

- RCOC UNDERGROUND NOTES
- 1-CALL INSPECTOR OR PERMIT SUPERVISOR BEFORE BEGINNING ANY WORK IN R.O.W.

2-"PROPER SIGNING" IS REQUIRED BEFORE ANY WORK IN R.O.W. IS STARTED

3-LANE CLOSURES RESTRICTED TO 9-3 PM MON - FRI

4-FLAG PERSON REQUIRED FOR TEMPORARY ONE LANE ROADS

5-MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES

6-HAND DIG AROUND ALL UTILITIES

7-KEEP ROADS CLEAN OF DIRT AND DEBRIS

8-WITHIN THE INFLUENCE OF THE ROADBED MDOT CLASS II, SAND, COMPACTED TO 95% MAX. UNIT DENSITY IS REQUIRED

9-ALL ROADS AND DRIVE CROSSING TO BE DIRECTIONAL BORE OR JACK CASE AND BORING

10-ALL BORING PITS ARE TO BE SITUATED AT LEAST TEN FEET FROM EDGE OF PAVEMENT

11-MIN. DEPTH FOUR FEET UNDER ROADBED OR EX. GRADE WHICHEVER IS LOWER

12-UNDERGROUND UTILITIES TO BE 1 FOOT OFF R.O.W.

13-MUST CORE PAVEMENT AND BACKFILL WITH FLOWABLE FILL TO VERIFY ALL UTILITY LOCATIONS

17-SUITABLE BASE TO BE DETERMINED BY RCOC DIRECTOR IN THE FIELD

18-RAMPS & SIDEWALKS MUST MEET ADA SPECIFICATIONS
- ON-SITE MEETING
REQUIRED AFTER
MISS DIG LAYOUT
IS COMPLETE

SEE RCOC PERMIT, RULES,
SPECIFICATIONS AND
GUIDELINES

6" OR LARGER ABANDONED
PIPE MUST BE FILLED WITH
FLOWABLE MATERIALS

FULL DEPTH SAWCUT
AND/OR MILL A BUTT JOINT,
WITH LOCATION/WIDTH
AS DIRECTED BY
RCOC INSPECTOR

MATCH EXISTING CROSS SECTION
M.D.O.T. _____ E Mix _____ H.M.A.
REQUIRED
ADDITIONAL M.D.O.T. 21AA
AGGREGATE MAYBE WARRANTED

FULL CONCRETE SLAB
REPLACEMENT REQUIRED

MATCH AND TIE
PROPOSED CURB
TO EXISTING CURB
EPOXY COATED #4
BAR REQUIRED

GENERAL PROVISIONS:

- THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS, EXCEPT AS OTHERWISE NOTED ON THE PLANS OR IN THE CONTRACT DOCUMENTS.
- PAVEMENT MARKINGS INSTALLED AS A PART OF THIS CONTRACT SHALL BE PLACED IN ACCORDANCE WITH THE CURRENT EDITION OF THE THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- THE LOCATIONS OF PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA. THE CITY OF FERNDALE WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FOR THE LOCATIONS SHOWN. AS A CONDITION OF THIS CONTRACT AND PURSUANT TO ACT 174 OF THE PA OF 2013, NOTICE SHALL BE GIVEN TO MISS DIG A MINIMUM OF THREE WORKING DAYS PRIOR TO ANY UNDERGROUND WORK BEING PERFORMED. CONTACT (800)482-7171 OR 811. UTILITY SERVICE CONNECTIONS ARE NOT GENERALLY SHOWN ON THE PLANS AND ARE NOT THE RESPONSIBILITY OF THE CITY.

MDOT STANDARD PLANS:

- R-28-K CURB RAMP AND DETECTABLE WARNING DETAILS *
- R-29-J DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK *
- R-31-F INTEGRAL CURB AND INTEGRAL CURB & GUTTER
- R-83-C UTILITY TRENCHES

- WZD-100-A GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS*
- WZD-125-E TEMPORARY TRAFFIC CONTROL DEVICES *

* DENOTES SPECIAL DETAIL INCLUDED IN PROPOSAL DOCUMENTS

INDEX OF SHEETS:

- TITLE SHEET1
- GENERAL NOTES2
- SOIL BORINGS3
- GATE VALVE LOCATION MAP4
- TRAFFIC CONTROL5 - 7
- WATER MAIN8 - 12
- CONNECTIONS WATER MAIN13 - 14
- REMOVAL & CONSTRUCTION15 - 19
- WATER MAIN DETAILS20 - 21
- WRC SESC DETAILS22

