CITY OF ANN ARBOR
ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT

RFQ No. 26-07, File No. 2025-2026

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 2025 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, ITS DETAILS, WHICH ARE INCLUDED BY REFERENCE, THE 2020 EDITION OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD), AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.

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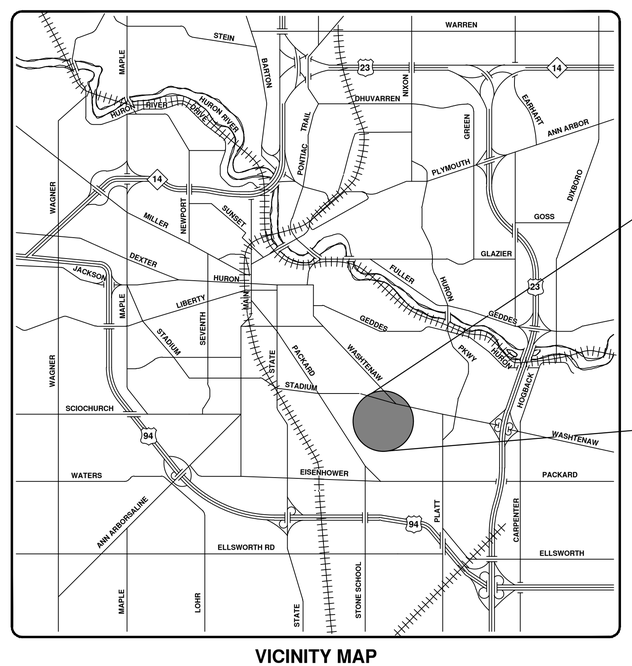
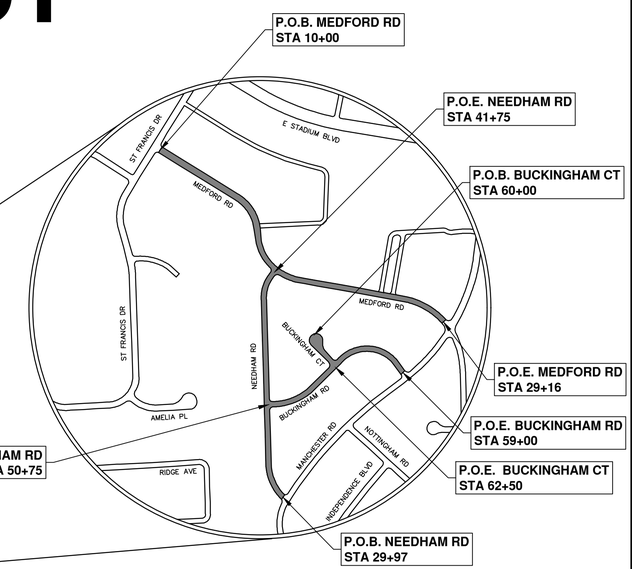


VICINITY MAP

NORTH



PREPARED UNDER THE SUPERVISION OF

STATE OF MICHIGAN ALAN P. LOEBACH License No. 6201043167 LICENSED PROFESSIONAL ENGINEER

01/ 09/ 2026

ALAN LOEBACH, P.E.
PROJECT MANAGER

DATE

CITY APPROVAL

STATE OF MICHIGAN JEREMY J. SCHROT License No. 6201059414 LICENSED PROFESSIONAL ENGINEER

01/ 09 / 2026

JEREMY SCHROT, P.E.
PROJECT MANAGER

DATE

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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

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

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

WATER MAIN REPLACEMENT AND ROADWAY RESURFACING
ON MEDFORD RD, NEEDHAM RD, BUCKINGHAM RD, AND BUCKINGHAM CT

SCALE

DRAWING No.
2025-2026-1

SHEET No.
1 OF 64

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.

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.

****
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.
- WawobB – WAWASEE LOAM, 2 TO 6 PERCENT SLOPES.

****

TOTAL AREA OF PROPOSED DISTURBANCE = 4.54 AC

1.29 AC – NEEDHAM RD

2.13 AC – MEDFORD RD

0.89 AC – BUCKINGHAM RD

0.23 AC – BUCKINGHAM CT

MISCELLANEOUS OR AS-NEEDED QUANTITIES

Item	Quantity	Unit
General Conditions, Max. $200,000.00	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	35	Ea
Erosion Control, Silt Fence	500	Ft
Tree Protection Fence	300	Ft
Minor Traffic Control, Max $90,000.00	1	LS
Traffic Regulator Control	1	LS
Sign, Type B, Temp, Prismatic, Furn & Oper	248	Sft
Sign, Type B, Temp, Prismatic, Special, Furn & Oper	244	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	25	Ea
Pedestrian Type II Barricade, Temp, Furn & Oper	20	Ea
Pedestrian Channelizer Device, Furn & Oper	20	Ea
Temporary Pedestrian Ramp, Furn & Oper	4	Ea
Temporary Pedestrian Mat, Furn & Oper	100	Ft
DS_Tree Trimming Allowance	10000	Dlr
Curb, Gutter, and Curb and Gutter, Any Type, Rem	100	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	500	Sft
Subgrade Undercutting, Type III	275	Cyd
Exploratory Excavation, SD-TD-1, (0-10' Deep)	25	Ea
Exploratory Excavation, SD-TD-1, Additional Depth	125	Ft
6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	300	Ft
Excavate & Backfill For Water Service Tap And Lead	50	Ft
DS_4 In. 45° DIP Bend	4	Ea
6 In. 45° DIP Bend	12	Ea
8 In. 45° DIP Bend	12	Ea
Sacrificial Anode, 17-pound	2	Ea
Sacrificial Anode, 32-pound	3	Ea
Temporary Water Main Line Stop, 8 In. or less	2	Ea
Temporary Water Main Line Stop, 12 In.	2	Ea
Temporary Water Main Line Stop, Additional Rental Day	30	Ea
Conc, Curb or Curb & Gutter, All Types	100	Ft
Conc, Sidewalk, 4 In.	500	Sft
Underground Sprinkling System, Restore	5000	Dlr

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-5	TAPPING SLEEVE AND VALVE IN WELL
SD-W-7	POLYETHYLENE ENCASEMENT
SD-ST-3	PRECAST 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-M-1	TREE PROTECTION
SD-TD-1	UTILITY TRENCH - TYPE 1
SD-TD-3.1	UTILITY TRENCH SURFACE RESTORATION
SD-TD-4	TYPICAL EDGE DRAIN TRENCH
SD-TPR-1	DETOUR 1
SD-TPR-2	DETOUR 2
SD-TPR-3	BYPASS A
SD-TPR-4	BYPASS B
SD-TPR-5	BYPASS C
SD-TPR-6	TEMPORARY RAMPS
SD-TPR-7	WALKWAY DEVICES 1
SD-TPR-8	WALKWAY DEVICES 2

MDOT STANDARDS USED

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

BENCHMARK DESCRIPTIONS

DATUM: GPS-DERIVED NAVD'88

BENCHMARK#: 100
DESCRIPTION: ARROW ON A FIRE HYDRANT. LOCATED ON THE SOUTH SIDE OF MEDFORD ROAD ±130FT SOUTHEAST OF THE CENTERLINE OF SAINT FRANCIS DRIVE.
COORDINATES: N= 277290 E= 13299404 ELEV= 874.439

BENCHMARK#: 101
DESCRIPTION: SET BENCHTIE IN THE WEST FACE OF A UTILITY POLE. LOCATED ON THE EAST SIDE OF MEDFORD ROAD ±15FT NORTH OF THE CENTERLINE OF THE WEST ENTRANCE TO ANN ARBOR WOODS BUILDING #2101.
COORDINATES: N= 276931 E= 13299860 ELEV= 876.606

BENCHMARK#: 102
DESCRIPTION: SET BENCHTIE IN THE NORTH FACE OF A LIGHT POLE. LOCATED ON THE SOUTH SIDE OF MEDFORD ROAD IN FRONT OF BUILDING #2120.
COORDINATES: N= 276638 E= 13300191 ELEV= 865.414

BENCHMARK#: 103
DESCRIPTION: SET BENCHTIE IN THE NORTHEAST FACE OF A LIGHT POLE. LOCATED ON THE SOUTH SIDE OF MEDFORD ROAD IN FRONT OF BUILDING #2180.
COORDINATES: N= 276570 E= 13300582 ELEV= 856.892

BENCHMARK#: 110
DESCRIPTION: SET BENCHTIE IN THE NORTHWEST FACE OF A LIGHT POLE. LOCATED ON THE EAST SIDE OF MANCHESTER ROAD IN FRONT OF HOUSE #2301.
COORDINATES: N= 275540 E= 13300018 ELEV= 868.146

BENCHMARK#: 111
DESCRIPTION: SET BENCHTIE IN THE WEST FACE OF A LIGHT POLE. LOCATED ON THE EAST SIDE OF NEEDHAM ROAD IN FRONT OF HOUSE #2229.
COORDINATES: N= 275805 E= 13299916 ELEV= 864.272

BENCHMARK#: 112
DESCRIPTION: SET BENCHTIE IN THE WEST FACE OF A LIGHT POLE. LOCATED ON THE EAST SIDE OF NEEDHAM ROAD BETWEEN HOUSE #2119 AND #2125.
COORDINATES: N= 276344 E= 13299899 ELEV= 867.382

BENCHMARK#: 113
DESCRIPTION: SET BENCHTIE IN THE EAST FACE OF A LIGHT POLE. LOCATED AT THE SOUTHEAST CORNER OF MEDFORD ROAD AND NEEDHAM ROAD.
COORDINATES: N= 276705 E= 13299943 ELEV= 872.970

BENCHMARK#: 114
DESCRIPTION: SET BENCHTIE IN THE SOUTH FACE OF A LIGHT POLE. LOCATED AT THE NORTHWEST CORNER OF BUCKINGHAM ROAD AND BUCKINGHAM COURT.
COORDINATES: N= 276237 E= 13300210 ELEV= 865.607

BENCHMARK#: 115
DESCRIPTION: SET BENCHTIE IN THE SOUTH FACE OF A LIGHT POLE. LOCATED AT THE NORTHEAST CORNER OF MANCHESTER ROAD AND BUCKINGHAM ROAD.
COORDINATES: N= 276207 E= 13300619 ELEV= 873.492

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 FORESTRY	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350
SIGNS SIGNALS STREET LIGHTS		MARK MORENO (734) 794-6361
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

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
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301 EAST HURON STREET
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ANN ARBOR, MI 48107-8647
734-994-2944
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

NOTE SHEET

SCALE : NTS

DRAWING No. 2025-2026-2

EXISTING LEGEND

- MANHOLE
- CATCH BASIN
- C.O. SEWER CLEAN OUT
- GAS METER
- GAS SHUT OFF VALVE
- VALVE BOX
- GATE VALVE & WELL
- WATER SHUT OFF VALVE
- FIRE HYDRANT
- SB SPRINKLER VALVE BOX
- LAWN SPRINKLER HEAD
- UNVERIFIED MAPPED OBJECT
- E ELECTRIC RISER OR METER
- T TELEPHONE RISER
- C CABLE TV RISER
- AC AIR CONDITION UNIT
- UTILITY POLE
- UTILITY POLE W/ LAMP EXTENSION (ARROW INDICATES DIRECTION OF ARM)
- LIGHT POLE
- LIGHT POLE WITH LAMP EXTENSION
- TRAFFIC SIGNAL
- POLE W/ TRAFFIC SIGNAL (OVER ROAD)
- GUY WIRE
- GROUND LEVEL / DECORATIVE LIGHTING
- FLAG POLE
- METAL OR CONC. POST
- MAILBOX
- SIGN
- WATER FOUNTAIN
- PARKING METER
- BILLBOARD OR LARGE SIGN
- BASKETBALL HOOP
- BOULDER
- STATUE OR SCULPTURE
- BENCH — BENCH
- BIKE RACK — BIKE RACK
- DETECTABLE WARNING STRIP
- PICNIC TABLE
- SOCCER GOAL — SOCCER GOAL
- STUMP
- DS-S DOWNSPOUT INTO STORM DRAIN
- DS-G DOWNSPOUT TO GROUND
- CONIFEROUS TREE
- DECIDUOUS TREE
- DECIDUOUS SHRUB
- CONIFEROUS SHRUB
- SECTION CORNER
- SDA#10 TRAVERSE POINT
- 1 STRUCTURE NUMBER
- 10 SDA POINT No.
- +655.00 SPOT ELEVATION

TC	TOP OF CURB ELEVATION
GU	GUTTER ELEVATION
TP	TOP OF PAVEMENT ELEVATION
EM	EDGE OF METAL ELEVATION
TW	TOP OF WALK ELEVATION
T/WALL	TOP OF WALL ELEVATION
B/WALL	BOTTOM OF WALL ELEVATION
GR	GROUND ELEVATION
UG	UNDERGROUND
FO	FIBER OPTIC
CONC	CONCRETE
ASPH	ASPHALT
OVHG	OVERHANG
FF	FINISH FLOOR ELEVATION
DL	DOOR LEDGE ELEVATION
F.I.	FOUND IRON
F.I.P.	FOUND IRON PIPE
MON	FOUND MONUMENT
F.P.K.	FOUND P.K. NAIL
S.I.	SET IRON W/SDA CAP
S.P.K.	SET P.K. NAIL
S.P.K./TAG	SET P.K. NAIL W/SDA TAG
MAG/TAG	SET MAGNETIC NAIL W/SDA TAG
M	MEASURED
R	RECORD
C	CALCULATED
INV.	INVERT ELEVATION
CMP	CORRUGATED METAL PIPE

- G — GAS
- SN — SANITARY SEWER (SAN)
- ST — STORM SEWER (STM)
- WM — WATERMAIN (WM)
- OH — OVERHEAD WIRE
- CS — COMBINED SEWER
- STE — STEAM LINE
- O — OIL LINE
- F — UG FIBER (COMM.)
- E — UG ELECTRIC (ELEC.)
- T — UG PHONE (PH)
- C — UG CABLE (CBL)
- CHAIN LINK FENCE (CL)
- WOOD FENCE
- WOVEN WIRE FENCE (WW)
- GUARD RAIL
- EDGE OF BRUSH/WOODS
- CENTERLINE OF DITCH
- CULVERT
- 650 — MAJOR CONTOUR
- 651 — MINOR CONTOUR
- BOUNDARY LINES
- ROW LINES
- SECTION LINES
- PROPERTY LINES
- BUILDING
- ASPHALT
- CONCRETE
- GRAVEL/ DIRT/ MULCH
- BRICK / PAVERS
- WATER
- WATER W/ VEGETATION

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
- GUY ANCHOR
- GUY POLE
- MONITORING WELL
- MAILBOX
- SOIL BORING
- TRAVERSE POINT
- BENCH MARK
- IRON PIPE
- MON BOX

- W — WATER MAIN
- WATER MAIN ABANDONED
- ST — STORM SEWER
- STORM SEWER ABANDONED
- SN — SANITARY SEWER
- SANITARY SEWER ABANDONED
- g — GAS MAIN
- g (Dead) — GAS MAIN (DEAD)
- ELECTRICAL OVER HEAD
- ELECTRICAL UNDER GROUND
- e duct bank — ELECTRICAL DUCT BANK
- oht — TELEPHONE OVER HEAD
- t — TELEPHONE UNDER GROUND
- t duct bank — TELEPHONE DUCT BANK
- ohtv — CABLE TV OVER HEAD
- tv — CABLE TV UNDER GROUND
- fo — FIBER OPTIC
- fo duct bank — FIBER OPTIC DUCT BANK
- BOUNDARY
- BUILDING
- CENTERLINE OF DITCH
- CENTERLINE/CROWN OF ROAD
- 800 — CONTOUR MAJOR
- 799 — 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
- C.R.Z. — TREE TO REMAIN & PROTECT (DECIDUOUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10
- C.R.Z. — 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

- W — WATER MAIN
- R — STORM SEWER
- S — SANITARY SEWER
- FO — FIBER OPTIC
- E — ELECTRICAL
- CENTERLINE OF DITCH
- CENTERLINE OF ROAD
- FENCE
- GRAVEL
- SILT FENCE
- PROTECTIVE FENCE
- GUARDRAIL
- LOT/UNIT
- CURB
- TEMPORARY GRADING PERMIT
- 800 — CONTOUR MAJOR
- 799 — 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

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT

LEGEND SHEET

SCALE : NTS

DRAWING No. 2025-2026-3

SANITARY SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	SIZE, DIRECTION & INVERT ELEVATION
SAN-01	4' MH	875.38	8" SE 867.37 8" SW 867.77
SAN-02	4' MH	872.41	8" NW 865.61 8" SE 865.51 8" SW 866.01
SAN-03	4' MH	870.67	8" SW 863.57 8" NW 863.47 8" E 863.27
SAN-04	4' MH	870.07	8" W 860.08
SAN-05	4' MH	858.42	N.S.
SAN-06	4' MH	854.37	8" E 846.48 8" S 856.58 10" N 846.43
SAN-07	4' MH	855.97	8" E 848.77 8" W 848.77
SAN-08	4' MH	859.70	8" W 850.69 8" NE 850.79 8" SW 850.79
SAN-09	4' MH	865.69	8" SW 856.59 8" SE 856.59 8" NE 856.49
SAN-10	4' MH	868.43	8" SW 858.28 8" NE 858.38 6" NW 858.98 6" SE 858.98
SAN-11	4' MH	870.10	8" NE 860.05 6" NW 860.56 6" SE 860.46
SAN-12	4' MH	866.97	8" NE 856.75 8" S 856.50
SAN-13	4' MH	869.95	8" N 861.25 8" SE 861.30
SAN-14	4' MH	867.11	8" S 856.51 8" N 856.46
SAN-15	4' MH	862.72	8" S 851.12 8" N 850.82
SAN-16	4' MH	858.29	8" S 844.49 8" N 844.39 8" E 844.19
SAN-17	4' MH	857.44	8" N 844.84 8" S 844.64 8" W 846.74
SAN-18	4' MH	858.17	8" N 846.67 8" S 846.57
SAN-19	4' MH	872.82	8" S 862.37 4" NW 863.02
SAN-20	4' MH	877.38	8" N 867.93 6" W 868.33 6" E 868.33

* N.S. = NOT SURVEYED

SANITARY SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	SIZE, DIRECTION & INVERT ELEVATION
SAN-21	4' MH	876.39	8" N 866.54 8" S 867.93 6" W 867.29 6" E 867.29
SAN-22	4' MH	872.72	8" S 865.08 8" NE 865.08 6" NW 865.73 6" SE 865.73
SAN-23	4' MH	856.91	8" W 843.21 8" E 843.11
SAN-24	4' MH	855.52	8" W 841.96 8" NE 841.46
SAN-25	4' MH	856.66	8" NE 846.56 8" SW 840.86 8" SE 840.76 8" NE 841.26
SAN-26	4' MH	861.05	8" SW 851.35
SAN-27	4' MH	864.33	8" NE 855.43 8" NW 855.84 4" SE 856.04 4" SW 856.04
SAN-28	4' MH	868.74	8" SE 858.64 8" NW 859.44
SAN-29	4' MH	865.50	8" SW 855.29 8" NE 855.19 6" NW 855.89 6" SE 858.79
SAN-30	4' MH	866.85	8" SW 854.85 8" E 854.75
SAN-31	4' MH	868.10	8" W 854.51 8" N 854.20 6" SE 854.73

EXISTING STORM SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	SIZE, DIRECTION & INVERT ELEVATION
STM-1	4' Inlet Junction	875.72	15" NE 872.90
STM-2	4' MH	874.79	N.S. (FROM RECORD)
STM-3	4' Inlet Junction	868.85	12" NE 865.35
STM-4	4' Inlet Junction	868.88	12" S 865.50
STM-5	4' MH	869.37	15" W 861.57 12" N 864.07 12" SW 862.97 18" SE 861.77
STM-6	4' MH	867.50	18" NW 660.50 18" SE 860.70 18" N 860.50
STM-7	4' MH	866.18	12" NE 861.18 12" SW 861.28 18" NW 861.18 10" SE 861.18
STM-8	4' Inlet Junction	865.19	12" SW 862.23
STM-9	4' Inlet Junction	866.23	12" NE 862.75
STM-10	4' MH	865.33	12" SE 862.51 12" NW 862.72
STM-11	4' Inlet Junction	873.53	N.S. (FULL OF DEBRIS)
STM-12	4' Inlet Junction	870.54	12" NE 866.54 12" SE 866.44
STM-13	4' Inlet Junction	870.68	12" SW 866.75
STM-14	4' MH	870.73	12" S 866.43 12" NW 866.33 12" SE 865.93
STM-15	4' Inlet Junction	870.60	12" SE 866.48 12" N 866.43
STM-16	4' Inlet Junction	870.91	12" NW 866.71
STM-17	4' MH	870.60	12" NW 863.49 12" E 863.49
STM-18	4' MH	869.33	12" W 861.63 12" E 861.53
STM-19	4' MH	861.43	12" W 854.00 12" N 854.47 12" E 854.00
STM-20	4' Inlet Junction	860.54	12" N 854.44 12" S 854.44
STM-21	4' Inlet Junction	860.48	12" S 854.58
STM-22	4' MH	853.88	12" E 849.65 12" W 849.50 12" N 849.18
STM-23	4' Inlet Junction	853.08	12" N 849.81 12" W 849.72
STM-24	Double Inlet	853.56	12" S 850.05
STM-25	4' MH	865.69	12" S 859.54 12" NE 858.49 12" SE 858.54
STM-26	4' Inlet Junction	865.68	12" S 859.77 12" N 859.67
STM-27	4' Inlet Junction	865.34	12" N 860.24
STM-28	4' Inlet Junction	865.48	12" SW 862.08
STM-29	4' Inlet Junction	865.53	12" NE 861.98 12" S 860.08
STM-30	4' MH	866.18	12" NW 858.93 12" N 860.03 12" SE 858.98
STM-31	4' Inlet Junction	868.97	12" NW 863.91 6" SE 866.56
STM-32	4' Inlet Junction	868.66	12" SE 862.65 12" NW 862.60
STM-33	4' MH	868.74	12" SE 862.49 12" NE 862.39
STM-34	4' MH	867.68	12" NW 861.52 12" SW 860.62 12" NE 860.57
STM-35	4' Inlet Junction	867.60	12" NE 862.20 12" SE 862.15
STM-36	4' Inlet Junction	867.94	12" SW 862.79
STM-37	4' Inlet Junction	861.92	12" W 855.62 12" E 855.62

* N.S. = NOT SURVEYED

EXISTING STORM SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE TYPE	RIM ELEV.	SIZE, DIRECTION & INVERT ELEVATION
STM-38	4' MH	862.55	12" W 854.85 12" N 853.95
STM-39	4' Inlet Junction	861.77	12" E 856.57
STM-40	4' Inlet Junction	857.59	12" E 852.89
STM-41	4' Inlet Junction	857.75	12" W 852.55 12" N 852.35
STM-42	4' MH	857.11	12" S 848.11 12" S 848.51 12" N 848.21 12" W 847.81
STM-43	4' MH	856.37	12" W 850.77 12" N 849.67 12" S 849.62
STM-44	4' Inlet Junction	856.08	12" W 850.96 12" E 850.91
STM-45	4' Inlet Junction	855.92	12" E 851.82
STM-46	4' MH	862.89	12" W 856.31 12" S 855.36
STM-47	4' Inlet Junction	861.85	12" W 856.52 12" E 856.52
STM-48	4' Inlet Junction	862.05	12" E 857.65
STM-49	4' MH	856.59	N.S.
STM-50	4' MH	855.47	N.S.
STM-51	4' Inlet Junction	854.65	30" NE 850.36 12" SE 850.51
STM-52	4' Inlet Junction	854.84	12" NW 850.64
STM-53	4' MH	856.17	30" SW 844.35 30" SE 844.15
STM-54	4' Inlet Junction	864.08	12" NE 858.88
STM-55	4' Inlet Junction	864.13	12" SW 859.13 12" E 858.93
STM-56	4' MH	864.43	12" W 858.83 12" NE 858.73 12" N 858.43
STM-57	4' Inlet Junction	864.41	12" SW 858.71 12" SE 858.81
STM-58	4' Inlet Junction	864.36	12" NW 858.84
STM-59	4' MH	866.12	N.S. (HEAVY ROOTS)
STM-60	4' MH	867.10	N.S. (HEAVY ROOTS)
STM-61	4' MH	867.67	12" S 864.00 12" N 857.20
STM-62	4' Inlet Junction	867.07	12" S 858.71 12" N 864.00
STM-63	4' Inlet Junction	867.08	12" N 859.10

EXISTING WATER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE SIZE	RIM ELEV.
GV-01	12"	873.09
GV-02	12"	872.83
GV-03	12"	N.S. (FROM RECORD)
GV-04	12"	N.S. (FROM RECORD)
GV-05	4"	866.01
GV-06	12"	875.12
GV-07	8"	870.55
GV-08	8"	866.33
GV-09	4"	855.70
GV-10	8"	854.19
GV-11	6"	854.40
GV-12	4"	855.63
GV-13	4"	862.46
GV-14	6"	865.69
GV-15	6"	857.07
GV-16	4"	871.17
GV-17	12"	871.73
GV-18	6"	857.07
GV-19	6"	864.65
GV-20	6"	871.17
GV-21	4"	864.66

* N.S. = NOT SURVEYED

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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

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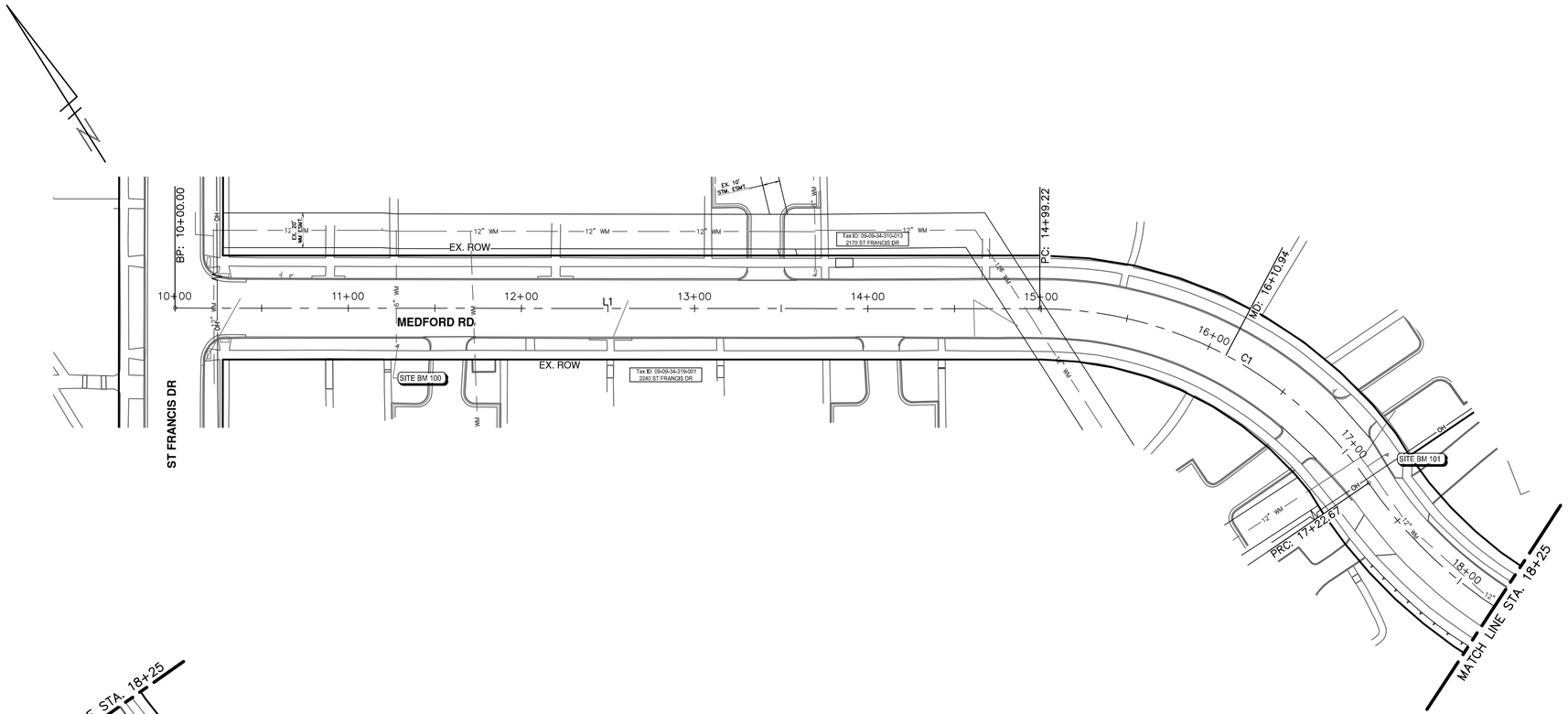
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

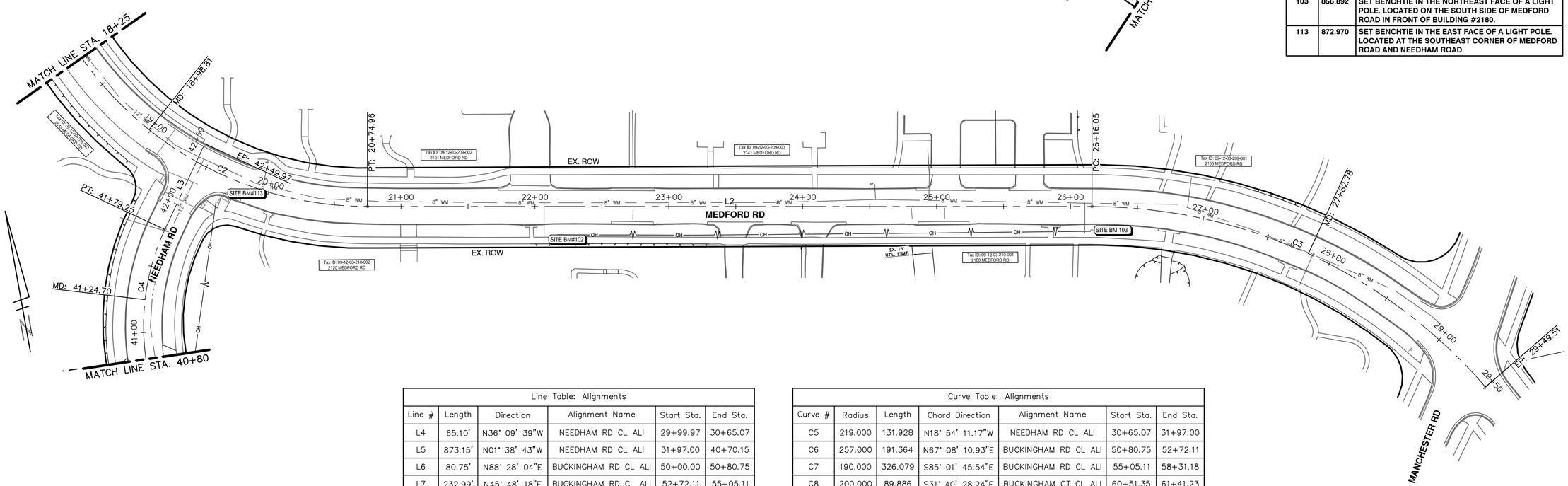
NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT

EXISTING STRUCTURE TABLES

SCALE : NTS

DRAWING No. 2025-2026-4





BENCHMARKS

BM#	ELEV	DESCRIPTION
100	874.439	ARROW ON A FIRE HYDRANT. LOCATED ON THE SOUTH SIDE OF MEDFORD ROAD ±130FT SOUTHEAST OF THE CENTERLINE OF SAINT FRANCIS DRIVE.
101	876.606	SET BENCHTIE IN THE WEST FACE OF A UTILITY POLE. LOCATED ON THE EAST SIDE OF MEDFORD ROAD ±15FT NORTH OF THE CENTERLINE OF THE WEST ENTRANCE TO ANN ARBOR WOODS BUILDING #2101.
102	865.414	SET BENCHTIE IN THE NORTH FACE OF A LIGHT POLE. LOCATED ON THE SOUTH SIDE OF MEDFORD ROAD IN FRONT OF BUILDING #2120.
103	856.892	SET BENCHTIE IN THE NORTHEAST FACE OF A LIGHT POLE. LOCATED ON THE SOUTH SIDE OF MEDFORD ROAD IN FRONT OF BUILDING #2180.
113	872.970	SET BENCHTIE IN THE EAST FACE OF A LIGHT POLE. LOCATED AT THE SOUTHEAST CORNER OF MEDFORD ROAD AND NEEDHAM ROAD.

Line Table: Alignments

Line #	Length	Direction	Alignment Name	Start Sta.	End Sta.
L4	65.10'	N36° 09' 39"W	NEEDHAM RD CL ALI	29+99.97	30+65.07
L5	873.15'	N01° 38' 43"W	NEEDHAM RD CL ALI	31+97.00	40+70.15
L6	80.75'	N88° 28' 04"E	BUCKINGHAM RD CL ALI	50+00.00	50+80.75
L7	232.99'	N45° 48' 18"E	BUCKINGHAM RD CL ALI	52+72.11	55+05.11
L8	118.82'	S35° 51' 49"E	BUCKINGHAM RD CL ALI	58+31.18	59+50.00
L9	51.35'	S18° 47' 58"E	BUCKINGHAM CT CL ALI	60+00.00	60+51.35
L10	108.77'	S44° 32' 59"E	BUCKINGHAM CT CL ALI	61+41.23	62+50.00

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Alignment Name	Start Sta.	End Sta.
C5	219.000	131.928	N18° 54' 11.17"W	NEEDHAM RD CL ALI	30+65.07	31+97.00
C6	257.000	191.364	N67° 08' 10.93"E	BUCKINGHAM RD CL ALI	50+80.75	52+72.11
C7	190.000	326.079	S85° 01' 45.54"E	BUCKINGHAM RD CL ALI	55+05.11	58+31.18
C8	200.000	89.886	S31° 40' 28.24"E	BUCKINGHAM CT CL ALI	60+51.35	61+41.23

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
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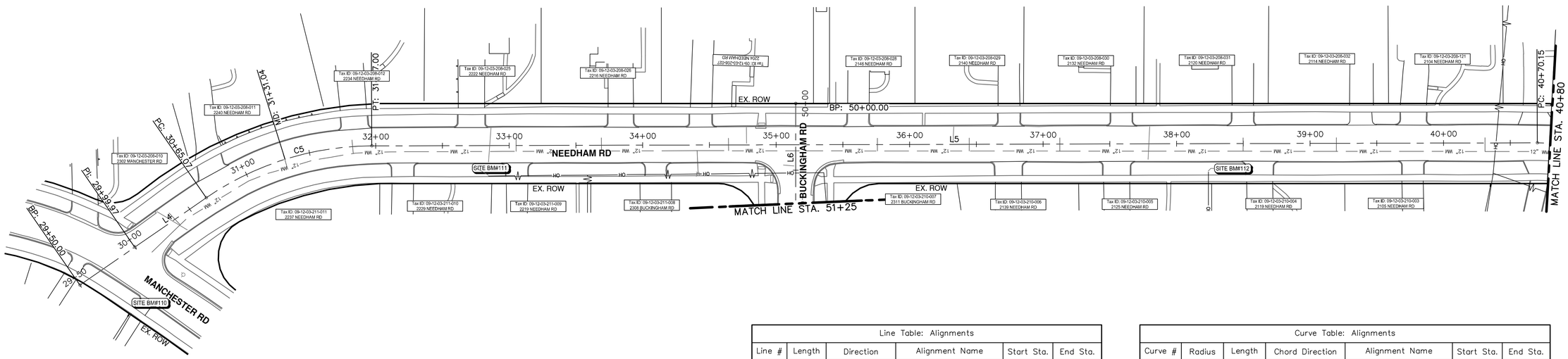
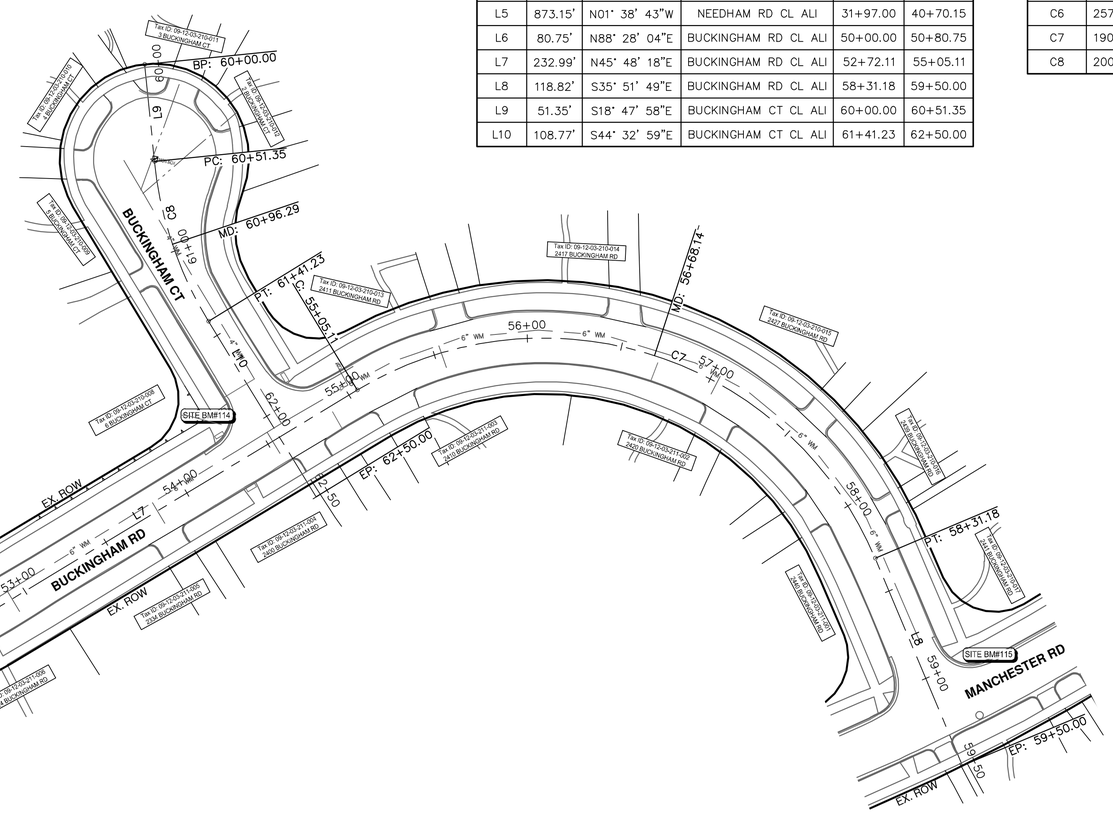
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

ALIGNMENT SHEET - 1

SCALE PLAN: 1" = 20'

DRAWING No. 2025-2026-5





Line Table: Alignments					
Line #	Length	Direction	Alignment Name	Start Sta.	End Sta.
L4	65.10'	N36° 09' 39"W	NEEDHAM RD CL ALI	29+99.97	30+65.07
L5	873.15'	N01° 38' 43"W	NEEDHAM RD CL ALI	31+97.00	40+70.15
L6	80.75'	N88° 28' 04"E	BUCKINGHAM RD CL ALI	50+00.00	50+80.75
L7	232.99'	N45° 48' 18"E	BUCKINGHAM RD CL ALI	52+72.11	55+05.11
L8	118.82'	S35° 51' 49"E	BUCKINGHAM RD CL ALI	58+31.18	59+50.00
L9	51.35'	S18° 47' 58"E	BUCKINGHAM CT CL ALI	60+00.00	60+51.35
L10	108.77'	S44° 32' 59"E	BUCKINGHAM CT CL ALI	61+41.23	62+50.00

Curve Table: Alignments						
Curve #	Radius	Length	Chord Direction	Alignment Name	Start Sta.	End Sta.
C5	219.000	131.928	N18° 54' 11.17"W	NEEDHAM RD CL ALI	30+65.07	31+97.00
C6	257.000	191.364	N67° 08' 10.93"E	BUCKINGHAM RD CL ALI	50+80.75	52+72.11
C7	190.000	326.079	S85° 01' 45.54"E	BUCKINGHAM RD CL ALI	55+05.11	58+31.18
C8	200.000	89.886	S31° 40' 28.24"E	BUCKINGHAM CT CL ALI	60+51.35	61+41.23

BENCHMARKS		
BM#	ELEV	DESCRIPTION
110	868.146	SET BENCHTIE IN THE NORTHWEST FACE OF A LIGHT POLE. LOCATED ON THE EAST SIDE OF MANCHESTER ROAD IN FRONT OF HOUSE #2301.
111	864.272	SET BENCHTIE IN THE WEST FACE OF A LIGHT POLE. LOCATED ON THE EAST SIDE OF NEEDHAM ROAD IN FRONT OF HOUSE #2229.
112	867.382	SET BENCHTIE IN THE WEST FACE OF A LIGHT POLE. LOCATED ON THE EAST SIDE OF NEEDHAM ROAD BETWEEN HOUSE #2119 AND #2125.
114	865.607	SET BENCHTIE IN THE SOUTH FACE OF A LIGHT POLE. LOCATED AT THE NORTHWEST CORNER OF BUCKINGHAM ROAD AND BUCKINGHAM COURT.
115	873.492	SET BENCHTIE IN THE SOUTH FACE OF A LIGHT POLE. LOCATED AT THE NORTHEAST CORNER OF MANCHESTER ROAD AND BUCKINGHAM ROAD.

