ADDENDUM No. 1

RFP No. 24-17

Yorkshire, Independence, and Medford (Y.I.M.) Water Main Replacement Project

Due Date: March 28, 2024 by 2:00 p.m. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes a total of ninety-nine (99) pages.**

The Proposer is to acknowledge **receipt of this Addendum No. 1 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 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. Changes highlighted in yellow reflect the changes made in this addendum. 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
Pages 15 & 16 Section III.E	Schedule of Pricing/Cost Forms; replace with pages Addendum 1-8 to 11. Revisions are described below. Added the following pay items: 01051.00 – Sign, Type B, Temp, Prismatic, Special, Furn & Oper 01101.00 – Pedestrian Channelizer Device, Furn & Oper 01102.00 – Temporary Pedestrian Ramp, Furn & Oper 01103.00 – Temporary Pedestrian Mat, Furn & Oper 02000.00 – DS_Tree Trimming Allowance 04014.02 – 6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2

Pages 15 & 16
Section III.E (continued)

06070.01 – Storm Single Inlet, 24 In. Dia., (0-8' deep)
06140.00 – Storm Sewer Structure, Rem

06150.00 – Storm Sewer Drop Structure, Rem

06160.03 – Storm Structure Adjust, Additional Depth

06170.00 – Storm Structure, Reconstruct

07110.01 – Sacrificial Anode, 17-pound

07110.02 – Sacrificial Anode, 32-pound

07131.00 – Temporary Water Main Line Stop, Additional Rental Day

08010.71 – Aggregate Base Conditioning

08060.00 – Hand Patching

10050.00 – Underground Sprinkling System, Restore

Replaced the following pay items:
01001.00 – General Conditions, Max. $114,000.00 with pay item 01001.00 – General Conditions, Max. $150,000.00

01002.00 – Project Supervision, Max. $114,000.00 with pay item 01002.00 – Project Supervision, Max. $70,000.00

01040.00 – Minor Traffic Control, Max $91,000.00 with pay item 01040.00 – Minor Traffic Control, Max $90,000.00

03000.00 – Machine Grading, Modified with pay item 03000.71 – DS_Machine Grading

07004.01 – 6 In., Class 56 DIP w/polywrap, SD-TD-1 with pay item 07000.02 – 6 In., PC 350 DIP w/polywrap, SD-TD-1

07004.02 – 8 In., Class 56 DIP w/polywrap, SD-TD-1 with pay item 07000.03 – 8 In., PC 350 DIP w/polywrap, SD-TD-1

07004.04 – 12 In., Class 56 DIP w/polywrap, SD-TD-1 with pay item 07000.05 – 12 In., PC 350 DIP w/polywrap, SD-TD-1

10060.00 – Turf Restoration with the pay item 10060.71 – DS_Turf Restoration

Removed the following pay item:
03050.00 – Embankment, CIP

07030.05 – 8 In. X 8 In. X 6 In. DIP Tee

Revised estimated quantities for the following pay items:
01050.00 – Sign, Type B, Temp, Prismatic, Furn & Oper

01100.00 – Pedestrian Type II Barricade, Temp, Furn & Oper

06001.01 – 12 In., CL IV RCP Storm Sewer, SD-TD-1

06020.00 – Pipe Undercut & Backfill, Storm

06120.03 – Storm Sewer Pipe, 12 In. Dia., Rem

Pages 15 & 16 Section III.E (continued)	07030.05 – 8 In. X 6 In. DIP Reducer 07030.06 – 8 In. X 8 In. X 8 In. DIP Tee 08010.71 – Aggregate Base, 8 In., 21AA, CIP
Pages 45-47 Detailed Specifications	Insert Detailed Specification for Project Schedule; pages Addendum 1-12 thru 14. Insert Detailed Specification for Aggregate Base Conditioning; pages Addendum 1-15. Insert Detailed Specification for Concrete Durability; pages Addendum 1-16 thru 21. Insert Detailed Specification for Concrete Placement and Protection; pages Addendum 1-22 & 23. Insert Detailed Specification for General Construction Notes; pages Addendum 1-24. Insert Detailed Specification for HMA Acceptance; pages Addendum 1-25 thru 31. Insert Detailed Specification for HMA Application Estimate; pages Addendum 1-32. Insert Detailed Specification for Machine Grading; pages Addendum 1-33 thru 37. Insert Detailed Specification for Maintenance of Traffic; pages Addendum 1-38 thru 40. Insert Detailed Specification for Quantities and Unit Prices; pages Addendum 1-41. Insert Detailed Specification for Restoration; pages Addendum 1-42. Insert Detailed Specification for Soil Boring Pavement Section and Geotechnical Data; pages Addendum 1-43. Insert Detailed Specification for Tree Trimming; pages Addendum 1-44 thru 46.
City of Ann Arbor Standard Details	Replace Standard Detail SD-W-1 for Fire Hydrant Assembly with Revision No. 00 dated 2/5/24; pages Addendum 1-47. Replace Standard Detail SD-W-3 for Precast Gate Well (Watermains 16 Inch and Smaller) with Revision No. 00 dated 2/5/24; pages Addendum 1-48.
Plans Sheets 1 to 47	Replace Plan Set in its entirety. Revisions are noted below.

Sheet 1: Cover/Title Sheet	Revised “Sheet List Table” to show reordering of Removal Plan sheets, Water Main Plan & Profile sheets, Construction Plan sheets, and Profile sheets. Added sheets 48-51. Revised map showing project location. Revised date of City of Ann Arbor Standard Specifications for 1994 to 2024.
Sheet 2: General Notes Sheet	Updated “Miscellaneous or As-Needed Quantities” and “City of Ann Arbor Standards Used” tables. Updated cost for soil erosion and sedimentation control measures, topsoil, seeding, and mulch, site soils information.
Sheets 8-11: Typical Sections – 1, 2, 3 & 4 Sheets	Revised excavation limits beneath existing pavement that to remain in place. Revised dimensioning for “Machine Grading” and “Turf Restoration”. Added dimensioning for “Aggregate Base Conditioning”. Revised call outs on proposed typical sections related to hot mix asphalt leveling and top courses, water main trench, concrete curb and gutter, and embankment.
Sheets 12, 15, 16, 19, 22, 23, 26, 27, 31, 32, 33, 37 and 39: Removal Sheets and Construction Sheets	Added call outs and revised quantity tables to reflect the removal and replacement of drop inlet storm structures.
Sheets 13, 14, 20, 21, 28, 29 and 30: Water Main Plan & Profile Sheets	Revised call outs and quantity tables to reflect revisions related to the fire hydrant assembly connection at the water main.
Sheet 46: Detour Plan Sheets	Revised “Maintenance of Traffic” quantity table. Added quantity tables for “Sign, Type B, Temp, Prismatic” and “Sign, Type B, Temp, Prismatic, Special”. Revised notes.
Sheets 48 & 49: Alternate Pedestrian Routes (APR) Sheets	Added these sheets to plan set.
Sheets 50 & 51: Temporary Pedestrian Access Routes (TPAR) Sheets	Added these sheets to plan set.

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: Class 56 pipe is specified on this job, new city spec is for Standard PC350 which is a lower thickness class than class 50. Is class 56 pipe correct for this job?

Answer: *Class 56 ductile iron pipe was specified in error and has been revised to PC 350 ductile iron pipe. Addendum 1 includes the necessary pay items, quantities, and plan revisions to address this matter.*

Question 2: Will the city be trimming trees to accommodate construction efforts prior to construction?

Answer: *An allowance for tree trimming has been added to the RFP should City of Ann Arbor Forestry crews be unable to perform this work in advance of construction. Addendum 1 includes a detailed specification addressing this matter.*

Question 3: Generally, Signs and Signals prefers to handle all sign work on their own. Has anyone reached out to signs and signals about removal and salvage of signs, and do they want the contractor to handle this item?

Answer: *The contractor will be responsible for removing and salvaging existing signs. The RFP includes a pay item for "Sign, Rem, Salv" to address this work. The City's Sign and Signal Unit will reinstall the salvaged signs and any new ones after construction is complete.*

Question 4: Can multiple roads be worked on at once?

Answer: *Addendum 1 includes a Detailed Specification for Project Schedule that addresses the construction sequencing for the project and allowable concurrent work.*

Question 5: The plans call out for DR 2 each in multiple spots on the plans with no explanation. What is this calling for on the plans?

Answer: *This call out was shown in error and any references to it have been removed from the plans as part of Addendum 1.*

Question 6: This project has multiple drop inlet structures on it, is it still the city's intention to replace these with 2' monobase inlets with 2' sump? If so, will these be added to the pay items?

Answer: *Yes, the project will include replacement of drop inlet structures. Addendum 1 includes the necessary pay items and quantities to address this work.*

Question 7: There is one pay item for storm structure adjust which will potentially include 3 different casting and adjustment effort types, are these to be assumed they will all be paid the same price?

Answer: *The unit price for the pay item "Storm Structure Cover, Adjust" is the same for all storm castings/covers regardless of type.*

Question 8: Given the road profile, it would appear all long side sanitary services are going to be crossed with watermain underneath, will there be a pay item for repairing the sanitary laterals during watermain installation? Which type of fernco, and pipe will be required for fix a sanitary lateral?

Answer: *The existing sanitary sewers are 10-12 feet deep and are unlikely to be exposed during the water main work; however, the contractor will be required to relocate and replace any conflicting leads it encounters during construction in accordance with City of Ann Arbor Standard Specification. As part of Addendum 1 the miscellaneous (as-needed) pay item and quantity for "6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2" has been added to the RFP to address this matter.*

Question 9: Embankment CIP is one of the pay items. The plans call for embankment behind new curb and specify will be paid as Machine Grading. What is the Embankment CIP pay item intended for?

Answer: *As a part of Addendum 1 this pay item has been removed from the RFP.*

Question 10: Is stone incidental to the curb pay item? How much stone is going under the curb?

Answer: *The stone beneath the concrete curb and cutter is not incidental to that pay item and is being paid for as "Aggregate Base, 8 inch, 21AA, CIP".*

Question 11: The road profile shows 8" of stone on the water main side of the road, will there be any stone required on the other side of the road? How will this stone be paid for?

Answer: *In various locations outside of the water main trench where the existing road base is to remain it may be necessary to add aggregate to achieve proposed grades and cross slopes. As part of Addendum 1 the pay item and quantity for "Aggregate Base Conditioning" and a related detailed specification has been added to the RFP to address this matter.*

Question 12: The hydrants are drawn with a 8x6 tee, the city usually installs them with an 8 inch tee and an 8x6 reducer 3 feet from the companion valve. How will these hydrants be installed?

Answer: *The 8 In. x 8 In. x 6 In. are shown in error on the plans. Hydrant connections are to be installed in accordance with the current City of Ann Arbor Standard Detail SD-W-1 (Fire Hydrant Assembly). Addendum 1 includes the necessary quantities and plan revisions to address this matter.*

Question 13: The plans call for 10' of watermain removal at each new hydrant location. Is this to remove the Tee for the old hydrant, or to accommodate installation of the new hydrant? Are there profile drawings for the new hydrants?

Answer: *The purpose of removing 10 feet of existing water main at each new hydrant location is to accommodate those installations and could involve removing the old hydrant "tee" if it falls within the removal limits. Profiles drawings of the new hydrants will be made available to the contractor awarded the project prior to the start of construction.*

Question 14: There is a 20" watermain that is to be crossed on Dorchester, is there any information on that main? Will it be in conflict with the 8" watermain, if so, will the 8" watermain be going over or under the 20" water?

Answer: *No information is available for the existing 20" water main where the new 8" water main crosses it in the Yorkshire Rd and Dorchester Rd intersection. The City anticipates using the pay item "Exploratory Excavation, SD-TD-1, (0-10' Deep)" to determine the elevation of this main and at that time a determination will be made on to how to best address this crossing should there be a conflict.*

Question 15: What is the engineer's estimated cost of construction (for bonding purposes)?

Answer: *The Engineer's Estimated Opinion of Cost is approximately $2.5M.*

Question 16: Can you provide an excel file version of the bid form for submission?

Answer: *Unfortunately, a Microsoft Excel cannot be provided.*

Question 17: I do not see a pay item for additional rental days for line stop usage (if necessary). Can this pay item be added?

Answer: *The pay item "Temporary Water Main Line Stop, Additional Rental Day" has been added to the RFP as part of Addendum 1.*

Question 18: In lanes of roads where utility installation is not proposed, how will the additional aggregate required to make grade be paid for? I only Items 08010.02 and 08010.03 that are paid for by the square yard. My concern is that the non-utility side of the road will be low (based on existing HMA thicknesses) and the resulting stone grade will not be uniform. It will be nearly impossible to prove quantity on a SY measurement. Could this additional stone be paid for by the ton?

Answer: *See answer to Question 11.*

Question 19: I did not see a pay item for HMA hand patching. Was this an omission?

Answer: *The pay item "Hand Patching" has been added to the RFP as part of Addendum 1.*

Question 20: The plans and schedule of values specify the DIP as CL56. Current City standards require PC350 DIP. Is the use of CL56 DIP a project specific requirement?

Answer: *See answer to Question 1.*

Question 21: On the pavement typical sections the project shows all HMA coming out, new agg base is only shown in the watermain influence areas. The remainder of the pavement sections looks like the intention is to remove the pavement and pave on the existing agg base. The issue here is that the existing pavement is thicker than the new 4" HMA called for on the streets in many areas. How will the aggregate that will be needed to raise the aggregate base in these areas be paid for?

Answer: *See answer to Question 11.*

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

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Y.I.M. Watermain Replacement Project
File #: 2023-24 **RFP#: 24-17**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED	UNIT PRICE	TOTAL PRICE
01000.00	General				
01001.00	General Conditions, Max. $150,000.00	LS	1.00	$	$
01002.00	Project Supervision, Max. $70,000.00	LS	1.00	$	$
01003.00	Project Clean-Up and Restoration	LS	1.00	$	$
01004.00	Digital Audio Visual Coverage	LS	1.00	$	$
01021.00	Erosion Control, Inlet Protection, Fabric Drop	Ea	31.00	$	$
01022.00	Erosion Control, Silt Fence	Ft	500.00	$	$
01040.00	Minor Traffic Control, Max $90,000.00	LS	1.00	$	$
01041.00	Traffic Regulator Control	LS	1.00	$	$
01050.00	Sign, Type B, Temp, Prismatic, Furn & Oper	Sft	339.50	$	$
01051.00	Sign, Type B, Temp, Prismatic, Special, Furn & Oper	Sft	152.00	$	$
01052.00	Temporary "No Parking" Sign	Ea	100.00	$	$
01080.00	Plastic Drum, High Intensity, Lighted, Furn & Oper	Ea	100.00	$	$
01092.00	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	Ea	21.00	$	$
01100.00	Pedestrian Type II Barricade, Temp, Furn & Oper	Ea	16.00	$	$
01101.00	Pedestrian Channelizer Device, Furn & Oper	Ea	16.00	$	$
01102.00	Temporary Pedestrian Ramp, Furn & Oper	Ea	4.00	$	$
01103.00	Temporary Pedestrian Mat, Furn & Oper	Ft	100.00	$	$
02000.00	Removals				
02000.00	DS_Tree Trimming Allowance	Dir	7,500.00	$ 1.00	$ 7,500.00
02020.00	HMA, Any Thickness, Rem	Syd	8,224.00	$	$
02030.00	Curb, Gutter, and Curb and Gutter, Any Type, Rem	Ft	5,031.00	$	$
02040.00	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	Sft	10,287.00	$	$
02050.00	Sign, Rem, Salv	Ea	36.00	$	$
03000.00	Earthwork				
03000.71	DS_Maching Grading	Syd	4,047.00	$	$
03020.00	Subgrade Undercutting, Type III	Cyd	100.00	$	$
03030.01	Exploratory Excavation, SD-TD-1, (0-10' Deep)	Ea	5.00	$	$

Project: Y.I.M. Watermain Replacement Project
File #: 2023-24 **RFP#: 24-17**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED	UNIT PRICE	TOTAL PRICE
04000.00	**Sanitary Sewer**				
04015.01	6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	Ft	100.00	$	$
04060.00	Sanitary Structure Cover	Ea	3.00	$	$
04061.00	Sanitary Structure Cover, Adjust	Ea	3.00	$	$
06000.00	**Storm and Drainage**				
06001.01	12 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	250.00	$	$
06020.00	Pipe Undercut & Backfill, Storm	Cyd	395.00	$	$
06070.01	Storm Single Inlet, 24 In. Dia., (0-8' deep)	Ea	12.00	$	$
06120.03	Storm Sewer Pipe, 12 In. Dia., Rem	Ft	269.00	$	$
06140.00	Storm Sewer Structure, Rem	Ea	1.00	$	$
06150.00	Storm Sewer Drop Structure, Rem	Ea	12.00	$	$
06160.01	Storm Structure Cover	Ea	22.00	$	$
06160.02	Storm Structure Cover, Adjust	Ea	22.00	$	$
06160.03	Storm Structure Adjust, Additional Depth	Ft	10.00	$	$
06170.00	Storm Structure, Reconstruct	Ft	10.00	$	$
06181.02	Underdrain, Subbase, 6 inch	Ft	5,099.00	$	$
07000.00	**Water Mains**				
07004.01	6 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	151.00	$	$
07004.02	8 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	2,623.00	$	$
07004.04	12 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	62.00	$	$
07010.02	6 In. 45° DIP Bend	Ea	7.00	$	$
07010.03	6 In. 22.5° DIP Bend	Ea	10.00	$	$
07011.02	8 In. 45° DIP Bend	Ea	30.00	$	$
07011.03	8 In. 22.5° DIP Bend	Ea	1.00	$	$
07011.04	8 In. 11.25° DIP Bend	Ea	10.00	$	$
07013.03	12 In. 22.5° DIP Bend	Ea	1.00	$	$
07020.02	8 In. X 4 In. DIP Reducer	Ea	1.00	$	$
07020.03	8 In. X 6 In. DIP Reducer	Ea	13.00	$	$
07020.09	12 In. X 8 In. DIP Reducer	Ea	1.00	$	$
07030.06	8 In. X 8 In. X 8 In. DIP Tee	Ea	13.00	$	$
07030.13	12 In. X 12 In. X 8 In. DIP Tee	Ea	2.00	$	$

Project: Y.I.M. Watermain Replacement Project
File #: 2023-24 **RFP#: 24-17**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED	UNIT PRICE	TOTAL PRICE
07030.15	12 In. X 12 In. X 12 In. DIP Tee	Ea	1.00	$	$
07060.02	Gate Valve In Well, 8 In.	Ea	10.00	$	$
07080.00	Excavate & Backfill For Water Service Tap and Lead	Ft	439.00	$	$
07090.00	Water Structure Cover	Ea	10.00	$	$
07091.00	Water Structure Cover, Adjust	Ea	10.00	$	$
07100.00	Fire Hydrant Assembly, Complete	Ea	10.00	$	$
07102.00	Fire Hydrant Assembly, Rem	Ea	4.00	$	$
07110.01	Sacrificial Anode, 17-pound	Ea	10.00	$	$
07110.02	Sacrificial Anode, 32-pound	Ea	1.00	$	$
07130.01	Temporary Water Main Line Stop, 8 In. or less	Ea	10.00	$	$
07131.00	Temporary Water Main Line Stop, Additional Rental Day	Ea	10.00	$	$
07140.01	Water Main Pipe, 4 In. Dia., Abandon	Ft	158.00	$	$
07140.02	Water Main Pipe, 6 In. Dia., Abandon	Ft	2,166.00	$	$
07150.01	Water Main Pipe, 4 In. Dia., Rem	Ft	23.00	$	$
07150.02	Water Main Pipe, 6 In. Dia., Rem	Ft	224.00	$	$
07150.05	Water Main Pipe, 12 In. Dia., Rem	Ft	51.00	$	$
07160.01	Gate Valve in Box, 4 In. Dia., Abandon	Ea	1.00	$	$
07160.03	Gate Valve in Box, 6 In. Dia., Abandon	Ea	4.00	$	$
07170.01	Gate Valve in Box, 4 In. Dia., Rem	Ea	1.00	$	$
07170.02	Gate Valve in Box, 6 In. Dia., Rem	Ea	2.00	$	$
08000.00	Streets, Driveways, & Sidewalks				
08001.00	Subbase, CIP	Cyd	36.00	$	$
08010.02	Aggregate Base, 6 In., 21AA, CIP	Syd	924.00	$	$
08010.03	Aggregate Base, 8 In., 21AA, CIP	Syd	4,371.00	$	$
08010.71	Aggregate Base, Conditioning	Syd	3,229.00	$	$
08060.00	Hand Patching	Ton	15.00	$	$
08070.14	HMA, 4EL	Ton	1,007.00	$	$
08070.18	HMA, 5EL	Ton	1,007.00	$	$
08080.71	DS_Conc, Speed Hump	Ea	1.00	$	$
08110.00	Conc, Curb or Curb & Gutter, All Types	Ft	3,861.00	$	$

Project: Y.I.M. Watermain Replacement Project
File #: 2023-24 **RFP#: 24-17**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED	UNIT PRICE	TOTAL PRICE
08120.01	Conc, Driveway Opening, Type M	Ft	1,238.00	$	$
08130.01	Conc, Sidewalk, 4 In.	Sft	1,217.00	$	$
08131.01	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	Sft	7,797.00	$	$
08150.00	Detectable Warning Surface	Ft	99.00	$	$
08200.07	Pavt Mrkg, Polyurea, 12 In., Crosswalk	Ft	800.00	$	$
08200.09	Pavt Mrkg, Polyurea, 24 In., Stop Bar	Ft	108.00	$	$
08200.31	Pavt Mrkg, Polyurea, Speed Hump Chevron, White	Ea	4.00	$	$
10000.00	Landscaping				
10050.00	Underground Sprinkling System, Restore	Dlr	5,000.00	$	$
10060.71	DS_Turf Restoration	Syd	4,380.00	$	$

Total Estimated Cost **$** _____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

Complete the entirety of work under this Contract in accordance with, and subject to, the scheduling requirements outlined below, and all other requirements of the Contract Documents.

1. The Engineer anticipates that construction can begin on or after **May 20, 2024**, and only upon receipt of the fully executed Contract and Notice to Proceed. Appropriate time extensions may be granted if the Notice to Proceed is delayed beyond this date.

2. This project requires water main, storm sewer improvements, concrete curb and gutter, concrete curb ramps and sidewalk, aggregate base, hot mix asphalt (HMA) paving, turf establishment, and pavement markings on four (4) different streets: Independence Boulevard, Medford Road, Medford Court, and Yorkshire Road. The entire project must be complete by **October 4, 2024**.

3. The Contractor shall start on Medford Road and Medford Court and have them both open to traffic by **August 20, 2024**. Perform and complete water main work sequentially beginning with Medford Road and Court, then Independence Boulevard, and lastly Yorkshire Road unless otherwise approved by the Engineer. Complete water main and other underground utility work on each street prior to commencing with road and other related work unless otherwise approved by the Engineer.

The City expects to furnish the Contractor with two (2) copies of the Contract, for its execution, on or before **April 11, 2022**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance documentation, to the City by **May 2, 2022**. City Council approval to award a contract for this project is expected on **May 6, 2024**. The Contractor shall not begin the work before the applicable date(s) as described herein without approval from the Project Engineer, and in no case before the receipt of the fully executed Contract and Notice to Proceed.

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.

The Contractor shall organize, coordinate, and diligently execute the work at the locations shown on the plans and as described below. For this Contract, the “Start of Work” definition is the date when the temporary “No-Parking” signs become effective, and all required temporary traffic control and SESC measures are in place and ready for use. The Engineer will consider individual streets or phases ready for opening to traffic once all concrete work is complete, utility structures

covers are raised to finished grade and placement of the HMA top course is complete. Within 10 days of opening the street to traffic the Contractor will complete all work, which includes, but is not limited to, minor slope restoration, clean-up, street cleaning, utility structure cleaning, the removal of all temporary traffic control and SESC devices and temporary “No Parking” signs, and other necessary work and as directed by the Engineer. Failure to complete work in a timely manner may result in the suspension of active project work or a delay in starting subsequently planned project work.

Failure to open to traffic or complete all work as specified within the time specified, including time extensions granted thereto as determined by the Engineer, will entitle the City to deduct from the payments due the Contractor, **$1,500.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each calendar day the work remains incomplete.

Assessment of Liquidated Damages will occur until the required work is complete in the current construction season. If, with the Engineer’s approval, work extends beyond the seasonal suspension period (November 15 through April 15), the City will not assess Liquidated Damages until the Contractor resumes and completes the work in the following construction season.

The following workday, hour and other work restrictions are imposed by the City of Ann Arbor.

Contractor operations shall be limited by local municipality work time, noise, and dust ordinance:

- Monday through Friday: 7:00 am – 8:00 p.m.
- Saturday: 7:00 a.m.– 8:00 p.m.; Give notice to Engineer no less than 48 hours and no more than 5 days in advance.
- Sunday: Only with written approval from the City of Ann Arbor

Perform no work during the following Holiday periods unless approved in advance by the Engineer:

- Memorial Day - 3:00 p.m. Friday, May 24, 2024, through 7:00 a.m. Tuesday, May 28, 2024.
- Independence Day - 3:00 p.m. Wednesday, July 3, 2024, through 7:00 a.m. Friday, July 5, 2024.
- Labor Day - 3:00 p.m. Friday, August 30, 2024, through 7:00 a.m. Tuesday, September 3, 2024

Perform no work during the following scheduled University of Michigan home football game dates unless approved in advance by the Engineer:

- August 31, 2024
- September 7, 2024
- September 14, 2024
- September 21, 2024
- September 28,2024
- October 26, 2024
- November 2, 2024
- November 23, 2024

Working in the Rain

The Contractor shall not work in the rain unless authorized in writing by the Engineer. The Engineer may delay or stop the work due to threatening weather conditions.

The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain.

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

Working in the Dark

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract.

The Engineer may stop the work or may require the Contractor to defer certain work to another day if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours or if inadequate daylight is present to either properly perform or inspect the work.

The Contractor will not be compensated for unused materials or downtime when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons.

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties resulting from working in the dark.

If the construction Contract is not completed within the specified period(s) 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.

The City's decision to add or delete work, change the construction limits, or the City's contribution to a delay of the construction shall not entitle the Contractor to receive additional compensation, nor shall it relieve the Contractor of any responsibility for completion of work.

Include any/all efforts to organize, coordinate, and schedule the project work in the contract unit price bid for the pay item **General Conditions, Max $___**.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
AGGREGATE BASE CONDITIONING

Description

This work consists of conditioning aggregate base as shown on the plans in the areas where the existing aggregate base is to remain in place. Perform this work in accordance with section 302 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as directed by the Engineer and described herein.

Materials

All aggregate used for conditioning must meet the gradation and physical properties for Class 21AA dense-graded aggregate per sections 302.02 and 902 of the MDOT 2020 Standard Specifications for Construction. Provide ONLY crushed limestone material unless otherwise approved by the Engineer.

Construction

Condition aggregate base in accordance with section 302 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as directed by the Engineer. Construct aggregate base to the line and grade shown in the contract. This work may include redistribution of existing aggregate within the project site, removal of excess aggregate, and providing additional aggregate as dictated by the proposed line and grade, and as directed by the Engineer.

Compact the layer of aggregate base to at least 98 percent of the maximum unit weight at a moisture content no greater than optimum for aggregate base under hot mix asphalt (HMA)pavement (HMA).

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

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

Measure **DS_Aggregate Base, Conditioning** area in place by the unit square yard and pay for it at the contract unit price, which price includes the costs for all labor, equipment, and materials necessary to complete the work including providing additional aggregate and removing access aggregate from the project site.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY

Description

The Contractor shall furnish a Portland cement concrete mixture for this project that has been tested under this specification and shown to be resistant to excessive expansion caused by alkali-silica reactivity (ASR) and provides adequate air entrainment for freeze thaw durability. The Contractor shall construct the project with practices outlined in this specification.

Materials

The materials provided for use on this project shall conform to the following requirements:

Portland Cement	ASTM C-150
Fine Aggregate	ASTM C-33*
Coarse Aggregate	ASTM C-33*
Fly Ash, Class F	ASTM C-618
Slag Cement, Grade 100, 120	ASTM C-989
Silica Fume	ASTM C-1240
Blended Cements	ASTM C-595
Air Entraining Admixtures	ASTM C-260
Chemical Admixtures	ASTM C-494
White Membrane Cure	ASTM C-309 Type 2

Fine and coarse aggregates shall consist of natural aggregates as defined in the Michigan Department of Transportation 2020 Standard Specifications for Construction Section 902.02.A.1.

The Contractor shall provide documentation that all materials to be incorporated into proposed mixed designs meet the requirements of this section.

Alkali-Silica Reactivity

The Contractor shall supply to the Engineer preliminary concrete mix designs including a list and location of all suppliers of concrete materials. The Contractor shall evaluate the mixtures for the potential for excessive expansion caused by ASR and provide documentation to the Engineer. The Contractor's evaluation shall include a review of any previous testing of the material sources intended to be used for both the fine and coarse aggregates for the concrete mixtures. The previous testing may be from other projects or records provided by the material suppliers.

Aggregates shall be tested under ASTM C-1260. If the expansion of the mortar bars is less than 0.10%, at 14 days, the aggregates shall be considered innocuous and there are no restrictions for ASR mitigation required with this material.

Previous aggregate test data may be used. If no previous test data is available, for the concrete mix, that shows that it is resistant to ASR, a concrete mixture that will mitigate the potential for ASR must be designed using either Method 1 or 2 as described below.

Method 1

Substitution of a portion of the cement with Class F Fly Ash, Slag Cement Grade 100 or 120, or a ternary mix (blended cement) containing a blend of Portland cement and slag cement, or Class F fly ash, or silica fume.

The maximum substitution of cement with the fly ash permitted shall be 25% by weight of total cementitious material (cement plus fly ash). Additional requirements for the Fly Ash, Class F are that the Calcium Oxide (CaO) percent shall be less than 10% and the available alkalis shall not exceed a maximum of 1.5%. A copy of the most recent mill test report shall be submitted to verify. Note: a Class C fly ash with a minimum total oxide (SiO_2 + Al_2O_3 + Fe_2O_3) of 66% and a minimum SiO_2 of 38% may be used in lieu of Type F fly ash.

The maximum substitution of cement with the Slag Cement permitted shall be 40% by weight of total cementitious material (cement plus Slag Cement). The minimum replacement rate with Slag Cement shall be 25%.

For a ternary blend, the total replacement of supplementary cementitious materials is 40% with a blend consisting of a maximum of 15% Type F fly ash, and/or 8% silica fume and/or slag cement.

For Method 1, the effectiveness of the proposed mix combination to resist the potential for excessive expansion caused by ASR shall be demonstrated using current or historic data. To demonstrate the effectiveness of the proposed mix the Contractor shall construct and test mortar bars per ASTM C1567 (14-day test) using both the fine and coarse aggregate along with the proposed cementitious material for the concrete mixture. If a mortar bar constructed of these materials produces an expansion of less than 0.10%, concrete mixture will be considered to be resistant to excessive expansion due to ASR.

If a mortar bar constructed of these materials produces an expansion of 0.10% or greater, concrete mixtures containing these materials shall not be considered resistant to the potential for excessive expansion due to ASR and shall be rejected. Additional testing, including alternate proportions or different materials will be required.

Method 2

Use low alkali cement and maintain the total alkali content from the cementitious at no more than 3.0 lbs/cyd (Na_2Oeq). The total alkali contribution is calculated by the quantity contained in the Portland cement only.

Requirements for Low Alkali Cement are that the alkali content does not exceed 0.60% expressed as Na_2O equivalent. Equivalent sodium oxide is calculated as: (percent Na_2O + 0.658 x percent K_2O).

For either Method 1 or 2, if the Contractor intends to change any component material supplied after the mix design has been approved all concrete work will be suspended with no cost to the project or extensions of time, unless approved, until evaluation of the new mixtures and testing of the new materials demonstrates that it is resistant to excessive expansion due to ASR.

The Engineer and Contractor shall monitor the concrete that is delivered to the project site so as to ensure that the approved mix design is being followed. The supplier shall include on the delivery ticket for each batch of concrete delivered to the job, the identification and proportions of each material batched.

When concrete is placed during cold weather, defined for the purposes of this Detailed Specification to be, air temperatures below 40ºF, the use of accelerators, heated aggregates, silica fume and/or additional forms of cold weather protection will be required. Cold weather will not eliminate the requirement for furnishing and placing a concrete mix that is considered resistant to ASR attack.

Prior to cool weather placement, defined for the purposes of this detailed specification to be, air temperatures between 40ºF and 60ºF, the set time of the proposed mix shall be verified under anticipated field conditions. This information shall be used when scheduling pours and saw crews.

Air Entrainment

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by ASTM C 231 or ASTM C 173, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. If during the period of time while adjustments are being made to the concrete to create a mixture that is consistently acceptable, concrete is produced that does not meet the requirements of this Detailed Specification, the Engineer may reject the material and direct it to be removed from the jobsite. Any rejected material shall be removed from the jobsite at the Contractor's sole expense. Quality Control testing performed by the Contractor to ensure compliance with the project specifications shall be performed on the grade ahead of the placement operation.

Paver Placement

During production, the plastic concrete material shall be tested for acceptance at a point ahead of the paver. The air content of the concrete mixture that the Contractor shall provide shall be known as the Acceptance Air Content (AAC). The Contractor shall also provide additional entrained air in the concrete mixture to account for the air loss which occurs in the concrete mixture experienced during transportation, consolidation, and placement of the concrete. The "air loss" shall be added to the air content of the concrete mixture as established on the approved concrete mix design. The AAC for the project will be 6.0% plus an amount equal to the air loss.

For up to the first four loads, the air content measured on-site prior to placement shall be at least 8.0% and no more than 12.0%. To establish the initial AAC on the first day of paving, the air content of the first load shall be tested at the plant. After initial testing at the plant the Contractor shall provide at least two (2) sample sets to determine the actual air loss during placement. A sample set shall consist of two (2) samples of concrete from the same batch, one (1) taken at the point of discharge and the other from the in-place concrete behind the paver. The air loss from the two (2) sample sets shall be averaged and added to 6.0% to establish the AAC (rounded to the next higher 0.5%). After the testing and adjustment procedure(s) have been completed, the project acceptance air tests shall be taken prior to placement. The Contractor shall provide concrete to the jobsite that has an air content of plus 2.0%, or minus 1.0%, of the AAC.

After the AAC has been established, it shall be verified and/or adjusted through daily checks of the air loss through the paver. The Contractor shall check the air loss through the paver a minimum of two times a day. A Revised AAC shall be required to be established by the Contractor if the average air loss from two (2) consecutive tests deviates by more than 0.5% from the current accepted air loss. The testing operations performed by the Contractor to establish a revised AAC shall be performed to the satisfaction of the Engineer. The Contractor shall be solely responsible for any delays and/or costs that occur to the project while establishing revised AACs.

Construction Methods

Aggregate Control

Gradation Control

The supplier shall provide a detailed stockpile management plan, describing their process control procedure for shipping, handling, and stockpiling of each aggregate including workforce training.

Moisture Control
All aggregate materials must be conditioned to a moisture content of not less than saturated surface dry (SSD) prior to batching. A watering process using an effective sprinkler system designed and operated by the Contractor shall be required on all coarse aggregate material stockpiles.

The Contractor shall provide verification that these processes have been performed by the supplier. The Engineer reserves the right to independently verify that the supplier has complied with these standards.

Mixing

Central Mix Plants

The total volume of the batch shall not exceed the designated size of the mixer or the rated capacity as shown on the manufacturer's rating plate.

Drum Mix Plants

After all solid materials are assembled in the mixer drum; the mixing time shall be a minimum of 60 seconds and a maximum of five (5) minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall start after the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer throughout the charging cycle. Any additional slump water required shall be added to the mixing chamber by the end of the first 25% of the specified mixing time. Mixers shall not be used if the drum is not clean or if the mixing blades are damaged or badly worn.

Ribbon Mixers

After all solid materials are assembled in the mixer; the mixing time shall be a minimum of 30 seconds and a maximum of 2.5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall be indicated by an accurate timing device which is automatically started when the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer throughout the charging cycle. After any additional slump water is added to the mixing chamber the mixing shall continue for a minimum of 10 seconds. Mixers shall not be used if the mixer is not clean or if the mixing blades are damaged or badly worn.

Truck Mixers

The capacities and mixing capabilities shall be as defined in ASTM C 94, and each unit shall have an attached plate containing the information described therein. The plate may be issued by the Truck Mixer Manufacturer. The mixer capacity shall not be exceeded, and the mixing speeds shall be within the designated limits. Truck mixers shall be equipped with a reliable reset revolution counter. If truck mixers are used for mixing while in transit, the revolution counter shall register the number of revolutions at mixing speed.

An authorized representative of the concrete producer shall certify that the interior of the mixer drum is clean and reasonably free of hardened concrete, that the fins or paddles are not broken or worn excessively, that the other parts are in proper working order, and that the unit has been checked by the representative within the previous **30 calendar day period** to substantiate this certification. The current, signed certification shall be with the unit at all times.

The required mixing shall be between 70 and 90 revolutions. The mixing shall be at the rate designated by the manufacturer and shall produce uniform, thoroughly mixed concrete.

The Engineer may inspect mixer units at any time to assure compliance with certification requirements, and removal of inspection ports may be required. Should the Engineer question the quality of mixing, the Engineer may check the slump variation within the batch. Should the slump variation between two (2) samples taken, one (1) after approximately 20% discharge and one (1) after approximately 90% discharge of the batch, show a variation greater than ¾-inch (20 mm) or 25% of the average of the two, whichever is greater, the Engineer may require the mixing to be increased, the batch size reduced, the charging procedure be modified or the unit removed from the work.

The practice of adding water on the site shall be discouraged. After the slump of the concrete in the first round of trucks has been adjusted on-site, the amount of water added at the plant shall be adjusted accordingly for that day's work. All additions of water on site shall be approved by the Engineer.

Curing

Apply liquid curing compound in a fine atomized spray to form a continuous, uniform film on the horizontal surface, vertical edges, curbs and back of curbs immediately after the surface moisture has disappeared, but no later than 30 minutes after concrete placement. With approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties.

The cure system shall be on site and tested prior to concrete placement.

Apply a curing compound at a rate of application not less than 2-gallons per 25-square yards. The Contractor shall keep the material thoroughly mixed per the Manufacturer's recommendations. The curing compound shall not be diluted.

The finished product shall appear as a uniformly painted solid white surface. Areas exhibiting a blotchy or spotty appearance shall be recoated immediately.

Compliance with Standards

The Engineer will review and approve all material test reports and mix designs supplied by the Contractor before any placement of concrete. The Engineer will visually inspect the placed concrete and review the concrete test reports prior to final acceptance.

Acceptance sampling and testing will be performed using the sampling method and testing option selected by the Engineer. Acceptance testing will be performed at the frequency specified by the Engineer. Quality control measures to insure job control are the responsibility of the Contractor. The Engineer's testing and/or test results will not relieve the Contractor from his/her responsibilities to produce, deliver, and place concrete that meets all project requirements. The Engineer's test results are for acceptance purposes only.

If the results of the testing are not in compliance with the project specifications, the Engineer shall determine appropriate corrective action(s). Time extensions will not be granted to the Contractor during the time that the Engineer is determining the necessary corrective actions.

If, in the Engineer's judgment, the rejected material must be replaced, the material in question will be removed and replaced at the Contractor's sole expense. The removal costs will be deemed to include all relevant and associated costs including, but not limited to; re-mobilization, traffic control, re-grading the aggregate base course, if required, placement of material meeting the project specifications, and all other expenses. Time extensions will not be granted to the Contractor for any required repair work to meet the requirements of this specification.

If the Engineer decides that the material in question can remain in place, an adjustment to the contract unit price(s) may be made of up to 100% of the bid price(s) for the affected items of work.

Measurement and Payment

The costs necessary to comply with the requirements described in this detailed specification, including any required remedial action(s), will be included in the cost of concrete items of work and will not be paid separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE PLACEMENT AND PROTECTION

Description

This work shall consist of furnishing all labor, material, and equipment needed to furnish, place, and protect all concrete material in accordance with the requirements of this detailed specification.

Materials

The concrete shall meet the requirements of Sections 1001 and 1004 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction.

The Contractor shall propose specific concrete mix designs for the intended project purpose in accordance with the requirements of this special provision and other applicable special provisions and/or project requirements. The Engineer's acceptance of a mix design shall not relieve the Contractor of their responsibility for the manufacture of the concrete mixture(s), its placement, or performance.

Construction

The Contractor shall perform all concrete placement operations in weather that is suitable for the successful placement and curing of the concrete materials. Concrete shall not be placed during periods of active precipitation.

The Contractor shall complete all needed formwork, base and/or sub-base preparation, and any other related items that are deemed necessary for the proper completion of the work. The Contractor shall not commence the placement of concrete until they receive all needed approvals from the Engineer for placement. The Engineer's approval of the Contractor to place concrete shall not relieve the Contractor of their responsibility for the proper placement and protection of the concrete materials or its long-term performance.

During periods when precipitation is threatening, provide durable, plastic sheeting, approved by the Engineer, in sufficient quantity to cover and protect all freshly placed concrete such that precipitation does not contact the concrete. The Contractor shall arrange the placement of the plastic sheeting such that the surface of any freshly placed concrete is not marred by contact with the plastic; any seams in the plastic sheeting shall be watertight. The Contractor shall place adequate supports along and over the freshly placed concrete to prevent contact of the plastic and concrete. The Contractor shall ensure that sufficient dams or barriers are placed along the edges of the freshly placed concrete to prevent erosion of the underlying materials or damage to the edges of the freshly placed concrete. All measures shall be effective.

Any concrete damaged by precipitation shall be removed and replaced at the Contractor's expense. The Engineer shall decide if the concrete has been damaged and the limits of removal and replacement.

Concrete shall only be placed when the rate of surface evaporation at the site is less than 0.20 pounds per square foot per hour, according to Figure 706-1 of the MDOT 2020 Standard Specifications for Construction. The Contractor shall provide approved equipment for determining

the relative humidity and wind velocity at the site.

Water shall not be added to the placed concrete to aid finishing. Any water added to the concrete for slump adjustments shall be done by adding water to the mixing unit and thoroughly re-mixing the concrete for 30 revolutions of the mixing unit at mixing speed. Water shall not be added such that the design water-to-cement ratio of the concrete mixture or the design slump of the concrete mix is exceeded.

Concrete curing shall be performed in accordance with Subsection 602.03.M of the MDOT 2020 Standard Specifications for Construction. Curing operations shall take precedence over texturing operations and continued concrete placement. All curing compound applied shall provide uniform coverage over the entire surface being protected. The placement of curing compound shall be free of spots, blotches, or uncovered or non-uniformly covered areas. Should any areas be determined to exist by the Engineer, the curing compound shall be immediately re-applied by the Contractor at no additional cost to the project.

The Contractor shall take all precautions when placing concrete to protect it from damage due to the elements. Concrete shall not be placed during precipitation events.

Concrete shall be protected from weather and temperature according to the requirements of Subsection 602.03.T MDOT 2020 Standard Specifications for Construction. Concrete shall not be placed when the temperature of the plastic concrete mixture itself is greater than 90°F. In conditions where low temperature protection is required, the Contractor shall cover the concrete with insulated blankets, or other means as approved by the Engineer, to protect the concrete from damage. The concrete shall remain protected until it has reached a compressive strength of at least 1,000 psi, or as directed by the Engineer.

Measurement and Payment

All costs to conform with the requirements described in this detailed specification will not be paid separately but will be included in the associated concrete items of work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES

AA 1 of 1 3/22/24

Description

The following notes pertain to all Plan sheets issued as part of this Contract, and these notes shall be considered part of each Plan Sheet or Detailed Information Sheet.

1. All work shall conform to the latest revision of the City of Ann Arbor Standard Specifications.

2. The Contractor shall maintain access to all drives throughout the course of construction. Drives shall never be closed during non-working hours, unless otherwise authorized in writing by the Engineer.

3. The Contractor shall completely restore all existing site features to better than, or equal to, their existing condition.

4. The Contractor shall be aware that there are above-ground and below-ground utilities existing in and on these streets which include but are not limited to: gas mains and service leads; water mains and service leads; storm sewer mains and service leads; sanitary sewer mains and service leads; telephone poles, wires, cables and conduits; electrical poles, wires, cables and conduits; cable television wires, cables and conduits, and other various utilities. The Contractor shall conduct all of its work so not to damage or alter in any way any existing utility, except where specified on the Plans or as directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all these facilities to be in good condition, except for those shown on the Plans for repair or replacement.

5. The Contractor is solely responsible for any delays, damages, costs and/or charges incurred due to and/or by reason of any utility, structure, feature and/or site condition, whether shown on the Plans or not, and the Contractor shall repair and/or replace, at its sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work, or injured by its operations, or injured during the operations of its subcontractors or suppliers.

6. No extra payments or adjustments to unit prices will be made for damages, delays, costs and/or charges due to existing utilities, structures, features and/or site conditions not shown or being incorrectly shown or represented on the Plans.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
ACCEPTANCE OF HMA MIXTURES

Description

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

Materials

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

Table 1: Uniformity Tolerance Limits for HMA Mixtures

Parameter			Top and Leveling Course		Base Course	
Number	Description		Range 1 (a)	Range 2	Range 1 (a)	Range 2
1	% Binder Content		-0.30 to +0.40	±0.50	-0.30 to +0.40	±0.50
2	% Passing	# 8 and Larger Sieves	±5.0	±8.0	±7.0	±9.0
		# 30 Sieve	±4.0	±6.0	±6.0	±9.0
		# 200 Sieve	±1.0	±2.0	±2.0	±3.0
3	Crushed Particle Content (b)		Below 10%	Below 15%	Below 10%	Below 15%

a. This range allows for normal mixture and testing variations. The mixture must be proportioned to test as closely as possible to the Job-Mix-Formula (JMF).
b. Deviation from JMF.

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

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

Construction

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

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

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

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

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

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

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

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

The correlation procedure for ignition oven will be established as follows. Asphalt binder content based on ignition method from MTM 319. Gradation (*ASTM D5444*) and Crushed particle content *(MTM 117)* based on aggregate from *MTM 319*. The incineration temperature will be established at the pre-production meeting. The Contractor will provide a laboratory mixture sample to the acceptance laboratory to establish the correction factor for each mix. Ensure this sample is

provided to the Engineer a minimum of 14 calendar days prior to production.

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

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

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

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

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

Option 1 - Direct Density Method

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

Option 2 - Roller Method

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

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

Use of the Roller Method requires developing and establishing density frequency curves and meeting the requirements of Table 2. A density frequency curve is defined as the measurement and documentation of each pass of the finished roller until the in-place density results indicate a decrease in value. The previous recording will be deemed the optimal density. The Contractor is responsible for establishing and documenting an initial or QC rolling pattern that achieves the

optimal in-place density. When the density frequency curve is used, the Engineer will run and document the density frequency curve for each half day of production to determine the number of passes to achieve the maximum density. Table 5, located at the end of this special provision, can be used as an aid in developing the density frequency curve. The Engineer will perform density tests using an approved nuclear or non-nuclear gauge per the manufacturer's recommended procedures.

