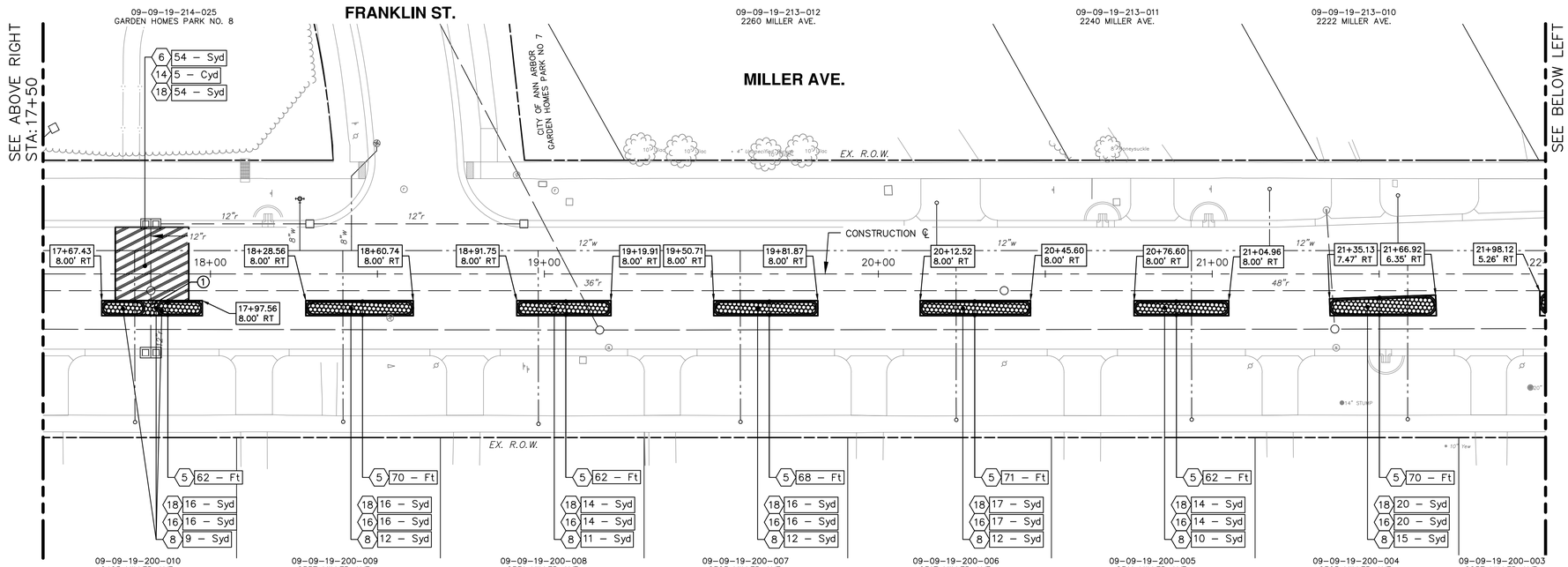
START (STA. 98+86) TO P.O.E. (STA. 104+07)

SCALE : 1" = 20'

DRAWING No. 20230643-RM07

SHEET No. 110





NOTES:

1. CONCRETE PAVEMENT TO BE FLUSH WITH HMA ROADWAY.

CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L125SHM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	T	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non-Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non-Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non-Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

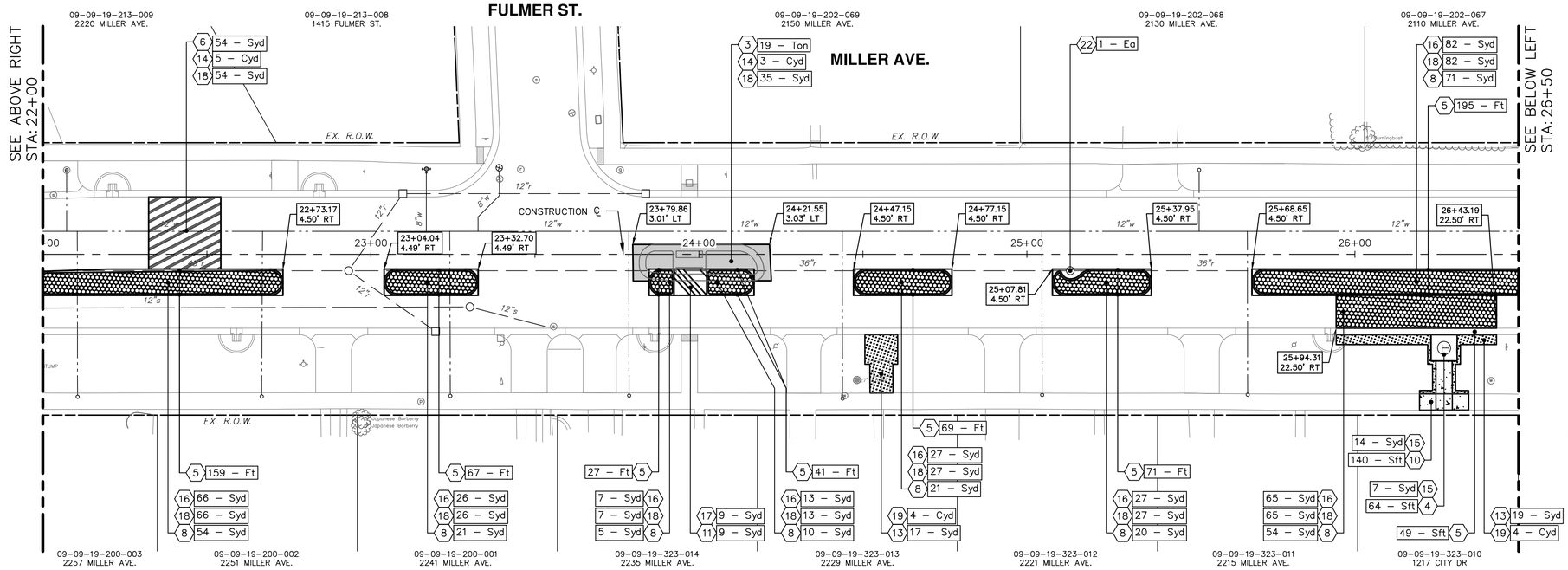
CONSTRUCTION PLAN SHEET

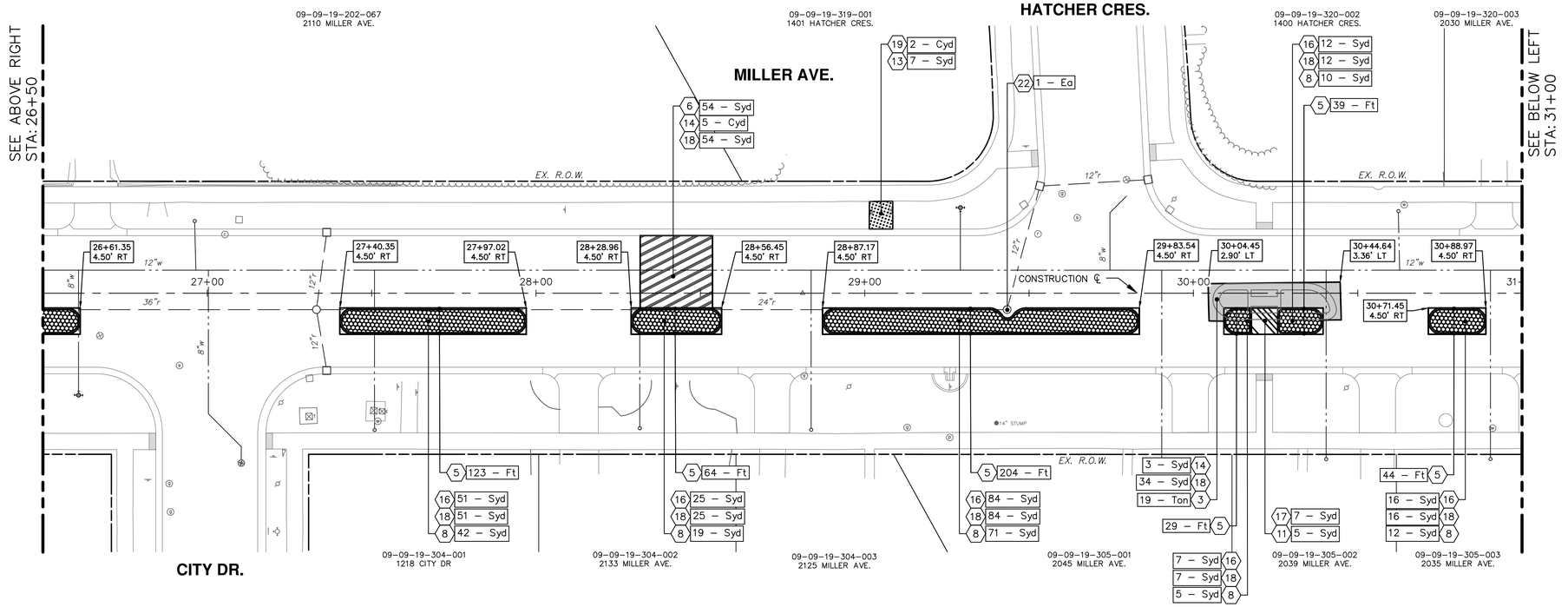
START (STA. 14+09) TO STA. 22+00

SCALE : 1" = 20'

DRAWING No. 20230643-PL01

SHEET No. 111





NOTES:

1. STRUCTURES MAY BE LOCATED IN CURB LINE AND REQUIRE HAND FORMING OF THE CURB AROUND THE STRUCTURE. THESE EYEBROWS SHOWN AROUND STRUCTURES ARE NOT TO SCALE AND EXACT LOCATIONS SHALL BE FIELD VERIFIED. IF STRUCTURES ARE NOT FOUND TO BE WITHIN THE PROPOSED CURB LINE, EYEBROWS SHALL BE ELIMINATED AND CURB SHALL CARRY STRAIGHT THROUGH.

CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L12SHM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	T	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non-Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non-Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non-Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

Know what's below. Call before you dig. 811

CITY OF ANN ARBOR
PUBLIC SERVICES
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

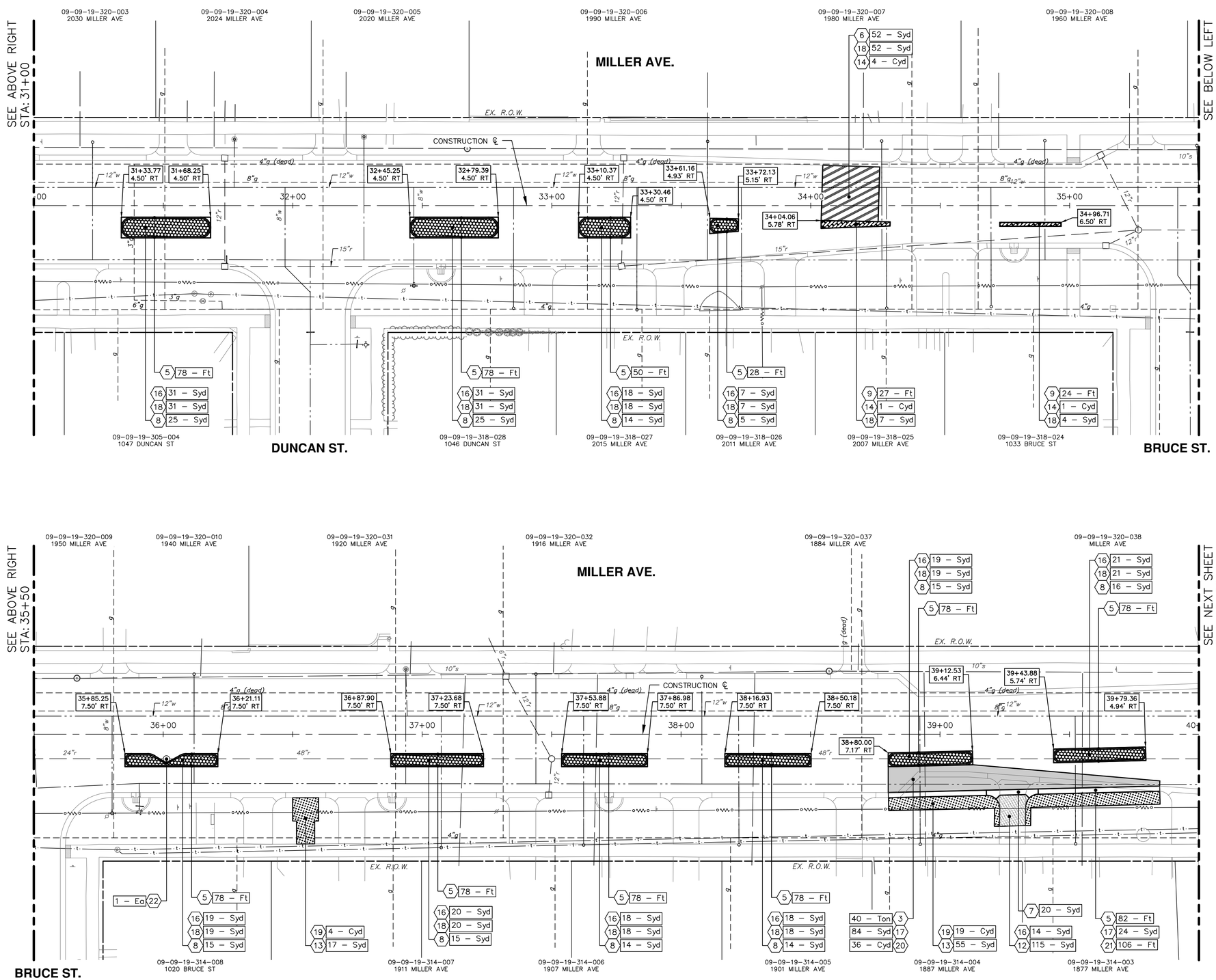
CONSTRUCTION PLAN SHEET

STA. 22+00 TO STA. 31+00

SCALE : 1" = 20'

DRAWING No. 20230643-PL02

SHEET No. 112



NOTES:

1. SEE DETAIL SD-DS-1 FOR DRIVEWAY CONSTRUCTION DETAIL.
2. STRUCTURES MAY BE LOCATED IN CURB LINE AND REQUIRE HAND FORMING OF THE CURB AROUND THE STRUCTURE. THESE EYEBROWS SHOWN AROUND STRUCTURES ARE NOT TO SCALE AND EXACT LOCATIONS SHALL BE FIELD VERIFIED. IF STRUCTURES ARE NOT FOUND TO BE WITHIN THE PROPOSED CURB LINE, EYEBROWS SHALL BE ELIMINATED AND CURB SHALL CARRY STRAIGHT THROUGH.

CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L12SHM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	Ⓣ	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non-Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non-Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non-Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

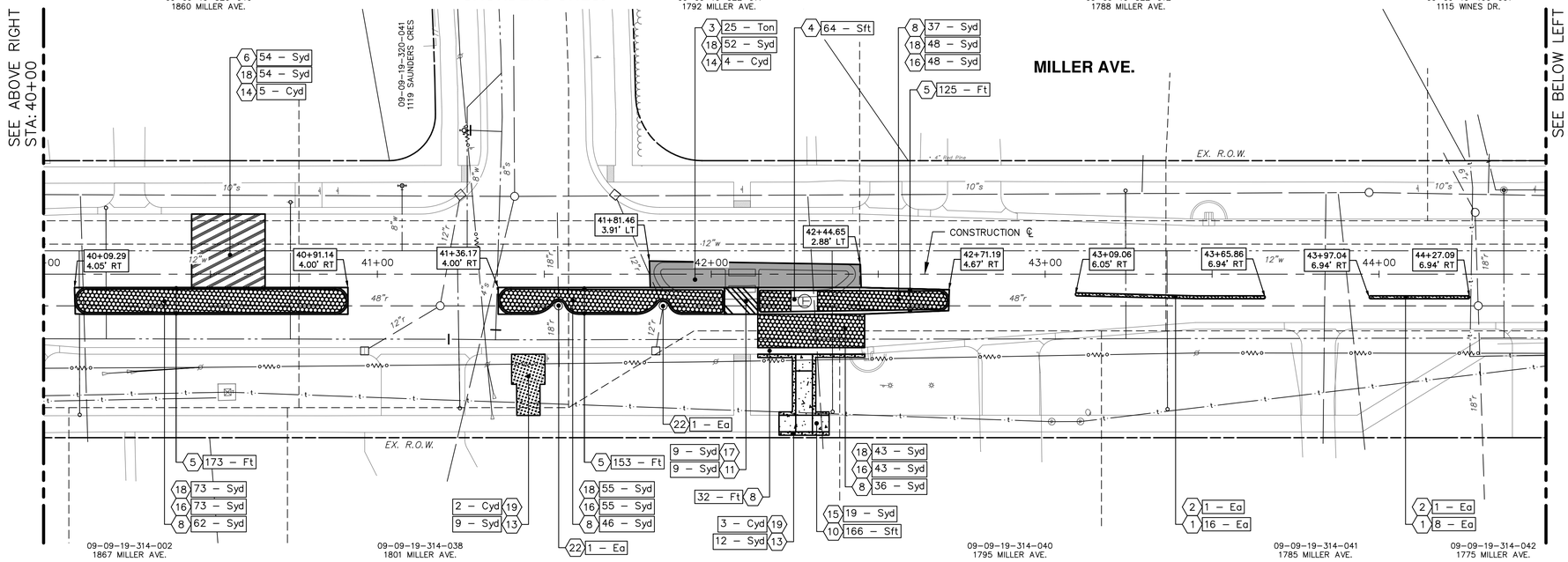
CONSTRUCTION PLAN SHEET

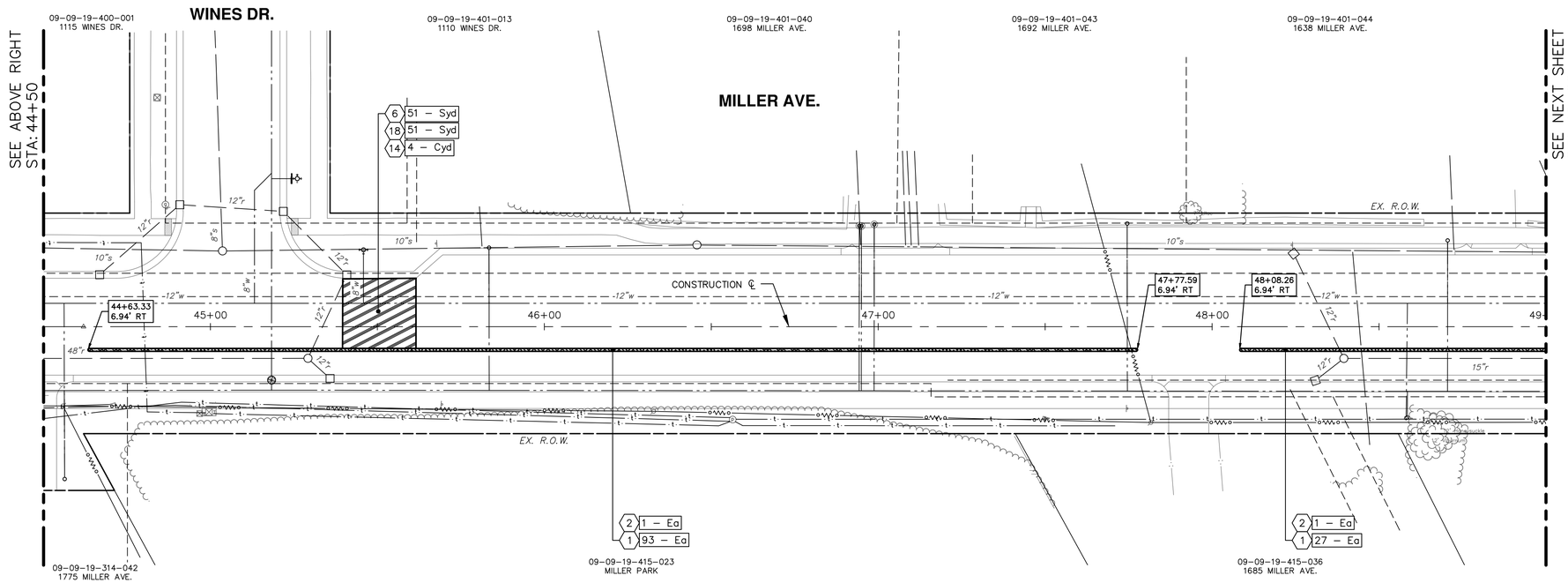
STA. 31+00 TO STA. 40+00

SCALE : 1" = 20'

DRAWING No. 20230643-PL03

SHEET No. 113





NOTES:

1. STRUCTURES MAY BE LOCATED IN CURB LINE AND REQUIRE HAND FORMING OF THE CURB AROUND THE STRUCTURE. THESE EYEBROWS SHOWN AROUND STRUCTURES ARE NOT TO SCALE AND EXACT LOCATIONS SHALL BE FIELD VERIFIED. IF STRUCTURES ARE NOT FOUND TO BE WITHIN THE PROPOSED CURB LINE, EYEBROWS SHALL BE ELIMINATED AND CURB SHALL CARRY STRAIGHT THROUGH.

CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L125HM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	Ⓣ	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non-Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non-Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non-Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

CITY OF ANN ARBOR
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

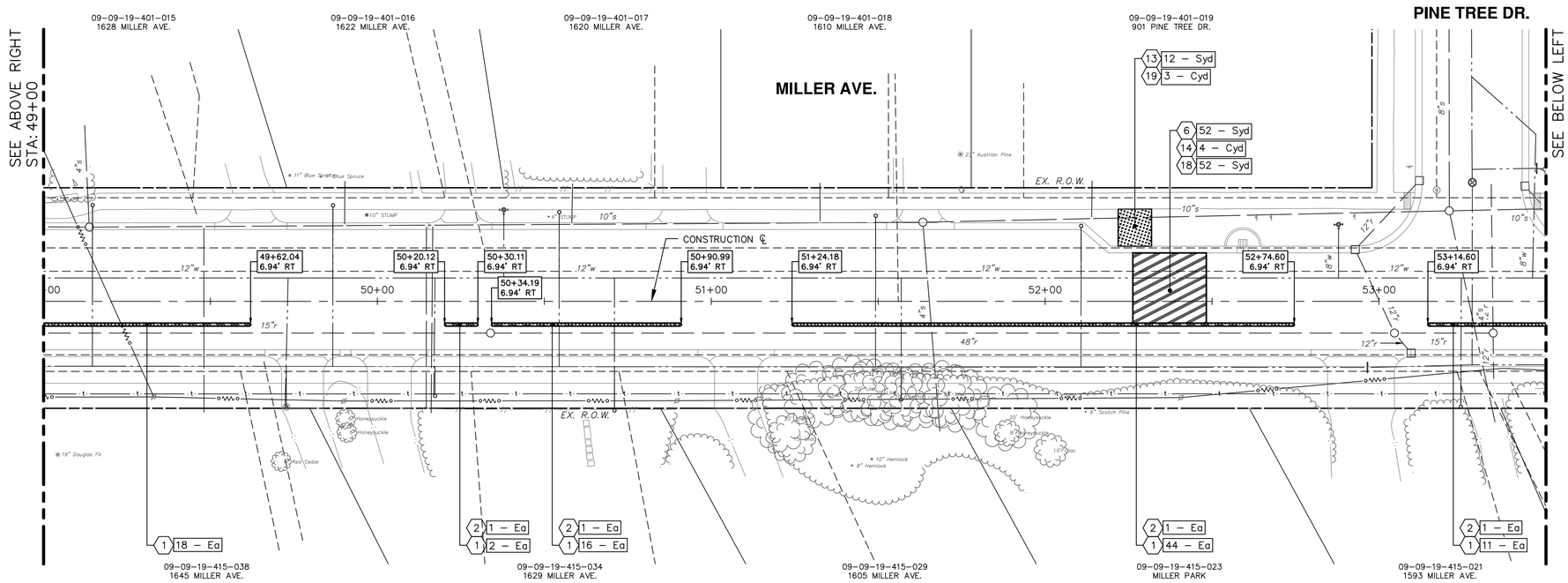
CONSTRUCTION PLAN SHEET

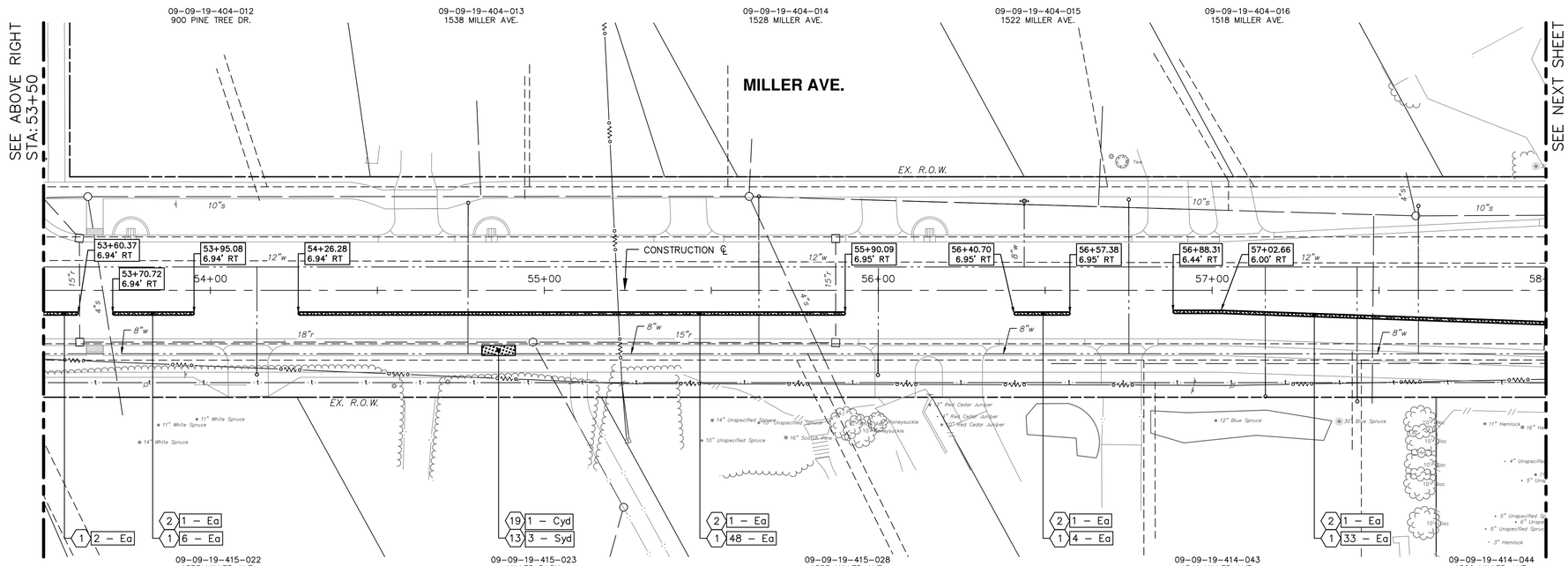
STA. 40+00 TO STA. 49+00

SCALE : 1" = 20'

DRAWING No. 20230643-PL04

SHEET No. 114





CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L125HM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	T	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non-Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non-Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non-Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/9/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

CONSTRUCTION PLAN SHEET

STA. 49+00 TO STA. 58+00

SCALE : 1" = 20'

DRAWING No. 20230643-PL05

SHEET No. 115

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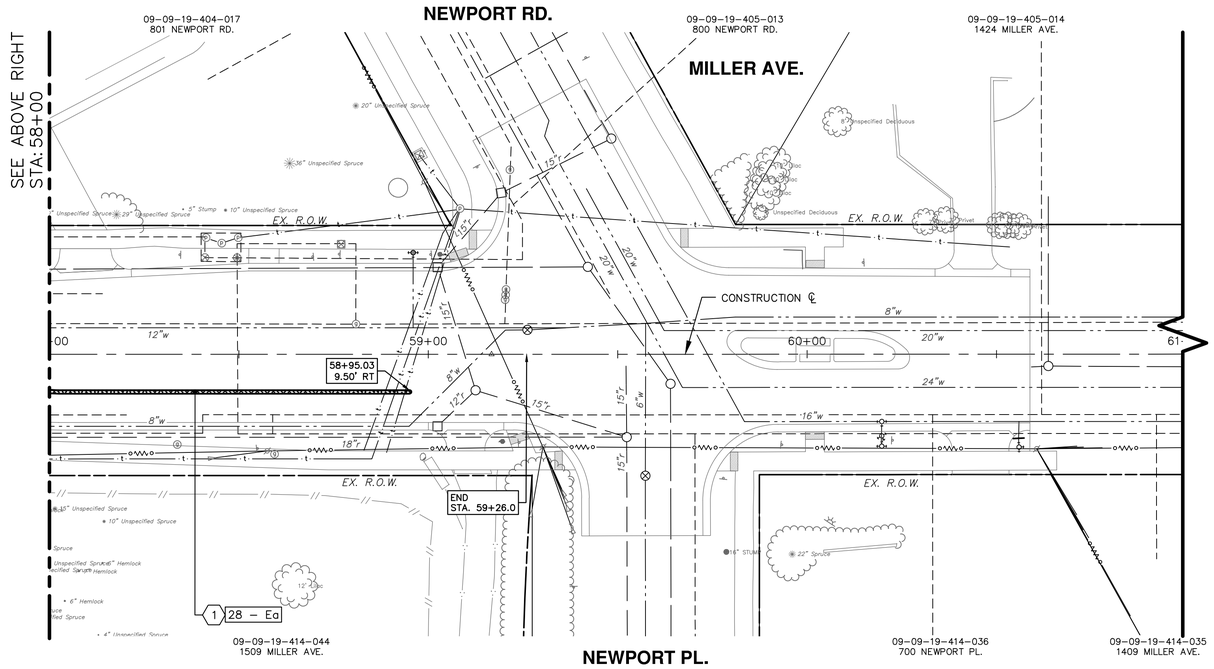

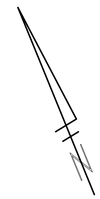

CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L12SHM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	T	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non-Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non-Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non-Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/3/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

CONSTRUCTION PLAN SHEET

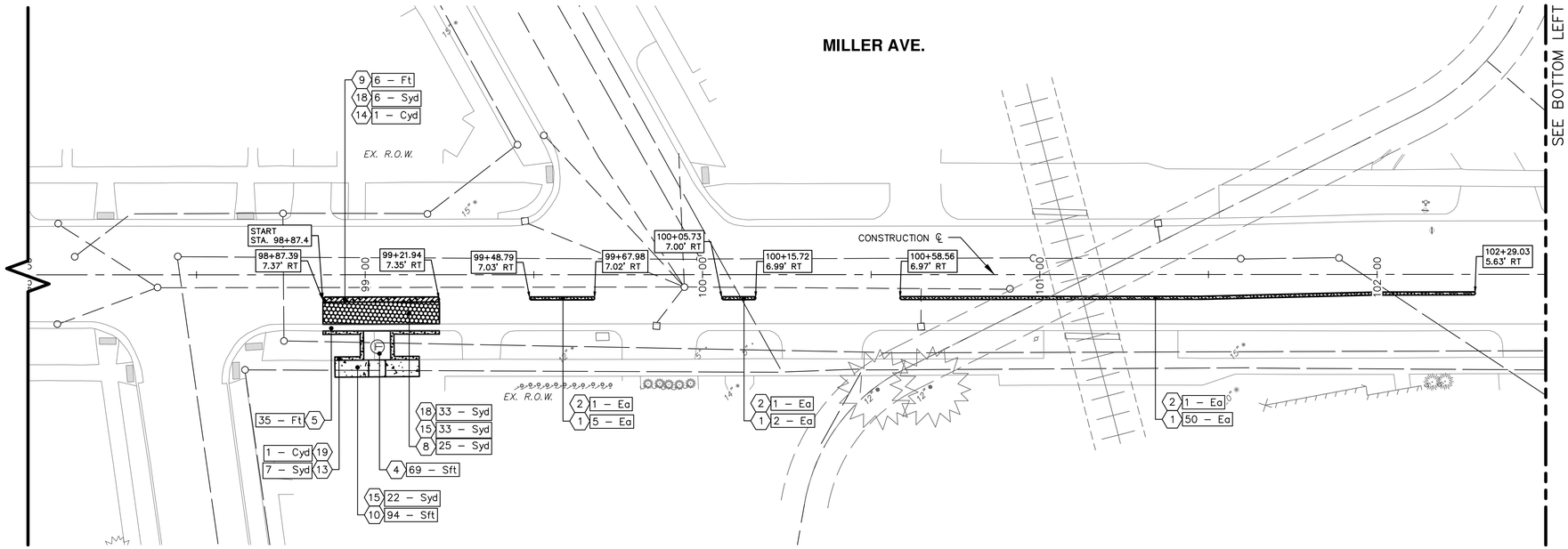
STA. 58+00 TO END (STA. 59+26)