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WATER MAIN & RESURFACING PROJECT

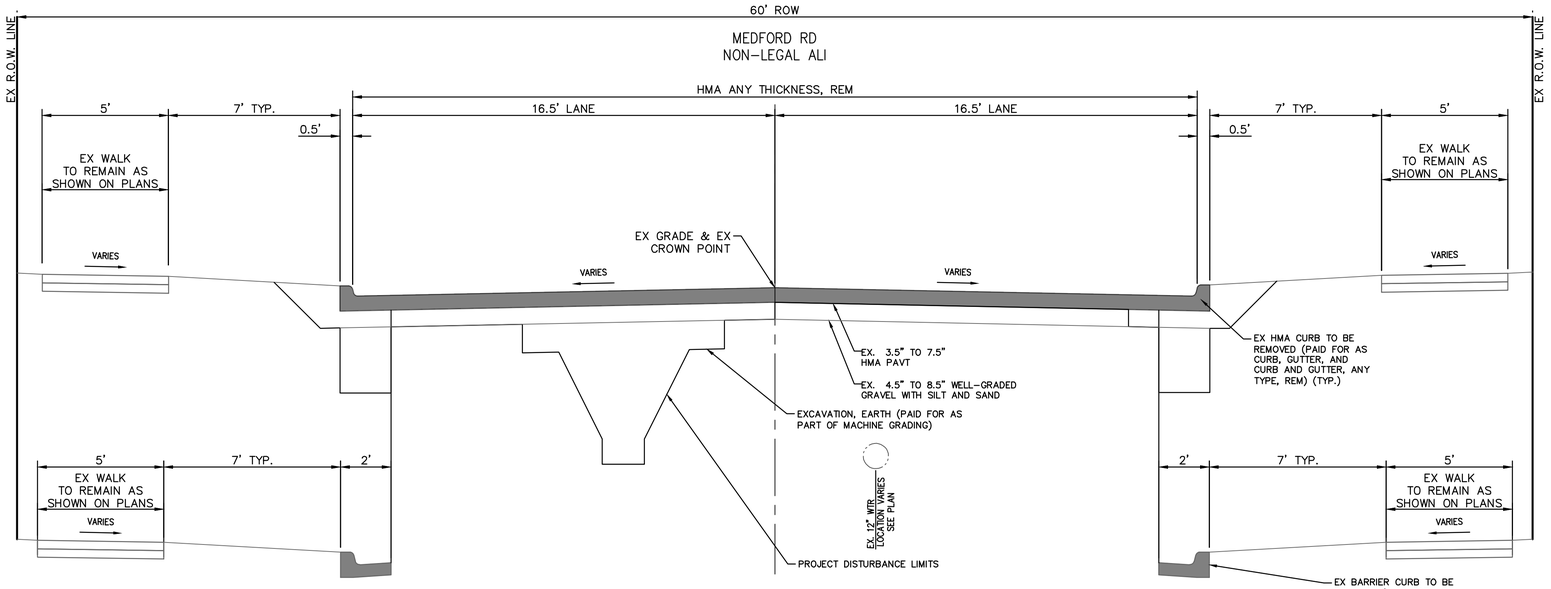
ALIGNMENT SHEET - 2

SCALE PLAN: 1" = 20'

DRAWING No. 2025-2026-6

SHEET No. 6 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Source Drawings\Align–Corr\AA25001_Align.dwg Dwg Created: 10–Jul–25 – _a2 standard bw.stb – Plot Date: 7–Jan–26

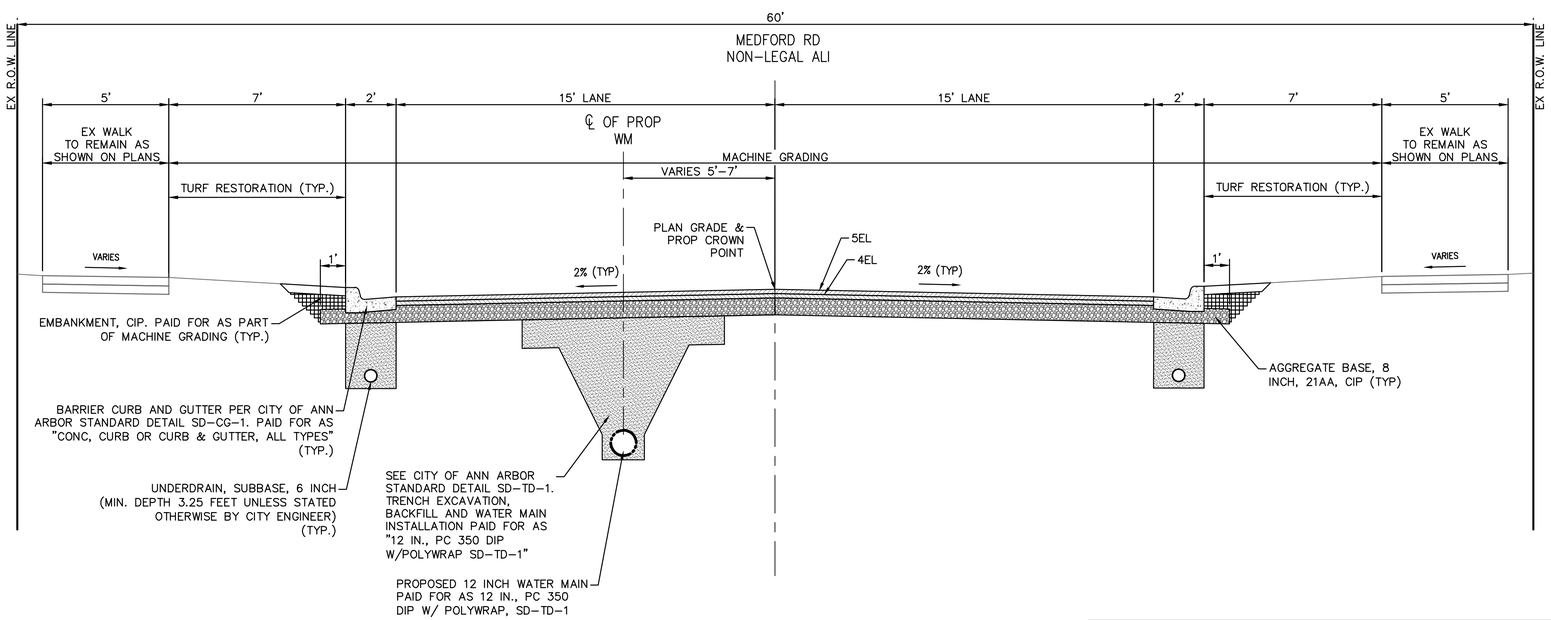


CURB AND GUTTER APPLIES TO:
STA 10+06 TO STA 10+41

EXISTING MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 10+06 TO STA 15+00

CURB AND GUTTER APPLIES TO:
STA 10+06 TO STA 10+41



PROPOSED MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 10+06 TO STA 15+00

HMA APPLICATION ESTIMATE

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

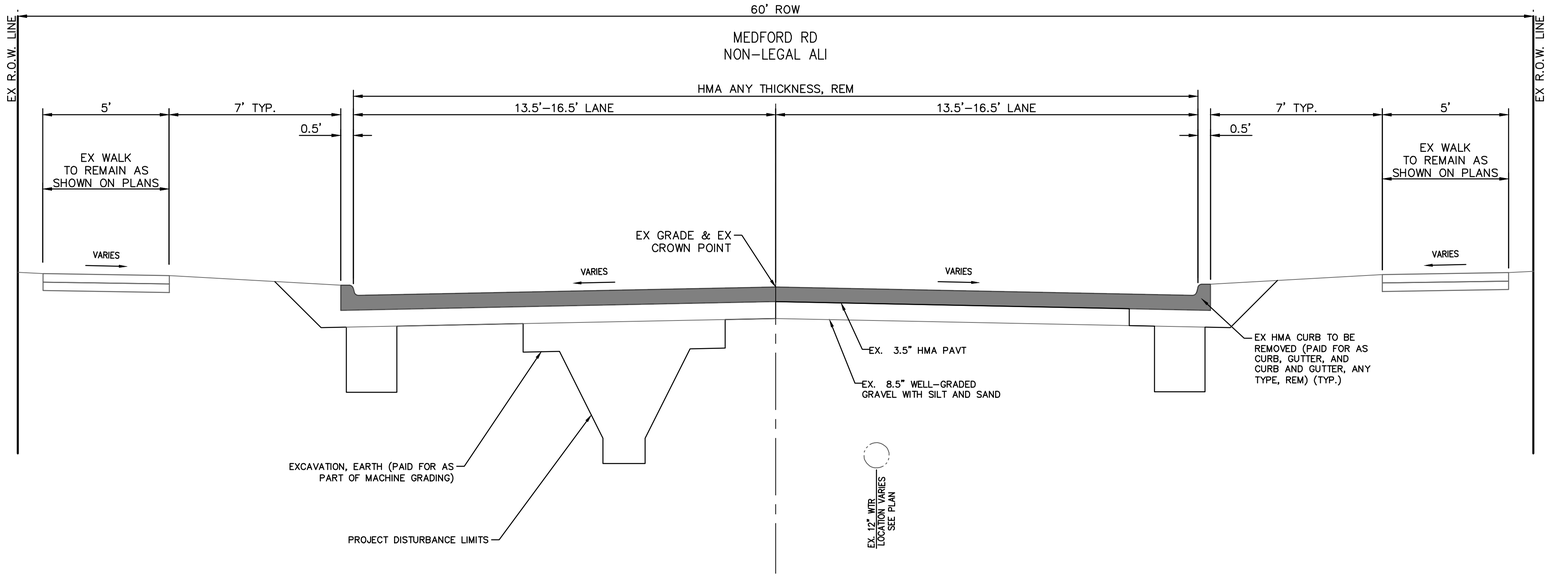
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 1

SCALE PLAN: NO SCALE

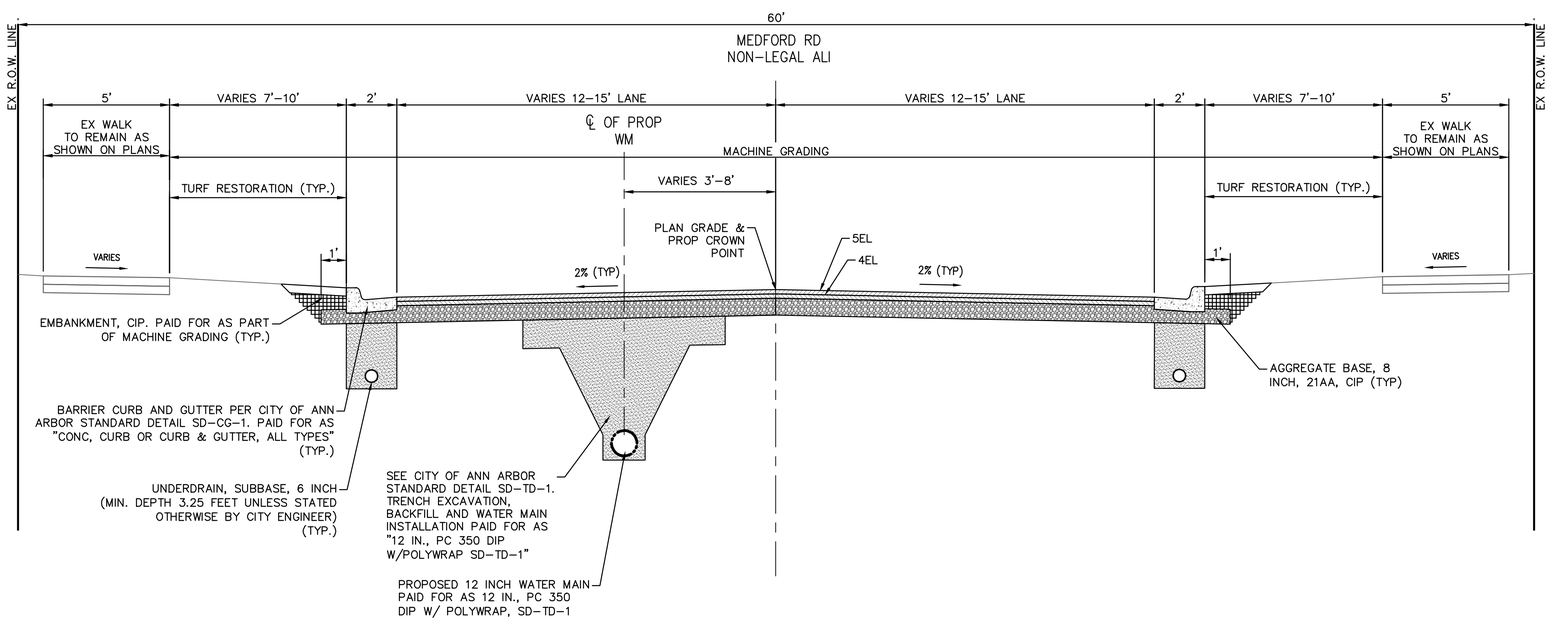
DRAWING No. 2025-2026-7

SHEET No. 7 OF 64



EXISTING MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 15+00 TO STA 17+26



PROPOSED MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 15+00 TO STA 17+26

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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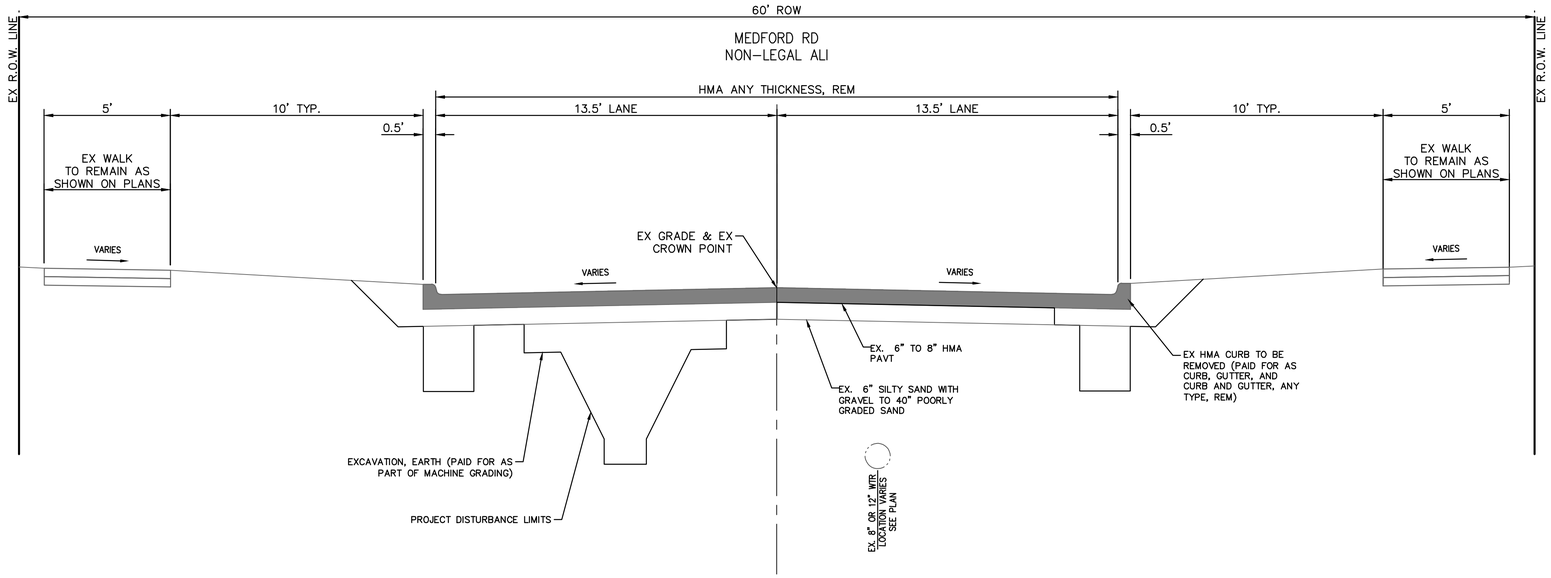
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 2

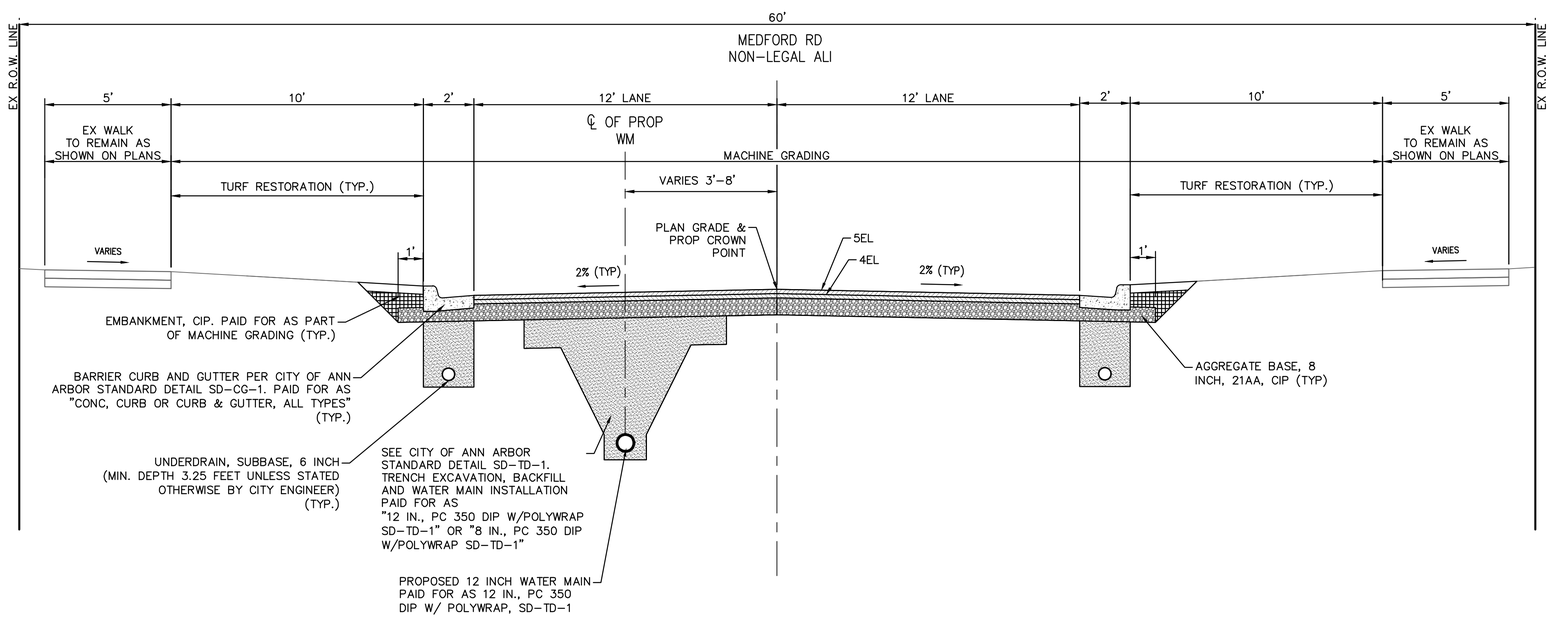
SCALE PLAN: NO SCALE

DRAWING No.
2025-2026-8



EXISTING MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 17+26 TO STA 28+72



PROPOSED MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 17+26 TO STA 28+72

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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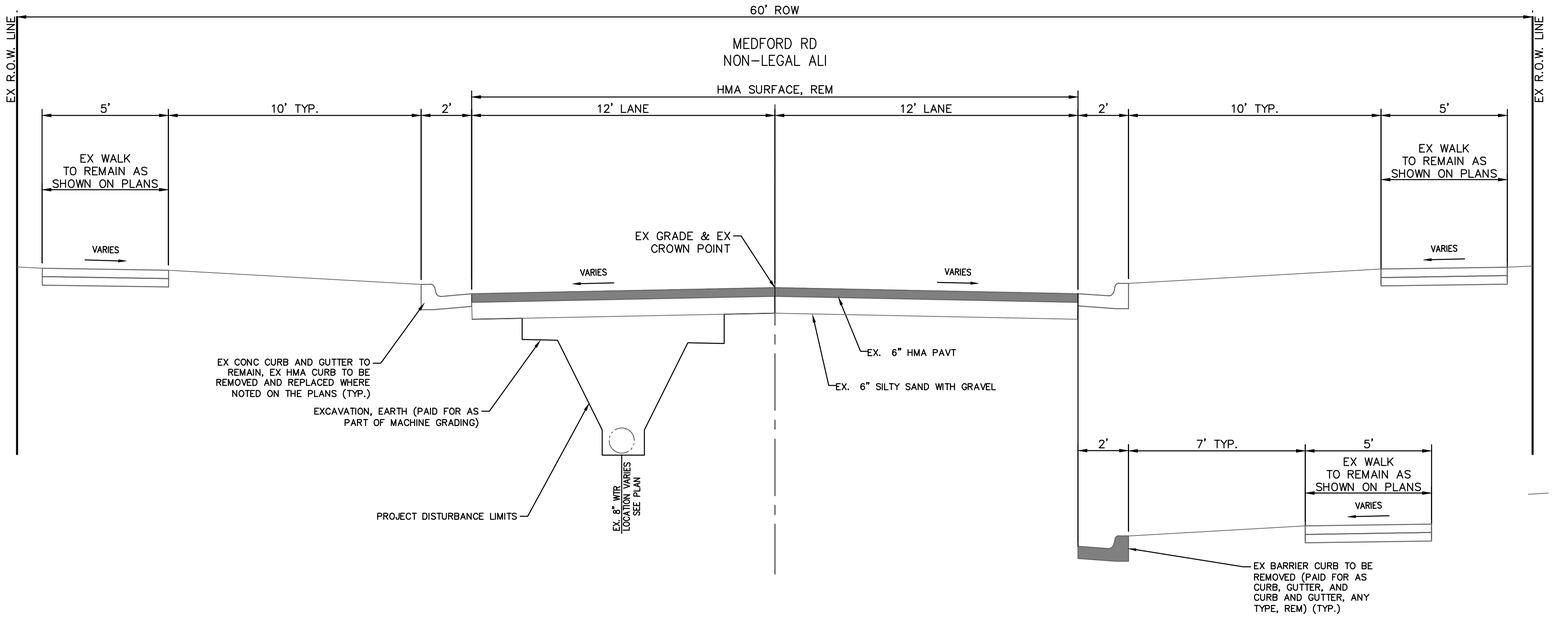
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 3

SCALE PLAN: NO SCALE

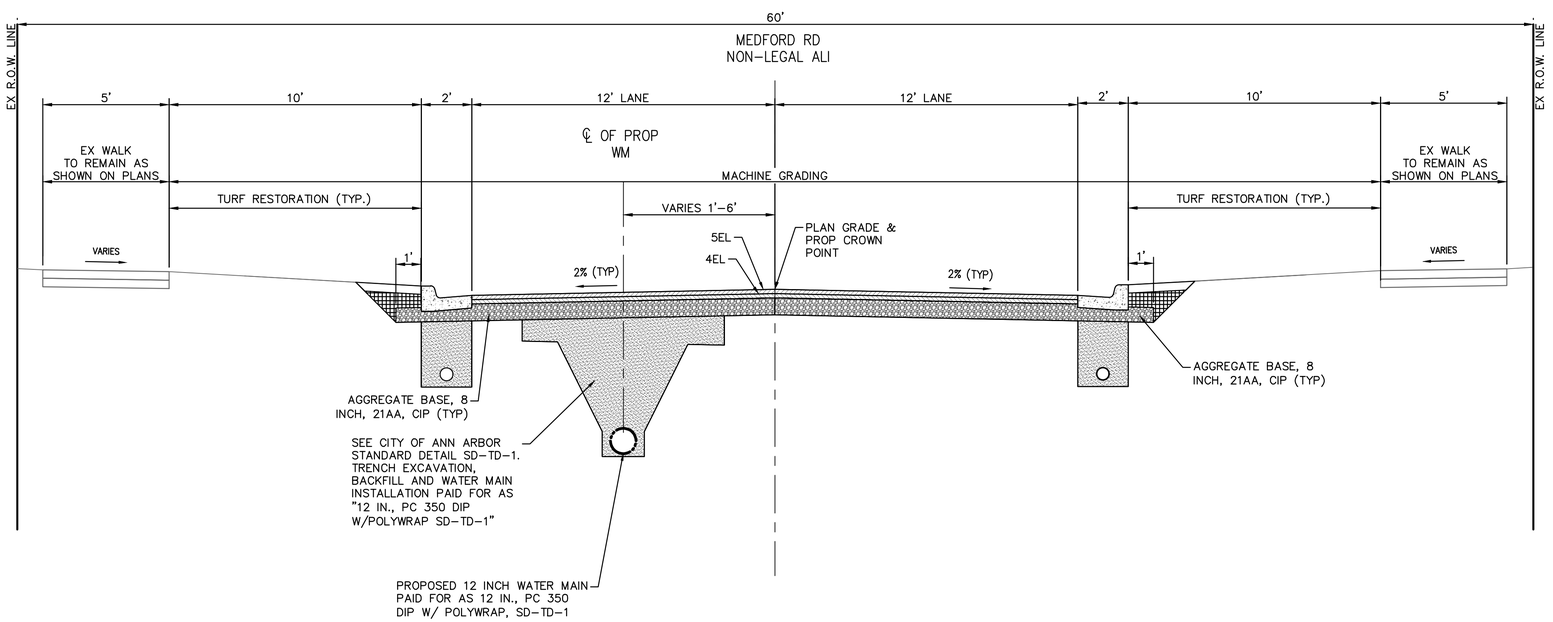
DRAWING No. 2025-2026-9

SHEET No. 9 OF 64



EXISTING MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 28+72 TO STA 29+16



PROPOSED MEDFORD RD TYPICAL SECTION

SECTION APPLIES TO:
STA 28+72 TO STA 29+16

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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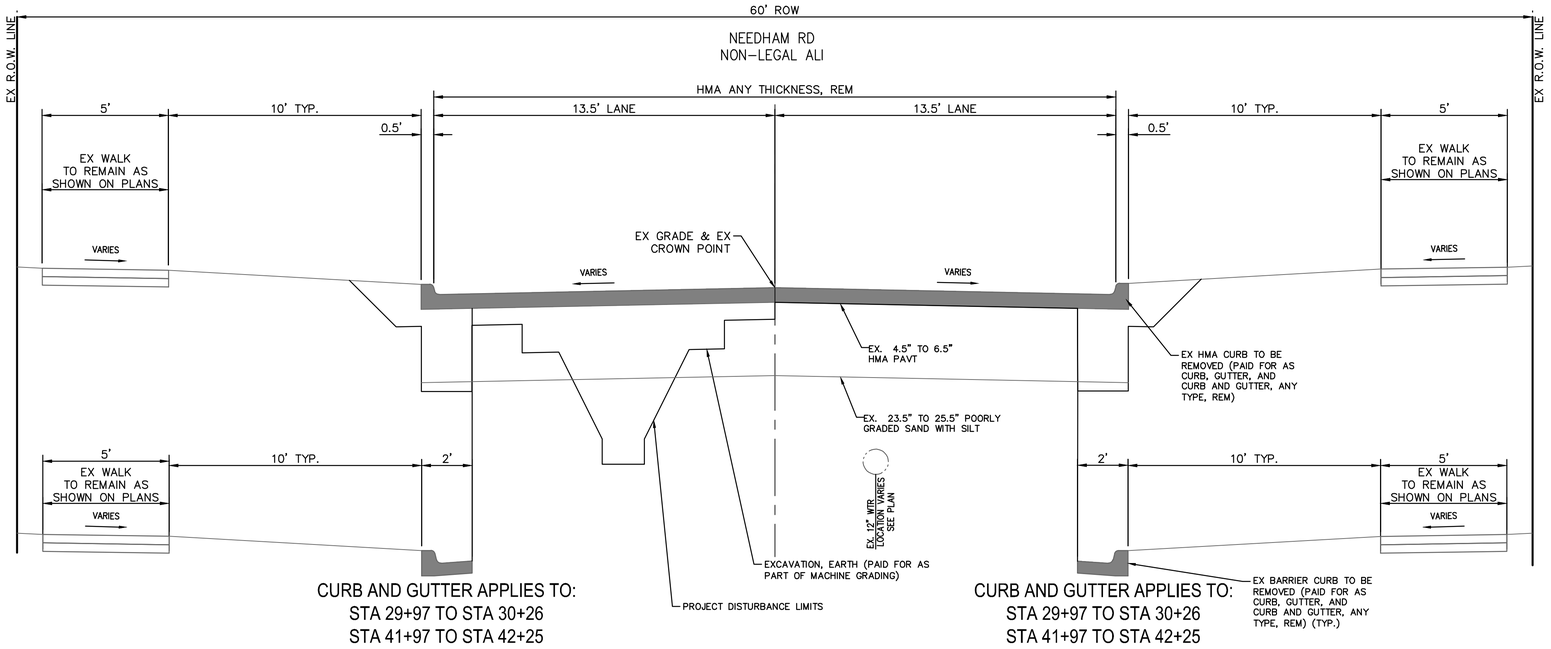
TYPICAL SECTION - 4

SCALE PLAN: NO SCALE

DRAWING No. 2025-2026-10

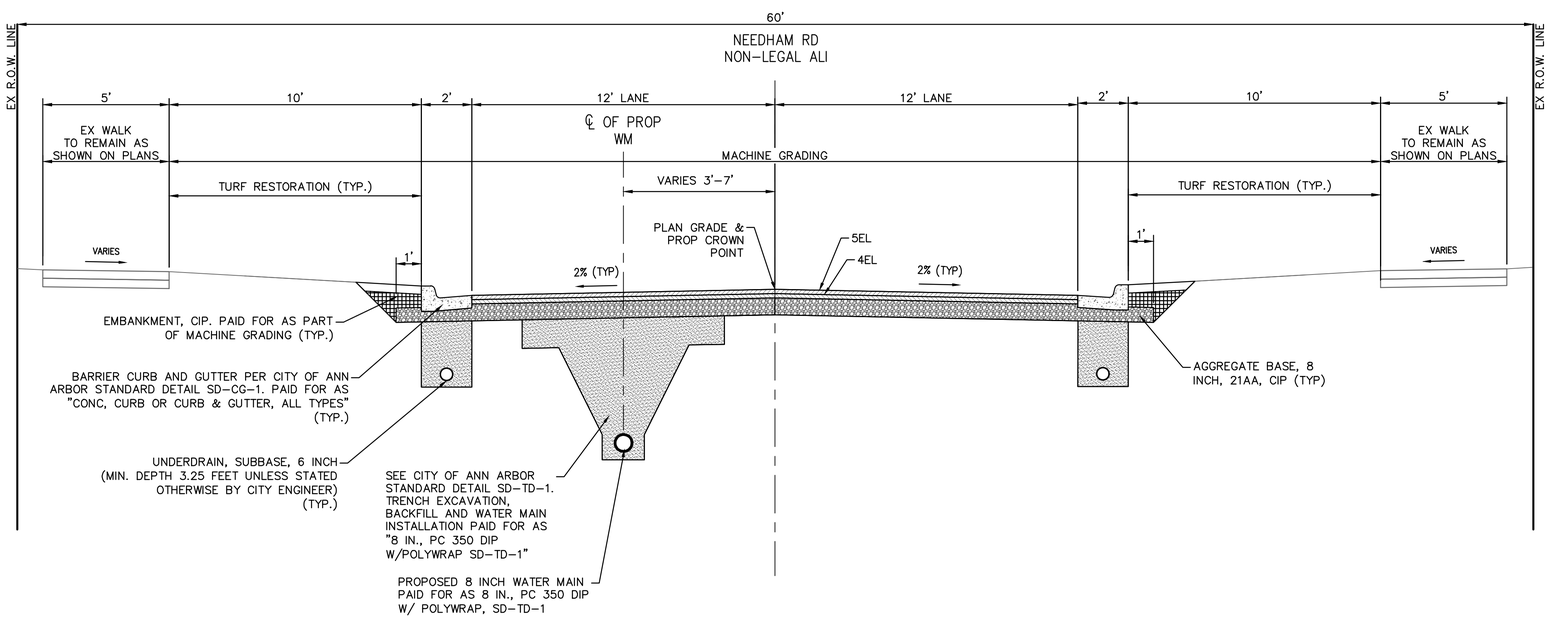
SHEET No. 10 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_TYP.dwg Dwg Created: 21-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



EXISTING NEEDHAM RD TYPICAL SECTION

SECTION APPLIES TO:
STA 29+97 TO STA 42+25



PROPOSED NEEDHAM RD TYPICAL SECTION

SECTION APPLIES TO:
STA 29+97 TO STA 42+25

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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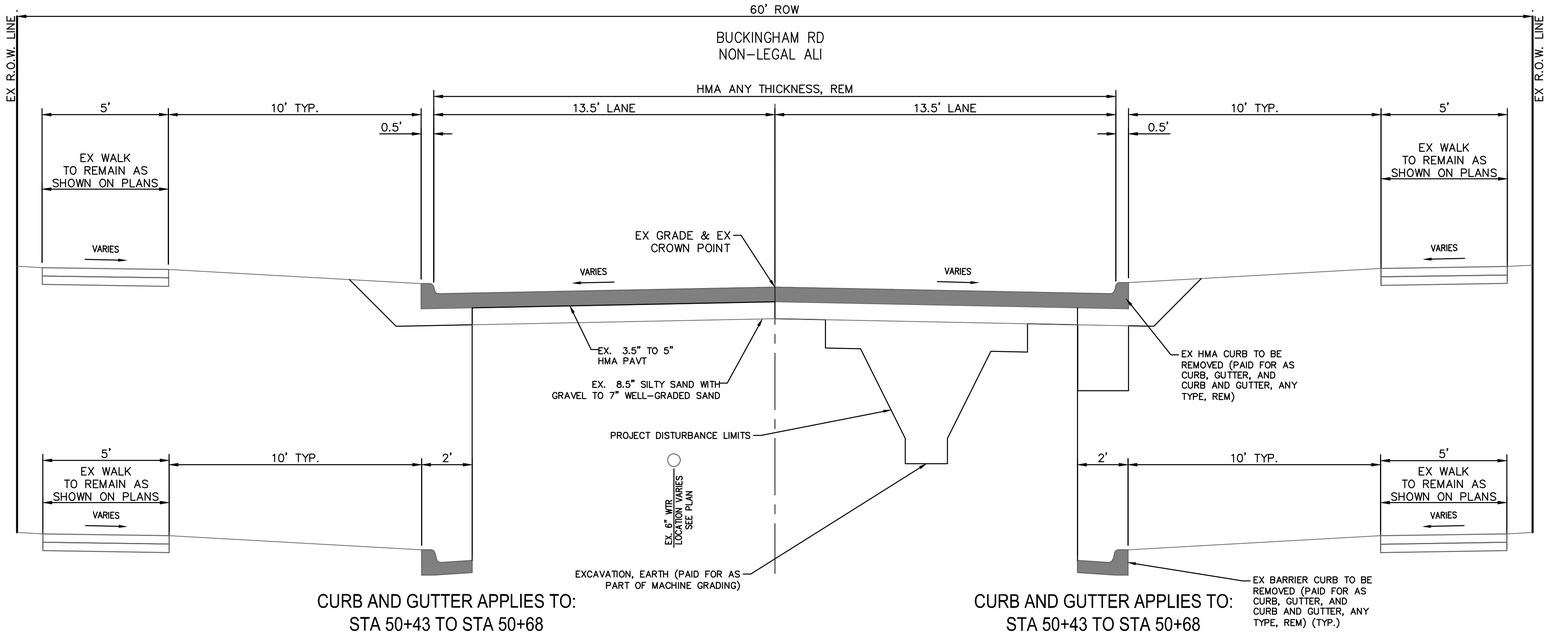
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 5

SCALE PLAN: NO SCALE

DRAWING No.
2025-2026-11

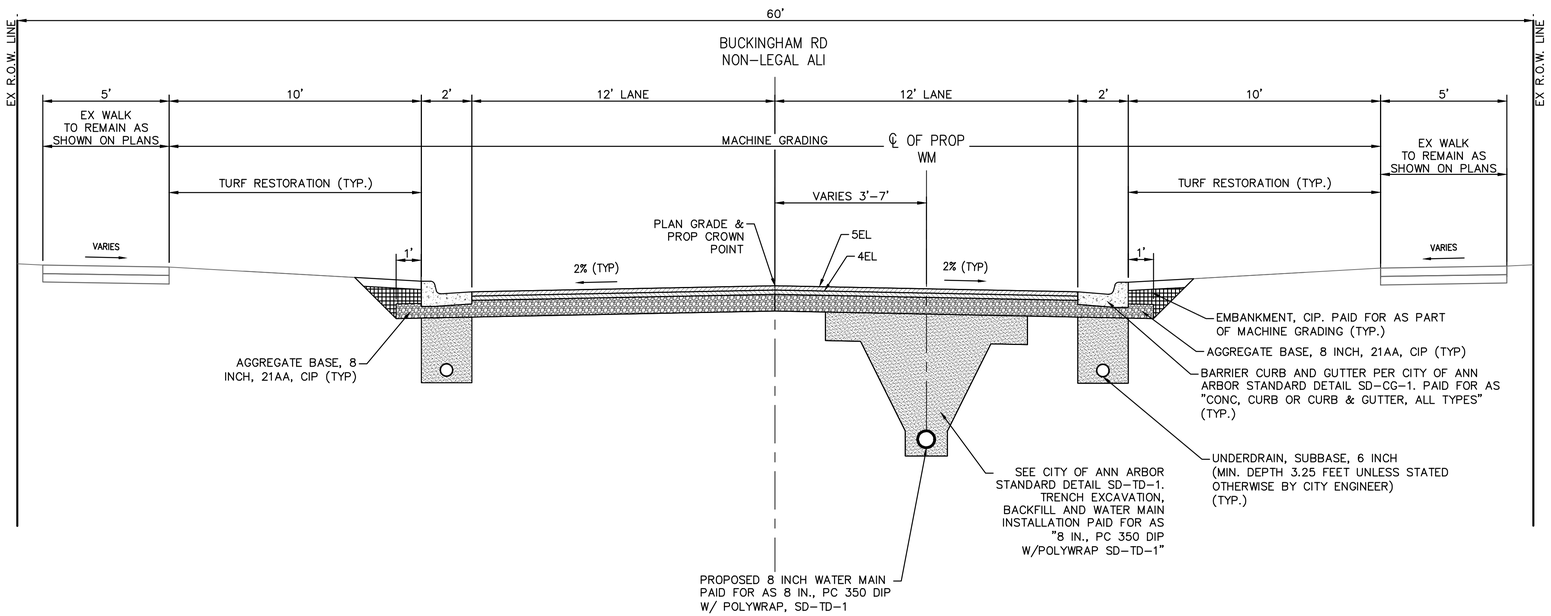


CURB AND GUTTER APPLIES TO:
STA 50+43 TO STA 50+68

CURB AND GUTTER APPLIES TO:
STA 50+43 TO STA 50+68

EXISTING BUCKINGHAM RD TYPICAL SECTION

SECTION APPLIES TO:
STA 50+68 TO STA 58+82



PROPOSED BUCKINGHAM RD TYPICAL SECTION

SECTION APPLIES TO:
STA 50+43 TO STA 58+82

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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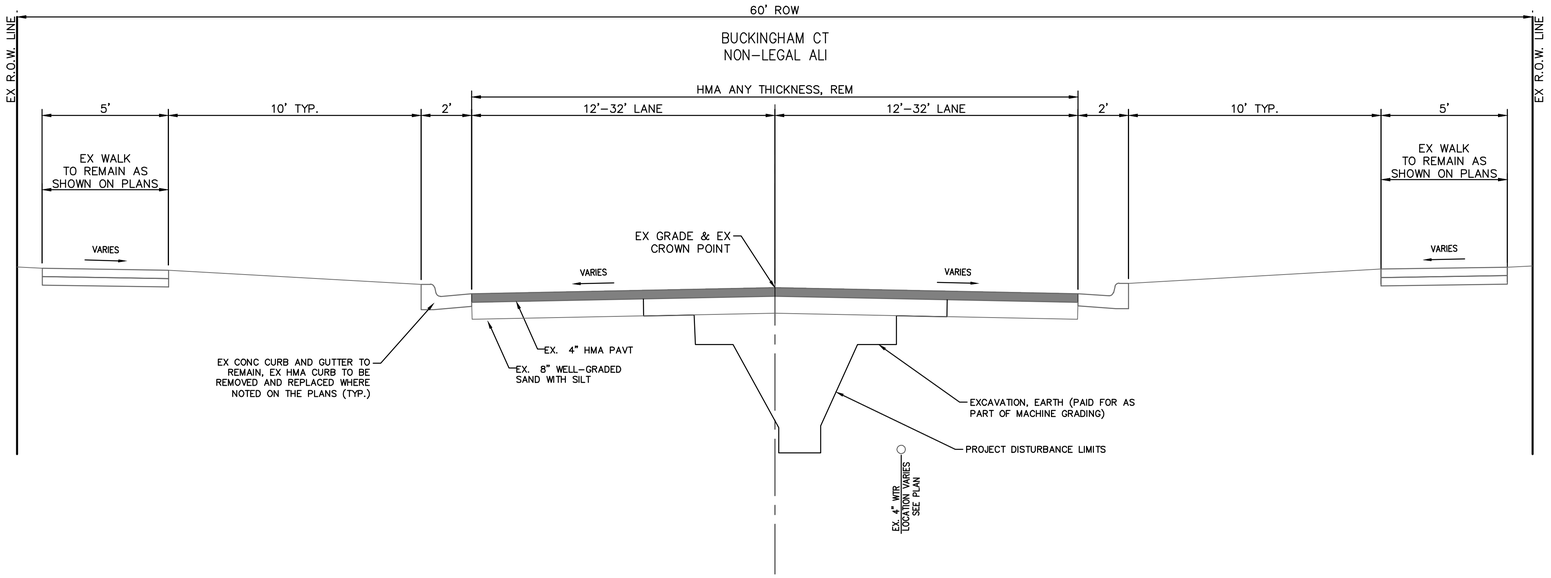
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 6

SCALE PLAN: NO SCALE

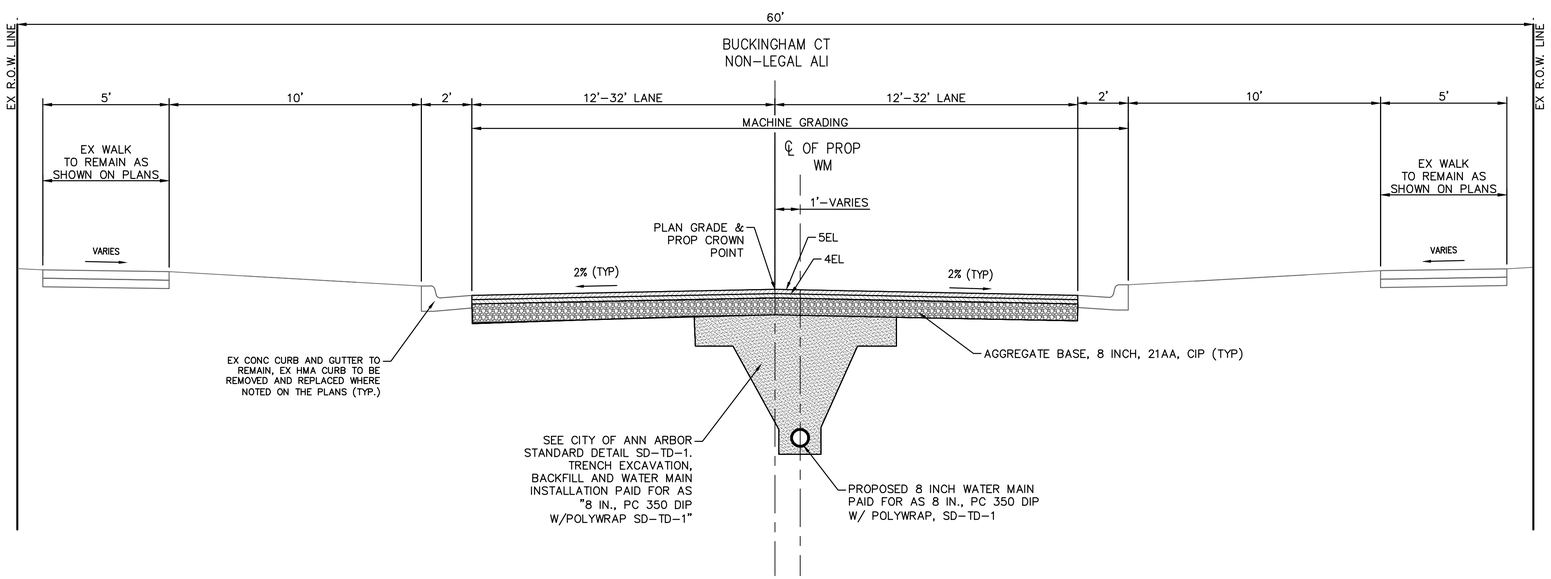
DRAWING No. 2025-2026-12

SHEET No. 12 OF 64



EXISTING BUCKINGHAM CT TYPICAL SECTION

SECTION APPLIES TO:
STA 60+18 TO STA 61+75



PROPOSED BUCKINGHAM CT TYPICAL SECTION

SECTION APPLIES TO:
STA 60+18 TO STA 61+75

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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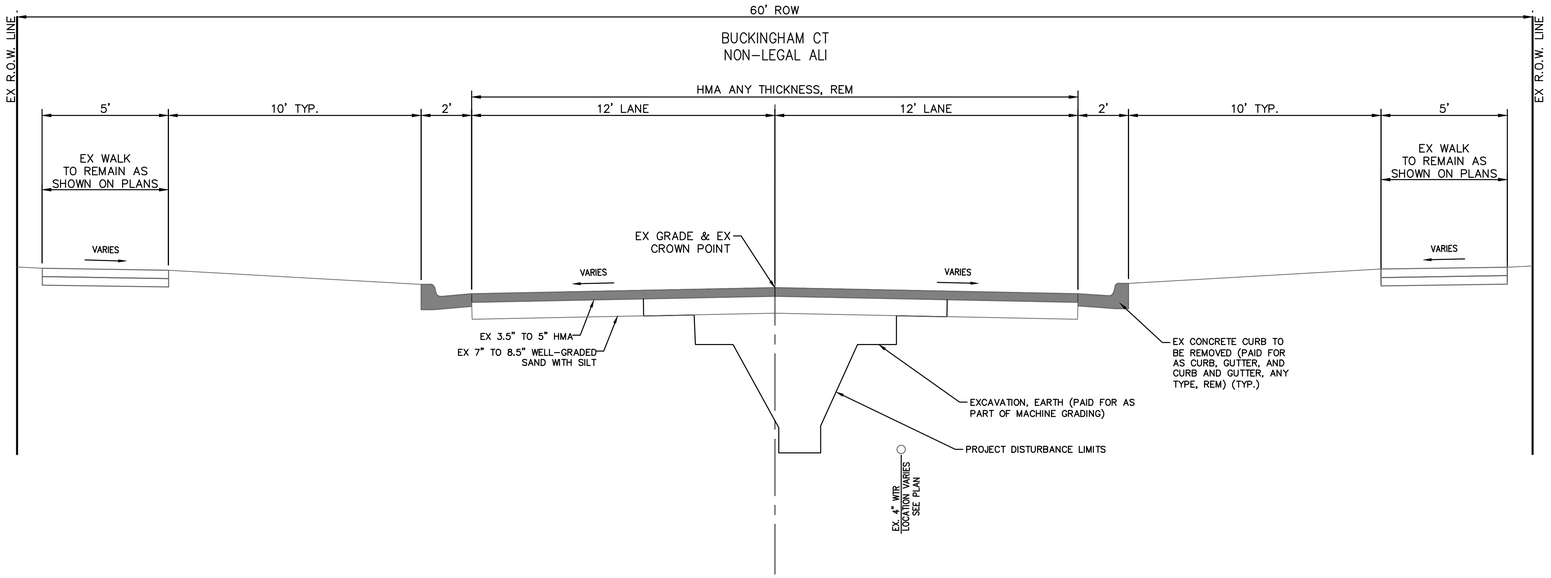
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 7

SCALE PLAN: NO SCALE

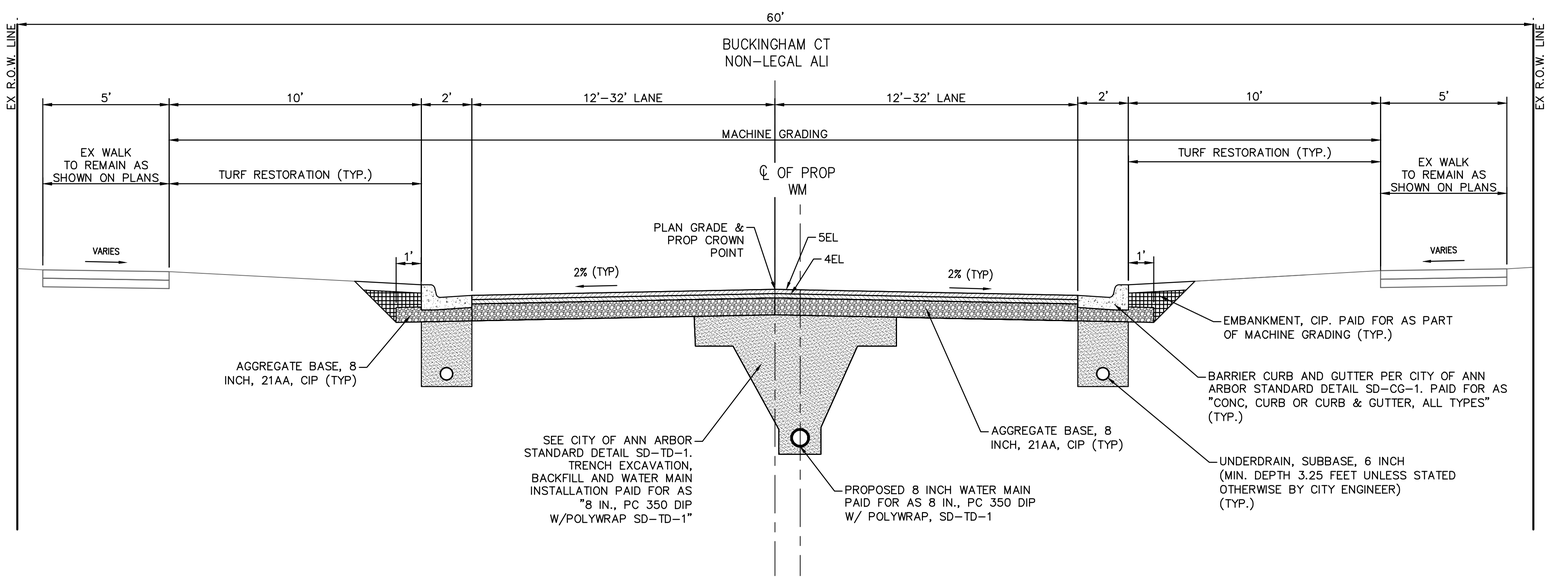
DRAWING No. 2025-2026-13

SHEET No. 13 OF 64



EXISTING BUCKINGHAM CT TYPICAL SECTION

SECTION APPLIES TO:
STA 61+75 TO STA 62+01



PROPOSED BUCKINGHAM CT TYPICAL SECTION

SECTION APPLIES TO:
STA STA 61+75 TO STA 62+01

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_TYP.dwg Dwg Created: 21-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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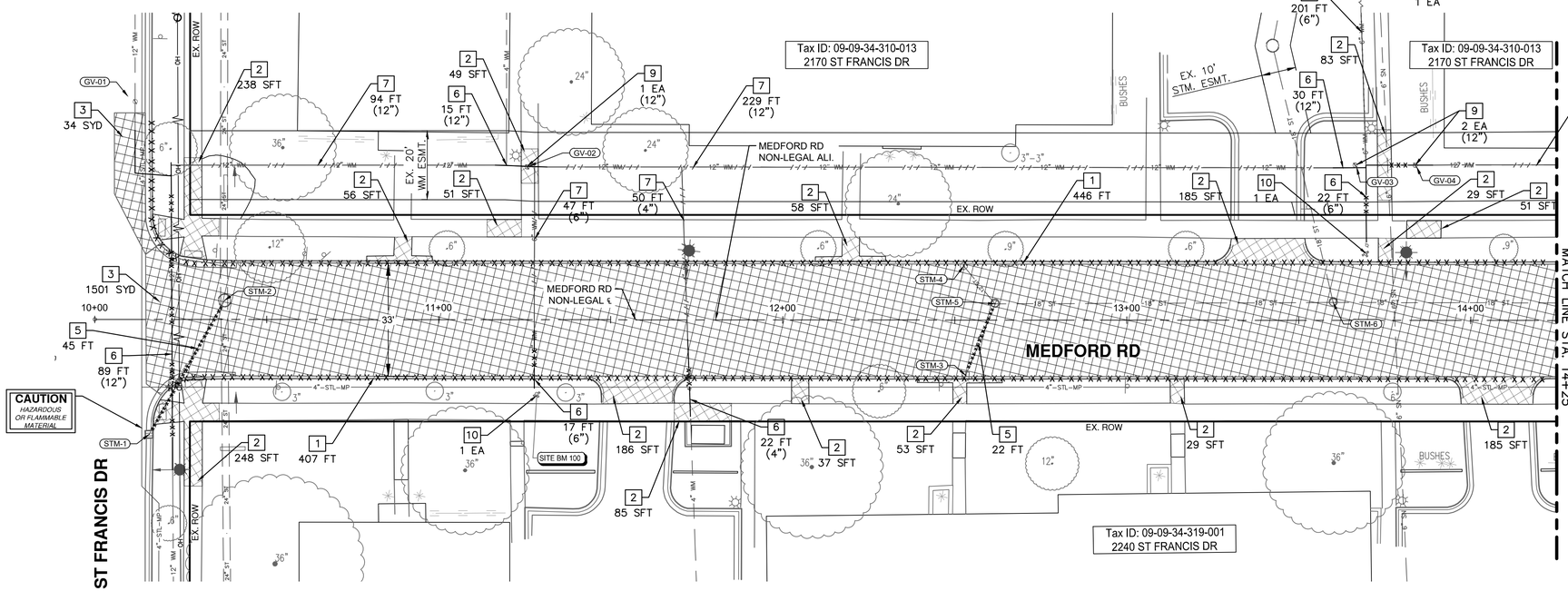
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