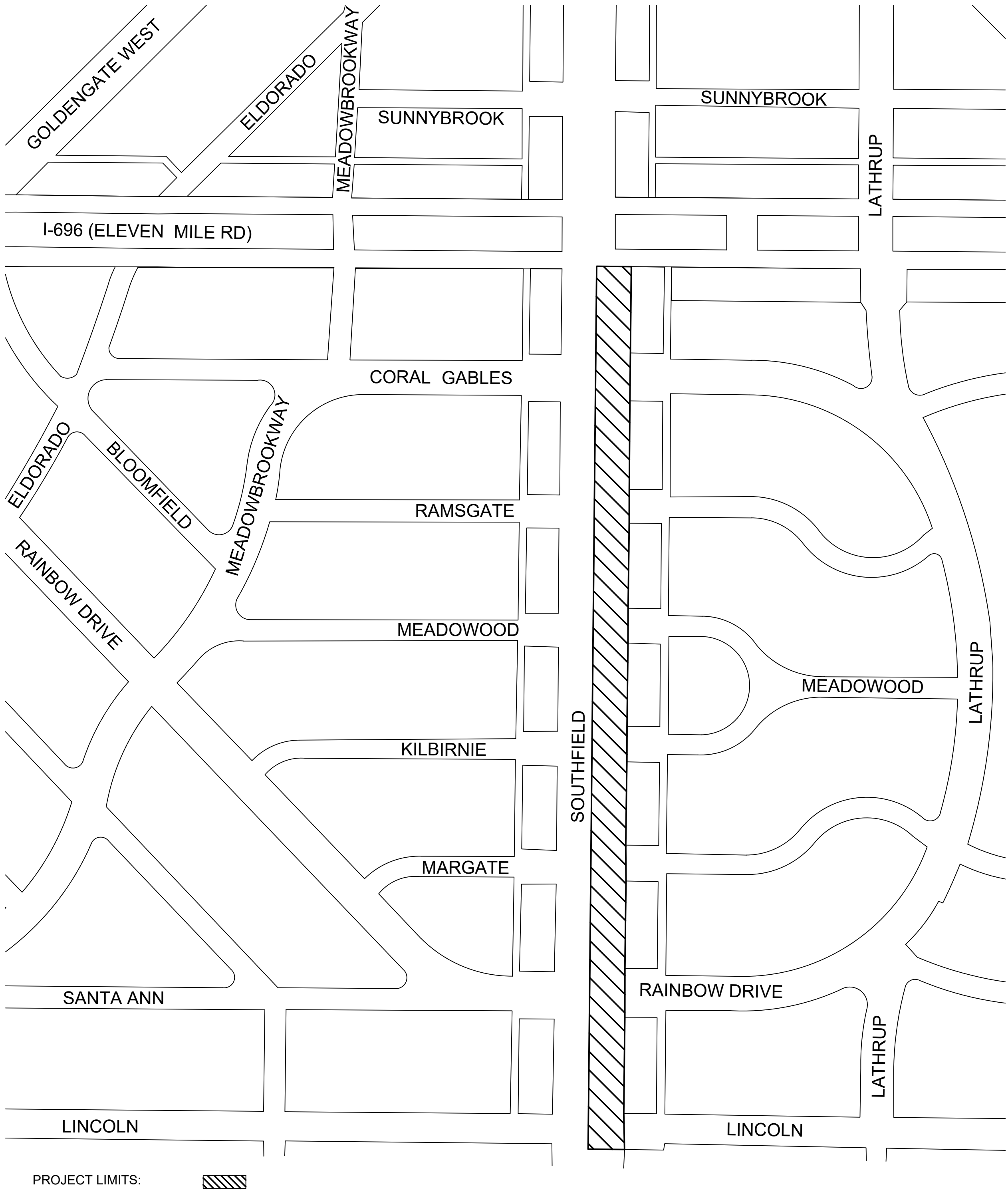
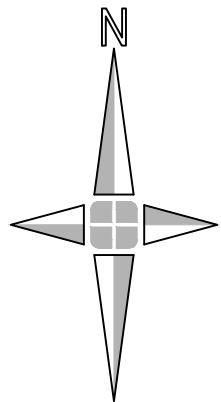
APPROVED
FOR CONSTRUCTION PERMIT