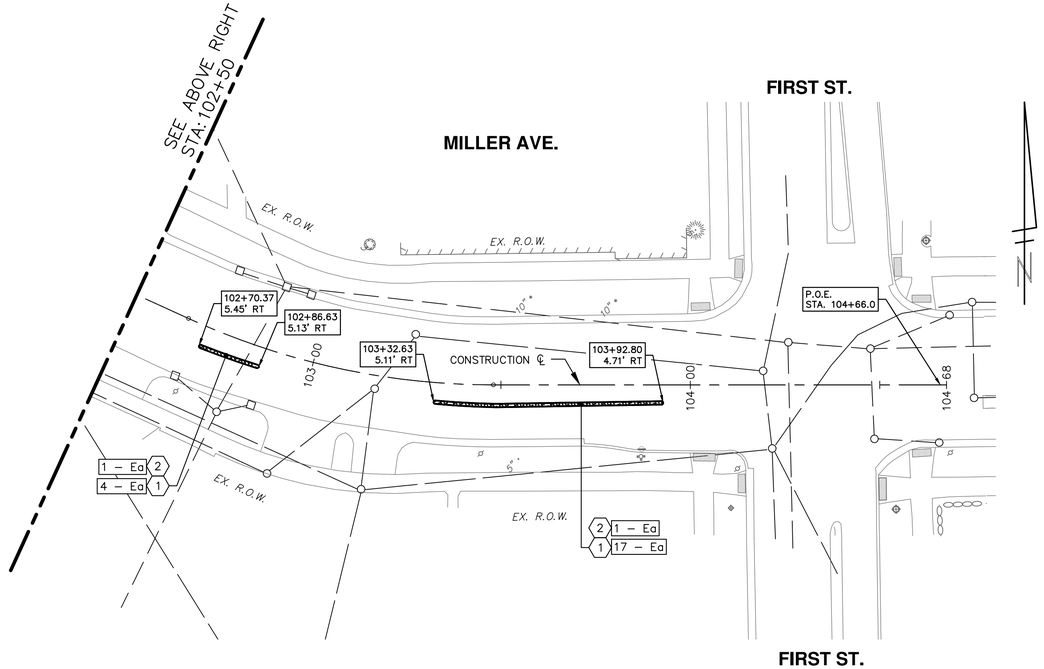
SCALE : 1" = 20'

DRAWING No.
20230643-PL06

SHEET No.
116

V:\202306\20230643\V\Sheets\pl06.dwg Dwg Created: 13-Mar-24 — _a2 standard bw.stb — Plot Date: 29-Apr-24





CONSTRUCTION KEY

KEY No.	PROPOSED WORK	DESCRIPTION
1		DS_Continuous Base Mid Span L60 – Ea AND DS_Big Bollard – MASH L125HM – Ea
2		DS_Continuous Base Front Span L61 – Ea AND DS_Continuous Base Rear Span L62 – Ea
3		8" OF HMA PAID AS: Hand Patching – Ton (SEE HMA APPLICATION TABLE)
4	Ⓣ	BUS STOP LOCATION PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In. – Sft
5		Conc, Curb or Curb & Gutter, All Types – Ft
6		SPEED TABLE PAID AS: Conc Pavt, Non–Reinf, 9 In.
7		Conc, Driveway Opening, Type M – Ft
8		Conc Pavt, Non–Reinf, 8 In. – Syd
9		DS_Conc, Curb and Gutter, Monolithic – Ft
10		Conc, Sidewalk, 4 In. – Sft
11		Conc Pavt, Non–Reinf, 7 In. – Syd
12		DRIVEWAY APPROACH PAID AS: Conc, Sidewalk, Drive Approach, or Ramp, 6 In., Modified – Sft
13		Turf Restoration – Syd
14		Aggregate Base Course, 21AA, CIP – Cyd
15		Aggregate Base, 4 In., 21AA, CIP – Syd
16		Aggregate Base, 6 In., 21AA, CIP – Syd
17		Aggregate Base, 8 In., 21AA, CIP – Syd
18		Aggregate Base, Conditioning – Syd
19		Embankment – Cyd
20		12" SUBBASE PAID AS: Subbase, CIP – Cyd
21		Underdrain, Subgrade, 6 In. – Ft
22		AS DIRECTED: Storm Structure Cover, Adjust

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/3/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

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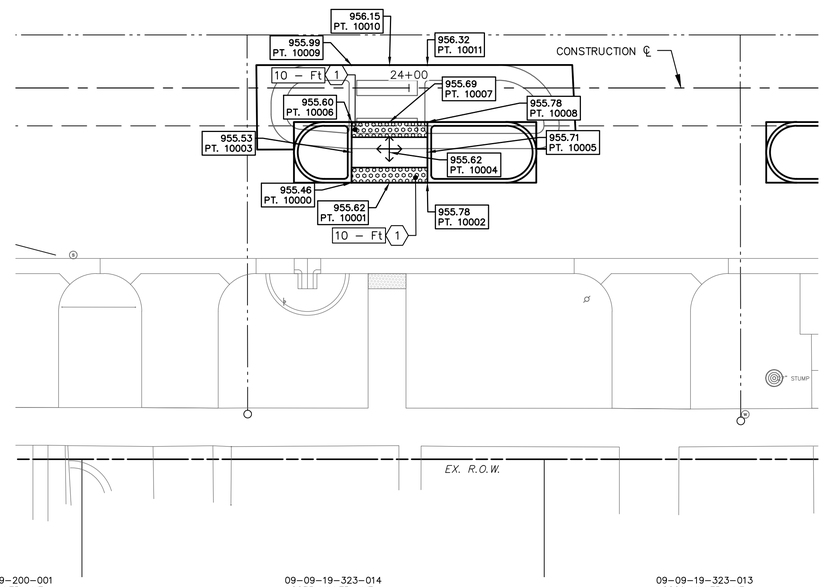
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK
CONSTRUCTION PLAN SHEET
START TO P.O.E.

SCALE : 1" = 20'

DRAWING No.
2023643-PL07

SHEET No.
117



09–09–19–200–001
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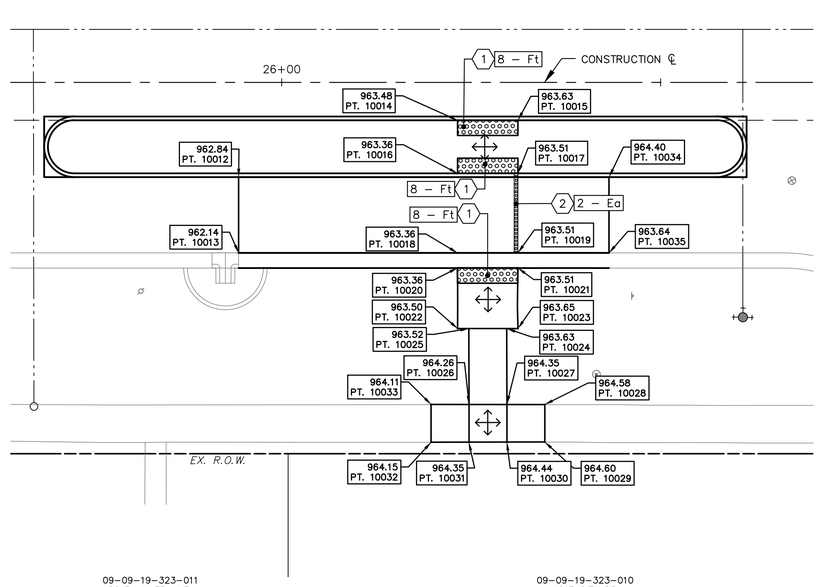
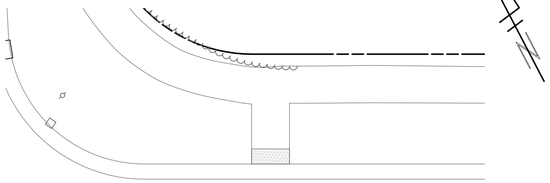
09–09–19–323–014
2235 MILLER AVE.

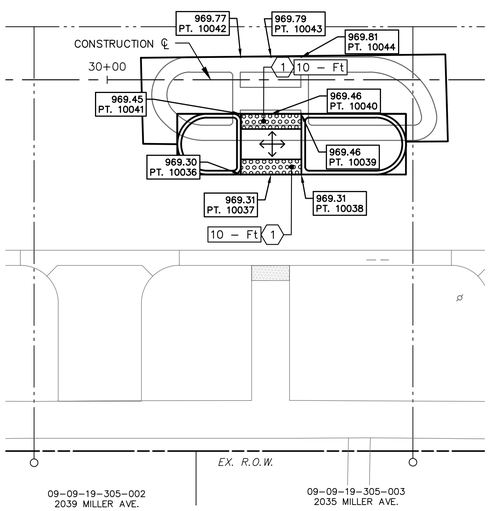
09–09–19–323–013
2229 MILLER AVE.



09–09–19–323–011
2215 MILLER AVE.

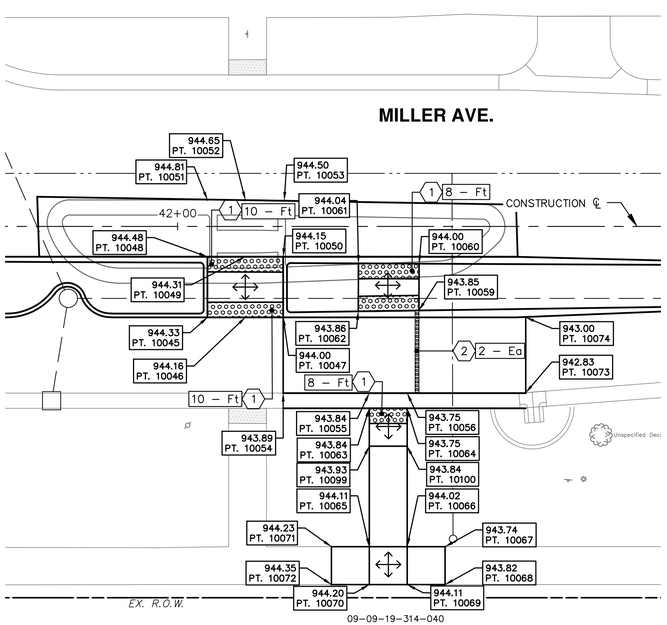
09–09–19–323–010
1217 CITY DR



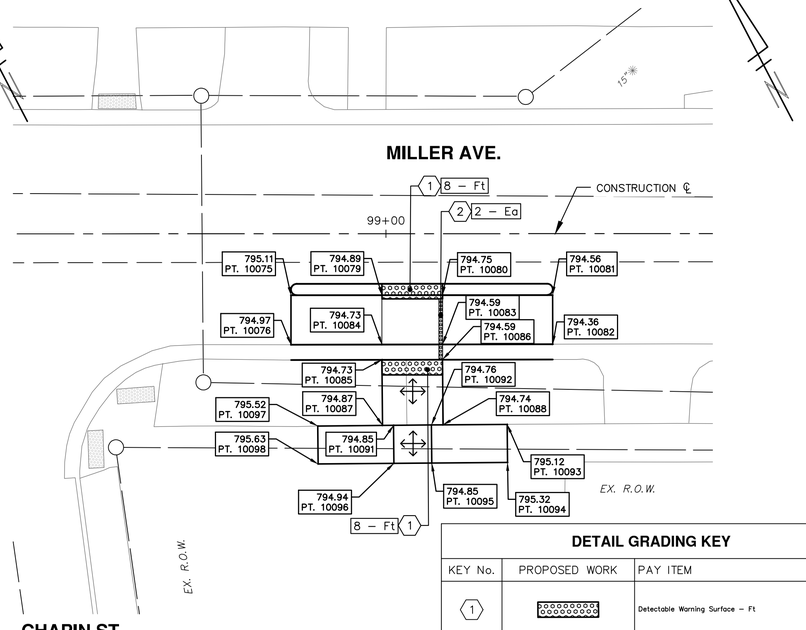


09–09–19–305–002
2039 MILLER AVE.

09–09–19–305–003
2035 MILLER AVE.



09–09–19–314–040
1795 MILLER AVE.



CHAPIN ST.

NOTES:

1. DETECTABLE DIRECTIONAL TILE MAY NEED TO BE MEASURED AND CUT IN THE FIELD TO FIT AS SHOWN.
2. COORDINATE DETAIL GRADES WITH RECTANGULAR RAPID FLASHING BEACON (RRFB) INSTALLATION. SEE RRFB CROSSING DETAIL GRADE SHEETS FOR RRFB FOUNDATION AND SIDEWALK (RAMPS AND LANDINGS) LOCATIONS AND DETAIL GRADES.

DETAIL GRADING KEY

KEY No.	PROPOSED WORK	PAY ITEM
1		Detectable Warning Surface – Ft
2		DS_Detectable Directional Tile – Ea
		LEVEL LANDING

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	ENR	NBN
4	ADDENDUM PLANS	4/25/24	ENR	NBN
3	FINAL BID PLANS	4/3/24	ENR	NBN
2	FINAL PLANS	3/13/24	ENR	NBN
1	CITY REVIEW	3/6/24	ENR	NBN

CITY OF ANN ARBOR
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P.O. BOX 8647
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

DETAIL GRADES

SCALE: 1" = 10'

DRAWING No. 20230643-DTG01

SHEET No. 118

81-08-24-125-017
MILLER RD

MAPLE RD.

RECESSING PAVT MRKG, TRANSV – 247 SFT
PAVT MRKG, POLYUREA, 12 IN., CROSSWALK – 247 FT

RECESSING PAVT MRKG, LONGIT – 44 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 44 FT

RECESSING PAVT MRKG, LONGIT – 72 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 72 FT
BEG TO END = 108 FT

PAVT MRKG, POLYMER CEMENT SURFACE,
BIKE LANE GREEN – 184 SF
BEG TO END = 108 FT

RECESSING PAVT MRKG, TRANSV – 178 SFT
PAVT MRKG, POLYUREA, 12 IN., CROSSWALK – 178 FT

RECESSING PAVT MRKG, TRANSV – 44 SFT
PAVT MRKG, POLYUREA, 24 IN., STOP BAR – 22 FT

RECESSING PAVT MRKG, LONGIT – 188 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 188 FT
STA. 13+56 TO 14+50

PAVT MRKG, POLYUREA, RT TURN
ARROW SYM – 1 EA

RECESSING PAVT MRKG, TRANSV – 22 SFT
PAVT MRKG, POLYUREA, 24 IN., STOP BAR
– 11 FT

RECESSING PAVT MRKG,
LONGIT – 80 FT
PAVT MRKG, POLYUREA,
6 IN., YELLOW – 80 FT

PAVT MRKG, POLYUREA, LT TURN
ARROW SYM – 1 EA

RECESSING PAVT MRKG, LONGIT – 400 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 400 FT

RECESSING PAVT MRKG, TRANSV, 92 SFT
PAVT MRKG, POLYUREA, 12 IN., CROSS
HATCHING, WHITE – 92 FT

PAVT MRKG, POLYUREA, BIKE, SMALL SYM –3 EA

PAVT MRKG, POLYMER CEMENT SURFACE,
BIKE LANE GREEN – 536 SF

RECESSING PAVT MRKG, TRANSV – 148 SFT
PAVT MRKG, POLYUREA, 24 IN., STOP BAR – 74 FT

RECESSING PAVT MRKG, TRANSV – 270 SFT
PAVT MRKG, POLYUREA, 12 IN., CROSSWALK – 270 FT

RECESSING PAVT MRKG, TRANSV – 44 SFT
PAVT MRKG, POLYUREA, 24 IN., STOP BAR – 22 FT

PAVT MRKG, POLYUREA, LT TURN
ARROW SYM – 1 EA

PAVT MRKG, POLYUREA, THRU
ARROW SYM – 1 EA

RECESSING PAVT MRKG, TRANSV, 70 SFT
PAVT MRKG, POLYUREA, 12 IN., CROSS
HATCHING, WHITE – 62 FT
WEST LEG (TYP.)