TYPICAL SECTION - 8

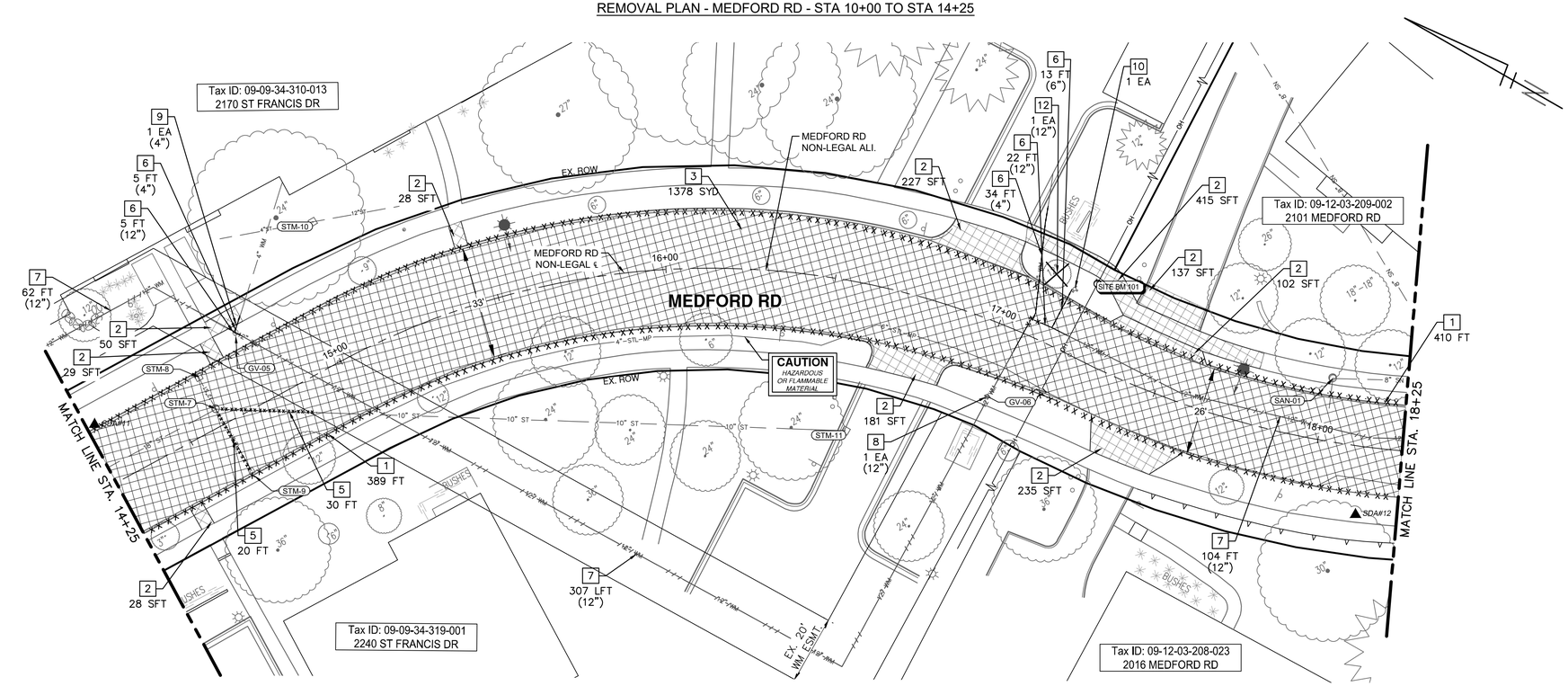
SCALE PLAN: NO SCALE

DRAWING No. 2025-2026-14

SHEET No. 14 OF 64



REMOVAL PLAN - MEDFORD RD - STA 10+00 TO STA 14+25



REMOVAL PLAN - MEDFORD RD - STA 14+25 TO STA 18+25

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2913	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1652	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	3155	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	103	Ft
Fire Hydrant Assembly, Rem	4	Ea
Water Main Pipe, 4 In. Dia., Abandon	50	Ft
Water Main Pipe, 6 In. Dia., Abandon	248	Ft
Water Main Pipe, 12 In. Dia., Abandon	832	Ft
Water Main Pipe, 4 In. Dia., Rem	61	Ft
Water Main Pipe, 6 In. Dia., Rem	52	Ft
Water Main Pipe, 12 In. Dia., Rem	161	Ft
Gate Valve in Box, 12 In. Dia., Abandon	1	Ea
Gate Valve in Box, 4 In. Dia., Rem	1	Ea
Gate Valve in Box, 12 In. Dia., Rem	3	Ea

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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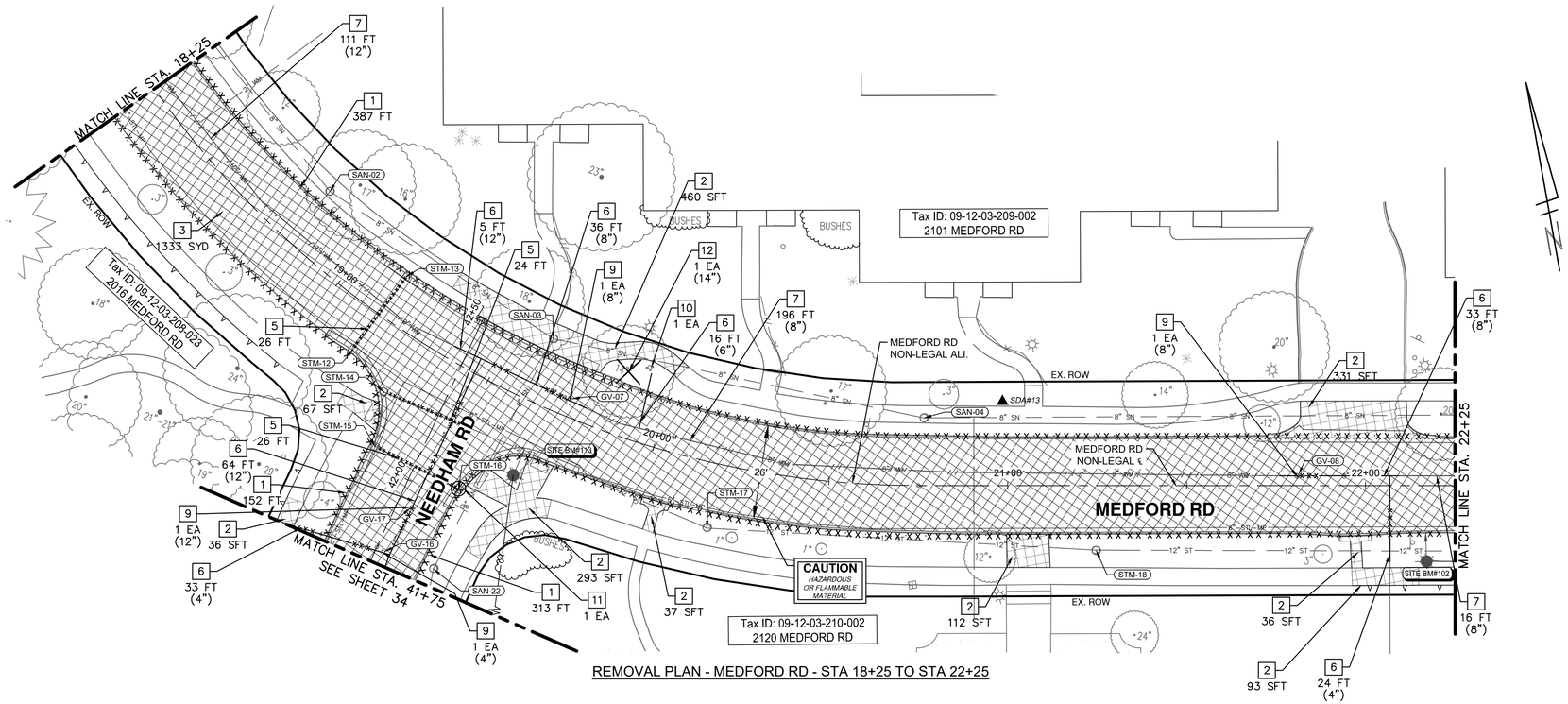
WATER MAIN & RESURFACING PROJECT

REMOVAL PLAN - MEDFORD RD STA 10+00 TO STA 18+25

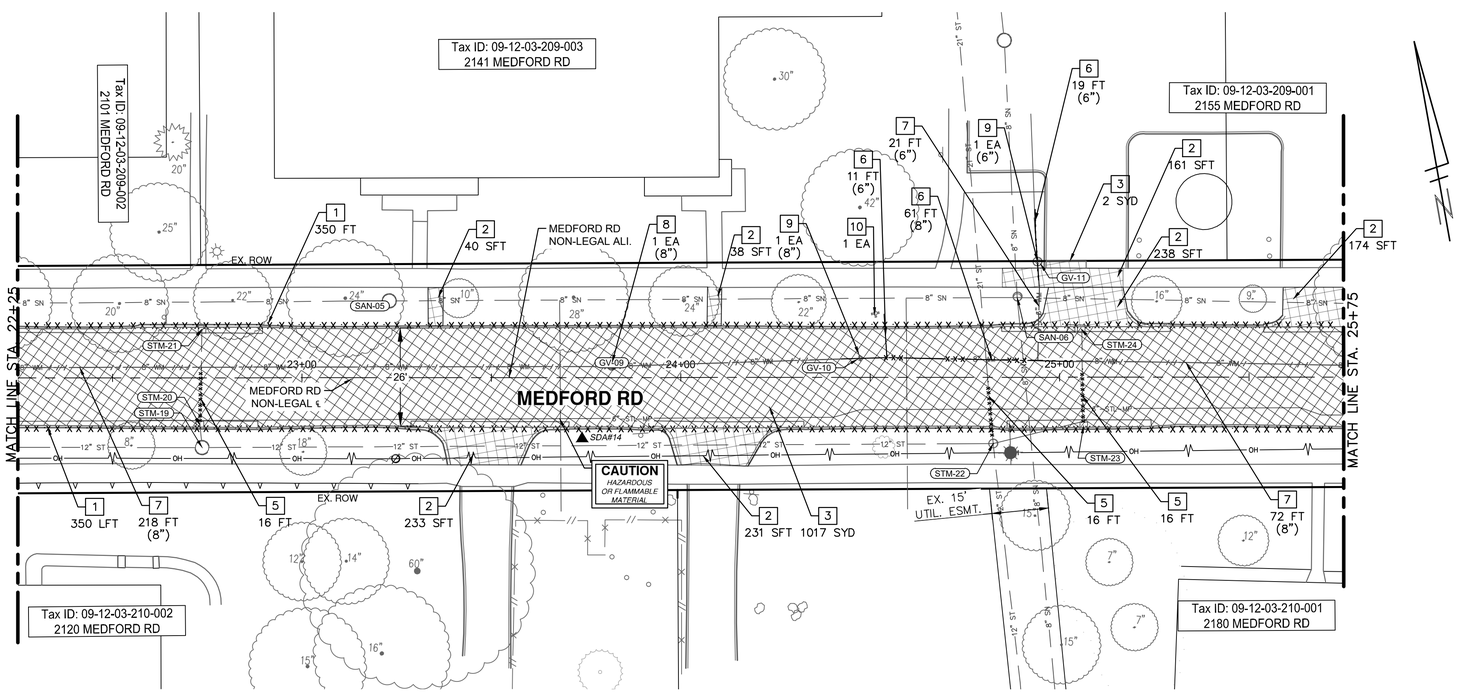
SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-15

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_REM_MEDFORD.dwg Dwg Created: 24-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



REMOVAL PLAN - MEDFORD RD - STA 18+25 TO STA 22+25



REMOVAL PLAN - MEDFORD RD - STA 22+25 TO STA 25+75

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2352	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1552	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	2581	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	124	Ft
Storm Sewer Drop Structure, Rem	1	Ea
Fire Hydrant Assembly, Rem	2	Ea
Water Main Pipe, 8 In. Dia., Abandon	502	Ft
Water Main Pipe, 12 In. Dia., Abandon	111	Ft
Water Main Pipe, 4 In. Dia., Rem	57	Ft
Water Main Pipe, 6 In. Dia., Rem	81	Ft
Water Main Pipe, 8 In. Dia., Rem	130	Ft
Water Main Pipe, 12 In. Dia., Rem	69	Ft
Gate Valve in Box, 8 In. Dia., Abandon	1	Ea
Gate Valve in Box, 4 In. Dia., Rem	1	Ea
Gate Valve in Box, 6 In. Dia., Rem	1	Ea
Gate Valve in Box, 8 In. Dia., Rem	3	Ea
Gate Valve in Box, 12 In. Dia., Rem	1	Ea

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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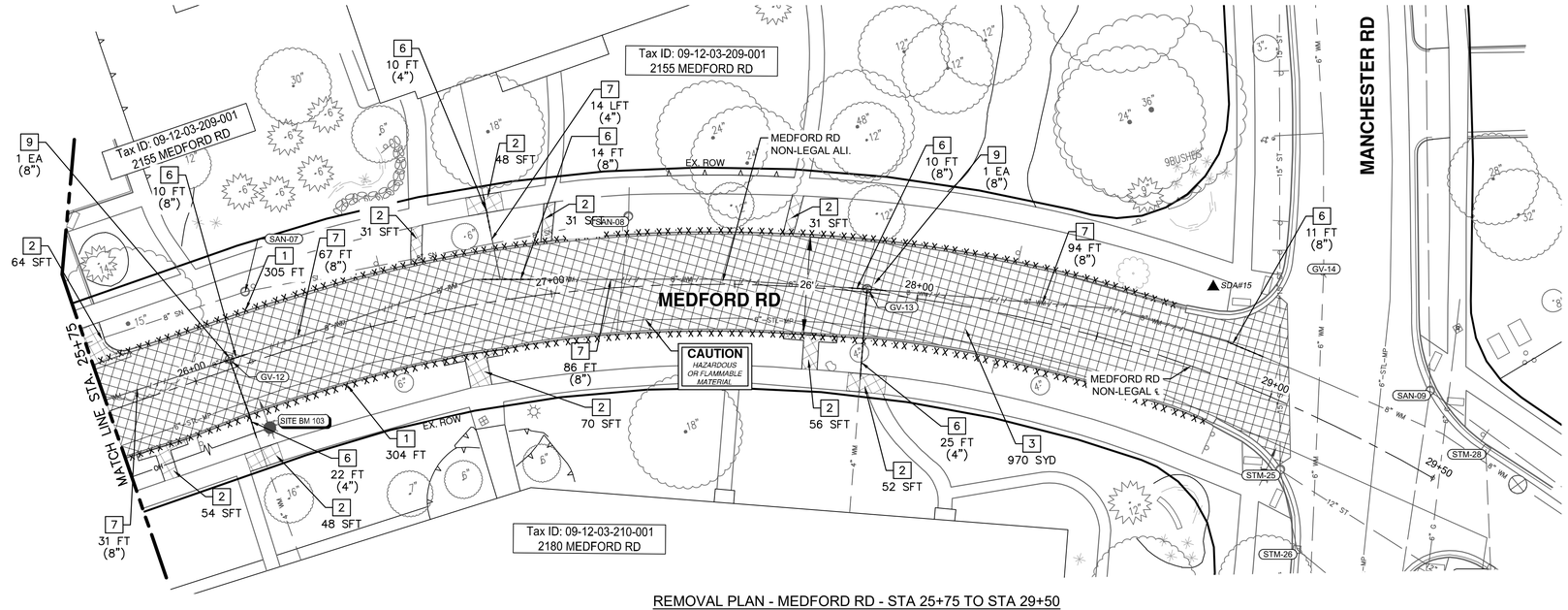
WATER MAIN & RESURFACING PROJECT

REMOVAL PLAN - MEDFORD RD STA 18+25 TO STA 25+75

SCALE PLAN: 1" = 20'
PROFILE: N/A
DRAWING No. 2025-2026-16

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_REM_MEDFORD.dwg Dwg Created: 24-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



REMOVAL PLAN - MEDFORD RD - STA 25+75 TO STA 29+50

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	970	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	609	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	485	Sft
Water Main Pipe, 8 In. Dia., Abandon	278	Ft
Water Main Pipe, 4 In. Dia., Rem	57	Ft
Water Main Pipe, 8 In. Dia., Rem	45	Ft
Gate Valve in Box, 8 In. Dia., Rem	2	Ea

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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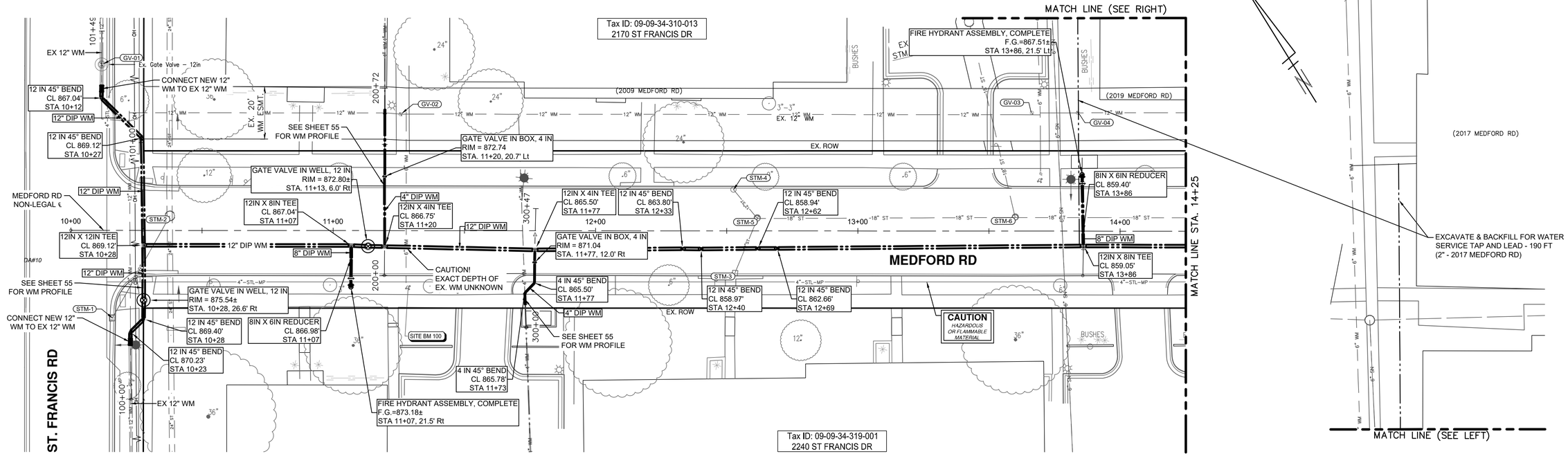
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

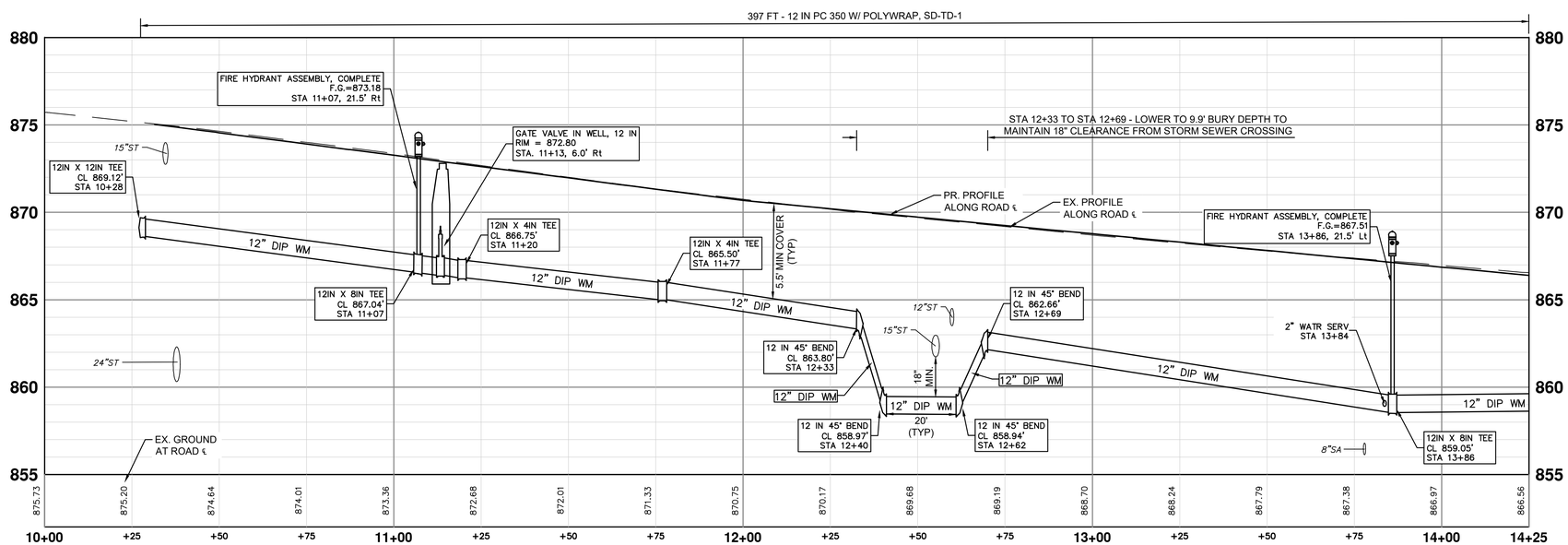
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

REMOVAL PLAN - MEDFORD RD STA 25+75 TO STA 29+16

SCALE PLAN: 1" = 20'
PROFILE: N/A
DRAWING No. 2025-2026-17



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 10+00 TO STA 14+25



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 10+00 TO STA 14+25

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
4 In., PC 350 DIP w/polywrap, SD–TD–1	74	Ft
6 In., PC 350 DIP w/polywrap, SD–TD–1	32	Ft
8 In., PC 350 DIP w/polywrap, SD–TD–1	10	Ft
12 In., PC 350 DIP w/polywrap, SD–TD–1	518	Ft
DS_4 In. 45° DIP Bend	2	Ea
12 In. 45° DIP Bend	8	Ea
8 In. X 6 In. DIP Reducer	2	Ea
12 In. X 12 In. X 4 In. DIP Tee	2	Ea
12 In. X 12 In. X 8 In. DIP Tee	2	Ea
12 In. X 12 In. X 12 In. DIP Tee	1	Ea
DS_Gate Valve In Box, 4 In.	2	Ea
Gate Valve In Well, 12 In.	2	Ea
Excavate & Backfill For Water Service Tap And Lead	190	Ft
Fire Hydrant Assembly, Complete	2	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

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WATER MAIN & RESURFACING PROJECT

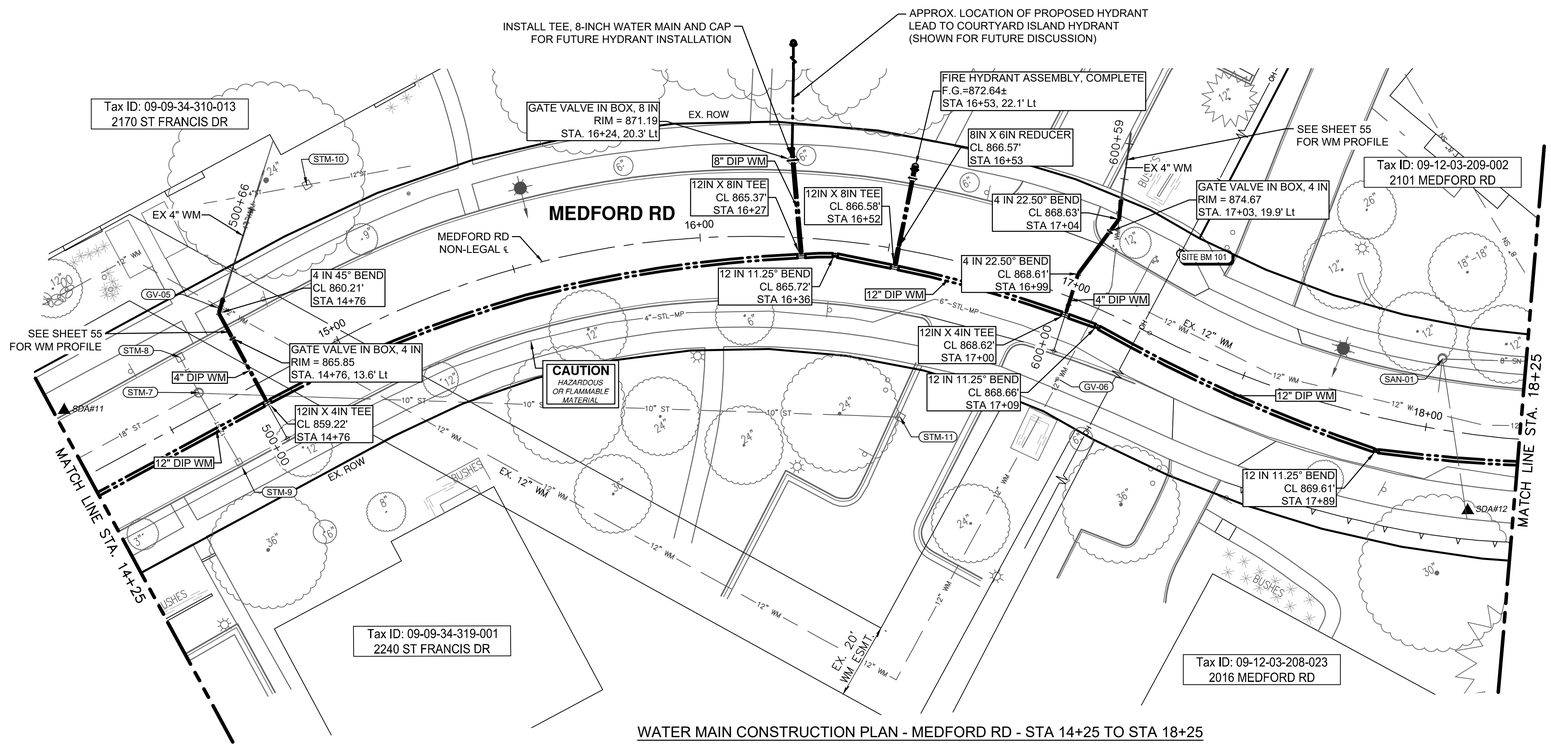
WATER MAIN PLAN & PROFILE - MEDFORD RD STA 10+00 TO STA 14+25

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

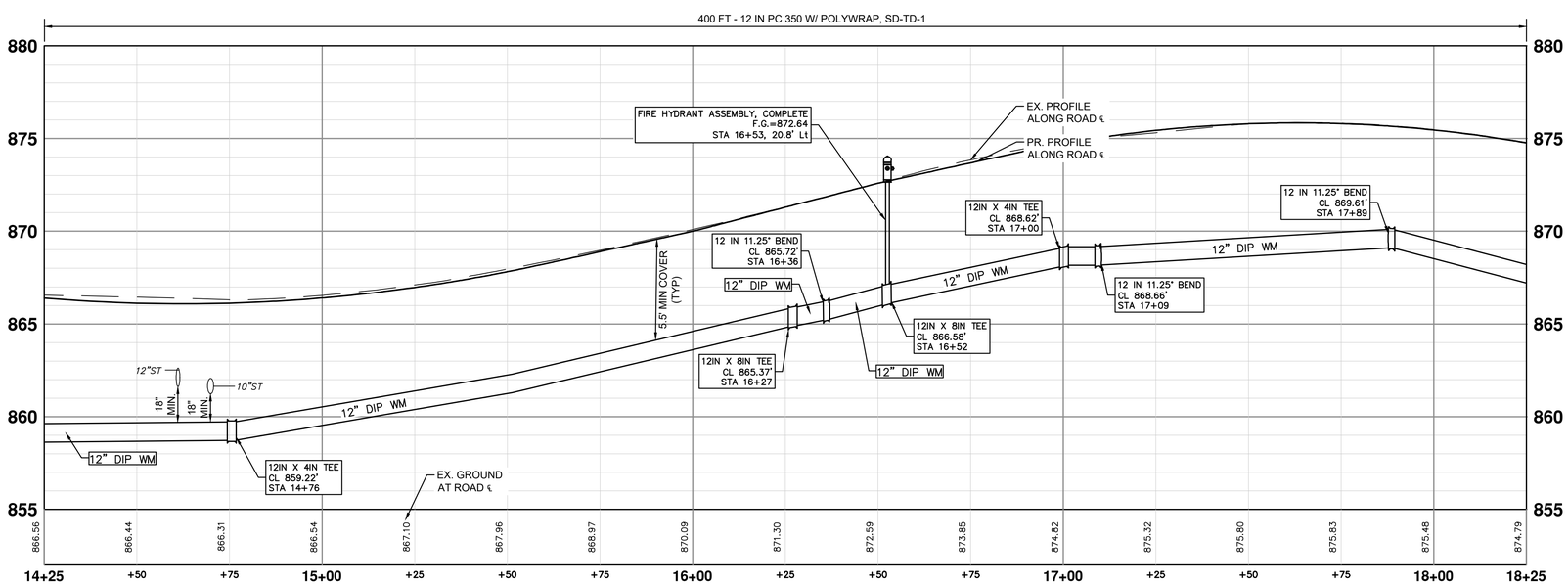
DRAWING No. 2025-2026-18

SHEET No. 18 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_MEDFORD.dwg Dwg Created: 22-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 14+25 TO STA 18+25



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 14+25 TO STA 18+25

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
4 In., PC 350 DIP w/polywrap, SD–TD–1	73	Ft
6 In., PC 350 DIP w/polywrap, SD–TD–1	21	Ft
8 In., PC 350 DIP w/polywrap, SD–TD–1	32	Ft
12 In., PC 350 DIP w/polywrap, SD–TD–1	400	Ft
8 In. X 6 In. DIP Reducer	1	Ea
DS_4 In. 22.5° DIP Bend	2	Ea
DS_4 In. 45° DIP Bend	1	Ea
12 In. 11.25° DIP Bend	3	Ea
12 In. X 12 In. X 4 In. DIP Tee	2	Ea
12 In. X 12 In. X 8 In. DIP Tee	2	Ea
DS_Gate Valve In Box, 4 In.	2	Ea
Gate Valve In Box, 8 In.	1	Ea
Fire Hydrant Assembly, Complete	1	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)

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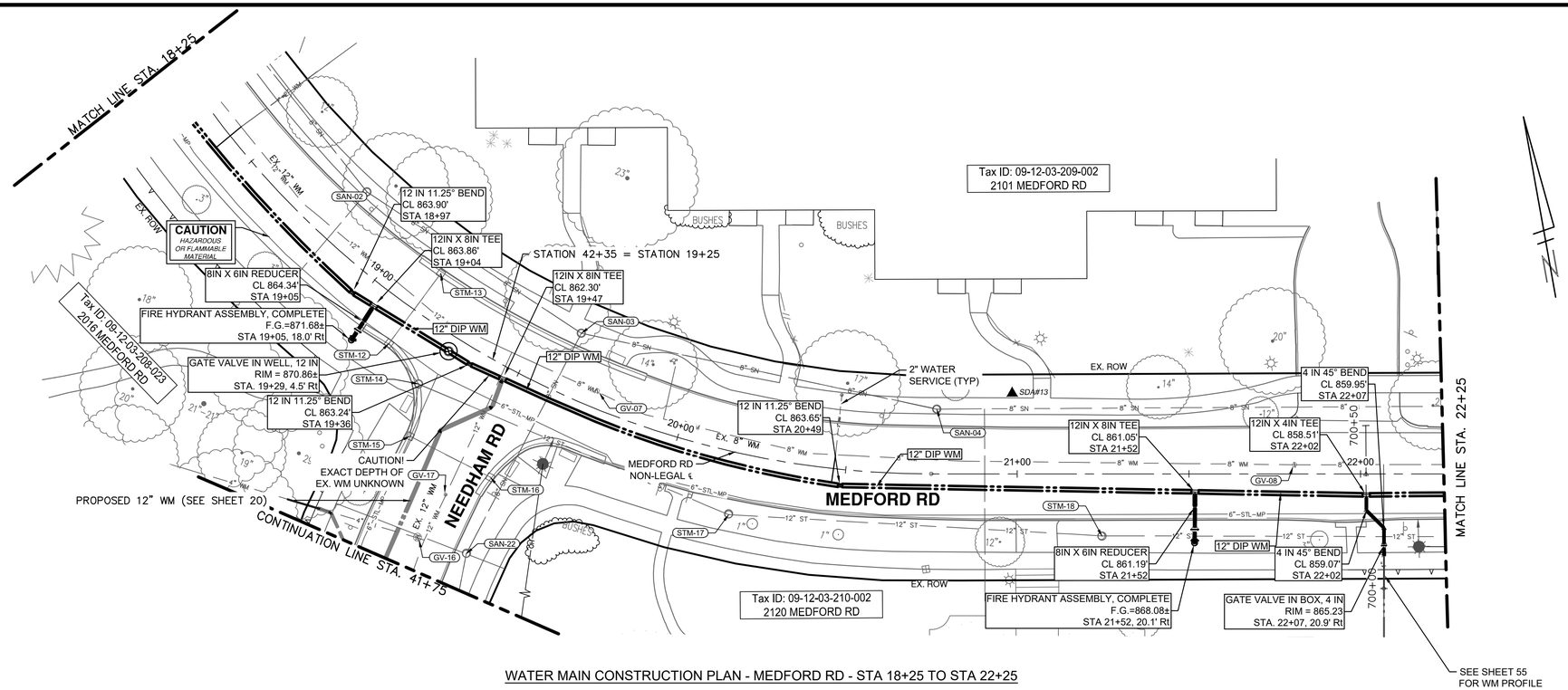
WATER MAIN & RESURFACING PROJECT

WATER MAIN PLAN & PROFILE - MEDFORD RD STA 14+25 TO STA 18+25

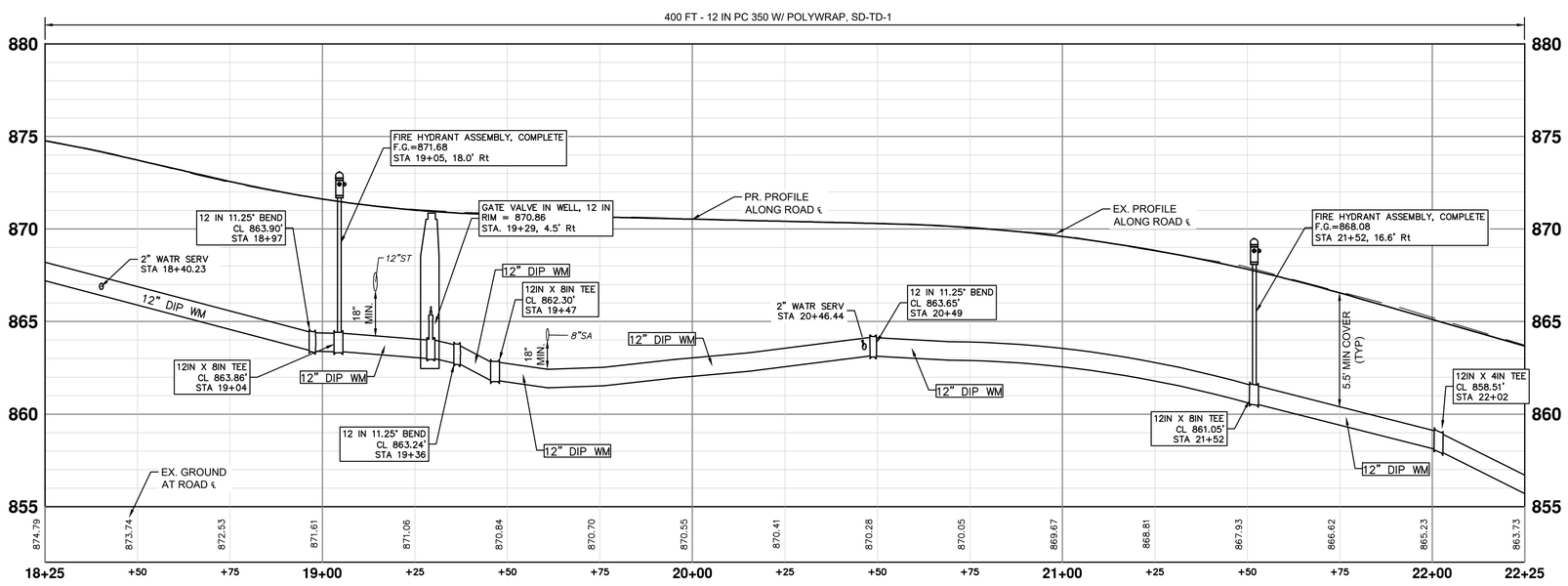
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2025-2026-19

SHEET No.



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 18+25 TO STA 22+25



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 18+25 TO STA 22+25

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
4 In., PC 350 DIP w/polywrap, SD-TD-1	13	Ft
6 In., PC 350 DIP w/polywrap, SD-TD-1	14	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	10	Ft
12 In., PC 350 DIP w/polywrap, SD-TD-1	404	Ft
DS_4 In. 45° DIP Bend	2	Ea
12 In. 11.25° DIP Bend	3	Ea
8 In. X 6 In. DIP Reducer	2	Ea
12 In. X 12 In. X 4 In. DIP Tee	1	Ea
12 In. X 12 In. X 8 In. DIP Tee	3	Ea
DS_Gate Valve In Box, 4 In.	1	Ea
Gate Valve In Well, 12 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	19	Ft
Fire Hydrant Assembly, Complete	2	Ea

NOTES

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3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
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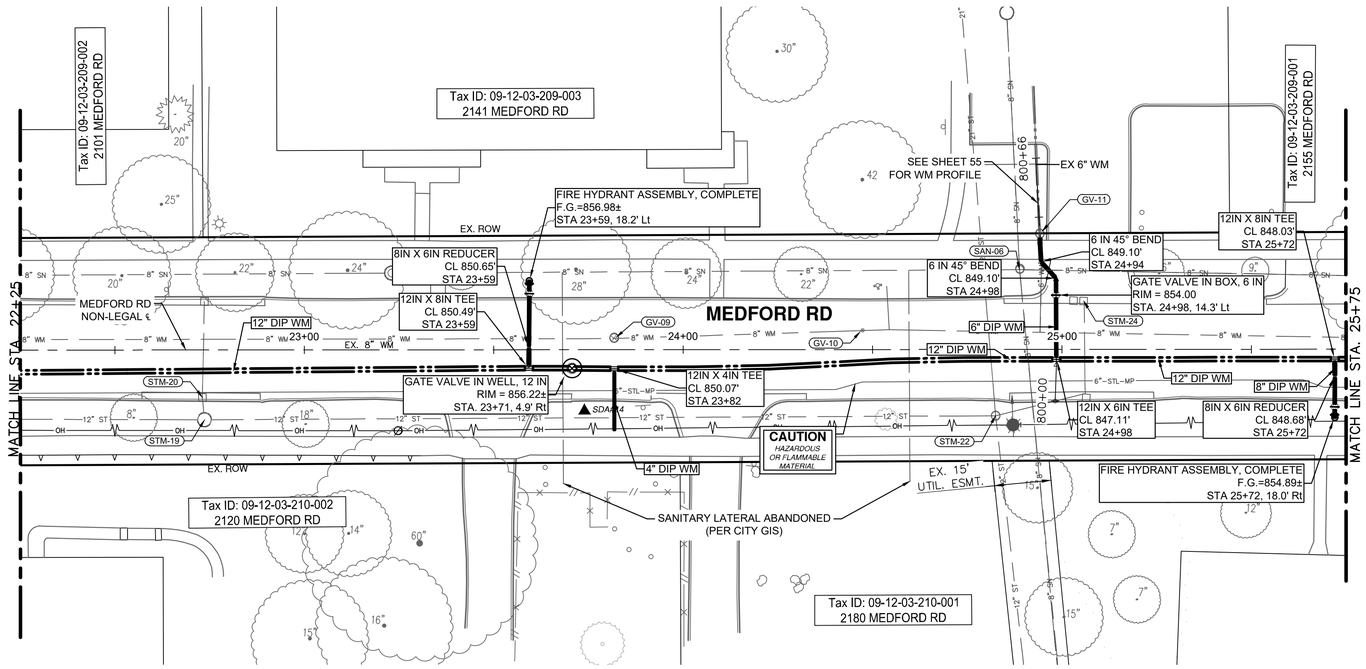
WATER MAIN PLAN & PROFILE - MEDFORD RD STA 18+25 TO STA 22+25

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

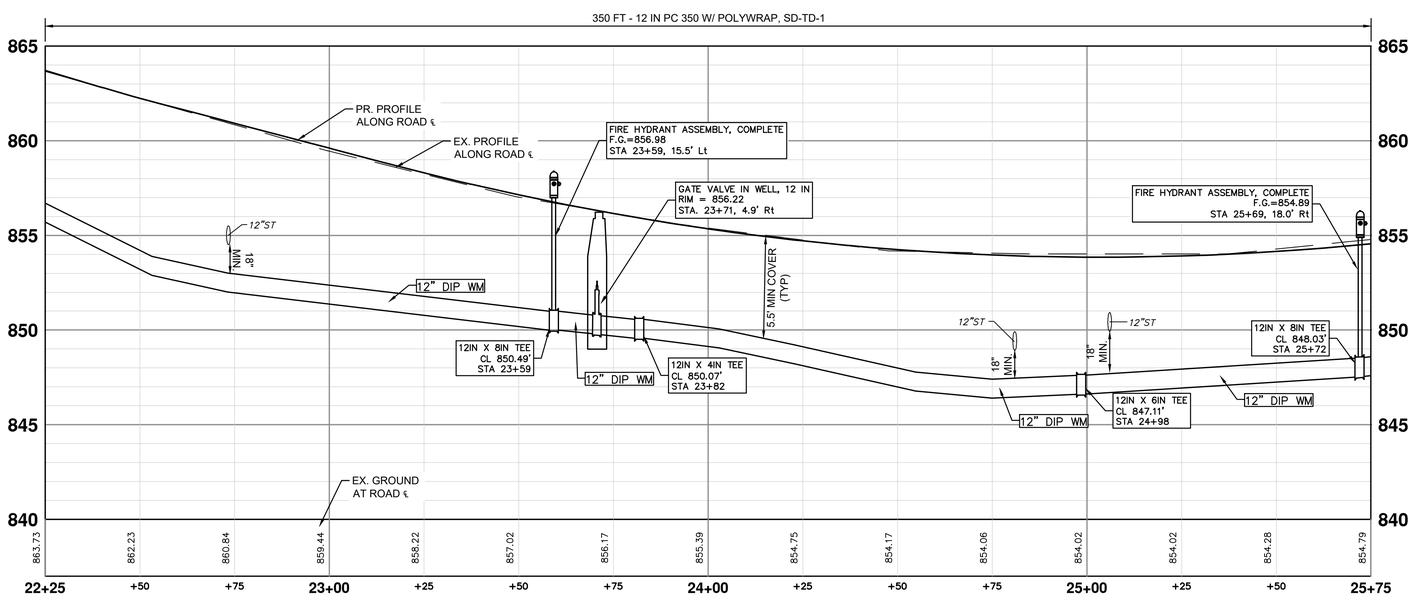
DRAWING No. 2025-2026-20

SHEET No. 20 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_MEDFORD.dwg Dwg Created: 22-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 22+25 TO STA 25+75



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 22+25 TO STA 25+75

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
4 In., PC 350 DIP w/polywrap, SD–TD–1	16	Ft
6 In., PC 350 DIP w/polywrap, SD–TD–1	64	Ft
8 In., PC 350 DIP w/polywrap, SD–TD–1	10	Ft
12 In., PC 350 DIP w/polywrap, SD–TD–1	350	Ft
6 In. 45° DIP Bend	2	Ea
8 In. X 6 In. DIP Reducer	2	Ea
12 In. X 12 In. X 4 In. DIP Tee	1	Ea
12 In. X 12 In. X 6 In. DIP Tee	1	Ea
12 In. X 12 In. X 8 In. DIP Tee	2	Ea
Gate Valve In Box, 6 In.	1	Ea
Gate Valve In Well, 12 In.	1	Ea
Fire Hydrant Assembly, Complete	2	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
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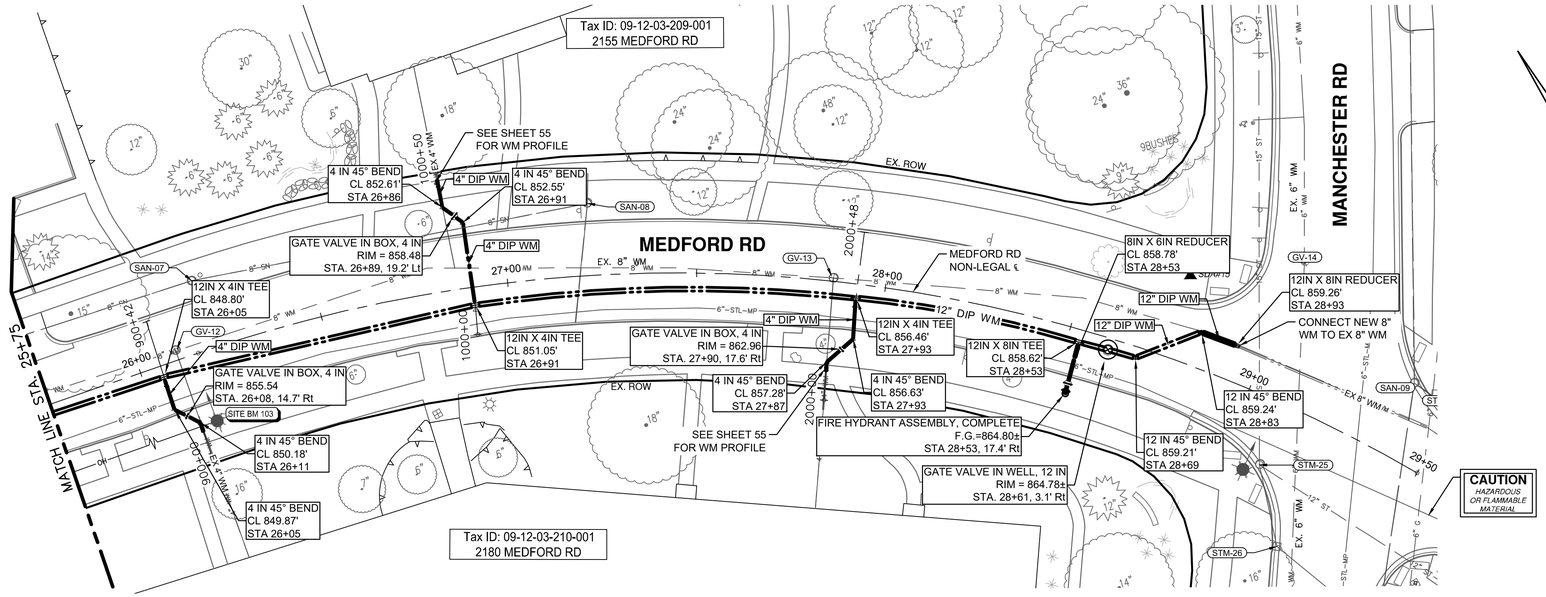
WATER MAIN PLAN & PROFILE - MEDFORD RD STA 22+25 TO STA 25+75