ROAD COMMISSION FOR OAKLAND COUNTY
PERMITS OFFICE

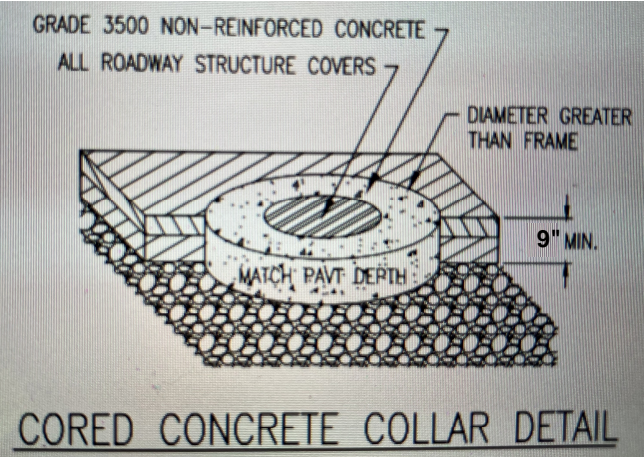
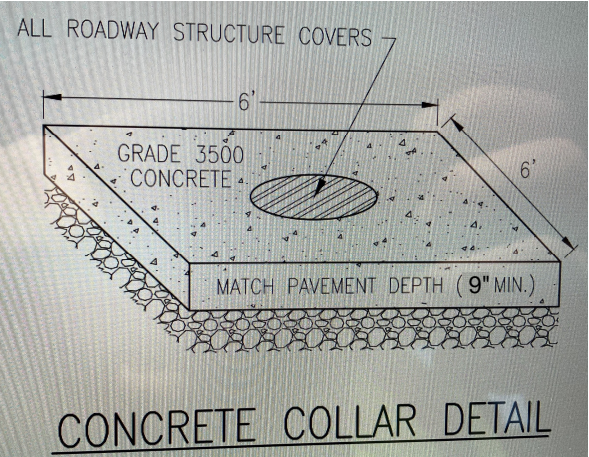
BY:

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CITY OF LATHRUP VILLAGE
2026 SOUTHFIELD WATER MAIN IMPROVEMENT PROJECT
CITY OF LATHRUP VILLAGE, OAKLAND COUNTY, MICHIGAN



LOCATION MAP
NOT TO SCALE



SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

- CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL ACT OF THE STATE OF MICHIGAN, PART 91 OR ACT 451, OF THE PUBLIC ACTS OF 1994 AND THE REQUIREMENTS OF THE OAKLAND COUNTY WATER RESOURCE COMMISSIONER.
- THE CONTRACTOR SHALL CONDUCT OPERATIONS IN A MANNER THAT WILL REDUCE ACCELERATED EROSION TO THE PRACTICAL MINIMUM AND PREVENT DAMAGING SILTATION TO EXISTING SEWERS AND WATER COURSES LEADING FROM THE WORK SITE.
- THE CONTRACTOR SHALL CONDUCT WORK IN SUCH A MANNER AS TO PREVENT THE ENTRY OF FUELS, OILS, BITUMINOUS MATERIALS, CHEMICALS, SEWERAGE OR OTHER HARMFUL MATERIALS INTO NEARBY LAKES AND STREAMS.
- WASTE DISPOSAL AREAS SHALL BE SELECTED BY THE CONTRACTOR WITH FULL CONSIDERATION OF EROSION AND SEDIMENT CONTROL, SELECTION OF DISPOSAL SITE, CONTROL OF OPERATIONS AND THE RESTORATION OF SAID AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- EXCAVATION FROM THE RIGHT-OF-WAY, CHANNELS, OR OTHER MATERIAL SHALL NOT BE DEPOSITED IN OR NEAR RIVERS, STREAMS OR PONDS WHERE IT MAY ENTER THE WATERWAY.
- AT THE COMPLETION OF EACH DAY'S CONSTRUCTION, CARE SHALL BE TAKEN TO ENSURE THAT MINIMAL EROSION WILL OCCUR IN TRENCHES AND TO STOCKPILED MATERIALS UNTIL RESUMPTION OF WORK.
- CONTRACTOR SHALL CONFINE OPERATIONS TO THE MINIMUM AMOUNT OF WORKING SPACE PRACTICAL TO MINIMIZE SOIL EROSION.
- THE PROJECT WILL BE CONTINUALLY INSPECTED BY THE ENGINEER FOR EROSION CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR IMMEDIATELY UPON NOTICE OF SUCH DEFICIENCIES. FAILURE TO CORRECT THE DEFICIENCIES MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND THERE WILL BE NO CONTRACT TIME EXTENSION GRANTED FOR THIS TYPE OF STOPPAGE.
- INLET FILTERS SHALL BE INSTALLED THROUGHOUT THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT AND SHALL BE REMOVED BY THE CONTRACTOR AFTER THE PERMANENT SOIL EROSION MEASURES HAVE BEEN COMPLETED.
- STREET SWEEPING OR MUD REMOVAL SHALL BE PERFORMED DAILY FOR MUD TRACKED ONTO PUBLIC STREETS.
- THE ENGINEER SHALL HAVE FULL AUTHORITY TO TEMPORARILY SUSPEND WORK IN THE EVENT THAT ANY OF THE ABOVE REQUIREMENTS ARE NOT BEING MET BY THE CONTRACTOR, OR IF CONDITIONS INDICATE THAT ADDITIONAL TEMPORARY CONTROL MEASURES ARE WARRANTED, IN THE OPINION OF THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL FULL COMPLETION OF THE PROJECT.
- THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY THE CONTRACTOR.