P.O.B.
STA. 8+88.0

RECESSING PAVT MRKG, LONGIT – 450 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 450 FT
WEST LEG (TYP.)

RECESSING PAVT MRKG, LONGIT – 42 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 42 FT
BEG TO END = 45 FT

PAVT MRKG, POLYMER CEMENT SURFACE,
BIKE LANE GREEN – 175 SF

PAVT MRKG, POLYUREA, 24 IN., STOP BAR – 23 FT

PAVT MRKG, POLYUREA, BIKE, THRU ARROW SYM – 1 EA
PAVT MRKG, POLYUREA, BIKE RT TURN ARROW SYM – 1 EA
PAVT MRKG, POLYUREA, BIKE, SMALL SYM – 2 EA
PAVT MRKG, POLYUREA, 6 IN., WHITE – 15 FT
PAVT MRKG, POLYMER CEMENT SURFACE, BIKE LANE GREEN – 129 SF

RECESSING PAVT MRKG, LONGIT – 64 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 64 FT
WEST LEG (TYP.)

PAVT MRKG, POLYMER CEMENT SURFACE,
BIKE LANE GREEN – 101 SF

PAVT MRKG, POLYUREA, BIKE, THRU ARROW SYM – 1 EA
PAVT MRKG, POLYUREA, BIKE, SMALL SYM – 1 EA

PAVT MRKG, POLYMER CEMENT
SURFACE, BIKE LANE GREEN – 100 SF

PAVT MRKG, POLYUREA, 6 IN., WHITE – 43 FT

PAVT MRKG, POLYUREA, BIKE, LT TURN ARROW SYM – 1 EA
PAVT MRKG, POLYUREA, BIKE, SMALL SYM – 1 EA

RECESSING PAVT MRKG, LONGIT – 53 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 53 FT
STA. 12+67 TO STA. 13+50

PAVT MRKG, POLYMER CEMENT SURFACE,
BIKE LANE GREEN – 861 SF

RECESSING PAVT MRKG, LONGIT – 223 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 223 FT

PAVT MRKG, POLYMER CEMENT SURFACE, TAN – 758 SF

PAVT MRKG, POLYMER CEMENT
SURFACE, BIKE LANE GREEN – 140 SF

PAVT MRKG, POLYUREA, 6 IN., WHITE – 63 FT

PAVT MRKG, POLYUREA, BIKE, RT TURN ARROW SYM – 1 EA
PAVT MRKG, POLYUREA, BIKE, SMALL SYM – 1 EA

RECESSING PAVT MRKG, TRANSV – 152 SFT
PAVT MRKG, POLYUREA, 12 IN., CROSSWALK – 152 FT

PAVT MRKG, POLYMER CEMENT SURFACE, TAN – 62 SF

RECESSING PAVT MRKG, TRANSV – 66 SFT
PAVT MRKG, POLYUREA, 24 IN., STOP BAR – 33 FT

PAVT MRKG,
POLYMER CEMENT
SURFACE, BIKE
LANE GREEN –
318 SF

PAVT MRKG, POLYUREA,
6 IN., WHITE – 47 FT

RECESSING PAVT MRKG, LONGIT – 12 FT
PAVT MRKG, POLYUREA, 6 IN., WHITE – 12 FT
STA. 13+74 TO STA. 14+00

PAVT MRKG, POLYUREA, 24 IN.,
STOP BAR – 4 FT

PAVT MRKG, POLYUREA, 4 IN., YELLOW – 25 FT

PAVT MRKG, POLYUREA, BIKE THRU ARROW SYM – 2 EA
PAVT MRKG, POLYUREA, BIKE SMALL SYM – 2 EA

09-09-19-214-028
1300 N. MAPLE RD.

09-08-24-104-043
1251 N MAPLE RD

09-09-19-200-014
1210 N. MAPLE RD.

STA:14+50

MILLER AVE.

9+00 10+00 11+00 12+00 13+00 14+00

10+13 16.1' RT
10+69 16.1' RT
11+89 16.0' RT
12+43 16.0' RT
12+67 12.8' RT
13+50 12.6' RT
13+56 10.3' LT
13+74 13.6' RT
14+00 13.7' RT

20' (TYP)

NOTES:
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2. PROPOSED PAVEMENT MARKINGS SHALL TIE IN AND MATCH EXISTING PAVEMENT MARKINGS AT ALL PROJECT LIMITS.
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5. RETAIN ALL EXISTING MARKINGS UNLESS OTHERWISE NOTED.
6. LANE WIDTH SHALL NOT BE LESS THAN 10.5 FEET.
7. CYCLE TRACK WIDTH VARIES FROM 7 FEET TO 10 FEET EXCLUDING THE GUTTER.
8. BLACK BIKEWAY DELINEATOR POSTS ARE TO BE INSTALLED AT ENDS OF CONCRETE CURB BUFFER UNLESS OTHERWISE NOTED.
9. YELLOW BIKEWAY DELINEATOR POST ARE TO BE INSTALLED ON CYCLE TRACK ADJACENT TO CROSS STREETS UNLESS OTHERWISE NOTED.

● BIKEWAY DELINEATOR POST BLACK – 23 EA (THIS SHEET)

■ BIKEWAY DELINEATOR POST YELLOW – 1 EA (THIS SHEET)

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	HFA	NBN
4	ADDENDUM PLANS	4/25/24	HFA	NBN
3	FINAL BID PLANS	4/9/24	HFA	NBN
2	FINAL PLANS	3/13/24	HFA	NBN
1	CITY REVIEW	3/6/24	HFA	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

PAVEMENT MARKING PLAN

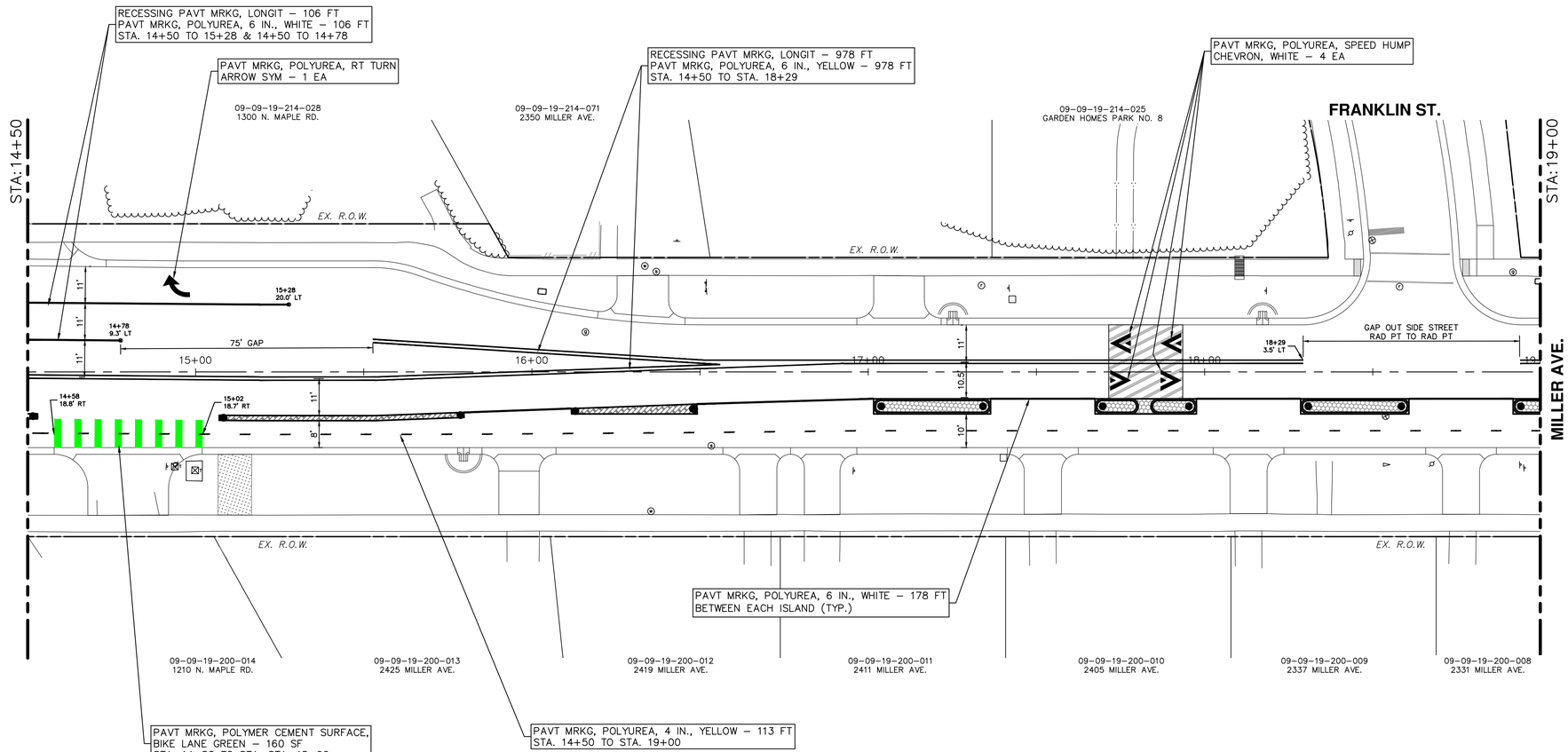
P.O.B. TO STA. 14+50

SCALE: 1" = 20'

DRAWING No.
20230643-PM01_MILLERMAPLE

SHEET No.
119

V:\20306\20230643\V\Sheets\pm01_MillerMaple.dwg Dwg Created: 19-Apr-24 — _a2 standard bw.stb — Plot Date: 29-Apr-24



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● BIKEWAY DELINEATOR POST BLACK – 11 EA (THIS SHEET)

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	HFA	NBN
4	ADDENDUM PLANS	4/25/24	HFA	NBN
3	FINAL BID PLANS	4/9/24	HFA	NBN
2	FINAL PLANS	3/13/24	HFA	NBN
1	CITY REVIEW	3/6/24	HFA	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

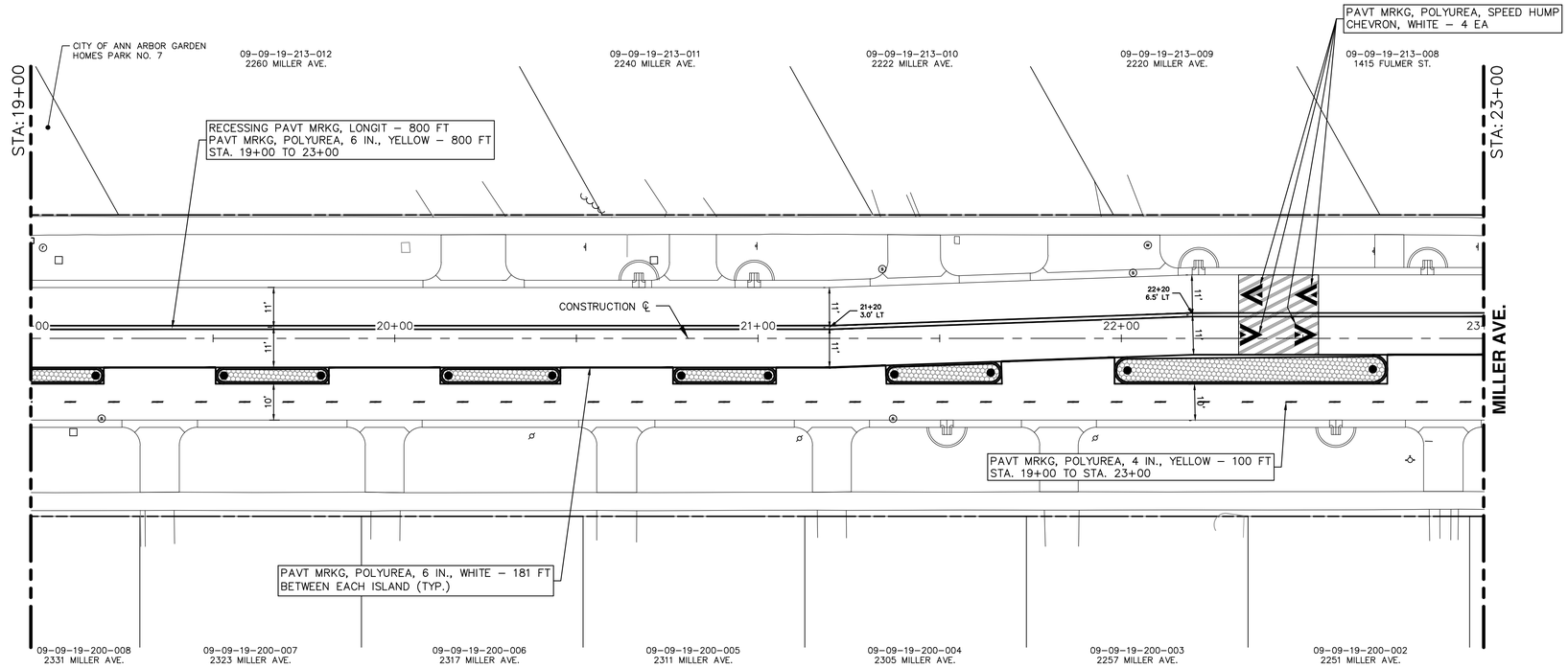
PAVEMENT MARKING PLAN

STA. 14+50. TO STA. 19+00

SCALE : 1" = 20'

DRAWING No. 20230643-PM01

SHEET No. 120



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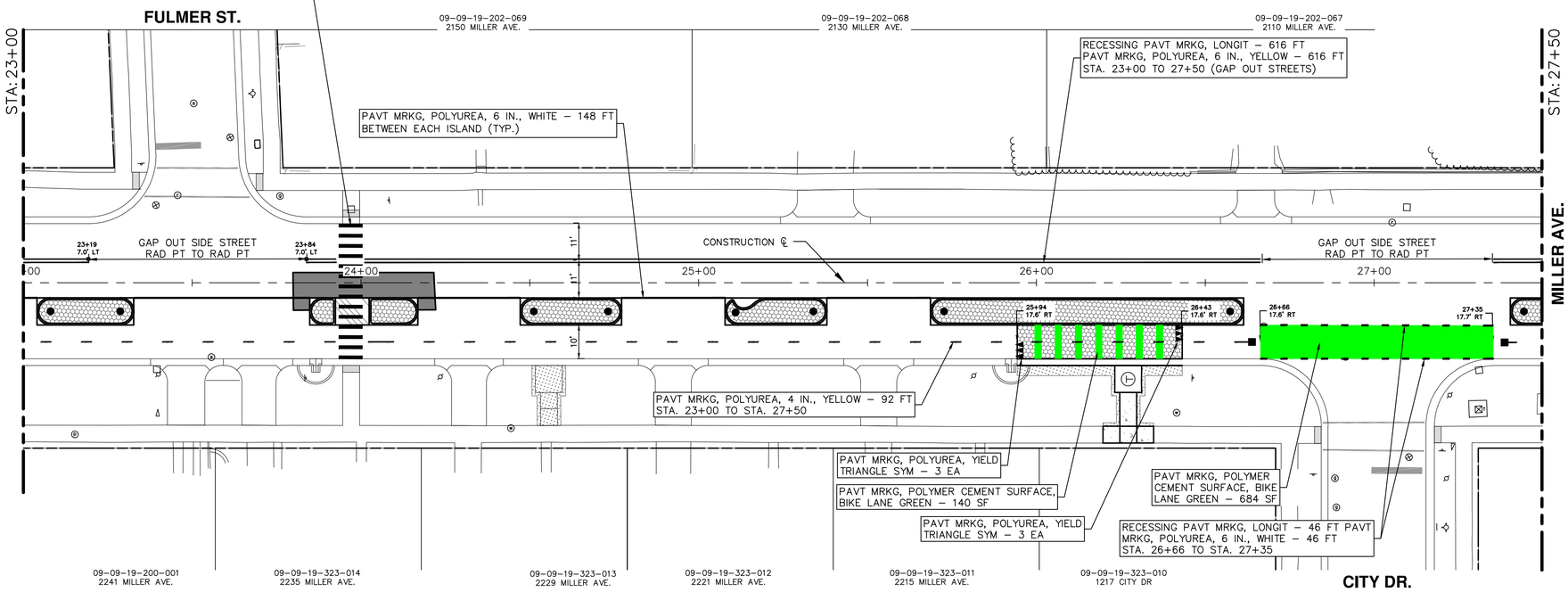
● BIKEWAY DELINEATOR POST BLACK – 20 EA (THIS SHEET)