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

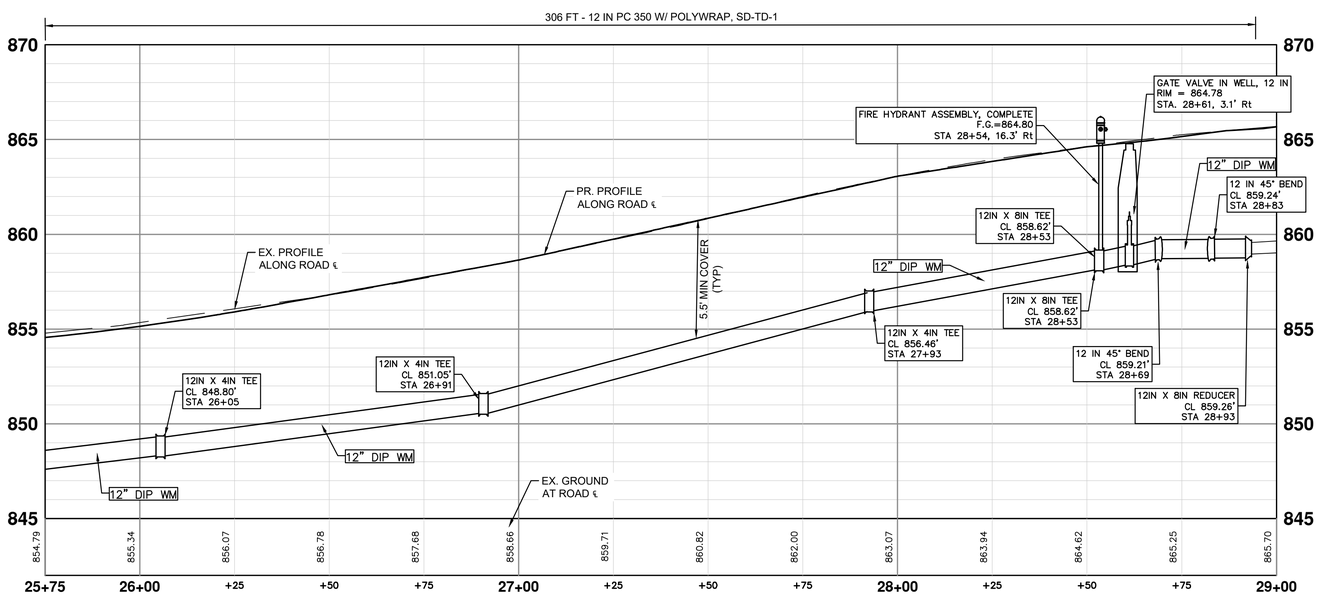
DRAWING No. 2025-2026-21



WATER MAIN CONSTRUCTION PLAN - MEDFORD RD - STA 25+75 TO STA 29+00

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
4 In., PC 350 DIP w/polywrap, SD–TD–1	77	Ft
6 In., PC 350 DIP w/polywrap, SD–TD–1	10	Ft
8 In., PC 350 DIP w/polywrap, SD–TD–1	5	Ft
12 In., PC 350 DIP w/polywrap, SD–TD–1	306	Ft
DS_4 In. 45° DIP Bend	6	Ea
12 In. 45° DIP Bend	2	Ea
12 In. X 12 In. X 4 In. DIP Tee	3	Ea
12 In. X 12 In. X 8 In. DIP Tee	1	Ea
DS_Gate Valve In Box, 4 In.	3	Ea
Gate Valve In Well, 12 In.	1	Ea
Fire Hydrant Assembly, Complete	1	Ea



WATER MAIN CONSTRUCTION PROFILE - MEDFORD RD - STA 25+75 TO STA 29+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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
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3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)

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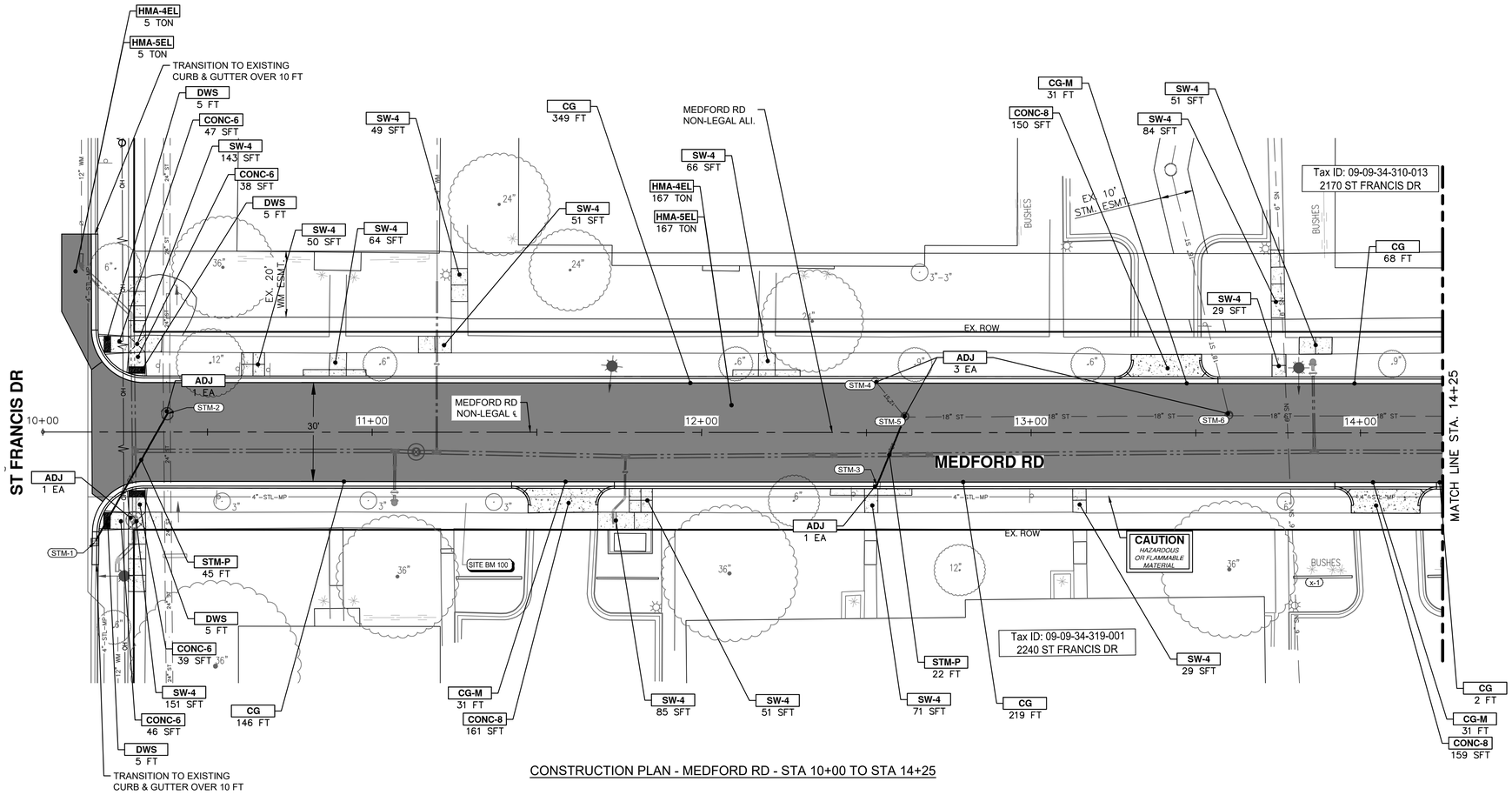
WATER MAIN PLAN & PROFILE - MEDFORD RD STA 25+75 TO STA 29+16

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

DRAWING No. 2025-2026-22

SHEET No.



CONSTRUCTION PLAN - MEDFORD RD - STA 10+00 TO STA 14+25

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2186	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	67	Ft
Pipe Undercut & Backfill, Storm	105	Cyd
Storm Structure Cover	5	Ea
Storm Structure Cover, Adjust	5	Ea
Underdrain, Subbase, 6 In.	877	Ft
Subbase, CIP	24	Cyd
Aggregate Base, 6 In., 21AA, CIP	60	Syd
Aggregate Base, 8 In., 21AA, CIP	1674	Syd
DS_Aggregate Base Conditioning	547	Syd
HMA, 4EL	172	Ton
HMA, 5EL	172	Ton
Conc, Curb or Curb & Gutter, All Types	784	Ft
Conc, Driveway Opening, Type M	93	Ft
Conc, Sidewalk, 4 In.	1074	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	170	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 8 In.	470	Sft
Detectable Warning Surface	20	Ft
Turf Restoration	730	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

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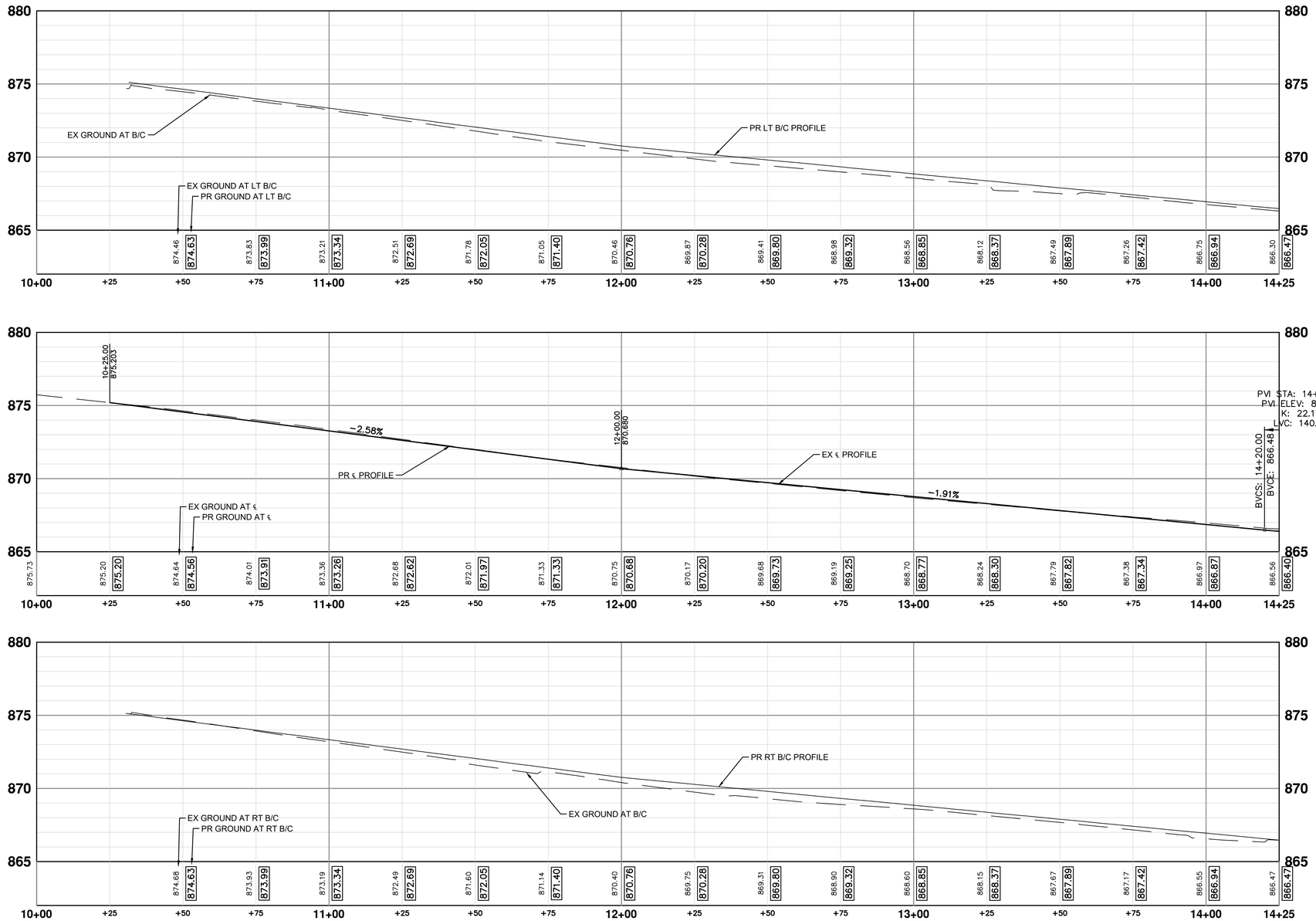
WATER MAIN & RESURFACING PROJECT

CONSTRUCTION PLAN - MEDFORD RD STA 10+00 TO 14+25

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-23



CONSTRUCTION PROFILE - MEDFORD RD - STA 10+00 TO STA 14+25

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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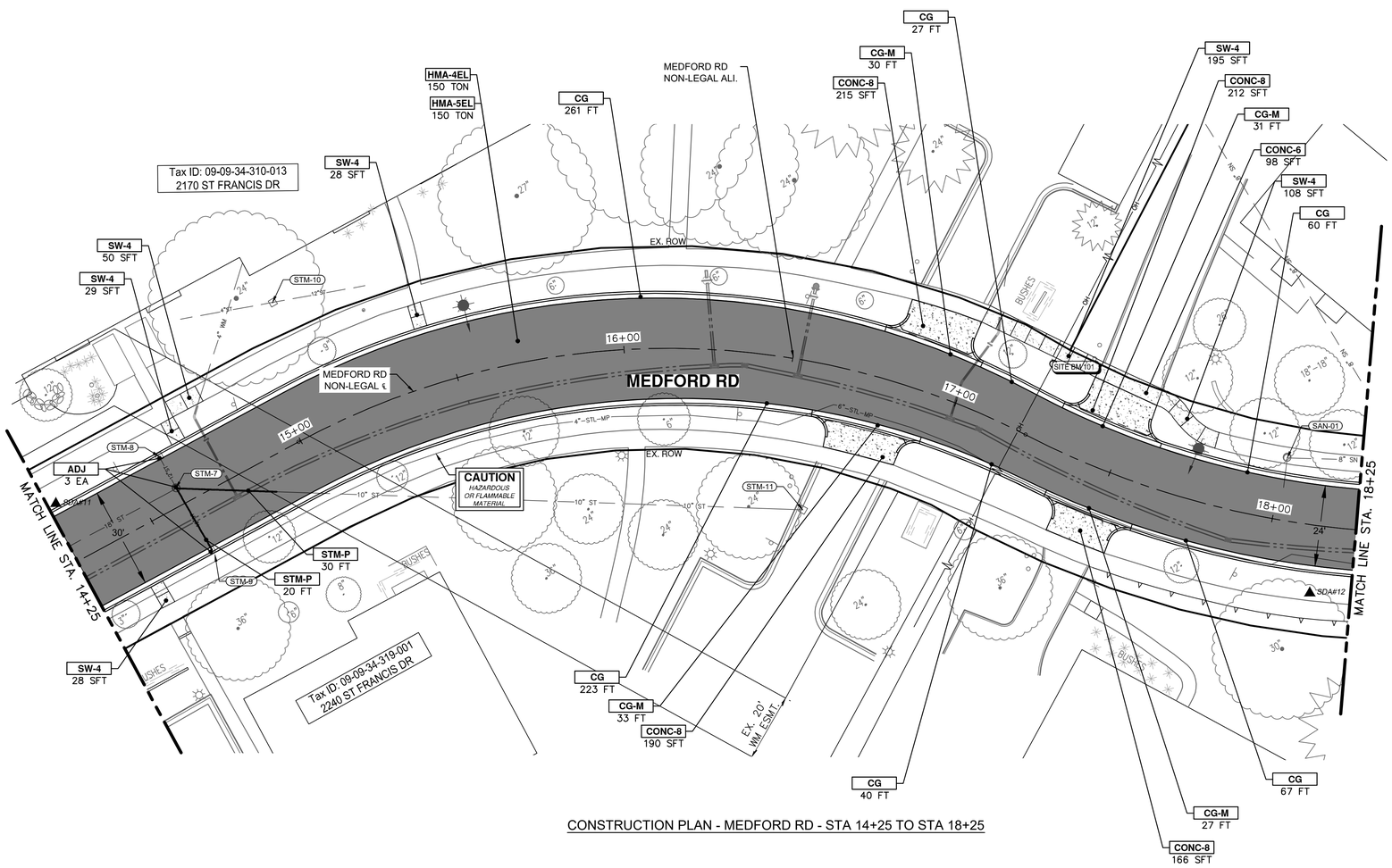
CONSTRUCTION PROFILE - MEDFORD RD STA 10+00 TO 14+25

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

DRAWING No. 2025-2026-24



CONSTRUCTION PLAN - MEDFORD RD - STA 14+25 TO STA 18+25

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2092	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	30	Ft
Pipe Undercut & Backfill, Storm	79	Cyd
Storm Structure Cover	3	Ea
Storm Structure Cover, Adjust	3	Ea
Underdrain, Subbase, 6 In.	799	Ft
Subbase, CIP	11	Cyd
Aggregate Base, 6 In., 21AA, CIP	99	Syd
Aggregate Base, 8 In., 21AA, CIP	1502	Syd
DS_Aggregate Base Conditioning	534	Syd
HMA, 4EL	150	Ton
HMA, 5EL	150	Ton
Conc, Curb or Curb & Gutter, All Types	678	Ft
Conc, Driveway Opening, Type M	121	Ft
Conc, Sidewalk, 4 In.	438	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 8 In.	881	Sft
Turf Restoration	860	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

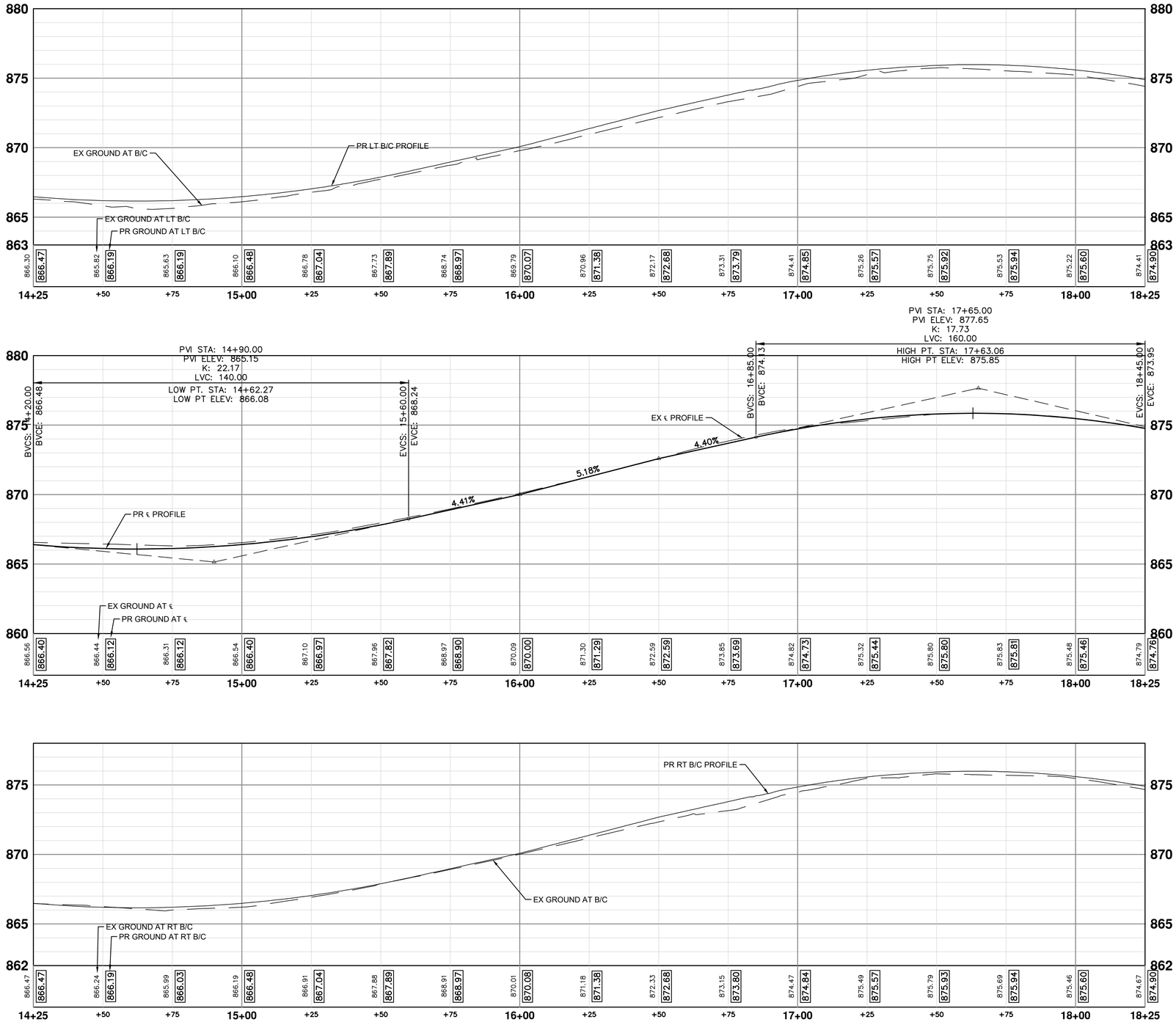
CONSTRUCTION PLAN - MEDFORD RD STA 14+25 TO 18+25

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-25

SHEET No. 25 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_PPrd_MEDFORD.dwg Dwg Created: 25-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



CONSTRUCTION PROFILE - MEDFORD RD - STA 14+25 TO STA 18+25

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_PPrd_MEDFORD.dwg Dwg Created: 25-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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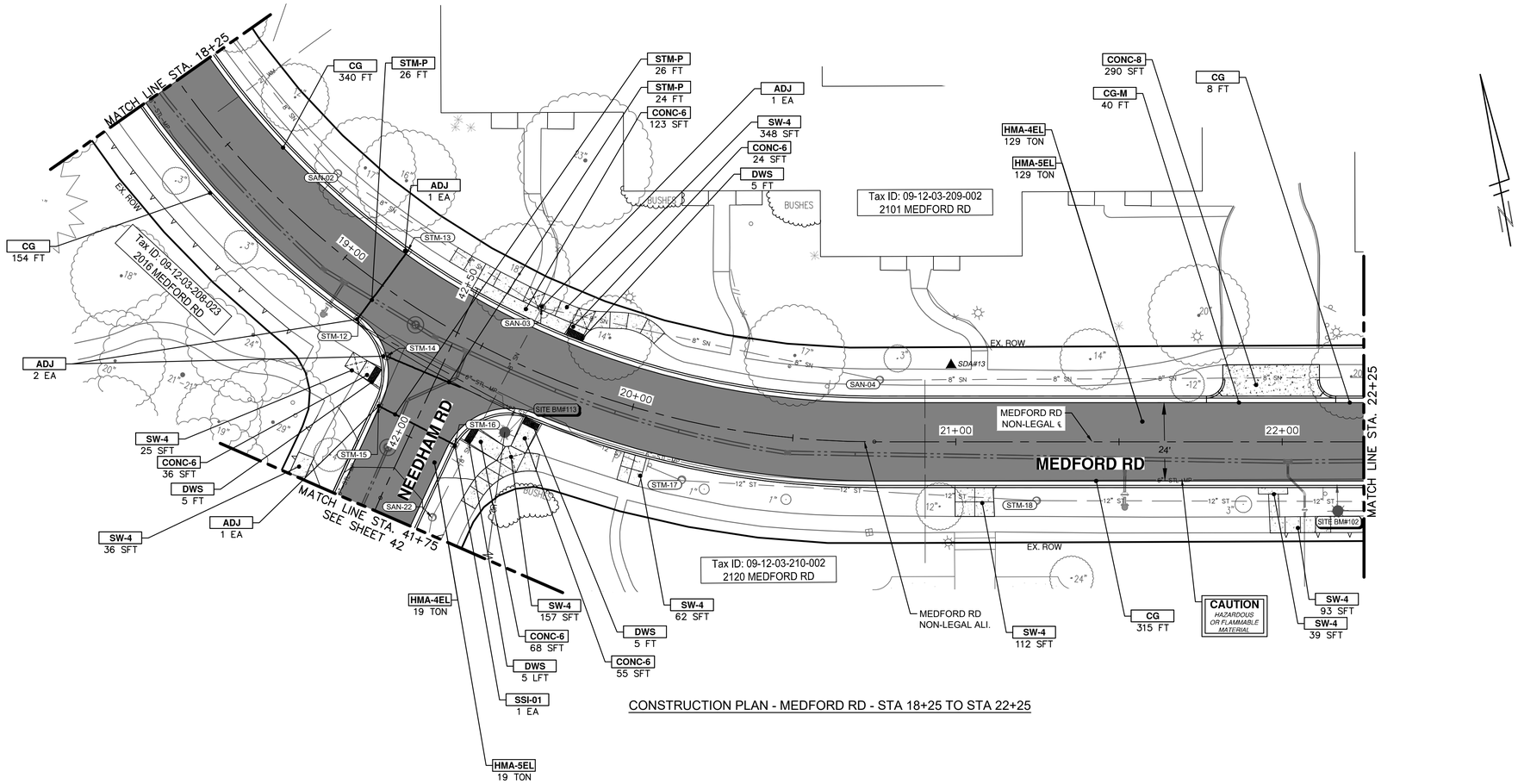
CONSTRUCTION PROFILE - MEDFORD RD STA 14+25 TO 18+25

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

DRAWING No.
2025-2026-26



CONSTRUCTION PLAN - MEDFORD RD - STA 18+25 TO STA 22+25

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2047	Syd
Sanitary Structure Cover	1	Ea
Sanitary Structure Cover, Adjust	1	Ea
12 In., CL IV RCP Storm Sewer, SD–TD–1	76	Ft
Pipe Undercut & Backfill, Storm	120	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	1	Ea
Storm Structure Cover	4	Ea
Storm Structure Cover, Adjust	4	Ea
Underdrain, Subbase, 6 In.	857	Ft
Subbase, CIP	21	Cyd
Aggregate Base, 6 In., 21AA, CIP	37	Syd
Aggregate Base, 8 In., 21AA, CIP	1771	Syd
DS_Aggregate Base Conditioning	668	Syd
HMA, 4EL	148	Ton
HMA, 5EL	148	Ton
Conc, Curb or Curb & Gutter, All Types	817	Ft
Conc, Driveway Opening, Type M	40	Ft
Conc, Sidewalk, 4 In.	872	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	306	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 8 In.	290	Sft
Detectable Warning Surface	20	Ft
Turf Restoration	590	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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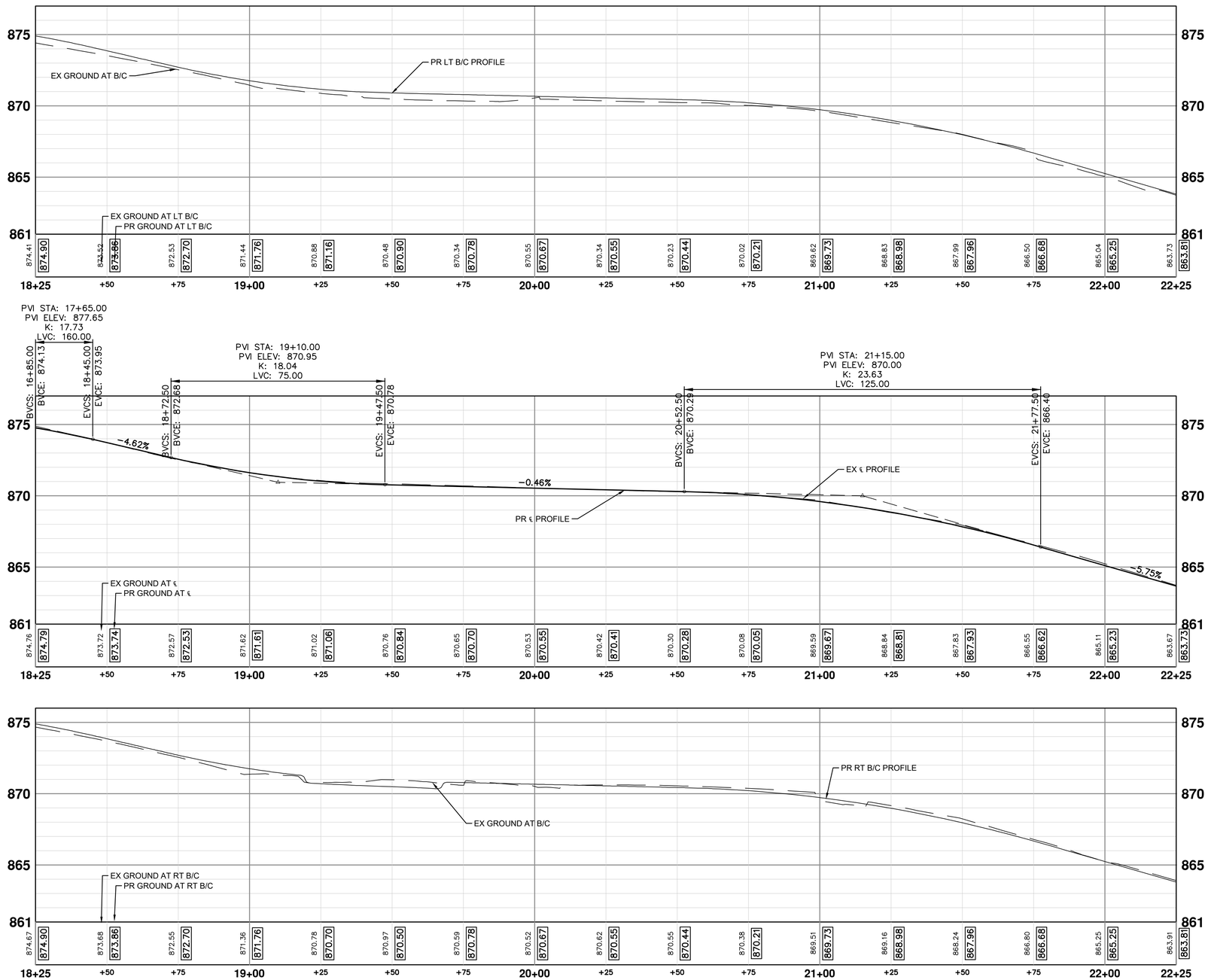
CONSTRUCTION PLAN - MEDFORD RD STA 18+25 TO 22+25

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-27



CONSTRUCTION PLAN - MEDFORD RD - STA 18+25 TO STA 22+25

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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

DRAWING No. 2025-2026-28

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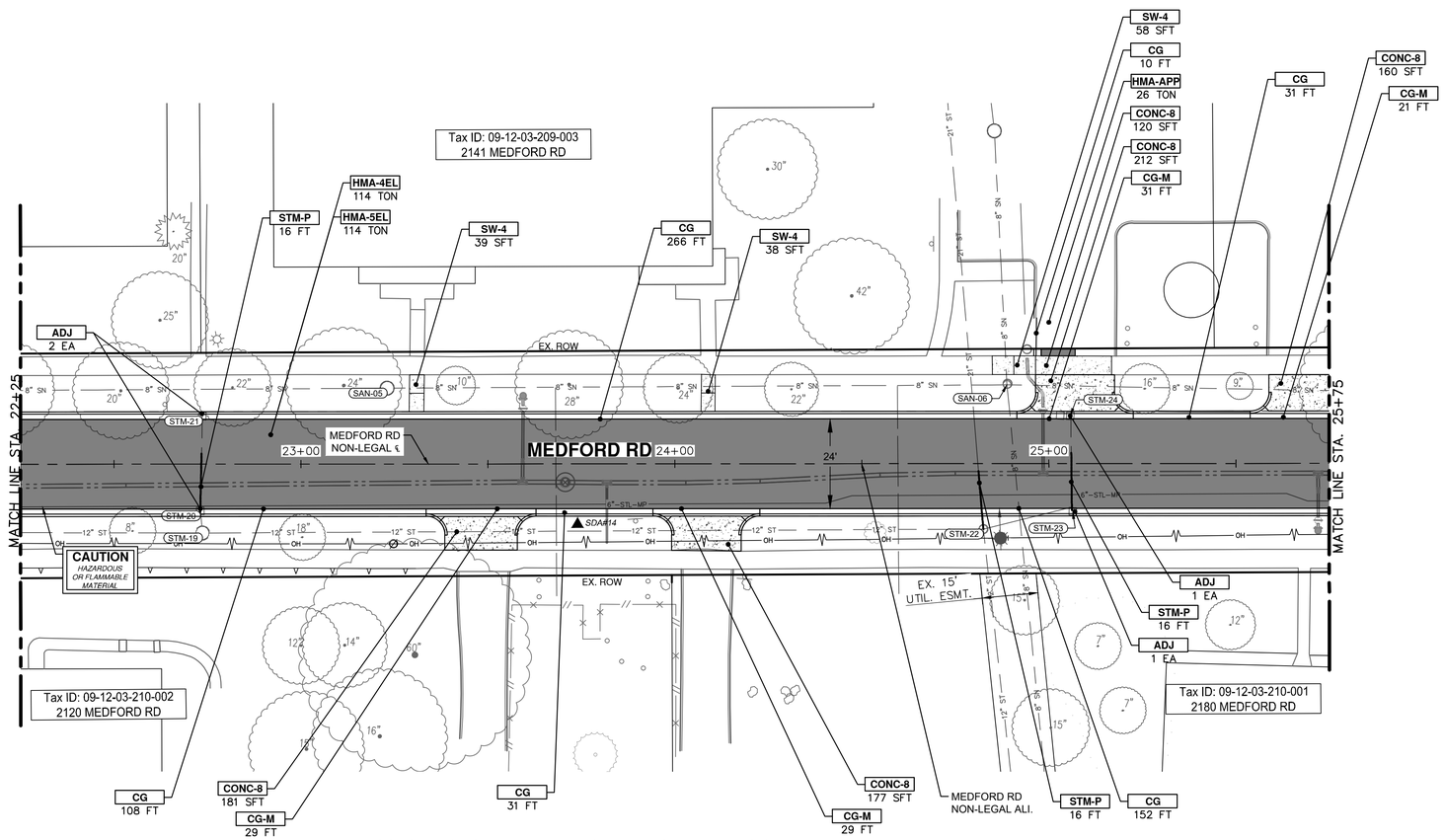
CONSTRUCTION PROFILE - MEDFORD RD STA 18+25 TO 22+25



CONSTRUCTION PLAN - MEDFORD RD - STA 22+25 TO STA 25+75

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	1866	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	16	Ft
Pipe Undercut & Backfill, Storm	25	Cyd
Storm Structure Cover	4	Ea
Storm Structure Cover, Adjust	4	Ea
Underdrain, Subbase, 6 In.	698	Ft
Aggregate Base, 6 In., 21AA, CIP	108	Syd
Aggregate Base, 8 In., 21AA, CIP	1167	Syd
DS_Aggregate Base Conditioning	467	Syd
HMA Approach	26	Ton
HMA, 4EL	114	Ton
HMA, 5EL	114	Ton
Conc, Curb or Curb & Gutter, All Types	588	Ft
Conc, Driveway Opening, Type M	110	Ft
Conc, Sidewalk, 4 In.	135	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 8 In.	850	Sft
Turf Restoration	780	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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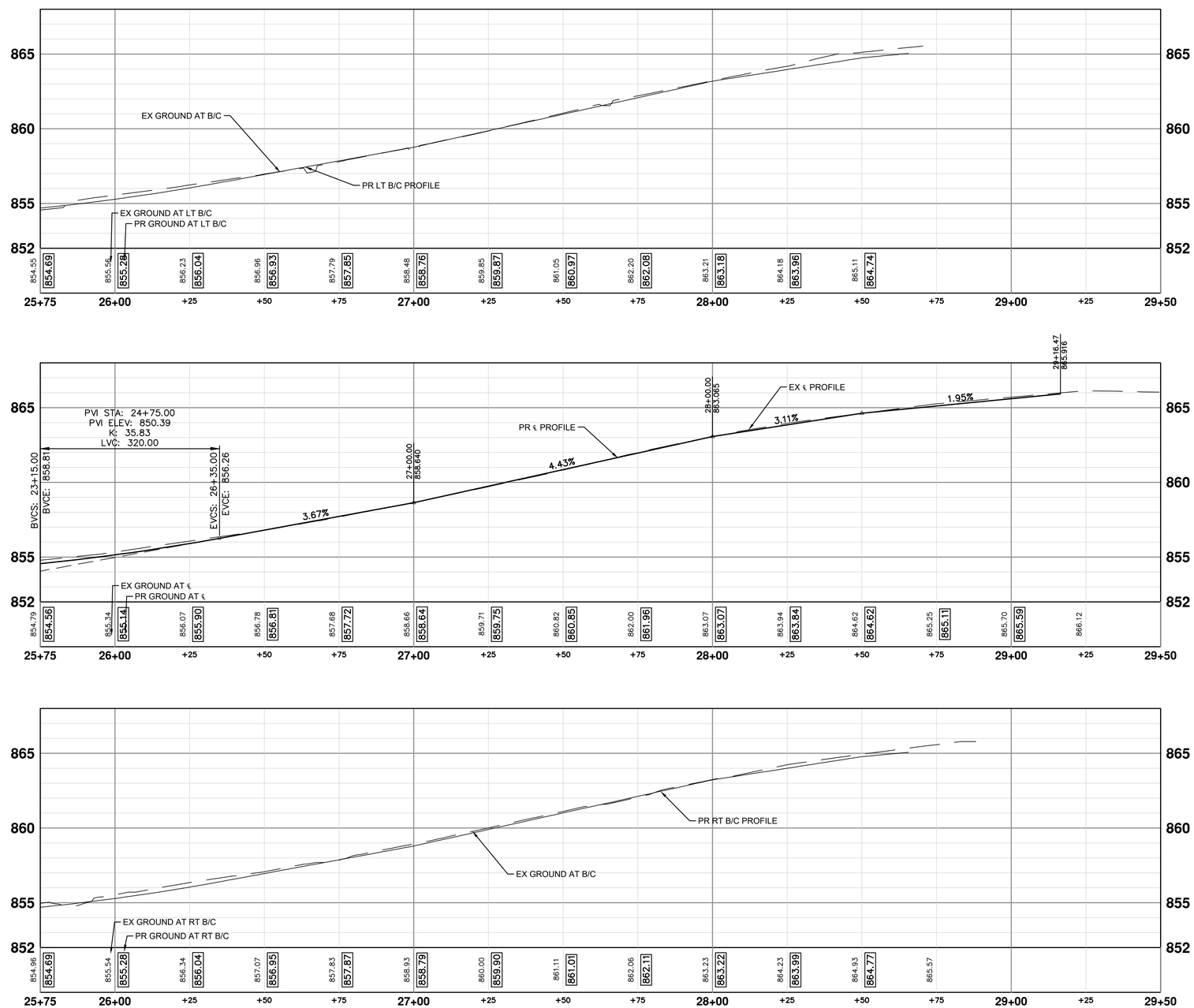
CONSTRUCTION PLAN - MEDFORD RD STA 22+25 TO 25+75

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-29

SHEET No. 29 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_PPrd_MEDFORD.dwg Dwg Created: 25-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



CONSTRUCTION PLAN - MEDFORD RD - STA 25+75 TO STA 29+50

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

REV.	DATE	DRAWN	CHECKED
5	–	–	–
4	–	–	–
3	FINAL PLAN SUBMITTAL 01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL 12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL 07/08/2025	AJ/ML/RD	AL/CH

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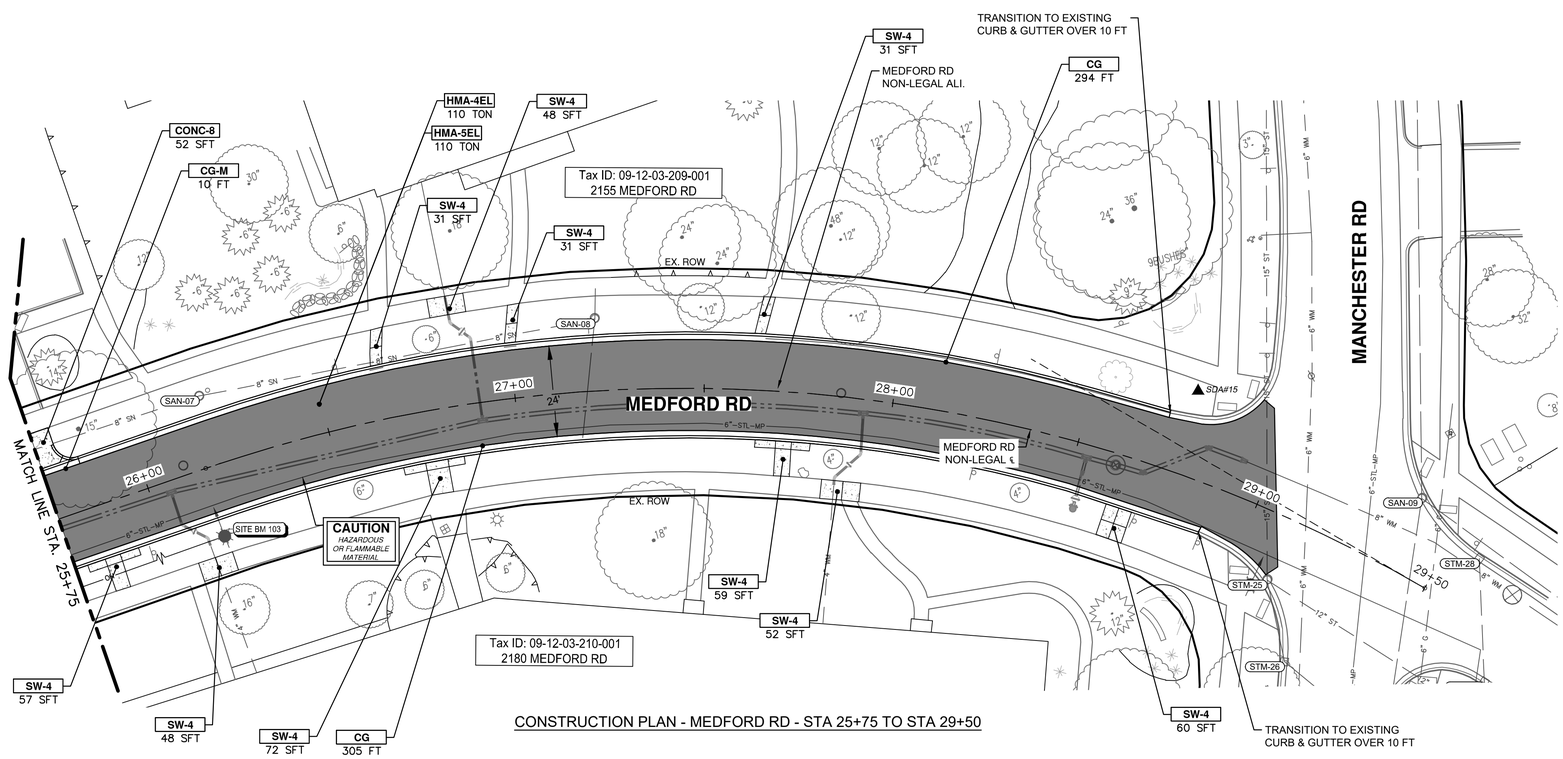
CONSTRUCTION PROFILE - MEDFORD RD STA 22+25 TO 25+75

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

DRAWING No. 2025-2026-30

SHEET No. 30 OF 64



CONSTRUCTION PLAN - MEDFORD RD - STA 25+75 TO STA 29+50

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	1760	Syd
Underdrain, Subbase, 6 In.	609	Ft
Subbase, CIP	10	Cyd
Aggregate Base, 6 In., 21AA, CIP	7	Syd
Aggregate Base, 8 In., 21AA, CIP	1109	Syd
DS_Aggregate Base Conditioning	440	Syd
HMA, 4EL	110	Ton
HMA, 5EL	110	Ton
Conc, Curb or Curb & Gutter, All Types	599	Ft
Conc, Driveway Opening, Type M	10	Ft
Conc, Sidewalk, 4 In.	489	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 8 In.	52	Sft
Turf Restoration	740	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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SCALE PLAN: 1" = 20' PROFILE: N/A