GENERAL SEQUENCE OF CONSTRUCTION:

- INSTALL TRAFFIC CONTROL MEASURES.
- INSTALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.
- REMOVE PAVEMENT.
- INSTALL WATER MAIN AND WATER SERVICES.
- REPLACE PAVEMENT / HMA RESURFACING.
- RESTORE ADJACENT LAWN AREAS.
- REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.

TEMPORARY SESC MEASURE MAINTENANCE SCHEDULE:

- SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT.
- WEEKLY INSPECTION AND MAINTENANCE MUST BE PROVIDED TO INSURE INLET FILTER OPERATES EFFICIENTLY.
- REMOVE ACCUMULATED SEDIMENT.
- REPLACE DAMAGED INLET FILTERS.

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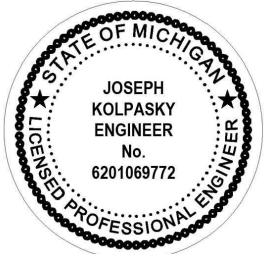
PLANS FOR: 2,600 FEET OF WATER MAIN, HYDRANTS AND GATE VALVES; WATER SERVICES, ADA SIDEWALK/RAMP REMOVAL & REPLACEMENT, PAVEMENT REPAIR, AND TEMP TRAFFIC CONTROL.

CITY OF LATHRUP VILLAGE

MICHAEL GREENE, CITY ADMINISTRATOR

DATE

PREPARED UNDER THE SUPERVISION OF:



JOSEPH P KOLPASKY, PE 6201069772
REGISTRATION No.