■ BIKEWAY DELINEATOR POST YELLOW – 2 EA (THIS SHEET)



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	HFA	NBN
4	ADDENDUM PLANS	4/25/24	HFA	NBN
3	FINAL BID PLANS	4/9/24	HFA	NBN
2	FINAL PLANS	3/13/24	HFA	NBN
1	CITY REVIEW	3/6/24	HFA	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

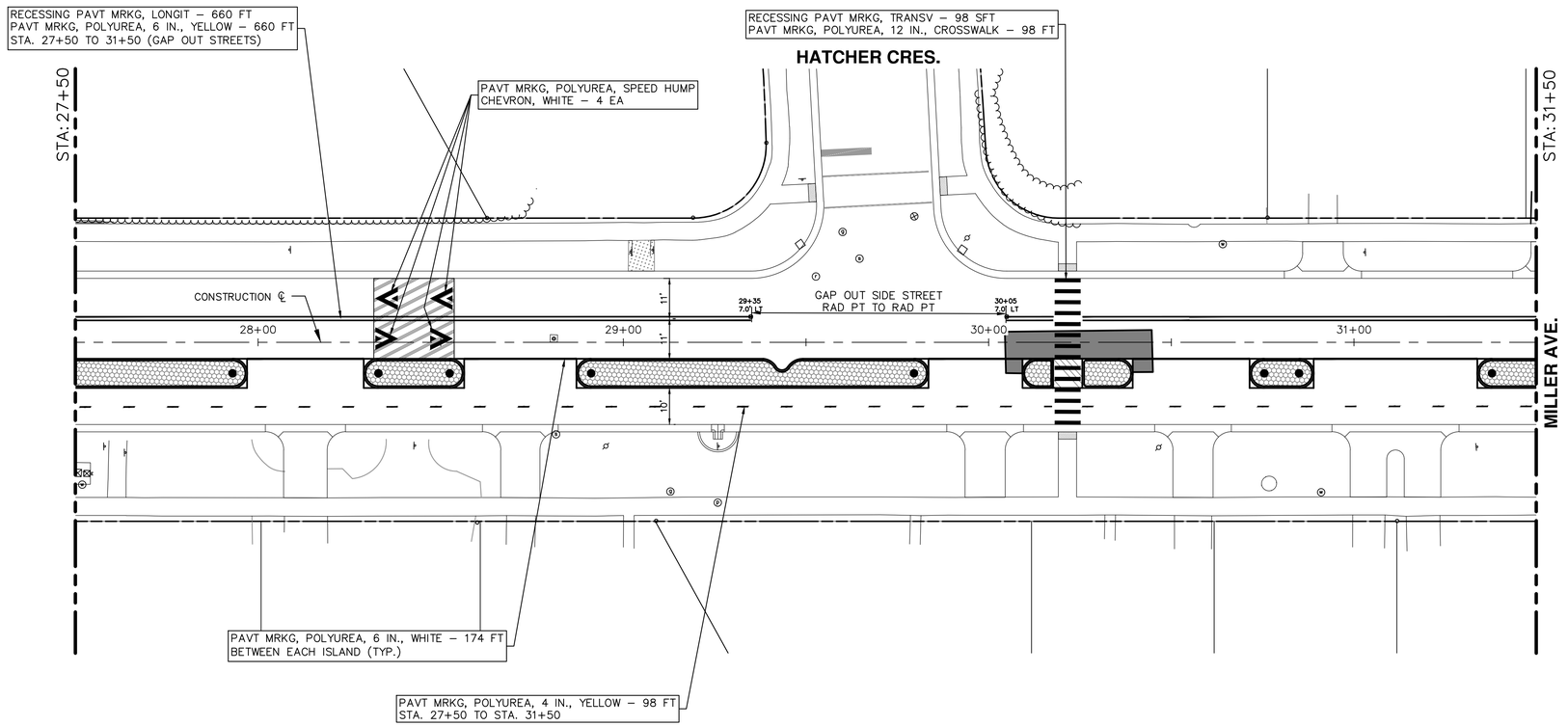
PAVEMENT MARKING PLAN

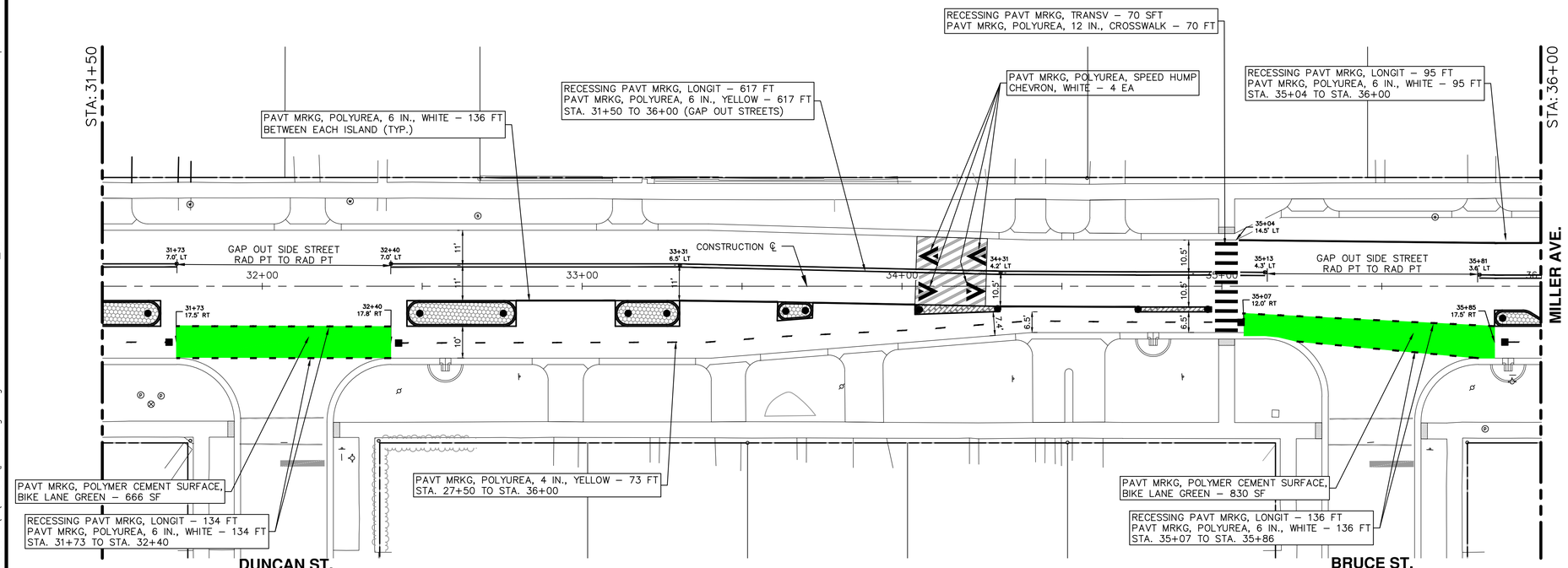
STA. 19+00 TO STA. 27+50

SCALE : 1" = 20'

DRAWING No. 20230643-PM02

SHEET No. 121





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● BIKEWAY DELINEATOR POST BLACK – 20 EA (THIS SHEET)

■ BIKEWAY DELINEATOR POST YELLOW – 4 EA (THIS SHEET)

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	HFA	NBN
4	ADDENDUM PLANS	4/25/24	HFA	NBN
3	FINAL BID PLANS	4/9/24	HFA	NBN
2	FINAL PLANS	3/13/24	HFA	NBN
1	CITY REVIEW	3/6/24	HFA	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

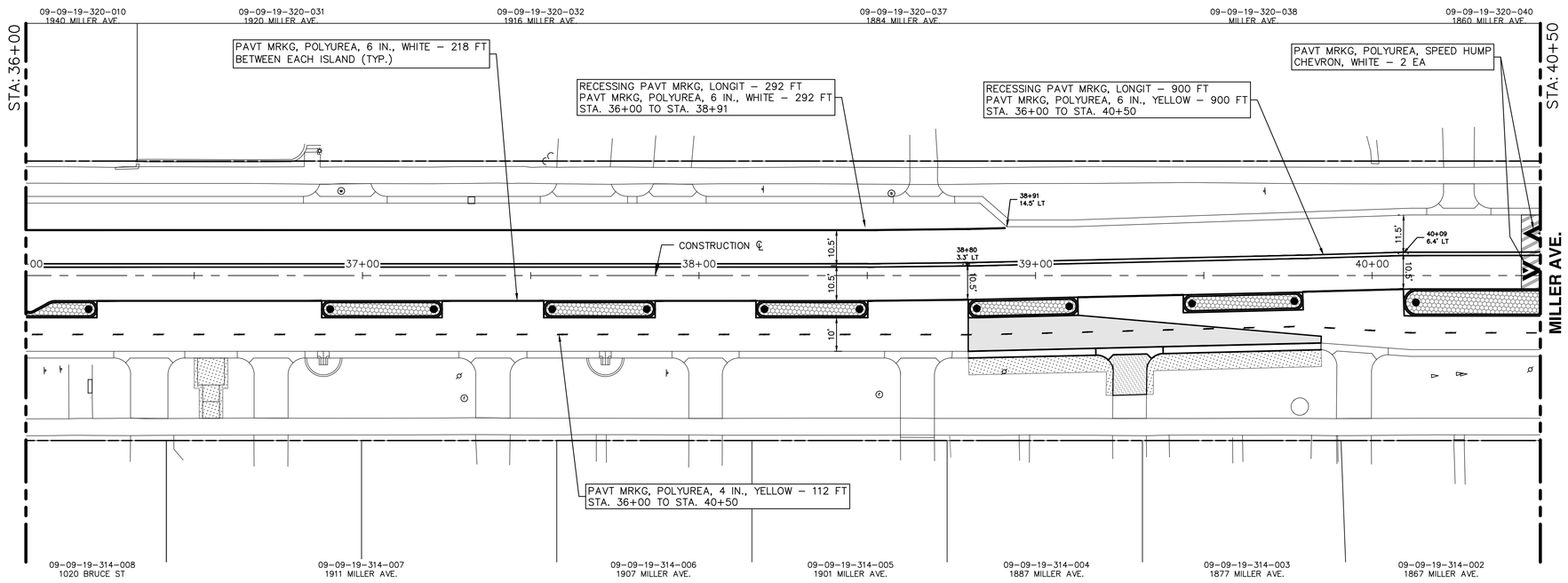
PAVEMENT MARKING PLAN

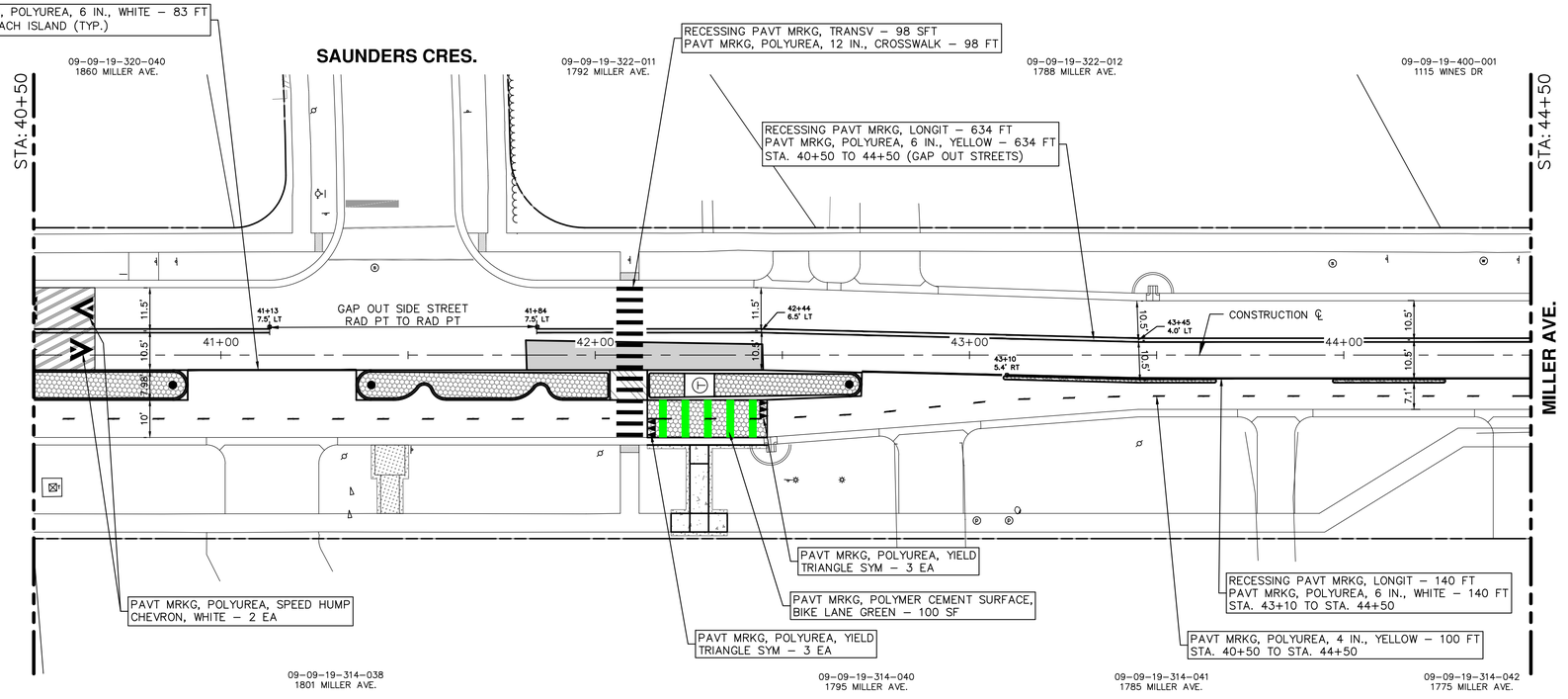
STA. 27+50 TO STA. 36+00

SCALE : 1" = 20'

DRAWING No. 20230643-PM03

SHEET No. 122





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● BIKEWAY DELINEATOR POST BLACK – 15 EA (THIS SHEET)