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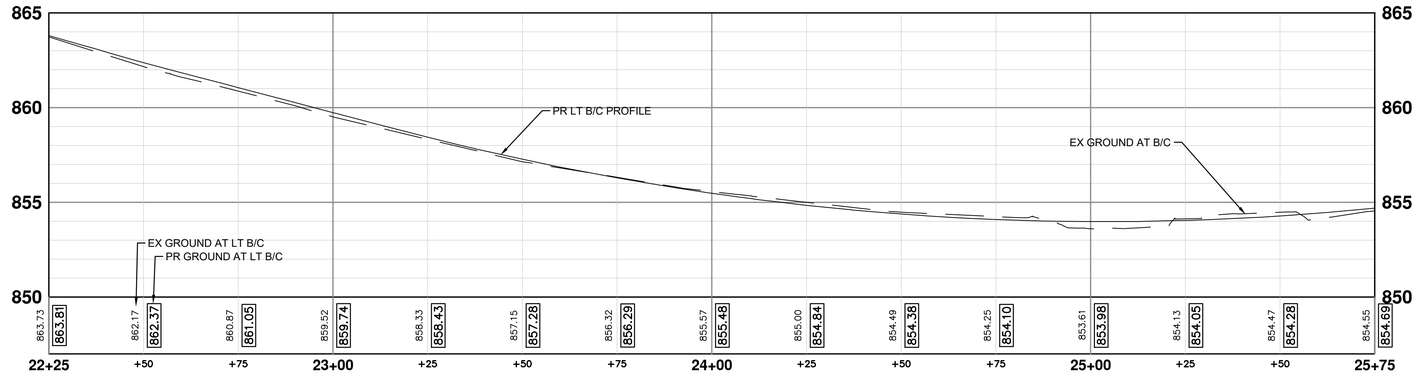
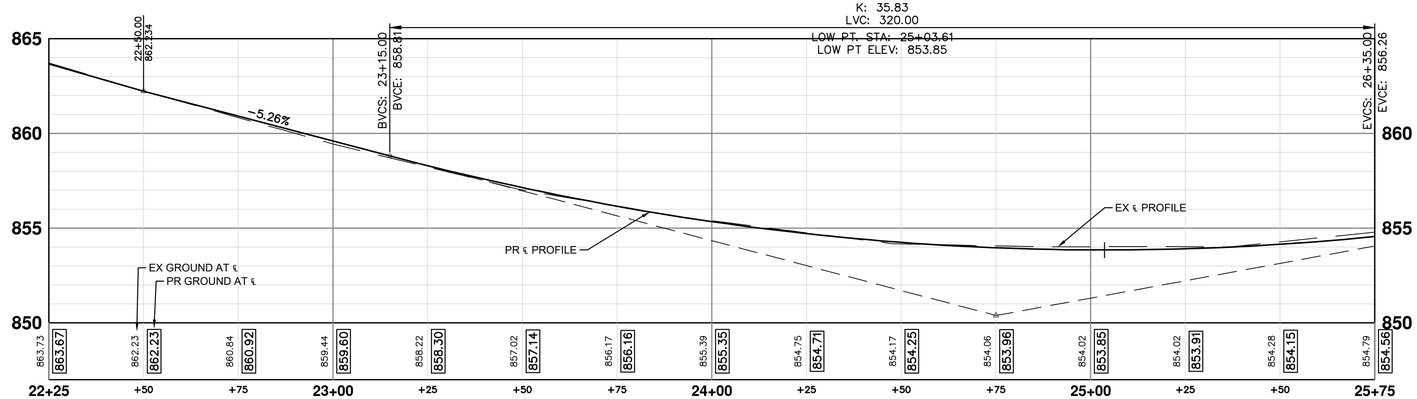
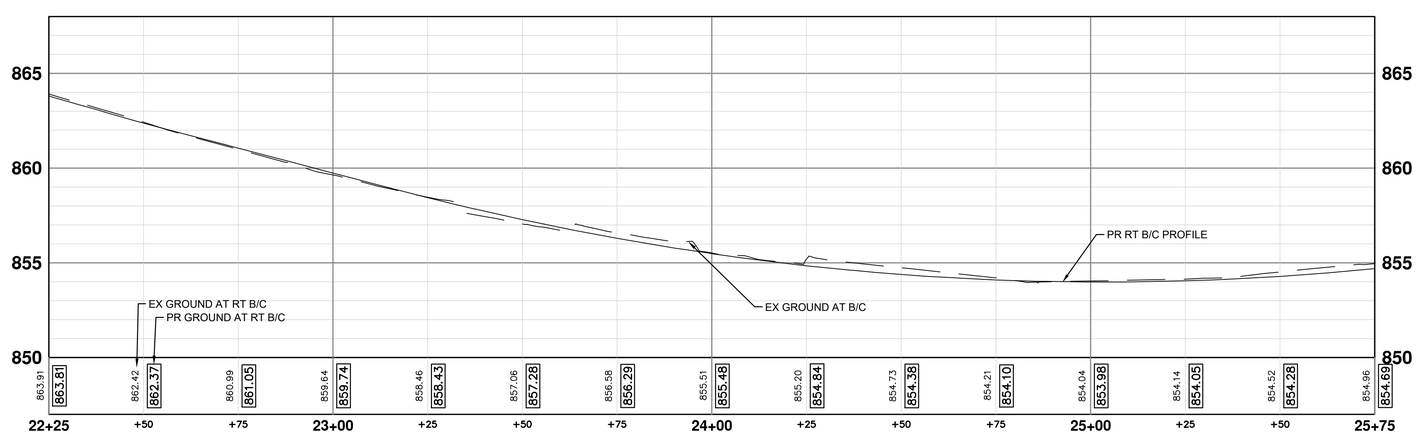
CONSTRUCTION PLAN - MEDFORD RD STA 25+75 TO 29+16

DRAWING No. 2025-2026-31



PVI STA: 24+75.00
PVI ELEV: 850.39
K: 35.83
LVC: 320.00
LOW PT. STA: 25+03.61
LOW PT ELEV: 853.85





CONSTRUCTION PLAN - MEDFORD RD - STA 22+25 TO STA 25+75

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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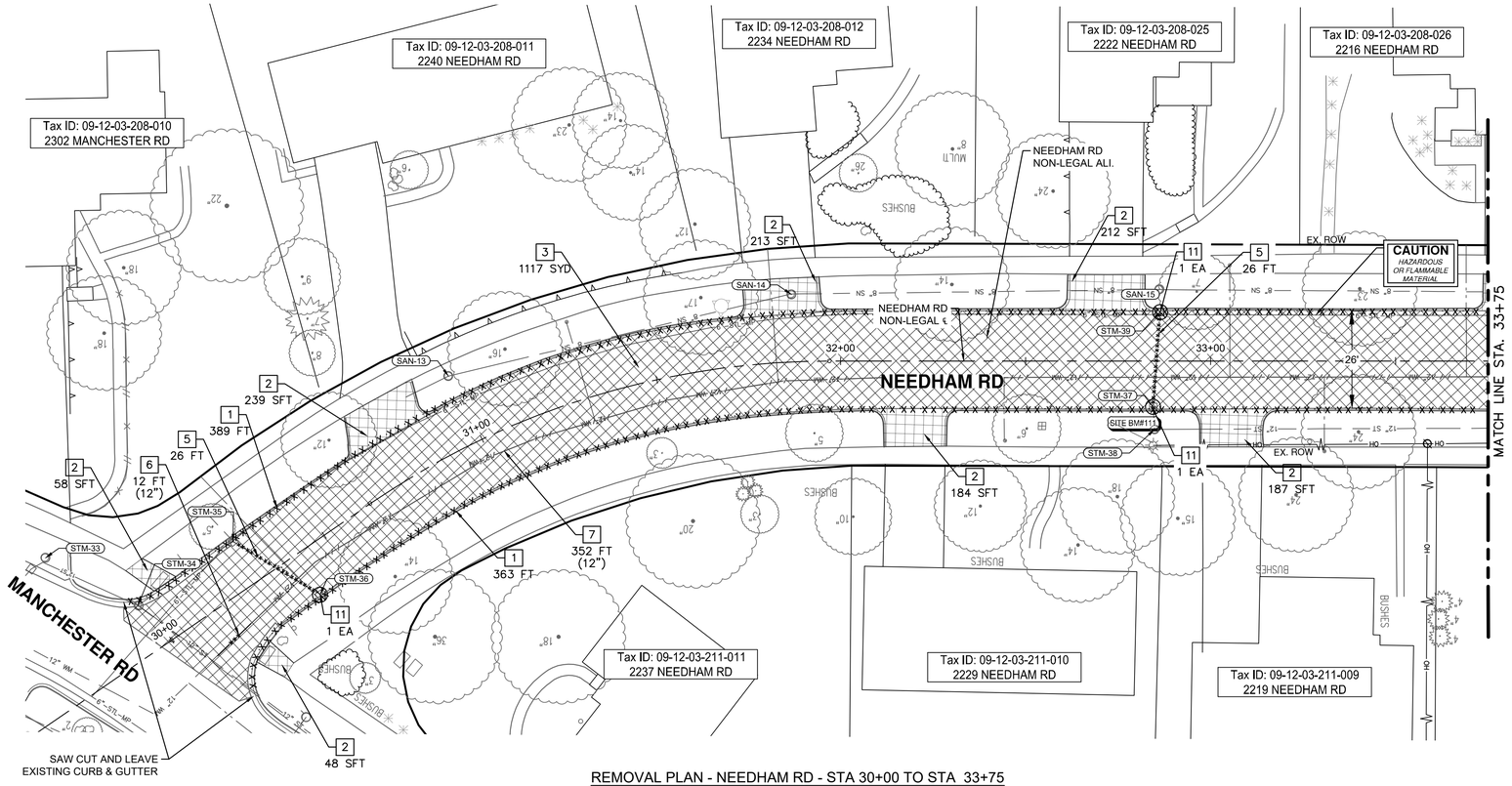
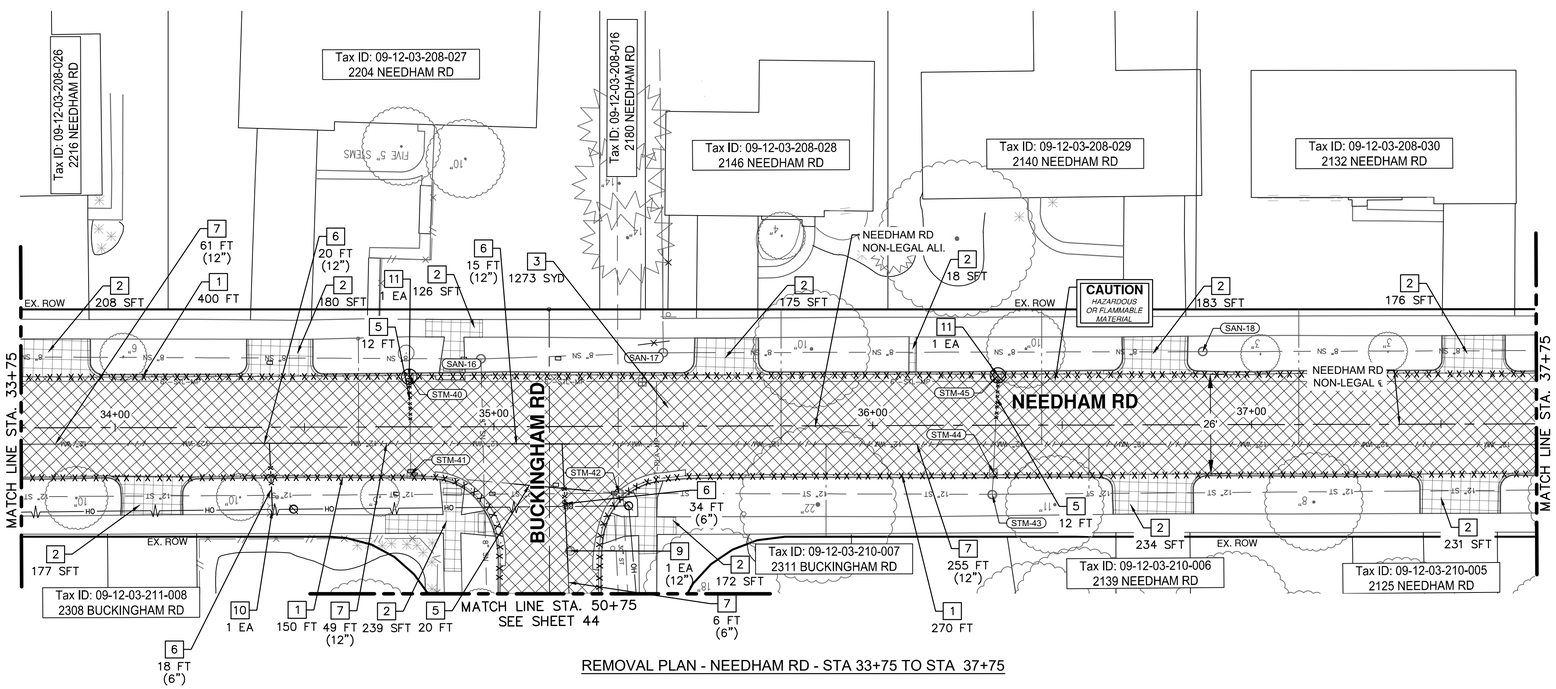
CONSTRUCTION PROFILE - MEDFORD RD STA 25+75 TO 29+16

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

DRAWING No.
2025-2026-32



REMOVAL PLAN - NEEDHAM RD - STA 30+00 TO STA 33+75



REMOVAL PLAN - NEEDHAM RD - STA 33+75 TO STA 37+75

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2390	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1572	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	3260	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	96	Ft
Storm Sewer Drop Structure, Rem	5	Ea
Fire Hydrant Assembly, Rem	1	Ea
Water Main Pipe, 6 In. Dia., Abandon	6	Ft
Water Main Pipe, 12 In. Dia., Abandon	717	Ft
Water Main Pipe, 6 In. Dia., Rem	52	Ft
Water Main Pipe, 12 In. Dia., Rem	47	Ft
Gate Valve in Box, 12 In. Dia., Rem	1	Ea

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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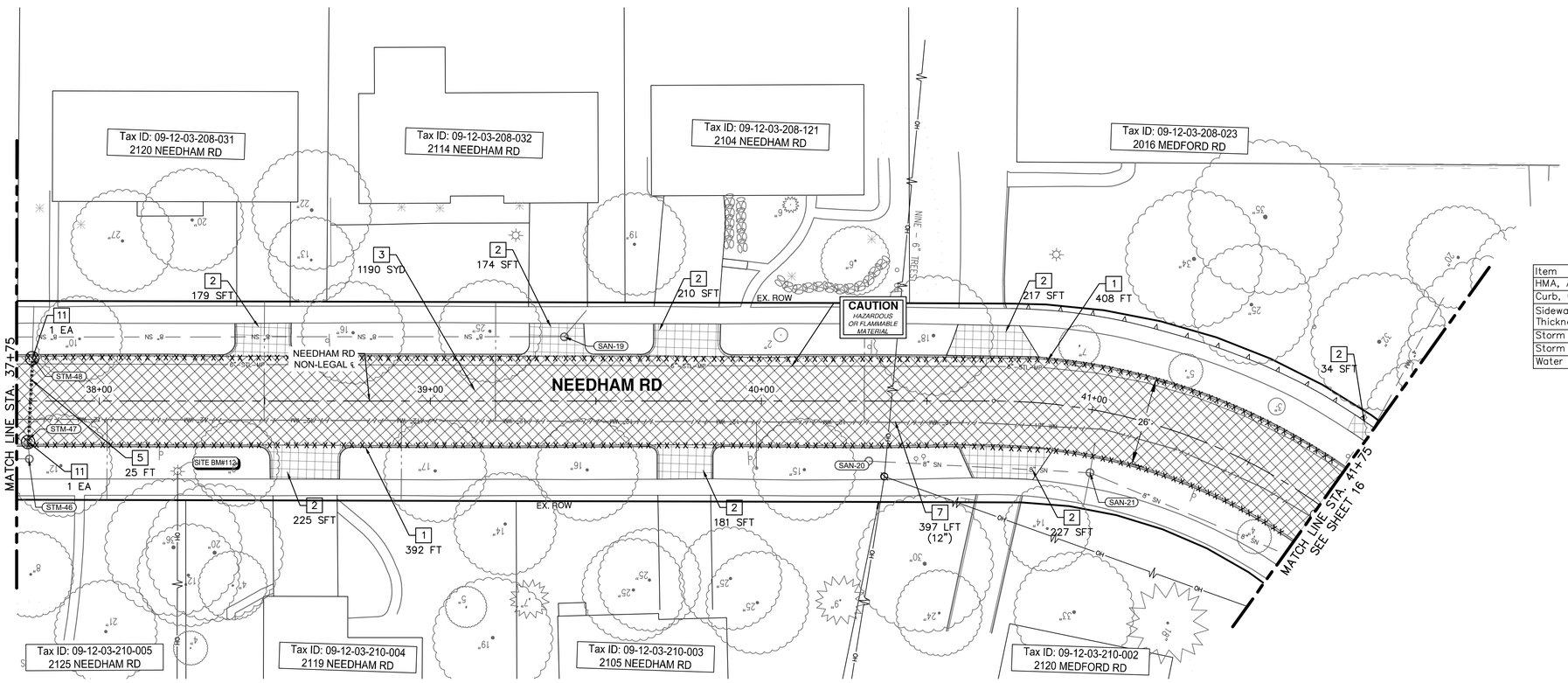
REMOVAL PLAN - NEEDHAM RD - STA 29+97 TO STA 37+75

SCALE PLAN: 1" = 20'
PROFILE: NA
DRAWING No. 2025-2026-33



REMOVAL PLAN - NEEDHAM RD - STA 37+75 TO STA 41+75

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	1190	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	800	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	1447	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	25	Ft
Storm Sewer Drop Structure, Rem	2	Ea
Water Main Pipe, 12 In. Dia., Abandon	397	Ft

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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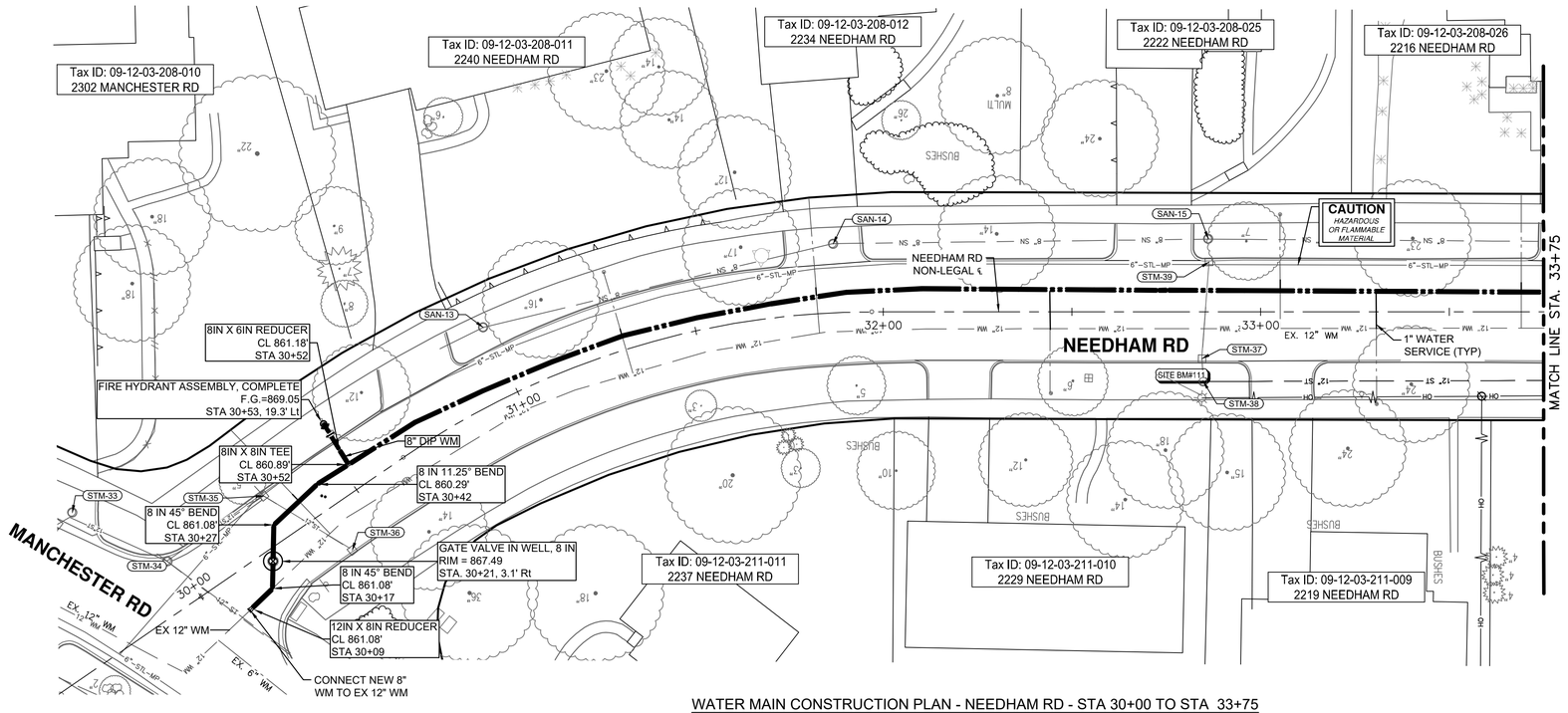
WATER MAIN & RESURFACING PROJECT

REMOVAL PLAN - NEEDHAM RD - STA 37+75 TO STA 41+75

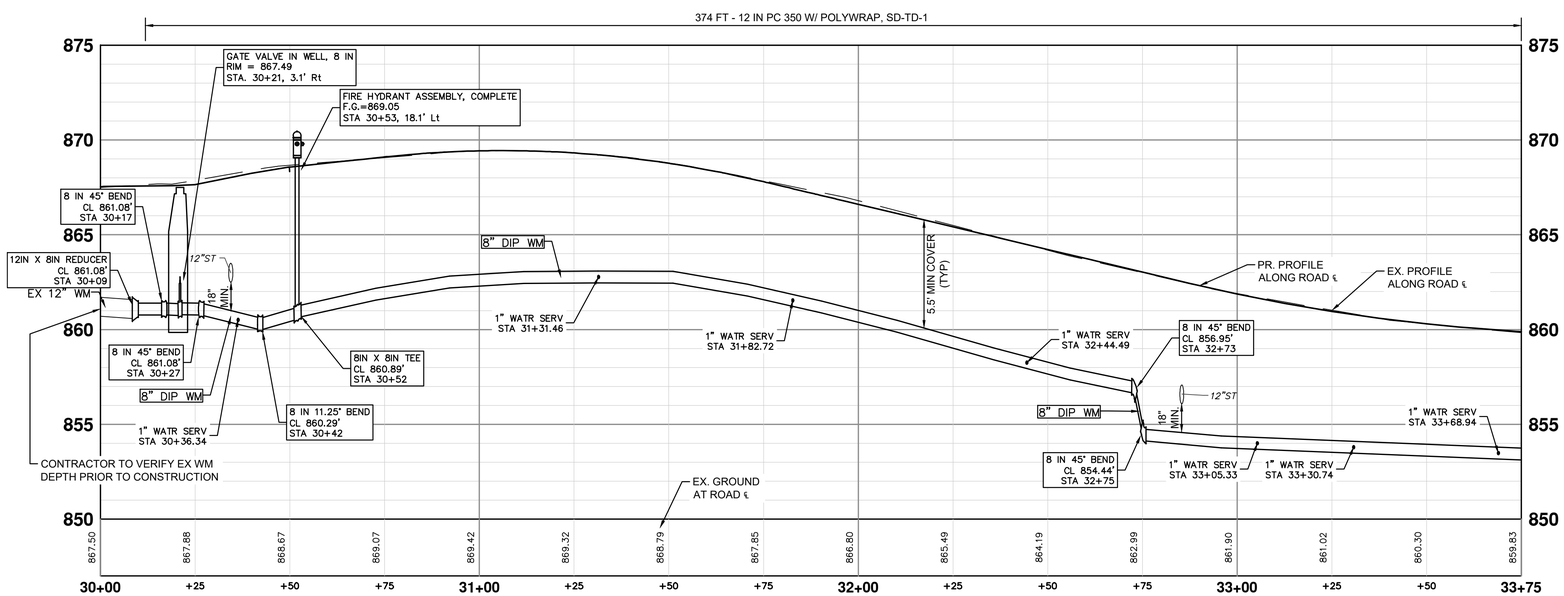
SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-34

SHEET No. 34 OF 64



WATER MAIN CONSTRUCTION PLAN - NEEDHAM RD - STA 30+00 TO STA 33+75



WATER MAIN CONSTRUCTION PROFILE - NEEDHAM RD - STA 30+00 TO STA 33+75

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	7	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	383	Ft
8 In. 11.25° DIP Bend	1	Ea
8 In. 45° DIP Bend	4	Ea
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	34	Ft
Fire Hydrant Assembly, Complete	1	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)
3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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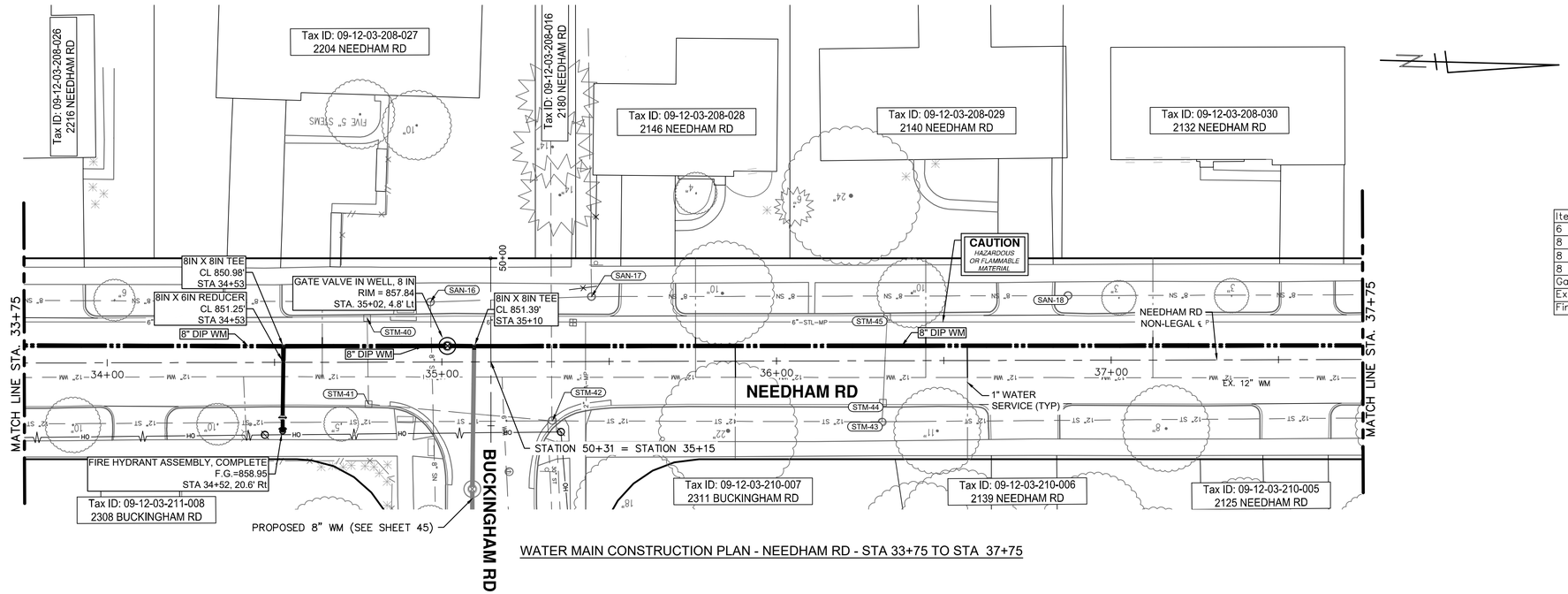
WATER MAIN PLAN & PROFILE - NEEDHAM RD STA 29+97 TO 33+75

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

DRAWING No. 2025-2026-35

SHEET No. 35 OF 64



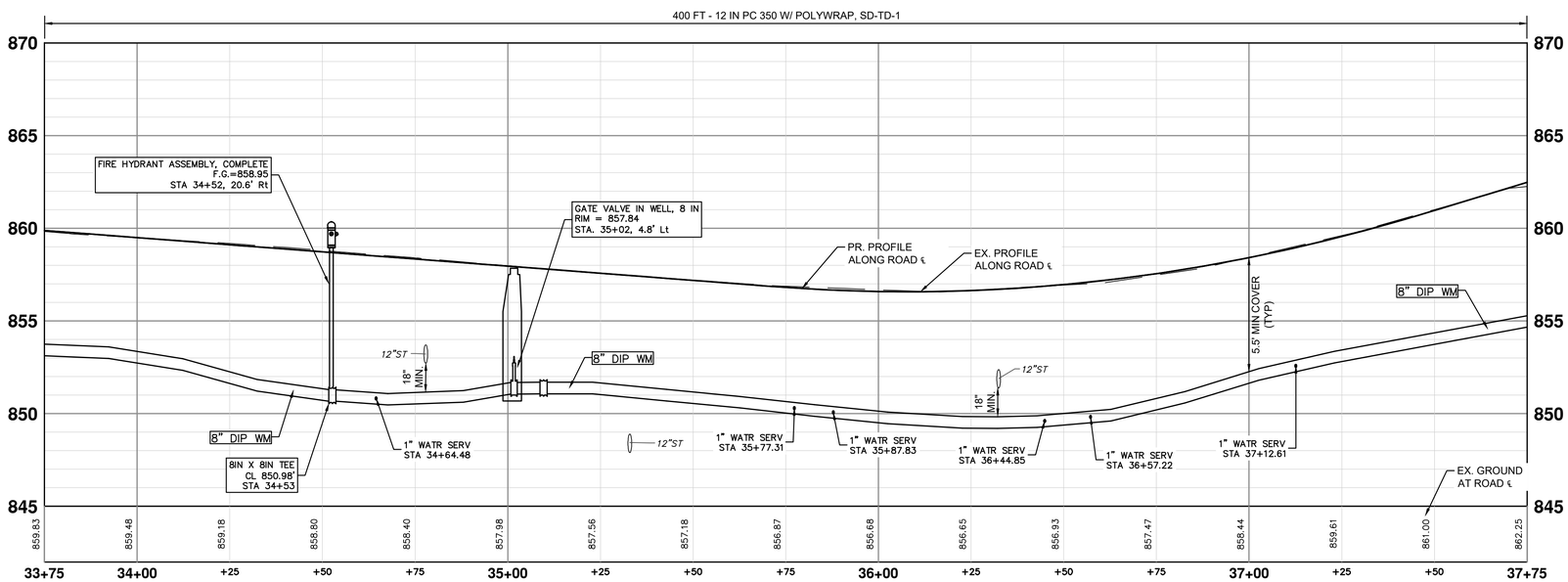
WATER MAIN CONSTRUCTION PLAN - NEEDHAM RD - STA 33+75 TO STA 37+75

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	21	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	405	Ft
8 In. X 6 In. DIP Reducer	1	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	26	Ft
Fire Hydrant Assembly, Complete	1	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)
3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)



WATER MAIN CONSTRUCTION PROFILE - NEEDHAM RD - STA 33+75 TO STA 37+75

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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WATER MAIN & RESURFACING PROJECT

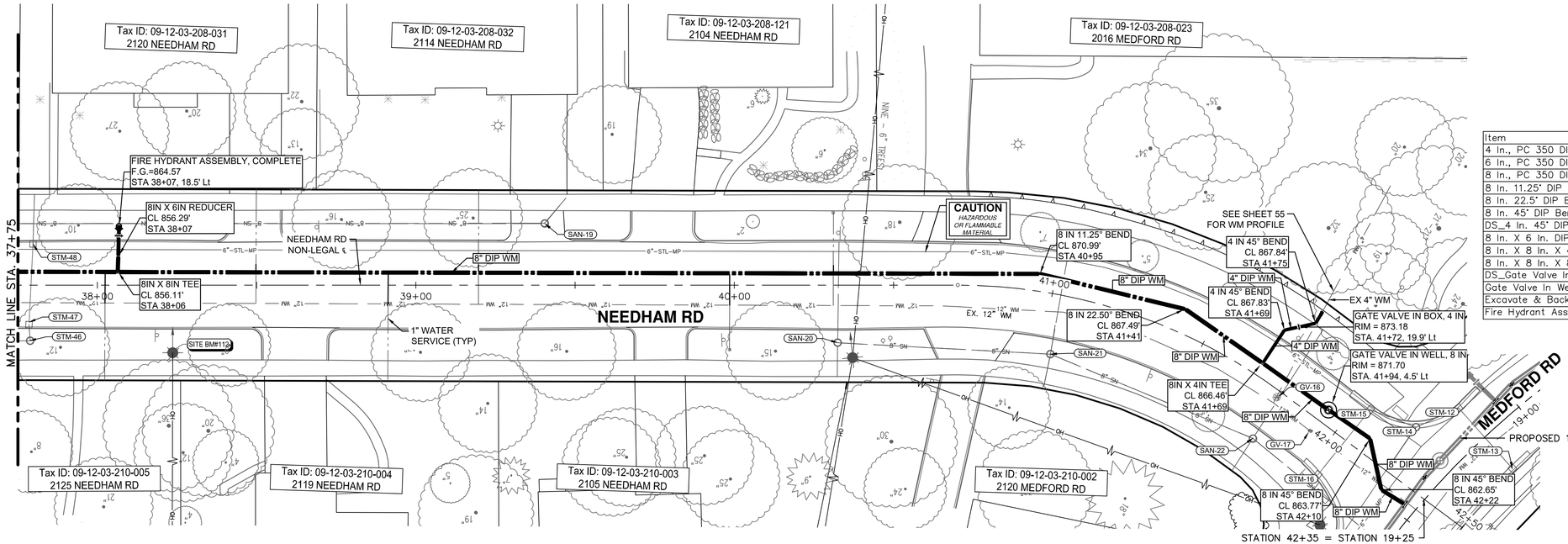
WATER MAIN PLAN & PROFILE - NEEDHAM RD STA 33+75 TO 37+75

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

DRAWING No. 2025-2026-36

SHEET No. 36 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_NEEDHAM.dwg Dwg Created: 6-Jan-26 – _a2 standard bw.stb – Plot Date: 7-Jan-26



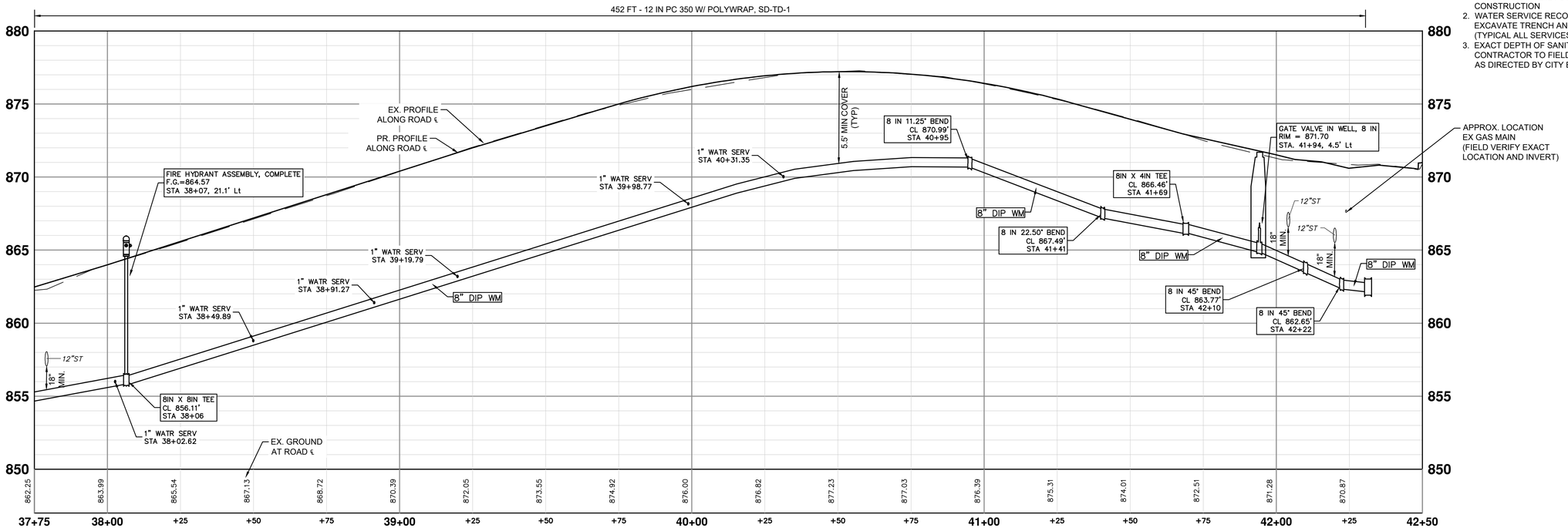
WATER MAIN CONSTRUCTION PLAN - NEEDHAM RD - STA 37+75 TO STA 42+50

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
4 In., PC 350 DIP w/polywrap, SD-TD-1	32	Ft
6 In., PC 350 DIP w/polywrap, SD-TD-1	10	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	469	Ft
8 In. 11.25° DIP Bend	1	Ea
8 In. 22.5° DIP Bend	1	Ea
8 In. 45° DIP Bend	2	Ea
DS_4 In. 45° DIP Bend	2	Ea
8 In. X 6 In. DIP Reducer	1	Ea
8 In. X 8 In. X 4 In. DIP Tee	1	Ea
8 In. X 8 In. X 8 In. DIP Tee	1	Ea
DS_Gate Valve In Box, 4 In.	1	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	33	Ft
Fire Hydrant Assembly, Complete	1	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)
3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)



WATER MAIN CONSTRUCTION PROFILE - NEEDHAM RD - STA 37+75 TO STA 42+50

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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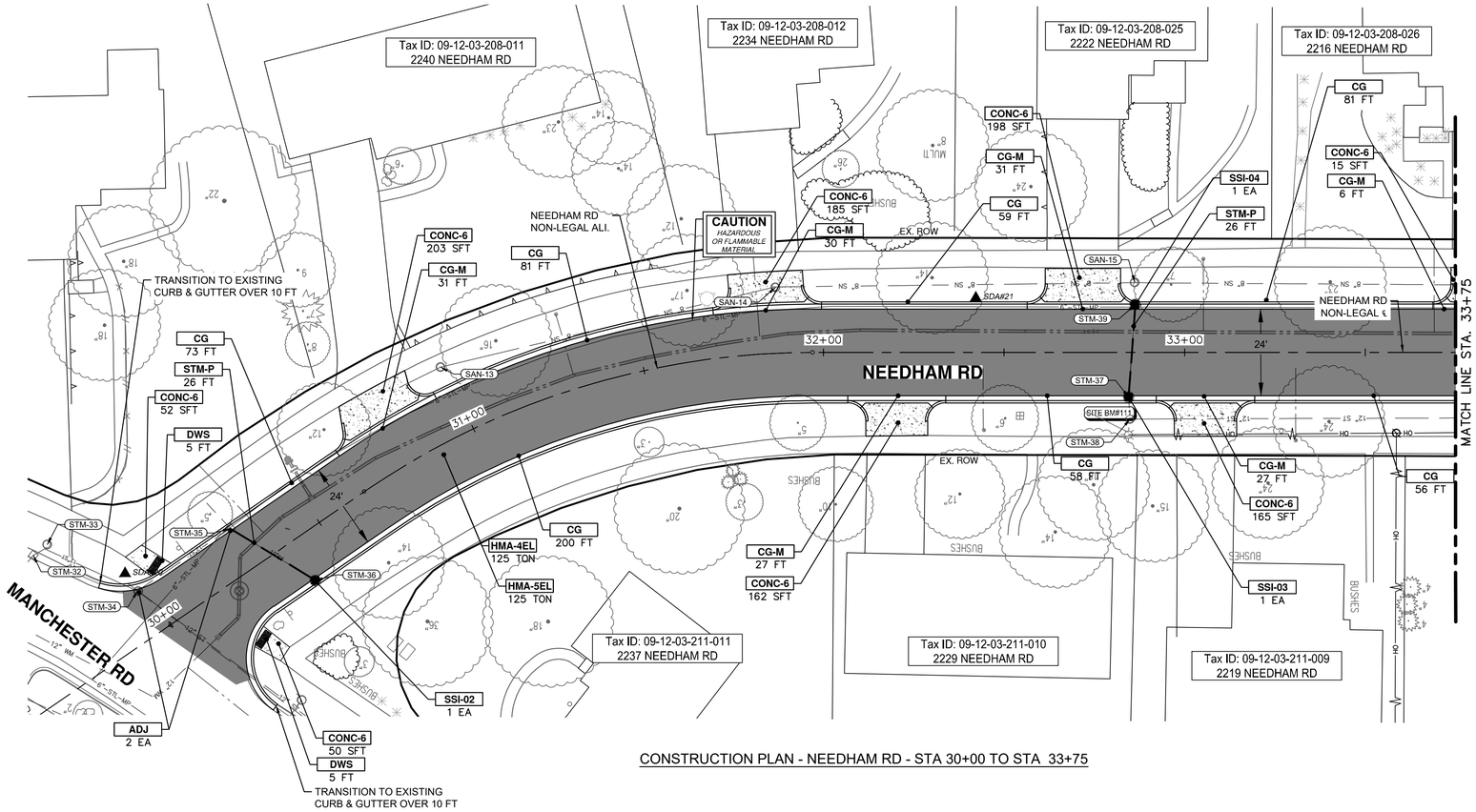
WATER MAIN PLAN & PROFILE - NEEDHAM RD STA 37+75 TO 42+50

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

DRAWING No. 2025-2026-37

SHEET No. 37 OF 64



CONSTRUCTION PLAN - NEEDHAM RD - STA 30+00 TO STA 33+75

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2016	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	52	Ft
Pipe Undercut & Backfill, Storm	82	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	3	Ea
Storm Structure Cover	2	Ea
Storm Structure Cover, Adjust	2	Ea
Underdrain, Subbase, 6 In.	765	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Subbase, CIP	2	Cyd
Aggregate Base, 6 In., 21AA, CIP	119	Syd
Aggregate Base, 8 In., 21AA, CIP	1269	Syd
DS_Aggregate Base Conditioning		Syd
HMA, 4EL	125	Ton
HMA, 5EL	125	Ton
Conc, Curb or Curb & Gutter, All Types	613	Ft
Conc, Driveway Opening, Type M	152	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1030	Sft
Detectable Warning Surface	10	Ft
Turf Restoration	840	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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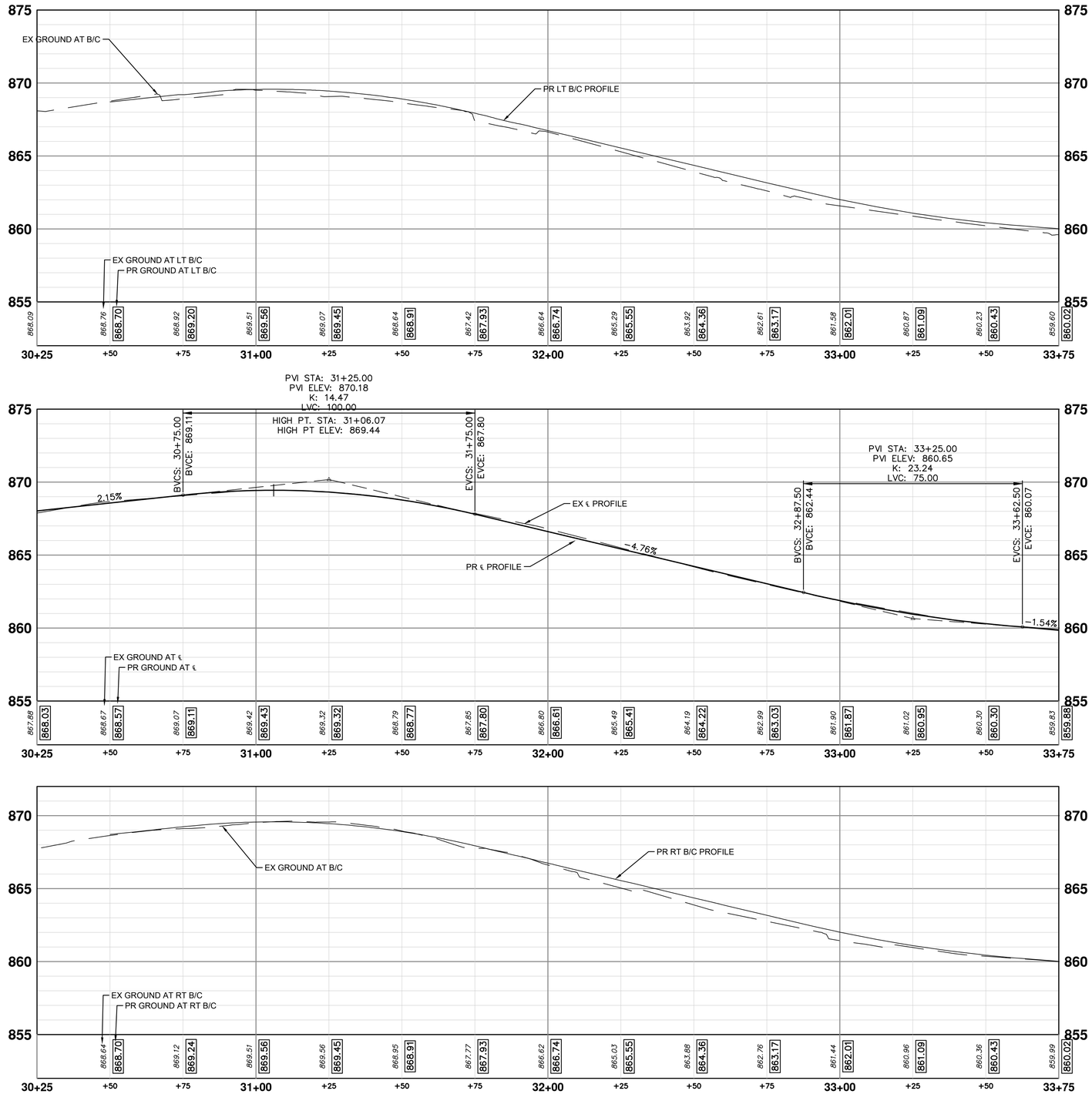
CONSTRUCTION PLAN - NEEDHAM RD STA 29+97 TO 33+75

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-38

SHEET No. 38 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_PPrd_NEEDHAM.dwg Dwg Created: 25-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



CONSTRUCTION PROFILE - NEEDHAM RD - STA 30+00 TO STA 33+75

Know what's below. Call before you dig.