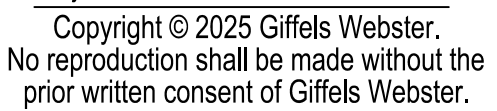
1. DIRECTIONAL BORE PIPE SHALL BE PVC PIPE C-900 (DR-14) IN ACCORDANCE WITH AWWA C900 AND ANSIS/NSF 14. BACTERIAL CONTAMINATION TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651 AND PRESSURE TESTING IN ACCORDANCE WITH AWWA C605.
2. ALL PVC PIPE SHALL BE INSTALLED WITH TWO (2) TRACER/LOCATOR WIRES INSULATED WITH HIGH MOLECULAR WEIGHT POLYETHYLENE (HMWPE) SPECIFICALLY FOR USE IN DIRECT BURIAL APPLICATIONS.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED ADAPTORS AND FITTINGS TO CONNECT C-900 PIPE TO DUCTILE IRON PIPE OR APPURTENANCES.
4. THE CONTRACTOR SHALL USE CAUTION DURING COMPACTION OF THE TRENCH WHILE THE EXISTING WATER MAIN IS IN SERVICE.
5. THE EXISTING WATER MAIN IS TO REMAIN IN SERVICE UNTIL THE PROPOSED WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, BACTERIA TESTED, APPROVED FOR PUBLIC USE, AND ALL SERVICES ARE TIED OVER TO THE NEW WATER MAIN.
6. EXCAVATED TRENCHES WITHIN THE ROADWAY AND DRIVEWAYS SHALL NOT REMAIN OPEN OVERNIGHT, BUT SHALL BE FILLED WITH COMPACTED MAINTENANCE GRAVEL TO PERMIT TRAFFIC. PAYMENT FOR THE REMOVAL AND REPLACEMENT OF COMPACTED MAINTENANCE GRAVEL SHALL BE INCLUDED AS PART OF THE INITIAL PAYMENT OF MAINTENANCE GRAVEL.
7. SERVICE LEAD LOCATIONS DEPICTED ON THE PLANS ARE ASSUMED.
8. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS FOR RECONNECTIONS.
9. SERVICE LEADS SHALL NOT BE CONNECTED TO THE NEW WATER MAIN UNTIL WRITTEN NOTICE IS GIVEN AND IS FORWARDED TO THE ENGINEER AND/OR CITY OF LATHRUP VILLAGE.
10. RESIDENTIAL SERVICE LEADS SHALL BE 1.0" TYPE "K" COPPER.
11. IF SERVICE LEADS GREATER THAN 1.0" ARE LOCATED IN THE FIELD, THE CONTRACTOR SHALL MATCH EXISTING SIZE.
12. SERVICE LEAD CONNECTIONS SHALL BE MADE "ON LINE" WITH THE EXISTING LEAD DIRECTION. MAXIMUM 6" VARIANCE WILL BE ALLOWED.
13. THE CONTRACTOR SHALL SAW CUT ALL PAVEMENTS CALLED FOR REMOVAL ALONG THE REMOVAL PERIMETER AS INDICATED ON THE PLANS PRIOR TO REMOVAL. THE COST OF SAWCUTTING SHALL BE INCLUDED IN THE UNIT PRICE FOR THE ASPHALT AND CONCRETE PAVEMENTS REMOVED.
14. WATER SERVICE LEADS SHALL BE DIRECTIONALLY BORED.
15. THE CONTRACTOR MUST IDENTIFY THE LOCATION OF AND REMOVE AND REPLACE ALL WATER SERVICE LEADS FOR RESIDENCES WITHIN IN THE INFLUENCE OF CONSTRUCTION.
16. THE COST OF ALL TRENCH MATERIALS EXCAVATED EXCLUDING THE REMOVAL OF ASPHALT AND CONCRETE PAVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE FOR THE WATER MAIN PLACED.
17. THE COST OF ALL FILL AND BEDDING MATERIALS PLACED SHALL BE INCLUDED IN THE UNIT PRICE FOR THE WATER MAIN PLACED.
18. ASPHALT RESIDENTIAL DRIVEWAY APPROACHES CALLED OUT FOR REMOVAL AND REPLACEMENT SHALL BE REPLACED WITH 4 INCHES OF HMA, 13A.