Know what's below. Call before you dig. 811

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

PAVEMENT MARKING PLAN

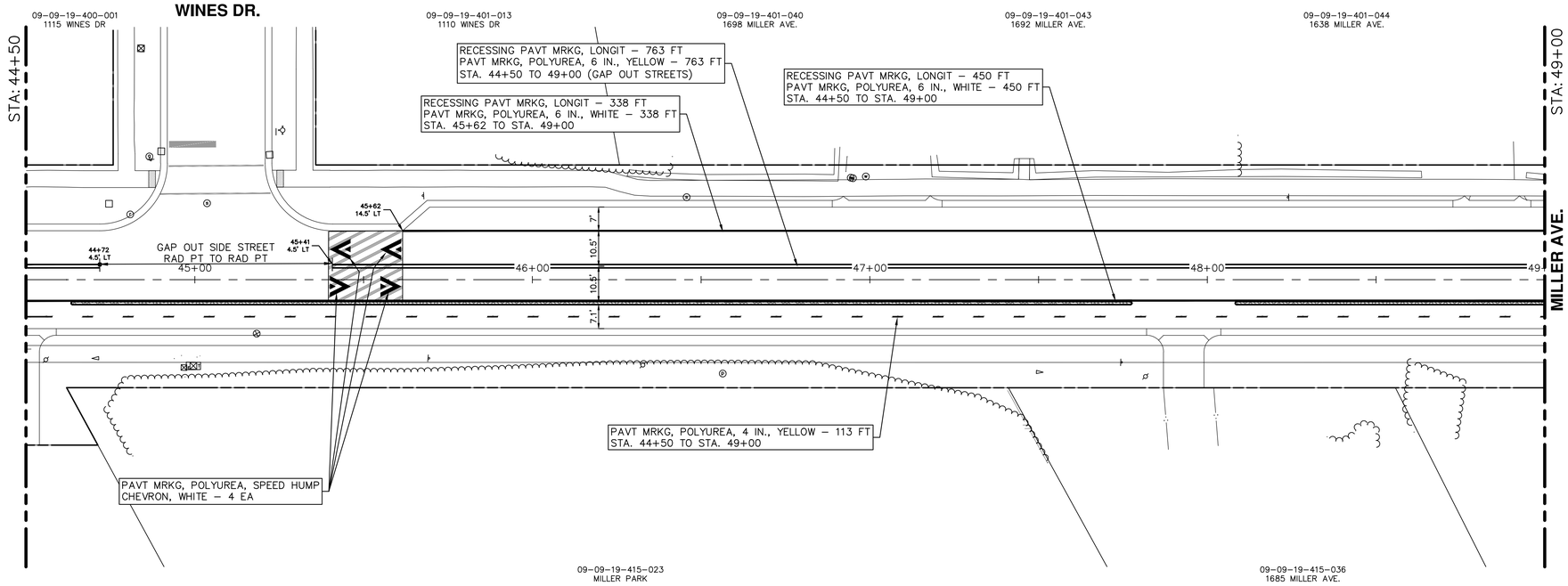
STA. 36+00 TO STA. 44+50

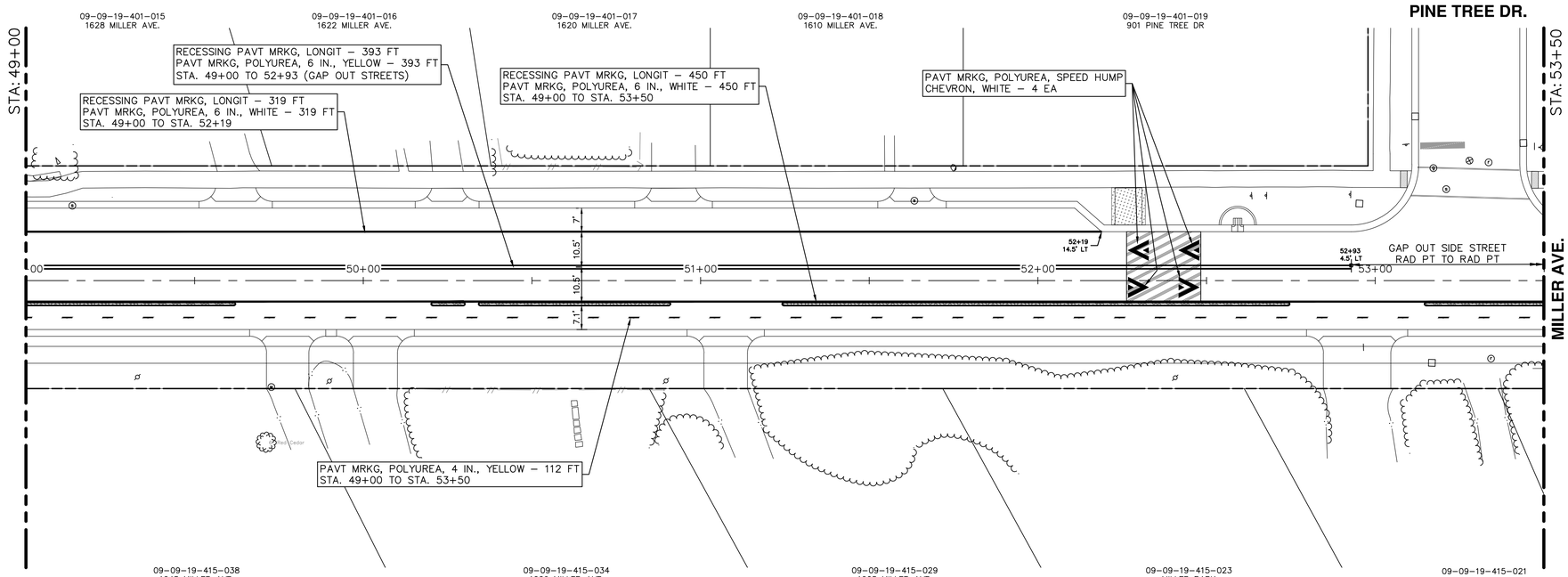
SCALE 1" = 20'

DRAWING No. 20230643-PM04

SHEET No. 123

V: \202306\20230643\V\Sheets\pm04.dwg Dwg Created: 19-Mar-24 – _a2 standard bw.stb – Plot Date: 29-Apr-24





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1	CITY REVIEW	3/6/24	HFA	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

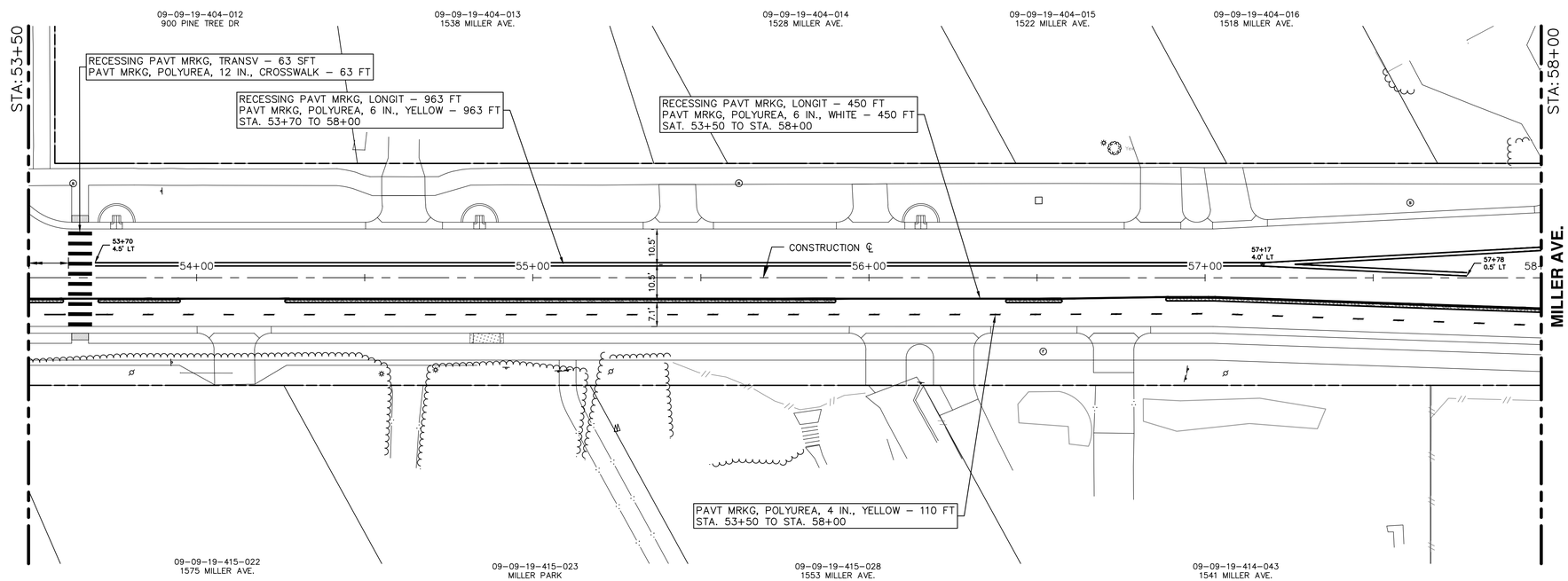
PAVEMENT MARKING PLAN

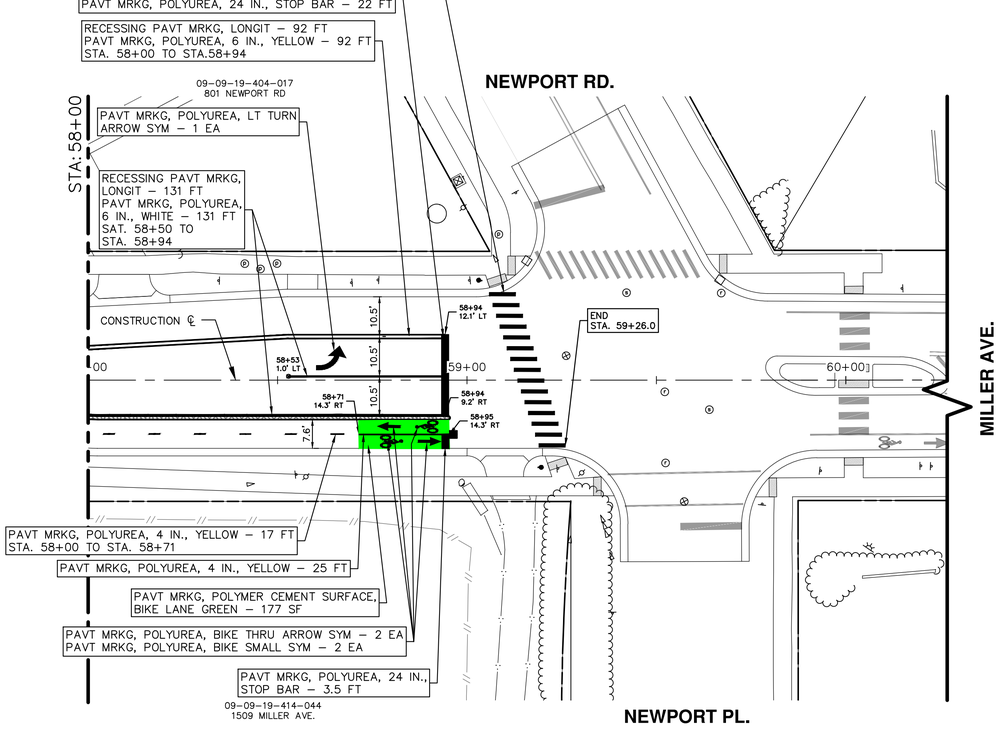
STA. 44+50 TO STA. 53+50

SCALE 1" = 20'

DRAWING No. 20230643-PM05

SHEET No. 124





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4. CALL OUTS REPRESENT REPLACEMENT AND NEW MARKINGS.
5. RETAIN ALL EXISTING MARKINGS UNLESS OTHERWISE NOTED.
6. LANE WIDTH SHALL NOT BE LESS THAN 10.5 FEET.
7. CYCLE TRACK WIDTH VARIES FROM 7 FEET TO 10 FEET EXCLUDING THE GUTTER.
8. YELLOW BIKEWAY DELINEATOR POST ARE TO BE INSTALLED ON CYCLE TRACK ADJACENT TO CROSS STREETS UNLESS OTHERWISE NOTED.

BIKEWAY DELINEATOR POST YELLOW – 1 EA (THIS SHEET)

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	HFA	NBN
4	ADDENDUM PLANS	4/25/24	HFA	NBN
3	FINAL BID PLANS	4/3/24	HFA	NBN
2	FINAL PLANS	3/13/24	HFA	NBN
1	CITY REVIEW	3/6/24	HFA	NBN

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

PAVEMENT MARKING PLAN

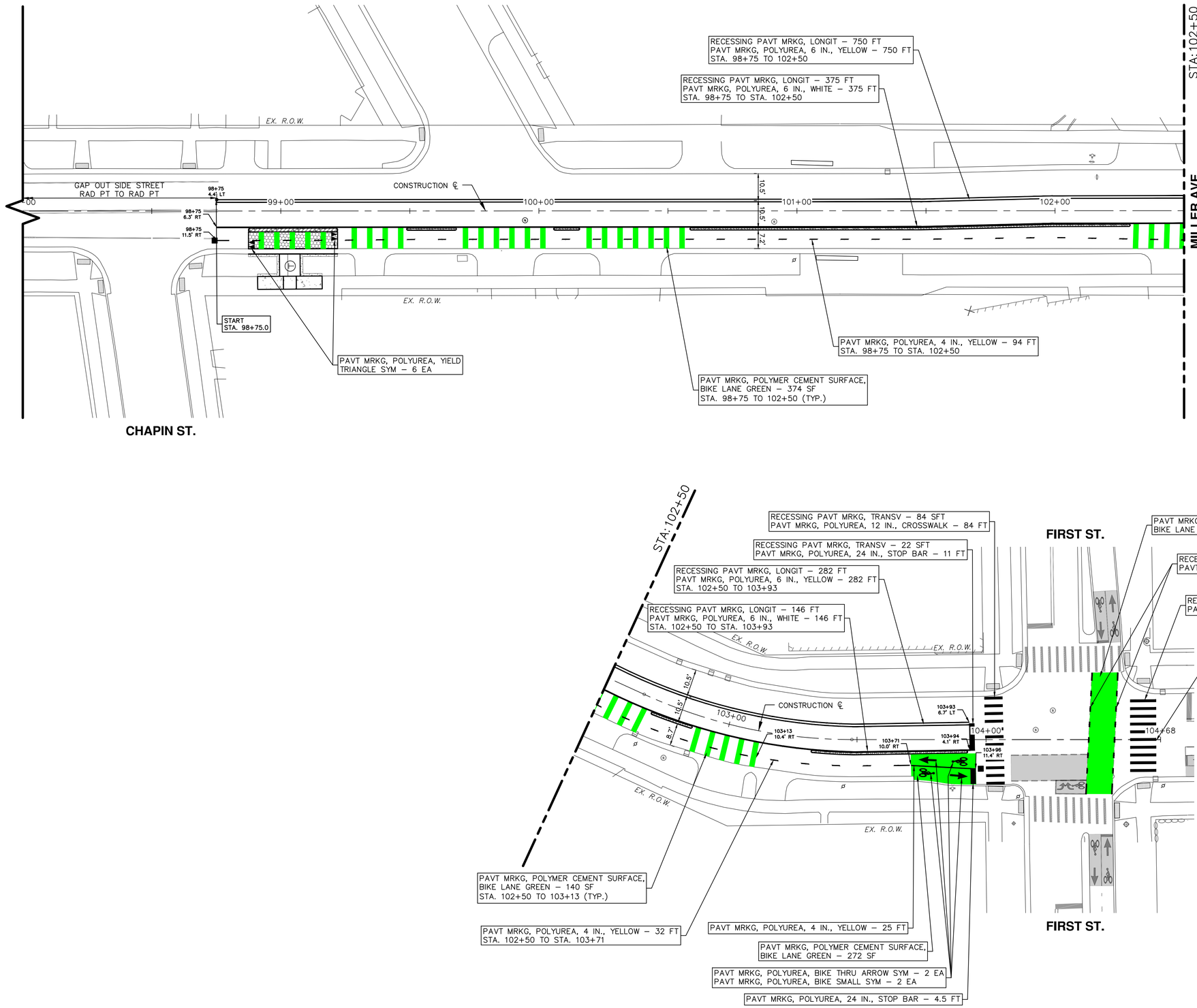
STA. 53+50 TO END

SCALE : 1" = 20'

DRAWING No. 20230643-PM06

SHEET No. 125

V:\202306\20230643\V\Sheets\pm06.dwg Dwg Created: 13-Mar-24 – _a2 standard bw.stb – Plot Date: 29-Apr-24



NOTES:

1. EXISTING PAVEMENT MARKINGS IN CONFLICT WITH PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED
2. PROPOSED PAVEMENT MARKINGS SHALL TIE IN AND MATCH EXISTING PAVEMENT MARKINGS AT ALL PROJECT LIMITS.
3. PAVEMENT MARKING SYMBOL DETAILS, LINE PATTERNS, AND CROSSWALK MARKINGS SHALL COMPLY WITH MDOT STANDARD DETAILS, DIMENSIONS, AND SPACING.
4. CALL OUTS REPRESENT REPLACEMENT AND NEW MARKINGS.
5. RETAIN ALL EXISTING MARKINGS UNLESS OTHERWISE NOTED.
6. LANE WIDTH SHALL NOT BE LESS THAN 10.5 FEET.
7. CYCLE TRACK WIDTH VARIES FROM 7 FEET TO 10 FEET EXCLUDING THE GUTTER.
8. YELLOW BIKEWAY DELINEATOR POST ARE TO BE INSTALLED ON CYCLE TRACK ADJACENT TO CROSS STREETS UNLESS OTHERWISE NOTED.