REV.	DATE	DRAWN	CHECKED
5	–	–	–
4	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
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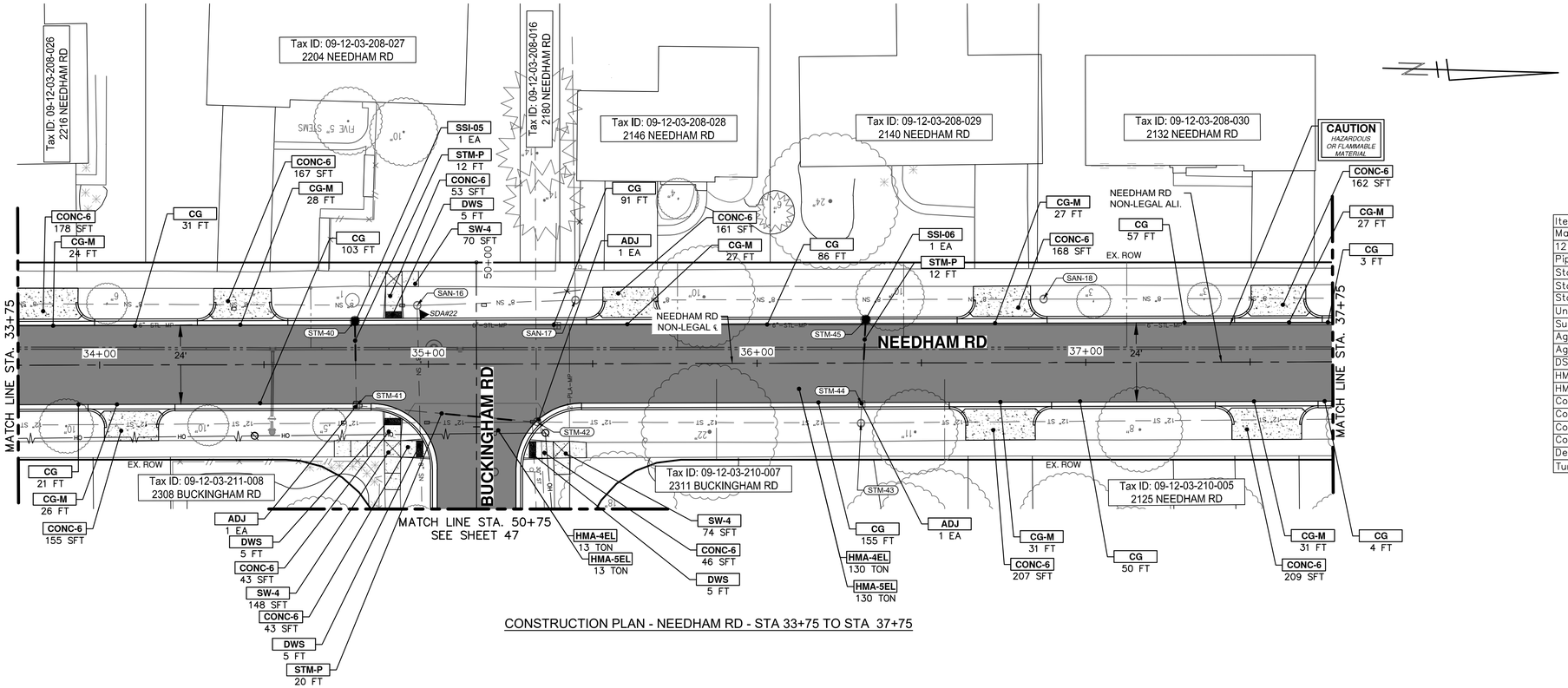
CONSTRUCTION PROFILE - NEEDHAM RD STA 29+97 TO 33+75

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

DRAWING No. 2025-2026-39



CONSTRUCTION PLAN - NEEDHAM RD - STA 33+75 TO STA 37+75

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2304	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	12	Ft
Pipe Undercut & Backfill, Storm	19	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	2	Ea
Storm Structure Cover	3	Ea
Storm Structure Cover, Adjust	3	Ea
Underdrain, Subbase, 6 In.	822	Ft
Subbase, CIP	8	Cyd
Aggregate Base, 6 In., 21AA, CIP	180	Syd
Aggregate Base, 8 In., 21AA, CIP		Syd
DS_Aggregate Base Conditioning		Syd
HMA, 4EL	143	Ton
HMA, 5EL	143	Ton
Conc, Curb or Curb & Gutter, All Types	601	Ft
Conc, Driveway Opening, Type M	221	Ft
Conc, Sidewalk, 4 In.	292	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1592	Sft
Detectable Warning Surface	20	Ft
Turf Restoration	580	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5 –	–	–	–	–
4 –	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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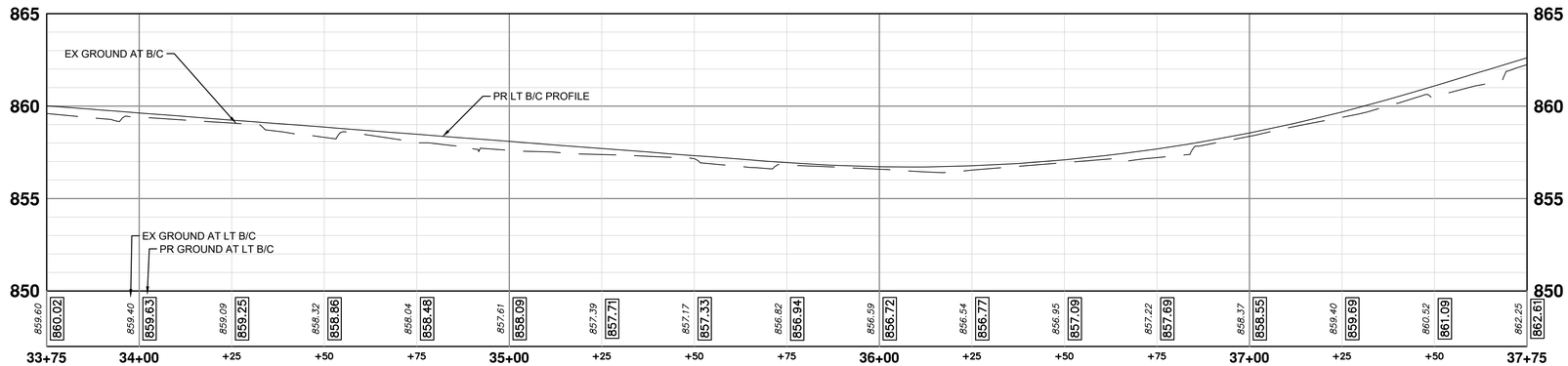
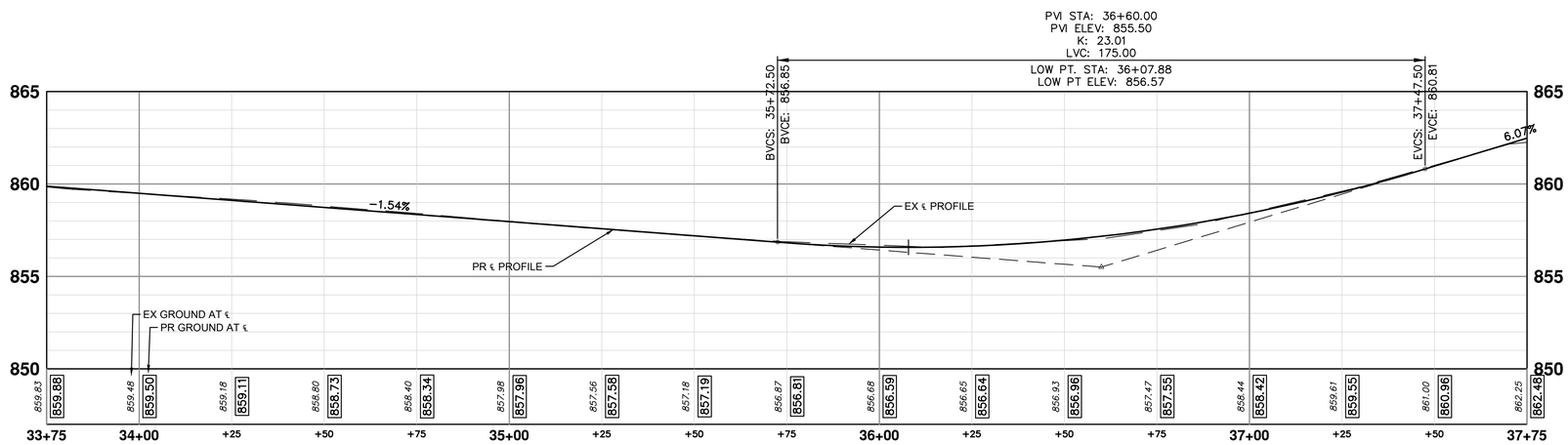
CONSTRUCTION PLAN - NEEDHAM RD STA 33+75 TO 37+75

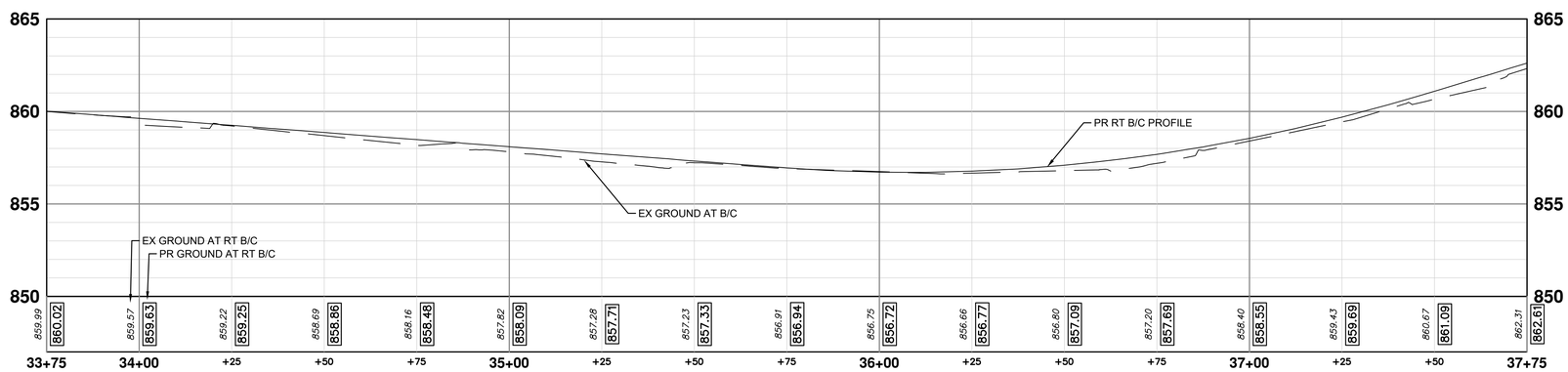
SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-40

SHEET No.







CONSTRUCTION PLAN - NEEDHAM RD - STA 33+75 TO STA 37+75

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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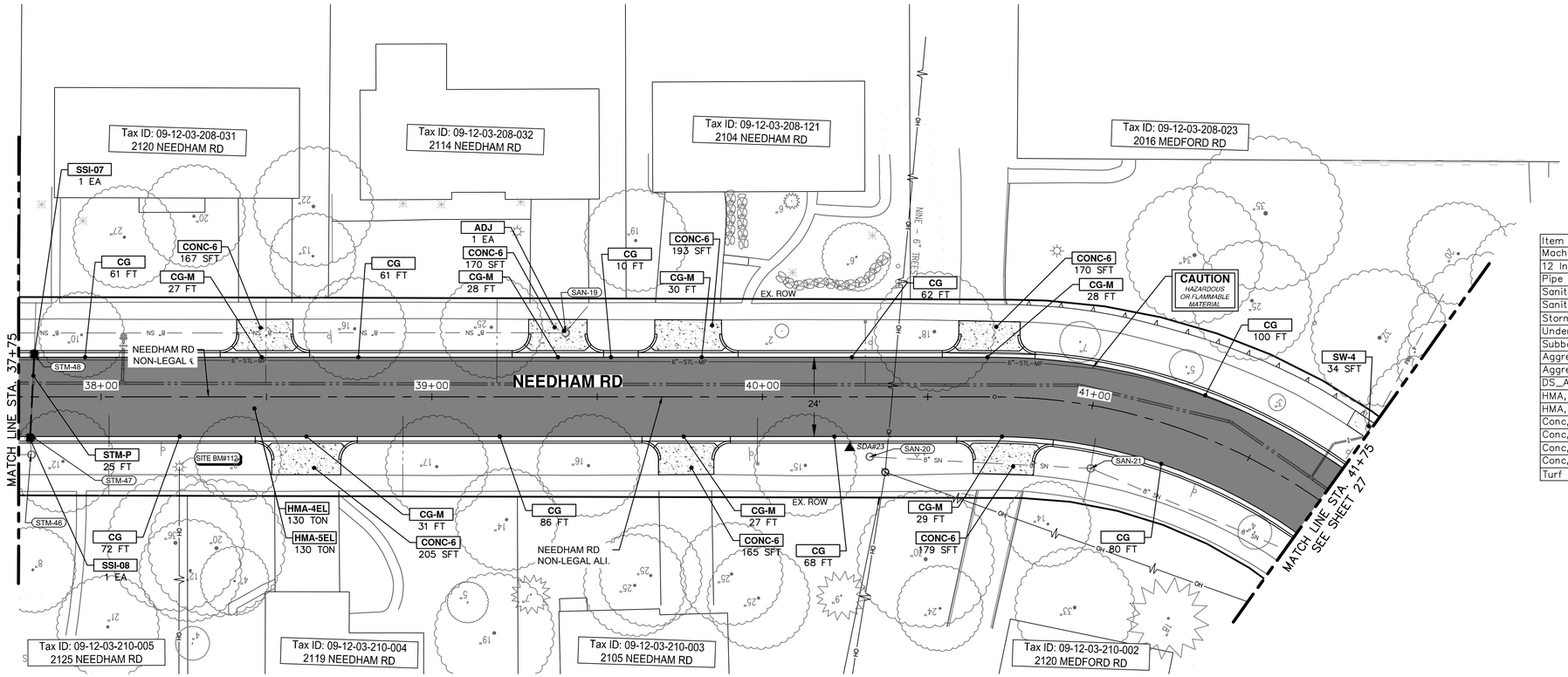
CONSTRUCTION PROFILE - NEEDHAM RD STA 33+75 TO 37+75

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

DRAWING No.
2025-2026-41

SHEET No.
41 OF 64



CONSTRUCTION PLAN - NEEDHAM RD - STA 37+75 TO STA 41+75

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2134	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	25	Ft
Pipe Undercut & Backfill, Storm	39	Cyd
Sanitary Structure Cover	1	Ea
Sanitary Structure Cover, Adjust	1	Ea
Storm Single Inlet, 24 In. Dia., (0–8' deep)	2	Ea
Underdrain, Subbase, 6 In.	800	Ft
Subbase, CIP	1	Cyd
Aggregate Base, 6 In., 21AA, CIP	160	Syd
Aggregate Base, 8 In., 21AA, CIP	1334	Syd
DS_Aggregate Base Conditioning		Syd
HMA, 4EL	130	Ton
HMA, 5EL	130	Ton
Conc, Curb or Curb & Gutter, All Types	600	Ft
Conc, Driveway Opening, Type M	200	Ft
Conc, Sidewalk, 4 In.	34	Sft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1249	Sft
Turf Restoration	540	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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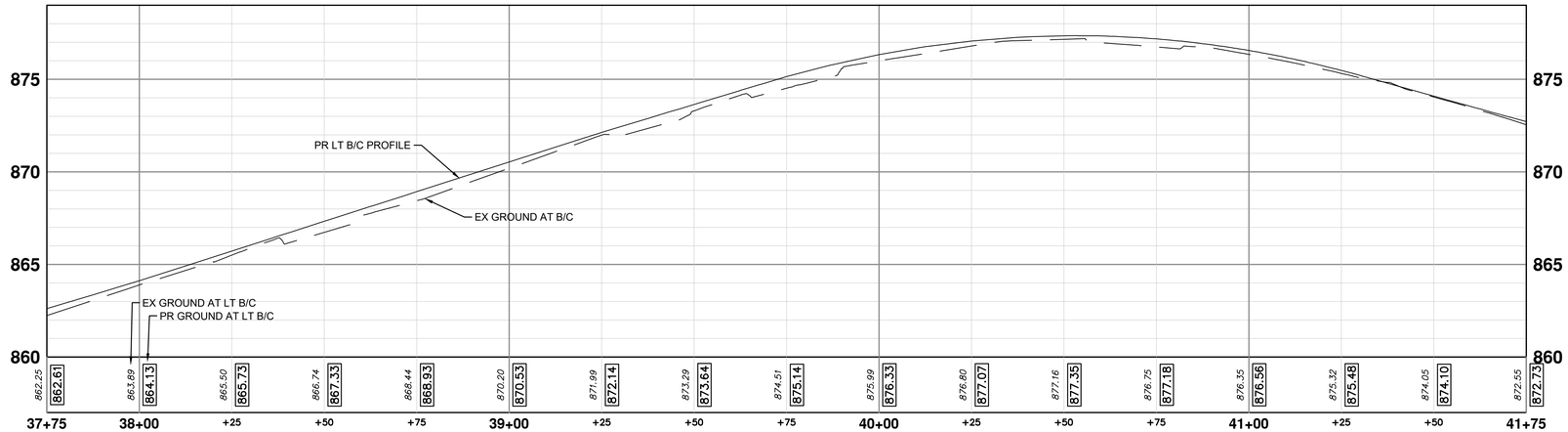
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

CONSTRUCTION PLAN - NEEDHAM RD STA 37+75 TO 41+75

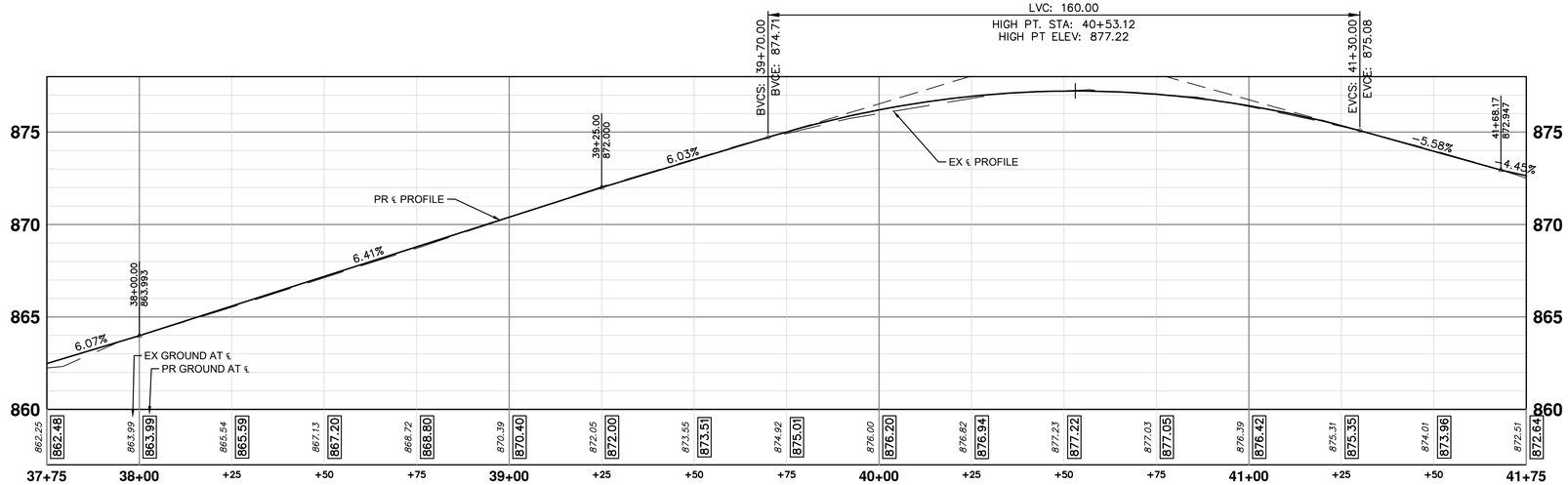
SCALE PLAN: 1" = 20' PROFILE: N/A

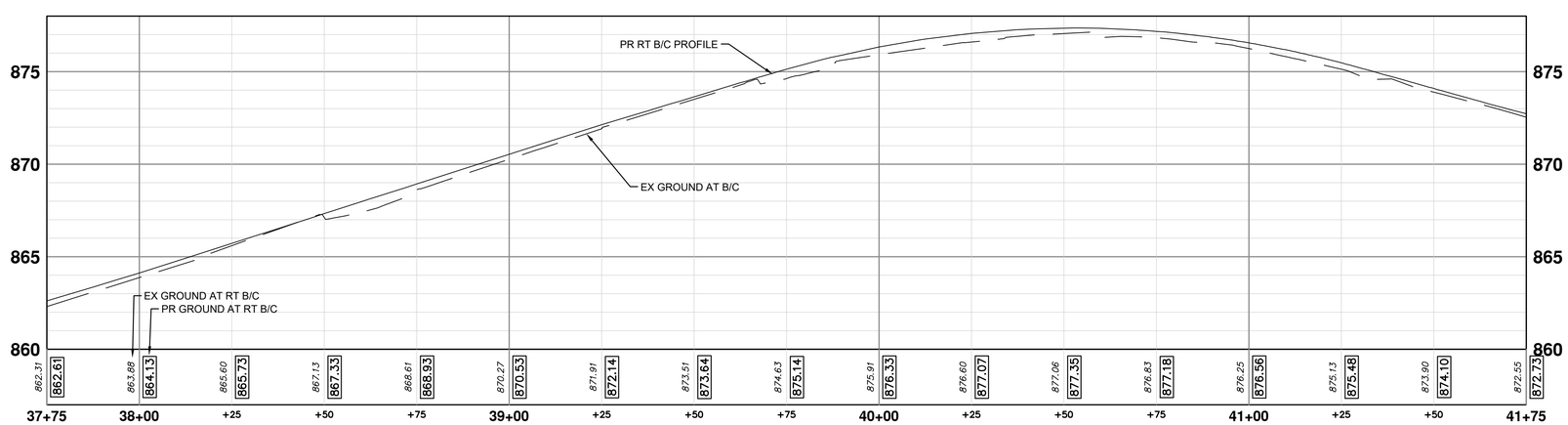
DRAWING No. 2025-2026-42



PVI STA: 40+50.00
PVI ELEV: 879.54
K: 13.78
LVC: 160.00

HIGH PT. STA: 40+53.12
HIGH PT ELEV: 877.22





CONSTRUCTION PROFILE - NEEDHAM RD - STA 37+75 TO STA 41+75

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

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WATER MAIN & RESURFACING PROJECT

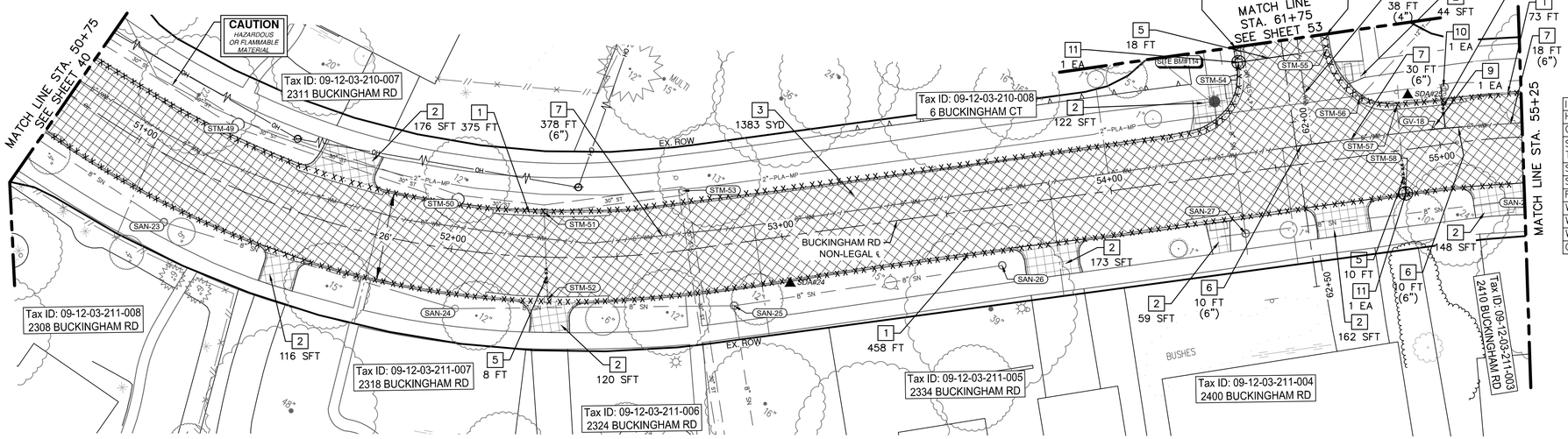
CONSTRUCTION PROFILE - NEEDHAM RD STA 37+75 TO 41+75

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

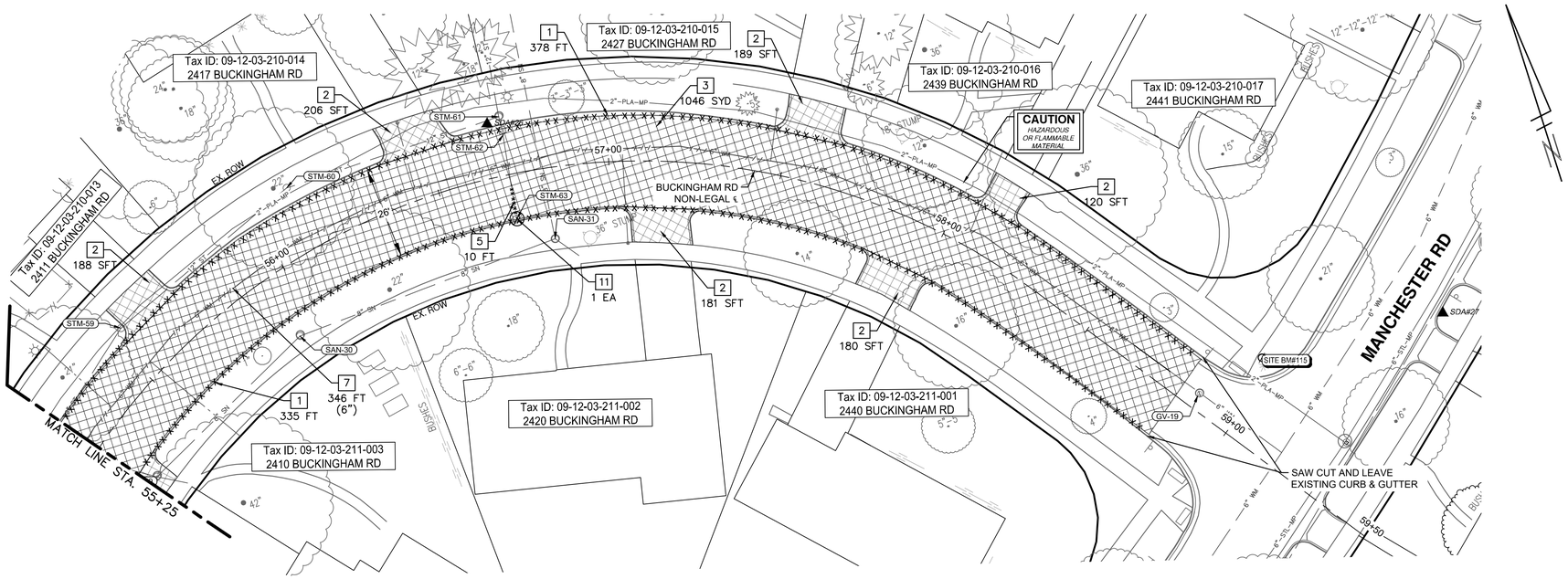
DRAWING No. 2025-2026-43

SHEET No. 43 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_PPrd_NEEDHAM.dwg Dwg Created: 25-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



REMOVAL PLAN - BUCKINGHAM RD - STA 50+75 TO STA 55+25



REMOVAL PLAN - BUCKINGHAM RD - STA 55+25 TO STA 59+00

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	2429	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	1619	Ft
Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	2184	Sft
Storm Sewer Pipe, 12 In. Dia., Rem	46	Ft
Storm Sewer Drop Structure, Rem	3	Ea
Fire Hydrant Assembly, Rem	1	Ea
Water Main Pipe, 4 In. Dia., Abandon	40	Ft
Water Main Pipe, 6 In. Dia., Abandon	773	Ft
Water Main Pipe, 6 In. Dia., Rem	33	Ft
Gate Valve in Box, 4 In. Dia., Rem	1	Ea

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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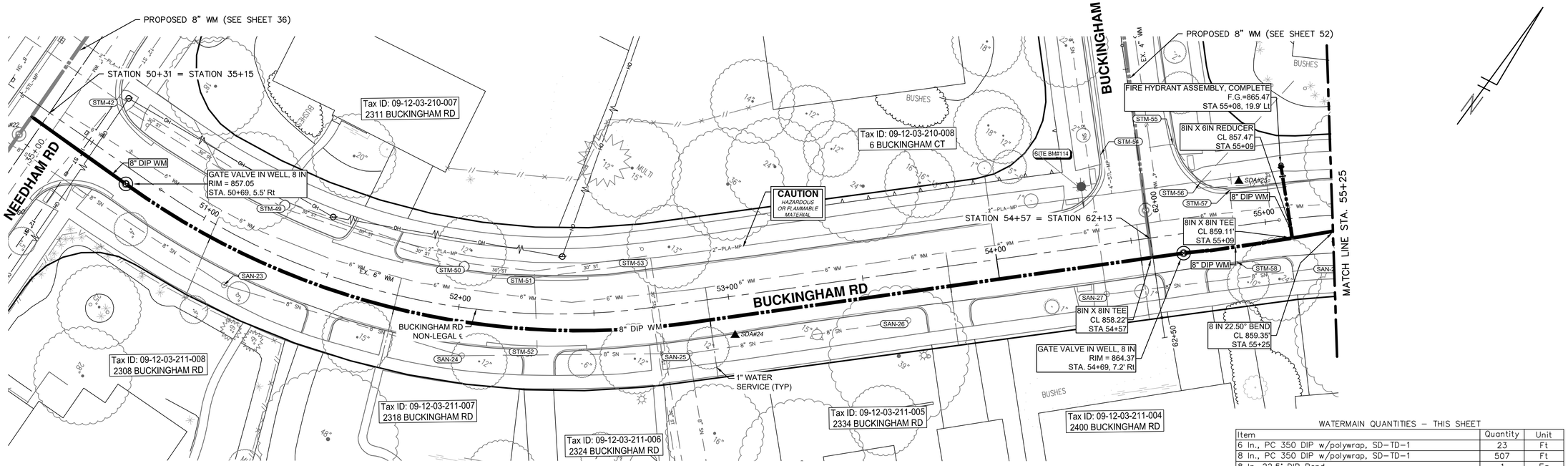
WATER MAIN & RESURFACING PROJECT

REMOVAL PLAN - BUCKINGHAM RD - STA 50+75 TO STA 59+00

SCALE PLAN: 1" = 20' PROFILE: N/A

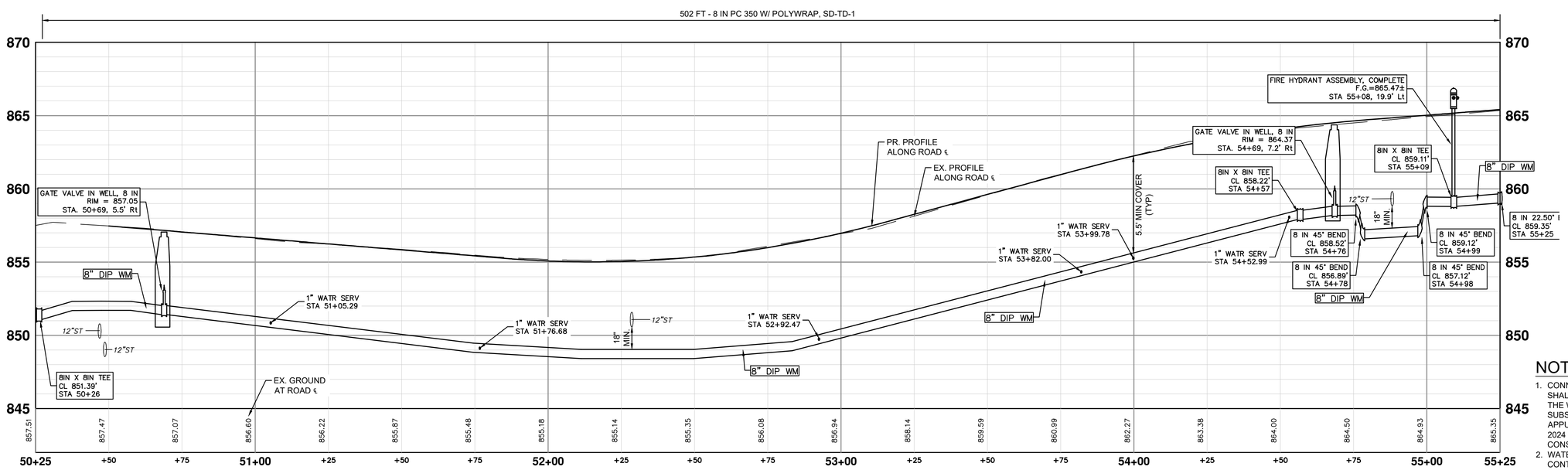
DRAWING No. 2025-2026-44



WATER MAIN CONSTRUCTION PLAN - BUCKINGHAM RD - STA 50+25 TO STA 55+25

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
6 In., PC 350 DIP w/polywrap, SD-TD-1	23	Ft
8 In., PC 350 DIP w/polywrap, SD-TD-1	507	Ft
8 In. 22.5° DIP Bend	1	Ea
8 In. X 6 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	21	Ft
Fire Hydrant Assembly, Complete	1	Ea



WATER MAIN CONSTRUCTION PROFILE - BUCKINGHAM RD - STA 50+25 TO STA 55+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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)
3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

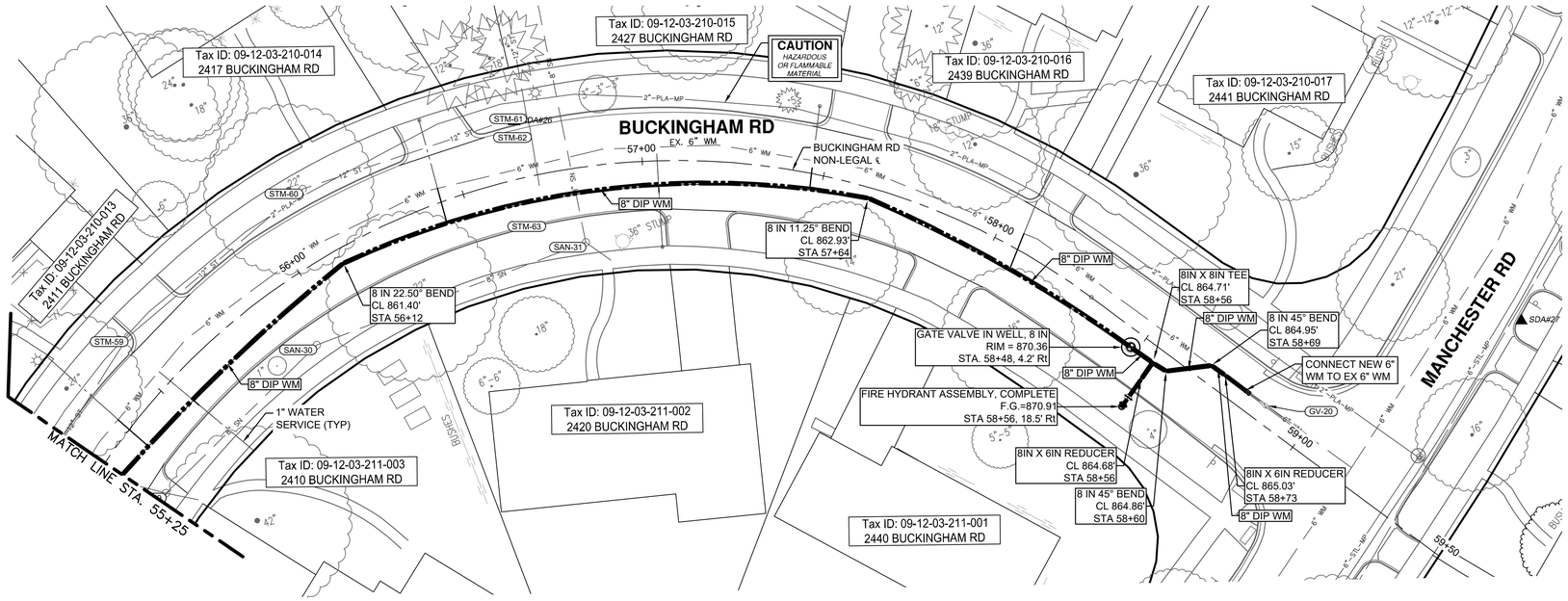
WATER MAIN PLAN & PROFILE - BUCKINGHAM RD STA 50+27 TO 55+25

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

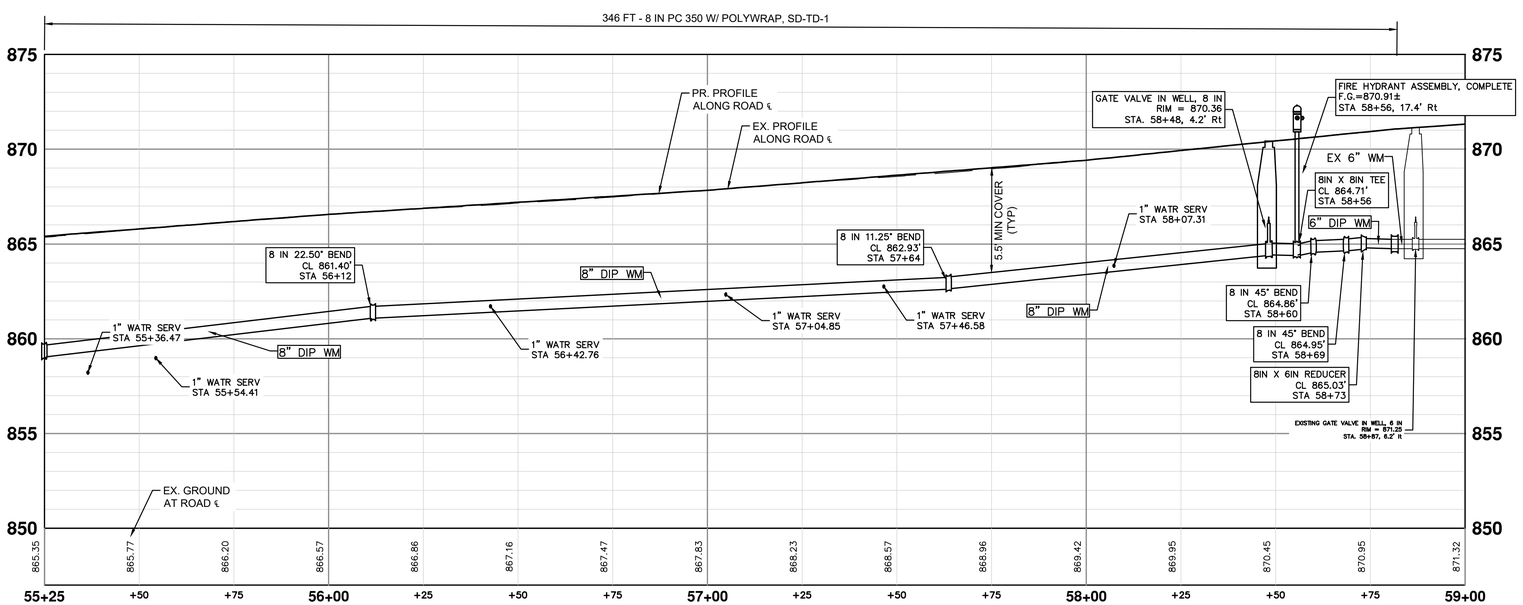
DRAWING No. 2025-2026-45

SHEET No. 45 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_BUCKINGHAM.dwg Dwg Created: 22-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



WATER MAIN CONSTRUCTION PLAN - BUCKINGHAM RD - STA 55+25 TO STA 59+00



WATER MAIN CONSTRUCTION PROFILE - BUCKINGHAM RD - STA 55+25 TO STA 59+00

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	347	Ft
8 In. 11.25° DIP Bend	1	Ea
8 In. 22.5° DIP Bend	1	Ea
8 In. 45° DIP Bend	2	Ea
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	43	Ft
Fire Hydrant Assembly, Complete	1	Ea

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. WATER SERVICE RECONNECTIONS - CONTRACTOR SHALL EXCAVATE TRENCH AND CITY PERSONNEL SHALL INSTALL THE TAP (TYPICAL ALL SERVICES)
3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)

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

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

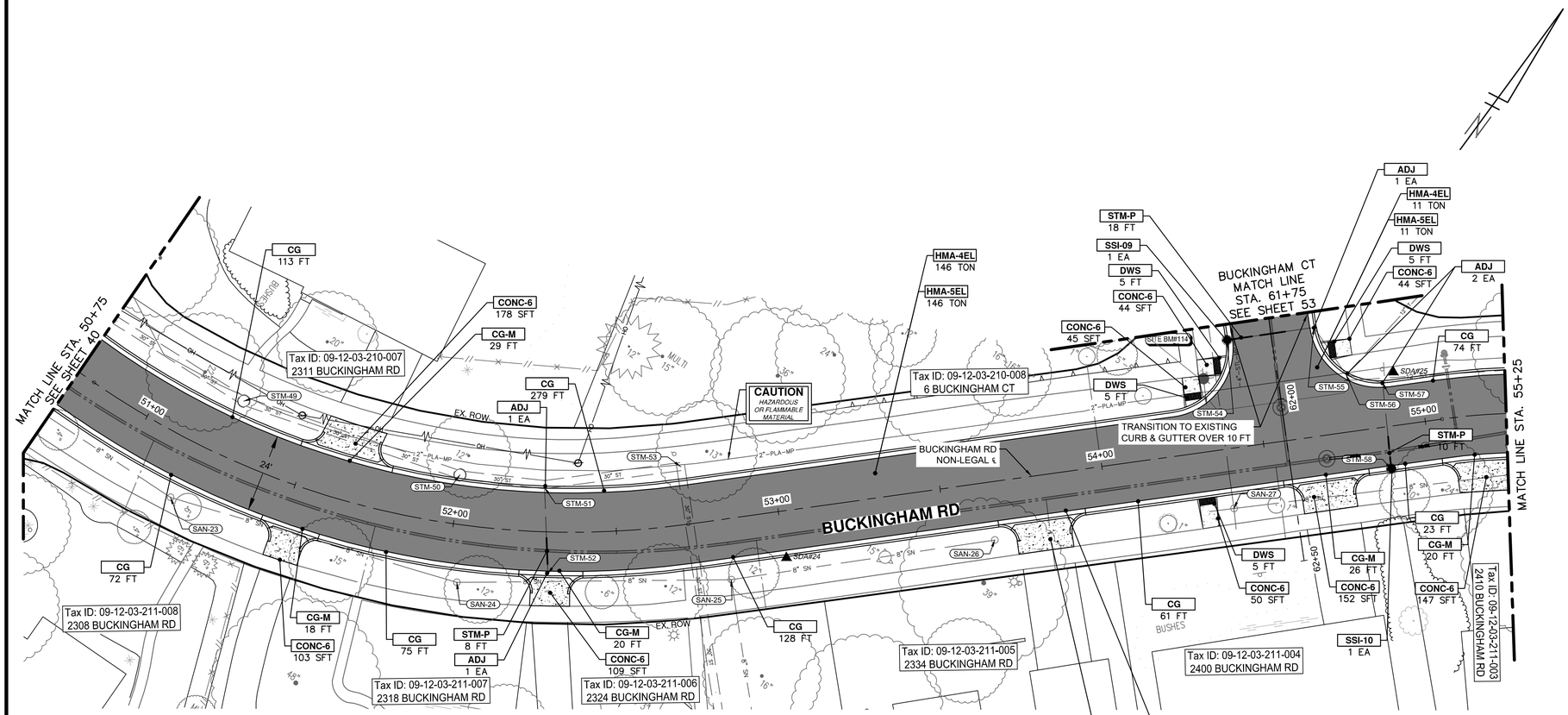
WATER MAIN PLAN & PROFILE - BUCKINGHAM RD STA 55+25 TO 59+00

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

DRAWING No. 2025-2026-46

SHEET No. 46 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_BUCKINGHAM.dwg Dwg Created: 22-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



CONSTRUCTION PLAN - BUCKINGHAM RD - STA 50+75 TO STA 55+25

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	2400	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	36	Ft
Pipe Undercut & Backfill, Storm	57	Cyd
Storm Single Inlet, 24 In. Dia., (0–8' deep)	2	Ea
Storm Structure Cover	5	Ea
Storm Structure Cover, Adjust	5	Ea
Underdrain, Subbase, 6 In.	965	Ft
Subbase, CIP	13	Cyd
Aggregate Base, 6 In., 21AA, CIP	25	Syd
Aggregate Base, 8 In., 21AA, CIP	1782	Syd
HMA, 4EL	157	Ton
HMA, 5EL	157	Ton
Conc, Curb or Curb & Gutter, All Types	825	Ft
Conc, Driveway Opening, Type M	140	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1032	Sft
Detectable Warning Surface	20	Ft
Turf Restoration	1000	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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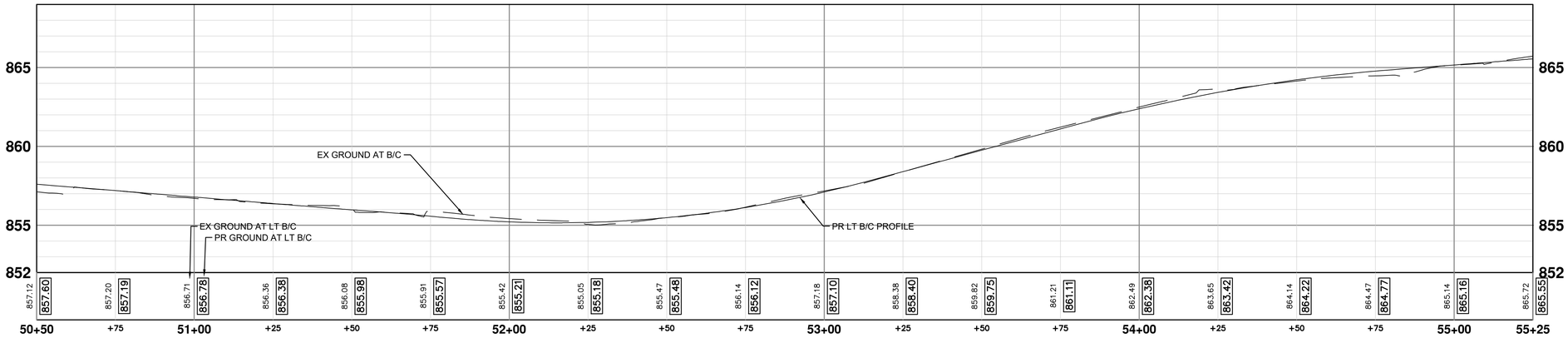
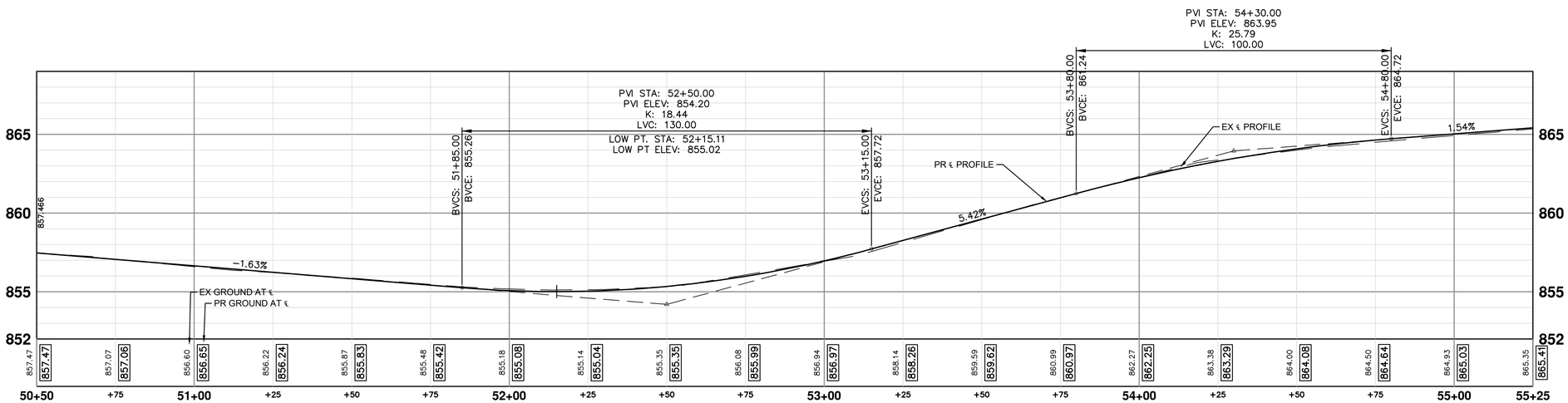
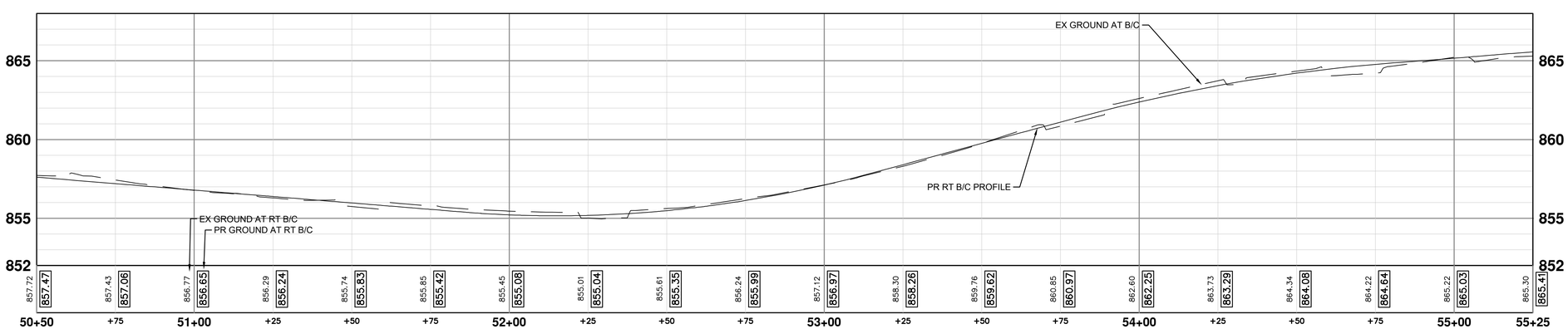
CONSTRUCTION PLAN - BUCKINGHAM RD STA 50+75 TO 55+25