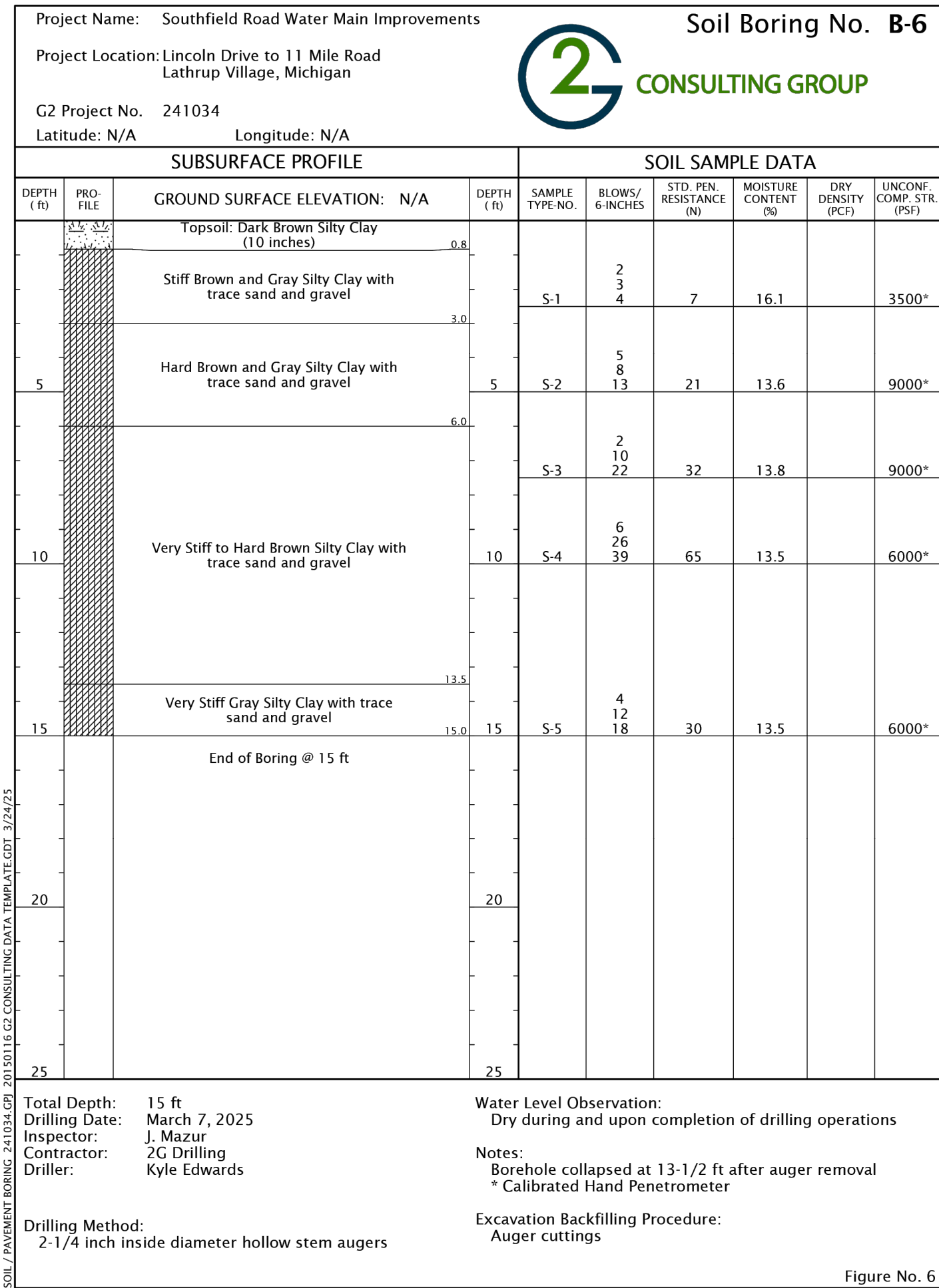