■ BIKEWAY DELINEATOR POST YELLOW – 2 EA (THIS SHEET)

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	ADDENDUM No. 2 PLANS	4/29/24	HFA	NBN
4	ADDENDUM PLANS	4/25/24	HFA	NBN
3	FINAL BID PLANS	4/3/24	HFA	NBN
2	FINAL PLANS	3/13/24	HFA	NBN
1	CITY REVIEW	3/6/24	HFA	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

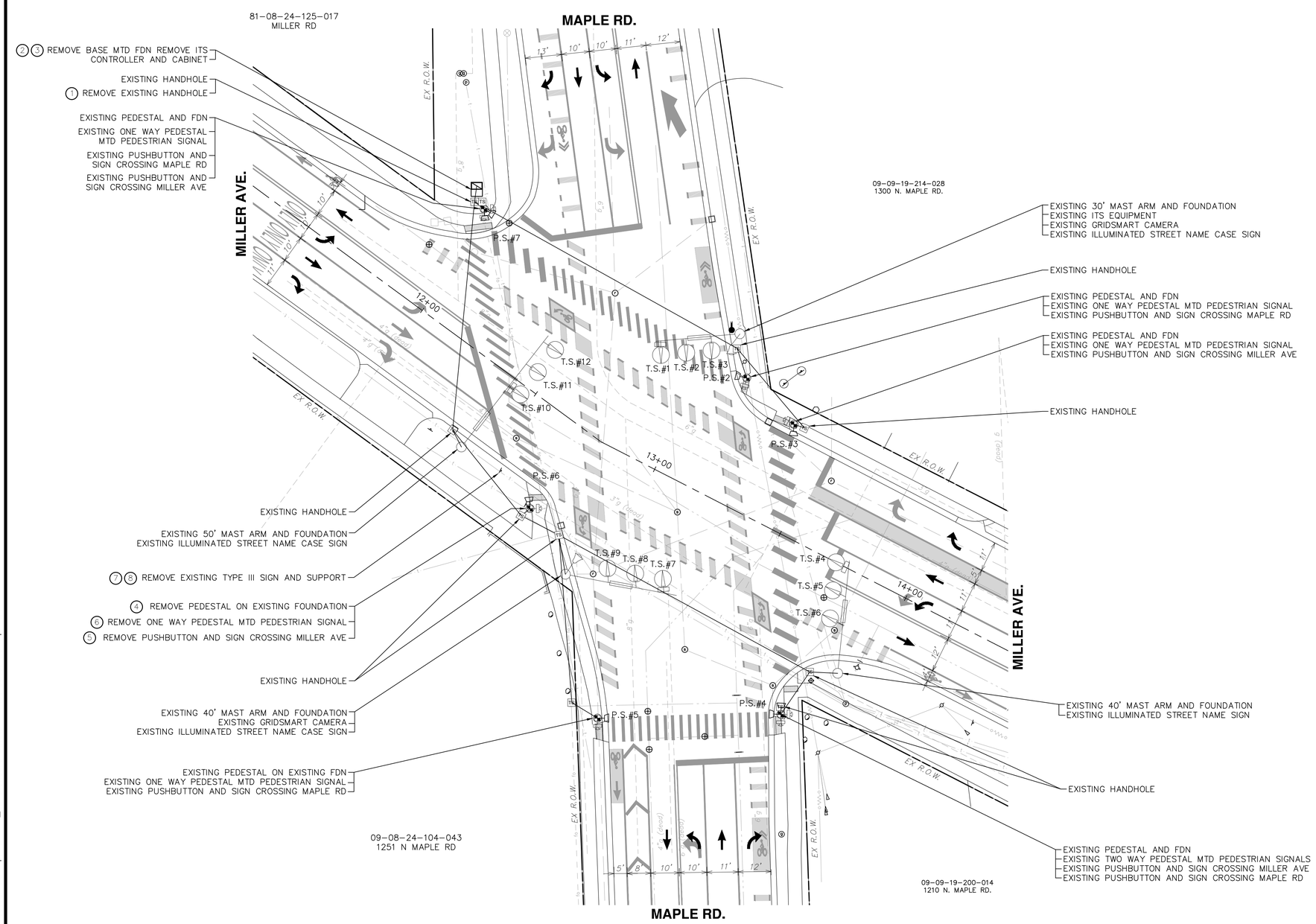
PAVEMENT MARKING PLAN

START TO P.O.E.

SCALE: 1" = 20'

DRAWING No. 20230643-PM07

SHEET No. 126



SIGNAL REMOVAL

SCALE: 1" = 20' (34"x22")
SCALE: 1" = 40' (17"x11")

APPROACH SPEED:	
NB	35 MPH
SB	35 MPH
EB	35 MPH
WB	35 MPH

QUANTITIES			
NO.	PAY ITEM	QTY	UNIT
1	Handhole, Rem	1	Ea
2	DS_Controller and Cabinet, Rem	1	Ea
3	DS_Controller Fdn, Rem	1	Ea
4	DS_Pedestal, Rem	1	Ea
5	DS_Pushbutton, Rem	1	Ea
6	DS_TS, Pedestrian, Pedestal Mtd, Rem	1	Ea
7	DS_Sign, Type III, Rem	1	Ea
8	DS_Ground Mtd Sign Support, Rem	1	Ea

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
2	ADDENDUM No. 2 PLANS	4/29/24	COB	NBN
1	ADDENDUM PLANS	4/25/24	COB	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

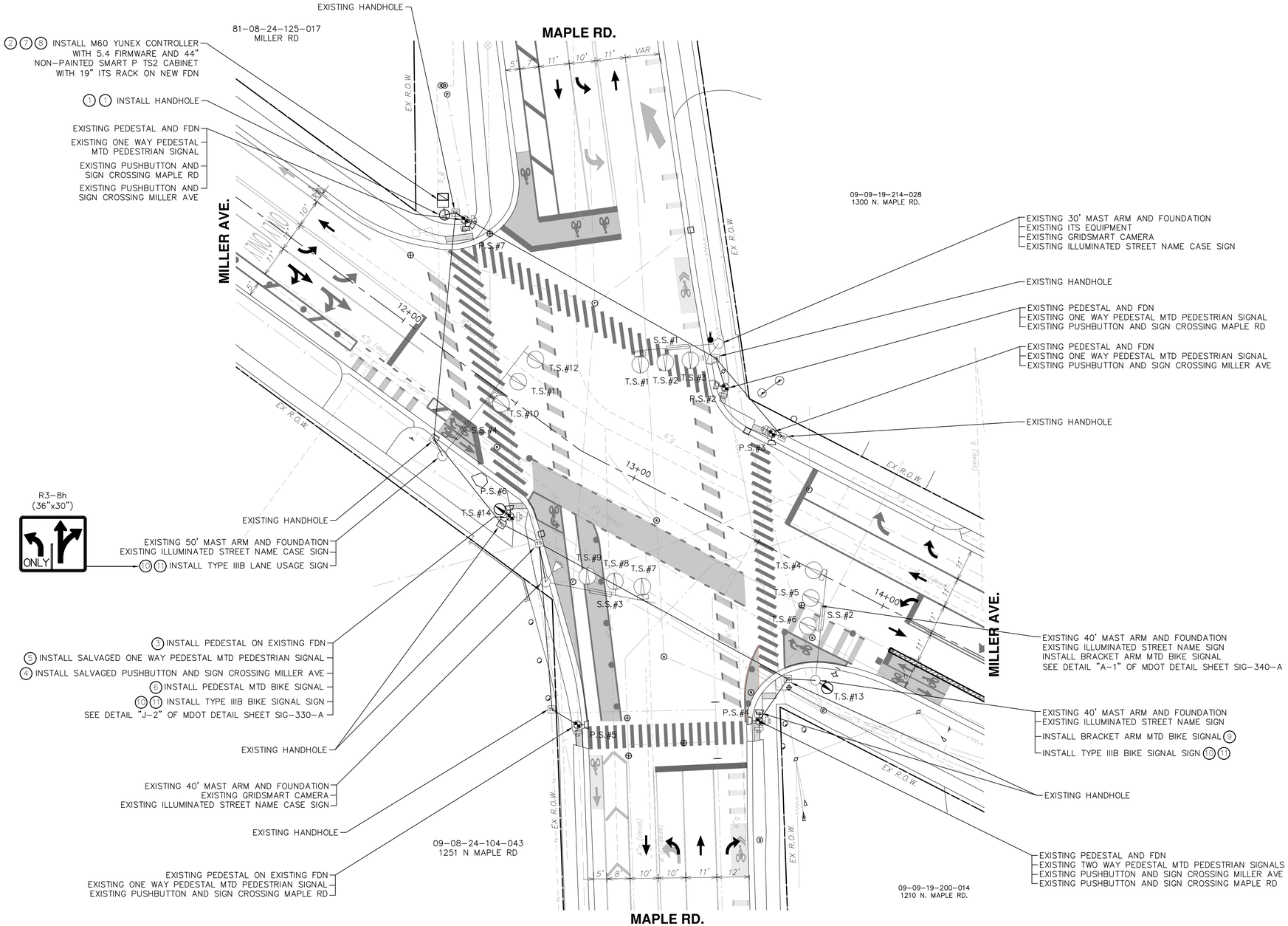
TRAFFIC SIGNAL REMOVAL

SR01-INTERSECTION OF MAPLE RD. AND MILLER AVE.

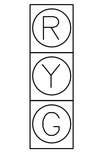
SCALE : 1" = 20'

DRAWING No. 20230643-SR01

SHEET No. 127

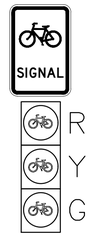


EXISTING ONE WAY
3 SEC T.S.



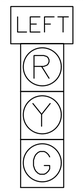
T.S. #2, #3, #5, #6, #8, #9, #11, #12

INSTALL ONE WAY
3 SEC 8" BIKE T.S.



T.S. #13, #14

EXISTING ONE WAY
3 SEC T.S. WITH
LEFT CASE SIGN



T.S. #1, #4, #7, #10

QUANTITIES			
NO.	PAY ITEM	QTY	UNIT
1	Handhole Assembly, 17 In. X 30 In. x 18 In.	2	Ea
2	DS_Controller Fdn, Base Mount	1	Ea
3	DS_Pedestal, Alum	1	Ea
4	DS_Pushbutton and Sign, Salv	1	Ea
5	DS_TS, Pedestrian, One Way Pedestal Mtd, Salv	1	Ea
6	DS_TS, One Way Pedestal Mtd (LED), Long Life	1	Ea
7	DS_Controller, NEMA, ATC Type, Modified	1	Ea
8	DS_Cabinet, NEMA Type, Modified	1	Ea
9	DS_TS, One Way Bracket Arm Mtd (LED), Long Life	1	Ea
10	DS_Band, Sign	3	Ea
11	DS_Sign, Type IIIB	9	Sft
	DS_Conduit, DB, 1, 1 1/2 inch	10	Ea
	DS_Conduit, DB, 1, 3 inch	10	Ft
	DS_Conduit, DB, 4, 3 inch	10	Ft

CONDUIT REQUIREMENTS (UNLESS OTHERWISE INDICATED)	
CONTROLLER FDN. TO H.H.	4-3", 1-3" & 1-1 1/2"

EXISTING STREET NAME SIGN, TWO WAY, ILLUMINATED
(WHITE LEGEND AND GREEN BACKGROUND)
SS #1, #3 FACING SOUTH/NORTH

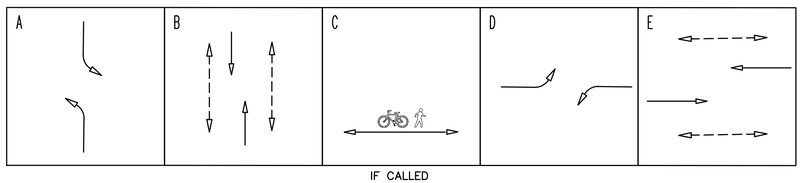
EXISTING STREET NAME SIGN, TWO WAY, ILLUMINATED
(WHITE LEGEND AND GREEN BACKGROUND)
SS #2, #4 FACING EAST/WEST

SIGNAL INSTALL

SCALE: 1" = 20' (34"x22")
SCALE: 1" = 40' (17"x11")

APPROACH SPEED:	
NB	35 MPH
SB	35 MPH
EB	35 MPH
WB	35 MPH

PHASING DIAGRAM



IF CALLED

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
2	ADDENDUM No. 2 PLANS	4/29/24	COB	NBN
1	ADDENDUM PLANS	4/25/24	COB	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

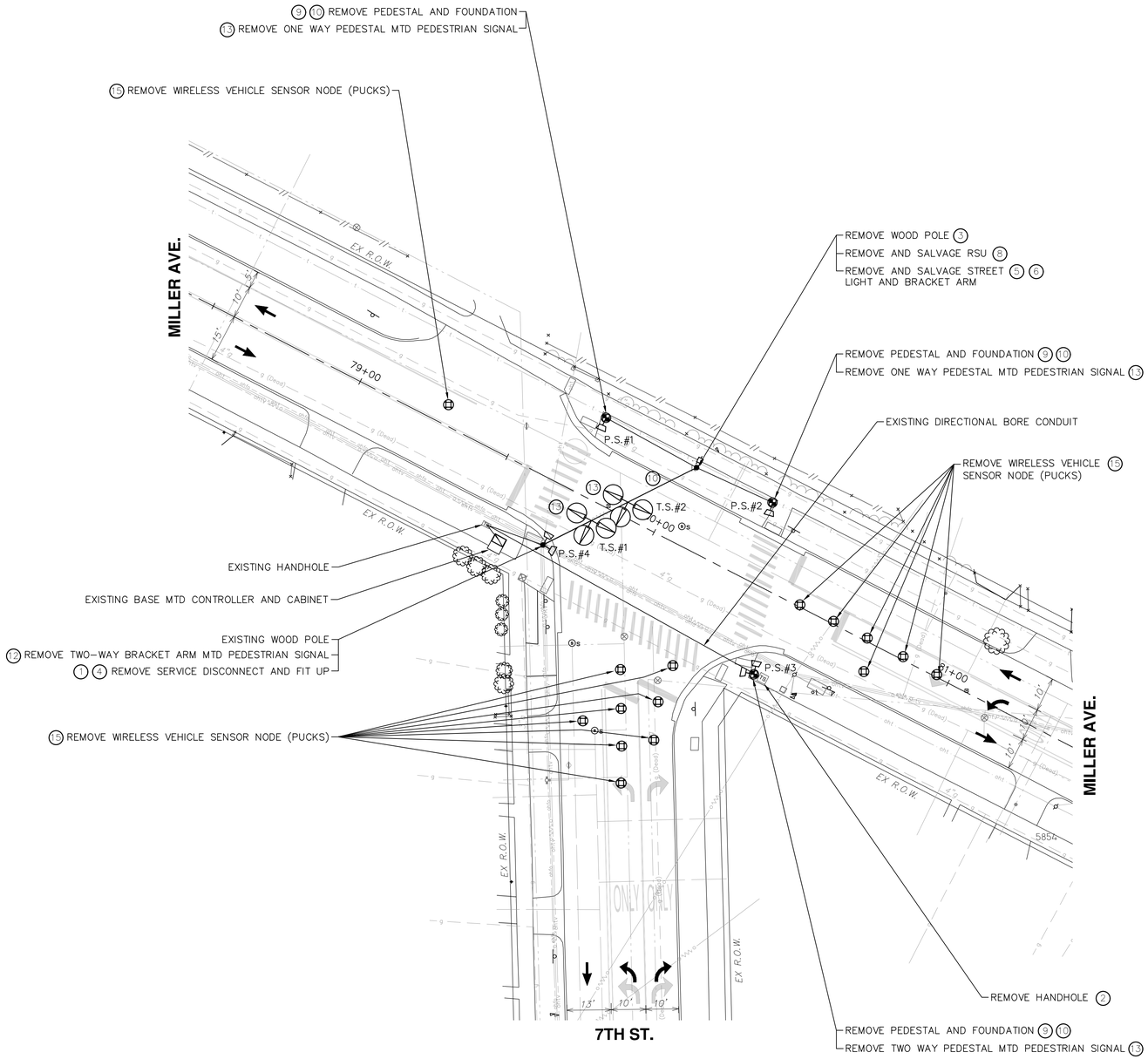
MILLER ROAD CYCLE TRACK
TRAFFIC SIGNAL REMOVAL

SI01 - INTERSECTION OF MAPLE RD. AND MILLER AVE.

SCALE: 1" = 20'

DRAWING No. 20230643-SI01

SHEET No.