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-47







CONSTRUCTION PROFILE - BUCKINGHAM RD - STA 50+75 TO STA 55+25

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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

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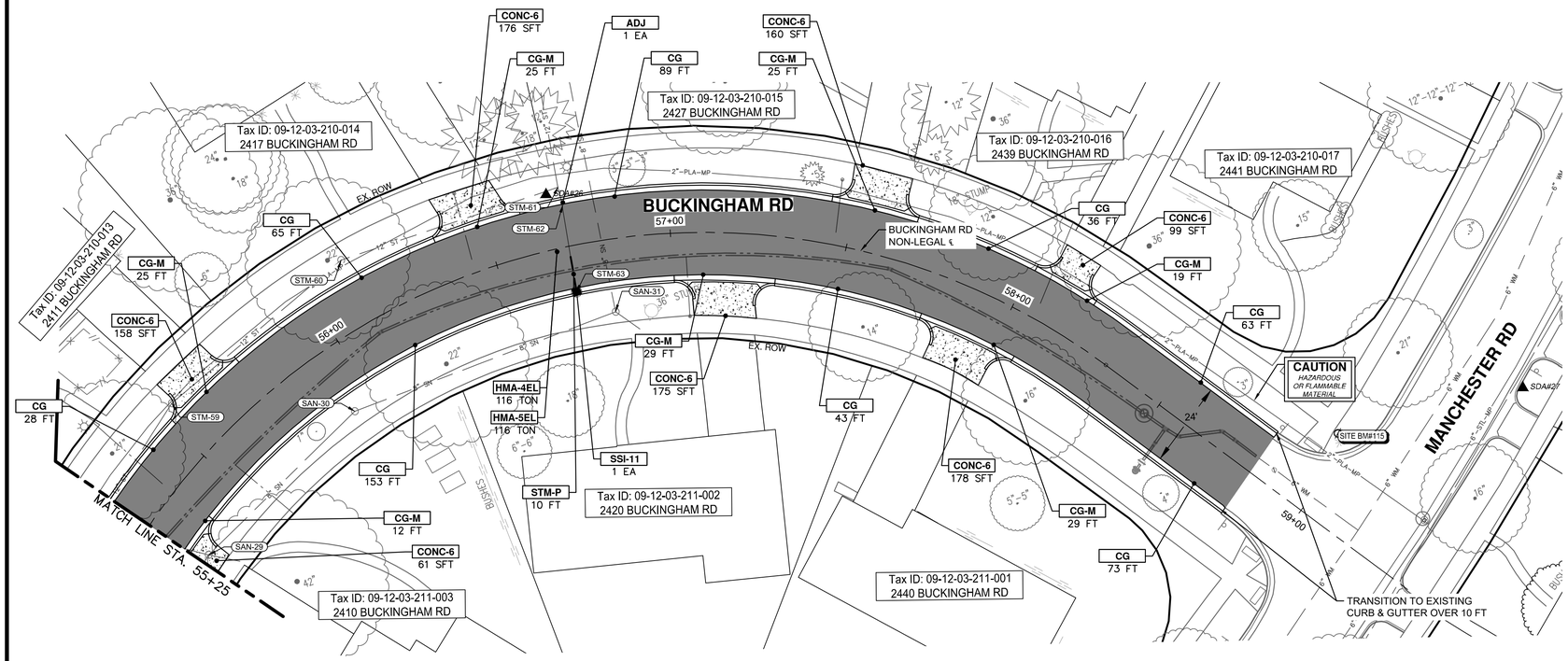
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

CONSTRUCTION PROFILE - BUCKINGHAM RD STA 50+75 TO 55+25

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

DRAWING No. 2025-2026-48



CONSTRUCTION PLAN - BUCKINGHAM RD - STA 55+25 TO STA 59+00

CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	1638	Syd
12 In., CL IV RCP Storm Sewer, SD–TD–1	10	Ft
Pipe Undercut & Backfill, Storm	16	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 In.	714	Ft
Water Structure Cover	1	Ea
Water Structure Cover, Adjust	1	Ea
Aggregate Base, 6 In., 21AA, CIP	128	Syd
Aggregate Base, 8 In., 21AA, CIP	1152	Syd
HMA, 4EL	116	Ton
HMA, 5EL	116	Ton
Conc, Curb or Curb & Gutter, All Types	550	Ft
Conc, Driveway Opening, Type M	164	Ft
Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	1007	Sft
Turf Restoration	690	Syd

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

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

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
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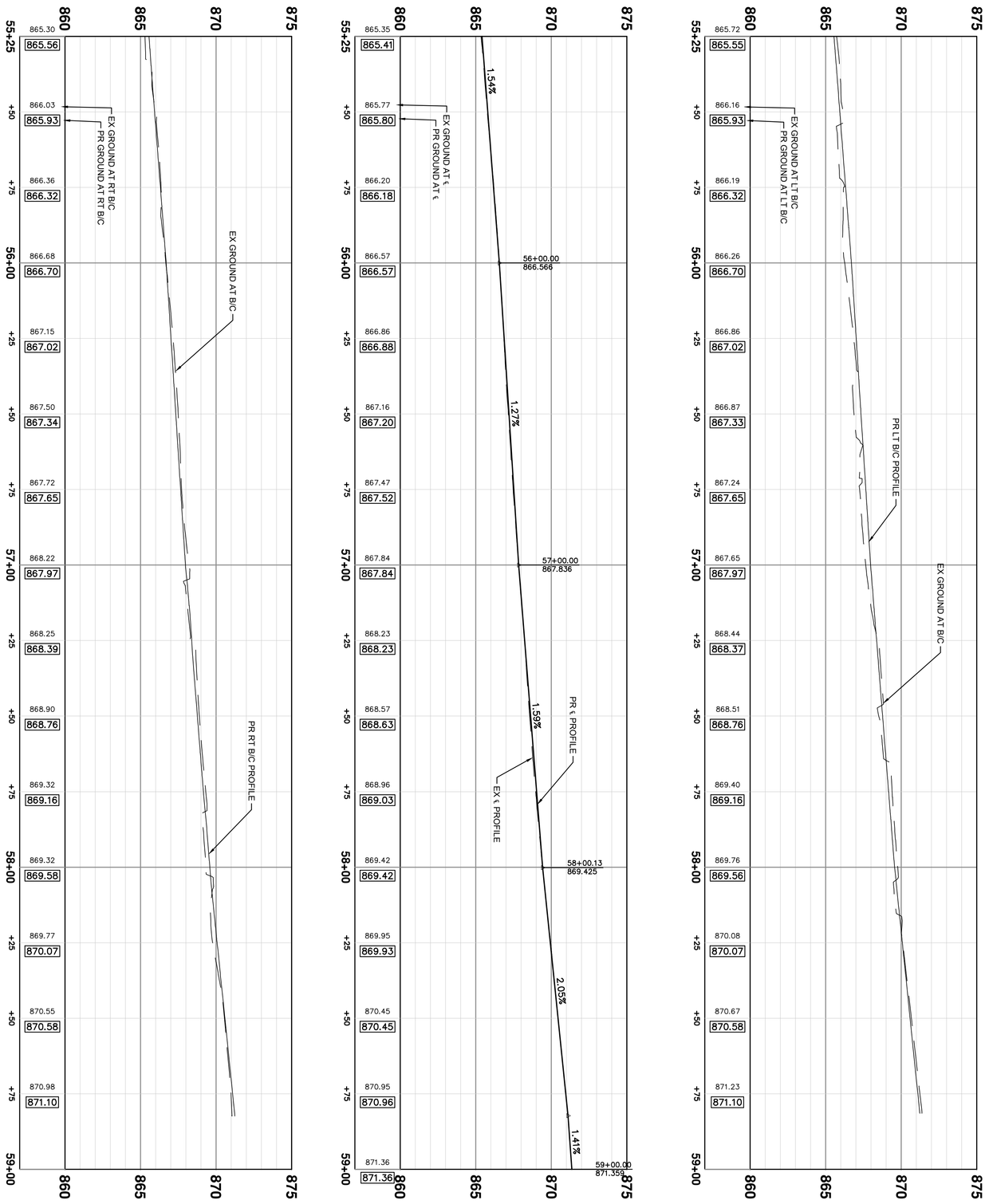
CONSTRUCTION PLAN - BUCKINGHAM RD STA 55+25 TO 59+00

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-49



CONSTRUCTION PLAN - BUCKINGHAM RD - STA 55+25 TO STA 59+00

SHEET No.
50 OF 64

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

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

DRAWING No.
2025-2026-50

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

CONSTRUCTION PROFILE - BUCKINGHAM RD STA 55+25 TO 59+00

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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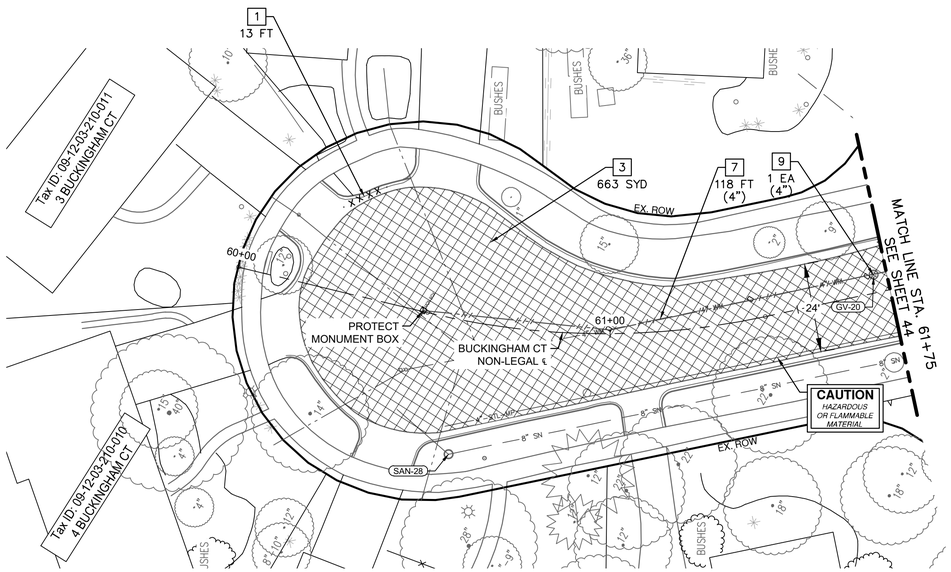
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH



REMOVAL PLAN - BUCKINGHAM CT - STA 60+00 TO STA 61+75

REMOVAL QUANTITIES – THIS SHEET

Item	Quantity	Unit
HMA, Any Thickness, Rem	663	Syd
Curb, Gutter, and Curb and Gutter, Any Type, Rem	13	Ft
Water Main Pipe, 4 In. Dia., Abandon	125	Ft
Gate Valve in Box, 4 In. Dia., Rem	1	Ea

REMOVAL HATCH KEY

- HMA SURFACE, REM
- SIDEWALK AND RAMPS, REMOVE DRIVEWAY APPROACH, REMOVE
- CURB AND GUTTER, ANY TYPE OR SIZE, REM, MODIFIED
- STORM SEWER PIPE, ANY SIZE, REMOVE
- 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
12	TREE, REM, _ INCH

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
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1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

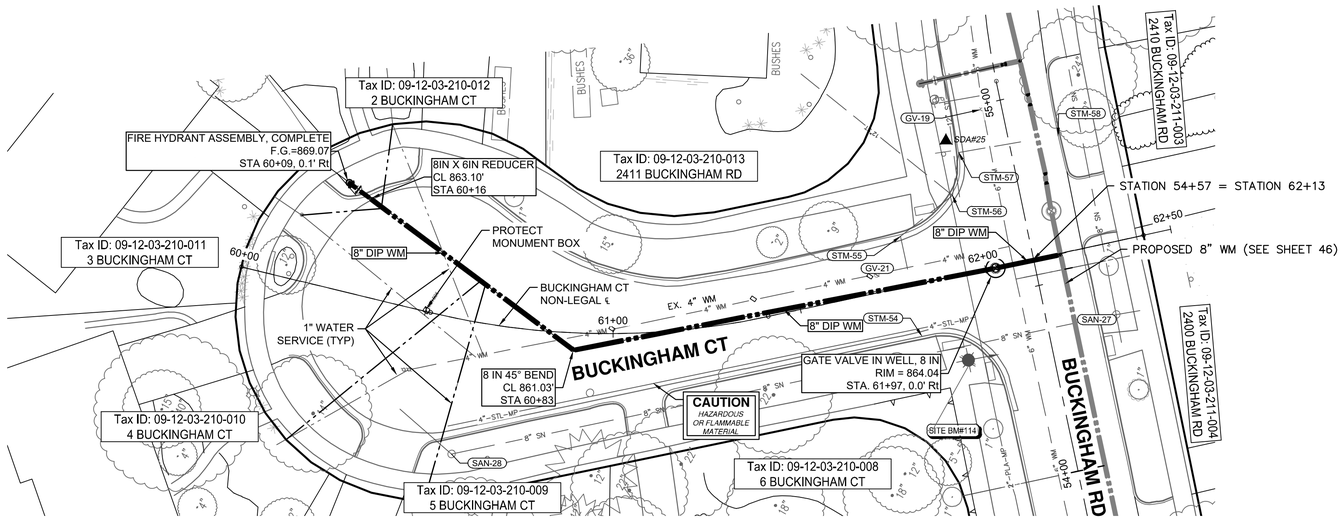
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

REMOVAL PLAN - BUCKINGHAM CT - STA 60+00 TO STA 61+75

SCALE: PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-51

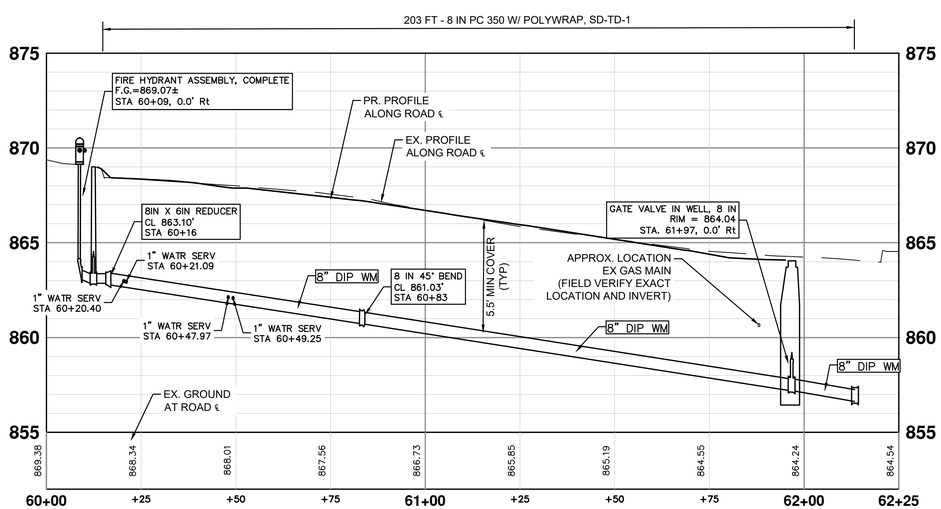
J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_REM_BUCKINGHAM.dwg Dwg Created: 19-Nov-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



WATER MAIN CONSTRUCTION PLAN - BUCKINGHAM CT - STA 60+00 TO STA 62+50

WATERMAIN QUANTITIES – THIS SHEET

Item	Quantity	Unit
8 In., PC 350 DIP w/polywrap, SD-TD-1	203	Ft
8 In. 45° DIP Bend	1	Ea
Gate Valve In Well, 8 In.	1	Ea
Excavate & Backfill For Water Service Tap And Lead	178	Ft
Fire Hydrant Assembly, Complete	1	Ea



WATER MAIN CONSTRUCTION PROFILE - BUCKINGHAM CT - STA 60+00 TO STA 62+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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
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3. EXACT DEPTH OF SANITARY LEAD CROSSINGS IS UNKNOWN. CONTRACTOR TO FIELD VERIFY LEADS AND MAINTAIN CLEARANCE AS DIRECTED BY CITY ENGINEER. (TYP)

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

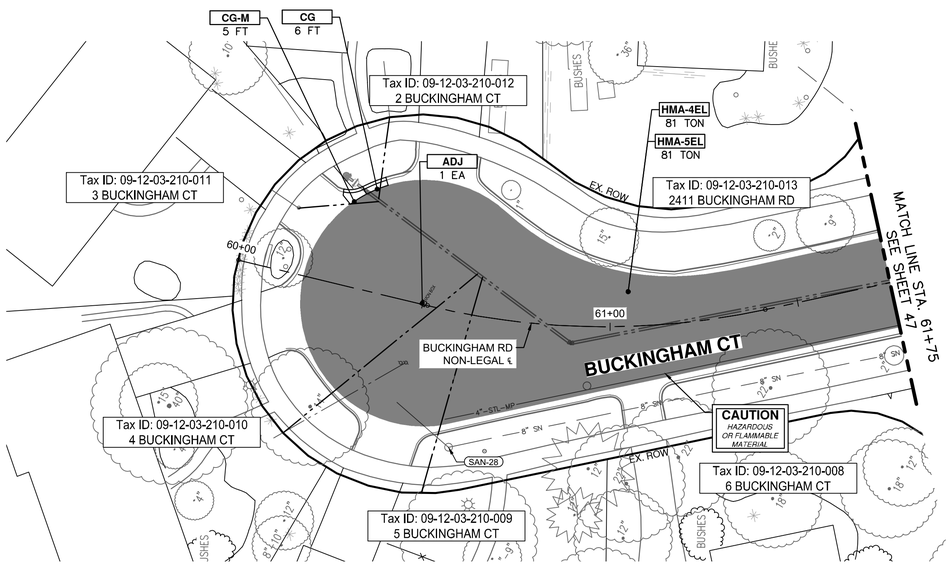
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

WATER MAIN PLAN & PROFILE BUCKINGHAM CT 60+00 TO 62+50

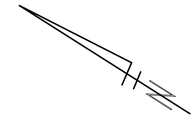
SCALE PLAN: 1" = 20' PROFILE: 1" = 4'

DRAWING No. 2025-2026-52

SHEET No. 52 OF 64



CONSTRUCTION PLAN - BUCKINGHAM CT - STA 60+00 TO STA 61+75



CONSTRUCTION QUANTITIES – THIS SHEET

Item	Quantity	Unit
Machine Grading	667	Syd
Aggregate Base, 8 In., 21AA, CIP	749	Syd
HMA, 4EL	81	Ton
HMA, 5EL	81	Ton
Conc, Curb or Curb & Gutter, All Types	6	Ft
Conc, Driveway Opening, Type M	5	Ft
Turf Restoration	30	Syd
Monument Box, Adjust	1	Ea

PAVING HATCHING KEY

- PROPOSED HMA
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA–APP	HMA APPROACH
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)
ADJ	STRUCTURE COVER ADJUST

Know what's below. Call before you dig.

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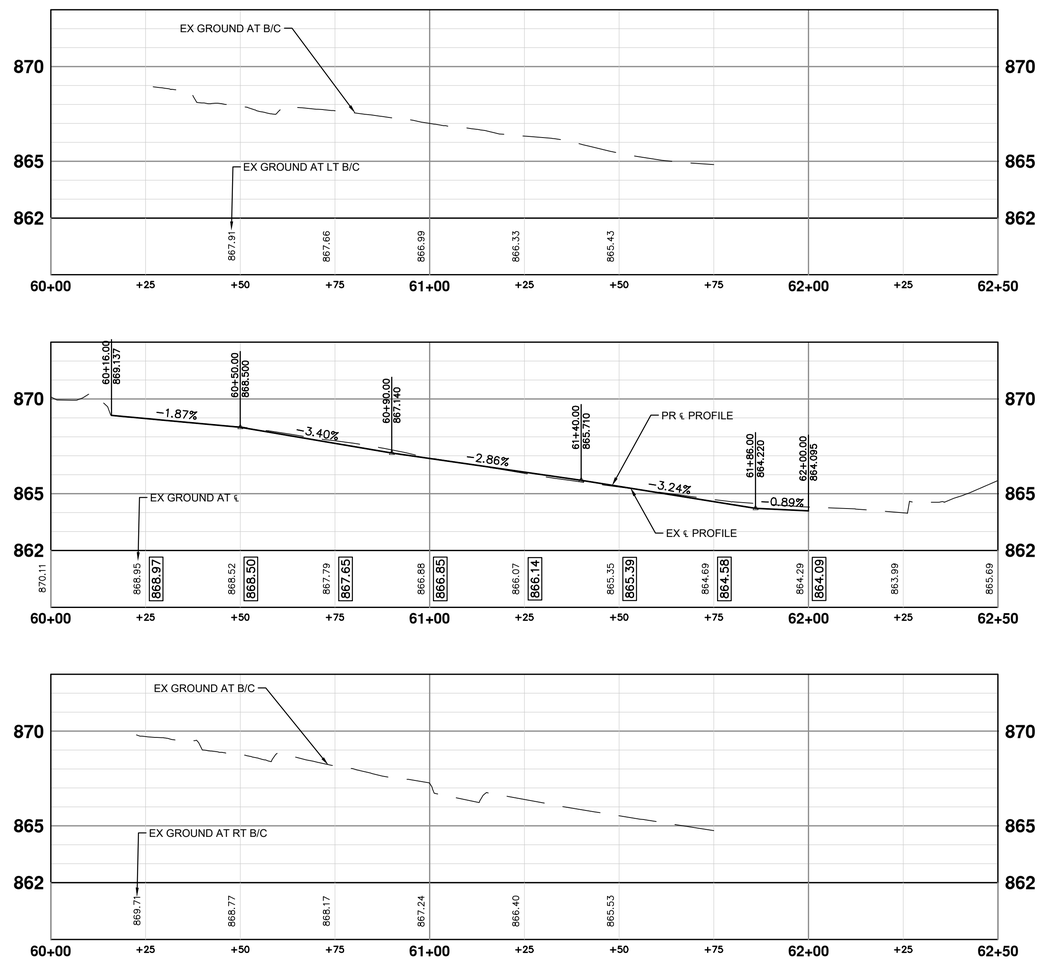
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

CONSTRUCTION PLAN - BUCKINGHAM CT - STA 60+00 TO STA 61+75

SCALE PLAN: 1" = 20' PROFILE: N/A

DRAWING No. 2025-2026-53

SHEET No. 53 OF 64



CONSTRUCTION PLAN - BUCKINGHAM CT - STA 60+00 TO STA 61+75

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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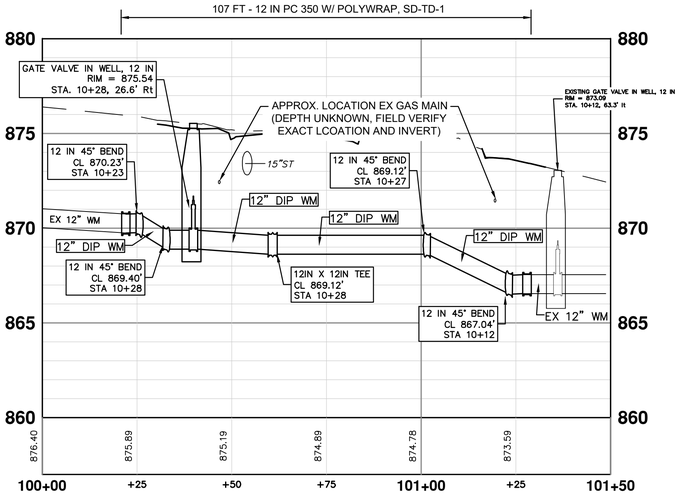
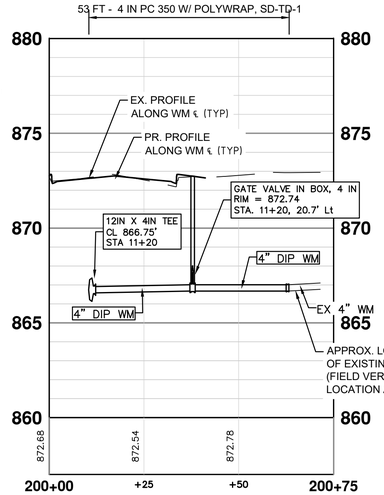
CONSTRUCTION PROFILE - BUCKINGHAM CT - STA 60+00 TO STA 61+75

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

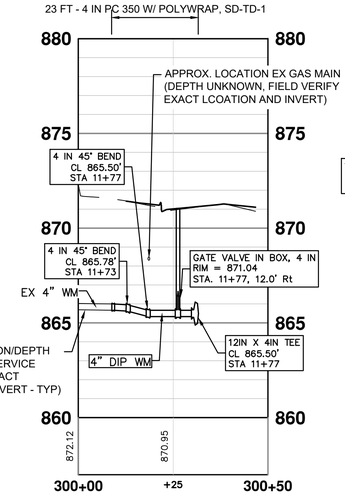
DRAWING No.
2025-2026-54



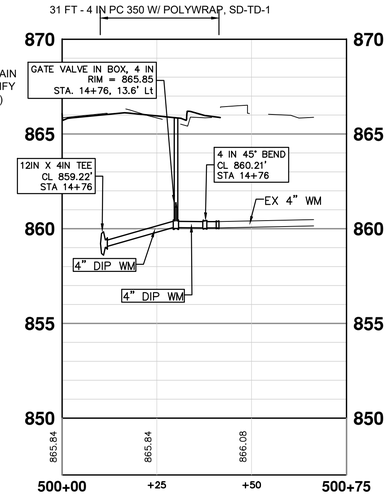
WATER MAIN CONNECTION PROFILE
STATION 10+28
(MEDFORD/ST. FRANCIS INTERSECTION)



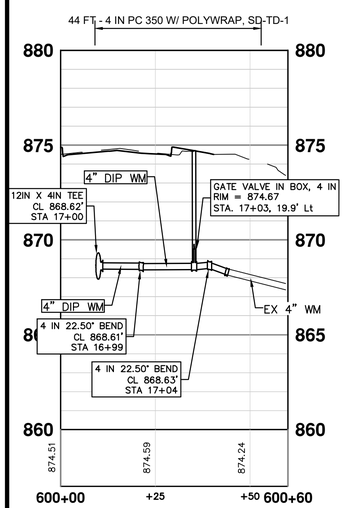
WATER MAIN CONNECTION PROFILE
STATION 11+20



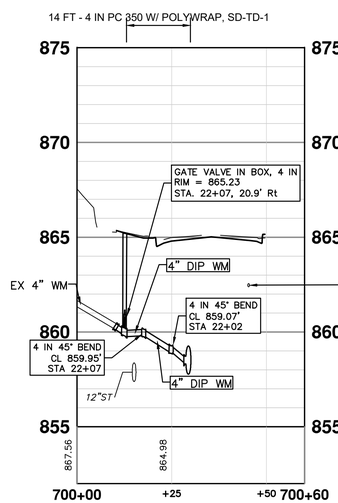
WATER MAIN CONNECTION PROFILE
STATION 11+77



WATER MAIN CONNECTION PROFILE
STATION 14+76

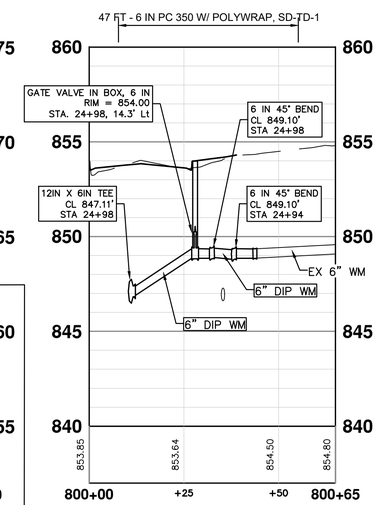


WATER MAIN CONNECTION PROFILE
STATION 17+00

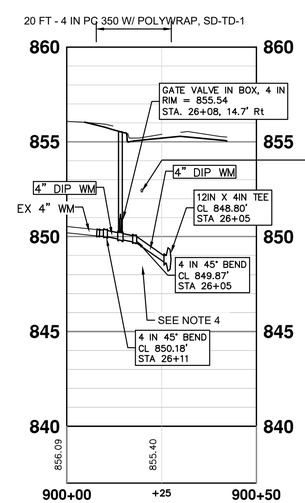


WATER MAIN CONNECTION PROFILE
STATION 22+02

APPROX. LOCATION EX GAS MAIN
(DEPTH UNKNOWN, FIELD VERIFY
EXACT LOCATION AND INVERT - TYP)

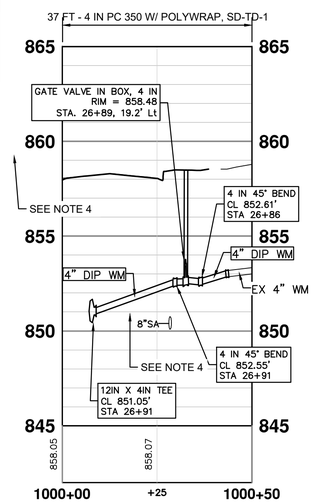


WATER MAIN CONNECTION PROFILE
STATION 24+98



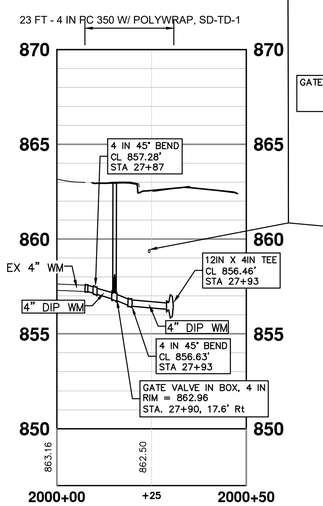
WATER MAIN CONNECTION PROFILE
STATION 26+05

APPROX. LOCATION EX GAS MAIN
(DEPTH UNKNOWN, FIELD VERIFY
EXACT LOCATION AND INVERT - TYP)

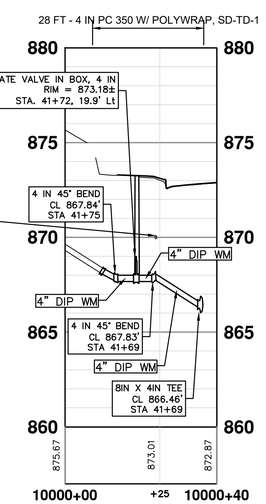


WATER MAIN CONNECTION PROFILE
STATION 26+91

APPROX. LOCATION EX GAS MAIN
(DEPTH UNKNOWN, FIELD VERIFY
EXACT LOCATION AND INVERT - TYP)



WATER MAIN CONNECTION PROFILE
STATION 27+93



WATER MAIN CONNECTION PROFILE
STATION 41+69

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 APPURTENANCES) OF THE CITY OF ANN ARBOR 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION
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4. EXACT DEPTH OF EXISTING WATER MAIN IS UNKNOWN. ADDITIONAL BENDS HAVE BEEN PROVIDED TO BE USED AS-NEEDED TO INSTALL THE PROPOSED WATER MAIN.
4. ALL GAS AND TELECOM LINES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTH PRIOR TO CONSTRUCTION.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
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3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
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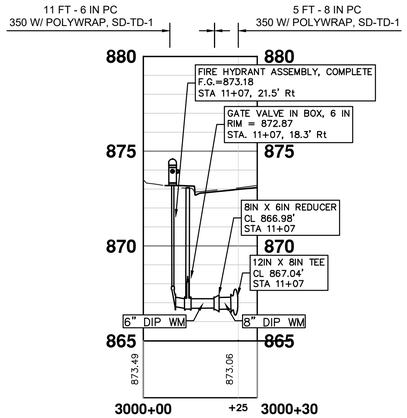
WATER MAIN TIE-IN PROFILES

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

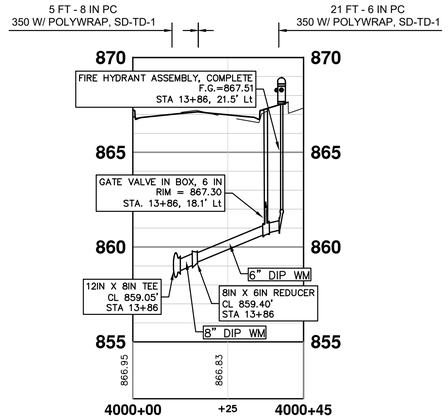
DRAWING No. 2025-2026-55

SHEET No. 55 OF 64

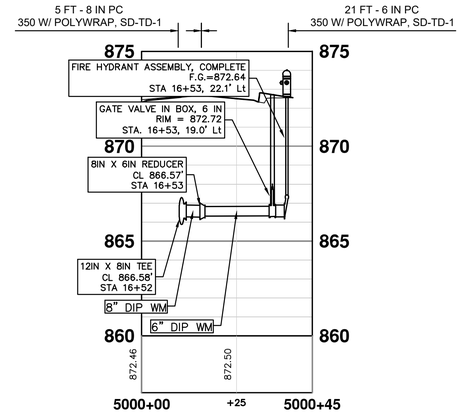
J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_NEEDHAM.dwg Dwg Created: 6-Jan-26 – _a2 standard bw.stb – Plot Date: 7-Jan-26



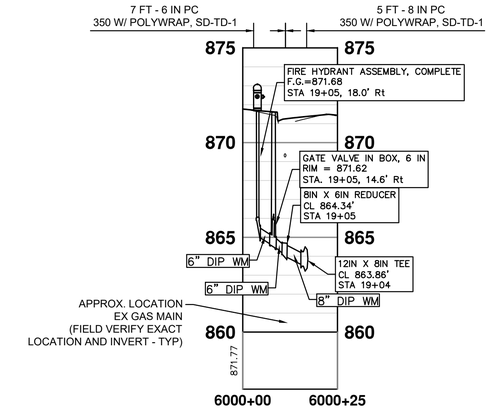
HYDRANT 1 - PROFILE
STATION 11+07



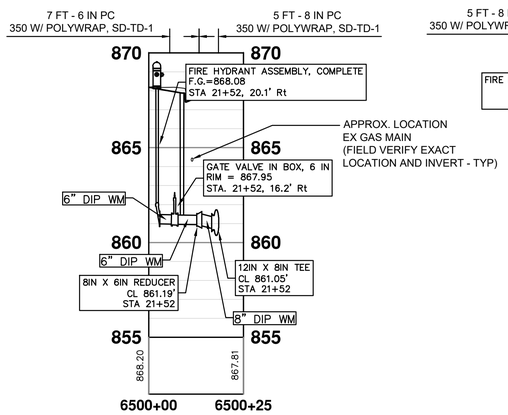
HYDRANT 2 - PROFILE
STATION 13+94



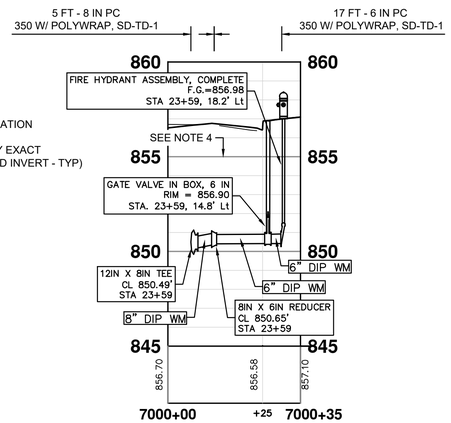
HYDRANT3 - PROFILE
STATION 16+52



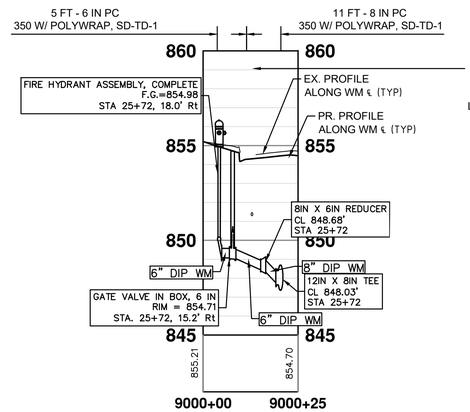
HYDRANT 4 - PROFILE
STATION 19+04



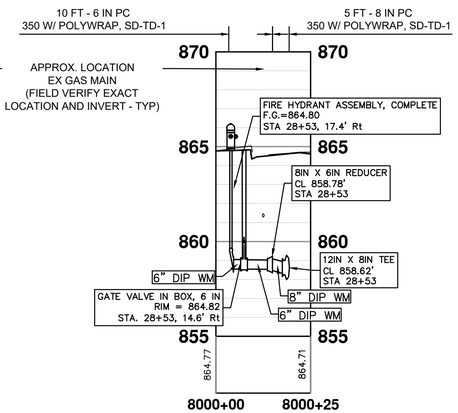
HYDRANT 5 - PROFILE
STATION 21+52



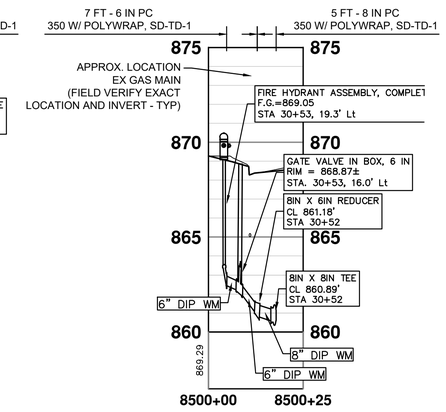
HYDRANT 6 - PROFILE
STATION 23+59



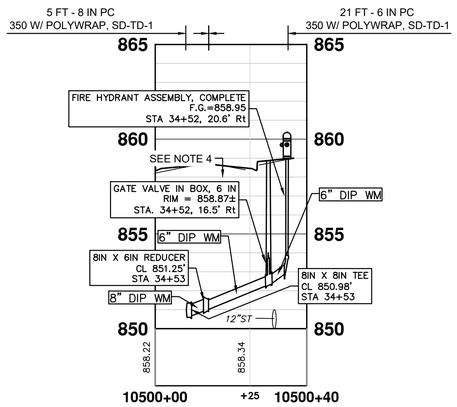
HYDRANT 7 - PROFILE
STATION 25+72



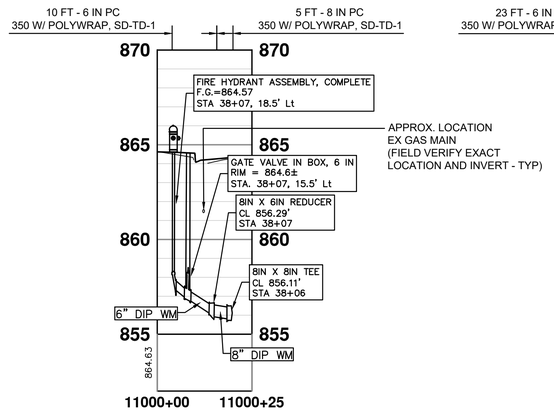
HYDRANT 8 - PROFILE
STATION 28+54



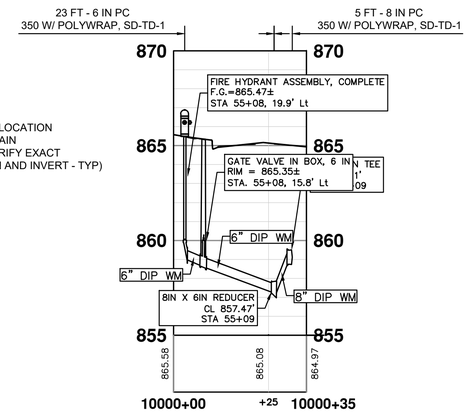
HYDRANT 9 - PROFILE
STATION 30+52



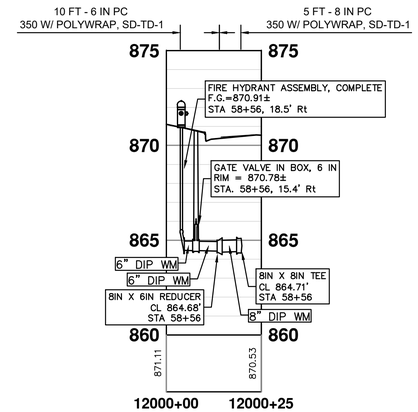
HYDRANT 10 - PROFILE
STATION 34+53



HYDRANT 11 - PROFILE
STATION 38+06



HYDRANT 12 - PROFILE
STATION 55+10



HYDRANT 13 - PROFILE
STATION 58+56

NOTES

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

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT

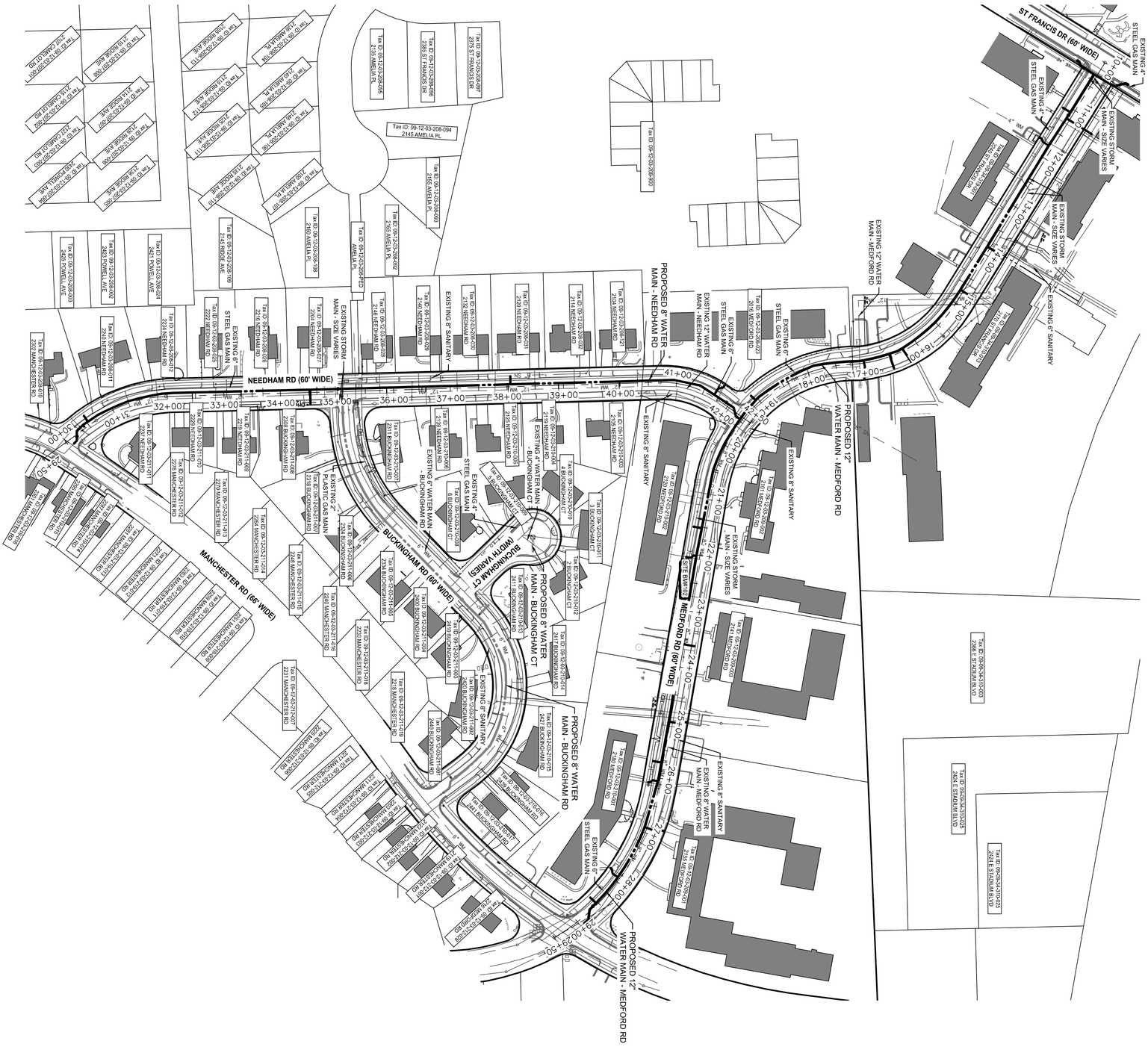
HYDRANT PROFILES

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

DRAWING No. 2025-2026-56

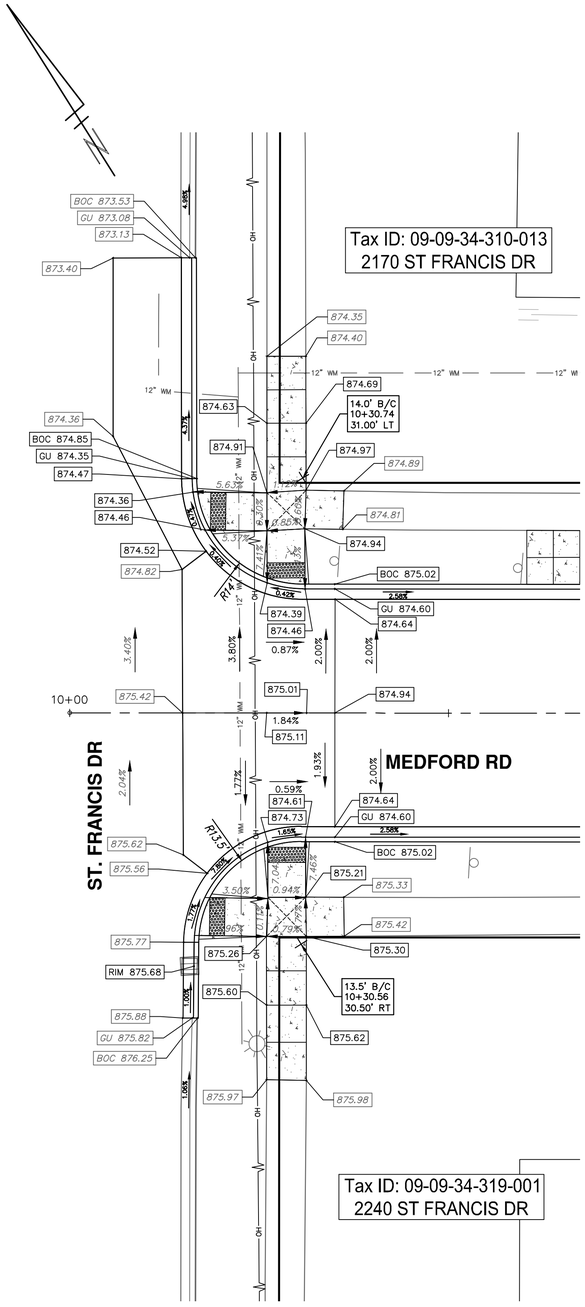
SHEET No. 56 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_Watr_NEEDHAM.dwg Dwg Created: 6-Jan-26 – _a2 standard bw.stb – Plot Date: 7-Jan-26

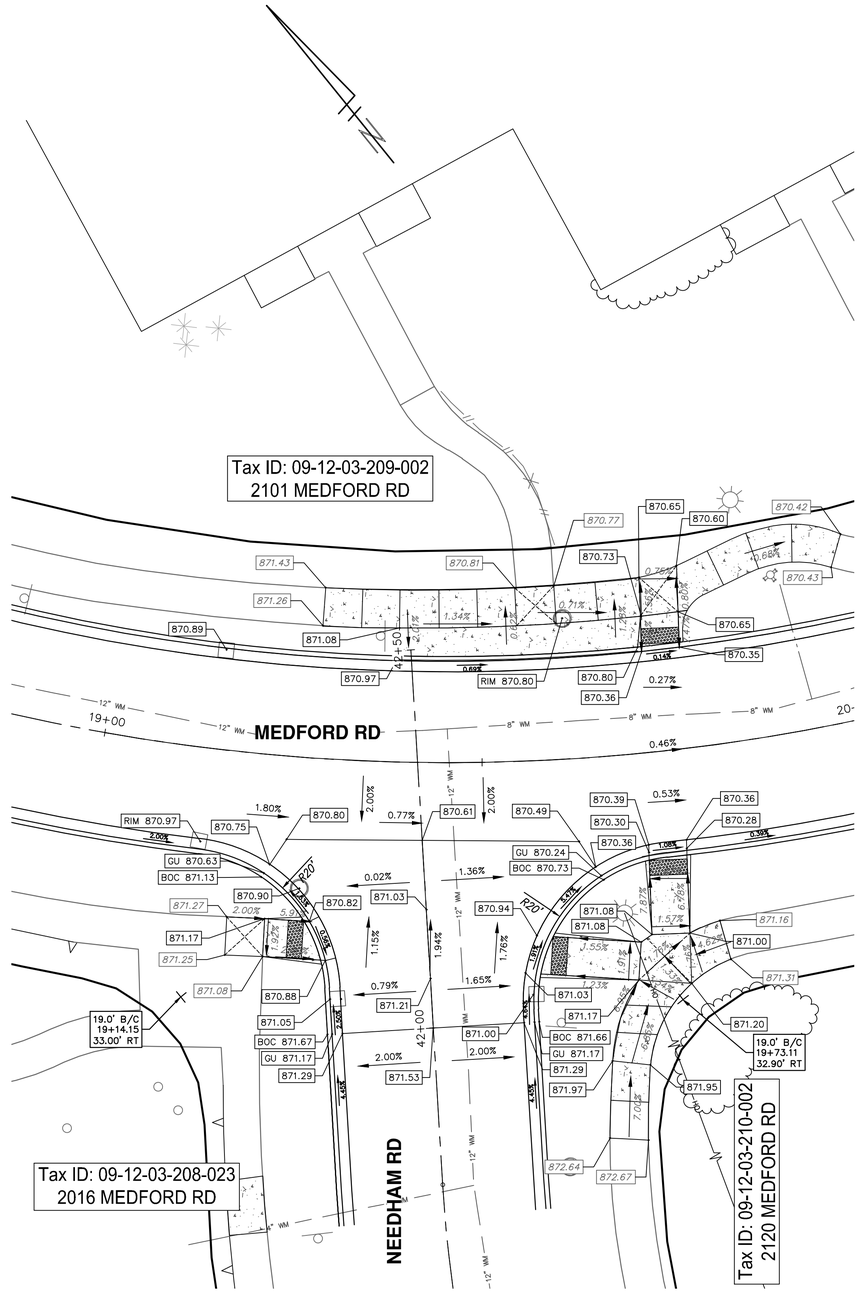


SHEET No.	CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING		CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET P.O. BOX 8647 ANN ARBOR, MI 48107-8647 734-794-6410 www.a2gov.org	REV.	DESCRIPTION	DATE	DRAWN	CHECKED
57 OF 64	SCALE PLAN: 1" = 100'	NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT		5	–	–	–	–
	DRAWING No. 2025-2026-57	OVERALL UTILITY PLAN		4	–	–	–	–
				3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
				2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
				1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

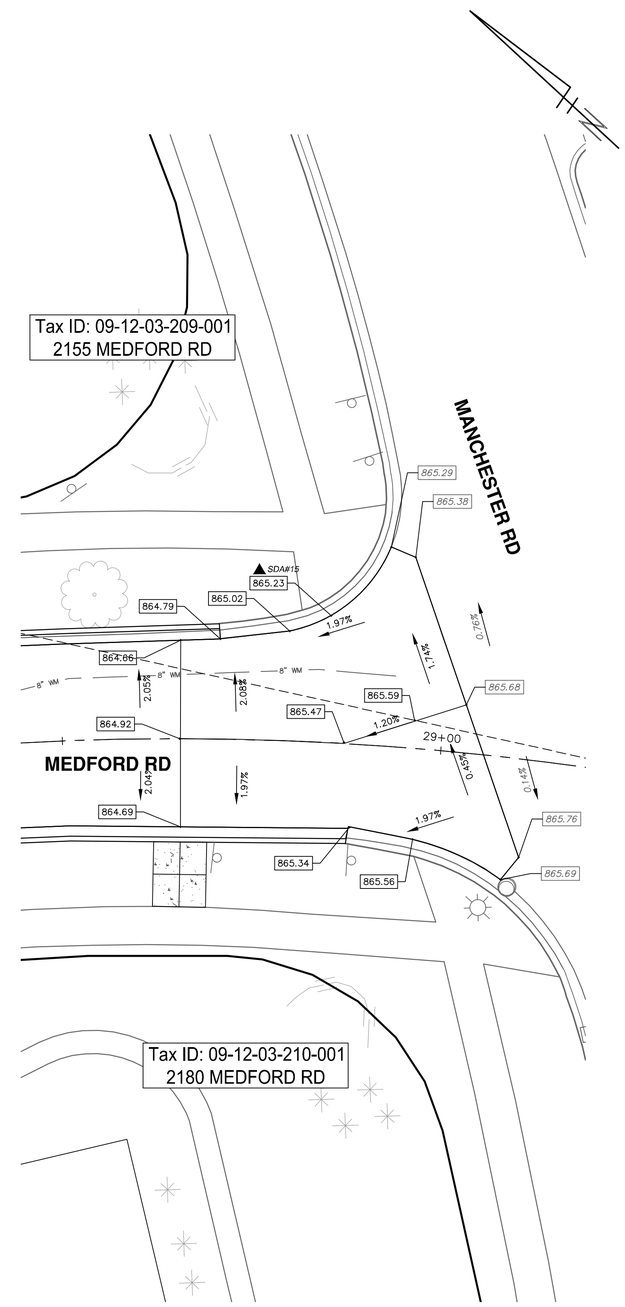
811 Know what's below. Call before you dig.