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

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

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

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

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

Measurement and Payment

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

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

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

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

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

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

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

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

Table 3: Penalty Per Parameter

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

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

Each parameter of Table 1 is evaluated with the total price adjustment applied to the contract base price based on a sum of the two parameter penalties resulting in the highest total price adjustment as per Table 4. For example, if three parameters are out-of-specification, with two

parameters outside Range 1 of Table 1 tolerance limits, but within Range 2 of Table 1 limits and one parameter outside of Range 2 of Table 1 tolerance limits and the Engineer approves leaving the mixture in place, the total price adjustment for that quantity of material is 35 percent.

Table 4: Calculating Total Price Adjustment

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

Table 5: Density Frequency Curve Development

Tested by:_____ Date/Time: _____

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

Roller #1 Type:

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

Roller #2 Type:

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

Roller #3 Type:

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

Summary:_____

_____

_____

_____

_____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HOT MIX ASPHALT (HMA) APPLICATION ESTIMATE

AA/SDA:DAD 1 of 1 03/24/24

Description

Perform this work in accordance with the requirements of section 501 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, Articles 5, 10 and 11 of the City of Ann Arbor Standard Specification, and as herein specified.

Materials

PAY ITEM	HMA MIX	APPLICATION RATE	ESTIMATED THICKNESS	BINDER PERFORMANCE GRADE	AWI (min)
HMA, 4EL	4EL (leveling)	220 lb/syd	2.0 inches	PG 58-28	N/A
HMA, 5EL	5EL (top)	220 lb/syd	2.0 inches	PG 58-28	220
(1) Hand Patching	4EL or 5EL	Varies maximum = 330 lb/syd	Varies - maximum = 3.0 inches	PG 58-28	220

(1) The Contractor may use alternative top course E mixes for Hand Patching with approval by the Engineer.

Submit mix designs and obtain approval from the Engineer for all HMA mixtures proposed for use.

For hand patching work, use the same HMA mixture respectively as specified for the top course unless otherwise approved by the Engineer.

Use 3.5% as target air void content of for leveling courses, top courses and shoulders paved in the same operation as the leveling and top courses. Use 3% as a target air void content of for base courses and shoulders not paved in the same operation as the leveling and top courses. Use 3% as a target air void content of for shared use paths.

The Performance Grade asphalt binder range for the HMA mixture shall be as noted above. Apply Bond Coat material accordance with the requirements of the Detailed Specification for HMA Paving.

Apply bond coat at a uniform rate between 0.05 and 0.15 gallons per square yard as directed and approved by the Engineer. Bond Coat is not a separate pay item; the HMA items of work for which it applies include payment for furnishing and placing bond coat.

Measurement and Payment

Measure and pay for this work as provided elsewhere in the contract documents.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MACHINE GRADING

Description

This work consists of constructing earth grades by excavating, cutting, filling, trimming, and grading, and maintaining the work in a finished condition until such time of acceptance by the Engineer. Complete machine grading in accordance with section 205 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction as shown on the plans, and as described and specified herein.

Materials

Use materials meeting the requirements specified in subsection 205.02 of the MDOT 2020 Standard Specifications for Construction.

Construction

Use construction methods meeting the requirements specified in subsection 205.03 of the MDOT 2020 Standard Specifications for Construction, except as specified herein.

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

2. General Provisions:

   A. Grade around mailboxes, trees, light poles, power poles, and the like, which are to remain in place. The Contractor is responsible for any damage caused to such structures.

   B. Maintain the work in a finished condition until acceptance by the Engineer.

3. Pavement Sawcutting - The work includes the full-depth saw cutting of pavement at the construction limits, and elsewhere as required.

4. Clearing, and Removal of Trees and Vegetation - Remove and properly dispose of off-site all vegetation; brush; roots; and trees and stumps less than 8 inch in diameter, as shown on the plans, and as directed by the Engineer and as required to complete the project.

5. Removal and Salvaging of Topsoil – Perform the removal, salvaging and stockpiling of topsoil, and all related work in accordance with subsection 205.03.A.1 of the MDOT 2020 Standard Specifications for Construction.

6. Miscellaneous Removals - The removal of HMA, aggregate, and/or concrete materials from around manholes, structures, and utility covers, and the removal of HMA curbing, HMA driveway wedges, HMA surface on existing curb and gutter, and HMA surfaces required for removal in other miscellaneous areas. It also includes the removal of any surface feature located within the grading limits requiring removal and for which there is no specific pay item established in the Contract.

7. Protection of the Grade – Keep work well drained at all times. Undercut and backfill any

foundation, pathway or roadway embankment or subgrade damaged by rain, as directed by the Engineer.

The Contractor is responsible for maintaining the foundation, pathway or roadway embankment, and subgrade.

Do not use rubber-tired equipment on the foundation, pathway or roadway embankment, or subgrade, when its use causes, in the opinion of the Engineer, unnecessary damage to the foundation, road embankment or subgrade. Conduct operations and provide the necessary equipment to ensure the satisfactory completion of the work without damaging the foundation, pathway or roadway embankment or subgrade. This may require the transporting and movement of materials over additional distances.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Engineer will not grant an extension of time or any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

8. Removal of Cable, Conduits and Pipe - Remove, and properly dispose of off-site, all abandoned cables, conduit, and pipe encountered at, or above the bottom of any earthwork excavation or undercut. Where the inverts of existing conduits or pipe are less than 16 inches below the bottom of any earth excavation or undercutting, remove the conduits and/or pipe and fill void with an Engineer approved material. Compact fill material to 95% of its maximum unit weight in lifts not exceeding 12 inches.

9. Foundation Preparation – The roadway “foundation” definition is the original or established earth subgrade of the pathway or roadway upon which the Contractor will place embankment material. Complete foundation work in accordance with subsection 205.03.A of the MDOT 2020 Standard Specifications for Construction as shown on the plans, and as specified herein.

Compact foundation to 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of at least 10 inches. If this is not achievable, in the opinion of the Engineer, perform “**Subgrade Undercutting, Type __**” or “**Subgrade Manipulation**” as described herein, on the foundation.

10. Roadway Embankment Construction – The pathway or roadway “embankment” definition is the construction of earth on the prepared foundation to form the subgrade. Complete pathway or roadway embankment in accordance with subsection 205.03 H of the MDOT 2020 Standard Specifications for Construction as shown on the plans, and as specified herein. Compact pathway or roadway embankment to a minimum of 95% of its maximum unit weight, as measured by the AASHTO T-180 method.

11. Subgrade Construction - The pathway or roadway “subgrade” definition is the final earth grade that extends from grading limit to grading limit. Construct the subgrade by performing earth excavation and embankment work in accordance with subsection 205.03.G and subsection 205.03 H of the MDOT, respectively, of the 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

Construct the subgrade to the contours and cross-sections shown on the plans, as specified herein, and as directed by the Engineer. To achieve this, the work will include, but not be limited to:

A. Removal and disposal off-site of any surplus or unsuitable materials.

B. Furnishing from off-site any additional Engineer approved fill materials necessary.

C. Moving existing and/or furnished materials longitudinally and transversely as necessary.

D. Cutting, placing, compacting, and trimming existing and/or furnished materials to construct the pathway or roadway embankment and subgrade to the specified tolerances.

E. Stockpiling, and moving again, any excavated materials requiring delayed placement due to construction staging.

Grade the earth subgrade to accommodate all pathway or roadway subbases and aggregate bases; all infiltration trench, bioswale and adjacent planting bed materials; curb and gutter, driveways, sidewalks, and other structures; infiltration trench and bioswale planting mixes, and topsoil; and any other features that the subgrade supports.

Prepare the subgrade to ensure uniform support for the pavement structure. Place the finished subgrade to within 1 inch below and ¾ inch above plan grade. Variations within this tolerance will be gradual.

Compact subgrade to a minimum of 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of 10 inches. If this is not achievable, in the opinion of the Engineer, perform "**Subgrade Undercutting, Type __**" or "**Subgrade Manipulation**" as described herein, on the foundation.

Use equipment and methods of construction best suited, in the opinion of the Engineer, to perform the earthwork operations and meet the project requirements. The use of various equipment and methods of construction are subject to the approval of the Engineer. The Engineer may disallow the use of certain equipment and methods of construction and require the use of other equipment and/or methods of construction.

13. Test Rolling - Test-roll the foundation and/or subgrade with a pneumatic tired roller with a suitable body for ballast loading and a variable gross load capacity between 25 and 40 tons. Instead of this test roller, with the approval of the Engineer, the Contractor may use a fully loaded single axle or tandem axle dump truck.

14. Subgrade Undercutting – Perform "subgrade undercutting" on the foundation or subgrade in accordance with section 205.03.E of the MDOT 2020 Standard Specifications for Construction, as shown on the plans, as specified herein, and as directed by the Engineer.

15. Subgrade Manipulation – Perform "subgrade manipulation" on the foundation or subgrade in accordance with section 205.03.F of the MDOT 2020 Standard Specifications for Construction, as shown on the plans, as specified herein, and as directed by the Engineer.

Where required, perform subgrade manipulation on the foundation or subgrade soils by thoroughly scarifying, blending, and mixing to a depth of 12 inches. Accomplish this work by means of a large diameter disc, motor grader, or other equipment approved by the Engineer. Upon manipulation of the foundation or subgrade to the satisfaction of the Engineer allow it to dry and compact the soil to 95% of its maximum dry density as measured by the AASHTO T-180 method. The time required for drying the soil will not be a basis for an extension of time.

16. Rock Excavation – Remove rocks and boulders, concrete and masonry. Perform rock

excavation in accordance with section 205.03.B of the MDOT 2020 Standard Specifications for Construction, as shown on the plans, and as directed by the Engineer.

17. Lowering Structures - Prior to cutting the subgrade, remove structure covers, lower the structures to a point between 8 inches and 12 inches below the proposed subgrade, and cover the structures with a steel plate. Do not raise structures prior to placing pathway or roadway embankment.

Use steel plates for covering structure openings conforming to the plan detail and of sufficient thickness to carry any/all traffic loads and prevent the infiltration of debris into the structures. Peg and properly place plates to prevent movement under all traffic.

Lower valve boxes to a point between 8 inches and 12 inches below the proposed subgrade. Do not raise valve boxes prior to placing pathway or roadway embankment.

Backfill the voids in the grade above the steel plates used for structure lowering and valve box lowering and compact it to 95% of its maximum dry density, with an Engineer approved coarse aggregate.

Coordinate the lowering of any private and/or non-city owned utility structure with the private utility company/owner.

18. Structure Covers - As directed by the Engineer and within two days of their removal, the stockpile on-site, in a location that is mutually agreeable to the Engineer and Contractor, the existing structure covers. City of Ann Arbor forces will pick up the structure covers at a time that is convenient to them and mutually agreeable to the Contractor. Provide equipment and personnel to load the castings on City vehicle(s) for removal from the site by the City forces.

19. Structure and Sewer Cleanliness – Protect all sewers, and structures, including manholes, gate wells, valve boxes, inlet structures and curbs from damage and contamination by debris and construction materials. Maintain structures clean of construction debris and properly always cover them during the construction. The Contractor will immediately clean any structures and/or sewers contaminated with construction debris.

20. Tree Trimming - The Contractor shall coordinate with the City of Ann Arbor Public Works to schedule trimming of trees by City forces or an authorized subcontractor.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
Machine Grading	Square Yard

Measure **Machine Grading** area by the unit square yard and pay for it at the contract unit price, which price includes costs for all labor, equipment, and materials necessary to complete the work.

Machine Grading will be paid for only one time regardless of any re-working that may be necessary.

Due to the project nature, there is a likely probability that some or all of the excavated material may not be suitable for use fill material. Consequently, there may be imbalances between the amount of earth excavation available for reuse as embankment, and the amount of embankment needed for the construction activities shown on the plans, or as directed by the Engineer. The unit price bid for this work includes the costs to address this probable imbalance and to furnish, stockpile and re-handle, place, and compact any Engineer approved material necessary to complete the work of constructing the embankment and subgrade to the cross sections shown on the plans.

The described work for **Machine Grading** includes the removal and offsite disposal of any surplus or unsuitable materials and the furnishing from off-site any additional Engineer approved fill materials necessary to construct the embankment and subgrade to the contours and cross-sections shown on the plans.

The Contractor, at its sole expense, will remedy, as directed by the Engineer, any damage to the foundation, pathway, or roadway embankment or subgrade caused by traffic or its operations.

The Engineer will not pay separately for the removal of conduit or pipe, or any of the work described in this section.

The Engineer will not pay additional compensation or allow extensions of contract time for additional measures required to protect the grade as specified.

Machine Grading includes costs for all labor, equipment, and materials necessary to complete any subgrade undercutting and/or subgrade manipulation unless the Contract includes separate pay items for this work.

Rock excavation will apply only to removal of rocks and boulders, concrete and masonry less than ½ cubic yard in volume. Measure boulders individually and compute the volume from the average dimension measured in three directions. If included in Contract, the Engineer will pay for the quantity exceeding ½ cubic yard in volume as **Rock Excavation**, otherwise it will be paid for as extra work.

The Contractor is responsible for all direct and indirect damages caused by unclean or damaged sewers or structures resulting from its work or operations.

The Engineer will not pay additional compensation or allow extensions of contract time for tree trimming measures and coordination of this work with City forces.

Engineer will pay for separately, **Subgrade Undercutting, Type __**, and **Subgrade Manipulation**, if the Contract includes separate pay items for each. Otherwise, this work will be paid for as extra work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

Description

Maintain traffic in accordance with Articles 10 and 11 of the City of Ann Arbor Public Services Department 2024 Standard Specifications and as specified in sections 104.11, 812, and 922 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), and as described herein.

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

Materials

Provide materials and equipment shall meet the requirements specified by Article 10 of the City of Ann Arbor 2024 Standard Specifications, sections 812.02 and 922 of the MDOT 2020 Standard Specifications for Construction and the 2011 MMUTCD.

Maintenance of Local Traffic

Unless otherwise indicated on the plans, all side roads shall not be closed to through traffic except during construction operations of short duration and only upon written approval of the Engineer.

Always maintain local access for emergency vehicles, refuse pick-up, mail delivery, school buses, and ingress/egress to public and private properties.

The Contractor must accommodate the safe access to the residential buildings and businesses located within the construction area.

Driveways shall not be blocked for extended periods of time unless arrangements can be made with the affected property owner(s). When it becomes necessary to temporarily block driveways, the Contractor shall notify the affected property owners in advance to coordinate the work and allow sufficient time for vehicles to vacate from properties. It may be necessary to allow vehicles to temporarily park in the roadway at locations that do not interfere with the Contractor's work. During these periods the owners of the respective vehicles must be available to, with proper notice, move their vehicles if it becomes necessary to accommodate the work.

At times, it may be necessary to temporarily obstruct local traffic during the performance of the work. The Contractor shall provide traffic regulator control in conformance with Chapter 6E of the MMUTCD, Sections 6E.01 thru 6E.08. A minimum of two traffic regulators are required. The cost of traffic regulator control shall be included in the contract pay item "**Traffic Regulator Control**".

The Contractor shall use quantities of dust palliative, maintenance aggregate, and cold patching/HMA mixtures for use as temporary base, surfacing, and dust control at utility crossings, side roads and driveways (wherever required to maintain traffic), and where directed by the Engineer to maintain local access. The cost for the use of dust palliative, maintenance aggregate, cold patch and/or hot mix asphalt mixture 36A, as required and directed by the Engineer for maintenance of traffic and local access, shall be included in Contract pay item "**General Conditions, Max $_____**", and it will not be paid for separately.

The work of maintaining and relocating existing warning, regulatory and/or guide signs is included in the bid price for the contract pay item "**Minor Traffic Control, Max $_____**".

Mailboxes and newspaper boxes that are in the way of the construction shall be removed and reset immediately in a temporary location approved by the Engineer. Mail and paper delivery shall not be interrupted during the construction. Upon completion of the construction, all mailboxes and newspaper boxes, including their supports, shall be repositioned in their permanent locations as approved by the Engineer. This work shall be included in the contract unit price for the contract pay item "**General Conditions, Max $_____**", and it will not be paid for separately.

The Contractor shall perform the work of this Contract while maintaining traffic in accordance with the Contract Documents as specified herein. No traffic shall be allowed on newly placed asphalt surfaces until rolling has been satisfactorily completed and the surface has cooled sufficiently to prevent damage from traffic. This is to be accomplished by flag persons and by relocating traffic control devices to prevent traffic from entering the work area until such time that it can be safely maintained without damaging the new construction. The Contractor shall provide traffic regulators in sufficient number to maintain traffic as described herein, and to keep traffic off sections being surfaced, and always provide for safe travel as directed by the Engineer. The work of traffic regulators shall be included in the bid price for the contract pay item "**Minor Traffic Control, Max $_____**".

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

Construction Influence Area (CIA) - The CIA shall include the proposed work areas within the right-of-way of the four proposed construction locations. The CIA shall include the affected portions of the driveways along and contiguous with these roadways.

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

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

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

<u>Sign Removals and Storage</u>
The Contractor shall remove and store the signs as shown on the plans and as directed by the Engineer. After construction is complete, but before opening any roadway to traffic, Signs and Signals will reinstall all signs in their proper, permanent location. To coordinate sign removal and

installation/reinstallation, the Contractor shall notify the Signs and Signals Unit at least five (5) working days (Monday-Friday) in advance of when the sign work will need to be completed. It is the responsibility of the Contractor to ensure that City of Ann Arbor Signs and Signals Unit is scheduled, kept apprised of the progress of construction, and notified a second time immediately (4 working hours) prior to the need to complete the sign work. The installation/reinstallation of all signs shall be completed by the City of Ann Arbor Signs and Signals Unit.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES

Contract Drawings / Plans

Offerors/proposers shall carefully check and review all Drawings, plans, and specifications, and advise the Engineer of any errors or omissions discovered. The Drawings/Plans may be supplemented by such additional Drawings/Plans and sketches as may be necessary or desirable as the work progresses. The Contractor shall perform all work shown on any additional or supplemental Drawings/Plans issued by the Engineer.

Offeror/proposer shall carefully examine the Schedule of Pricing/Cost Form, preliminary layouts, specifications, and the work sites until it is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the proposal shall be considered prima facie evidence that the Offeror/Proposer has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

Quantities and Unit Prices

Quantities as given are approximate and are estimated for bidding purposes. Quantities are not guaranteed and may vary by any amount. While it is the City's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The City reserves the right to change the quantities, delete work, or add work, and no adjustment in unit price will be made for any change in any quantity.**

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SOIL BORING, PAVEMENT SECTION AND GEOTECHNICAL DATA

AA 1 of 1 3/24/24

Description

Data pertaining to existing soil borings and pavement sections which may be included in these Contract Documents are provided to help the Engineer and Contractor determine the soil conditions existing within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any/all conclusions it may draw from the data.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TREE TRIMMING

AA/SDA:DAD 1 of 1 3/24/24

Description

This work consists of trimming and pruning trees and other vegetation to remove limbs and branches within the of the project limits and the influence of proposed construction activities. Perform this work in accordance with section 201 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the City of Ann Arbor 2024 Standard Specifications and/or as directed by the Engineer.

Materials

None specified.

Construction

The Engineer will identify and communicate to the Contractor any/all trees to be trimmed. The Contractor, at its expense and at the direction of the Engineer, will address any/all damage to these trees or those adjacent resulting from its operations.

Trim Oak trees between November 1 and March 15. For pruning or damage to Oak tress outside this timeframe, immediately cover all wounds and/or cuts with sealant as directed on the container and contact City Forestry.

Provide tree trimmers, aerial tower truck, chipper, chain saws, and other equipment necessary to perform the required work. Remove cut limbs, branches, and other brush from the project site.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
DS_Tree Trimming Allowance	Dollars

Payment for **DS_Tree Trimming Allowance** will occur upon receipt of any/all invoices and other validating documentation and will include all costs for labor, equipment, and materials necessary to complete the work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TURF RESTORATION

Description

This work consists of preparing all manicured lawns and slopes on non-freeway projects designated for slope restoration on the plans or by the Engineer, and applying topsoil, fertilizer, seed, and mulch blankets to those areas. Turf establishment shall be in accordance with section 816 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and Standard Plan Series R-100, except as modified herein or otherwise directed by the Engineer.

Materials

The materials and application rates shall meet the requirements specified in subsection 816.02 and section 917 of the MDOT 2020 Standard Specifications for Construction and as specified herein unless otherwise directed by the Engineer.

1. Topsoil Surface: Place 4 inches of topsoil in area disturbed areas designated for restoration. Topsoil shall be free of all stones one inch in diameter or greater.
2. Turf Seed Mixture: Use seed mixture shown in table below. Seed shall be fresh, clean, dry, new-crop seed complying with the AOSA's "Rules for Testing Seed", tested for purity and germination tolerances.

Species/Variety	Mix Proportions (percent by weight)	Purity (percent)	Germination (percent)
Baron Kentucky Bluegrass	25	90	80
Kentucky Bluegrass 98/80	15	98	80
Park Kentucky Bluegrass	15	90	80
Omega III Perennial Ryegrass	20	98	90
Creeping Red Fescue	25	95	90

   Maximum weed content shall be 0.30%.
3. Chemical Fertilizer Nutrient: Use Class A fertilizer.
4. 4. Mulch Blanket: Use excelsior mulch blanket free of chemical additives. The netting thread and anchoring devices must be 100 percent biodegradable. **Use no polypropylene or other non-biodegradable netting**. Provide wood or other biodegradable anchors, at least 6 inches in length, as approved by the Engineer. **Do not use steel wire staples or pins to anchor mulch blankets**.

Construction

Construction methods shall be in accordance to subsections 816.03 and 817.03 of the MDOT 2020 Standard Specifications for Construction. Begin this work as soon as possible after final grading of the areas designated for slope restoration but no later than the maximum time limitations stated in subsection 208.03 of the Standard Specifications for Construction. It may be necessary, as directed by the Engineer, to place materials by hand.

Restore all areas as shown on the plans and others disturbed by the Contractor's activity(s) and as identified by the Engineer. Slope restoration includes furnishing and placing topsoil, applying seed and fertilizer, placing mulch blankets, and watering as necessary for the establishment of turf.

Prior to placing topsoil, grade, shape, compact and assure all areas to be seeded are weed free. Place topsoil to the minimum depth required, to meet proposed finished grade. Spread and rake topsoil to provide a uniform surface free of large clumps, rocks, brush, roots, or other deleterious materials, as determined by the Engineer. Remove any stones greater than or equal to 1 inch in diameter. If the area designated for restoration requires more than the minimum depth of topsoil to meet finished grade, the additional depth must be filled using topsoil. Furnishing and placing this additional material is included in this item of work.

Place topsoil that is weed and weed seed free and friable prior to placing seed. Apply seed mixture and fertilizer to prepared soil surface. Incorporate seed into top ½ inch of topsoil.

Use mulch blanket on all areas designated for restoration unless otherwise directed by the Engineer. Install mulch blanket per the manufacturer's published instructions.

Protect and maintain restored areas to establish a uniform, dense, vigorous, and weed free turf without mounds and/or depressions. Begin maintenance immediately upon completion of restoration work and continue up to final acceptance. This includes, but is not limited to, deposition of additional topsoil, re-seeding, fertilizing, and placement of mulch blankets to address areas damaged by washouts and soil erosion, non-uniform germination and bare spots. It also includes any other work required to correct all settlement, erosion, germination, and establishment issues.

If areas washout and/or erode after completing the work and obtaining approval by the Engineer, make the required corrections to prevent future washouts and erosion and replace the topsoil, fertilizer, seed and mulch as required and directed by the Engineer.

Scattered bare spots in seeded areas will not be allowed over three (3) percent of the area nor greater than 6"x 6" in size.

If the Engineer determines weeds cover more than ten percent of the total area of slope restoration, the Contractor will provide weed control in accordance to subsection 816.03.J of the MDOT 2020 Standard Specifications for Construction.

Prior to acceptance, the Engineer will inspect the restored areas to ensure the turf is well established, weed free, in a vigorous growing condition, and contains the species called for in the seeding mixture. If areas do not promote growth, the Contractor will apply new seed, fertilizer and mulch blankets, and water as required.

Upon fulfillment of the above requirements, the Engineer will accept the slope restoration.

Unless otherwise approved by the Engineer, final acceptance will occur no sooner than October 10 of the same year for areas initially restored during the spring (April 15 - June 15) planting season; or, no sooner than June 15 of the following year for areas initially restored during the prior summer/fall (after June 15) planting season.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	Pay Unit
DS_Turf Restoration	Square Yard

Measure **DS_Turf Restoration** area in place by the unit square yard and pay for it at the contract unit price, which price includes the costs for all labor, equipment, and materials necessary to complete the work.

The Contractor will restore areas disturbed by its operations and not required by the Project at its own expense.

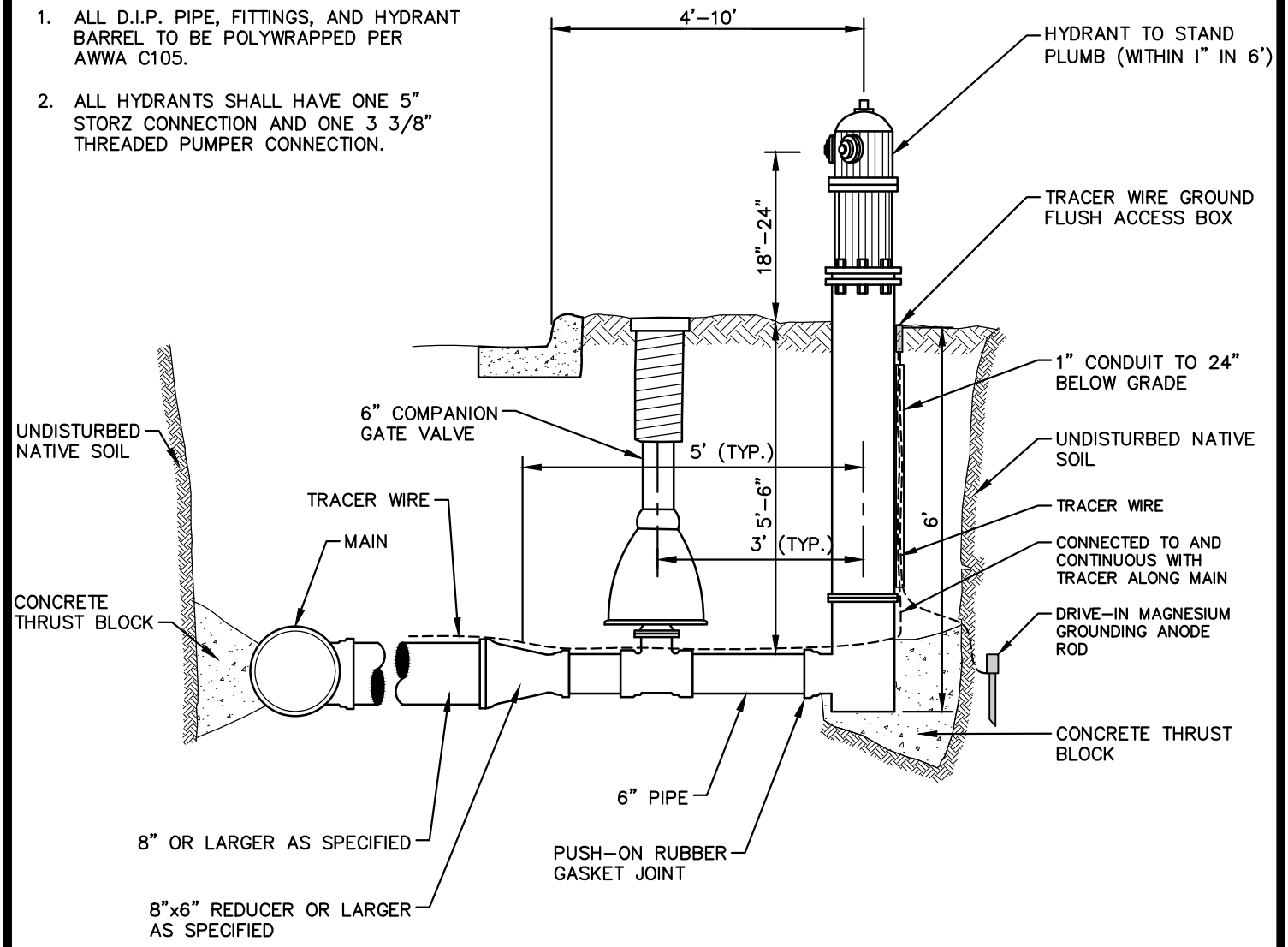
The Engineer will not pay for any labor, equipment, and material costs for the Contractor to provide weed control.

The Contractor will repair and/or clean any damage or soiling to signs, fences, trees, pavements, structures, etc. at its own expense.

After initial placement of the slope restoration measures, the Engineer will certify for payment fifty (50) percent of the total quantity placed for each item. The Engineer will certify for payment the remaining fifty (50) percent of the total quantities upon full establishment and final acceptance of any restored area.

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
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734-794-6410
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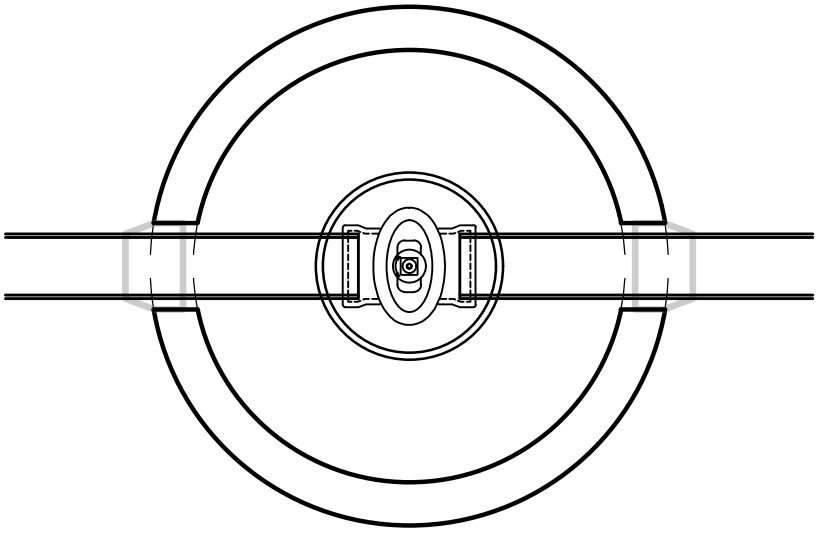
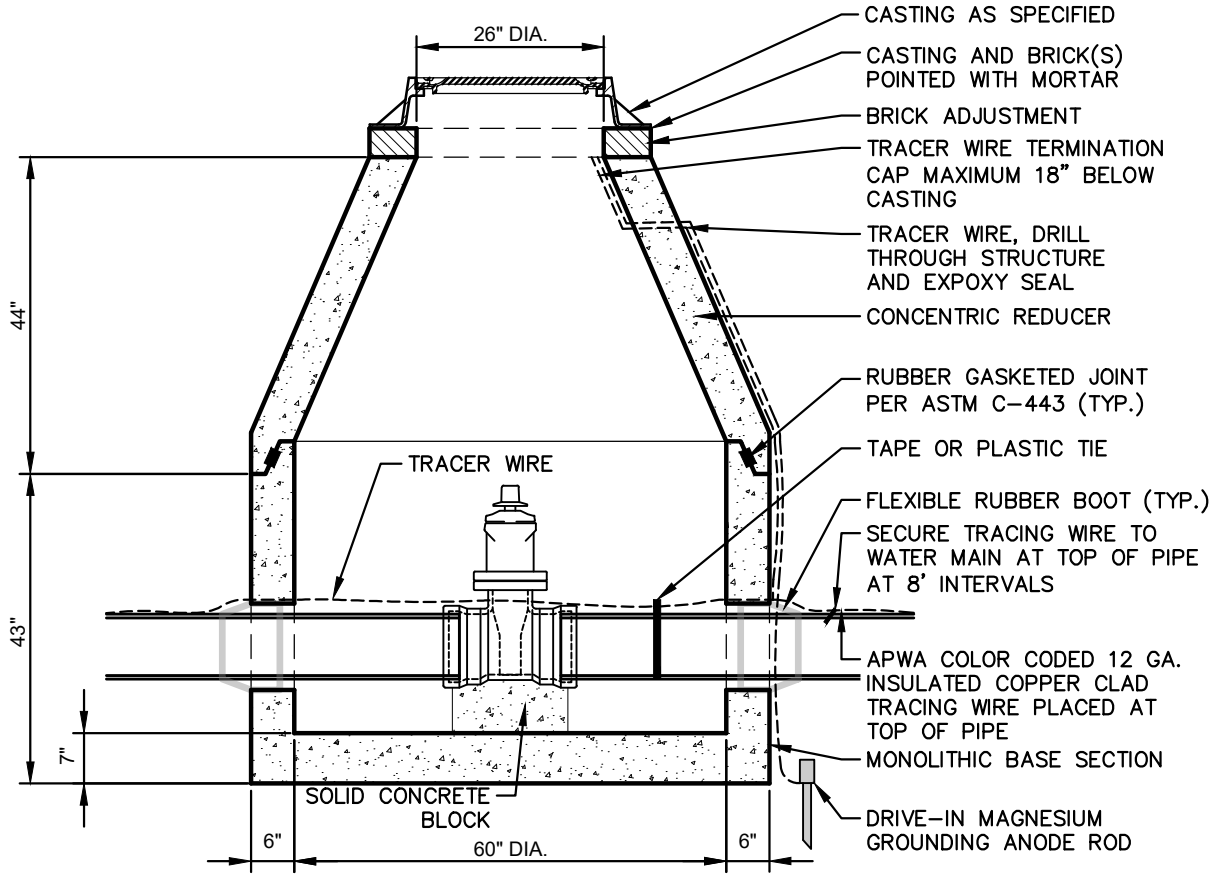
00	2/5/24	ENG	AA
REV. NO.	DATE	DRAWN BY	CHECKED BY

FIRE HYDRANT ASSEMBLY

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



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. **SD-W-3**
SCALE N.T.S.	DATE 12/8/2023	

CITY OF ANN ARBOR
ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

RFQ No. 24-17, File No. 2023-24

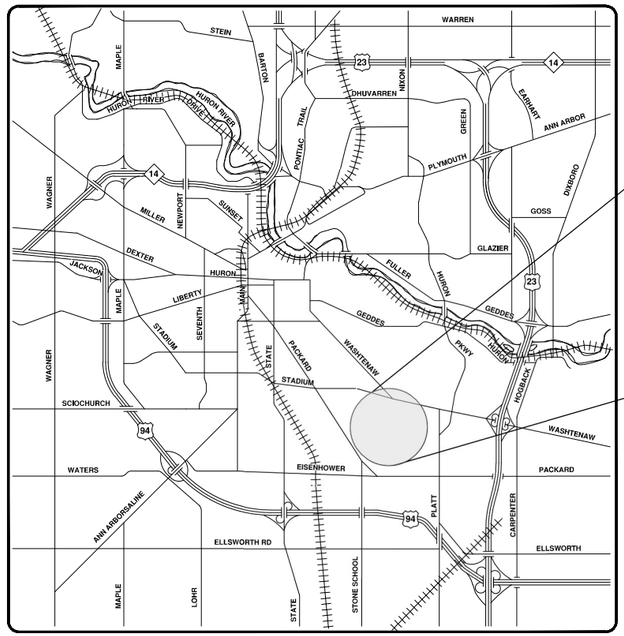
NOTES:

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.

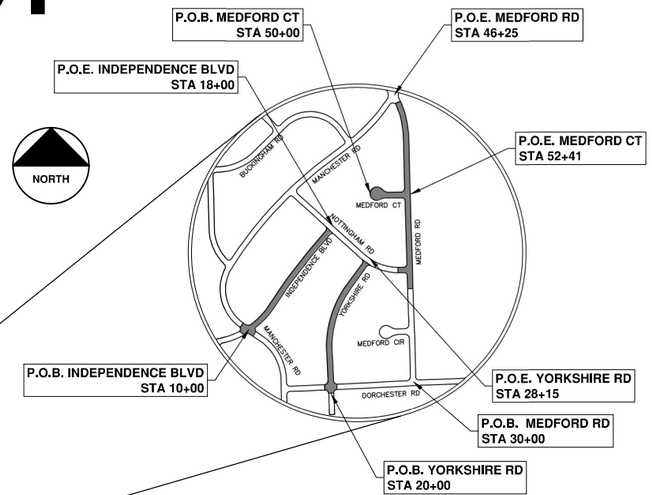
THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 2024 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, IT'S DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.

Sheet List Table



VICINITY MAP



PREPARED UNDER THE SUPERVISION OF

STATE OF MICHIGAN — ALAN P. LOEBACH — ENGINEER — No. 43167 — LICENSED PROFESSIONAL ENGINEER

3 / 7 / 2024

ALAN LOEBACH, P.E.
PROJECT MANAGER

DATE

CITY APPROVAL

STATE OF MICHIGAN — JEREMY J. SCHROT — ENGINEER — No. 59414 — LICENSED PROFESSIONAL ENGINEER

3 / 7 / 2024

JEREMY SCHROT, P.E.
PROJECT MANAGER

DATE

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

WATER MAIN REPLACEMENT AND ROADWAY CONSTRUCTION
ON INDEPENDENCE BLVD, YORKSHIRE RD, MEDFORD RD AND MEDFORD CT

SCALE

DRAWING No.
2023-24-1

SHEET No.
1 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Cov.dwg - _a2 standard bw.stb - Plot Date: 3/22/2024 1:38:28 PM

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. All ductile iron pipe and fittings shall be polyethylene wrapped per ANSI/AWWA C105/A21.5.
11. Cor-blu bolts to be used at all mechanical water main joints at hydrants and Megalug fittings
12. The Contractor shall construct, flush, and bacteriologically test the water main per Detailed Specification "Water Main Installation and Testing" and as approved by the Engineer. All chlorinated water shall be discharged directly into an approved sanitary sewer. The Contractor shall supply all necessary hoses, fittings and the like to accomplish this work.
13. 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.
14. "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.
15. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.
16. 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.
17. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.
18. 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".
19. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.
20. Sawed sewer pipe connections shall be coupled with a Fernco flexible coupling and a stainless steel shear ring.
21. The location of material stock piles and on-site staging areas to be approved by the Engineer.
22. 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.
23. 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.
24. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.
25. Where sewer pipes of different sizes or materials are joined, Fernco flexible couplings with stainless steel shear rings shall be used. The Contractor's purchase price for these devices, including shipping, shall be paid as an extra. Prior to payment for this item, the Contractor shall submit receipts for the Engineer's review and approval. All other costs associated with the installation of these devices shall be included in the payment for the sewer.
26. Where sewer and water main are to be removed & replaced or added, all pipe shall be installed using Trench Detail detailed in the specifications or shown on Plans. Backfill for sewer and water construction shall be MDOT Granular Material, Class II, Modified.
27. 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. This work will not be paid for separately, but shall be included in "Machine Grading, Modified"
28. In areas where edge drain cannot be installed in accordance with City of Ann Arbor Detail SD-TD-11, the edge drain shall be installed at the depth as indicated on the plans, or as directed by Engineer. In no case shall the edge drain be installed at a grade less than 0.50% or at a depth of less than 2' below top of proposed pavement.

MISCELLANEOUS OR AS-NEEDED QUANTITIES

Item	Quantity	Unit
General Conditions, Max. $150,000.00	1	LS
Project Supervision, Max. $70,000.00	1	LS
Project Clean-Up and Restoration	1	LS
Digital Audio Visual Coverage	1	LS
Erosion Control, Inlet Protection, Fabric Drop	31	Ea
Erosion Control, Silt Fence	500	Ft
Minor Traffic Control, Max $90,000.00	1	LS
Traffic Regulator Control	1	LS
Pedestrian Type II Barricade, Temp, Furn & Oper	16	Ea
Pedestrian Channelizer Device, Furn & Oper	16	Ea
Temporary Pedestrian Ramp, Furn & Oper	4	Ea
Temporary Pedestrian Mat, Furn & Oper	100	Ft
DS_Tree Trimming Allowance	7500	Dir
Subgrade Undercutting, Type III	100	Cyd
Exploratory Excavation, SD-TD-1, (0-10' Deep)	5	Ea
6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	100	Ft
Storm Sewer Structure, Rem	1	Ea
Storm Structure Adjust, Additional Depth	10	Ft
Storm Structure, Reconstruct	10	Ft
6 In., PC 350 DIP w/polywrap, SD-TD-1	20	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	50	Ft
12 In., PC 350 DIP w/polywrap, SD-TD-1	20	Ft
6 In. 45° DIP Bend	5	Ea
6 In. 22.5° DIP Bend	10	Ea
8 In. 45° DIP Bend	10	Ea
8 In. 11.25° DIP Bend	10	Ea
Excavate & Backfill For Water Service Tap And Lead	50	Ft
Sacrificial Anode, 17-pound	10	Ea
Sacrificial Anode, 32-pound	1	Ea
Temporary Water Main Line Stop, 8 In. or less	10	Ea
Temporary Water Main Line Stop, Additional Rental Day	10	Ea
Conc, Sidewalk, 4 In.	500	Sft
Subbase, CIP	10	Cyd
Hand Patching	15	Ton
Underground Sprinkling System, Restore	5000	Dlr

TEMPORARY SEEDING:

1. SEED IN ACCORDANCE WITH PROJECT DRAWINGS AND SPECIFICATIONS.
2. ANY DISTURBED AREA NOT PAVED, SEEDED, MULCHED, SODDED OR BUILT UPON BY NOVEMBER 15TH OR JUNE 30TH IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TOPSOIL, SEEDING, AND MULCH = $50,675.00

ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:
- MoB – GLYNWOOD LOAM, 2 TO 6 PERCENT SLOPES.
- MoC – MORLEY LOAM, 6 TO 12 PERCENT SLOPES.
- WawabB – WAWASEE LOAM, 2 TO 6 PERCENT SLOPES.
- WawabC – WAWASEE LOAM, 6 TO 12 PERCENT SLOPES.

TOTAL AREA OF PROPOSED DISTURBANCE = 3.37 AC

0.73 AC – INDEPENDENCE BLVD

0.78 AC – YORKSHIRE RD

1.60 AC – MEDFORD RD

0.26 AC – MEDFORD CT

CITY OF ANN ARBOR STANDARDS USED

DRAWING NO.	SHEET TITLE
SD-GU-1	STANDARD CASTING SCHEDULE
SD-GU-2	SPECIAL STRUCTURE COVER WATER
SD-GU-3	SPECIAL STRUCTURE COVER STORM
SD-GU-4	SPECIAL STRUCTURE COVER SANITARY
SD-GU-5	MANHOLE CASTING ADJUSTMENT
SD-GU-6	VALVE AND MONUMENT BOX ADJUST
SD-GU-7	MANHOLE AND VALVE/MONUMENT BOX LOWERING
SD-GU-8	STRUCTURE PLATE
SD-SN-4	SANITARY LEAD RELOCATION
SD-W-1	FIRE HYDRANT ASSEMBLY
SD-W-2	THRUST BLOCK
SD-W-3	PRECAST GATE WELL
SD-W-7	POLYETHYLENE ENCASEMENT
SD-ST-6	BLOCK SINGLE INLET
SD-CG-1	BARRIER CURB AND GUTTER
SD-DS-1	TYPE M DRIVE APPROACH
SD-DS-4	SIDEWALK AND CURB & GUTTER JOINTS
SD-DS-5	SIDEWALK CROSS SECTION
SD-SESC-1	INLET PROTECTION
SD-SESC-3	SILT FENCE
SD-SESC-4	MULCH BLANKET
SD-SESC-6	STANDARD SESC NOTES
SD-SESC-7	SEQUENCE OF SESC MEASURES
SD-TD-1	UTILITY TRENCH - TYPE 1
SD-TD-3.1	UTILITY TRENCH SURFACE RESTORATION
SD-TD-4	TYPICAL EDGE DRAIN TRENCH

MDOT STANDARDS USED

DRAWING NO.	SHEET TITLE
R-15-G	COVER K
R-18-F	COVER Q
R-28-K	CURB RAMP AND DETECTABLE WARNING DETAILS
R-29-J	DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK
R-83-C	UTILITY TRENCHES

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
EGLE WATER MAIN CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER		
SANITARY		
STORM	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350
FORESTRY		
SIGNS SIGNALS STREET LIGHTS		MARK MORENO (734) 794-6361
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	RON SOUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	MARC GOODELL (313) 405-0574
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

PROJECT NAME BENCHMARKS

BM #	ELEV	DESCRIPTION
100	846.973	SET BENCHTIE IN THE NORTH FACE OF UTILITY POLE WITH LIGHT. LOCATED AT THE SOUTHWEST CORNER OF INDEPENDENCE BOULEVARD AND NOTTINGHAM ROAD.
101	876.857	FOUND NAIL IN THE WEST FACE OF UTILITY POLE WITH LIGHT. LOCATED AT THE SOUTHEAST CORNER OF INDEPENDENCE BOULEVARD AND MANCHESTER ROAD.
110	848.431	SET MAG NAIL IN EAST FACE OF UTILITY POLE. LOCATED ON THE WEST SIDE OF YORKSHIRE ROAD IN FRONT OF HOUSE #2330.
111	862.065	SET MAG NAIL IN THE NORTH FACE OF UTILITY POLE. LOCATED AT THE SOUTHEAST CORNER OF YORKSHIRE ROAD AND DORCHESTER ROAD.
120	843.816	SET MAG NAIL IN THE NORTHEAST FACE OF UTILITY POLE. LOCATED AT THE SOUTHWEST CORNER OF MEDFORD ROAD AND NOTTINGHAM ROAD.
121	871.367	SET MAG NAIL IN THE NORTHEAST FACE OF UTILITY POLE. LOCATED AT THE SOUTHWEST CORNER OF MEDFORD ROAD AND MEDFORD COURT.
122	866.581	FOUND NAIL IN THE SOUTHEAST FACE OF UTILITY POLE WITH LIGHT. LOCATED AT THE NORTHWEST CORNER OF MANCHESTER ROAD AND MEDFORD ROAD.