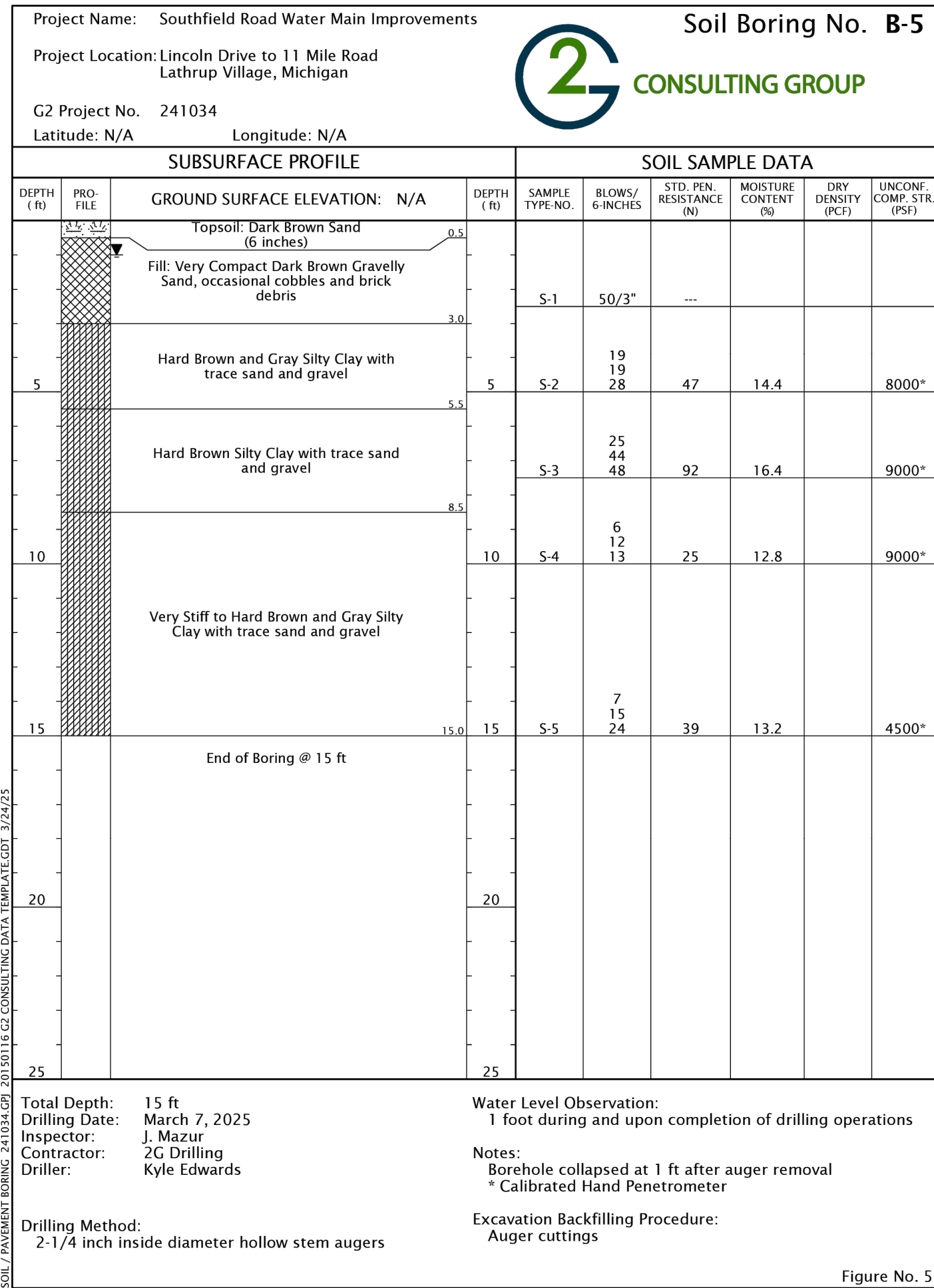
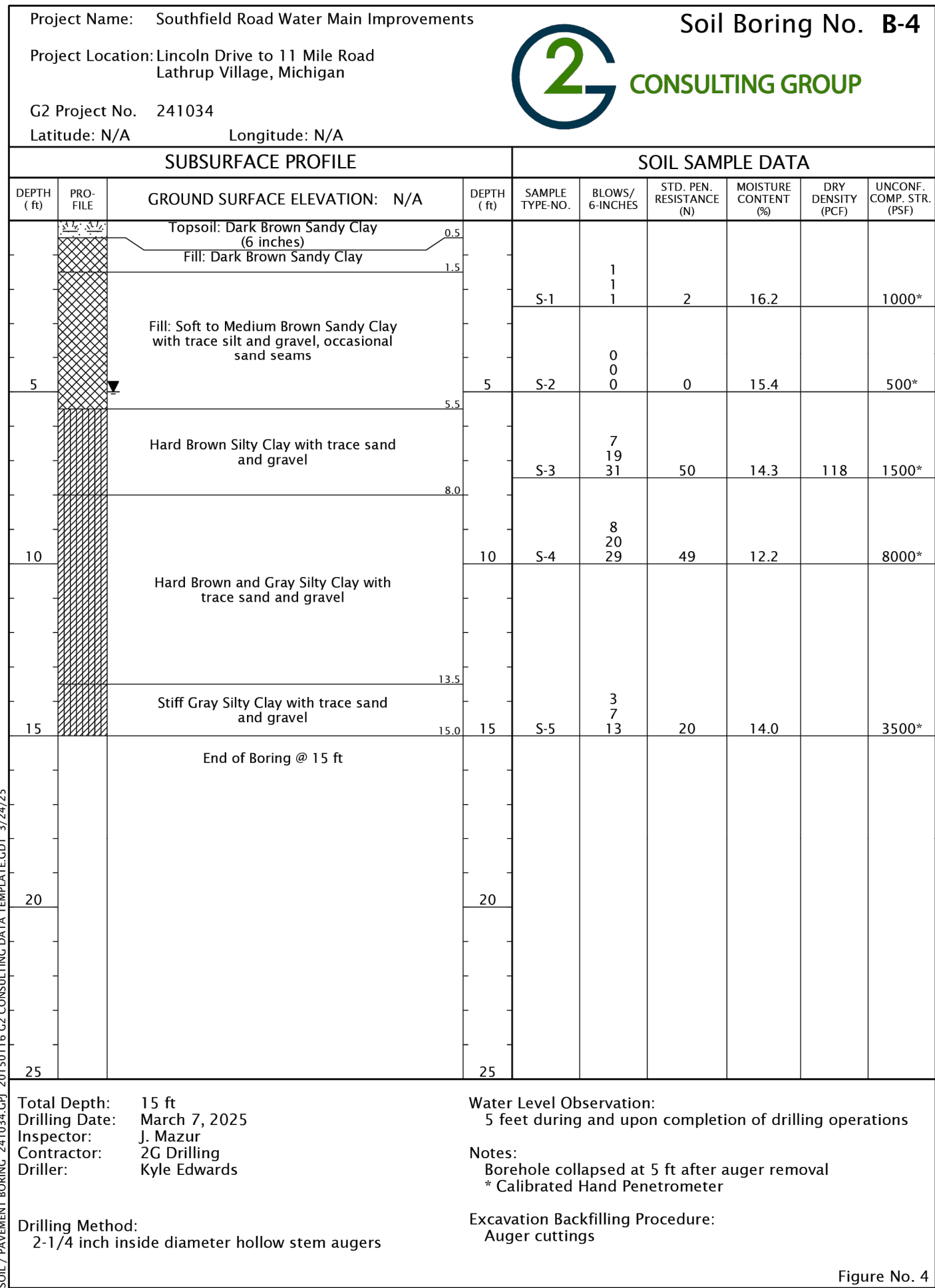