DETAIL GRADING - MEDFORD RD AT ST FRANCIS DR



DETAIL GRADING - MEDFORD RD AT NEEDHAM RD



DETAIL GRADING - MEDFORD RD AT MANCHESTER RD

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

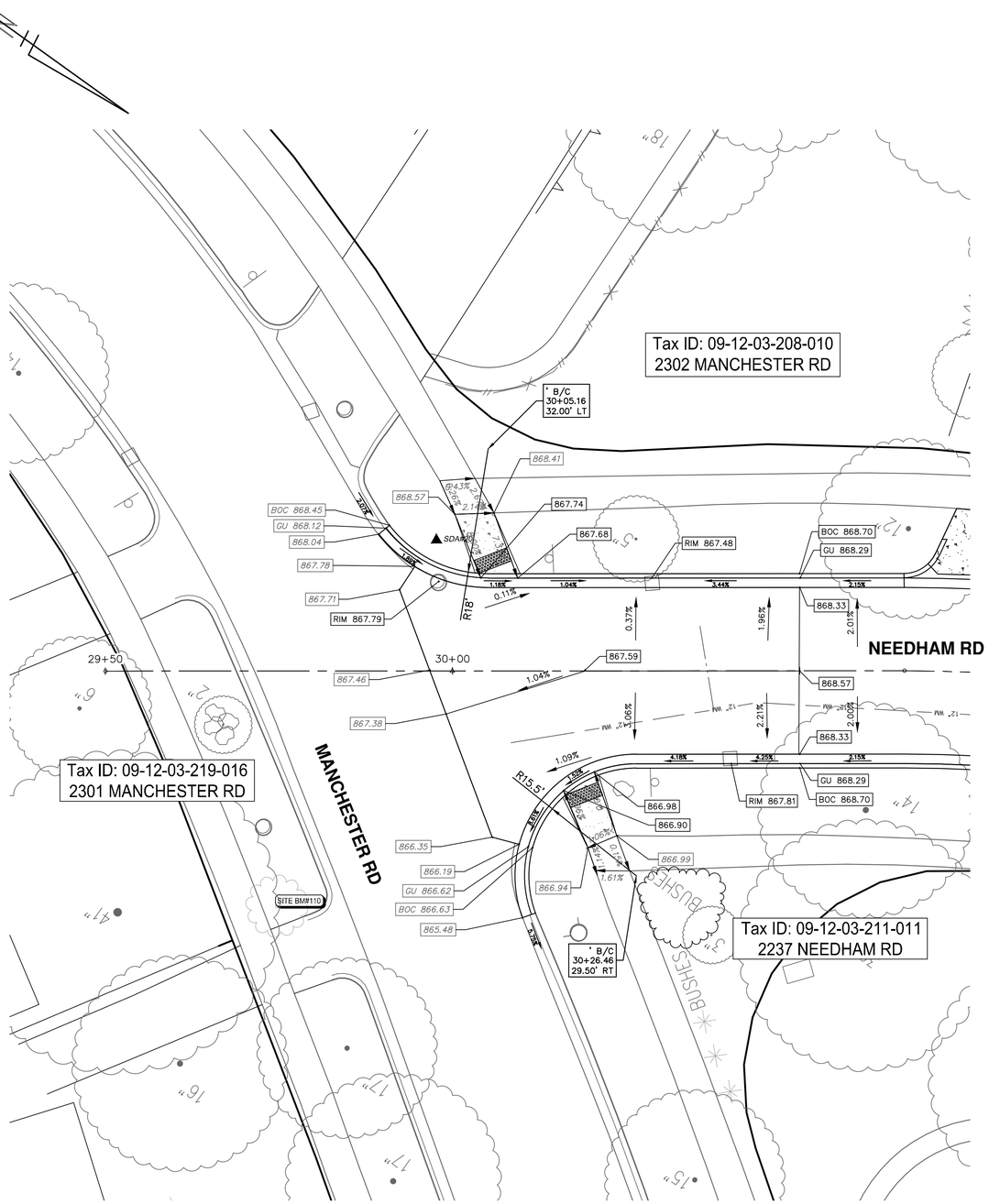
DETAIL GRADING - MEDFORD RD

SCALE PLAN: 1" = 10' PROFILE: N/A

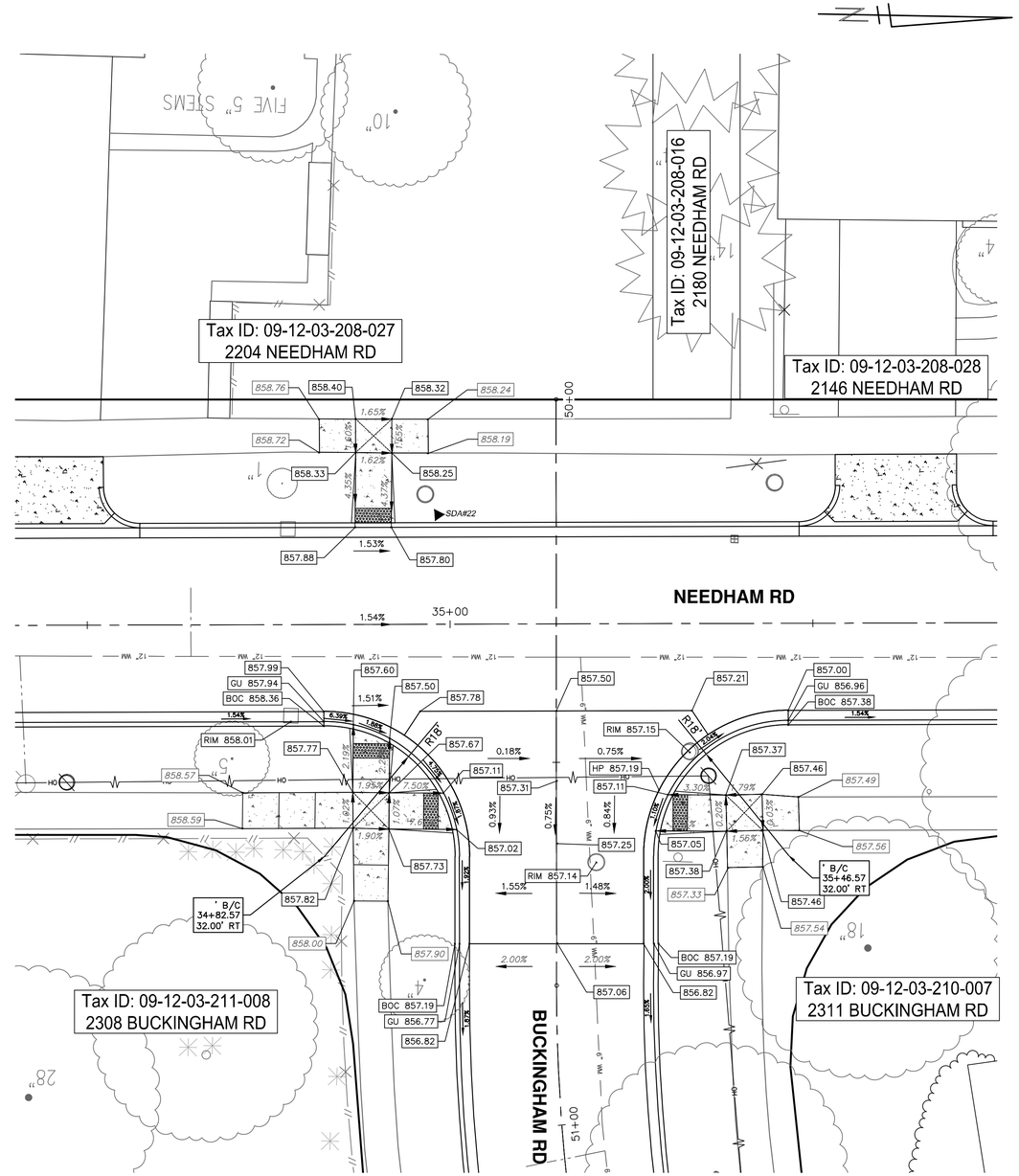
DRAWING No. 2025-2026-58

SHEET No. 58 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_GRD_MEDFORDRD.dwg Dwg Created: 8-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



DETAIL GRADING - NEEDHAMN RD AT MANCHESTER RD



DETAIL GRADING - NEEDHAMN RD AT BUCKINGHAM RD

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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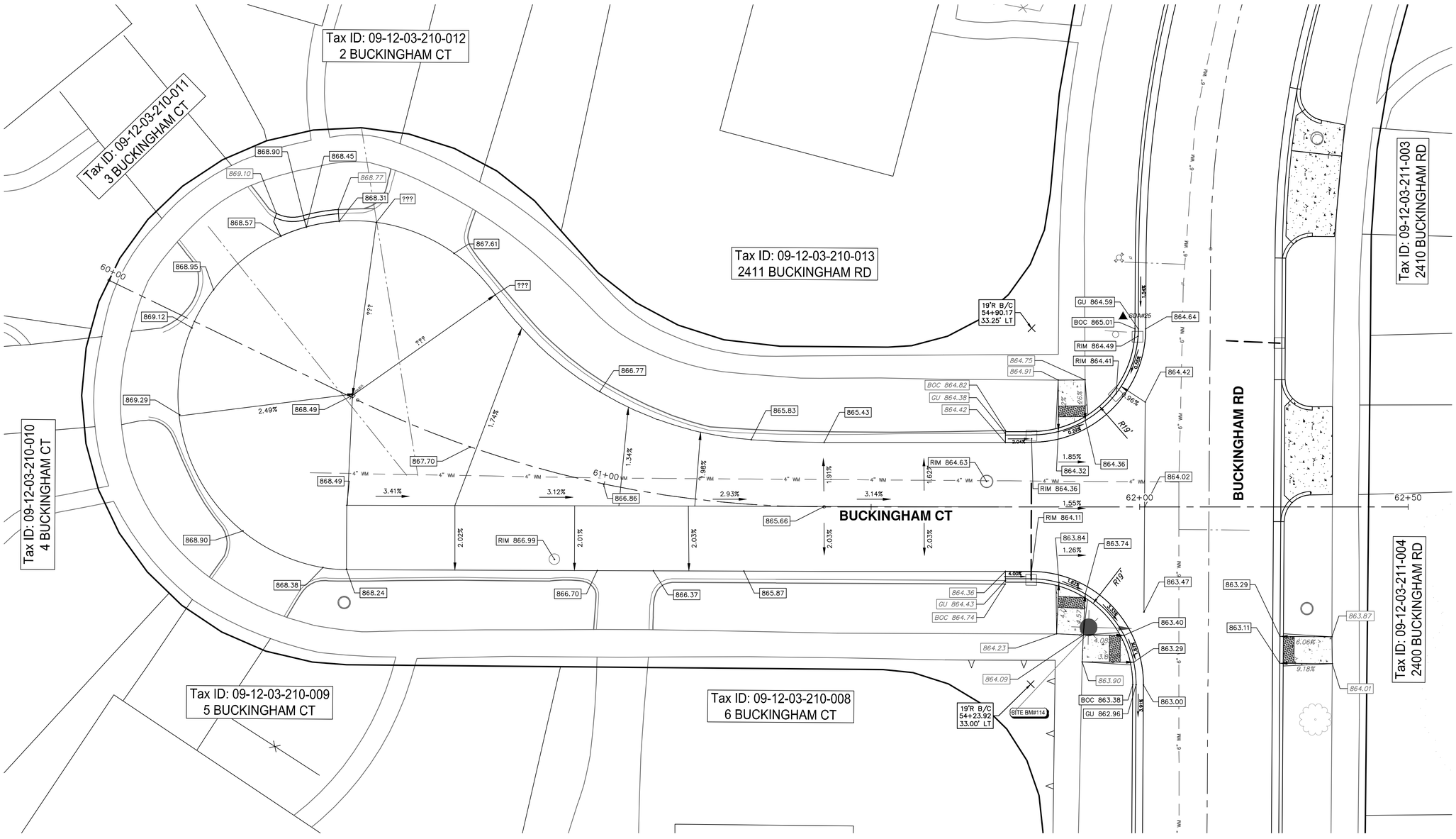
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

DETAIL GRADING - NEEDHAM RD

SCALE PLAN: 1" = 10'
PROFILE: N/A
DRAWING No. 2025-2026-59
SHEET No. 59 OF 64

J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_GRD_NEEDHAMRD.dwg Dwg Created: 5-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26



DETAIL GRADING - BUCKINGHAM CT

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

DETAIL GRADING - BUCKINGHAM CT

SCALE PLAN: 1" = 10'
PROFILE: N/A

DRAWING No.
2025-2026-60

SHEET No.
60 OF 64

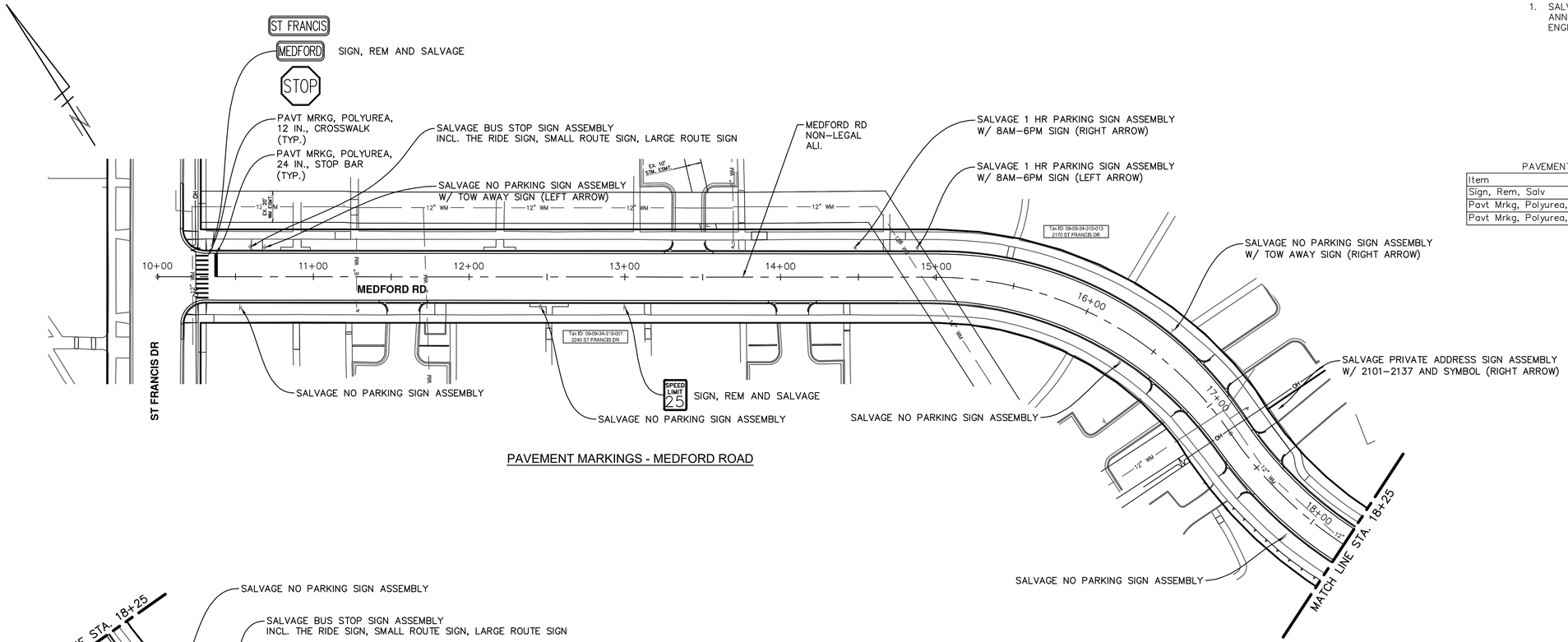
J:\AA\Design\AA25001 – NMB Watermain & Resurfacing\Ann Arbor Cads\Plan Production\AA25001_GRD_BUCKINGHAMCT.dwg Dwg Created: 5-Dec-25 – _a2 standard bw.stb – Plot Date: 7-Jan-26

NOTES

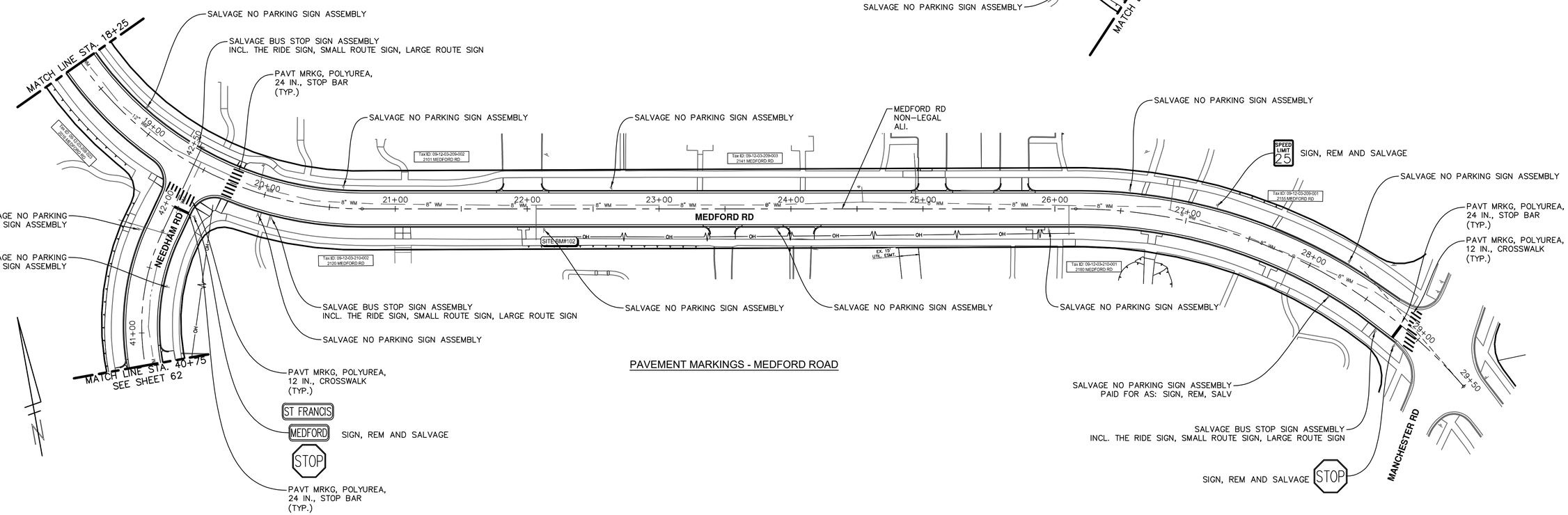
1. SALVAGED SIGNS TO BE REINSTALLED BY THE CITY OF ANN ARBOR UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PAVEMENT MARKING QUANTITIES – THIS SHEET

Item	Quantity	Unit
Sign, Rem, Salv	30	Ea
Pavt Mrkg, Polyurea, 12 In., Crosswalk	284	Ft
Pavt Mrkg, Polyurea, 24 In., Stop Bar	39	Ft



PAVEMENT MARKINGS - MEDFORD ROAD



PAVEMENT MARKINGS - MEDFORD ROAD

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

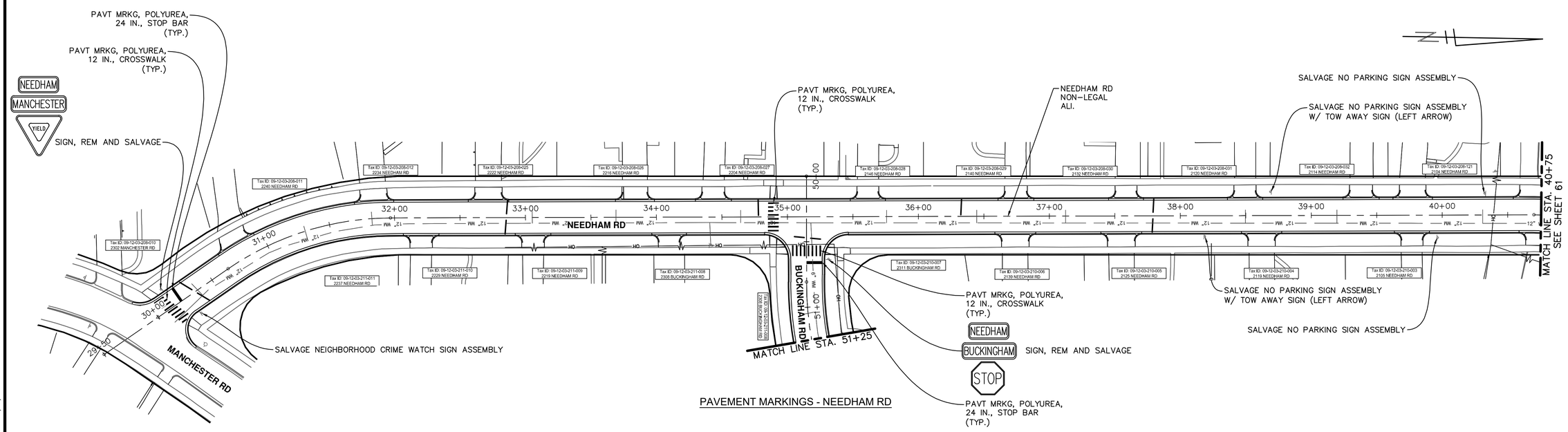
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

PAVEMENT MARKINGS - 1

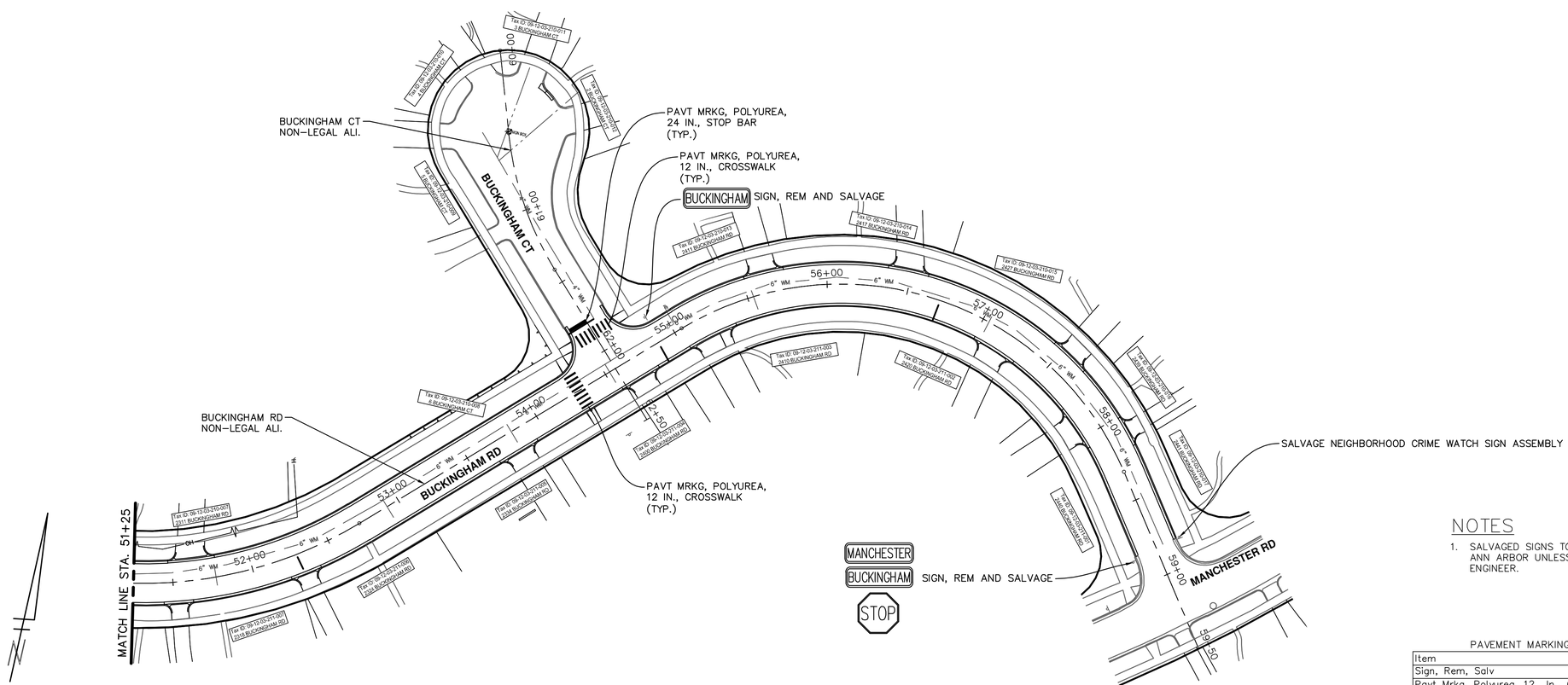
SCALE : 1" = 40'

DRAWING No. 2025-2026-61

SHEET No. 61 OF 64



PAVEMENT MARKINGS - NEEDHAM RD



PAVEMENT MARKINGS - BUCKINGHAM RD

NOTES

1. SALVAGED 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	10	Ea
Pavt Mrkg, Polyurea, 12 In., Crosswalk	324	Ft
Pavt Mrkg, Polyurea, 24 In., Stop Bar	36	Ft

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

REV.	DATE	DRAWN	CHECKED
5 –	–	–	–
4 –	–	–	–
3 FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2 FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1 70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

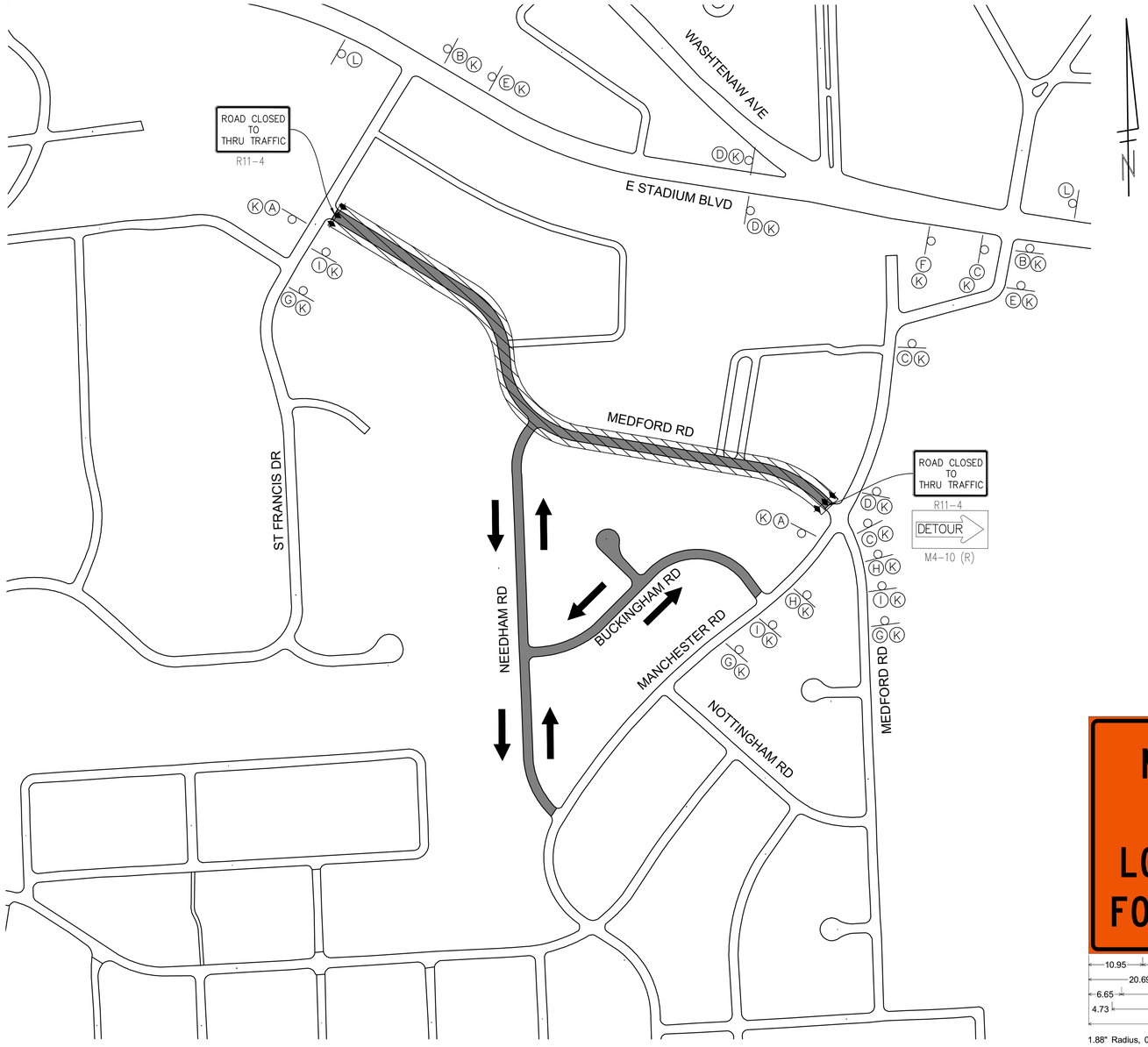
NEEDHAM, MEDFORD, & BUCKINGHAM
WATER MAIN & RESURFACING PROJECT

PAVEMENT MARKINGS - 2

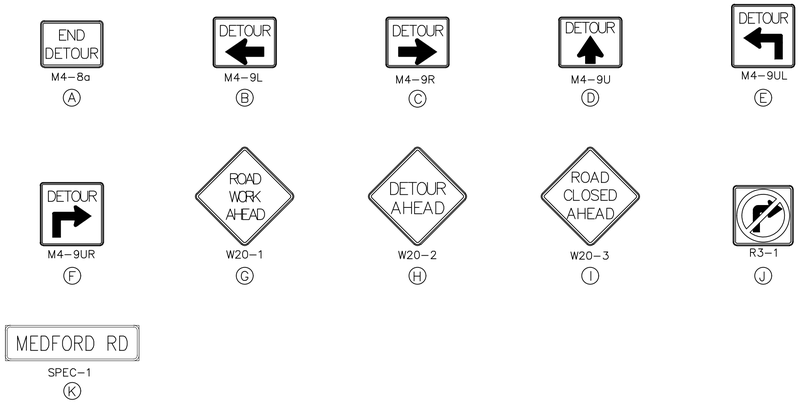
SCALE : 1" = 40'

DRAWING No. 2025-2026-62

SHEET No. 62 OF 64



DETOUR PLAN

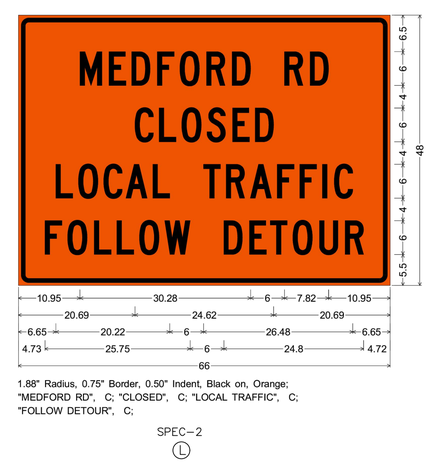


MAINTENANCE OF TRAFFIC QUANTITIES – THIS SHEET

Item	Quantity	Unit
Sign, Type B, Temp, Prismatic, Furn & Oper	159.0	Sft
Sign, Type B, Temp, Prismatic, Special, Furn & Oper	76.0	Sft
Temporary "No Parking" Sign	50	Ea
Plastic Drum, High Intensity, Lighted, Furn & Oper	50	Ea
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	6	Ea
Pedestrian Type II Barricade, Temp, Furn & Oper	10	Ea

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

SYMBOL	MMUTCO DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
A	M4–8a	END DETOUR	24x18	2
B	M4–9L	DETOUR LEFT	24x30	2
C	M4–9R	DETOUR RIGHT	24x30	2
D	M4–9U	DETOUR UP	24x30	3
E	M4–9UL	DETOUR (AHEAD LEFT)	24x30	2
F	M4–9UR	DETOUR (AHEAD RIGHT)	24x30	1
G	W20–1	ROAD WORK AHEAD	36x36	3
H	W20–2	DETOUR AHEAD	36x36	2
I	W20–3	ROAD CLOSED AHEAD	36x36	3
○	R11–4	ROAD CLOSED TO THRU TRAFFIC	60x30	2
	M4–10 (L)	DETOUR LEFT ARROW	48x18	1



1.88" Radius, 0.75" Border, 0.50" Indent, Black on, Orange; "MEDFORD RD", C; "CLOSED", C; "LOCAL TRAFFIC", C; "FOLLOW DETOUR", C;

SPEC–2
L

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

SYMBOL	MMUTCO DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
K	D3–2	MEDFORD RD	48x12	19
○ L	SPEC–2	MEDFORD RD CLOSED LOCAL TRAFFIC FOLLOW DETOUR	48x66	2

NOTES

1. DETOUR EASTBOUND AND WESTBOUND TRAFFIC FOR MEDFORD ROAD.
2. CITY TO COORDINATE WITH SCHOOL DISTRICT TRANSIT COMPANIES, INCLUDING THE RIDE (ROUTE 64), FOR DETOUR OF SCHOOL BUS ROUTE FROM MEDFORD ROAD.
3. CONTRACTOR TO COORDINATE ADDITIONAL TEMPORARY LANE CLOSURES DURING WATER MAIN CONNECTIONS AT INTERSECTIONS ALONG ST FRANCIS DR AND MANCHESTER 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

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
2	FINAL REVIEW SUBMITTAL	12/08/2025	AJ/RD/SL	AL/JS
1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

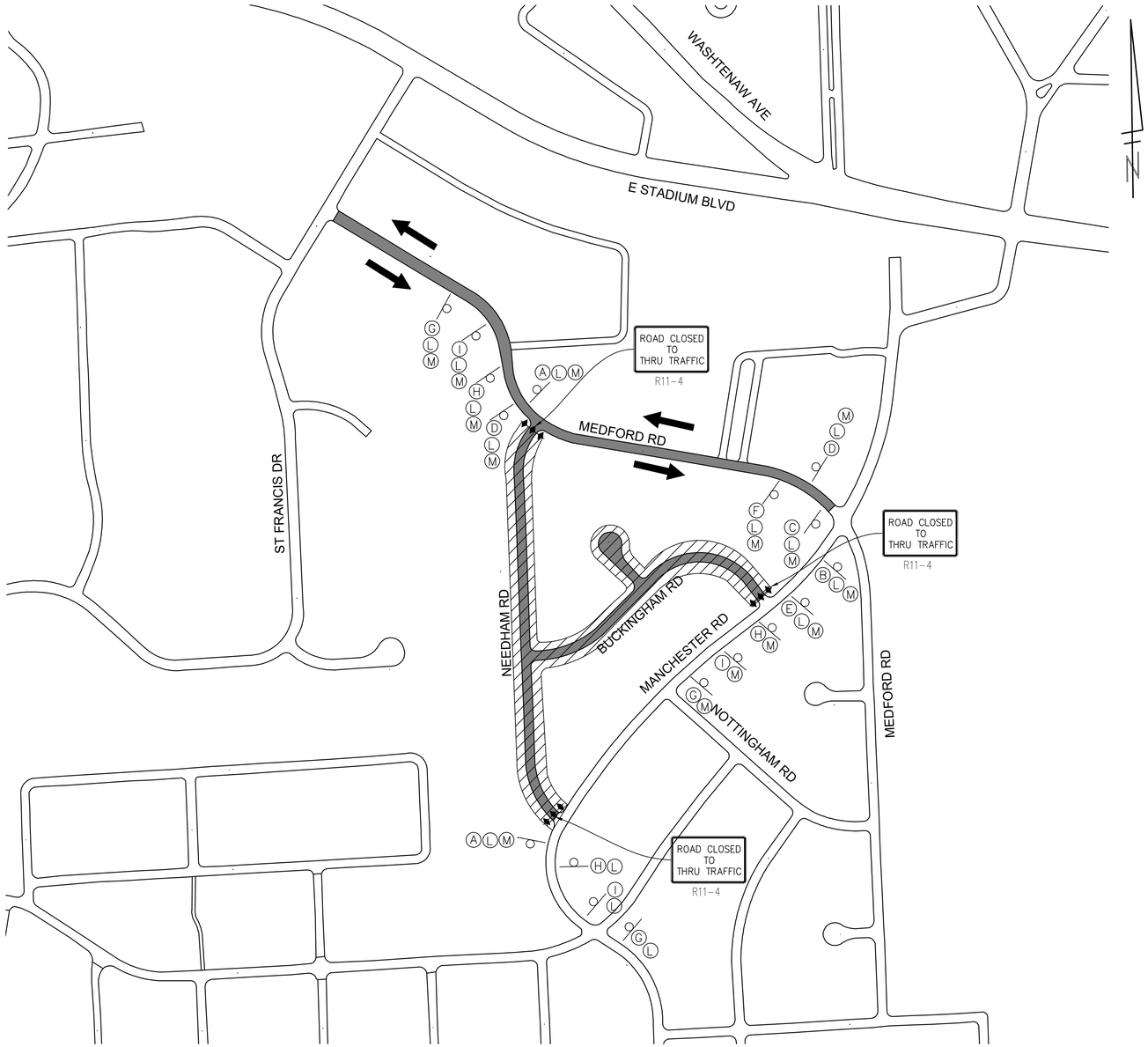
NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT

DETOUR PLAN - PHASE 1

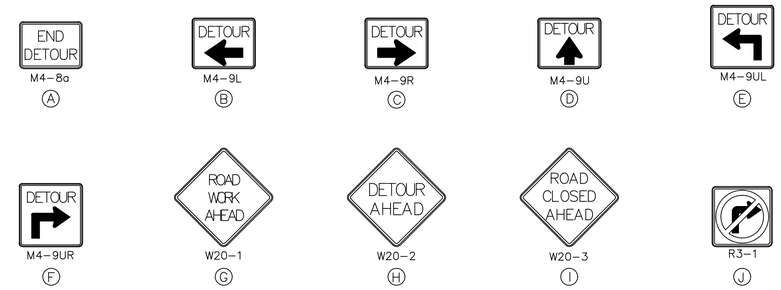
SCALE : 1" = 200'

DRAWING No. 2025-2026-63

SHEET No. 63 OF 64



DETOUR PLAN



MAINTENANCE OF TRAFFIC QUANTITIES – THIS SHEET

Item	Quantity	Unit
Sign, Type B, Temp, Prismatic, Furn & Oper	154.5	Sft
Sign, Type B, Temp, Prismatic, Special, Furn & Oper	112.0	Sft
Temporary "No Parking" Sign	50	Ea
Plastic Drum, High Intensity, Lighted, Furn & Oper	50	Ea
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	9	Ea
Pedestrian Type II Barricade, Temp, Furn & Oper		Ea
Pedestrian Channelizer Device, Furn & Oper		Ea
Temporary Pedestrian Ramp, Furn & Oper		Ea
Temporary Pedestrian Mat, Furn & Oper		Ft

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

SYMBOL	MMUTCO 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	1
D	M4-9U	DETOUR UP	24x30	2
E	M4-9UL	DETOUR (AHEAD LEFT)	24x30	1
F	M4-9UR	DETOUR (AHEAD RIGHT)	24x30	1
G	W20-1	ROAD WORK AHEAD	36x36	3
H	W20-2	DETOUR AHEAD	36x36	3
I	W20-3	ROAD CLOSED AHEAD	36x36	3
J	R3-1	NO RIGHT TURN	36x36	0
	R11-4	ROAD CLOSED TO THRU TRAFFIC	60x30	3

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

SYMBOL	MMUTCO DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
L	D3-2	MEDFORD RD	48x12	14
M	D3-2	BUCKINGHAM RD	48x12	14

NOTES

1. DETOUR EASTBOUND AND WESTBOUND TRAFFIC FOR MEDFORD ROAD.
2. CITY TO COORDINATE WITH SCHOOL DISTRICT TRANSIT COMPANIES, INCLUDING THE RIDE (ROUTE 64), FOR DETOUR OF SCHOOL BUS ROUTE FROM MEDFORD ROAD.
3. CONTRACTOR TO COORDINATE ADDITIONAL TEMPORARY LANE CLOSURES DURING WATER MAIN CONNECTIONS AT INTERSECTIONS ALONG ST FRANCIS DR AND MANCHESTER 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

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5	–	–	–	–
4	–	–	–	–
3	FINAL PLAN SUBMITTAL	01/09/2026	AJ/RD	AL/JS
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1	70% SUBMITTAL	07/08/2025	AJ/ML/RD	AL/CH

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

NEEDHAM, MEDFORD, & BUCKINGHAM WATER MAIN & RESURFACING PROJECT

DETOUR PLAN - PHASE 2

SCALE : 1" = 200'

DRAWING No. 2025-2026-64

SHEET No. 64 OF 64