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

GENERAL NOTES

SCALE: NTS

DRAWING No. 2023-24-2

SHEET No. 2 OF 51

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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. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

LEGEND

SCALE : NTS

DRAWING No.
2023-24-3

SHEET No.
3 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_LEG.dwg - _a2 standard bw.stb - Plot Date: 3/22/2024 1:38:46 PM

EXISTING WATER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE SIZE	RIM ELEV.
GV-01	6"	875.30
GV-02	12"	N.S.
GV-03	12"	N.S.
GV-04	6"	846.47
GV-05	12"	861.92
GV-06	12"	861.41
GV-07	8"	859.35
GV-08	6"	860.86
GV-09	6"	843.43
GV-10	4"	870.88
GV-11	6"	871.38
GV-12	6"	866.10
GV-13	6"	865.87

* N.S. = NOT SURVEYED

EXISTING STORM SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	INVERT ELEVATION, SIZE & DIRECTION
5	4' CB	8N.S.	12" NW 842.46
STM-01	4' CB	N.S.	12" E 872.50
STM-02	4' CB	1.17	12" SE 872.50
STM-03	4' MH	876.50 N.S.	12" SW 871.50 12" SE 871.50 12" W 871.50 12" NW 871.50 12" NE 871.50 15" NE 871.04
STM-04	4' CB	1.17	12" NW 872.50
STM-05	4' CB	876.41	12" SW 872.71
STM-06	4' MH	872.78	15" SW 863.38 15" NE 863.38
STM-07	4' CB	851.57	12" NW 846.51
STM-08	4' MH	852.28	21" SE 845.33 15" SW 844.10 21" NE 843.86
STM-09	4' CB	851.58	12" SE 846.04 21" NW 845.98
STM-10	4' CB	846.00	12" SE 840.16 12" N 840.00
STM-11	4' CB	842.45	12" NW 840.78
STM-12	4' MH	845.77	12" S 838.91 12" NW 838.91 36" NW 837.59 21" SW 838.55 36" SE 837.55
STM-13	4' CB	846.45	12" NE 839.75 12" SE 839.71
STM-14	4' CB	846.50	12" SW 840.55
STM-15	4' CB	861.29	12" E 856.39 12" NW 856.39
STM-16	4' CB	861.32	12" W 856.92
STM-17	4' MH	861.47	12" W 853.37 12" W 856.07 12" SE 856.07 15" E 853.37
STM-18	4' CB	861.48	12" N 856.88 12" E 856.88
STM-19	4' CB	861.71	12" S 857.31
STM-21	4' CB	846.74	12" SE 841.74 12" NW 841.74
STM-22	4' MH	847.50	12" SE 841.70 12" NE 840.41
STM-23	4' CB	844.40	12" SE 838.90 12" N 838.90
STM-24	4' CB	844.37	12" NW 839.37
STM-25	4' MH	844.45	12" NW 838.65 12" SW 838.65 12" S 838.65
STM-26	4' CB	844.21	12" NE 838.81 12" SE 838.81

* N.S. = NOT SURVEYED

EXISTING STORM SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	INVERT ELEVATION, SIZE & DIRECTION
STM-27	4' CB	844.27	12" SW 839.00
STM-28	4' Inlet Junction	846.91	36" E 838.92
STM-29	4' Inlet Junction	N.S.	36" W 835.94 36" E 835.94
STM-30	4' Inlet Junction	N.S.	36" W 835.36 12" NE 838.00 36" SE 835.36
STM-31	4' Inlet Junction	844.65	36" NW 835.04 12" N 837.00 48" S 834.64
STM-32	4' Inlet Junction	844.26	12" N 837.89 12" SW 838.49
STM-33	4' Inlet Junction	844.43	12" S 840.26
STM-34	4' Inlet Junction	846.07	12" E 841.10 12" N 841.10 12" S 841.10
STM-35	4' Inlet Junction	845.92	12" E 841.26 12" W 841.25
STM-36	4' Inlet Junction	845.98	12" W 841.51
STM-37	4' Inlet Junction	857.96	12" E 851.00 12" S 849.02
STM-38	4' Inlet Junction	856.95	12" E 851.09 12" W 851.09
STM-39	4' Inlet Junction	857.23	12" W 852.07
STM-40	4' MH	872.12	12" W 861.27 12" N 861.27
STM-41	4' Inlet Junction	870.90	12" W 864.27
STM-42	4' MH	871.22	12" S 860.57 12" N 860.57
STM-43	4' MH	869.43	12" S 860.48 12" N 860.48
STM-44	4' MH	866.90	12" S 860.00 12" N 860.00
STM-45	4' MH	872.31	12" S 859.70 12" N 861.20 12" NW 859.70
STM-46	4' Inlet Junction	866.65	12" NE 861.50 12" S 861.20
STM-47	4' Inlet Junction	866.47	12" N 860.50
STM-48	4' Inlet Junction	863.55	12" SW 861.90
STM-49	4' Inlet Junction	866.86	12" S 860.01 12" N 859.91
STM-50	4' MH	866.85	12" SE 859.00 12" S 859.00 15" NE 859.00
STM-51	4' Inlet Junction	868.57	12" E 866.93
STM-52	4' MH	868.65	12" W 867.01 12" E 862.71

SANITARY SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	INVERT ELEVATION, SIZE & DIRECTION
SAN-01	4' MH	876.66	8" SE 865.51 8" SW 865.65 8" NW 865.51
SAN-02	4' MH	869.76	8" NE 859.08
SAN-03	4' MH	852.60	8" SW 841.54 8" NE 841.53
SAN-04	4' MH	846.18	8" SW 835.52 8" NW 835.46 8" SE 835.42
SAN-05	4' MH	860.95	8" E 849.85 8" W 849.85
SAN-06	4' MH	859.40	8" N 850.40
SAN-07	4' MH	860.30	8" S 846.21 8" N 846.21
SAN-08	4' MH	860.30	8" S 841.84 8" N 841.85
SAN-09	4' MH	847.42	8" S 837.38 8" NE 837.38
SAN-10	4' MH	845.00	8" SW 834.80 8" NW 844.38 8" SE 834.80
SAN-11	4' MH	N.S.	8" NW 834.25 8" E 834.25
SAN-12	4' MH	N.S.	8" W 833.86 8" E 833.86
SAN-13	4' MH	844.72	8" W 833.52 8" N 845.29 8" S 845.29
SAN-14	4' MH	867.35	8" S 866.12
SAN-15	4' MH	871.40	8" W 859.00 8" N 858.99
SAN-16	4' MH	869.97	8" S 858.57 8" N 858.57
SAN-17	4' MH	868.15	8" S 857.54 8" NW 857.54
SAN-18	4' MH	865.69	8" SE 857.19 8" NE 857.19 8" SW 857.19
SAN-19	4' MH	870.36	8" E 860.46

* N.S. = NOT SURVEYED

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

EXISTING STRUCTURE TABLES

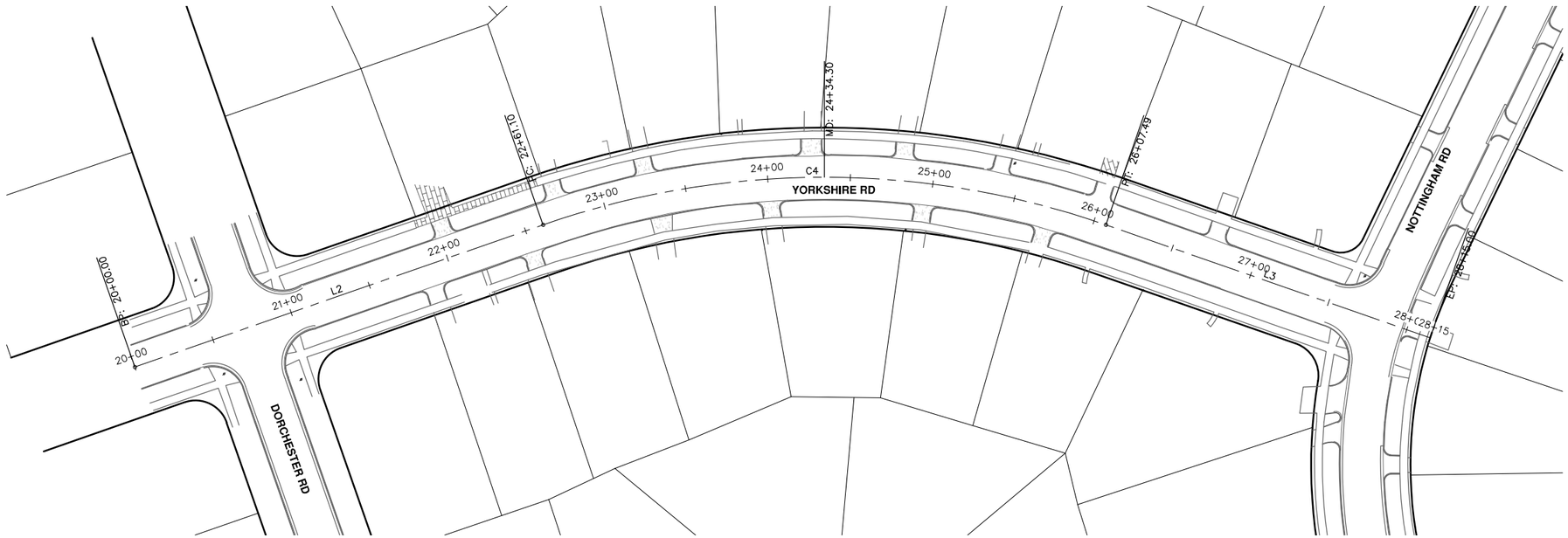
SCALE : NTS

DRAWING No.
2023-24-4

SHEET No.
4 OF 51

Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L1	176.46	N40° 38' 24.99"E	(13300424.44,275619.69)	(13300539.37,275753.60)
L2	261.10	N2° 37' 55.01"W	(13300518.60,274832.81)	(13300506.61,275093.64)
L3	207.51	N35° 48' 24.99"E	(13300603.66,275419.43)	(13300725.06,275587.71)

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	434.95	127.14	N59° 40' 52.38"E	(13300011.51,275164.95)	(13300120.87,275228.90)
C2	429.37	137.66	N41° 24' 00.21"E	(13300120.87,275228.90)	(13300211.52,275331.72)
C3	2467.44	358.45	N36° 28' 42.67"E	(13300211.52,275331.72)	(13300424.44,275619.69)
C4	516.32	346.39	N16° 35' 14.99"E	(13300506.61,275093.64)	(13300603.66,275419.43)



BENCHMARKS		
BM#	ELEV	DESCRIPTION
100	846.973	SET BENCHTIE IN THE NORTH FACE OF UTILITY POLE WITH LIGHT. LOCATED AT THE SOUTHWEST CORNER OF INDEPENDENCE BOULEVARD AND NOTTINGHAM ROAD.
101	876.857	FOUND NAIL IN THE WEST FACE OF UTILITY POLE WITH LIGHT. LOCATED AT THE SOUTHEAST CORNER OF INDEPENDENCE BOULEVARD AND MANCHESTER ROAD.
110	848.431	ST MAG NAIL IN EAST FACE OF UTILITY POLE. LOCATED ON THE WEST SIDE OF YORKSHIRE ROAD IN FRONT OF HOUSE #2330.
111	862.065	SET MAG NAIL IN THE NORTH FACE OF UTILITY POLE. LOCATED AT THE SOUTHEAST CORNER OF YORKSHIRE ROAD AND DORCHESTER ROAD.
120	843.816	SET MAG NAIL IN THE NORTHEAST FACE OF UTILITY POLE. LOCATED AT THE SOUTHWEST CORNER OF MEDFORD ROAD AND NOTTINGHAM ROAD.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

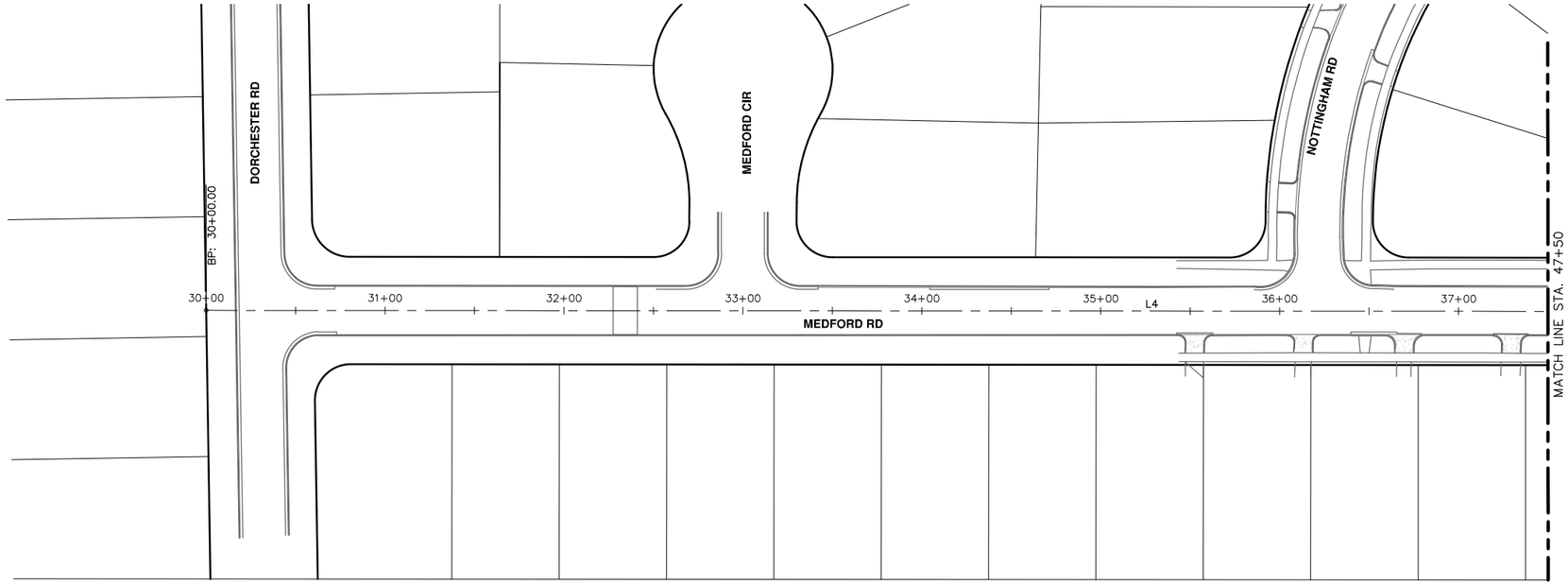
YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

ALIGNMENT SHEET - 1

SCALE: 1" = 40'

DRAWING No. 2023-24-5

SHEET No. 5 OF 51

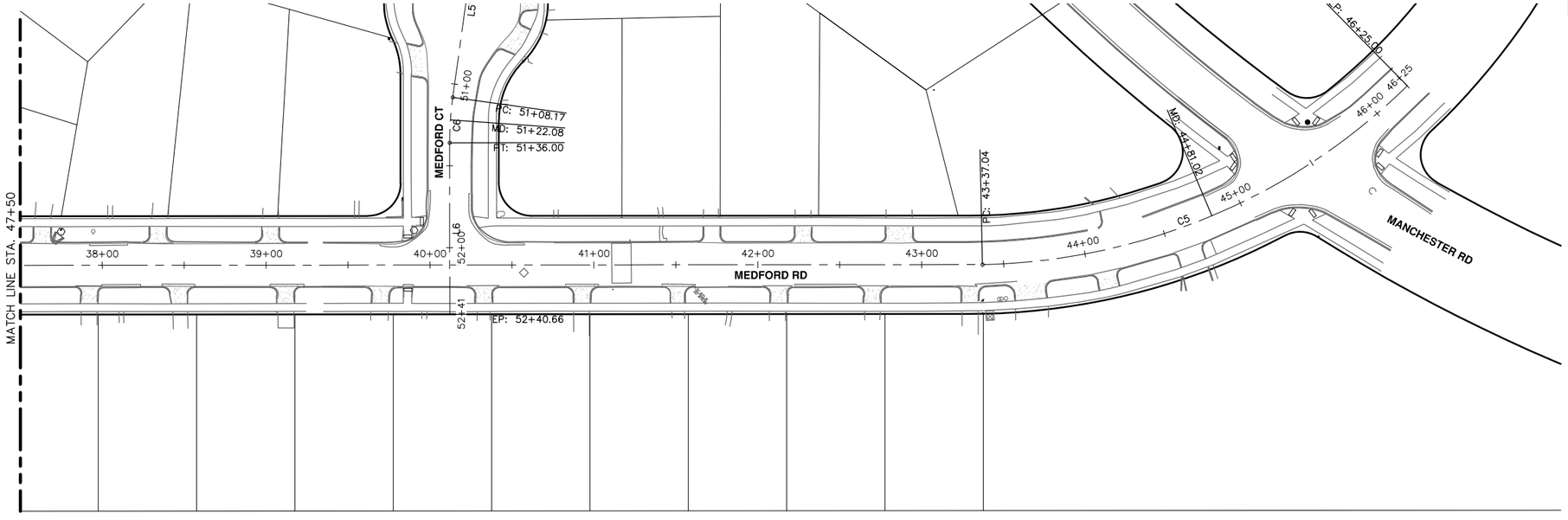


Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L4	1337.04	N1° 41' 26.94"W	(13300944.53,274893.67)	(13300905.08,276230.12)

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C5	381.47	287.96	N24° 28' 28.53"W	(13300905.08,276230.12)	(13300788.59,276486.03)

BENCHMARKS

BM#	ELEV	DESCRIPTION
120	843.816	SET MAG NAIL IN THE NORTHEAST FACE OF UTILITY POLE. LOCATED AT THE SOUTHWEST CORNER OF MEDFORD ROAD AND NOTTINGHAM ROAD.
121	871.367	SET MAG NAIL IN THE NORTHEAST FACE OF UTILITY POLE. LOCATED AT THE SOUTHWEST CORNER OF MEDFORD ROAD AND MEDFORD COURT.
122	866.581	FOUND NAIL IN THE SOUTHEAST FACE OF UTILITY POLE WITH LIGHT. LOCATED AT THE NORTHWEST CORNER OF MANCHESTER ROAD AND MEDFORD ROAD.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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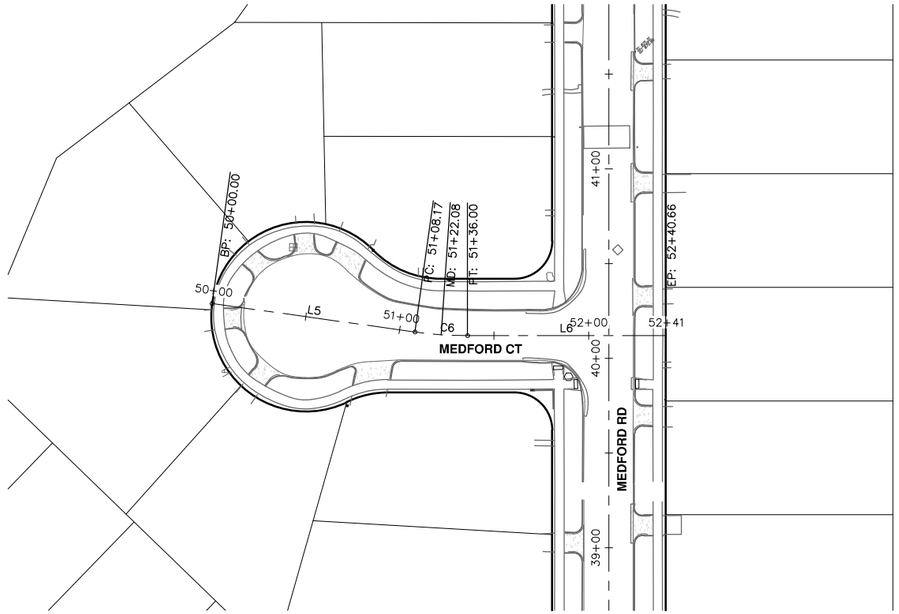
ALIGNMENT SHEET - 2

SCALE : 1" = 40'

DRAWING No. 2023-24-6

SHEET No. 6 OF 51



BENCHMARKS		
BM#	**ELEV**	**DESCRIPTION**
121	871.367	SET MAG NAIL IN THE NORTHEAST FACE OF UTILITY POLE. LOCATED AT THE SOUTHWEST CORNER OF MEDFORD ROAD AND MEDFORD COURT.

Line Table: Alignments				
Line #	**Length**	**Direction**	**Start Point**	**End Point**
L5	108.17	S83° 42' 55.91"E	(13300704.80,275915.99)	(13300812.32,275904.15)
L6	104.67	N88° 18' 44.99"E	(13300840.10,275903.04)	(13300944.73,275906.12)

Curve Table: Alignments					
Curve #	**Radius**	**Length**	**Chord Direction**	**Start Point**	**End Point**
C6	200.00	27.83	S87° 42' 05.46"E	(13300812.32,275904.15)	(13300840.10,275903.04)

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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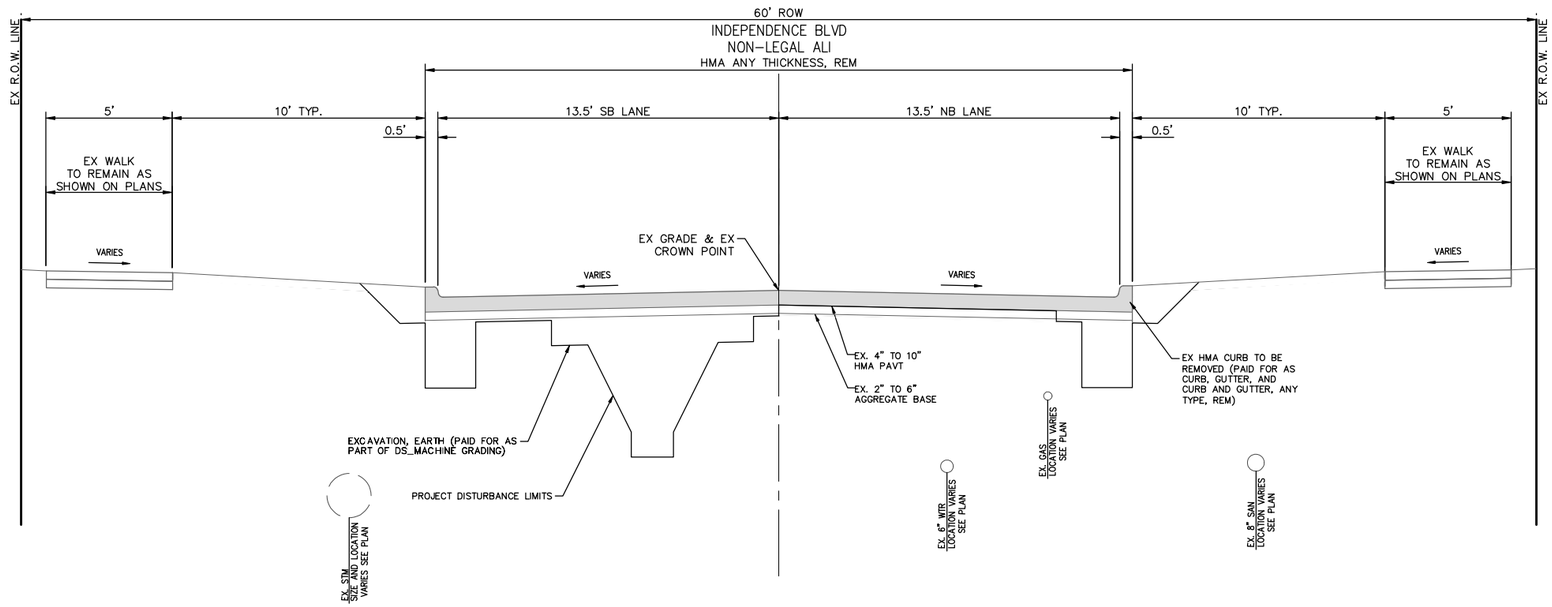
ALIGNMENT SHEET - 3

SCALE: ######

DRAWING No. 2023-24-7

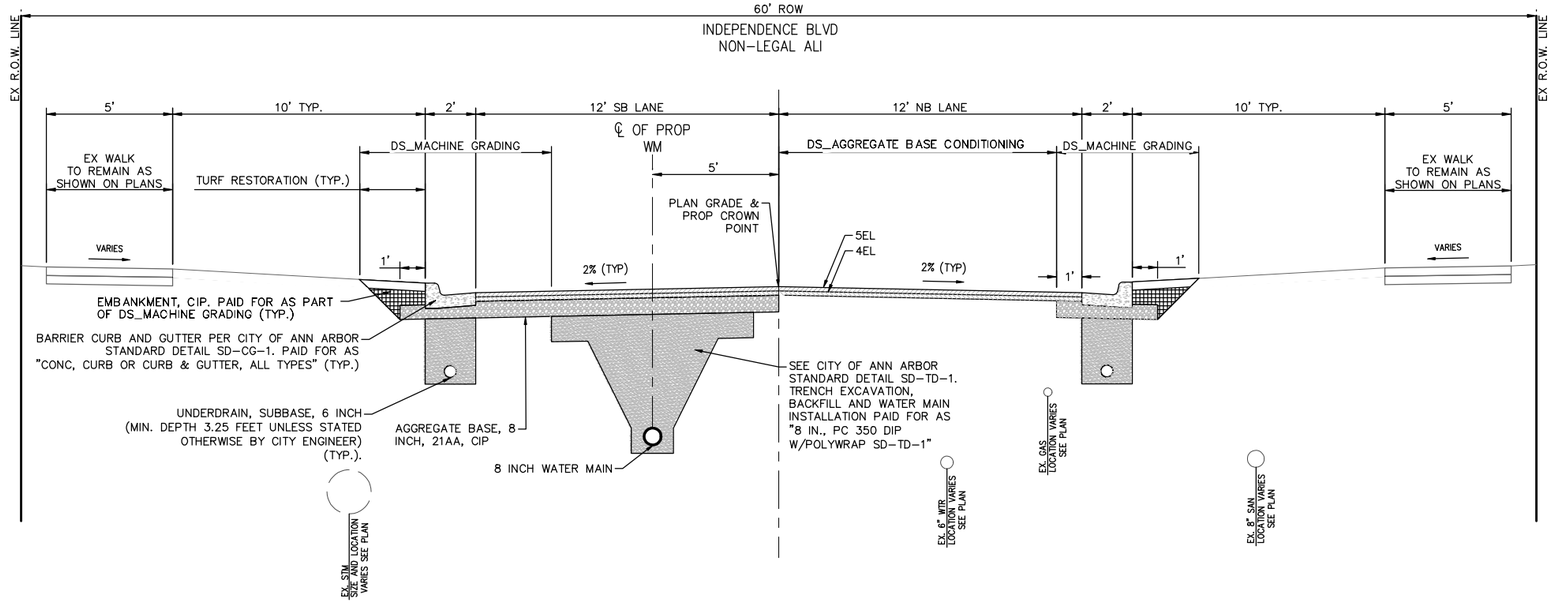
SHEET No. 7 OF 51

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Source Drawings\Align-Corridor\AA23005_Align.dwg Dwg Created: 1-Nov-23 - _a2 standard bw.stb - Plot Date: 22-Mar-24



EXISTING INDEPENDENCE DR TYPICAL SECTION

SECTION APPLIES TO:
STA 11+25 TO STA 17+31



PROPOSED INDEPENDENCE DR TYPICAL SECTION

SECTION APPLIES TO:
STA 11+25 TO STA 17+31

HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE LBS PER SYD	PERFORMANCE GRADE	REMARKS
5EL	HMA, 5EL	220	58-28	MAINLINE TOP COURSE – AWI 260
4EL	HMA, 4EL	220	58-28	MAINLINE LEVELING COURSE
	* BOND COAT	0.05-0.15 GAL		

J: \AA \Design \AA23005 – YIM Water Main Replacement \Ann Arbor Cads \Plan Production \AA23005_TYP.dwg Dwg Created: 22-Mar-24 – _a2 standard bw.stb – Plot Date: 22-Mar-24

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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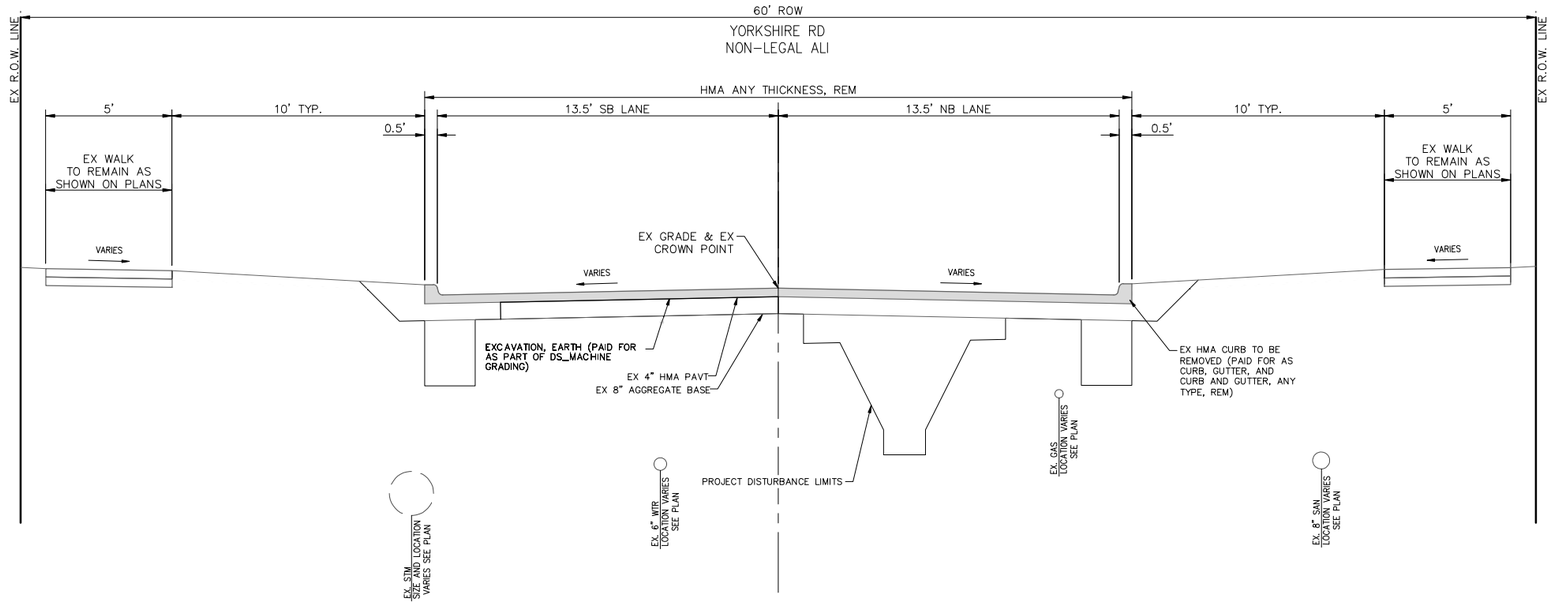
WATER MAIN REPLACEMENT PROJECT

TYPICAL SECTIONS - 1

SCALE PLAN: 1" = 3'

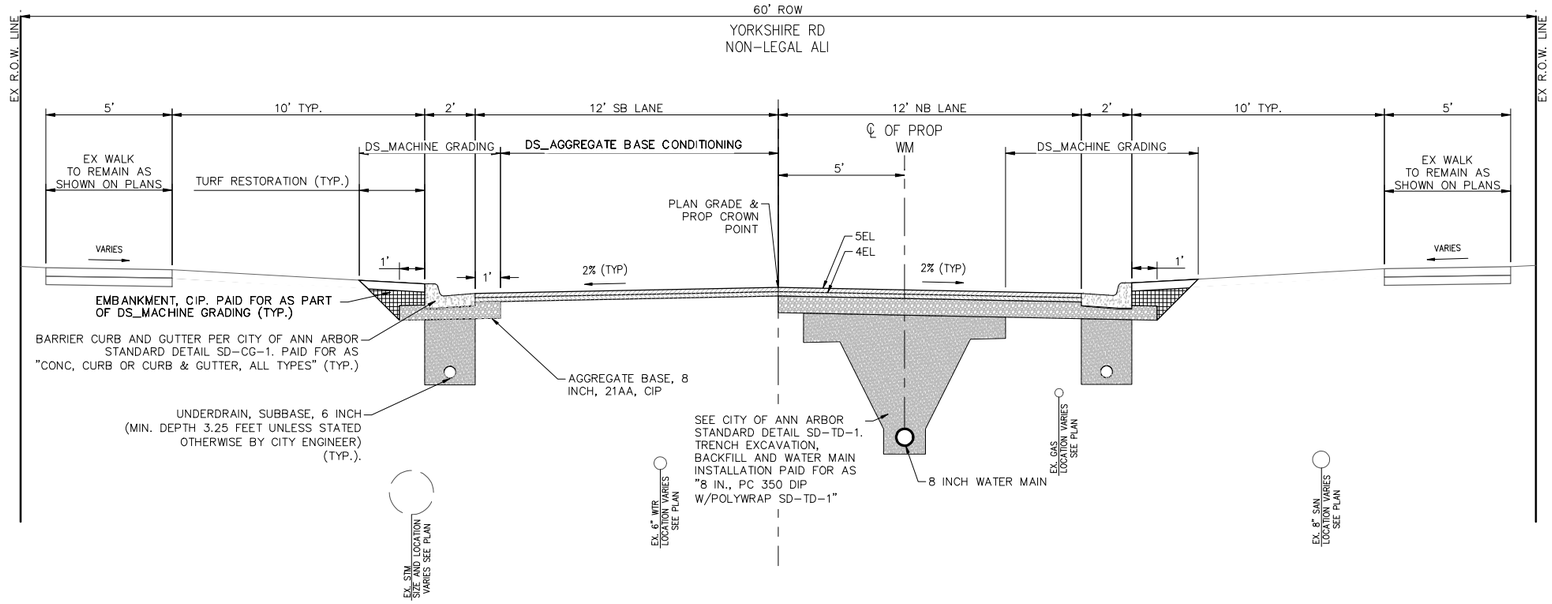
DRAWING No.
2023-24-8

SHEET No.
8 OF 51



EXISTING YORKSHIRE RD TYPICAL SECTION

SECTION APPLIES TO:
STA 21+10 TO STA 27+56



PROPOSED YORKSHIRE RD TYPICAL SECTION

SECTION APPLIES TO:
STA 21+10 TO STA 27+56

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_TYP.dwg Dwg Created: 22-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

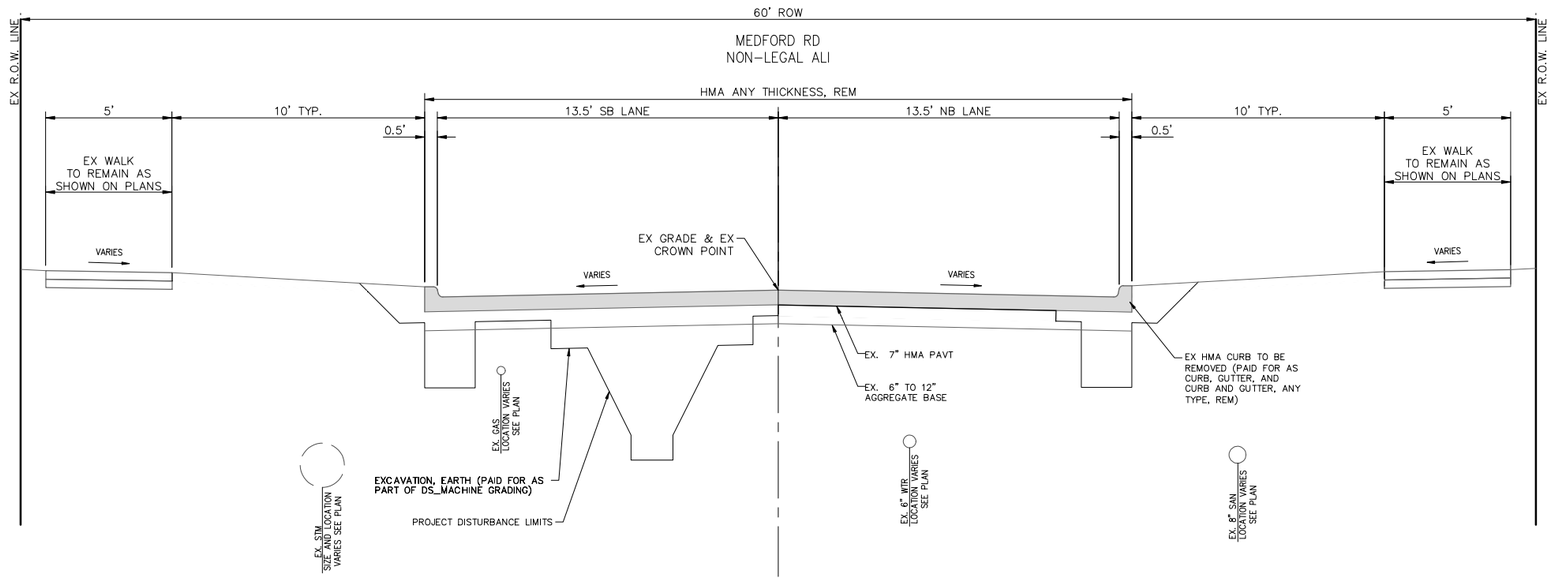
YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

TYPICAL SECTIONS - 2

SCALE PLAN: 1" = 3'

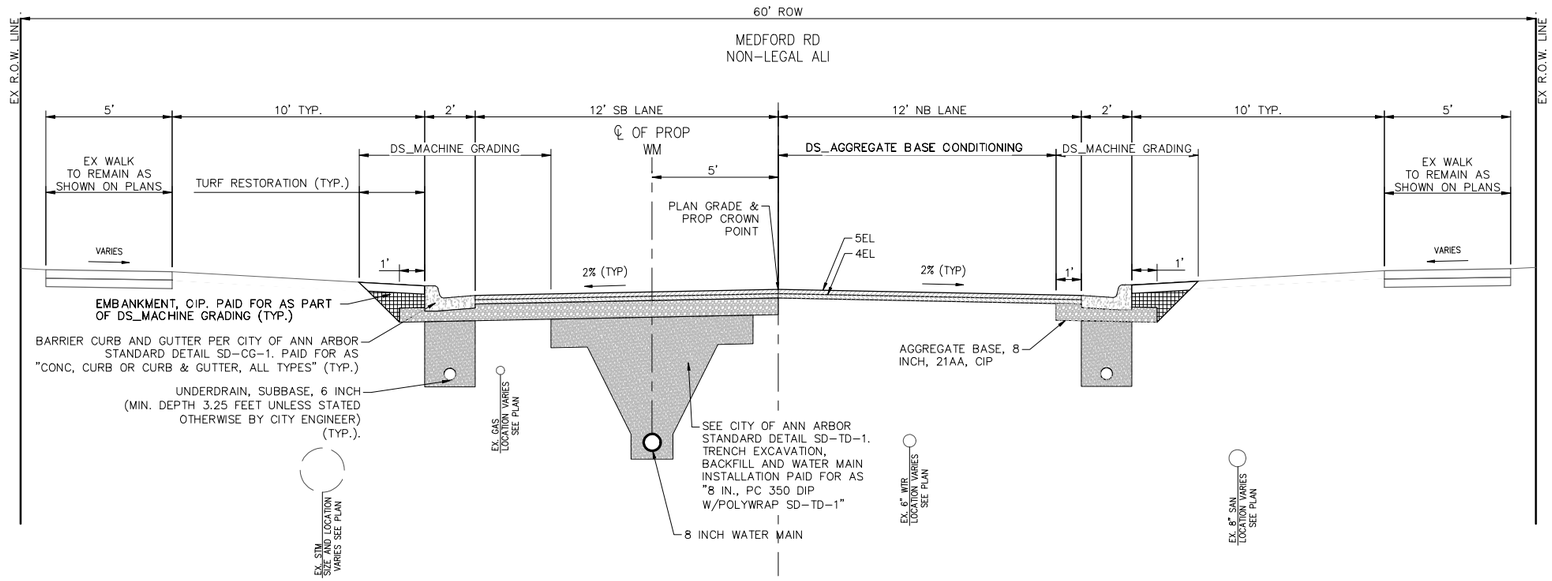
DRAWING No.
2023-24-9

SHEET No.
9 OF 51



EXISTING MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 35+19 TO STA 45+06



PROPOSED MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 35+19 TO STA 45+06

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

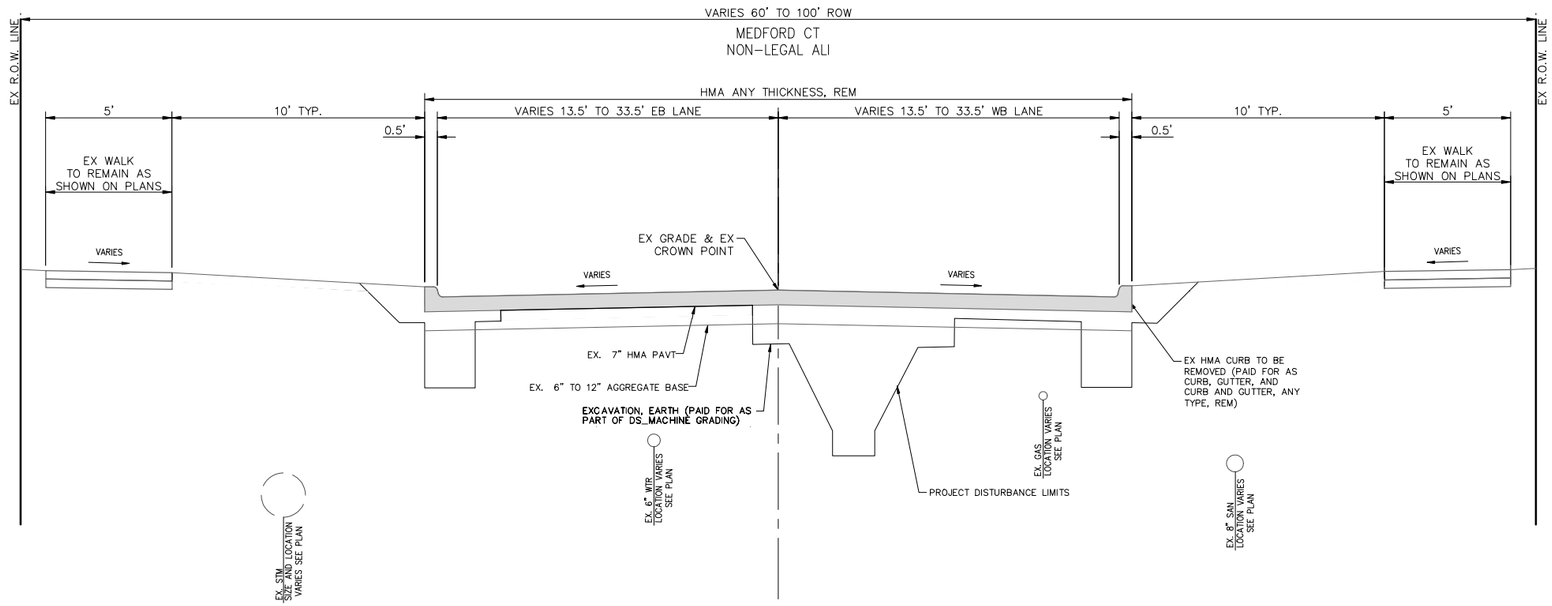
YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

TYPICAL SECTIONS - 3

SCALE PLAN: 1" = 3'

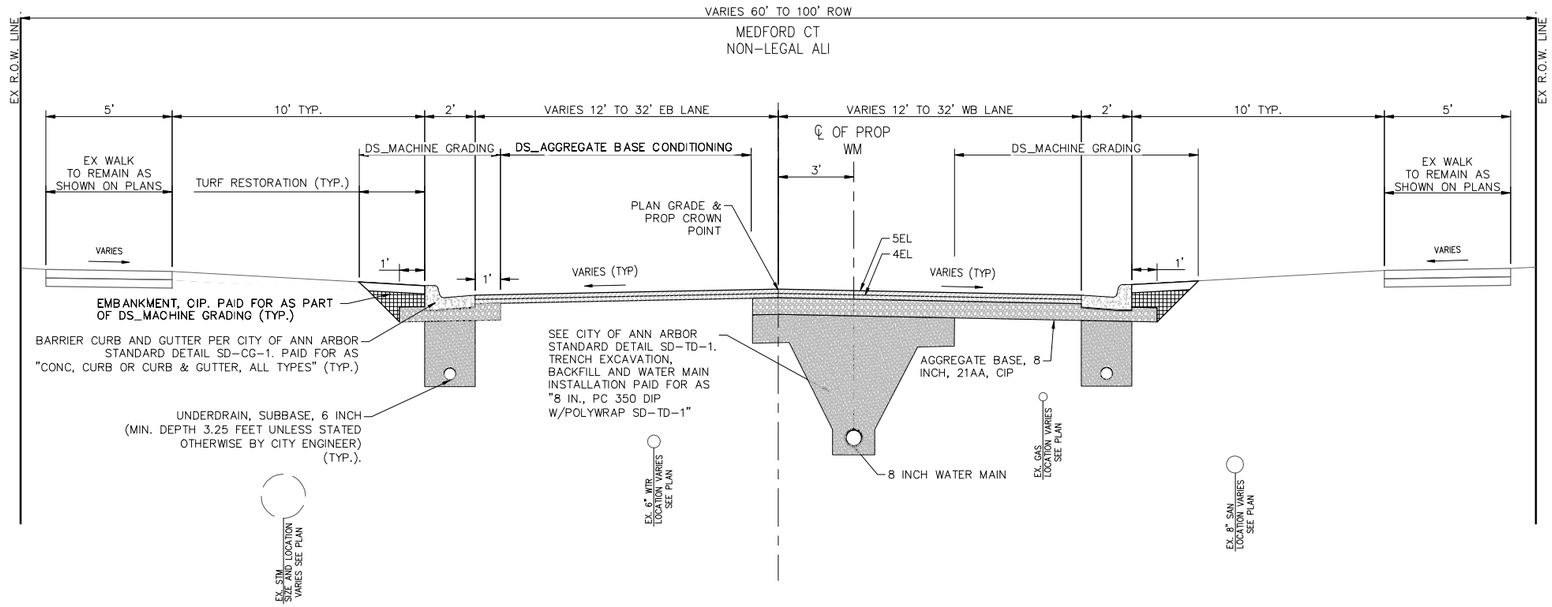
DRAWING No. **2023-24-10**

SHEET No. **10 OF 51**



EXISTING MEDFORD CT TYPICAL SECTION

SECTION APPLIES TO:
STA 50+18 TO STA 51+77



PROPOSED MEDFORD CT TYPICAL SECTION

SECTION APPLIES TO:
STA 50+18 TO STA 51+77

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

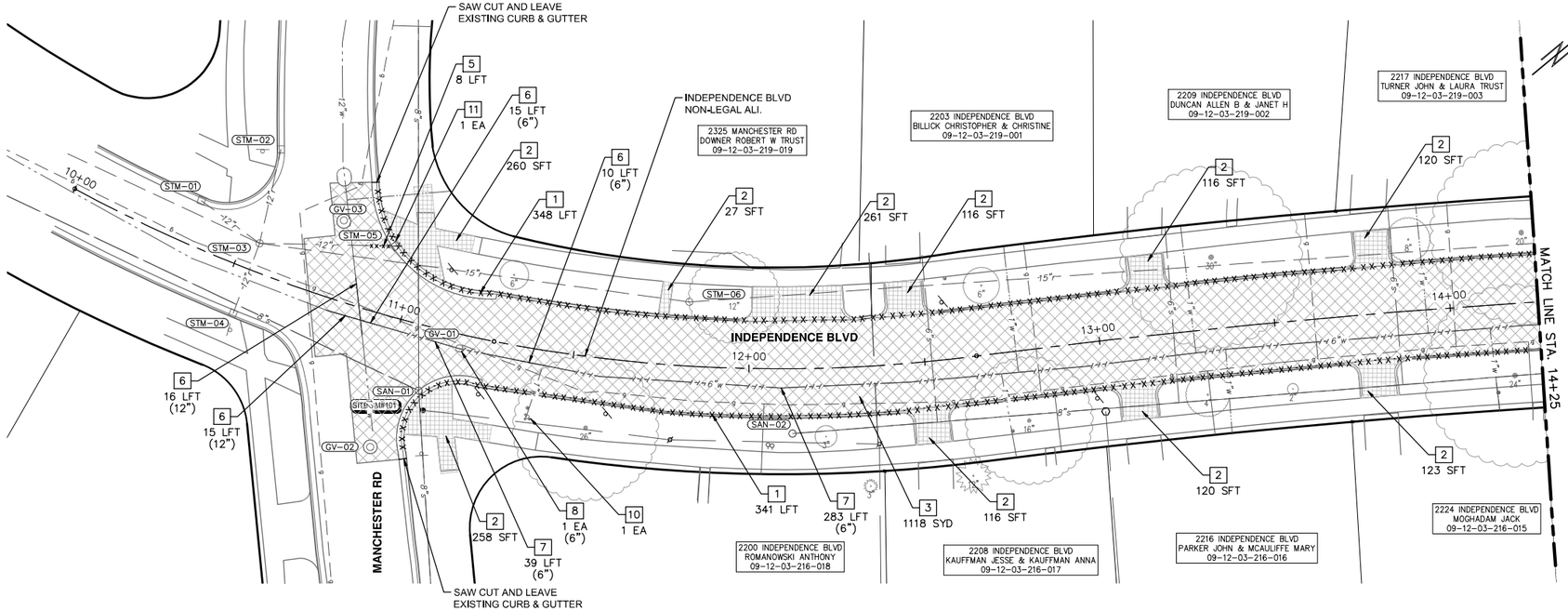
YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