SIGNAL REMOVAL

SCALE: 1" = 20' (34"x22")
SCALE: 1" = 40' (17"x11")

APPROACH SPEED:	
NB	30 MPH
EB	30 MPH
WB	30 MPH

QUANTITIES			
NO.	PAY ITEM	QTY	UNIT
1	DS_Cable Pole, TS and Sec, Disman	1	Ea
2	DS_Handhole, Rem	1	Ea
3	DS_Wood Pole, Rem	1	Ea
4	DS_Serv Disconnect, Rem	1	Ea
5	DS_Light Std Arm, Rem and Salv	1	Ea
6	DS_Light Fixture, Rem and Salvage	1	Ea
7	DS_Controller and Cabinet, Rem	1	Ea
8	DS_Roadside Unit, Rem and Salv	1	Ea
9	DS_Pedestal Fdn, Rem	3	Ea
10	DS_Pedestal, Rem	3	Ea
11	DS_Span Wire, Rem	1	Ea
12	DS_TS, Pedestrian, Bracket Arm Mtd, Rem	1	Ea
13	DS_TS, Pedestrian, Pedestal Mtd, Rem	3	Ea
14	DS_TS, Span Wire Mtd, Rem	2	Ea
15	DS_Wireless Vehicle Sensor Node, Rem	15	Ea

NOTE:

REUSE EXISTING HANDHOLES AND CONDUIT IF POSSIBLE

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
2	ADDENDUM No. 2 PLANS	4/29/24	COB	NBN
1	ADDENDUM PLANS	4/25/24	COB	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

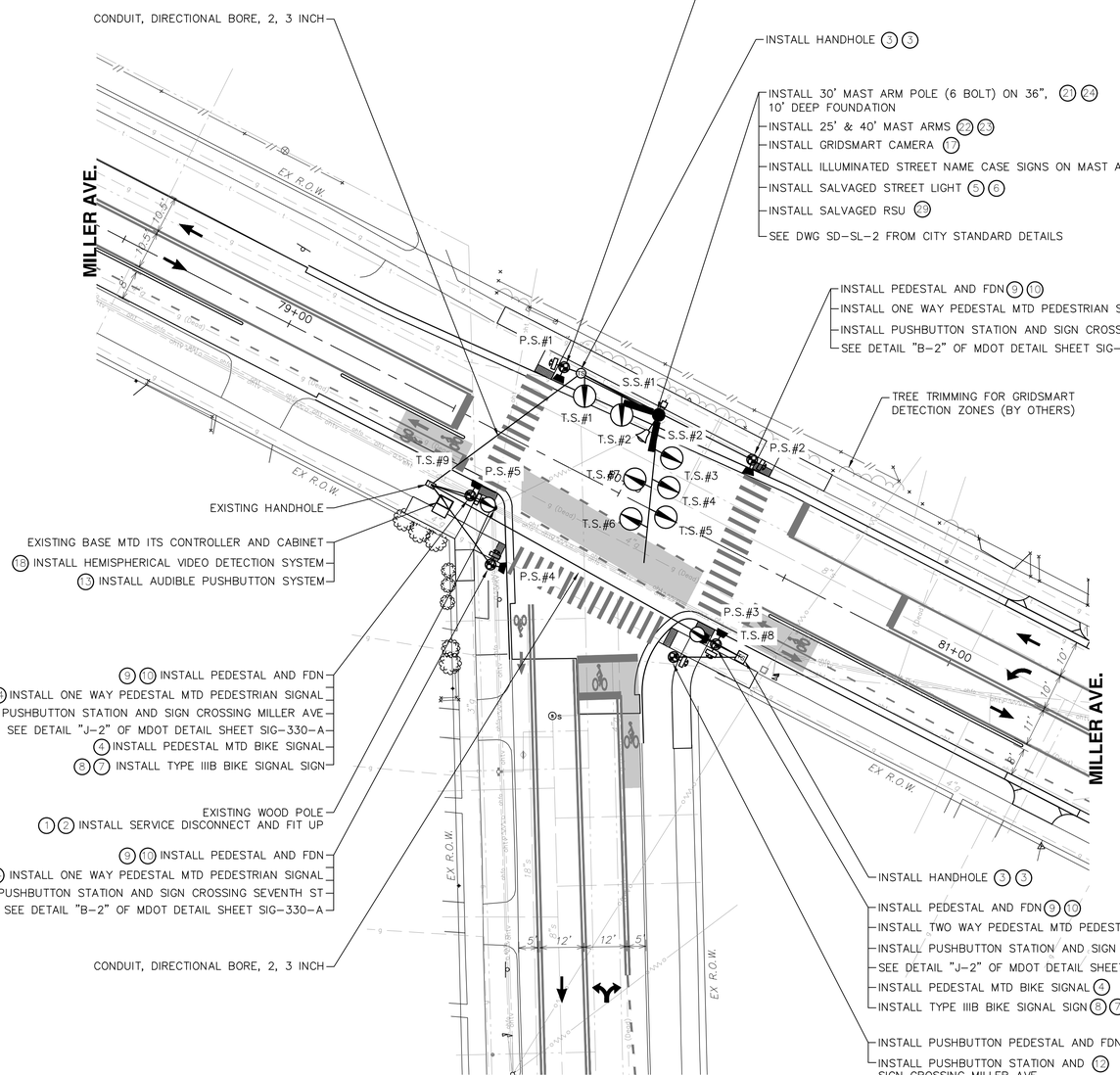
TRAFFIC SIGNAL REMOVAL

SR02-INTERSECTION OF 7TH ST. AND MILLER AVE.

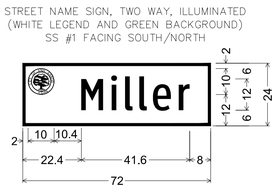
SCALE : 1" = 20'

DRAWING No. 20230643-SR02

SHEET No. 129



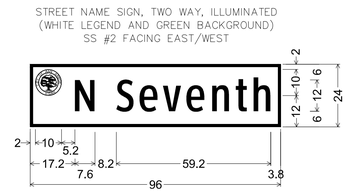
STREET NAME SIGN, TWO WAY, ILLUMINATED
(WHITE LEGEND AND GREEN BACKGROUND)
SS #1 FACING SOUTH/NORTH



Street Name Sign_Miller;
1.5" Radius, 1.0" Border, White on Green;
"Miller", ClearviewHwy-2-W;
Table of widths and spaces

22.4	M 8.5	3.0	i 2.4	2.9	l 3.0	2.5	l 3.0	2.2	e 7.0	2.9	r 4.2	8.0

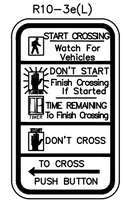
STREET NAME SIGN, TWO WAY, ILLUMINATED
(WHITE LEGEND AND GREEN BACKGROUND)
SS #2 FACING EAST/WEST



Street Name Sign_Miller;
1.5" Radius, 1.0" Border, White on Green;
"N Seventh", ClearviewHwy-2-W;
Table of widths and spaces

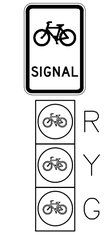
17.2	N 7.6	S 8.2	6.7	e 2.2	7.0	2.0	v 7.0	2.0	e 7.0	2.9	n 6.6	2.4	t 4.3	2.5	h 6.6	3.8		

R10-3e(L)



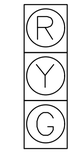
R10-3e(R)

INSTALL ONE WAY 3 SEC 8" BIKE T.S.



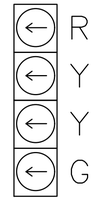
T.S. #8, #9

INSTALL ONE WAY 3 SEC T.S.



T.S. #1-#4, #6-#7

INSTALL TWO WAY 4 SEC FYA T.S.



T.S. #5

L.E.D.

COUNTDOWN HEAD
P.S.#1-#5

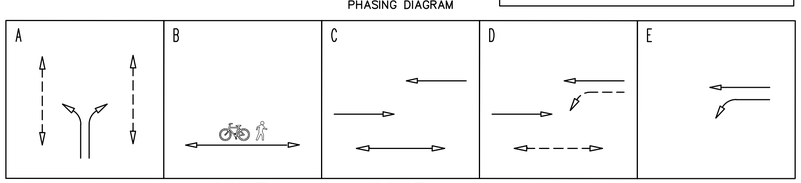
SIGNAL INSTALL

SCALE: 1" = 20' (34"x22")
SCALE: 1" = 40' (17"x11")

CONDUIT REQUIREMENTS (UNLESS OTHERWISE INDICATED)	
P.B. PEDESTAL TO H.H.	1-1 1/2"
H.H. TO H.H.	2-3"
MAST ARM FDN. TO H.H.	2-3"

APPROACH SPEED:	
NB	30 MPH
EB	30 MPH
WB	30 MPH

PHASING DIAGRAM



REFER TO CITY OF ANN ARBOR DETAIL SD-SL-2 FOR MAST ARM POLE FOUNDATION DETAIL

QUANTITIES			
NO.	PAY ITEM	QTY	UNIT
(1)	DS_Serv Disconnect	1	Ea
(2)	DS_Wood Pole, Fit Up, TS and Sec Cable Pole	1	Ea
(3)	Handhole Assembly, 17 In. X 30 In. x 18 In.	4	Ea
(4)	DS_TS, One Way Pedestal Mtd (LED), Long Life	2	Ea
(5)	DS_Light Std Arm, Install Salv	1	Ea
(6)	Light Fixture, Reinstall	1	Ea
(7)	DS_Band, Sign	2	Ea
(8)	DS_Sign, Type IIIB	3	Sft
(9)	DS_Pedestal, Alum	5	Ea
(10)	DS_Pedestal, Fdn	6	Ea
(11)	DS_Pushbutton, Pedestal, Alum	1	Ea
(12)	DS_Push Button Station and Sign	6	Ea
(13)	DS_Pedestrian Signal System, Accessible	1	Ea
(14)	DS_TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	4	Ea
(15)	DS_TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	1	Ea
(16)	DS_Bracket, Truss, With 12 Foot Arm	2	Ea
(17)	DS_Hemispherical Video Detection Camera	1	Ea
(18)	DS_Hemispherical Video Detection System	1	Ea
(19)	DS_Casing	7	Ft
(20)	DS_Backplate, TS	7	Ea
(21)	DS_Mast Arm Pole, Cat III	1	Ea
(22)	DS_Mast Arm, 25 foot, Cat III	1	Ea
(23)	DS_Mast Arm, 40 foot, Cat III	1	Ea
(24)	DS_Mast Arm Pole Fdn, Modified	10	Ft
(25)	DS_TS, One Way Mast Arm Mtd (LED), Long Life	6	Ea
(26)	DS_TS, One Way Mast Arm Mtd, FYA (LED), Long Life	1	Ea
(27)	DS_St Name Sign, Two Way, LED, 6 foot	1	Ea
(28)	DS_St Name Sign, Two Way, LED, 8 foot	1	Ea
(29)	DS_Roadside Unit, Install Salv	1	Ea
	DS_Conduit, Directional Bore, 2, 3 inch	150	Ft
	DS_Conduit, DB, 1, 1 1/2 inch	130	Ft
	DS_Conduit, DB, 2, 3 inch	75	Ft
	DS_Cable, Sec, 600V, 1, 3/C#6	100	Ft

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
2	ADDENDUM No. 2 PLANS	4/29/24	COB	NBN
1	ADDENDUM PLANS	4/25/24	COB	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK
TRAFFIC SIGNAL REMOVAL

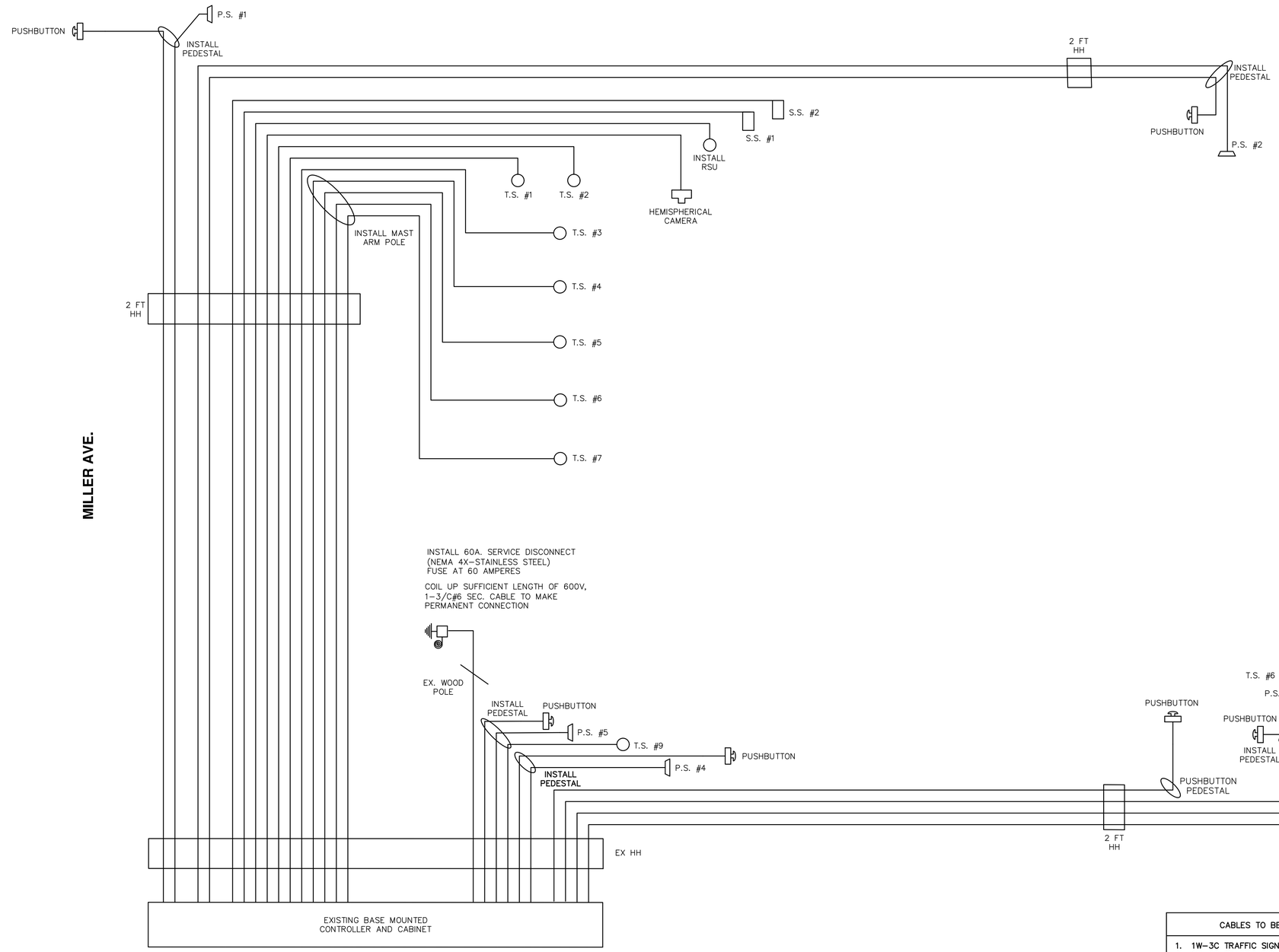
SI02 - INTERSECTION OF 7TH ST. AND MILLER AVE.

SCALE: 1" = 20'

DRAWING No. 20230643-SI02

SHEET No. 130

V:\202306\20230643\V\Sheets\si02.dwg Dwg Created: 29-Apr-24 _a2 standard bw.stb - Plot Date: 29-Apr-24



CABLES TO BE USED (UNLESS OTHERWISE INDICATED)
1. 1W-3C TRAFFIC SIGNAL CABLES SHALL BE 5/C#16P.J.
2. 1W-4C TRAFFIC SIGNAL CABLES SHALL BE 7/C#16P.J.
3. PEDESTRIAN SIGNAL CABLES SHALL BE 7/C#16P.J.
4. PUSHBUTTON CABLES SHALL BE 2/C#16 SHIELDED P.J.
5. CABLE TO VIDEO CAMERAS TO BE 600V CAT 5e OR APPROVED EQUAL
6. ILLUMINATED STREET NAME SIGN CABLES SHALL BE 4/C#16P.J.

CABLING INSTALL

NTS

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
2	ADDENDUM No. 2 PLANS	4/29/24	COB	NBN
1	ADDENDUM PLANS	4/25/24	COB	NBN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

MILLER ROAD CYCLE TRACK

TRAFFIC SIGNAL REMOVAL

SC02 - INTERSECTION OF 7TH ST. AND MILLER AVE.

SCALE : 1" = 20'

DRAWING No. 20230643-SC02

SHEET No. 131