TYPICAL SECTIONS - 4

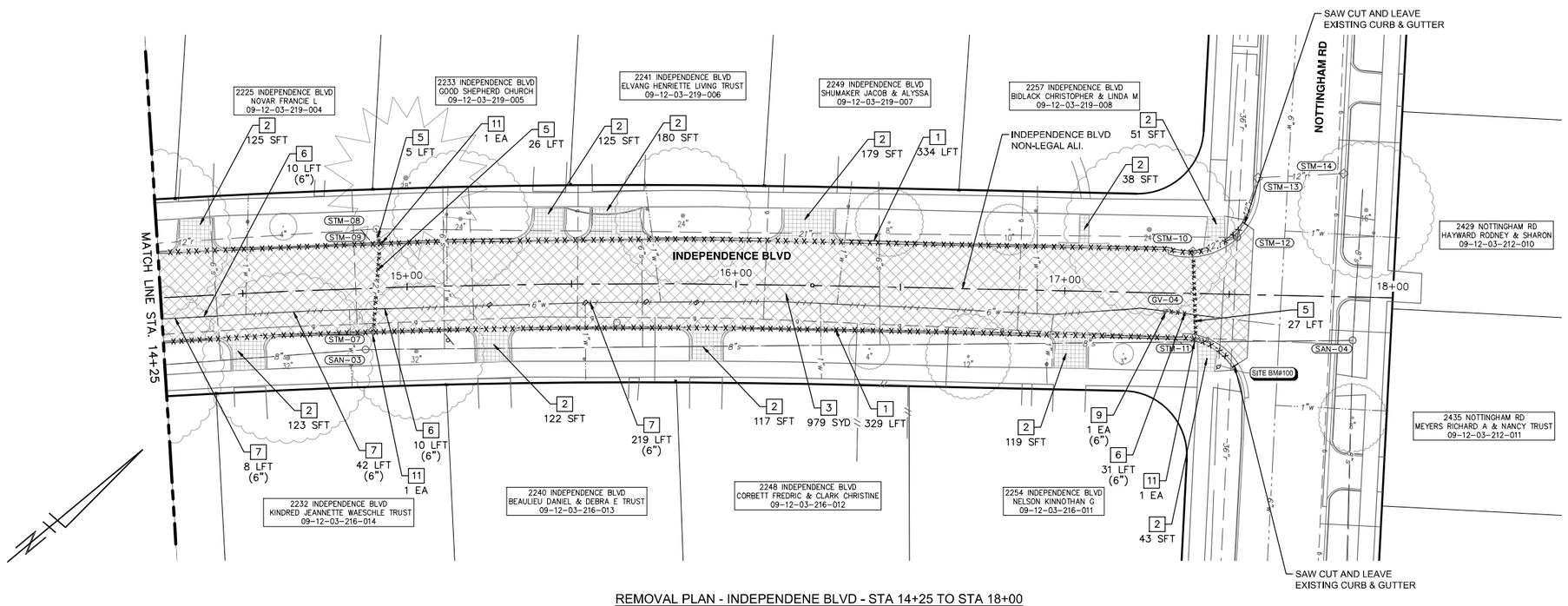
SCALE PLAN: 1" = 3'

DRAWING No.
2023-24-11

SHEET No.
11 OF 51



REMOVAL PLAN - INDEPENDENCE BLVD - STA 10+00 TO STA 14+25



REMOVAL PLAN - INDEPENDENE BLVD - STA 14+25 TO STA 18+00

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- WATER MAIN PIPE, REM
- WATER MAIN PIPE, ABANDON

REMOVAL KEY

KEY	DESCRIPTION
1	CURB, CUTTER, AND CURB AND GUTTER, ANY TYPE, REM
2	SIDEWALK AND RAMPS, REMOVE* DRIVEWAY APPROACH, REMOVE*
3	HMA ANY THICKNESS, REM*
4	COLD MILLING HMA SURFACE
5	STORM SEWER PIPE, 12 IN. DIA., REM
6	WATER MAIN PIPE, _ IN. DIA., REM
7	WATER MAIN PIPE, _ IN. DIA., ABANDON
8	GATE VALVE IN BOX, _ IN. DIA., ABANDON
9	GATE VALVE IN BOX, _ IN. DIA., REM
10	FIRE HYDRANT ASSEMBLY, REM
11	STORM SEWER DROP STRUCTURE, REM

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2097	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1347	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	2280	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	66	Ft
Storm Sewer Drop Structure, Rem	4	Ea
Fire Hydrant Assembly, Rem	1	Ea
Water Main Pipe, 6 In. Dia., Abandon	591	Ft
Water Main Pipe, 6 In. Dia., Rem	71	Ft
Water Main Pipe, 12 In. Dia., Rem	26	Ft
Gate Valve in Box, 6 In. Dia., Abandon	1	Ea
Gate Valve in Box, 6 In. Dia., Rem	1	Ea

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

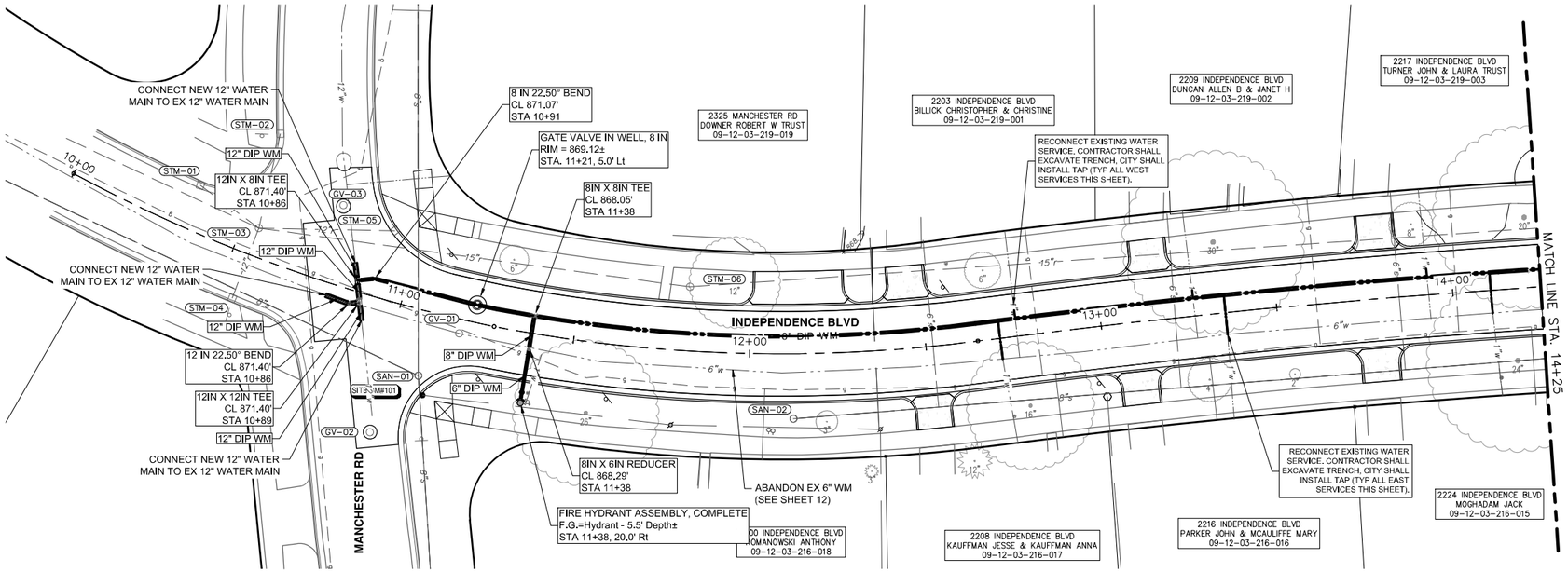
YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

REMOVAL PLAN - INDEPENDENCE BLVD STA 10+00 TO STA 18+00

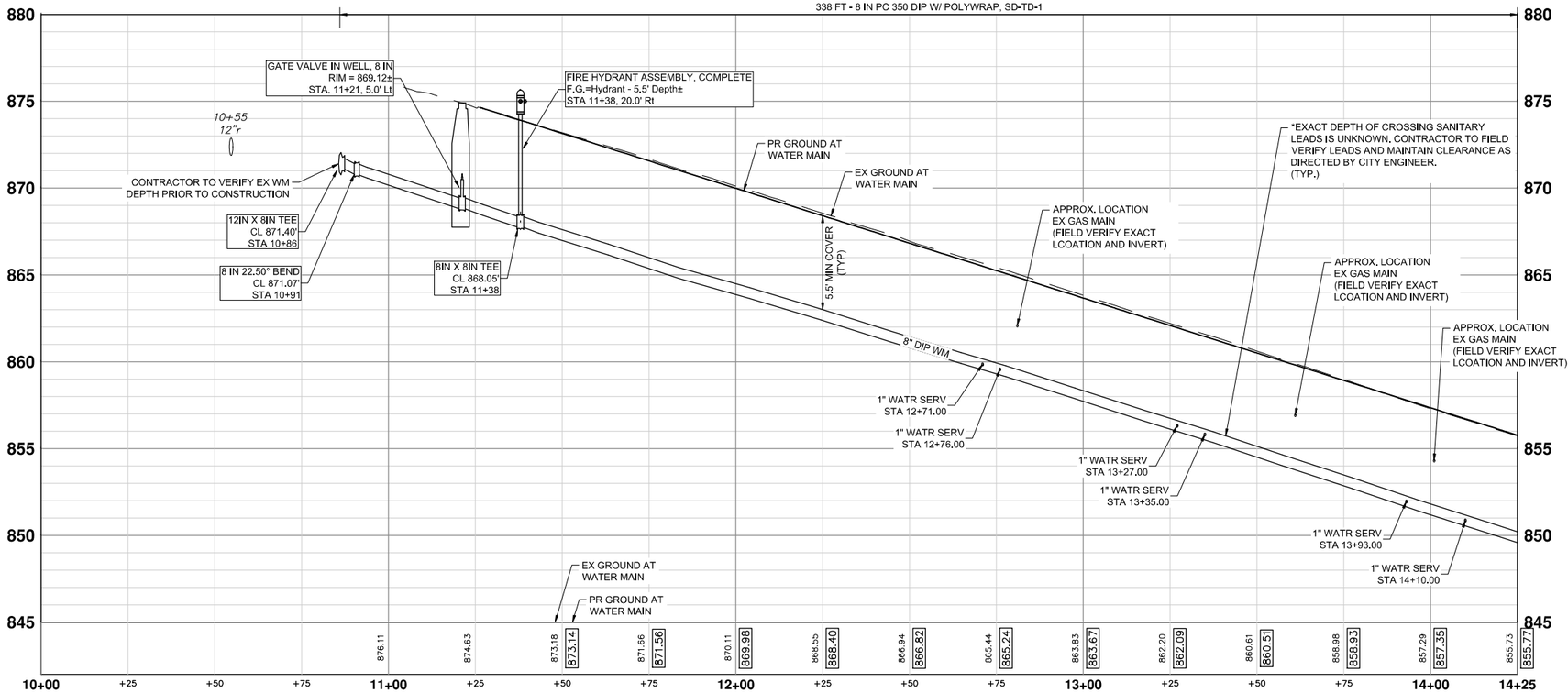
SCALE : 1" = 20'

DRAWING No. 2023-24-12

SHEET No. 12 OF 51



WATER MAIN PLAN - INDEPENDENCE BLVD - STA 10+00 TO STA 14+25



WATER MAIN PROFILE - INDEPENDENE BLVD - STA 10+00 TO STA 14+25

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	14	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	346	Ft
12 In., PC 350 DIP w/polywrap, SD-TD-1	27	Ft
8 In. 22.5° DIP Bend	1	Ea
12 In. 22.5° DIP Bend	1	Ea
8 In. X 8 In. X 8 In. DIP Tee	1	Ea
12 In. X 12 In. X 8 In. DIP Tee	1	Ea
12 In. X 12 In. X 12 In. DIP Tee	1	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	40	Ft
Fire Hydrant Assembly, Complete	1	Ea
8 In. X 6 In. DIP Reducer	1	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

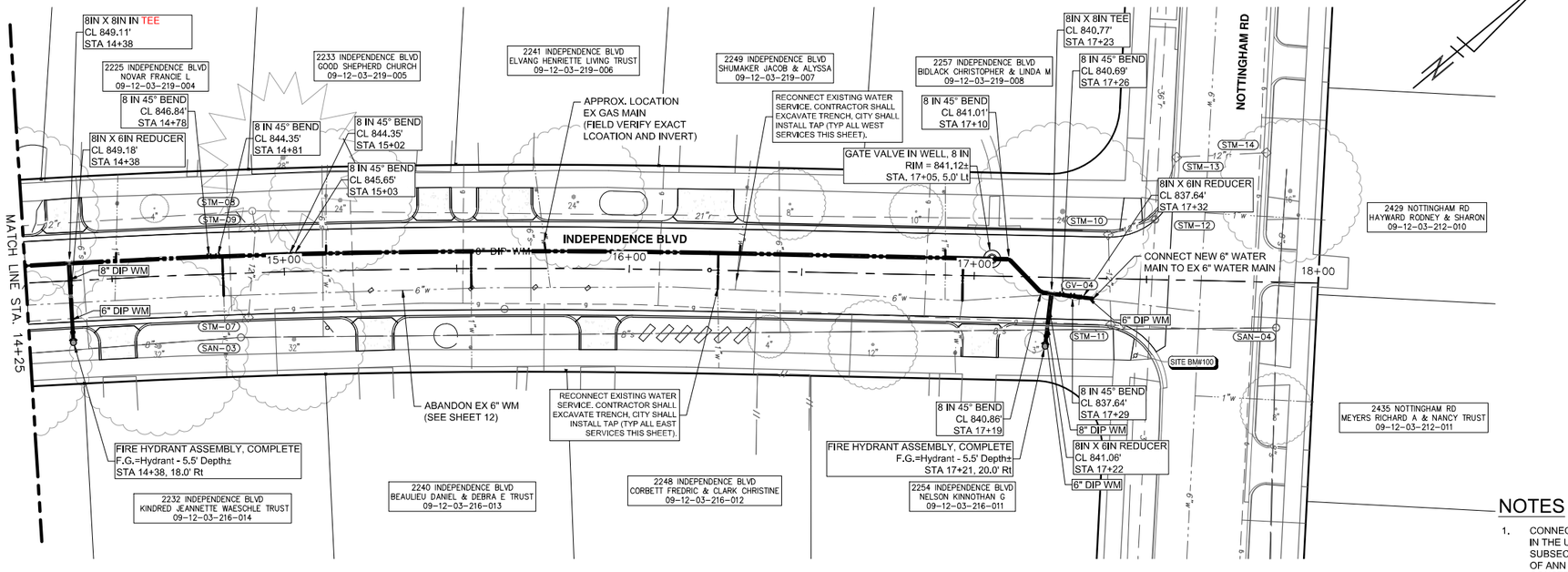
YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

WATER MAIN PLAN & PROFILE - INDEPENDENCE BLVD STA 10+00 TO STA 14+25

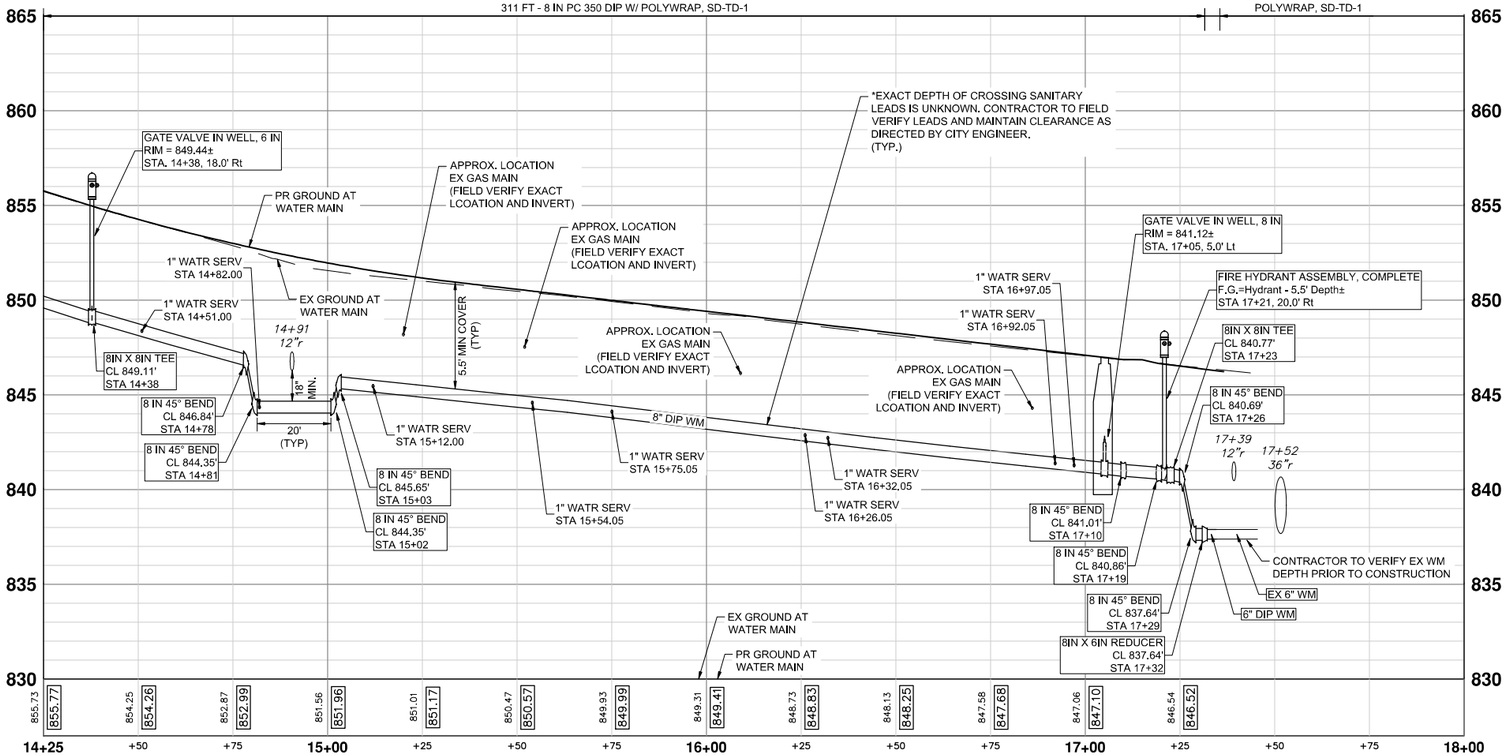
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-13

SHEET No. 13 OF 51



WATER MAIN PLAN - INDEPENDENCE BLVD - STA 14+25 TO STA 18+00



WATER MAIN PROFILE - INDEPENDENE BLVD - STA 14+25 TO STA 18+00

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD–TD–1	20	Ft
8 In., PC 350 DIP w/polywrap, SD–TD–1	327	Ft
8 In. 45° DIP Bend	8	Ea
8 In. X 6 In. DIP Reducer	1	Ea
8 In. X 8 In. X 8 In. DIP Tee	3	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	57	Ft
Fire Hydrant Assembly, Complete	2	Ea

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

WATER MAIN PLAN & PROFILE - INDEPENDENCE BLVD STA 14+25 TO STA 18+00

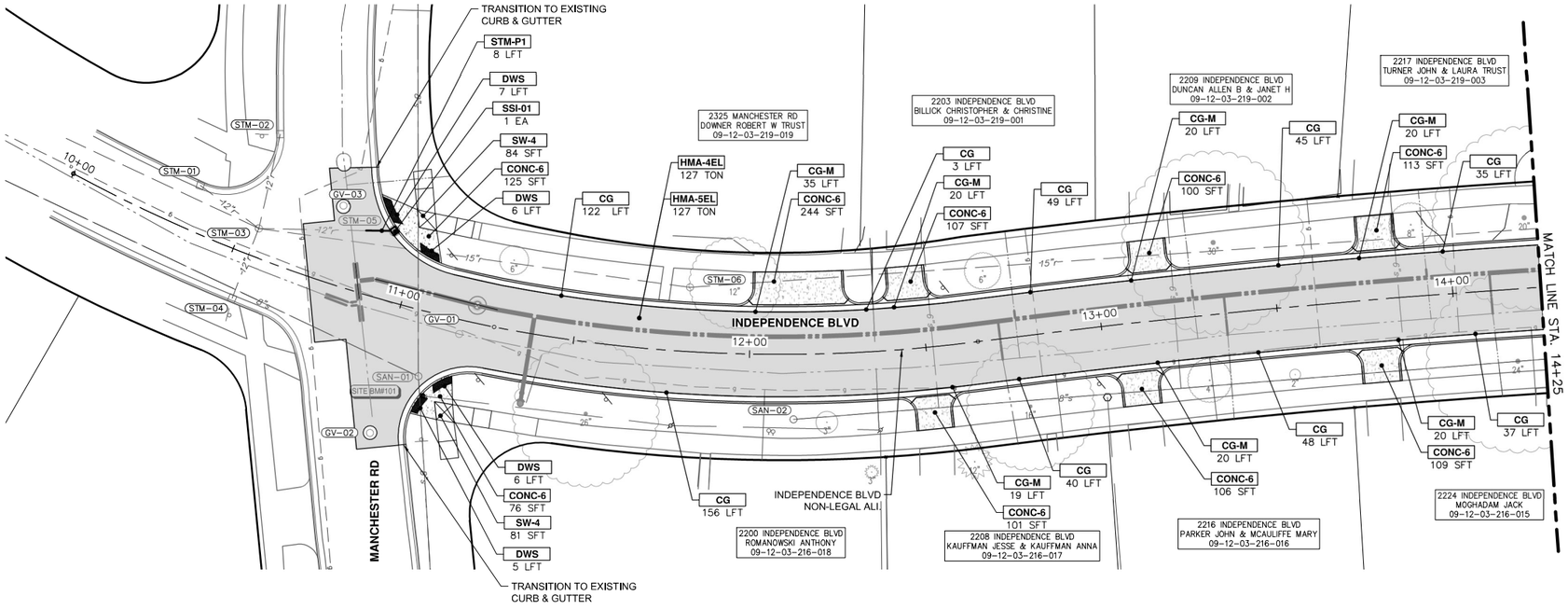
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-16

SHEET No. 14 OF 51

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM-P1	12	8	872.71	872.46	3.15%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI-01	2' Inlet (Cover K)	10+92.45, 19.67, Lt	874.36	2'	IE 12" SW 872.71



CONSTRUCTION PLAN - INDEPENDENCE BLVD - STA 10+00 TO STA 14+25

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA-4EL	HMA, 4EL
HMA-5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG-M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW-4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC-6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC-8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM-P#	12 IN., CL IV RCP STORM SEWER, SD-TD-1 PIPE UNDERCUT & BACKFILL, STORM
SSI-#	STORM SINGLE INLET, 24 IN. DIA., (0-8' DEEP)

CONSTRUCTION QUANTITIES - THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	560	Syd
Sanitary Structure Cover	1	Ea
Sanitary Structure Cover, Adjust	1	Ea
12 In., CL IV RCP Storm Sewer, SD-TD-1	8	Ft
Pipe Undercut & Backfill, Storm	13	Cyd
Storm Single Inlet, 24 In. Dia., (0-8' deep)	1	Ea
Storm Structure Cover	1	Ea
Storm Structure Cover, Adjust	1	Ea
Underdrain, Subbase, 6 inch	689	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Subbase, CIP	6	Cyd
Aggregate Base, 6 In., 21AA, CIP	114	Syd
Aggregate Base, 8 In., 21AA, CIP	625	Syd
Aggregate Base Conditioning	440	Syd
HMA, 4EL	127	Ton
HMA, 5EL	127	Ton
Conc, Curb or Curb & Gutter, All Types	535	Ft
Conc, Driveway Opening, Type M	154	Ft
Conc, Sidewalk, 4 In.	165	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1082	Sft
Detectable Warning Surface	24	Ft
DS_Turf Restoration	640	Syd

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

CONSTRUCTION PLAN - INDEPENDENCE BLVD STA 10+00 TO STA 14+25

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

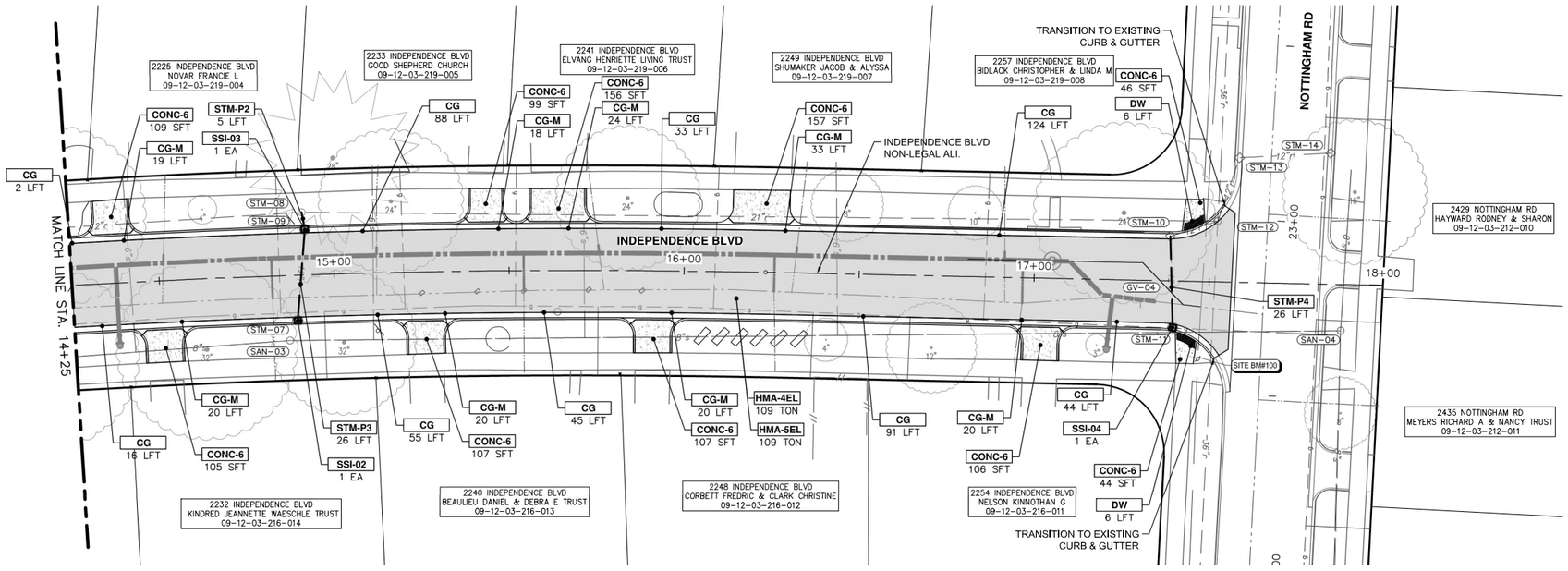
DRAWING No. 2023-24-14

SHEET No. 15 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_INDEPENDENCE.dwg Dwg Created: 21-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM–P2	12	5	846.05	846.00	1.01%
STM–P3	12	26	846.50	846.05	1.72%
STM–P4	12	26	840.75	840.15	2.30%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI–02	2' Inlet (Cover K)	14+89.18, 13.00, Rt	852.16	2'	IE 12" NW 846.50
SSI–03	2' Inlet (Cover K)	14+91.99, 13.00, Lt	852.04	2'	IE 12" SE 846.05 IE 12" NW 846.05
SSI–04	2' Inlet (Cover K)	17+39.85, 13.29, Rt	842.40	2'	IE 12" NW 840.75



CONSTRUCTION PLAN - INDEPENDENCE BLVD - STA 14+25 TO STA 18+00

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA–4EL	HMA, 4EL
HMA–5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG–M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW–4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC–6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC–8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM–P#	12 IN., CL IV RCP STORM SEWER, SD–TD–1 PIPE UNDERCUT & BACKFILL, STORM
SSI–#	STORM SINGLE INLET, 24 IN. DIA., (0–8' DEEP)

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	529	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	57	Ft
Pipe Undercut & Backfill, Storm	90	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	3	Ea
Storm Structure Cover	5	Ea
Storm Structure Cover, Adjust	5	Ea
Underdrain, Subbase, 6 inch	672	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Subbase, CIP	2	Cyd
Aggregate Base, 6 In., 21AA, CIP	123	Syd
Aggregate Base, 8 In., 21AA, CIP	612	Syd
Aggregate Base Conditioning	416	Syd
HMA, 4EL	109	Ton
HMA, 5EL	109	Ton
Conc, Curb or Curb & Gutter, All Types	498	Ft
Conc, Driveway Opening, Type M	174	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1036	Sft
Detectable Warning Surface	12	Ft
DS_Turf Restoration	600	Syd

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

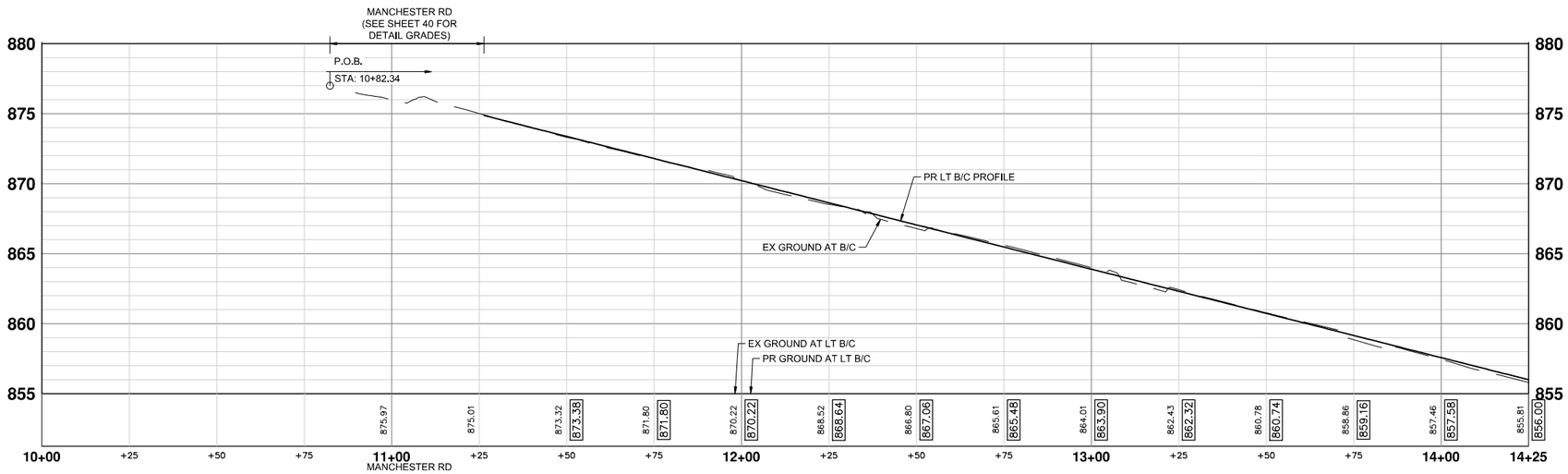
CONSTRUCTION PLAN - INDEPENDENCE BLVD STA 14+25 TO STA 18+00

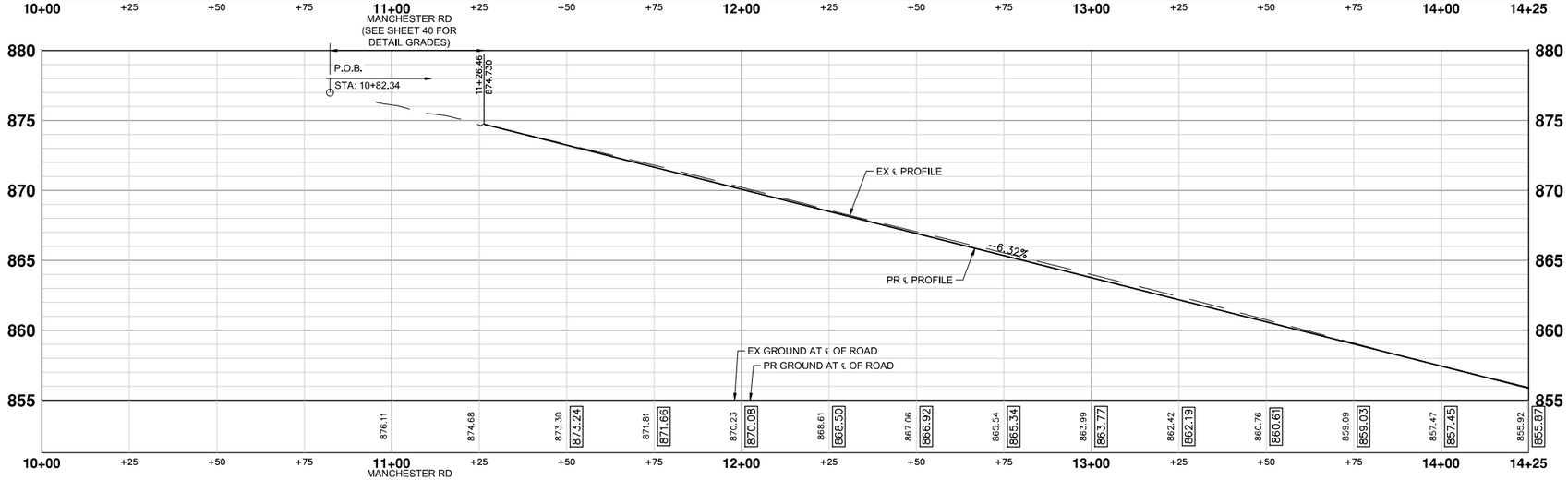
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

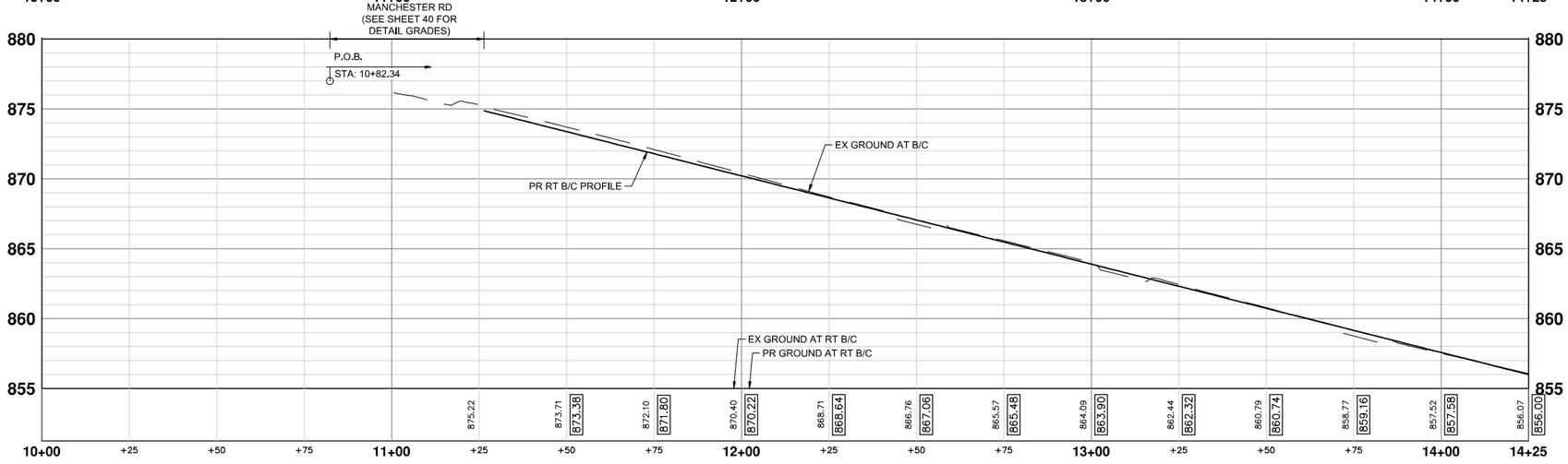
DRAWING No. 2023-24-17

SHEET No. 16 OF 51

J:\AA\Design\AA23005 – YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_INDEPENDENCE.dwg Dwg Created: 21-Mar-24 – _a2 standard bw.stb – Plot Date: 22-Mar-24







INDEPENDENCE BLVD PROFILES - STA 10+00 TO STA 14+25

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

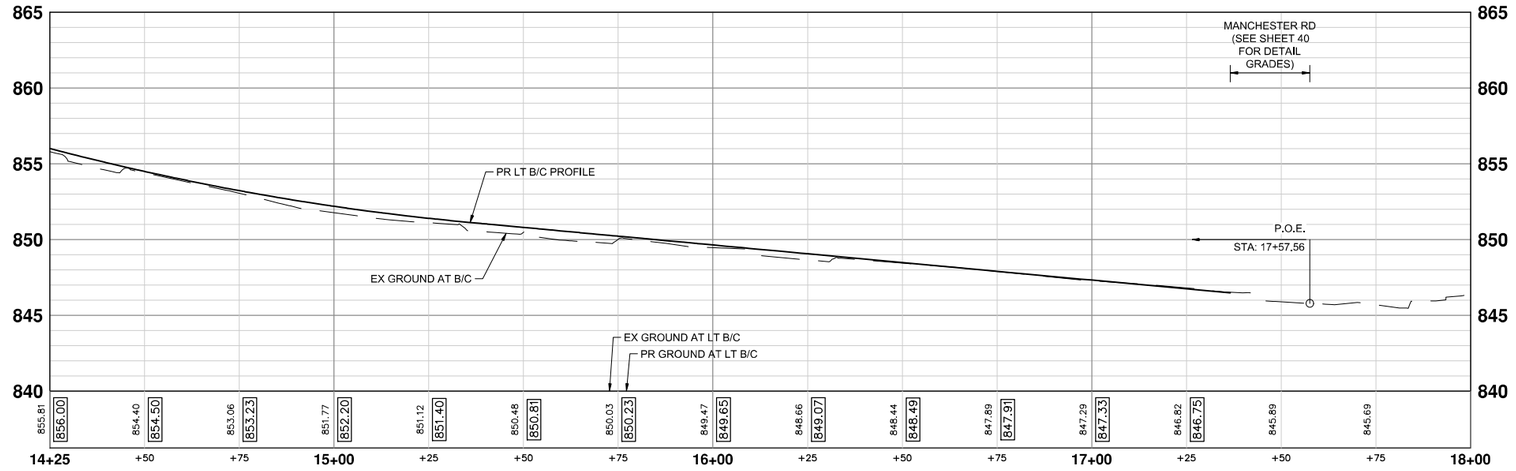
PROFILE SHEET - INDEPENDENCE BLVD STA 10+00 TO STA 14+25

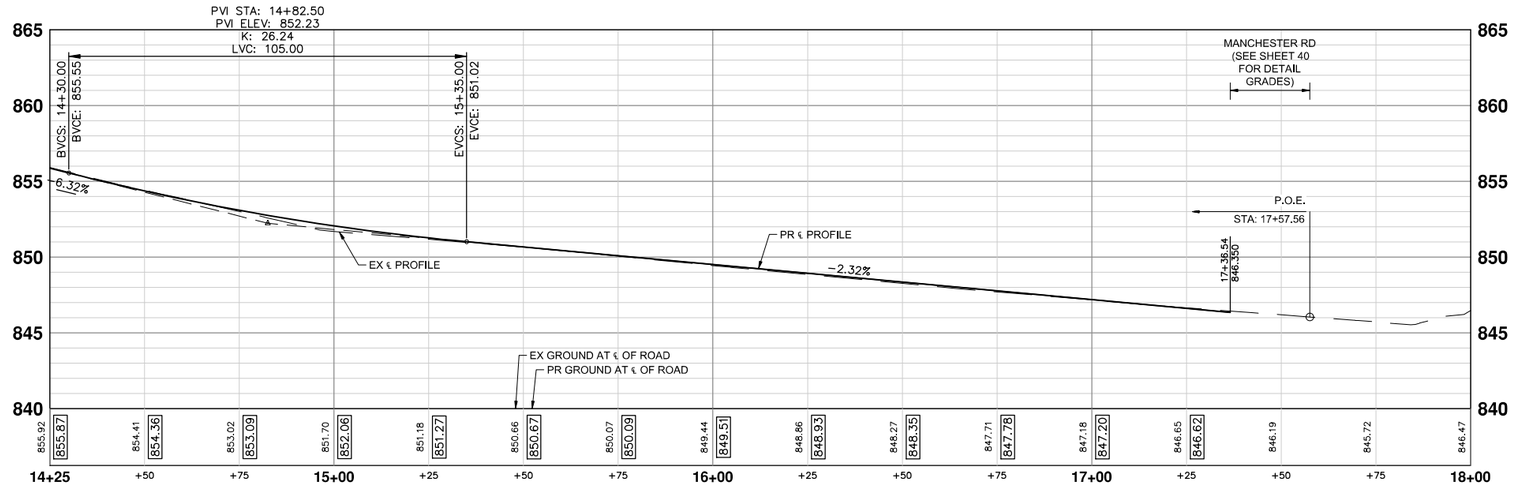
SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

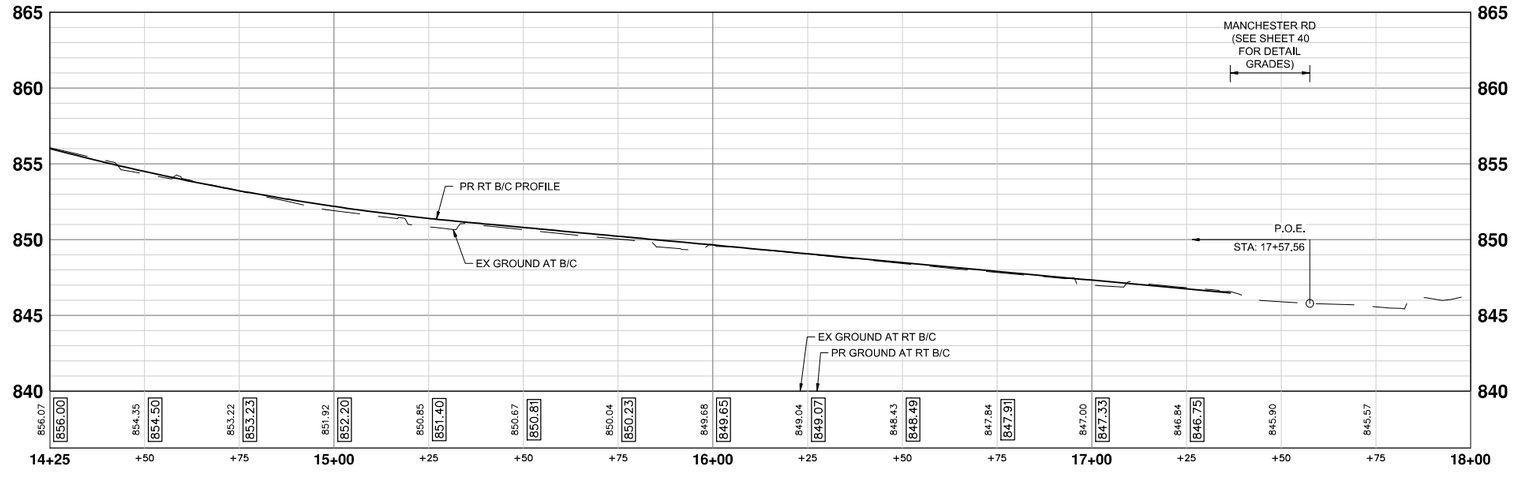
DRAWING No. 2023-24-15

SHEET No. 17 OF 51

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_RPR_INDEPENDENCE.dwg Dwg Created: 21-Feb-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24







INDEPENDENCE BLVD PROFILES - STA 14+25 TO STA 18+00

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

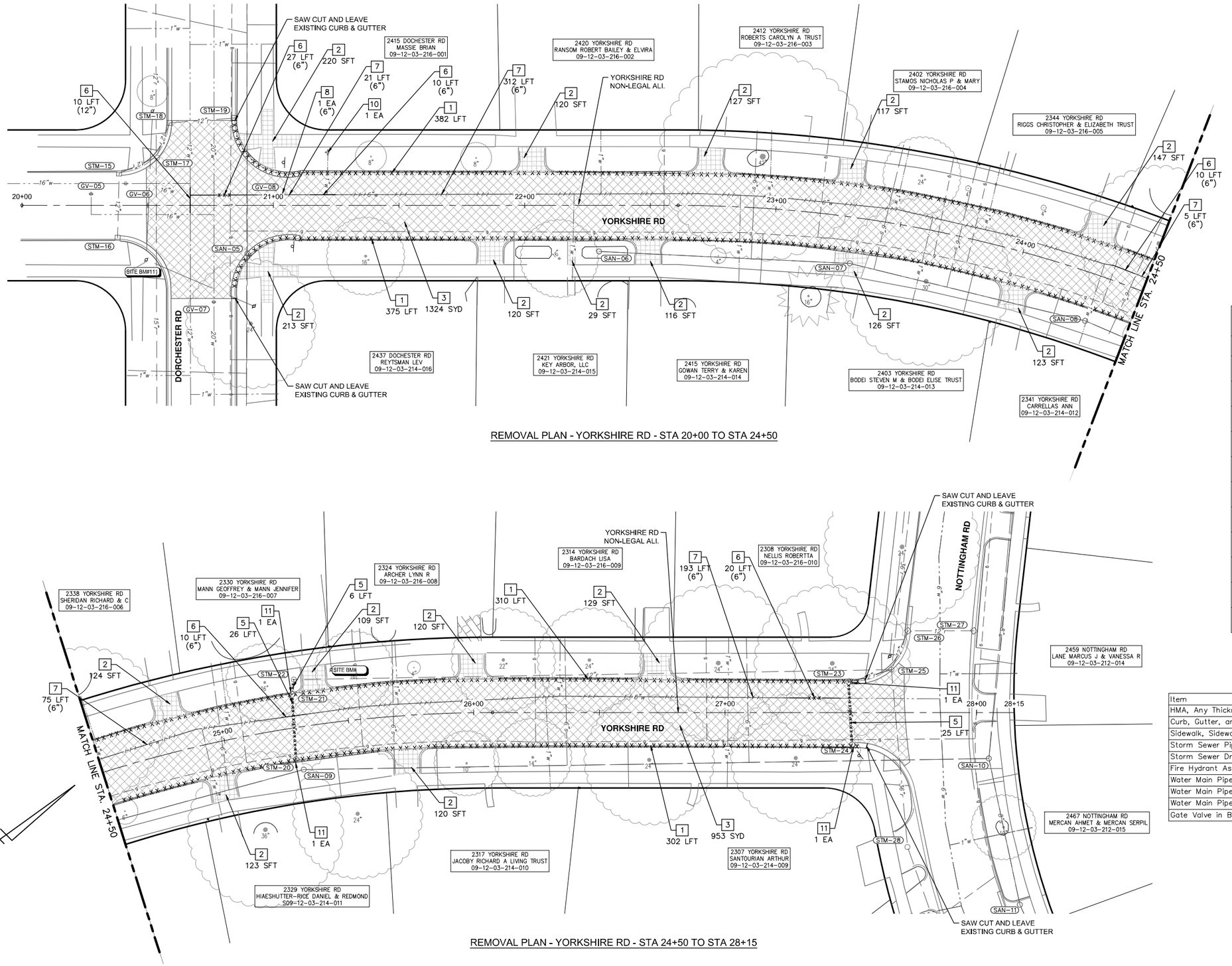
PROFILE SHEET - INDEPENDENCE BLVD STA 14+25 TO STA 18+00

SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

DRAWING No.
2023-24-18

SHEET No.
18 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_RPR_INDEPENDENCE.dwg Dwg Created: 21-Feb-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24



REMOVAL PLAN - YORKSHIRE RD - STA 20+00 TO STA 24+50

REMOVAL PLAN - YORKSHIRE RD - STA 24+50 TO STA 28+15

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- WATER MAIN PIPE, REM
- WATER MAIN PIPE, ABANDON

REMOVAL KEY

KEY	DESCRIPTION
1	CURB, CUTTER, AND CURB AND GUTTER, ANY TYPE, REM
2	SIDEWALK AND RAMPS, REMOVE* DRIVEWAY APPROACH, REMOVE*
3	HMA ANY THICKNESS, REM*
4	COLD MILLING HMA SURFACE
5	STORM SEWER PIPE, 12 IN. DIA., REM
6	WATER MAIN PIPE, _ IN. DIA., REM
7	WATER MAIN PIPE, _ IN. DIA., ABANDON
8	GATE VALVE IN BOX, _ IN. DIA., ABANDON
9	GATE VALVE IN BOX, _ IN. DIA., REM
10	FIRE HYDRANT ASSEMBLY, REM
11	STORM SEWER DROP STRUCTURE, REM

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2277	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1369	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	2185	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	57	Ft
Storm Sewer Drop Structure, Rem	3	Ea
Fire Hydrant Assembly, Rem	1	Ea
Water Main Pipe, 6 In. Dia., Abandon	606	Ft
Water Main Pipe, 6 In. Dia., Rem	77	Ft
Water Main Pipe, 12 In. Dia., Rem	10	Ft
Gate Valve in Box, 6 In. Dia., Abandon	1	Ea

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

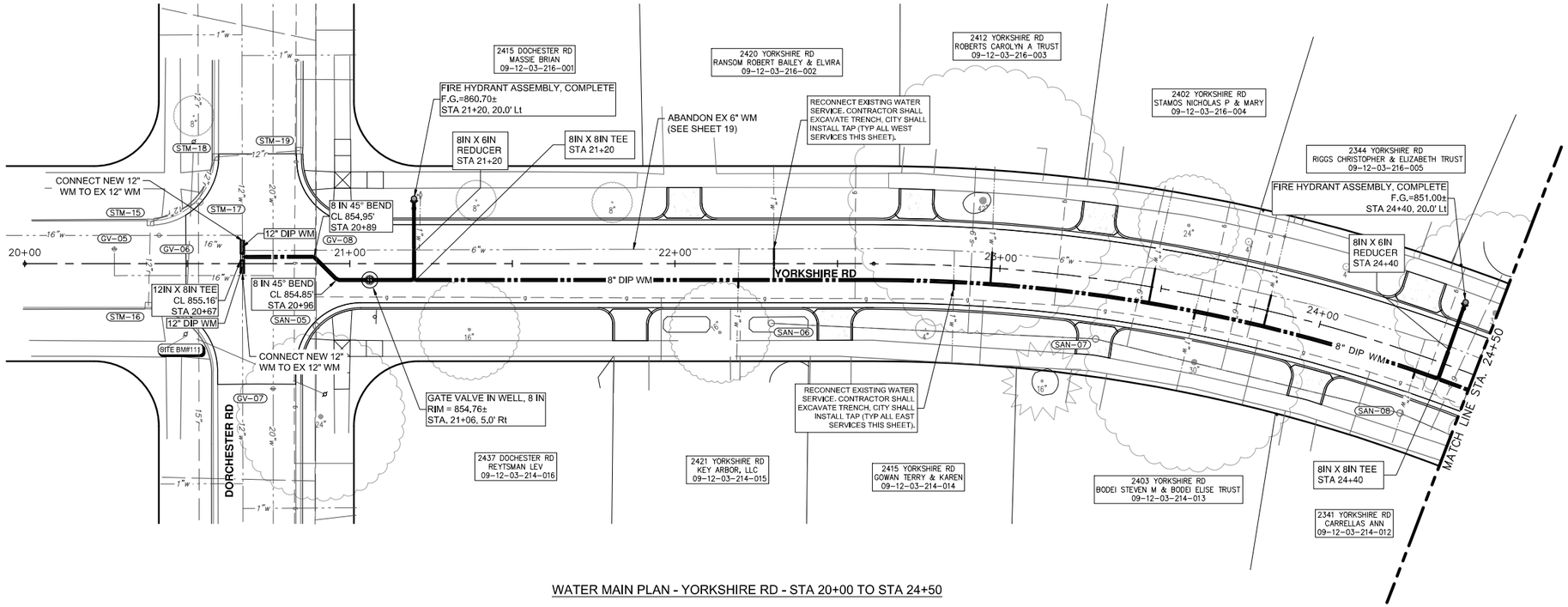
REMOVAL PLAN - YORKSHIRE RD STA 20+00 TO STA 28+15

SCALE : 1" = 20'

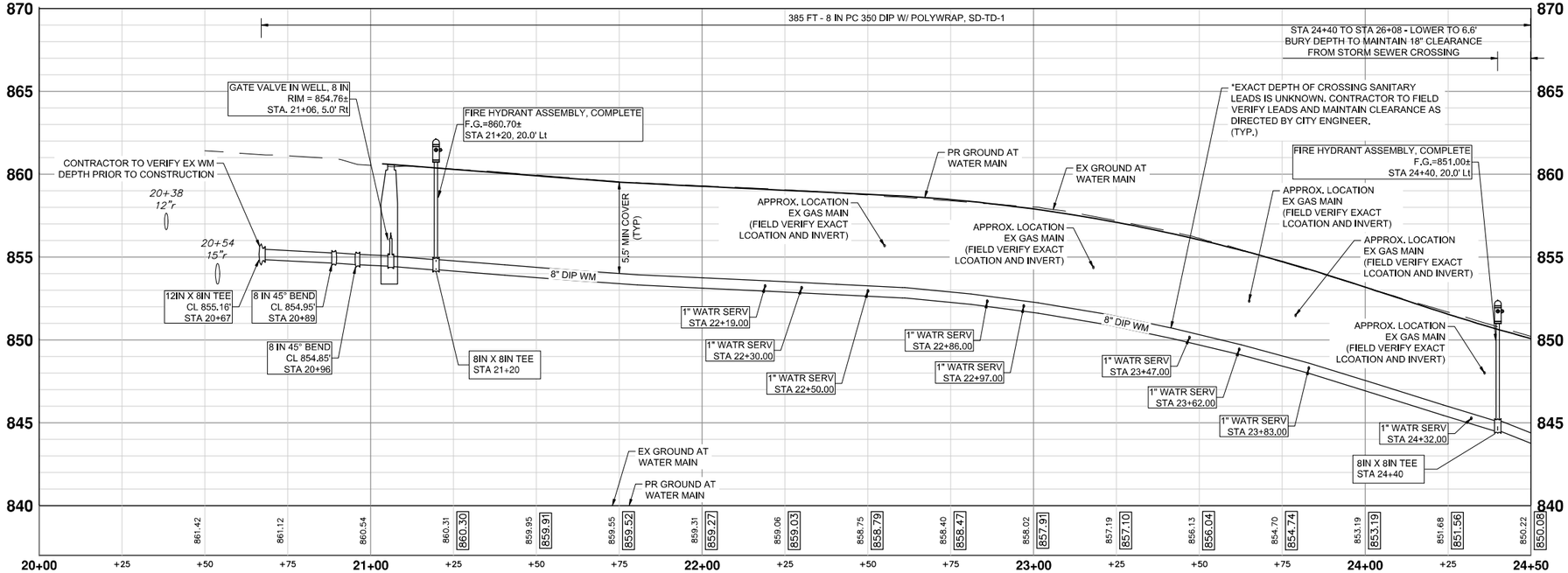
DRAWING No. 2023-24-19

SHEET No. 19 OF 51

J:\AA\Design\AA23005 – YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Rem_YORKSHIRE.dwg Dwg Created: 5-Mar-24 – _a2 standard bw.stb – Plot Date: 22-Mar-24



WATER MAIN PLAN - YORKSHIRE RD - STA 20+00 TO STA 24+50



WATER MAIN PROFILE - YORKSHIRE RD - STA 20+00 TO STA 24+50

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	28	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	401	Ft
12 In., PC 350 DIP w/polywrap, SD-TD-1	10	Ft
8 In. 45° DIP Bend	2	Ea
8 In. X 8 In. X 8 In. DIP Tee	2	Ea
12 In. X 12 In. X 8 In. DIP Tee	1	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	60	Ft
Fire Hydrant Assembly, Complete	2	Ea
8 In. X 6 In. DIP Reducer	2	Ea

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

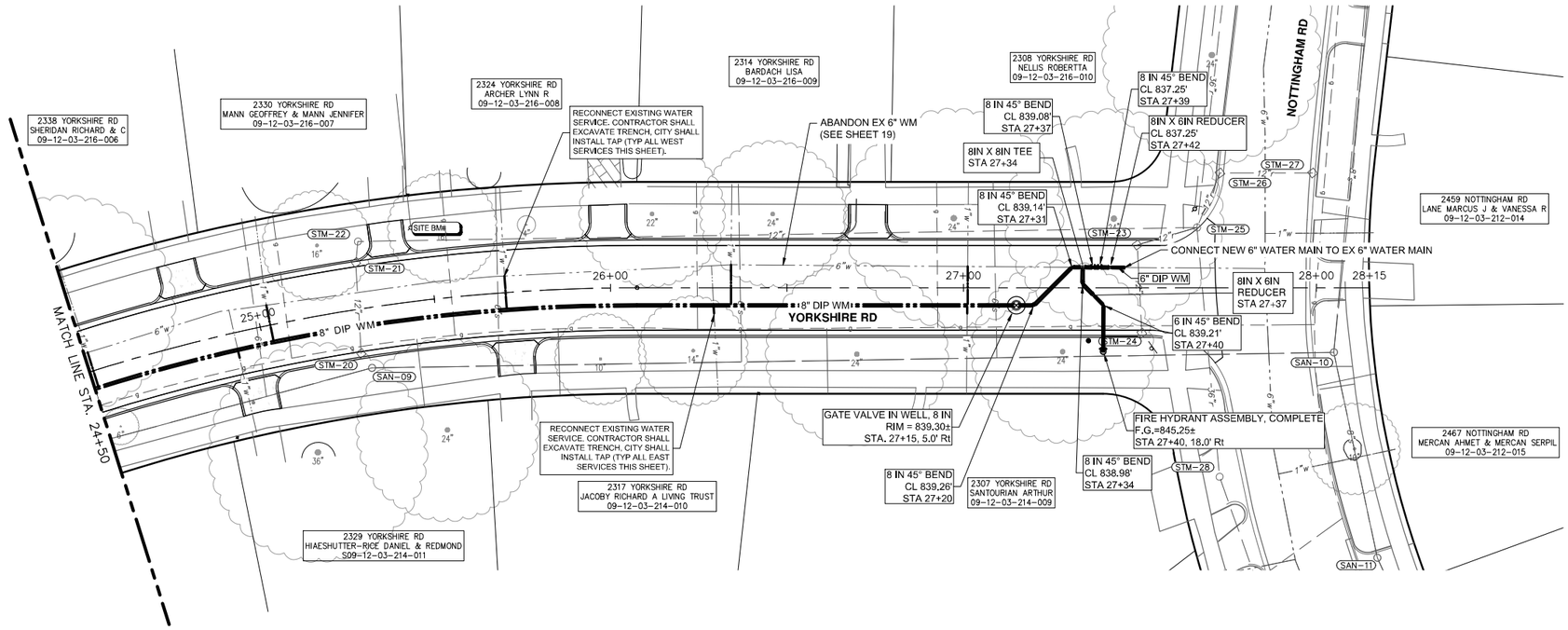
YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

WATER MAIN PLAN & PROFILE - YORKSHIRE RD STA 20+00 TO STA 24+50

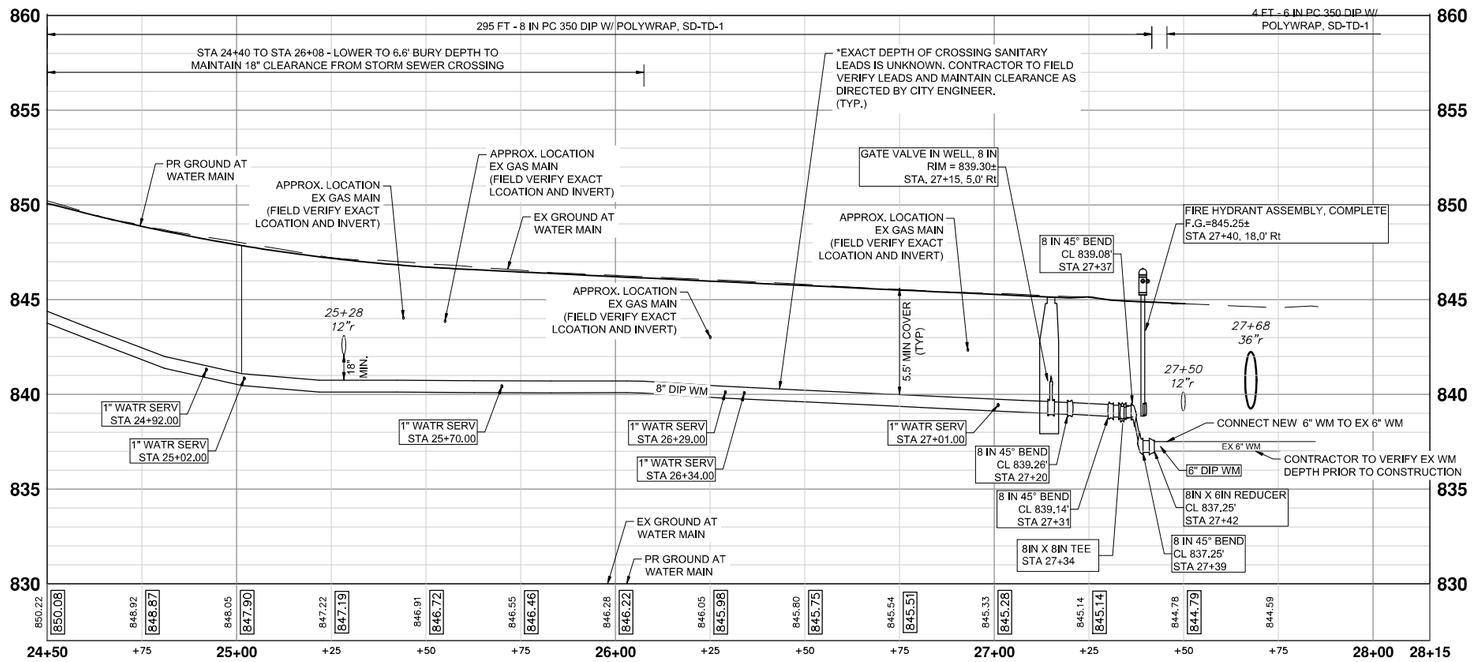
SCALE PLAN: 1" = 20'
PROFILE: 1" = 4'
DRAWING No. 2023-24-20

SHEET No. 20 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Watr_YORKSHIRE.dwg Dwg Created: 5-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24



WATER MAIN PLAN - YORKSHIRE RD - STA 24+50 TO STA 28+15



WATER MAIN PROFILE - YORKSHIRE RD - STA 24+50 TO STA 28+15

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	20	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	295	Ft
6 In. 45° DIP Bend	2	Ea
8 In. 45° DIP Bend	4	Ea
8 In. X 6 In. DIP Reducer	2	Ea
8 In. X 8 In. X 8 In. DIP Tee	1	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	50	Ft
Fire Hydrant Assembly, Complete	1	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

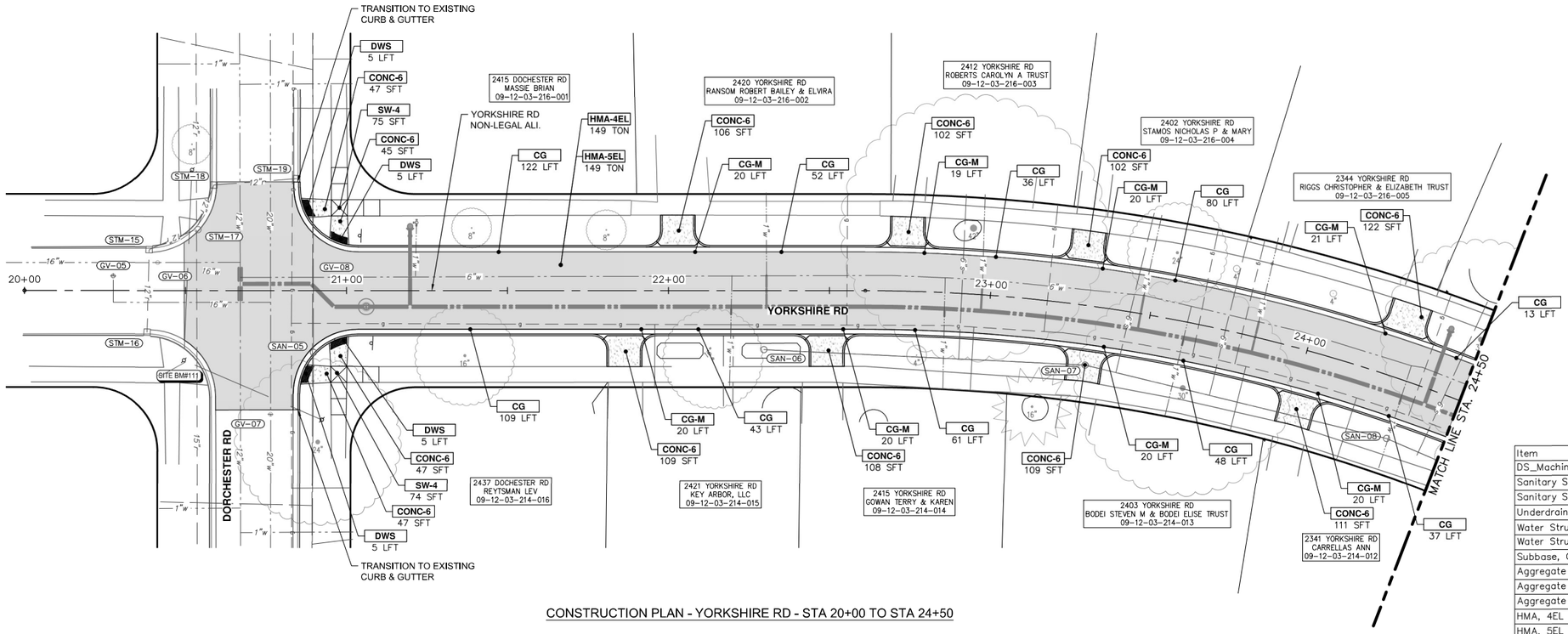
WATER MAIN PLAN & PROFILE - YORKSHIRE RD STA 24+50 TO STA 28+15

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-23

SHEET No. 21 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Watr_YORKSHIRE.dwg Dwg Created: 5-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24



CONSTRUCTION PLAN - YORKSHIRE RD - STA 20+00 TO STA 24+50

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA-4EL	HMA, 4EL
HMA-5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG-M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW-4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC-6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC-8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM-P#	12 IN., CL IV RCP STORM SEWER, SD-TD-1 PIPE UNDERCUT & BACKFILL, STORM
SSI-#	STORM SINGLE INLET, 24 IN. DIA., (0-8' DEEP)

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	366	Syd
Sanitary Structure Cover	1	Ea
Sanitary Structure Cover, Adjust	1	Ea
Underdrain, Subbase, 6 inch	761	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Subbase, CIP	4	Cyd
Aggregate Base, 6 In., 21AA, CIP	124	Syd
Aggregate Base, 8 In., 21AA, CIP	452	Syd
Aggregate Base Conditioning	288	Syd
HMA, 4EL	149	Ton
HMA, 5EL	149	Ton
Conc, Curb or Curb & Gutter, All Types	601	Ft
Conc, Driveway Opening, Type M	160	Ft
Conc, Sidewalk, 4 In.	149	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1055	Sft
Detectable Warning Surface	20	Ft
DS_Turf Restoration	420	Syd

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

CONSTRUCTION PLAN - YORKSHIRE RD STA 20+00 TO STA 24+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

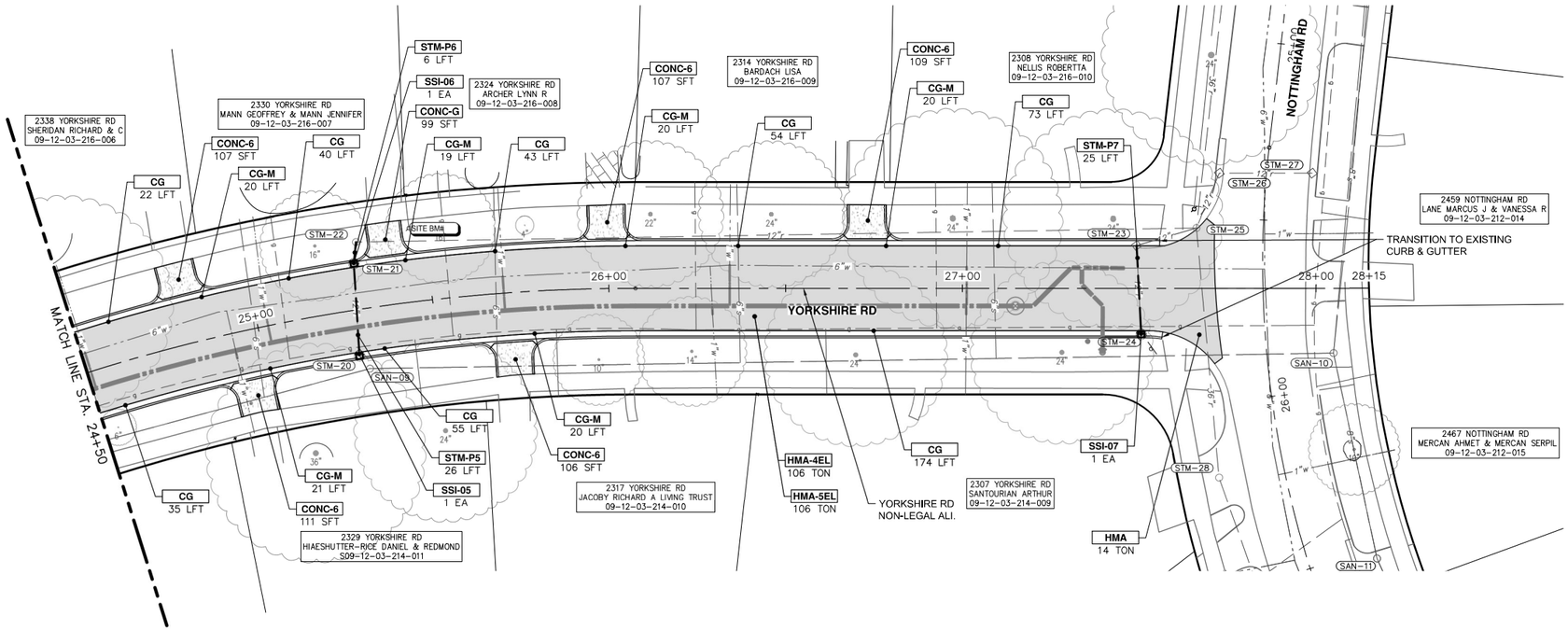
DRAWING No. 2023-24-21

SHEET No. 22 OF 51

J:\AA\Design\AA23005 – YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_YORKSHIRE.dwg Dwg Created: 21-Mar-24 – _a02 standard bw.stb – Plot Date: 22-Mar-24

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM–P5	12	26	842.45	841.75	2.68%
STM–P6	12	6	841.75	841.70	0.81%
STM–P7	12	25	839.40	838.90	1.99%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI–05	2' Inlet (Cover K)	25+27.10, 13.00, Rt	846.92	2'	IE 12" NW 842.45
SSI–06	2' Inlet (Cover K)	25+29.51, 13.00, Lt	846.86	2'	IE 12" SE 841.75 IE 12" NW 841.75
SSI–07	2' Inlet (Cover K)	36+41.17, 227.81, Lt	845.59	2'	IE 12" NW 839.40



CONSTRUCTION PLAN - YORKSHIRE RD - STA 24+50 TO STA 28+15

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA–4EL	HMA, 4EL
HMA–5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG–M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW–4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC–6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC–8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM–P#	12 IN., CL IV RCP STORM SEWER, SD–TD–1 PIPE UNDERCUT & BACKFILL, STORM
SSI–#	STORM SINGLE INLET, 24 IN. DIA., (0–8' DEEP)

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	501	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	39	Ft
Pipe Undercut & Backfill, Storm	62	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	3	Ea
Storm Structure Cover	5	Ea
Storm Structure Cover, Adjust	5	Ea
Underdrain, Subbase, 6 inch	616	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Aggregate Base, 6 In., 21AA, CIP	83	Syd
Aggregate Base, 8 In., 21AA, CIP	580	Syd
Aggregate Base Conditioning	394	Syd
HMA, 4EL	106	Ton
HMA, 5EL	106	Ton
Conc, Curb or Curb & Gutter, All Types	496	Ft
Conc, Driveway Opening, Type M	120	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	639	Sft
DS_Turf Restoration	580	Syd

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

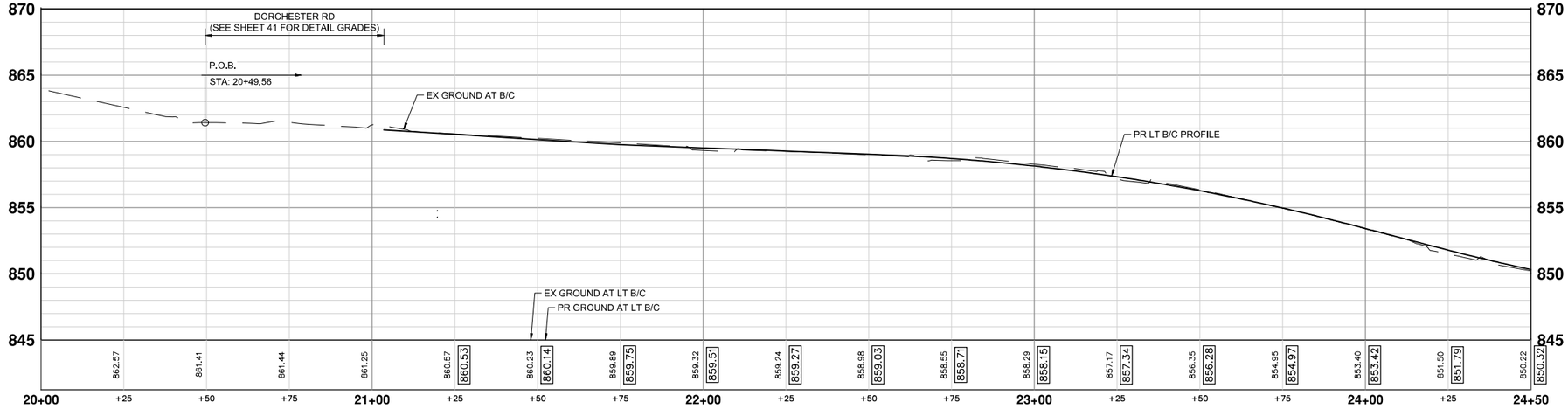
CONSTRUCTION PLAN - YORKSHIRE RD STA 24+50 TO STA 28+15

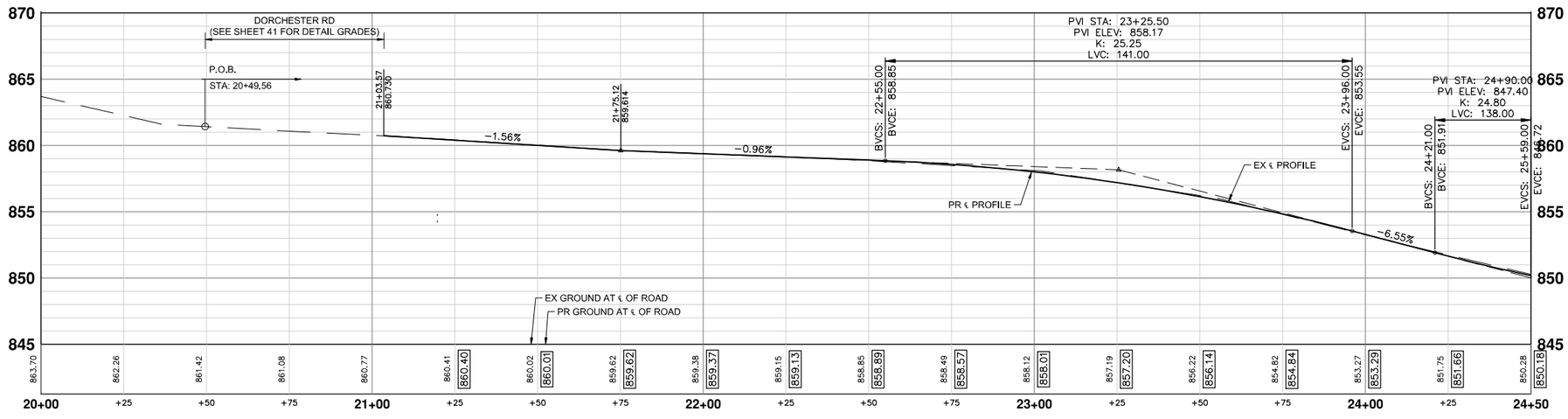
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

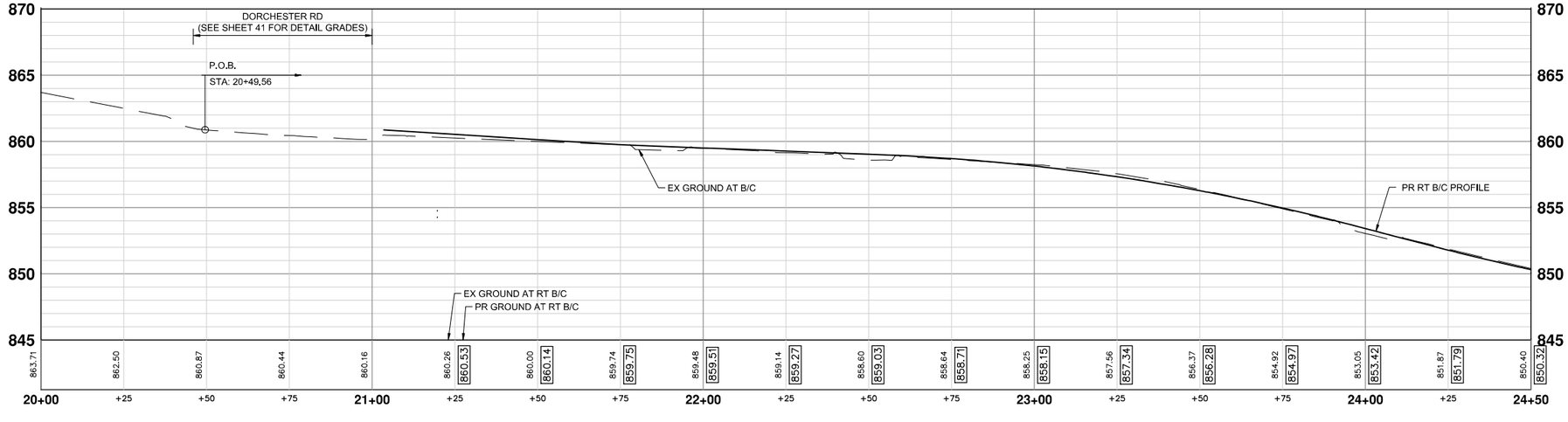
DRAWING No.
2023-24-24

SHEET No.
23 OF 51

J:\AA\Design\AA23005 – YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_YORKSHIRE.dwg Dwg Created: 21–Mar–24 – _a2 standard bw.stb – Plot Date: 22–Mar–24







YORKSHIRE RD PROFILES - STA 20+00 TO STA 24+50

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

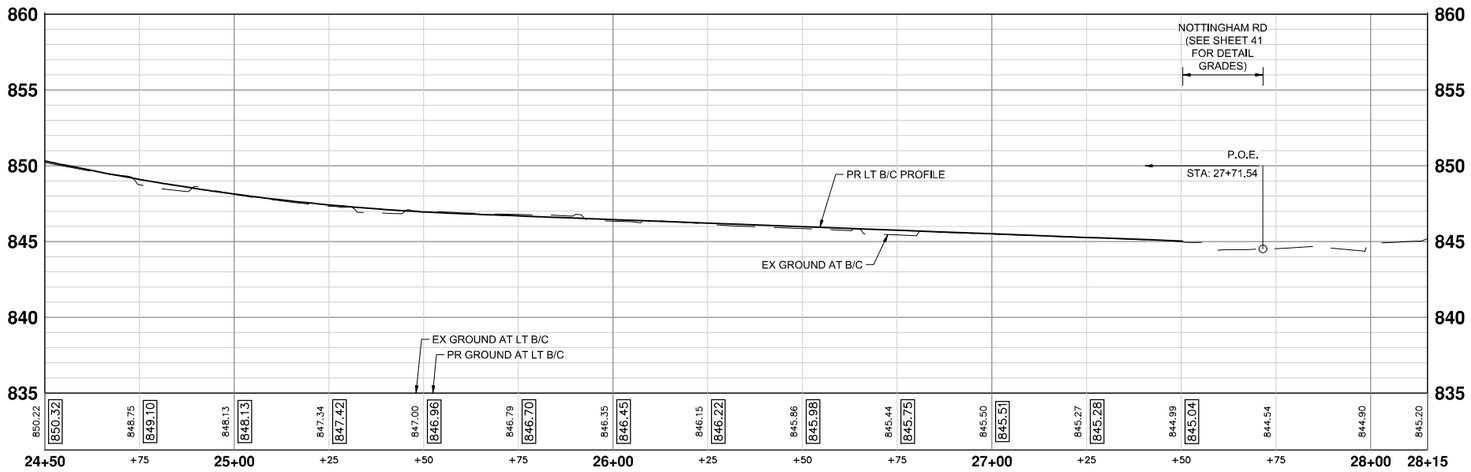
PROFILE SHEET - YORKSHIRE RD STA 20+00 TO STA 24+50

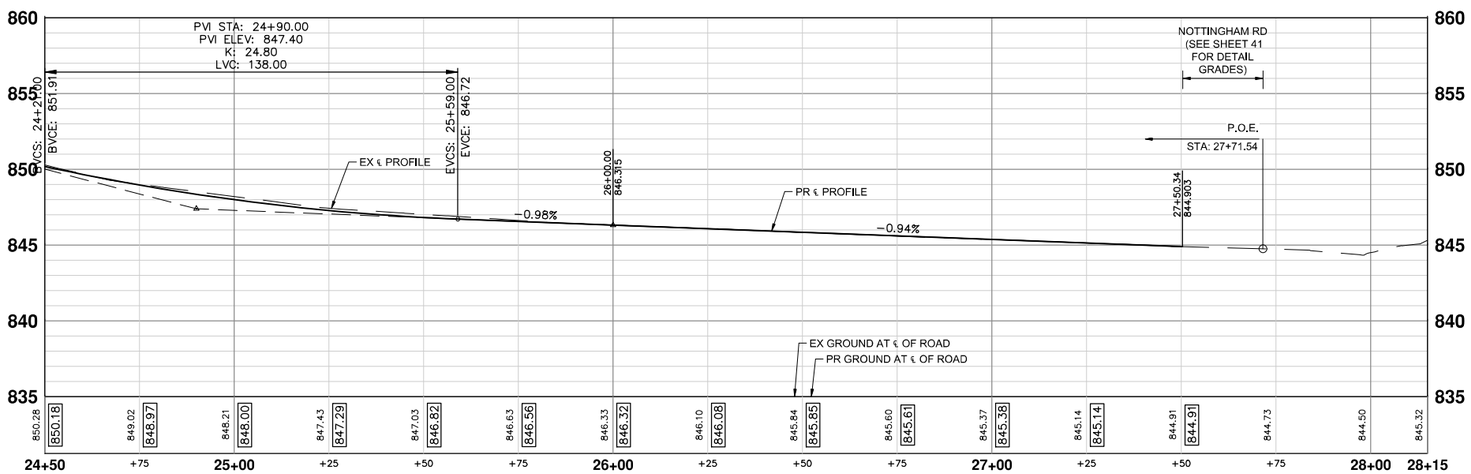
SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

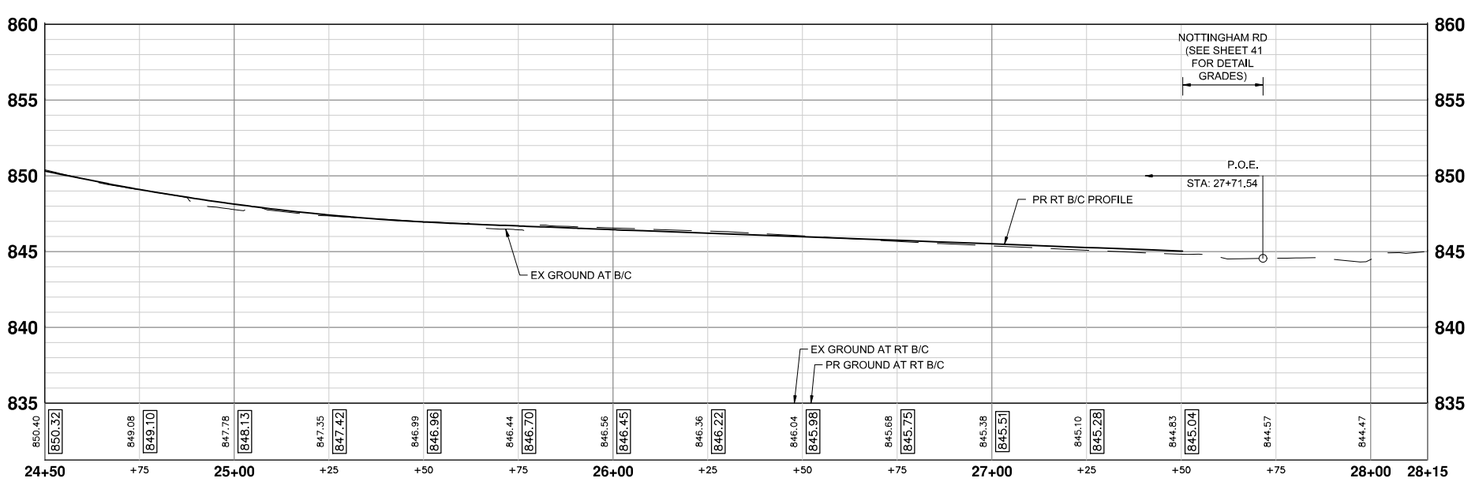
DRAWING No.
2023-24-22

SHEET No.
24 OF 51

J:\AA\Design\AA23005 - YlM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_RPR_YORKSHIRE.dwg Dwg Created: 22-Feb-24 - _02 standard bw.stb - Plot Date: 22-Mar-24







YORKSHIRE RD PROFILES - STA 24+50 TO STA 28+15

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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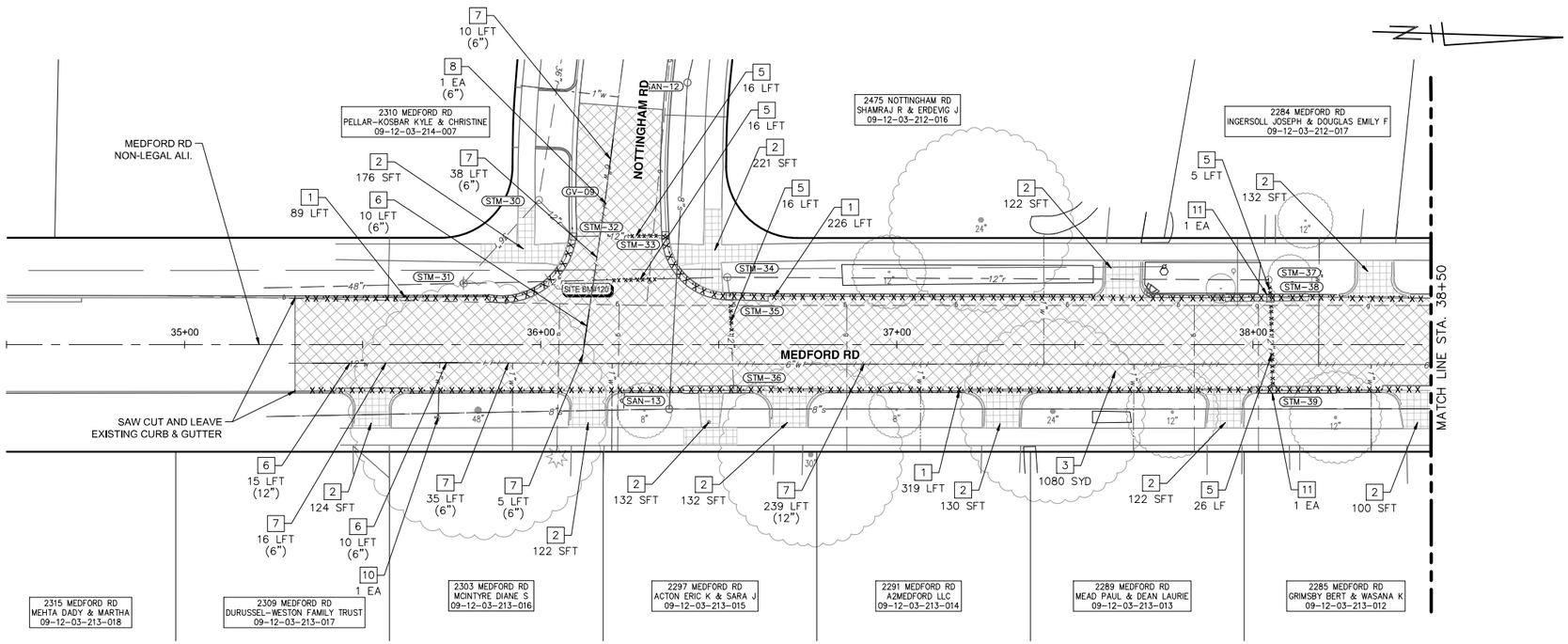
PROFILE SHEET - YORKSHIRE RD STA 24+50 TO STA 28+15

SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

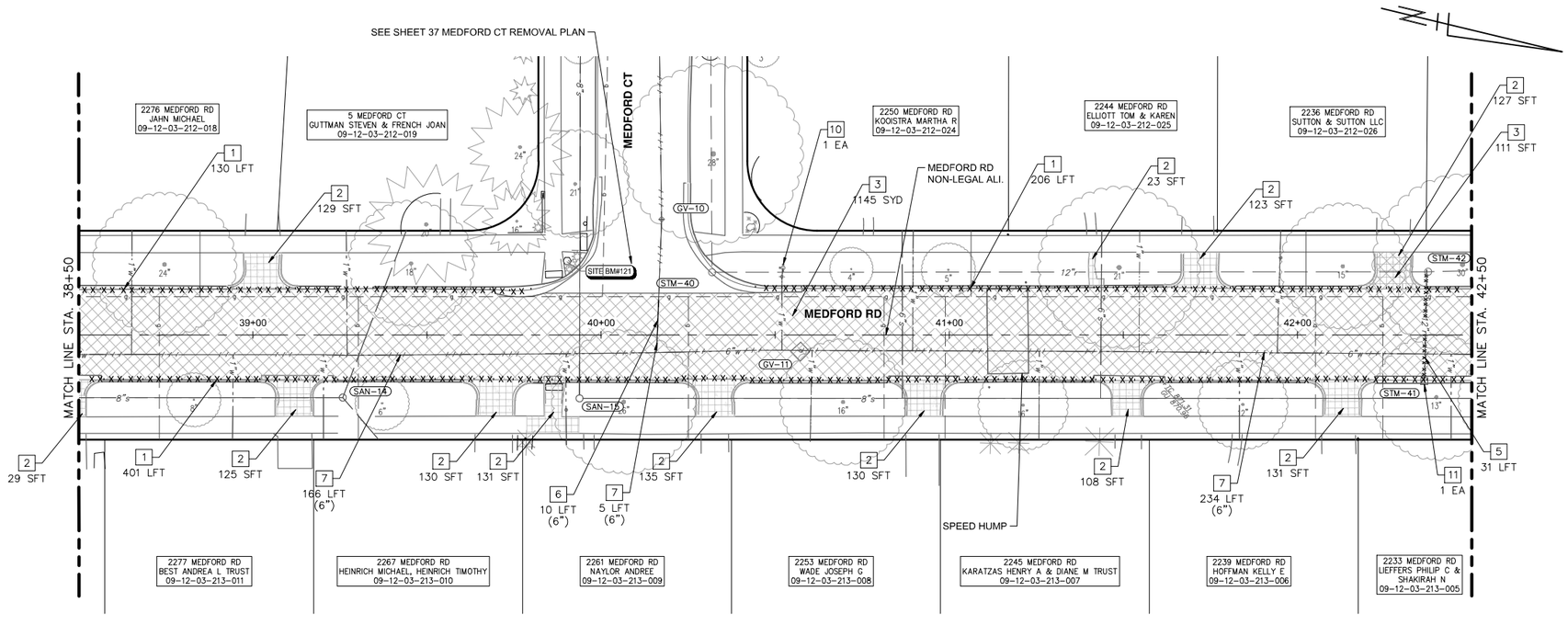
DRAWING No. **2023-24-25**

SHEET No. **25 OF 51**

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_RPR_YORKSHIRE.dwg Dwg Created: 22-Feb-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24



REMOVAL PLAN - MEDFORD RD - STA 34+50 TO STA 38+50



REMOVAL PLAN - MEDFORD RD - STA 38+50 TO STA 42+50

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- WATER MAIN PIPE, REM
- WATER MAIN PIPE, ABANDON

REMOVAL KEY

KEY	DESCRIPTION
1	CURB, CUTTER, AND CURB AND GUTTER, ANY TYPE, REM
2	SIDEWALK AND RAMPS, REMOVE* DRIVEWAY APPROACH, REMOVE*
3	HMA ANY THICKNESS, REM*
4	COLD MILLING HMA SURFACE
5	STORM SEWER PIPE, 12 IN. DIA., REM
6	WATER MAIN PIPE, _ IN. DIA., REM
7	WATER MAIN PIPE, _ IN. DIA., ABANDON
8	GATE VALVE IN BOX, _ IN. DIA., ABANDON
9	GATE VALVE IN BOX, _ IN. DIA., REM
10	FIRE HYDRANT ASSEMBLY, REM
11	STORM SEWER DROP STRUCTURE, REM

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2226	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1371	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	2834	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	110	Ft
Storm Sewer Drop Structure, Rem	3	Ea
Fire Hydrant Assembly, Rem	2	Ea
Water Main Pipe, 6 In. Dia., Abandon	748	Ft
Water Main Pipe, 6 In. Dia., Rem	30	Ft
Water Main Pipe, 12 In. Dia., Rem	15	Ft
Gate Valve in Box, 6 In. Dia., Abandon	2	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

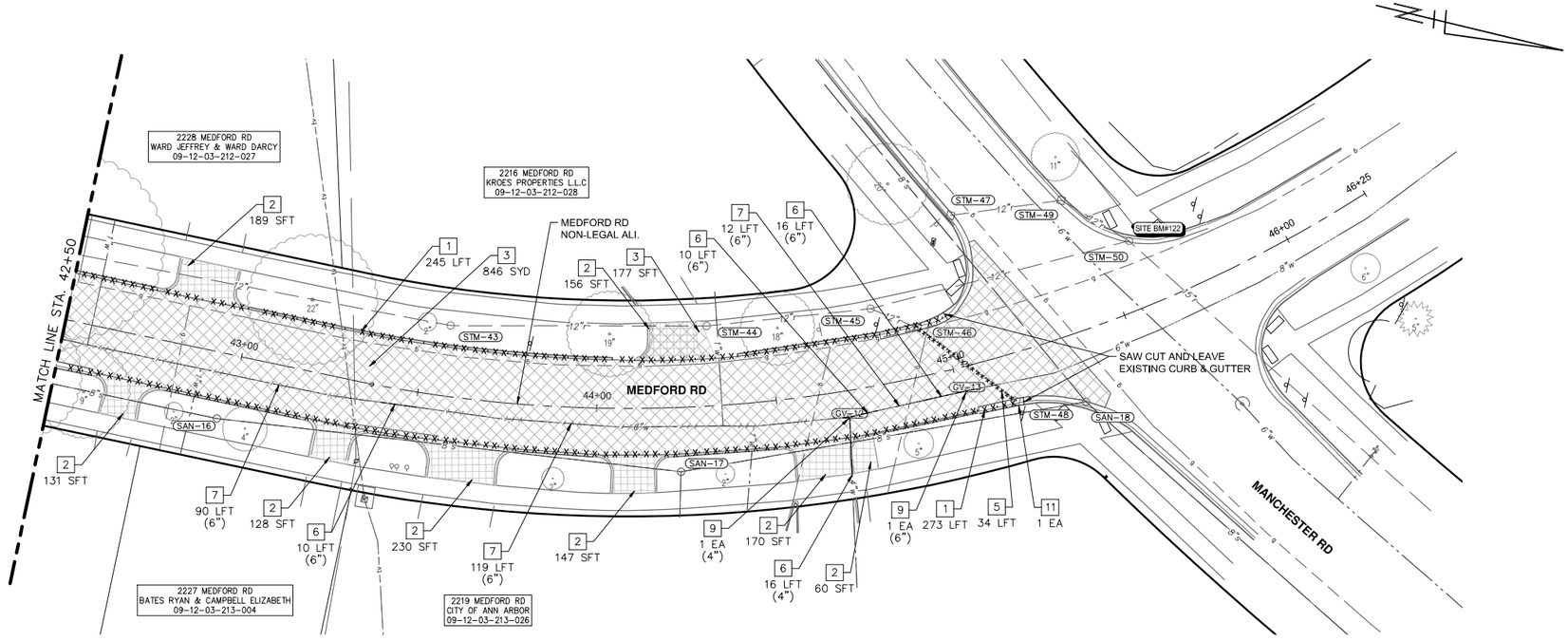
REMOVAL PLAN - MEDFORD RD - STA 34+50 TO STA 42+50

SCALE : 1" = 20'

DRAWING No. 2023-24-26

SHEET No. 26 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Rem_MEDFORDRD.dwg Dwg Created: 5-Mar-24 - 22-Mar-24 _02 standard bw.stb - Plot Date:



REMOVAL PLAN - MEDFORD RD - STA 42+50 TO STA 46+25

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- WATER MAIN PIPE, REM
- WATER MAIN PIPE, ABANDON

REMOVAL KEY

KEY	DESCRIPTION
1	CURB, CUTTER, AND CURB AND GUTTER, ANY TYPE, REM
2	SIDEWALK AND RAMPS, REMOVE* DRIVEWAY APPROACH, REMOVE*
3	HMA ANY THICKNESS, REM*
4	COLD MILLING HMA SURFACE
5	STORM SEWER PIPE, 12 IN. DIA., REM
6	WATER MAIN PIPE, _ IN. DIA., REM
7	WATER MAIN PIPE, _ IN. DIA., ABANDON
8	GATE VALVE IN BOX, _ IN. DIA., ABANDON
9	GATE VALVE IN BOX, _ IN. DIA., REM
10	FIRE HYDRANT ASSEMBLY, REM
11	STORM SEWER DROP STRUCTURE, REM

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	867	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	518	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	1,224	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	34	Ft
Storm Sewer Drop Structure, Rem	1	Ea
Water Main Pipe, 6 In. Dia., Abandon	221	Ft
Water Main Pipe, 4 In. Dia., Rem	23	Ft
Water Main Pipe, 6 In. Dia., Rem	46	Ft
Gate Valve in Box, 4 In. Dia., Rem	1	Ea
Gate Valve in Box, 6 In. Dia., Rem	1	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

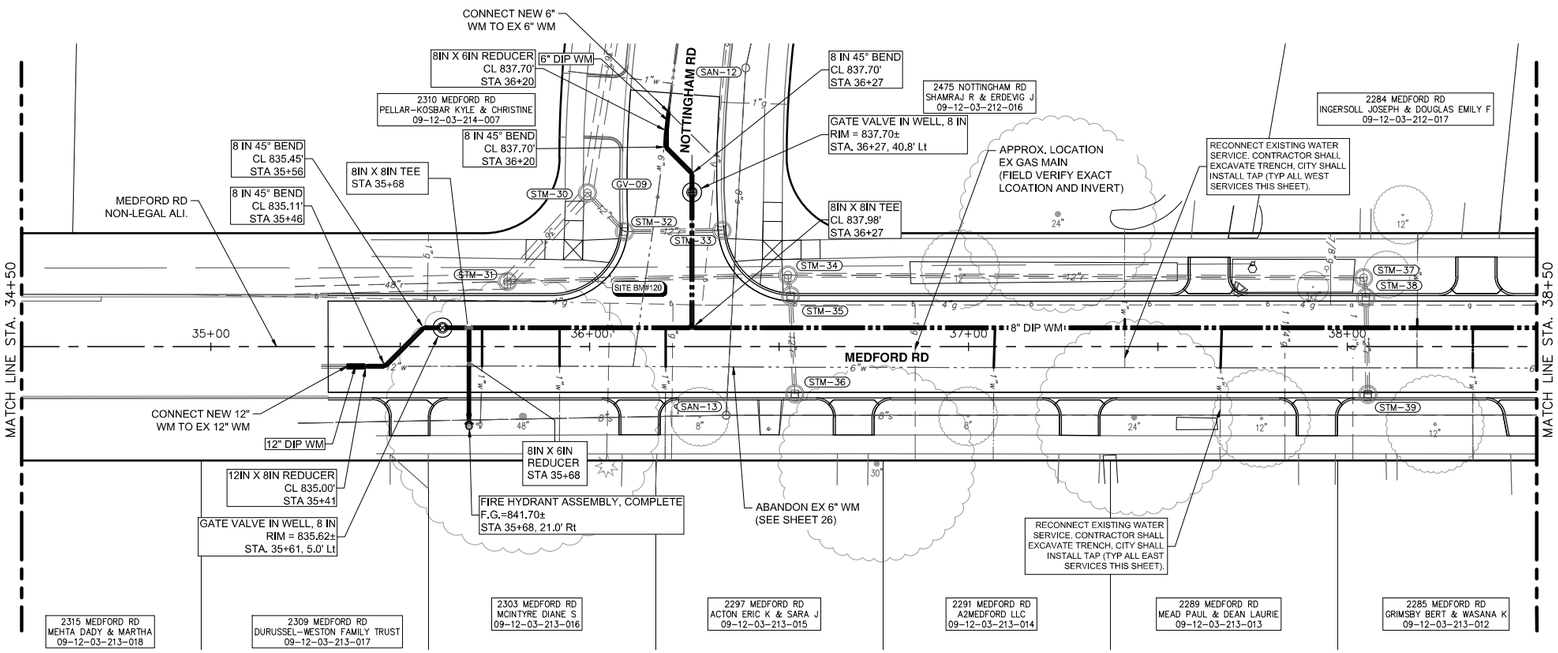
REMOVAL PLAN - MEDFORD RD - STA 42+50 TO STA 46+25

SCALE : 1" = 20'

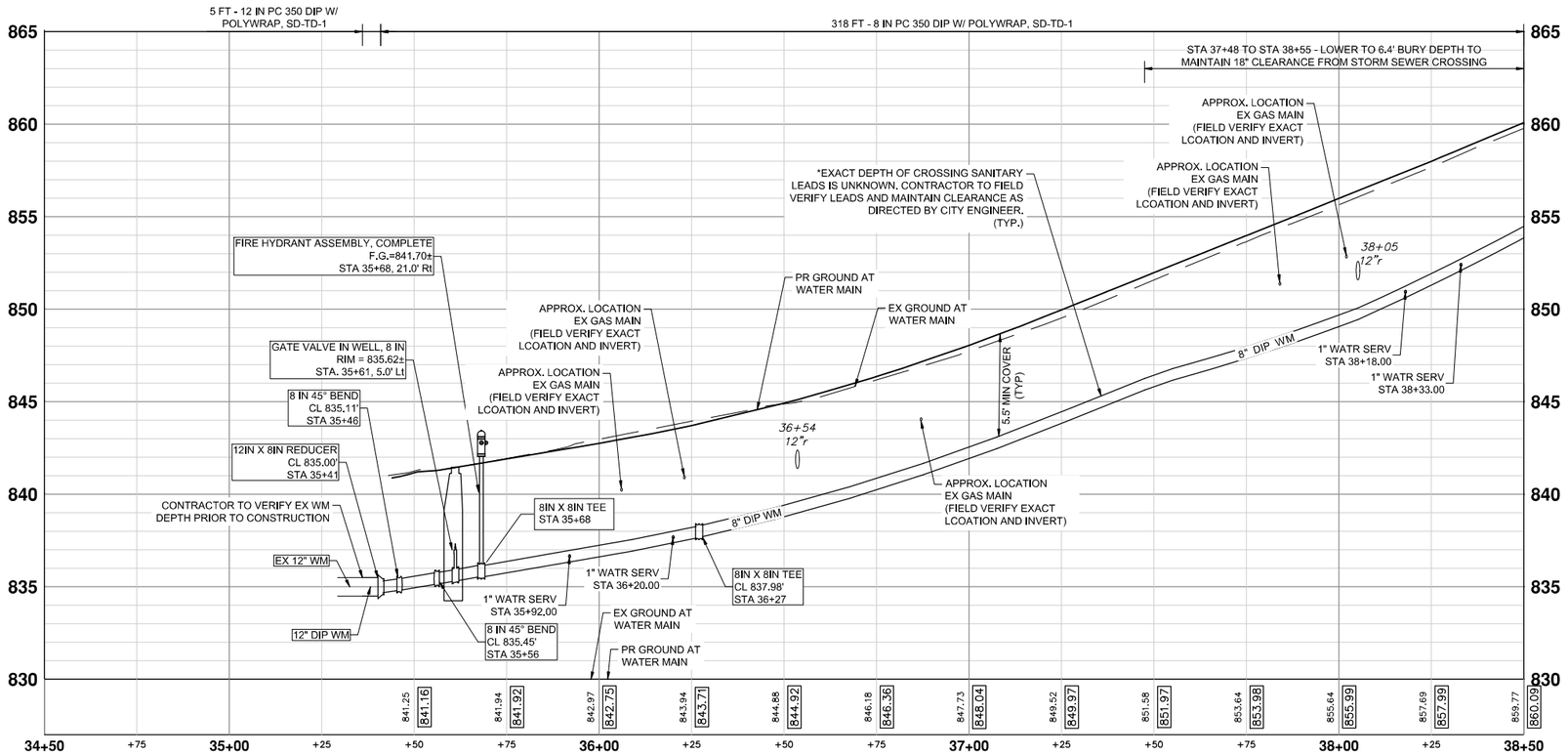
DRAWING No.
2023-24-27

SHEET No.
27 OF 51

J:\AA\Design\AA23005 - YlM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Rem_MEDFORDRD.dwg Dwg Created: 5-Mar-24 - _o2 standard bw.stb - Plot Date: 22-Mar-24



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 34+50 TO STA 38+50



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 34+50 TO STA 38+50

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	19	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	326	Ft
12 In., PC 350 DIP w/polywrap, SD-TD-1	5	Ft
8 In. 45° DIP Bend	1	Ea
8 In. X 6 In. DIP Reducer	2	Ea
12 In. X 8 In. DIP Reducer	1	Ea
8 In. X 8 In. X 8 In. DIP Tee	2	Ea
Gate Valve In Well, 8 In.	2	Ea
Excavate & Backfill For Water Service Tap And Lead	65	Ft
Fire Hydrant Assembly, Complete	1	Ea

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

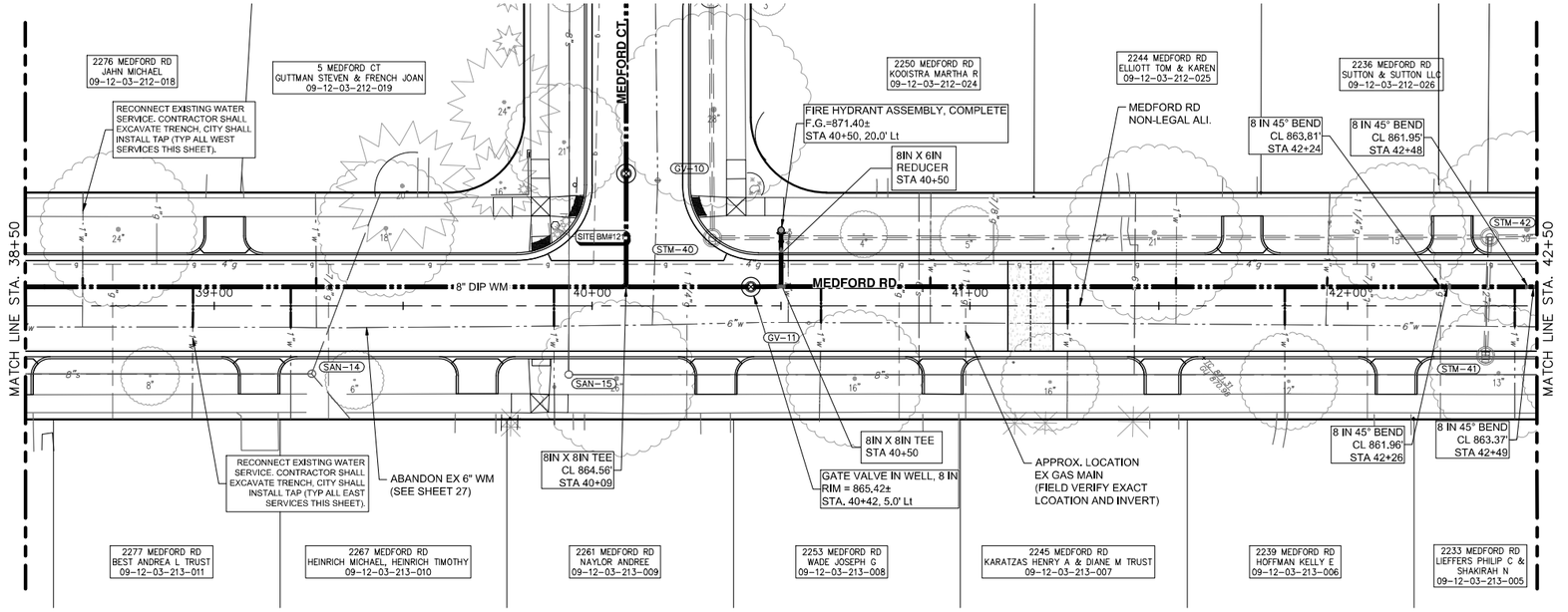
WATER MAIN PLAN & PROFILE - MEDFORD RD STA 34+50 TO STA 38+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

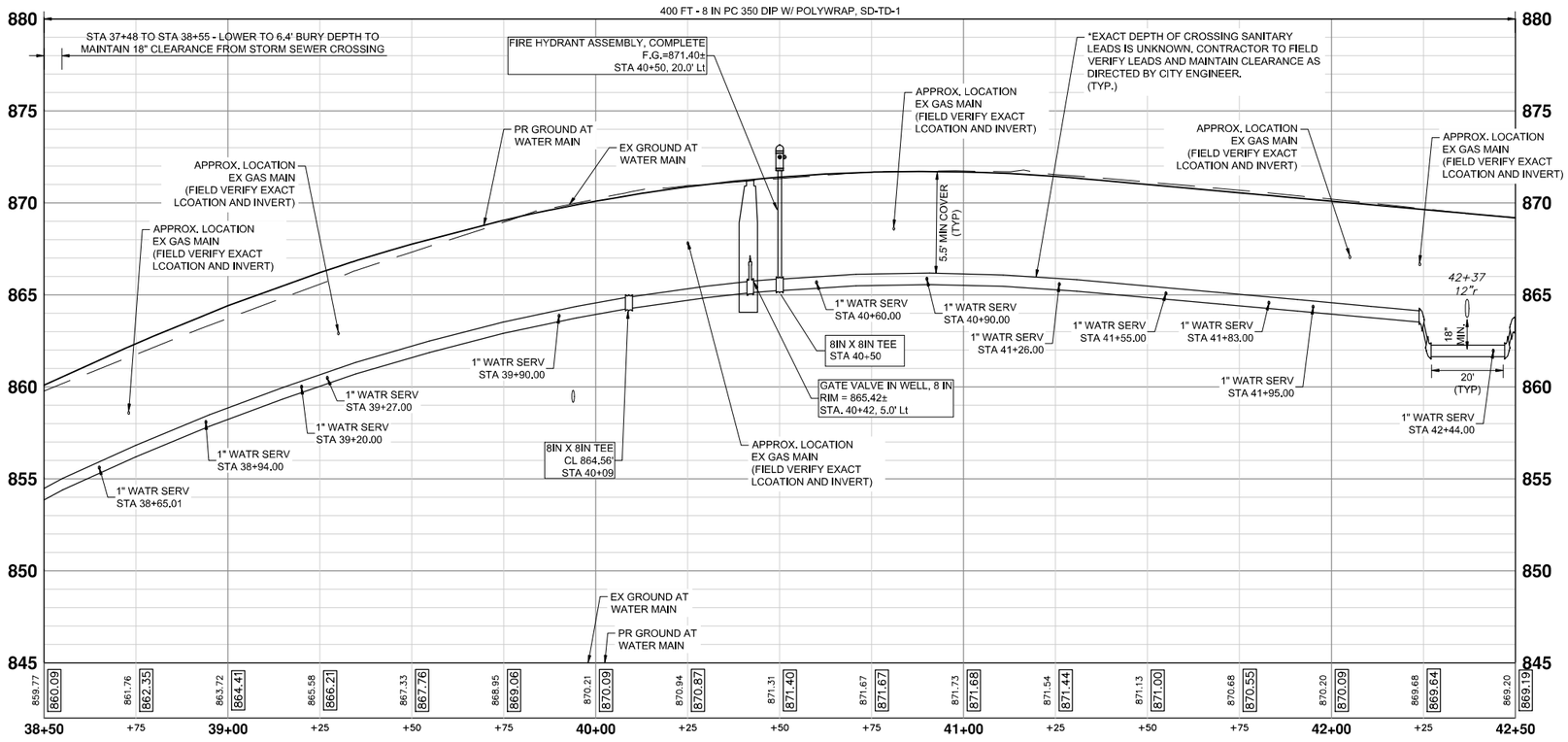
DRAWING No. 2023-24-28

SHEET No. 28 OF 51

J:\AA\Design\AA23005 – YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Watr_MEDFORDRD.dwg Dwg Created: 5-Mar-24 – _o2 standard bw.stb – Plot Date: 22-Mar-24



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 38+50 TO STA 42+50



WATRE MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 38+50 TO STA 42+50

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	4	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	408	Ft
8 In. 45° DIP Bend	4	Ea
8 In. X 8 In. X 8 In. DIP Tee	2	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	82	Ft
Fire Hydrant Assembly, Complete	1	Ea
8 In. X 6 In. DIP Reducer	1	Ea

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

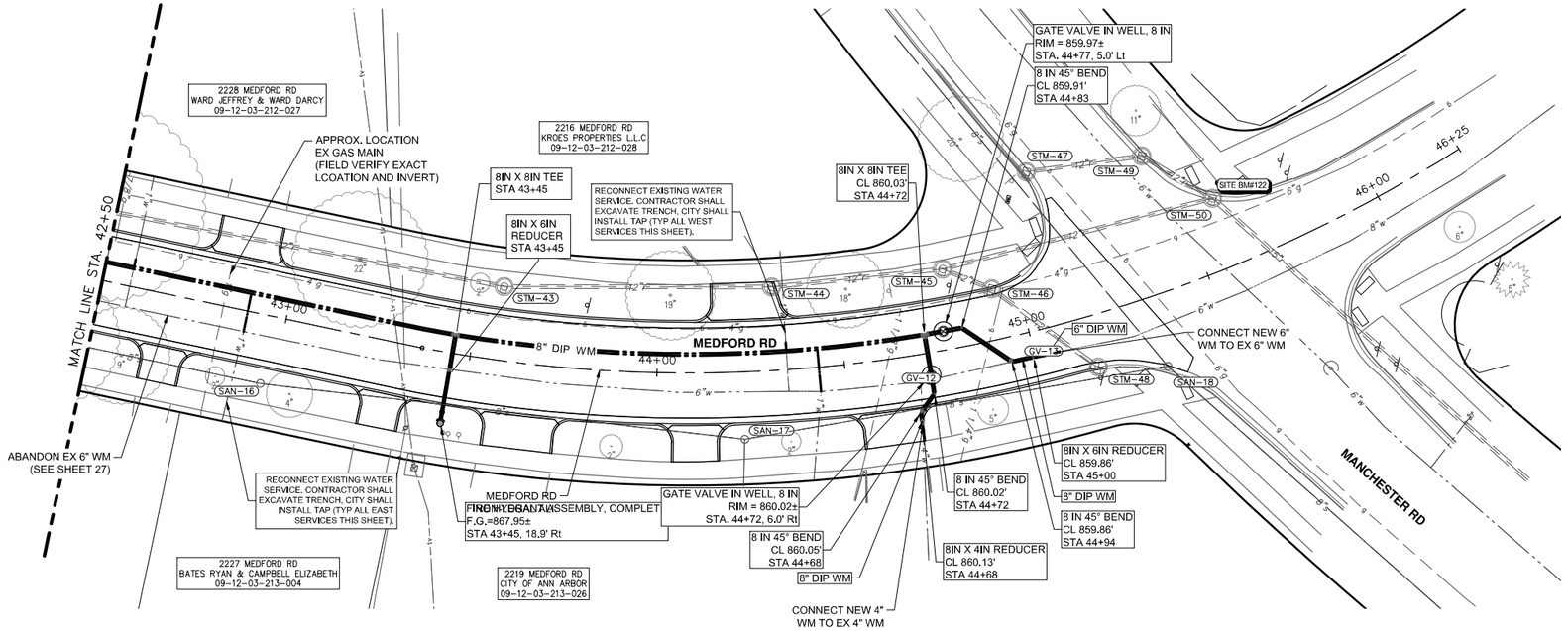
YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

WATER MAIN PLAN & PROFILE - MEDFORD RD STA 38+50 TO STA 42+50

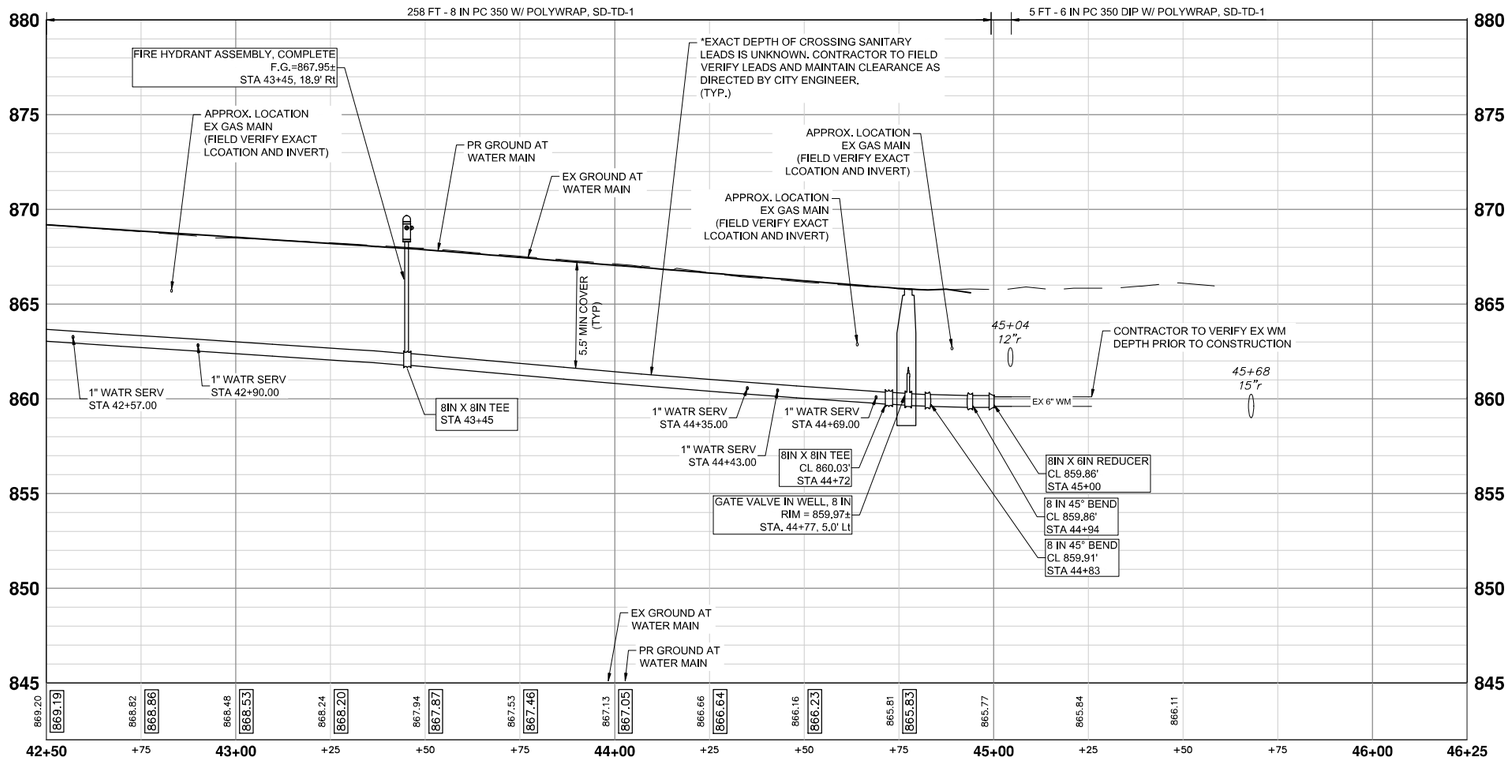
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-31

SHEET No. 29 OF 51



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 42+50 TO STA 46+25



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 42+50 TO STA 46+25

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	18	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	288	Ft
8 In. 45° DIP Bend	1	Ea
8 In. X 4 In. DIP Reducer	1	Ea
8 In. X 8 In. X 8 In. DIP Tee	2	Ea
Gate Valve In Well, 8 In.	2	Ea
Excavate & Backfill For Water Service Tap And Lead	25	Ft
Fire Hydrant Assembly, Complete	1	Ea
8 In. X 6 In. DIP Reducer	1	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

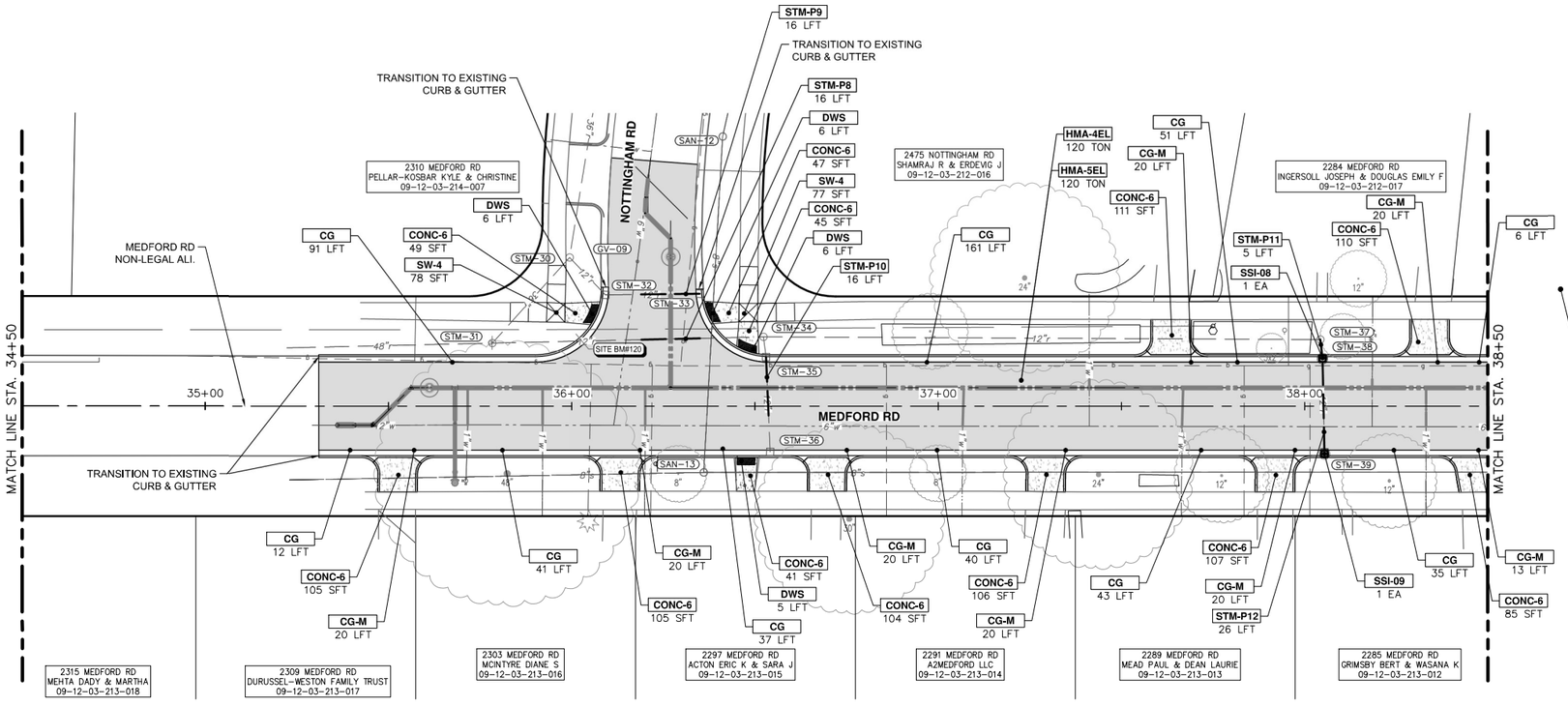
WATER MAIN PLAN & PROFILE - MEDFORD RD STA 42+50 TO STA 46+25

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-34

SHEET No. 30 OF 51

J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Watr_MEDFORDRD.dwg Dwg Created: 5-Mar-24 - _02 standard bw.stb - Plot Date: 22-Mar-24



CONSTRUCTION PLAN - MEDFORD RD - STA 34+50 TO STA 38+50

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA-4EL	HMA, 4EL
HMA-5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG-M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW-4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC-6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC-8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM-P#	12 IN., CL IV RCP STORM SEWER, SD-TD-1 PIPE UNDERCUT & BACKFILL, STORM
SSI-#	STORM SINGLE INLET, 24 IN. DIA., (0-8' DEEP)

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM-P8	12	16	840.14	839.25	5.54%
STM-P9	12	16	840.26	838.79	9.21%
STM-P10	12	16	841.41	841.26	0.97%
STM-P11	12	5	851.10	851.00	1.92%
STM-P12	12	26	852.10	851.10	3.85%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI-08	2' Inlet (Cover K)	38+04.89, 13.00, Lt	856.16	2'	IE 12" E 851.10 IE 12" W 851.10
SSI-09	2' Inlet (Cover K)	38+05.43, 13.00, Rt	856.20	2'	IE 12" W 852.10

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	623	Syd
12 In., CL IV RCP Storm Sewer, SD-TD-1	31	Ft
Pipe Undercut & Backfill, Storm	49	Cyd
Storm Single Inlet, 24 In. Dia., (0-8' deep)	1	Ea
Storm Structure Cover	1	Ea
Storm Structure Cover, Adjust	1	Ea
Underdrain, Subbase, 6 inch	754	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Subbase, CIP	1	Cyd
Aggregate Base, 6 In., 21AA, CIP	124	Syd
Aggregate Base, 8 In., 21AA, CIP	738	Syd
Aggregate Base Conditioning	489	Syd
HMA, 4EL	127	Ton
HMA, 5EL	127	Ton
DS_Conc, Speed Hump	1	Ea
Conc, Curb or Curb & Gutter, All Types	569	Ft
Conc, Driveway Opening, Type M	185	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1038	Sft
Detectable Warning Surface	5	Ft
DS_Turf Restoration	720	Syd

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

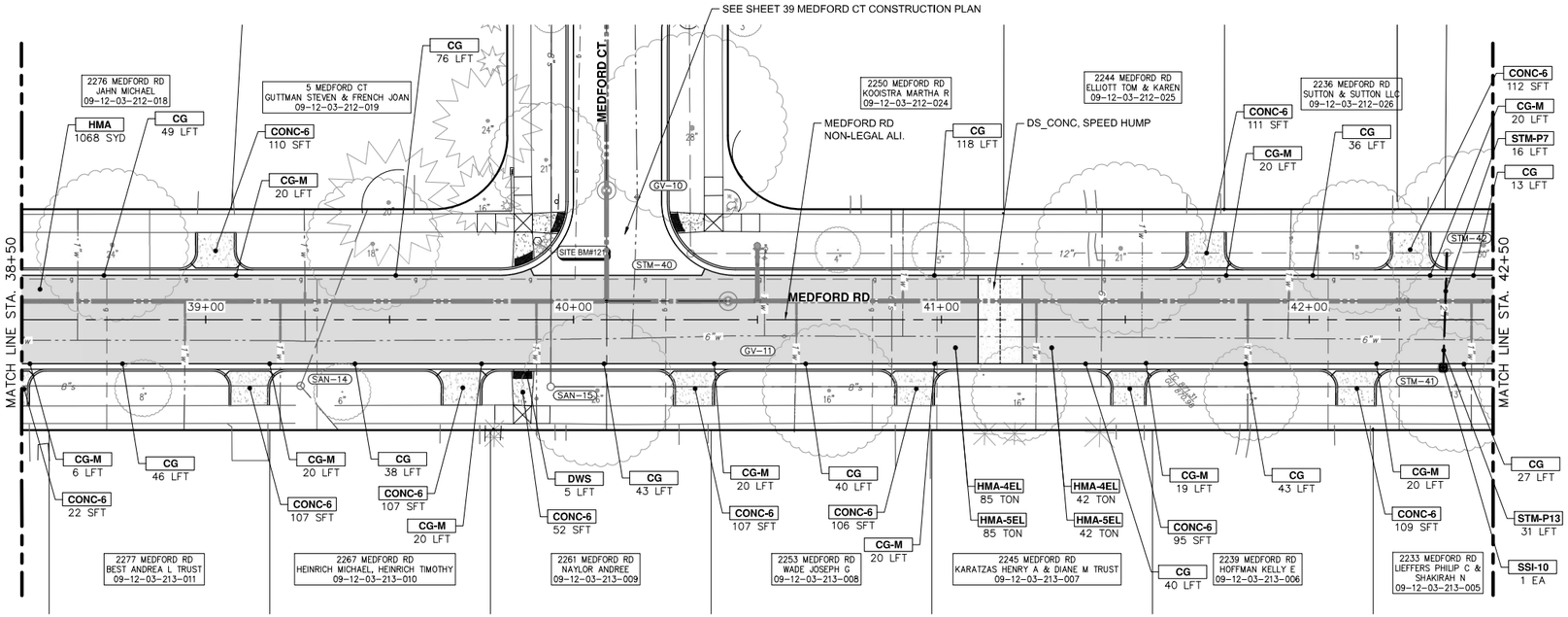
CONSTRUCTION PLAN - MEDFORD RD - STA 34+50 TO STA 38+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-29

SHEET No. 31 OF 51

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_MEDFORDRD.dwg Dwg Created: 7-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24



CONSTRUCTION PLAN - MEDFORD RD - STA 38+50 TO STA 42+50

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA–4EL	HMA, 4EL
HMA–5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG–M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW–4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC–6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC–8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM–P#	12 IN., CL IV RCP STORM SEWER, SD–TD–1 PIPE UNDERCUT & BACKFILL, STORM
SSI–#	STORM SINGLE INLET, 24 IN. DIA., (0–8' DEEP)

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	436	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	34	Ft
Pipe Undercut & Backfill, Storm	53	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	1	Ea
Storm Structure Cover	2	Ft
Storm Structure Cover, Adjust	2	Ft
Underdrain, Subbase, 6 inch	525	Ft
Water Structure Cover	2	Ft
Water Structure Cover, Adjust	2	Ft
Aggregate Base, 6 In., 21AA, CIP	129	Ft
Aggregate Base, 8 In., 21AA, CIP	463	Ft
Aggregate Base Conditioning	343	Ft
HMA, 4EL	96	Ft
HMA, 5EL	96	Ft
Conc, Curb or Curb & Gutter, All Types	353	Ft
Conc, Driveway Opening, Type M	172	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1013	Sft
DS_Turf Restoration	490	Ea

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM–P13	12	31	864.25	863.05	3.85%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI–10	2' Inlet (Cover K)	42+36.45, 13.00, Rt	869.21	2'	IE 12" W 864.25

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

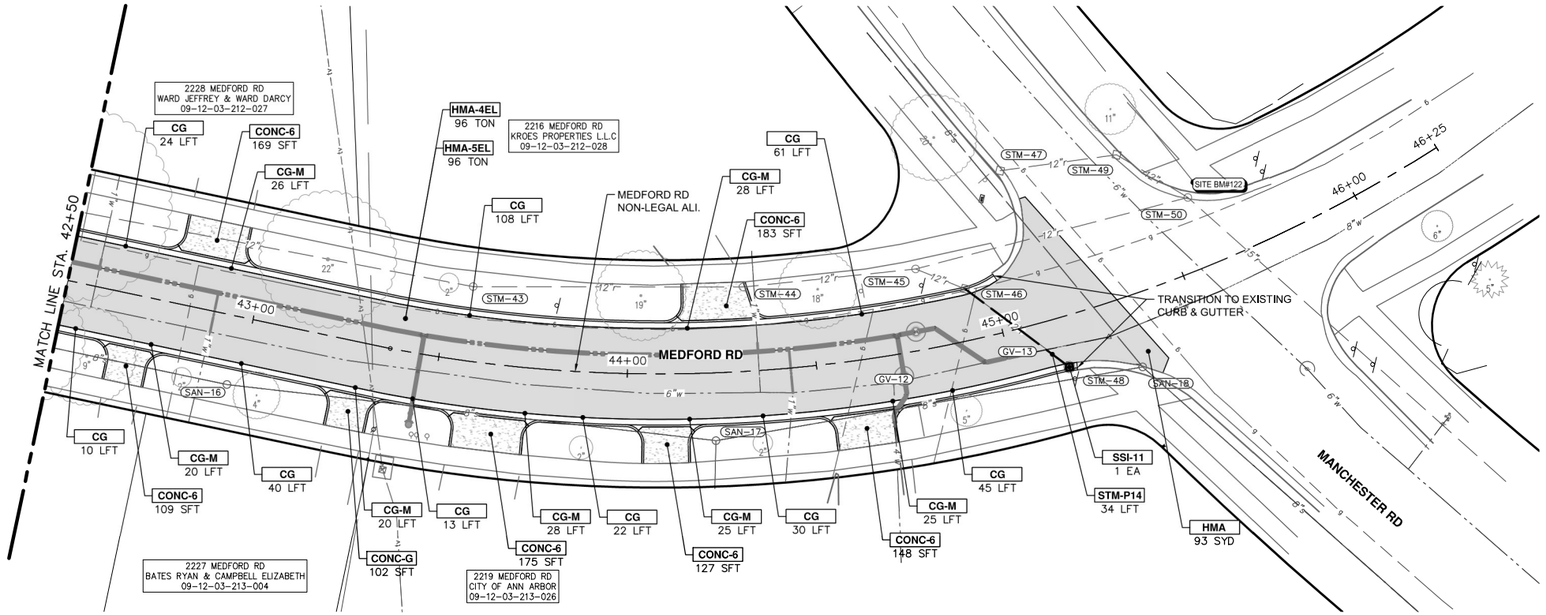
CONSTRUCTION PLAN - MEDFORD RD - STA 38+50 TO STA 42+50

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-32

SHEET No. 32 OF 51

J:\AA\Design\AA23005 – YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_MEDFORDRD.dwg Dwg Created: 7-Mar-24 – _a2 standard bw.stb – Plot Date: 22-Mar-24



CONSTRUCTION PLAN - MEDFORD RD - STA 42+50 TO STA 46+25

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA-4EL	HMA, 4EL
HMA-5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG-M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW-4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC-6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC-8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM-P#	12 IN., CL IV RCP STORM SEWER, SD-TD-1 PIPE UNDERCUT & BACKFILL, STORM
SSI-#	STORM SINGLE INLET, 24 IN. DIA., (0-8' DEEP)

CONSTRUCTION QUANTITIES - THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	436	Syd
12 In., CL IV RCP Storm Sewer, SD-TD-1	34	Ft
Pipe Undercut & Backfill, Storm	53	Cyd
Storm Single Inlet, 24 In. Dia., (0-8' deep)	1	Ea
Storm Structure Cover	2	Ft
Storm Structure Cover, Adjust	2	Ft
Underdrain, Subbase, 6 inch	525	Ft
Water Structure Cover	2	Ft
Water Structure Cover, Adjust	2	Ft
Aggregate Base, 6 In., 21AA, CIP	129	Ft
Aggregate Base, 8 In., 21AA, CIP	463	Ft
Aggregate Base Conditioning	343	Ft
HMA, 4EL	96	Ft
HMA, 5EL	96	Ft
Conc, Curb or Curb & Gutter, All Types	353	Ft
Conc, Driveway Opening, Type M	172	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1013	Sft
DS_Turf Restoration	490	Ea

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM-P14	12	34	861.90	861.50	1.16%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI-11	2' Inlet (Cover K)	45+14.42, 13.25, Rt	866.52	2'	IE 12" SW 861.90

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

Know what's below. Call before you dig.

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

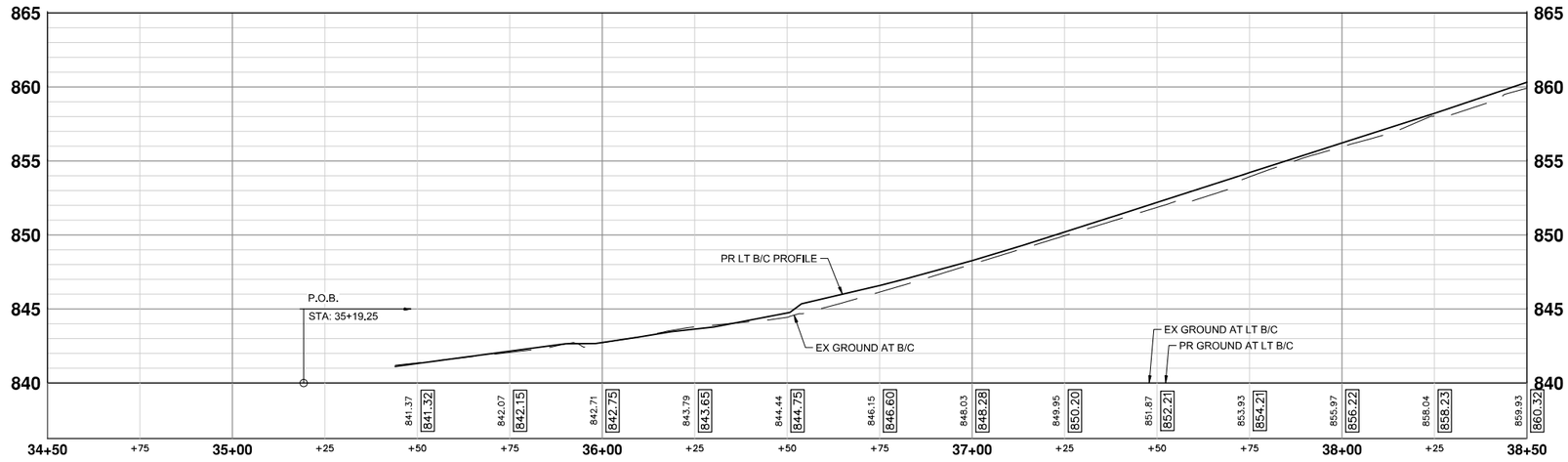
CONSTRUCTION PLAN - MEDFORD RD - STA 42+50 TO STA 46+25

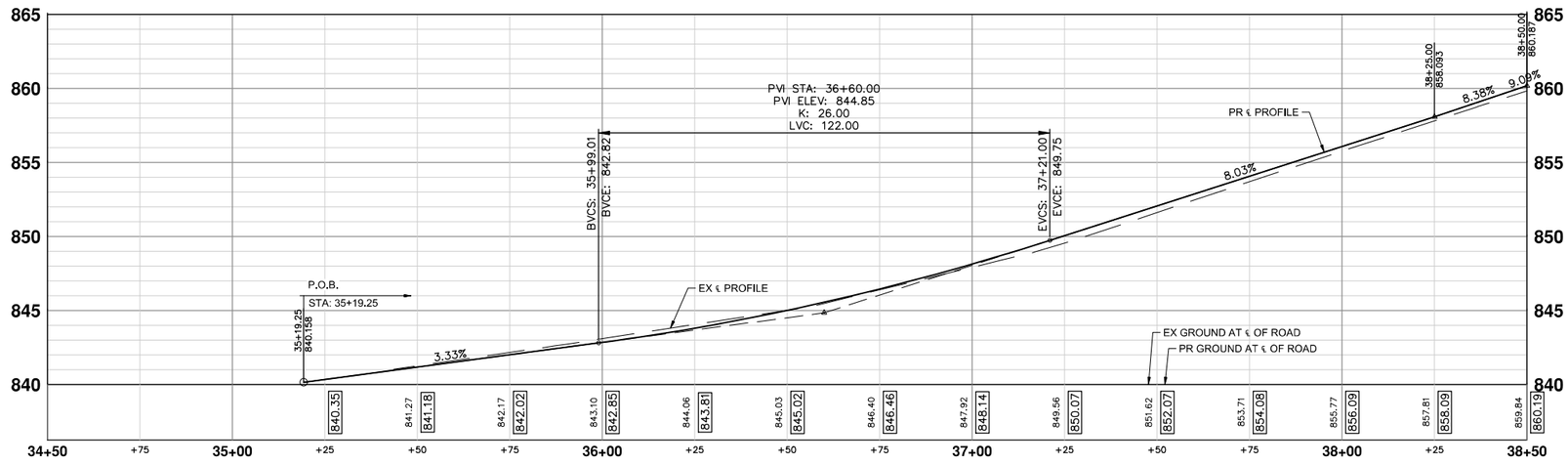
SCALE PLAN: 1" = 20'
PROFILE 1" = 4'

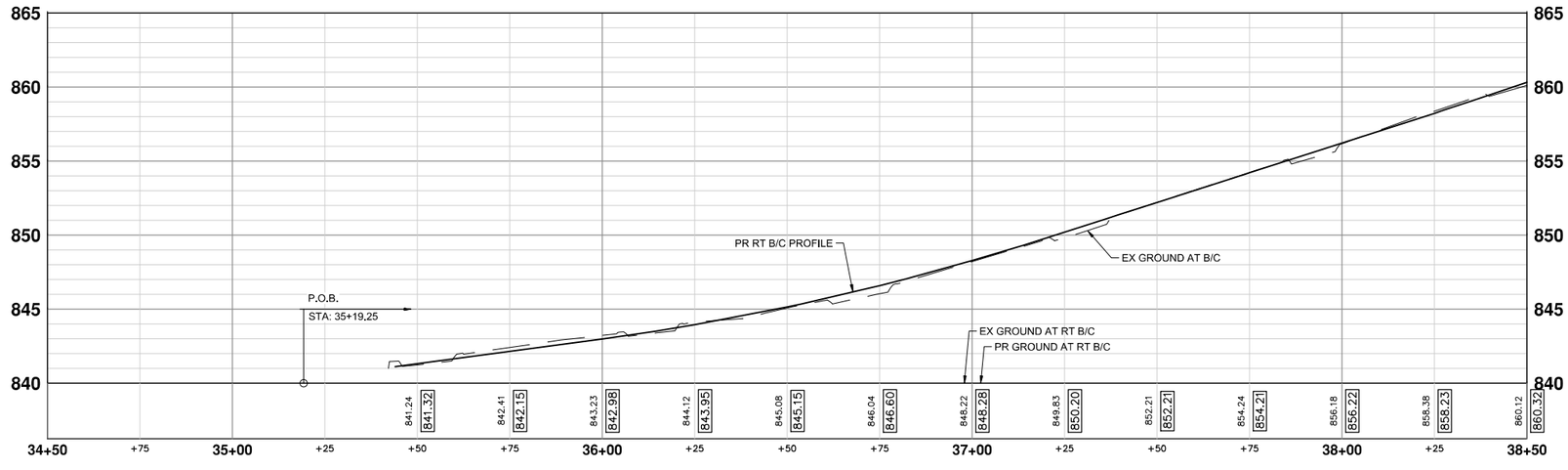
DRAWING No.
2023-24-35

SHEET No.
33 OF 51

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_MEDFORDRD.dwg Dwg Created: 7-Mar-24 - _o2 standard bw.stb - Plot Date: 22-Mar-24







MEDFORD RD PROFILES - STA 34+50 TO STA 38+50

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

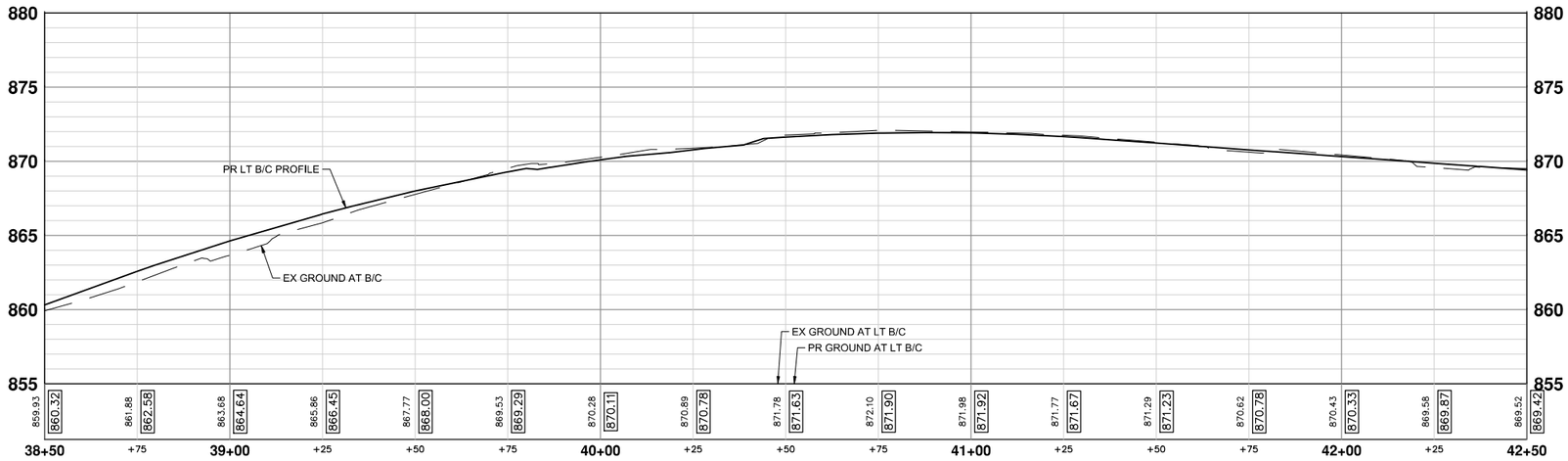
YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

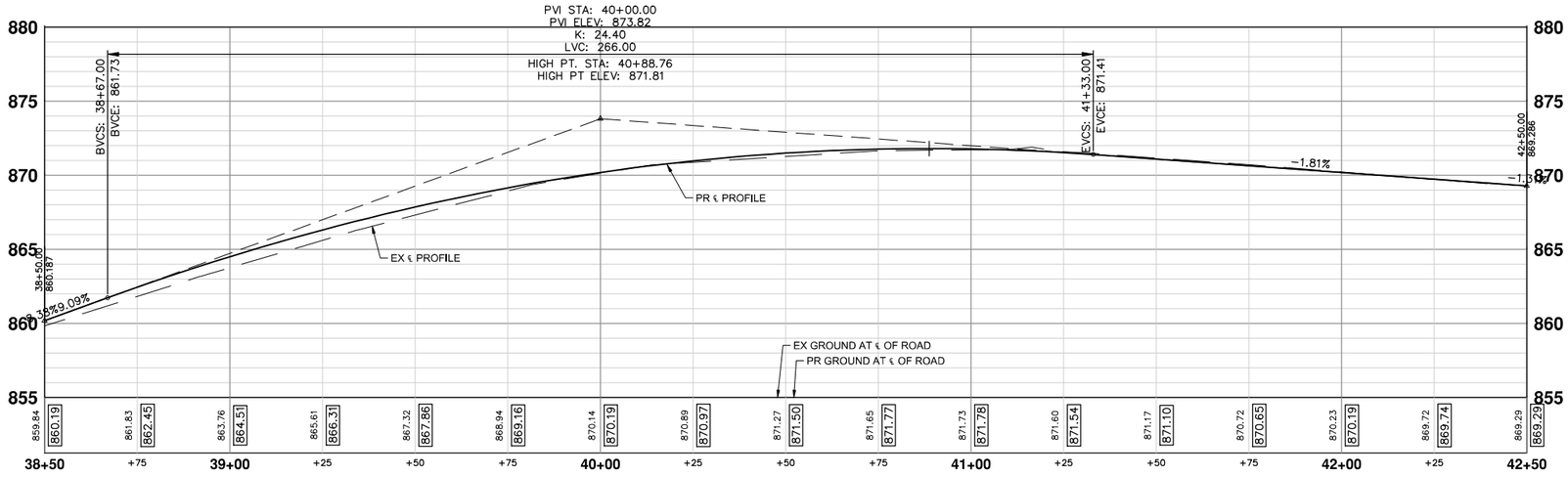
PROFILE SHEET - MEDFORD RD STA 34+50 TO STA 38+50

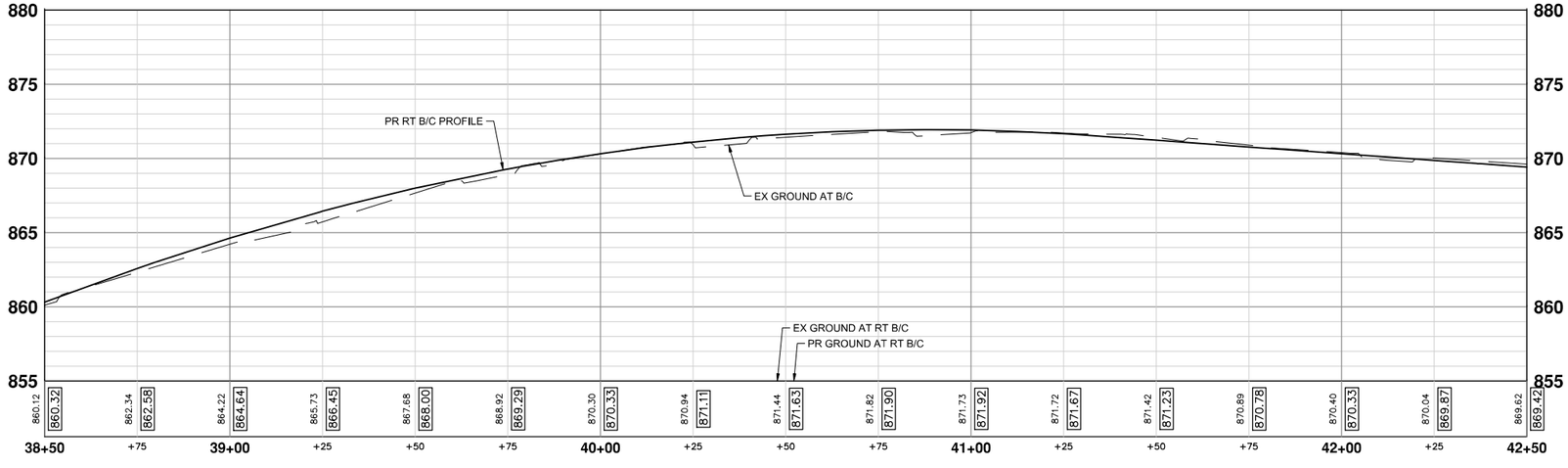
SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

DRAWING No. 2023-24-30

SHEET No. 34 OF 51







MEDFORD RD PROFILES - STA 38+50 TO STA 42+50

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

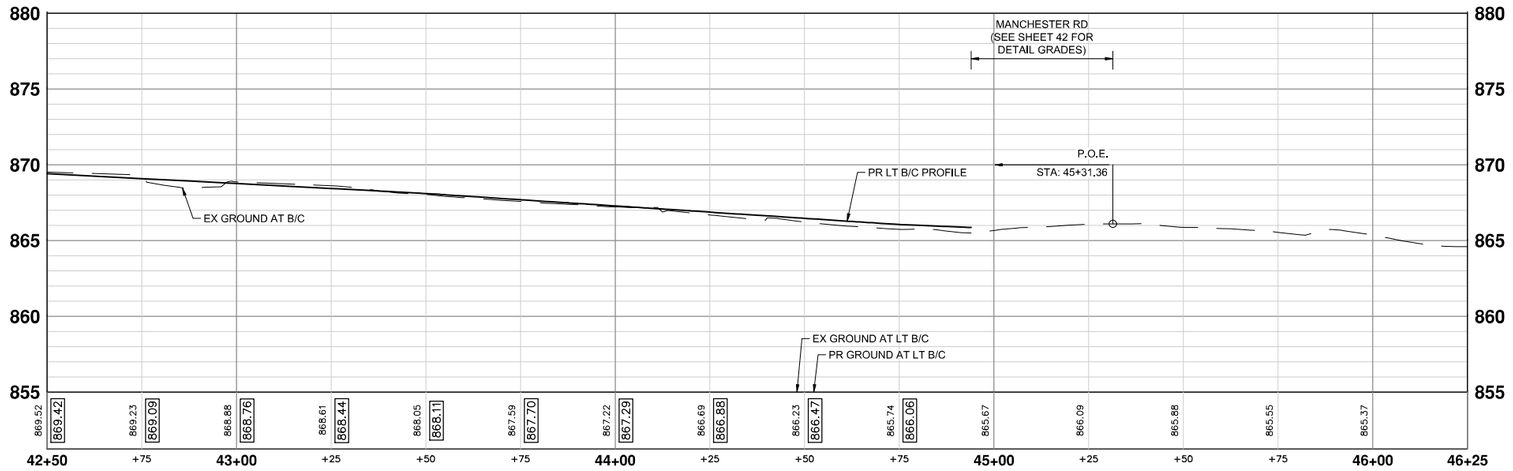
PROFILE SHEET - MEDFORD RD STA 38+50 TO STA 42+50

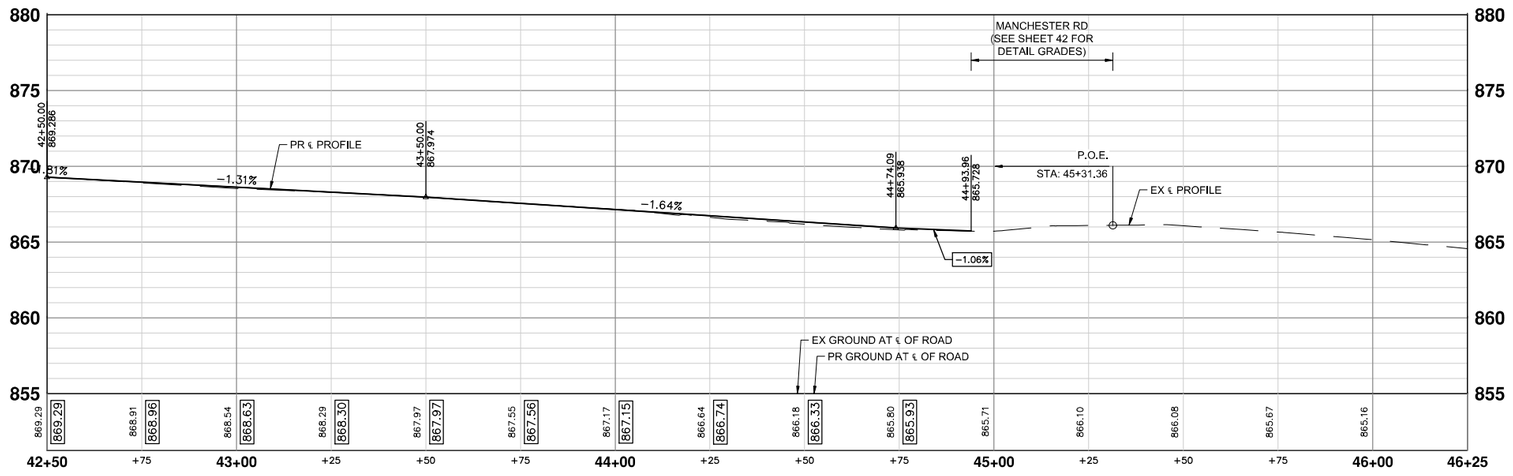
SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

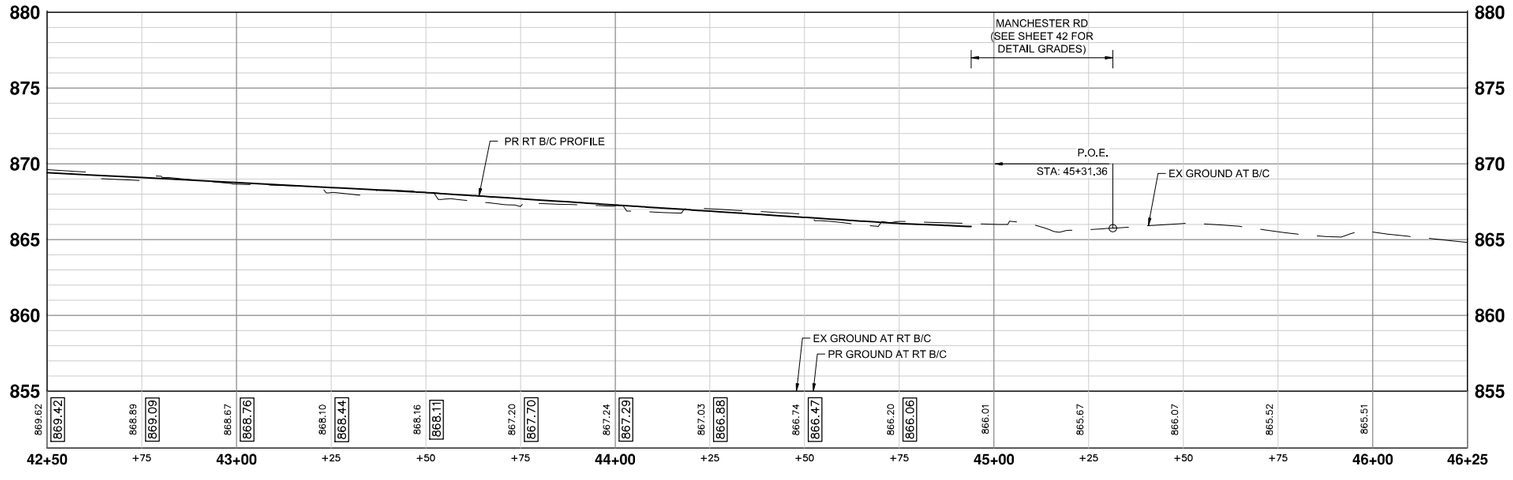
DRAWING No.
2023-24-33

SHEET No.
35 OF 51

J:\AA\Design\AA23005 - YlM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_RPR_MEDFORDRD.dwg Dwg Created: 20-Feb-24 — _a2 standard bw.stb — Plot Date: 22-Mar-24







MEDFORD RD PROFILES - STA 42+50 TO STA 46+25

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RB/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

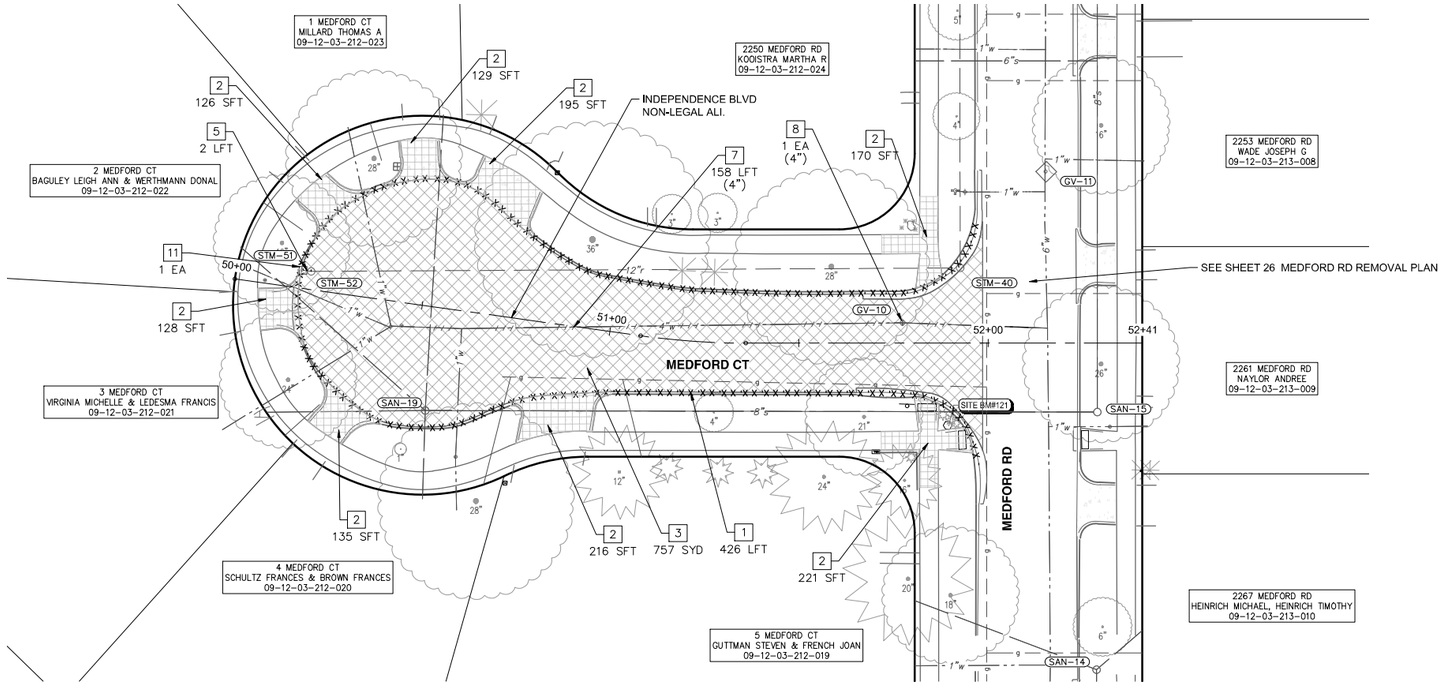
PROFILE SHEET - MEDFORD RD STA 42+50 TO STA 46+25

SCALE HORIZONTAL: 1" = 20' VERTICAL: 1" = 5'

DRAWING No. **2023-24-36**

SHEET No. **36 OF 51**

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_RPR_MEDFORDRD.dwg Dwg Created: 20-Feb-24 — _a2 standard bw.stb — Plot Date: 22-Mar-24



REMOVAL PLAN - MEDFORD CT - STA 50+00 TO STA 52+41

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- WATER MAIN PIPE, REM
- WATER MAIN PIPE, ABANDON

REMOVAL KEY

KEY	DESCRIPTION
1	CURB, CUTTER, AND CURB AND GUTTER, ANY TYPE, REM
2	SIDEWALK AND RAMPS, REMOVE* DRIVEWAY APPROACH, REMOVE*
3	HMA ANY THICKNESS, REM*
4	COLD MILLING HMA SURFACE
5	STORM SEWER PIPE, 12 IN. DIA., REM
6	WATER MAIN PIPE, _ IN. DIA., REM
7	WATER MAIN PIPE, _ IN. DIA., ABANDON
8	GATE VALVE IN BOX, _ IN. DIA., ABANDON
9	GATE VALVE IN BOX, _ IN. DIA., REM
10	FIRE HYDRANT ASSEMBLY, REM
11	STORM SEWER DROP STRUCTURE, REM

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	757	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	426	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	1320	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	2	Ft
Storm Sewer Drop Structure, Rem	1	Ea
Water Main Pipe, 4 In. Dia., Abandon	158	Ft
Gate Valve in Box, 4 In. Dia., Abandon	1	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

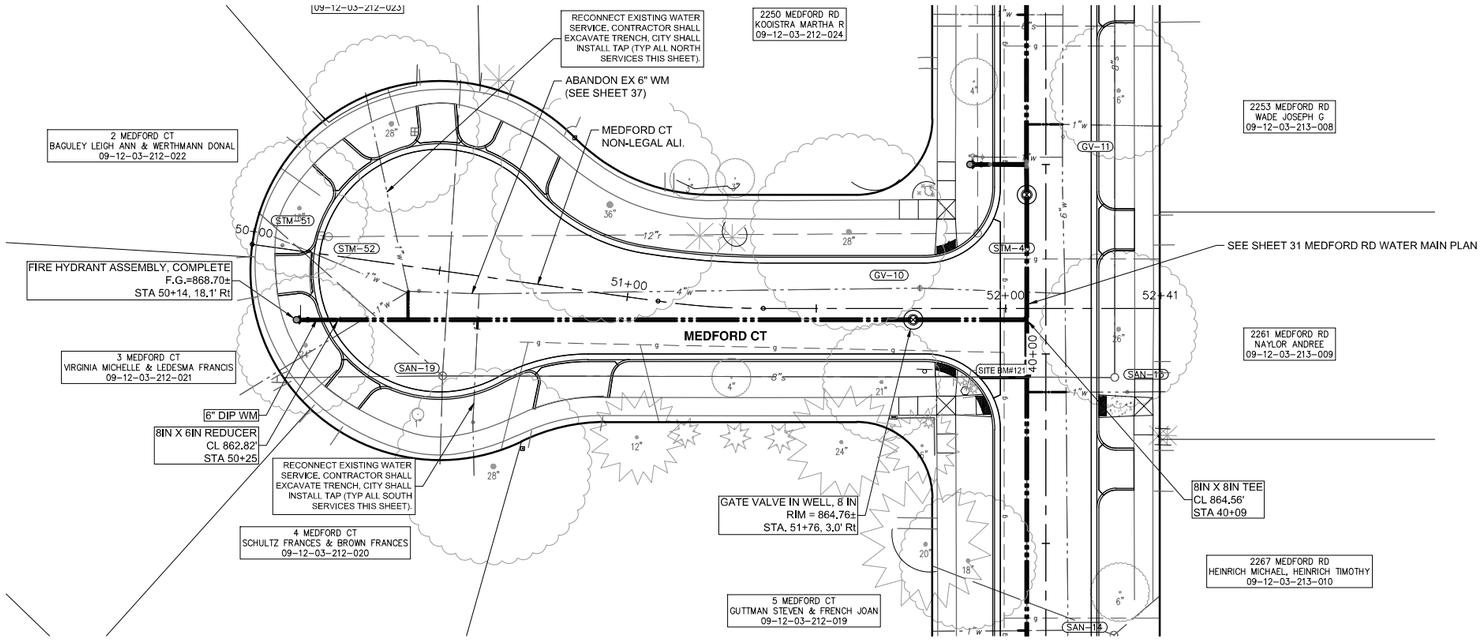
REMOVAL PLAN - MEDFORD CT - STA 50+00 TO STA 52+41

SCALE: 1" = 20'

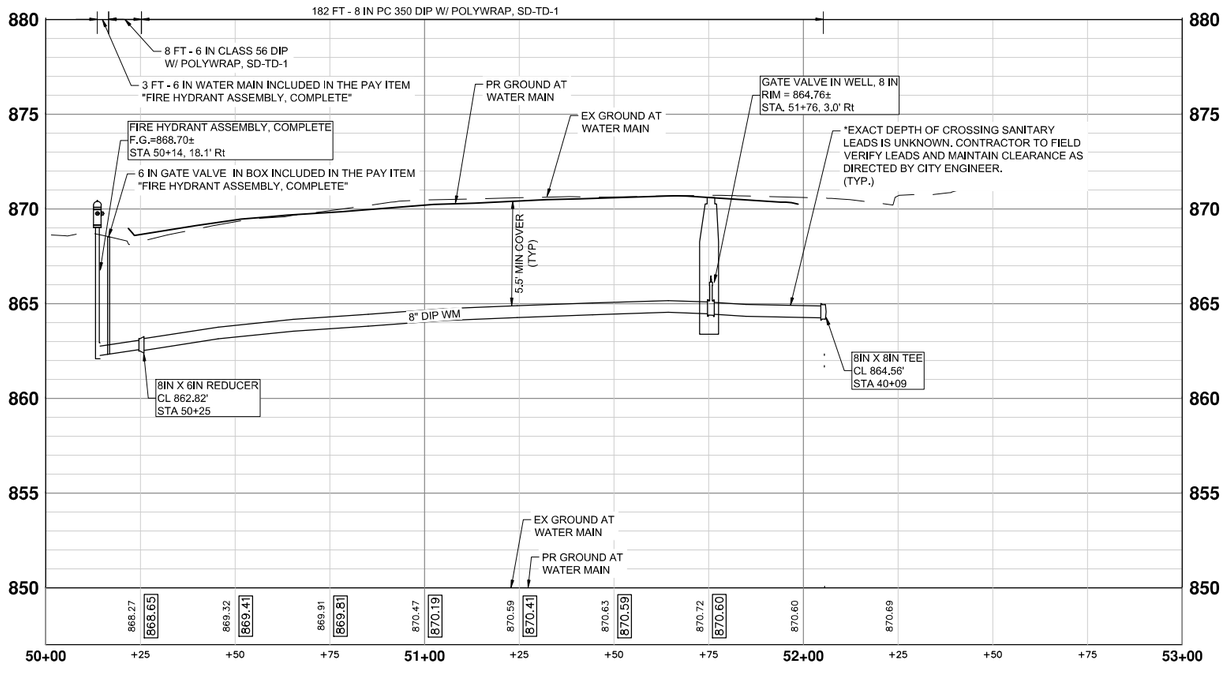
DRAWING No.
2023-24-37

SHEET No.
37 OF 51

J:\AA\Design\AA23005 – YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Rem_MEDFORDCT.dwg Dwg Created: 4-Mar-24 – _02 standard bw.stb – Plot Date: 22-Mar-24



WATER MAIN CONSTRUCTION PLAN - MEDFORD CT - STA 50+00 TO STA 52+41



WATER MAIN CONSTRUCTION PROFILE - MEDFORD CT - STA 50+00 TO STA 52+41

NOTES

1. CONNECTIONS TO EXISTING WATER MAINS SHALL BE INCLUDED IN THE UNIT PRICES FOR THE WATER MAIN PER ARTICLE 11, SUBSECTION 00 (WATER MAIN AND APPURTENCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	8	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	182	Ft
8 In. X 6 In. DIP Reducer	1	Ea
8 In. X 8 In. X 8 In. DIP Tee	1	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	10	Ft
Fire Hydrant Assembly, Complete	1	Ea

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

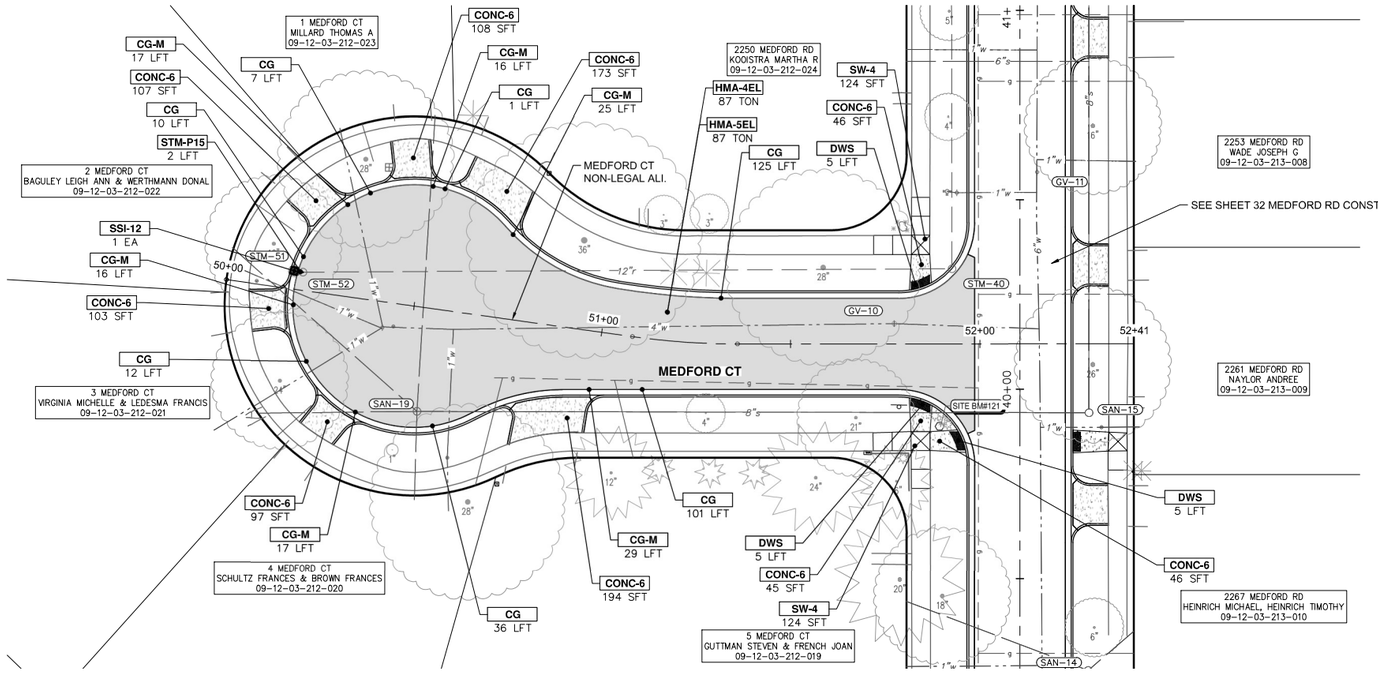
YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

WATER MAIN PLAN & PROFILE - MEDFORD CT - STA 50+00 TO STA 52+41

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2023-24-38

SHEET No. 38 OF 51



CONSTRUCTION PLAN - MEDFORD CT - STA 50+00 TO STA 52+41

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA–4EL	HMA, 4EL
HMA–5EL	HMA, 5EL
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES AGGREGATE BASE, 8 IN. 21AA, CIP
CG–M	CON, DRIVEWAY OPENING, TYPE M AGGREGATE BASE, 8 IN. 21AA, CIP
SW–4	CONC, SIDEWALK, 4 IN. AGGREGATE BASE, 6 INCH, LIMESTONE
CONC–6	CONC, SIDEWALK, DRIVE APPROACH, OR RAMP, 6 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
CONC–8	CONC, SIDEWALK, DRIVE APPROACH OR RAMP, 8 IN. AGGREGATE BASE, 6 IN. 21AA, CIP
DWS	DETECTABLE WARNING SURFACE
STM–P#	12 IN., CL IV RCP STORM SEWER, SD–TD–1 PIPE UNDERCUT & BACKFILL, STORM
SSI–#	STORM SINGLE INLET, 24 IN. DIA., (0–8' DEEP)

PROPOSED DRAINAGE PIPE TABLE					
PIPE NAME	SIZE (INCH)	LENGTH (FEET)	INVERT (UPSTREAM)	INVERT (DOWNSTREAM)	SLOPE
STM–15	12	2	861.35	861.30	2.14%

PROPOSED STORM STRUCTURE TABLE					
STRUCTURE NAME	STRUCTURE TYPE	STATION OFFSET	RIM	SUMP	INVERTS
SSI–12	2' Inlet (Cover K)	50+17.35, 4.80, Lt	863.00	2'	IE 12" E 861.35

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
DS_Maching Grading	534	Syd
Sanitary Structure Cover	1	Ea
Sanitary Structure Cover, Adjust	1	Ea
12 In., CL IV RCP Storm Sewer, SD–TD–1	2	Ft
Pipe Undercut & Backfill, Storm	4	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	1	Ea
Storm Structure Cover	2	Ea
Storm Structure Cover, Adjust	2	Ea
Underdrain, Subbase, 6 inch	412	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Subbase, CIP	7	Cyd
Aggregate Base, 6 In., 21AA, CIP	119	Syd
Aggregate Base, 8 In., 21AA, CIP	314	Syd
Aggregate Base Conditioning	467	Syd
HMA, 4EL	173	Ton
HMA, 5EL	173	Ton
Conc, Curb or Curb & Gutter, All Types	292	Ft
Conc, Driveway Opening, Type M	120	Ft
Conc, Sidewalk, 4 In.	248	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	919	Sft
Detectable Warning Surface	15	Ft
DS_Turf Restoration	360	Syd

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

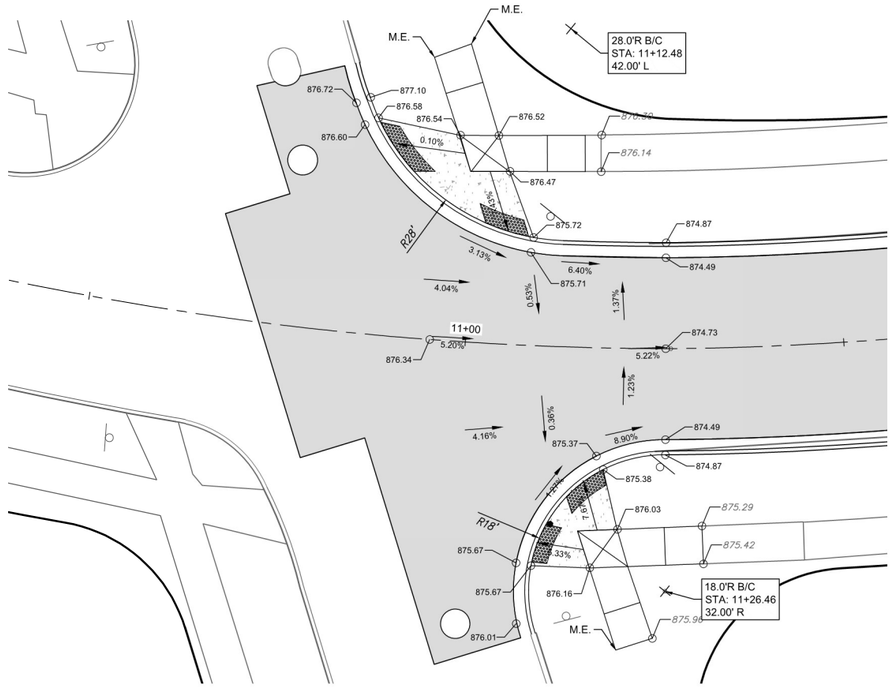
CONSTRUCTION PLAN - MEDFORD CT - STA 50+00 TO STA 52+41

SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

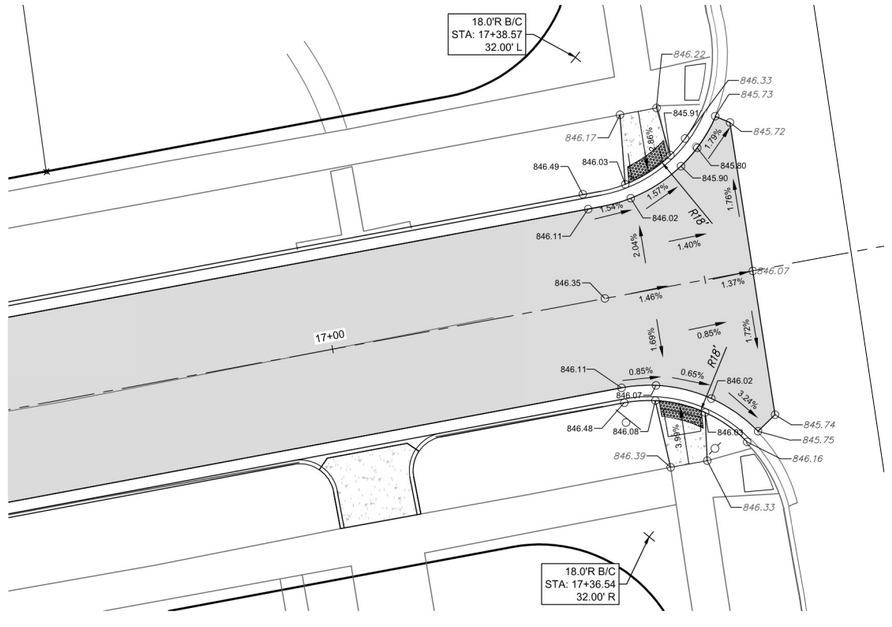
DRAWING No. 2023-24-39

SHEET No. 39 OF 51

J:\AA\Design\AA23005 – YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_PPrd_MEDFORDCT.dwg Dwg Created: 5-Mar-24 – _o2 standard bw.stb – Plot Date: 22-Mar-24



DETAIL GRADING - INDEPENDENCE BLVD & MANCHESTER ROAD



DETAIL GRADING - INDEPENDENCE BLVD & NOTTINGHAM ROAD

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

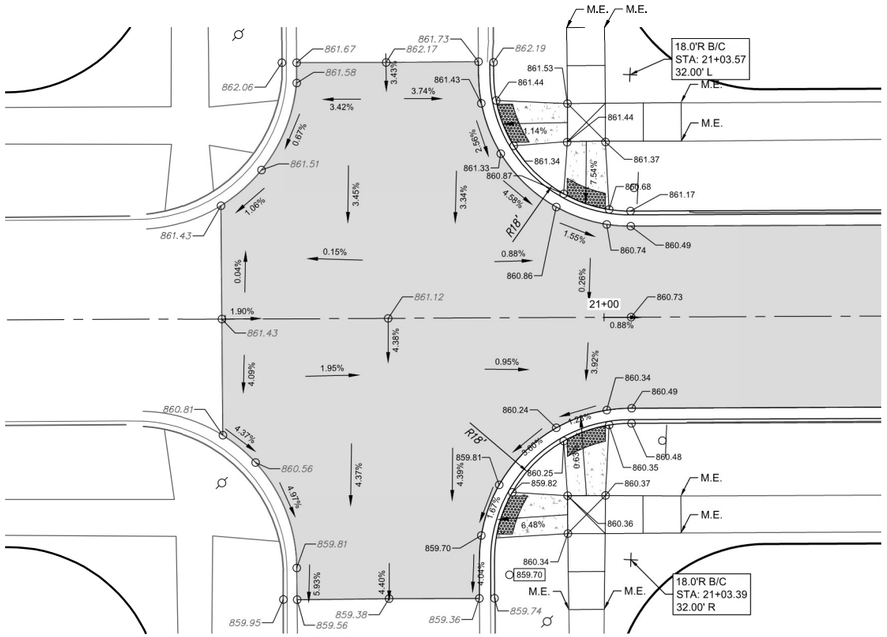
DETAIL GRADING - INDEPENDENCE BLVD

SCALE : 1" = 10'

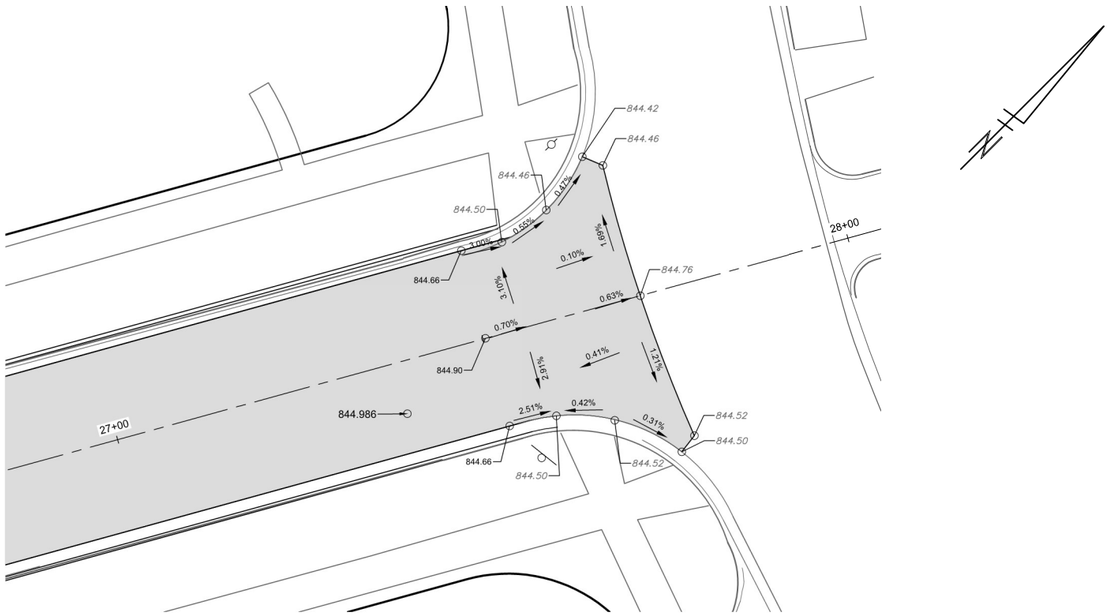
DRAWING No.
2023-24-40

SHEET No.
40 OF 51

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_GRD_INDEPENDENCE.dwg Dwg Created: 6-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24



DETAIL GRADING - YORKSHIRE ROAD & DORCHESTER ROAD



DETAIL GRADING - YORKSHIRE ROAD & NOTTINGHAM ROAD

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_GRD_YORKSHIRE.dwg Dwg Created: 6-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
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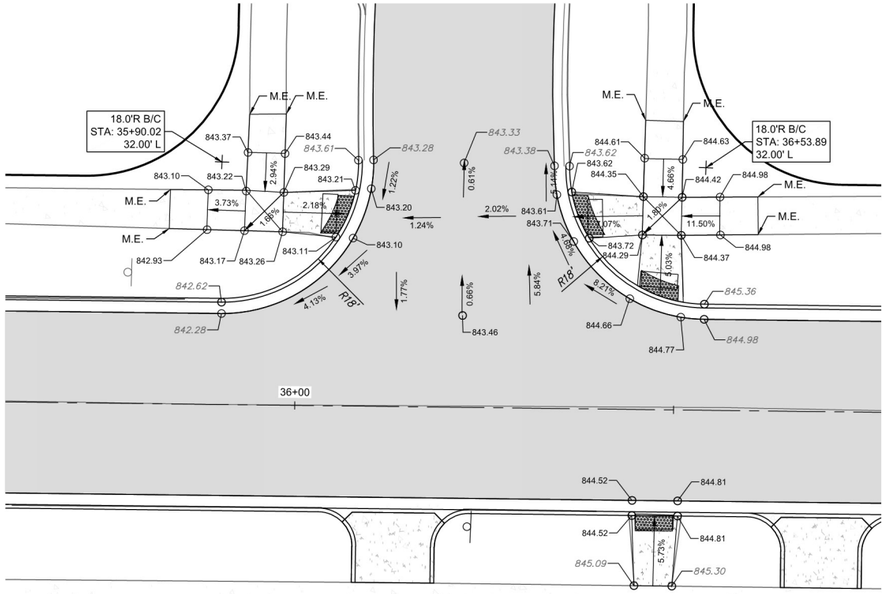
YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

DETAIL GRADING - YORKSHIRE RD

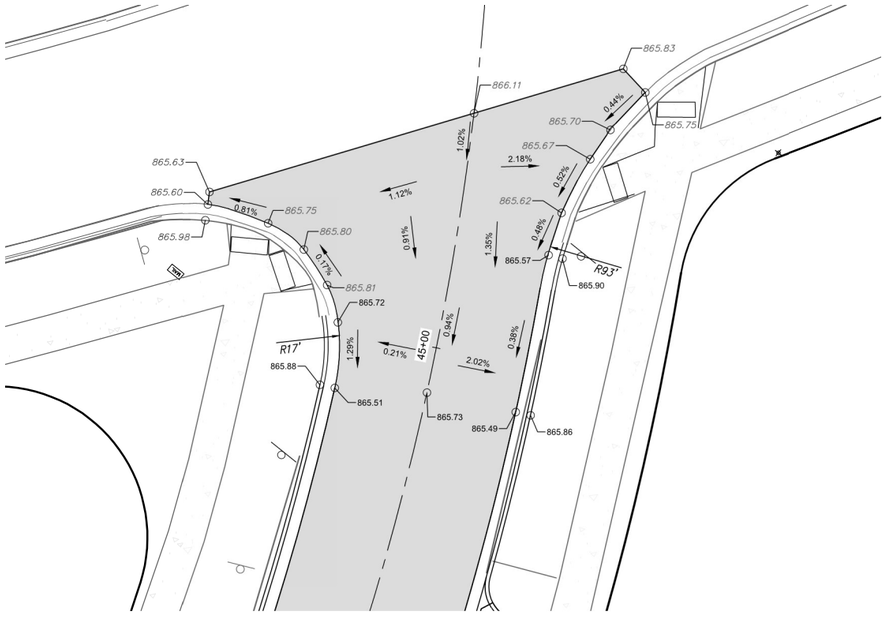
SCALE : #######

DRAWING No.
2023-24-41

SHEET No.
41 OF 51



DETAIL GRADING - MEDFORD ROAD & NOTTINGHAMD ROAD



DETAIL GRADING - MEDFORD ROAD & MANCHESTER ROAD

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

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3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

DETAIL GRADING - MEDFORD RD

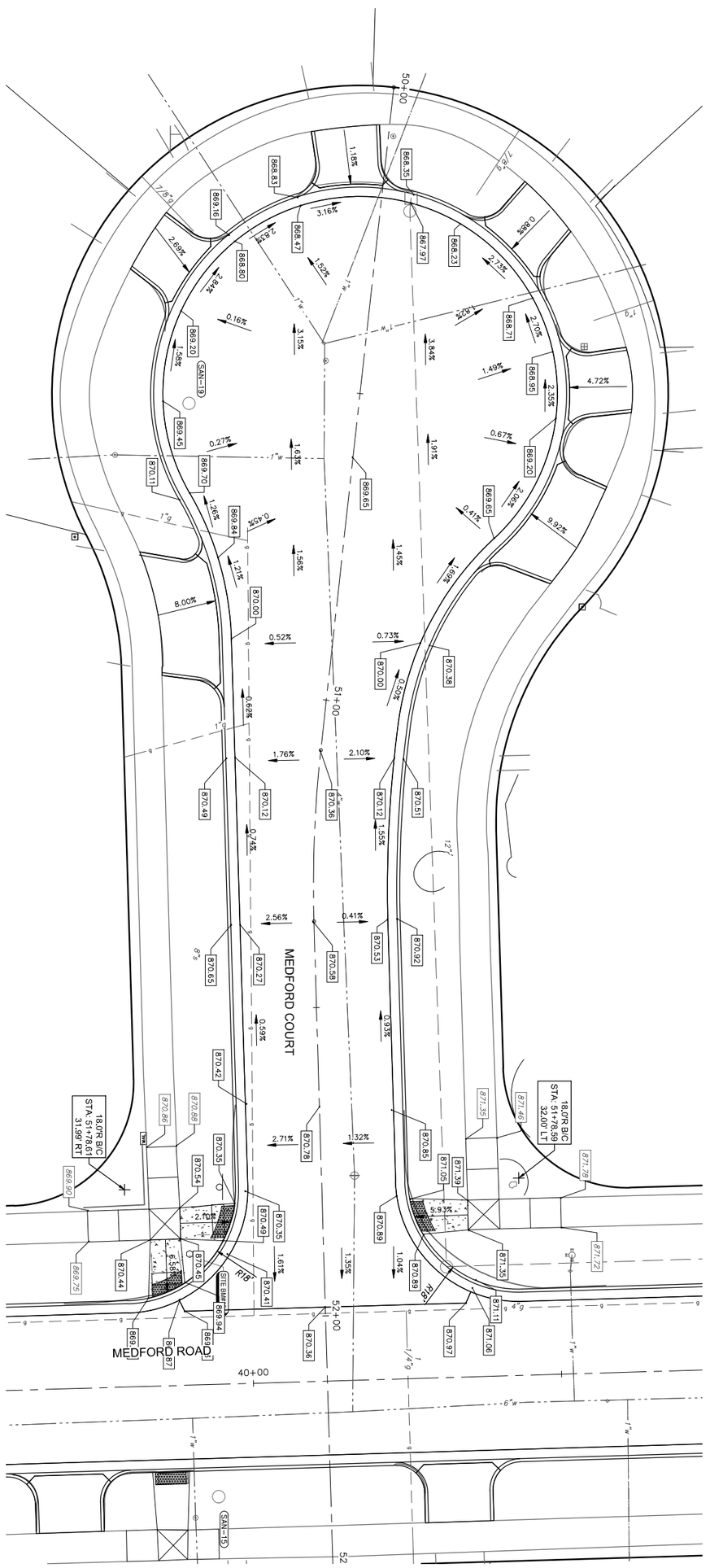
SCALE: #######

DRAWING No.
2023-24-42

SHEET No.
42 OF 51

J:\AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_GRD_MEDFORD.dwg Dwg Created: 6-Mar-24 - _a2 standard bw.stb - Plot Date: 22-Mar-24

DETAIL GRADING - MEDFORD COURT



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE : 1" = 10'

DRAWING No. 2023-24-43

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

DETAIL GRADING - MEDFORD CT

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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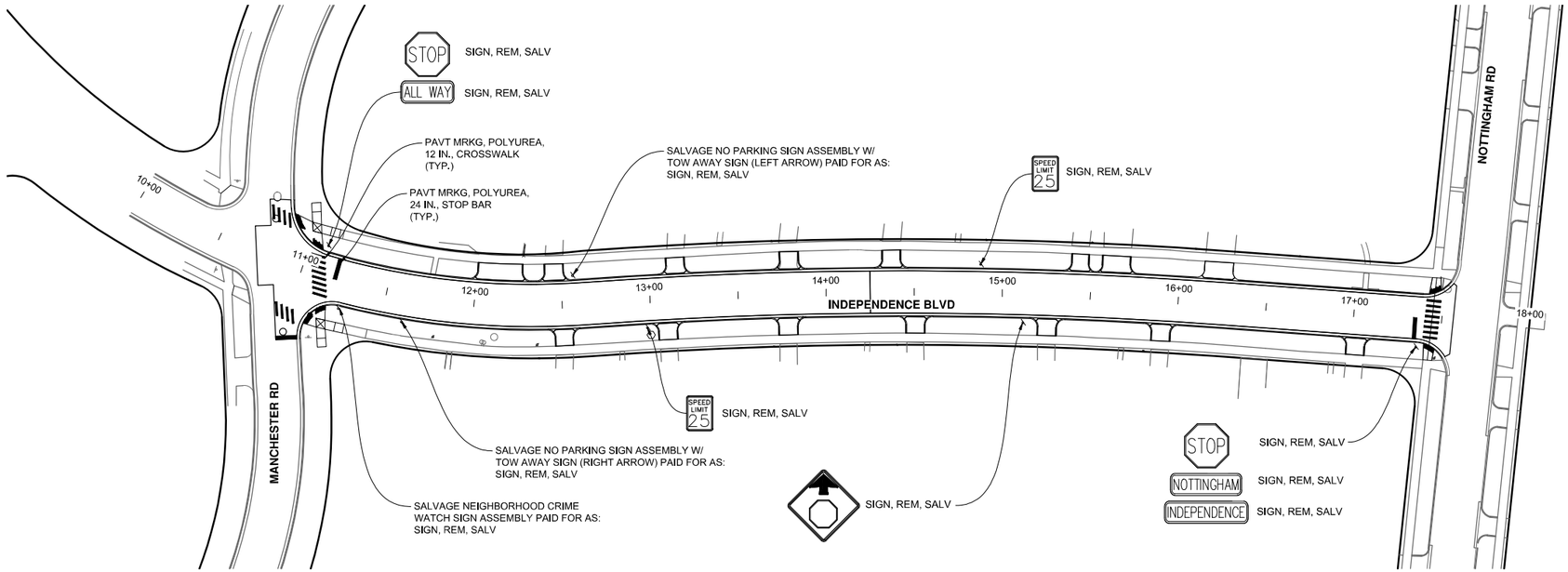
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS



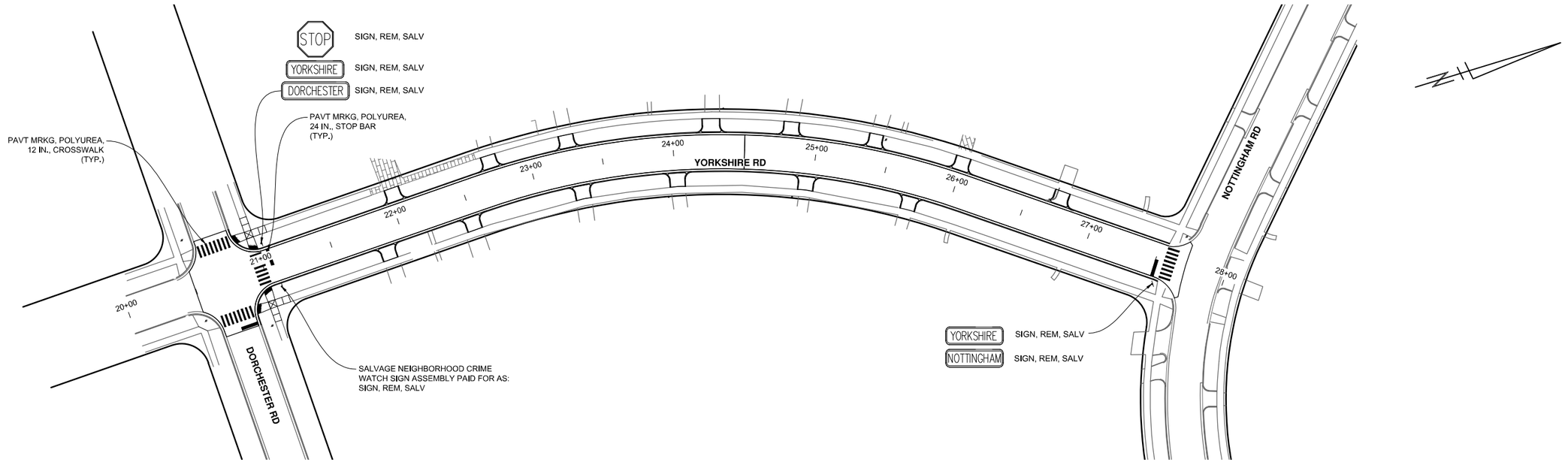
PVEMENT MARKINGS - INDEPENDENCE BLVD

NOTES

1. SALVAGE SIGNS TO BE REINSTALLED BY THE CITY OF ANN ARBOR UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PAVEMENT MARKING QUANTITIES – THIS SHEET

Item	Quantity	Unit
Sign, Rem, Salv	18	Ea
Pavt Mrkg, Polyurea, 12 In., Crosswalk	448	Ft
Pavt Mrkg, Polyurea, 24 In., Stop Bar	72	Ft



PVEMENT MARKINGS - YORKSHIRE ROAD

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
PHONE: 734-794-6410
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

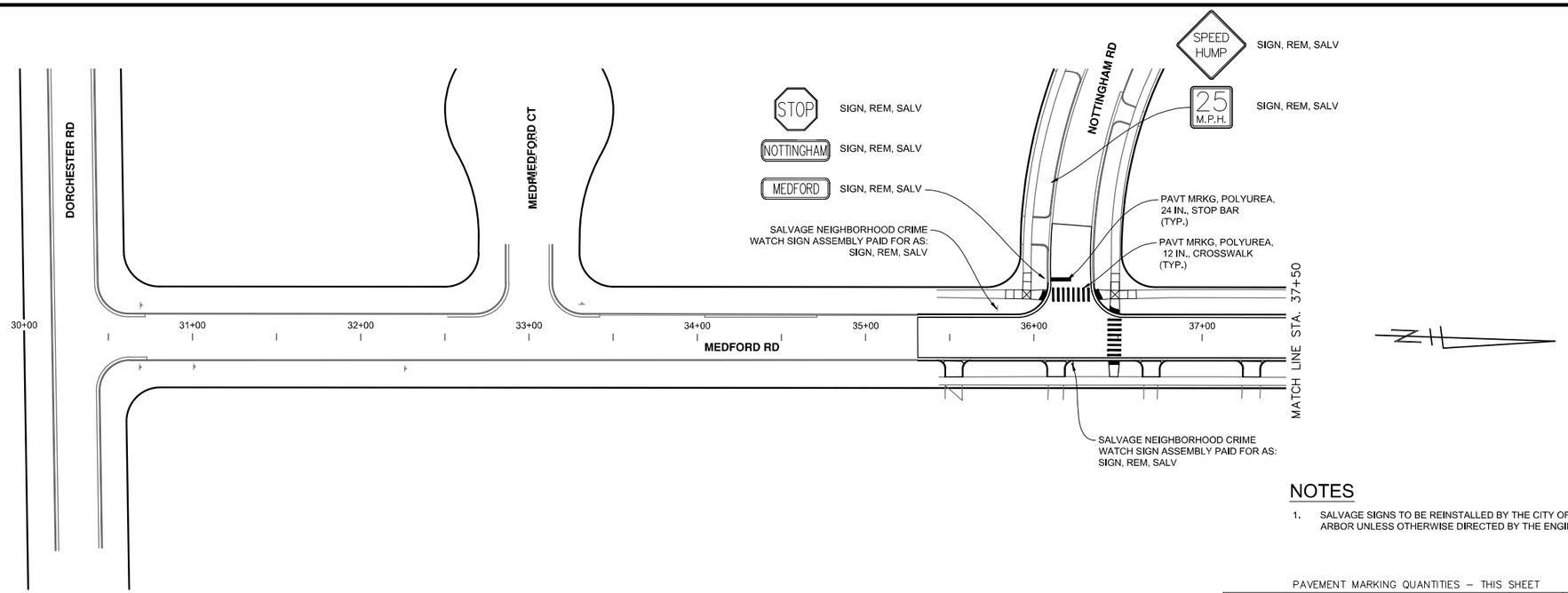
PAVEMENT MARKINGS - 1

SCALE : #######

DRAWING No.
2023-24-44

SHEET No.
44 OF 51

J: \AA \Design \AA23005 — YIM Water Main Replacement \Ann Arbor Cads \Plan Production \AA23005_PSmrk.dwg Dwg Created: 6-Mar-24 — _a2 standard bw.stb — Plot Date: 22-Mar-24



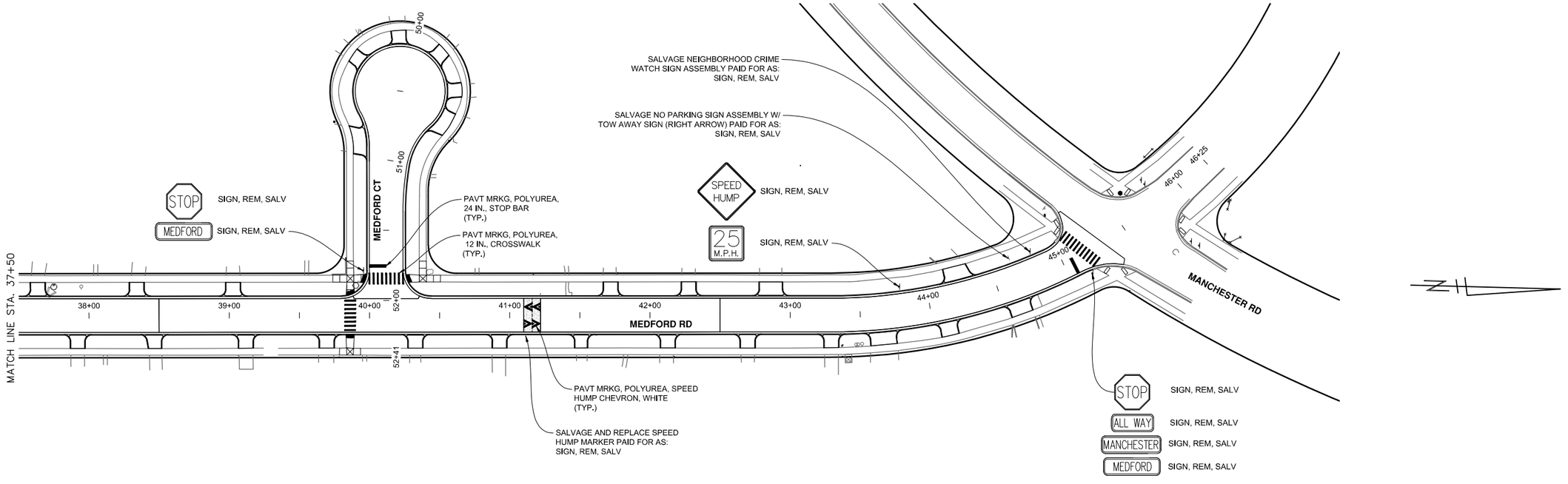
PVEMENT MARKINGS - MEDFORD ROAD

NOTES

1. SALVAGE SIGNS TO BE REINSTALLED BY THE CITY OF ANN ARBOR UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PAVEMENT MARKING QUANTITIES – THIS SHEET

Item	Quantity	Unit
Sign, Rem, Salv	18	Ea
Pavt Mrkg, Polyurea, 12 In., Crosswalk	352	Ft
Pavt Mrkg, Polyurea, 24 In., Stop Bar	36	Ft
Pavt Mrkg, Polyurea, Speed Hump Chevron, White	4	Ea



PVEMENT MARKINGS - MEDFORD ROAD

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

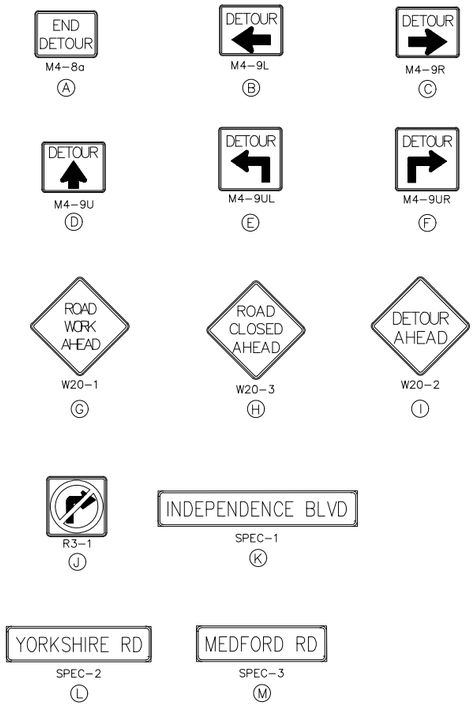
YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

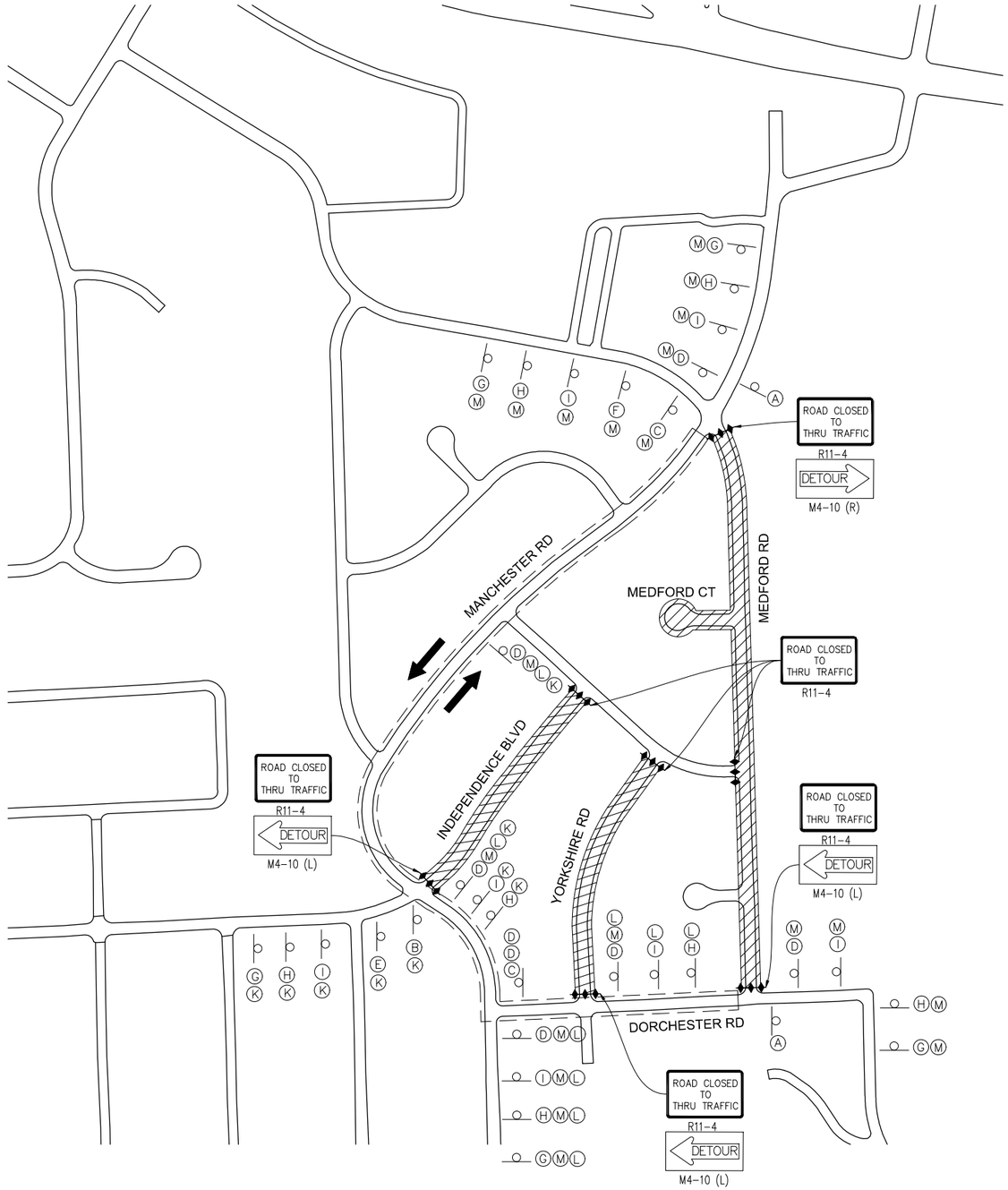
PAVEMENT MARKINGS - 2

SCALE : #######

DRAWING No. 2023-24-45

SHEET No. 45 OF 51





MAINTENANCE OF TRAFFIC QUANTITIES – THIS SHEET

Item	Quantity	Unit
Sign, Type B, Temp, Prismatic, Furn & Oper	339.5	Sft
Sign, Type B, Temp, Prismatic, Special, Furn & Oper	152.0	Sft
Temporary "No Parking" Sign	100	Ea
Plastic Drum, High Intensity, Lighted, Furn & Oper	**100**	**Ea**
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	**21**	**Ea**

SIGN, TYPE B, TEMP, PRISMATIC, FURN & OPER – THIS SHEET

SYMBOL	MMUTCD DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
(A)	M4-8a	END DETOUR	24x18	2
(B)	M4-9L	DETOUR LEFT	24x30	1
(C)	M4-9R	DETOUR RIGHT	24x30	2
(D)	M4-9U	DETOUR UP	24x30	7
(E)	M4-9UL	DETOUR (AHEAD LEFT)	24x30	1
(F)	M4-9UR	DETOUR (AHEAD RIGHT)	24x30	1
(G)	W20-1	ROAD WORK AHEAD	36x36	5
(H)	W20-3	ROAD CLOSED AHEAD	36x36	6
(I)	W20-2	DETOUR AHEAD	36x36	7
(J)	R3-1	NO RIGHT TURN	36x36	0
	R11-4	ROAD CLOSED TO THRU TRAFFIC	60x30	7
	M4-10 (L)	DETOUR LEFT ARROW	48x18	3
	M4-10 (R)	DETOUR RIGHT ARROW	48x18	1

SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, FURN & OPER – THIS SHEET

SYMBOL	MMUTCD DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
(K)	D3-2	INDEPENDENCE BLVD	48x12	9
(L)	D3-2	YORKSHIRE RD	48x12	9
(M)	D3-2	MEDFORD RD	48x12	20

NOTES

1. DETOUR NORTHBOUND AND SOUTHBOUND TRAFFIC FOR INDEPENDENCE BOULEVARD, YORKSHIRE ROAD, AND MEDFORD ROAD.
2. CITY TO COORDINATE WITH SCHOOL DISTRICT TRANSIT COMPANIES FOR DETOUR OF SCHOOL BUS ROUTE FROM MEDFORD ROAD.
3. CONTRACTOR TO COORDINATE ADDITIONAL TEMPORARY LANE CLOSURES DURING WATER MAIN CONNECTIONS AT INTERSECTIONS ALONG MANCHESTER ROAD, DORCHESTER ROAD, AND NOTTINGHAM ROAD.
4. LEAD-IN PLACED AT 100' SPACING.
5. ADJUST ALL SIGNS AS NECESSARY TO FIT FIELD CONDITIONS.

LEGEND

TYPE III BARRICADE (3 EA)

SIGN

WORK ZONE

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD WATER MAIN REPLACEMENT PROJECT

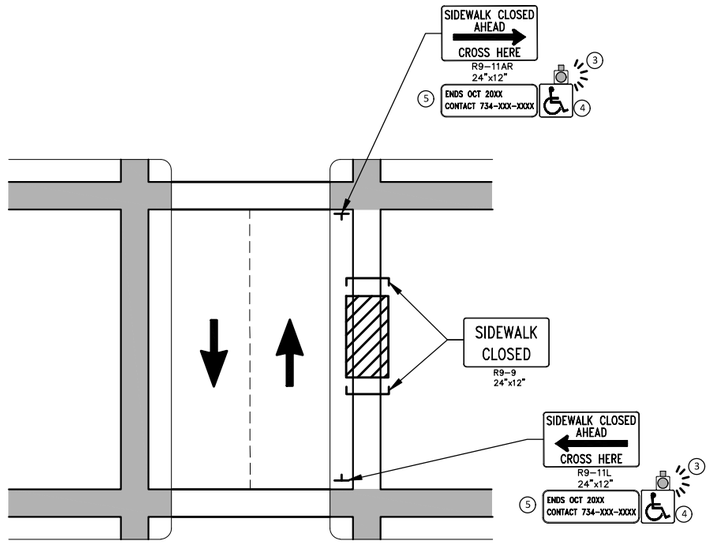
DETOUR PLAN

SCALE PLAN: 1" = 175'

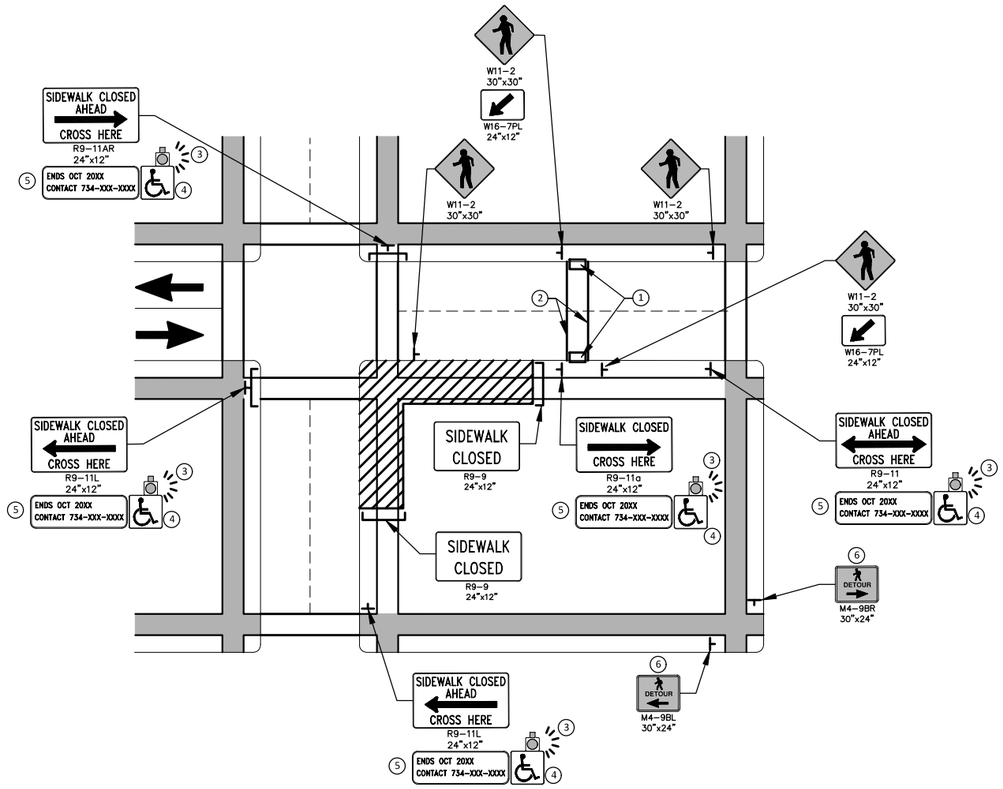
DRAWING No. 2023-24-46

SHEET No. 46 OF 51

J:\AA\Design\AA23005 – YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_Dtr.dwg Dwg Created: 21-Mar-24 – _a2 standard bw.stb – Plot Date: 22-Mar-24



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.

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
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

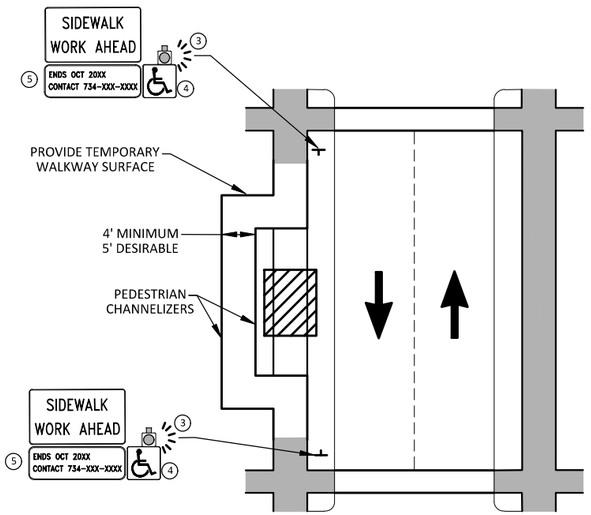
ALTERNATE PEDESTRIAN ROUTE (APR) DETOUR

SCALE : NTS

DRAWING No.
2023-24-47

SHEET No.
47 OF 51

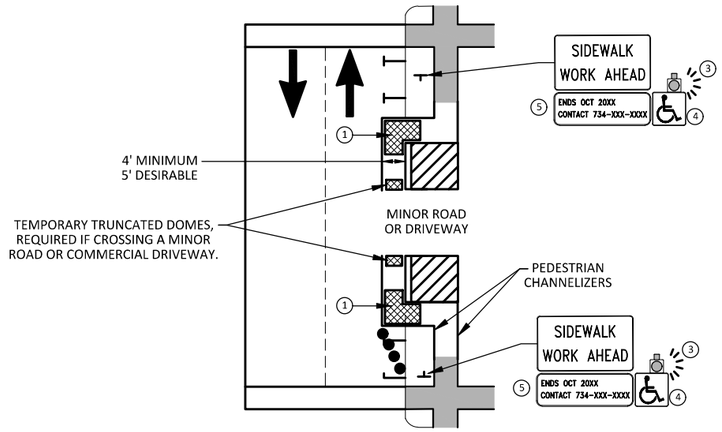
J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_APR_TPAR.dwg - _a2 standard bw.stb - Plot Date: 3/22/2024 1:55:12 PM



BYPASS ON ADJACENT AVAILABLE
RIGHT OF WAY

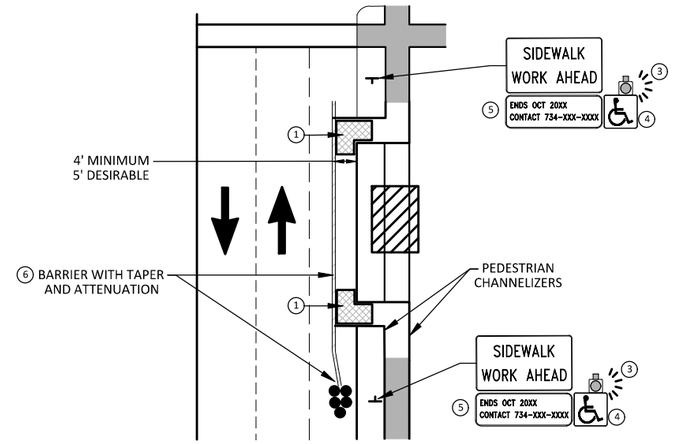
BYPASS TYPE A

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

Know what's below. Call before you dig.

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3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

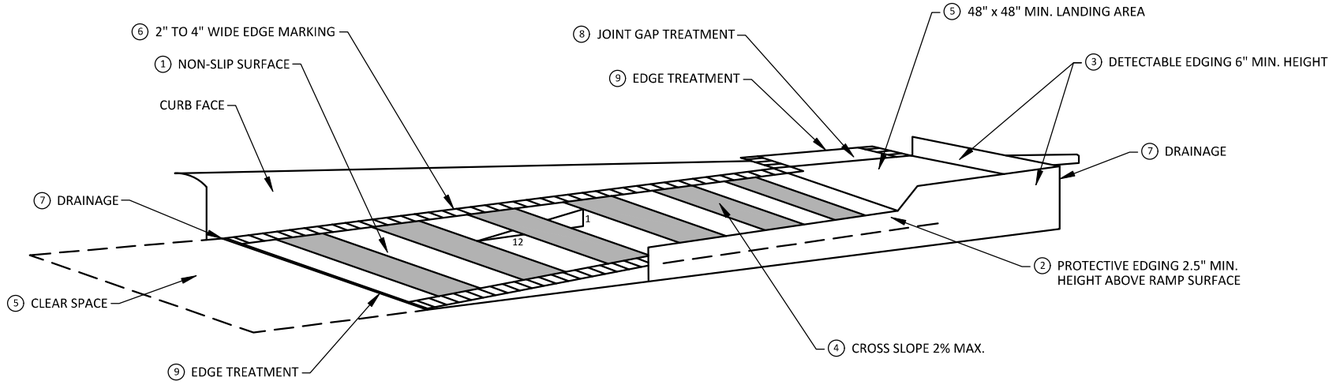
ALTERNATE PEDESTRIAN ROUTE (APR) BYPASS

SCALE : NTS

DRAWING No.
2023-24-48

SHEET No.
48 OF 51

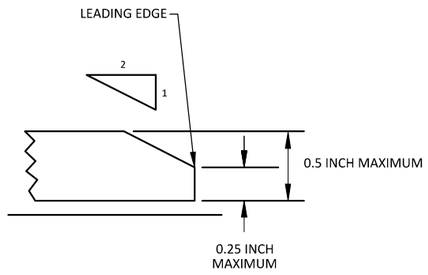
J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_APR_TPAIR.dwg - _02 standard bw.stb - Plot Date: 3/22/2024 1:55:17 PM



TEMPORARY CURB RAMP
PARALLEL TO CURB

SPECIFIC NOTES

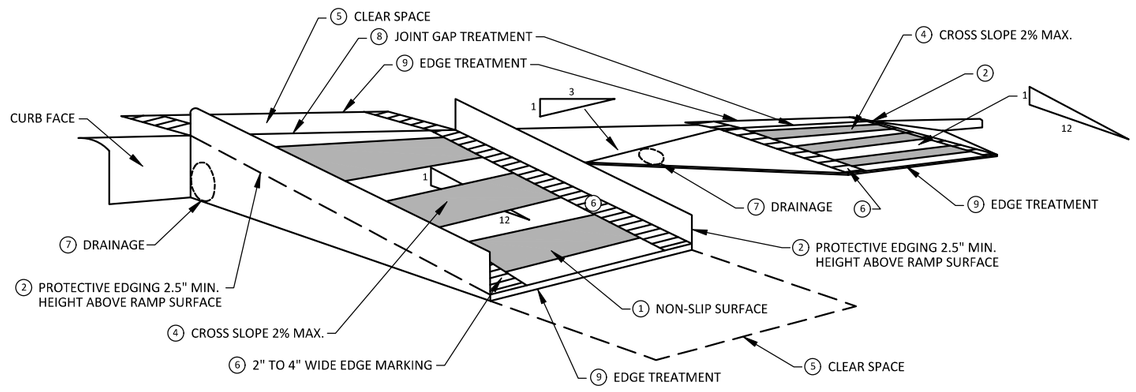
1. CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.
2. PROTECTIVE EDGING WITH A 2.5" MIN. HEIGHT ABOVE THE RAMP SHALL BE PLACED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3. PROTECTIVE EDGING SHOULD 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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
3	ADDENDUM NO. 1	3/22/2024	JJ/RD	AL/DD
2	FINAL PLAN SUBMITTAL	3/7/2024	JJ/RD/SA	AL/JS
1	30% SUBMITTAL	10/16/2023	JJ/AC	AL/JS

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

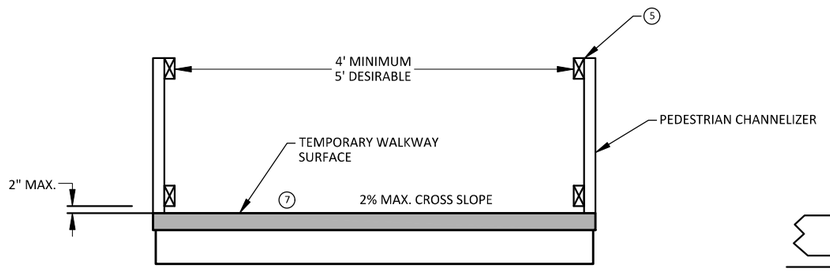
TPAR RAMPS

SCALE : NTS

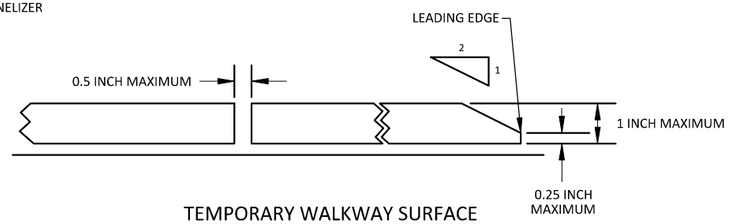
DRAWING No.
2023-24-49

SHEET No.
49 OF 51

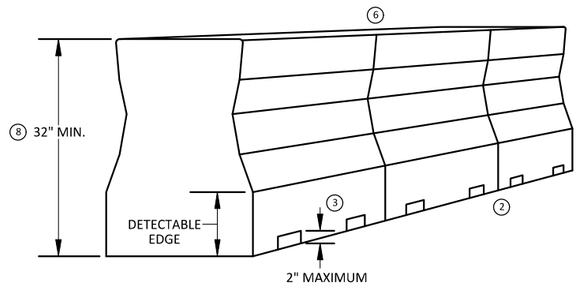
J: \AA \Design \AA23005 – YIM Water Main Replacement \Ann Arbor Cads \Plan Production \AA23005_APR_TPAR.dwg – _a2 standard bw.stb – Plot Date: 3/22/2024 1:55:22 PM



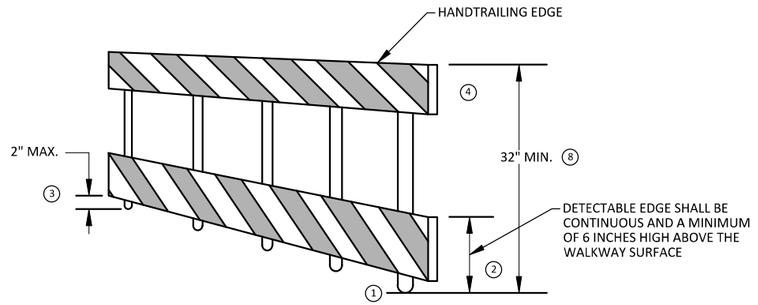
TEMPORARY PEDESTRIAN ACCESS



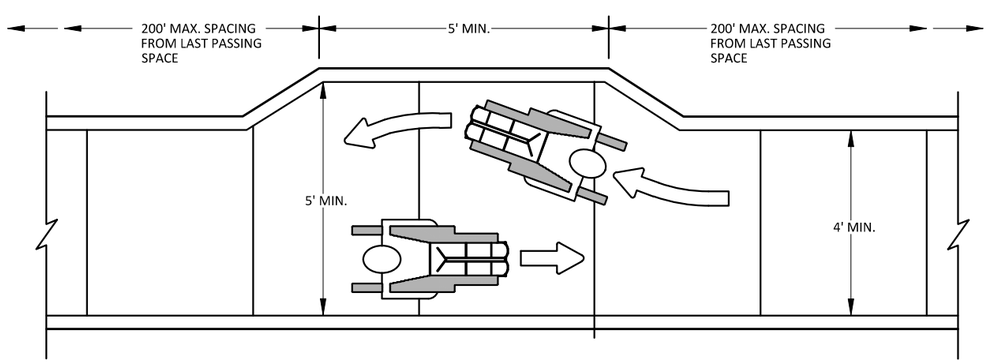
TEMPORARY WALKWAY SURFACE



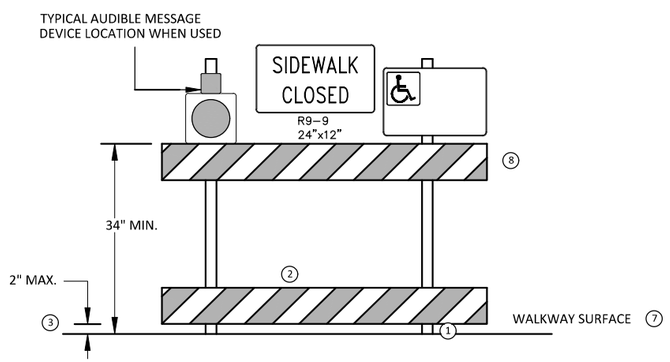
PEDESTRIAN CHANNELIZER USING A BARRIER (MINIMUM REQUIREMENTS)



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.

   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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YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

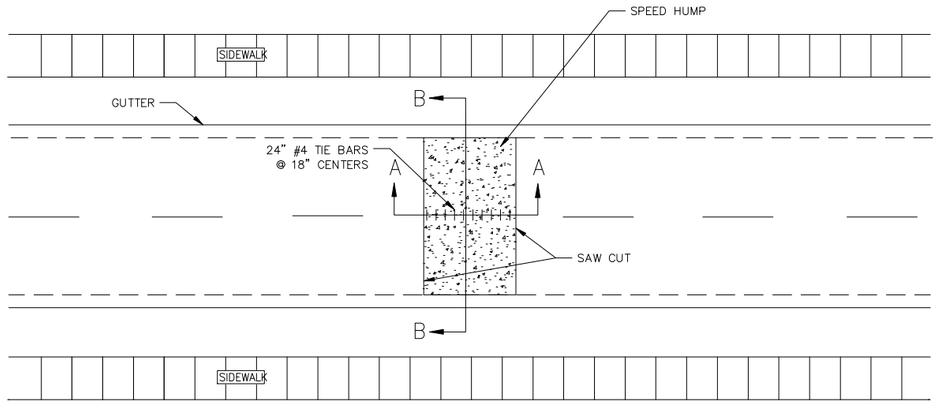
TPAR WALKWAY DEVICES

SCALE : NTS

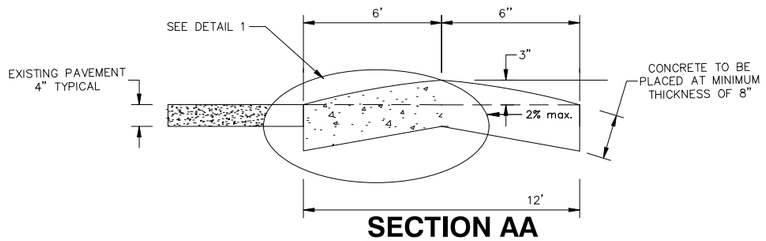
DRAWING No.
2023-24-50

SHEET No.
50 OF 51

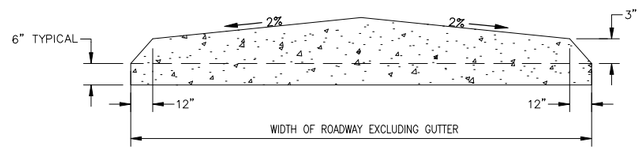
J:\AA\Design\AA23005 - YM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_APR_TPAR.dwg - _a2 standard bw.stb - Plot Date: 3/22/2024 1:55:27 PM



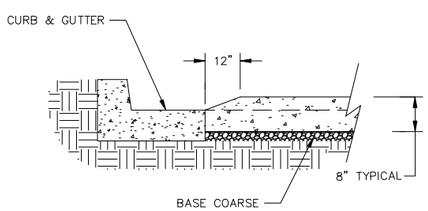
PLAN VIEW



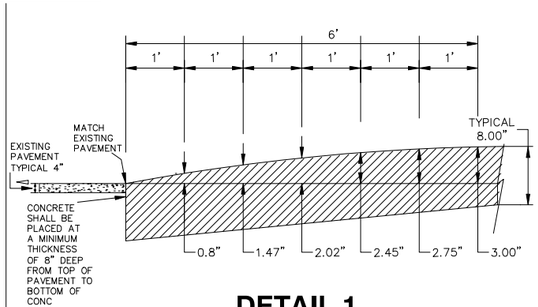
SECTION AA



SECTION BB



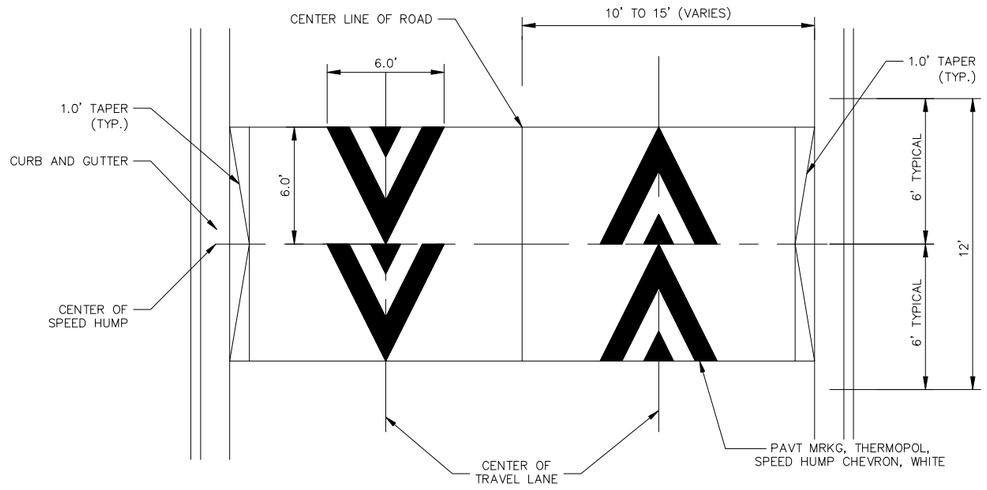
CURB DETAIL



DETAIL 1

CONCRETE SPEED HUMP DETAIL

SCALE: NOT TO SCALE



PAVEMENT MARKING DETAIL

SCALE: NOT TO SCALE

J: \AA\Design\AA23005 - YIM Water Main Replacement\Ann Arbor Cads\Plan Production\AA23005_DET.dwg - _a2 standard bw.stb - Plot Date: 3/22/2024 1:55:39 PM

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YORKSHIRE, INDEPENDENCE, & MEDFORD
WATER MAIN REPLACEMENT PROJECT

DETAIL SHEET - CONCRETE SPEED HUMP

SCALE: NTS

DRAWING No.
2023-24-51

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