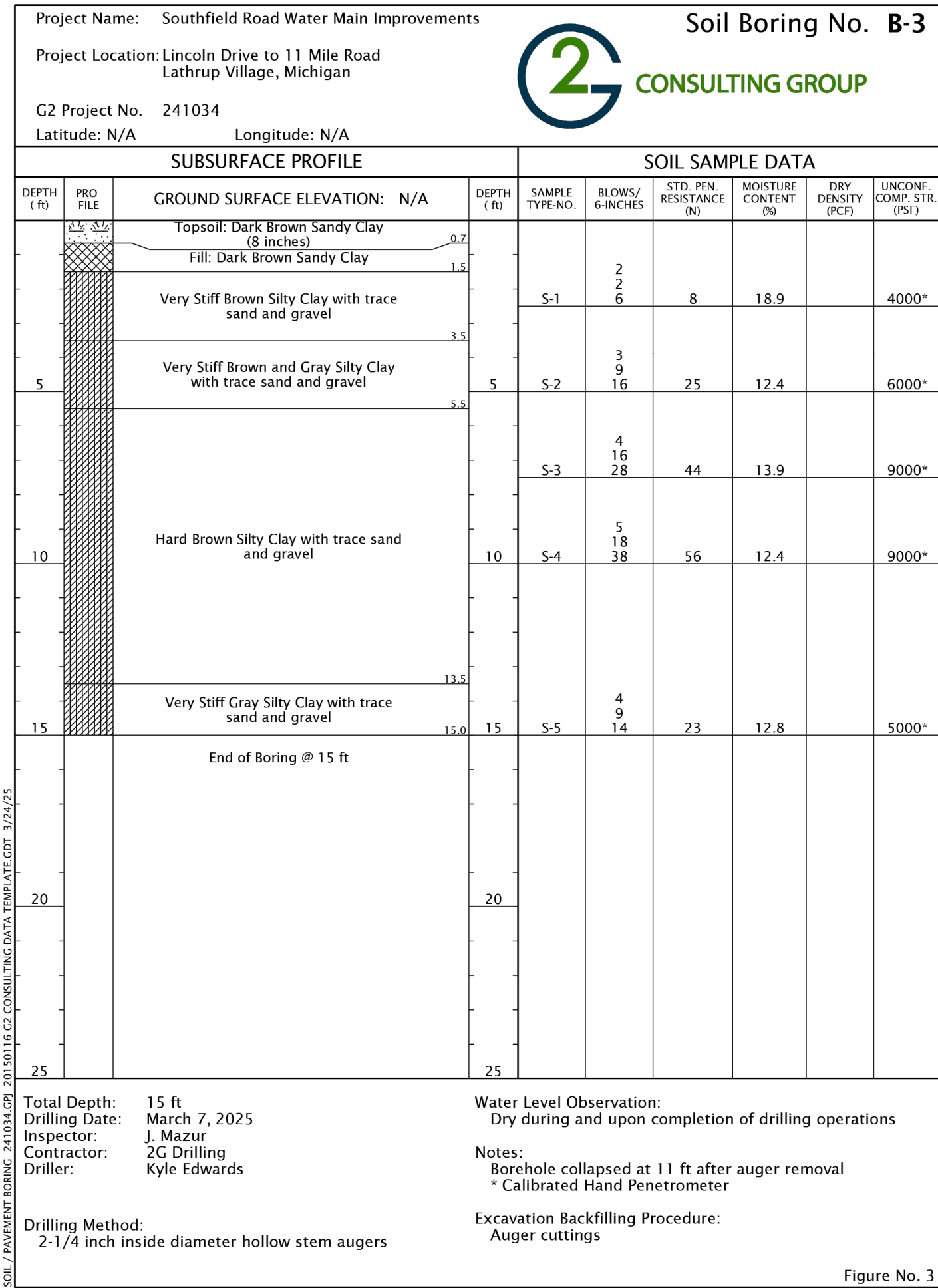
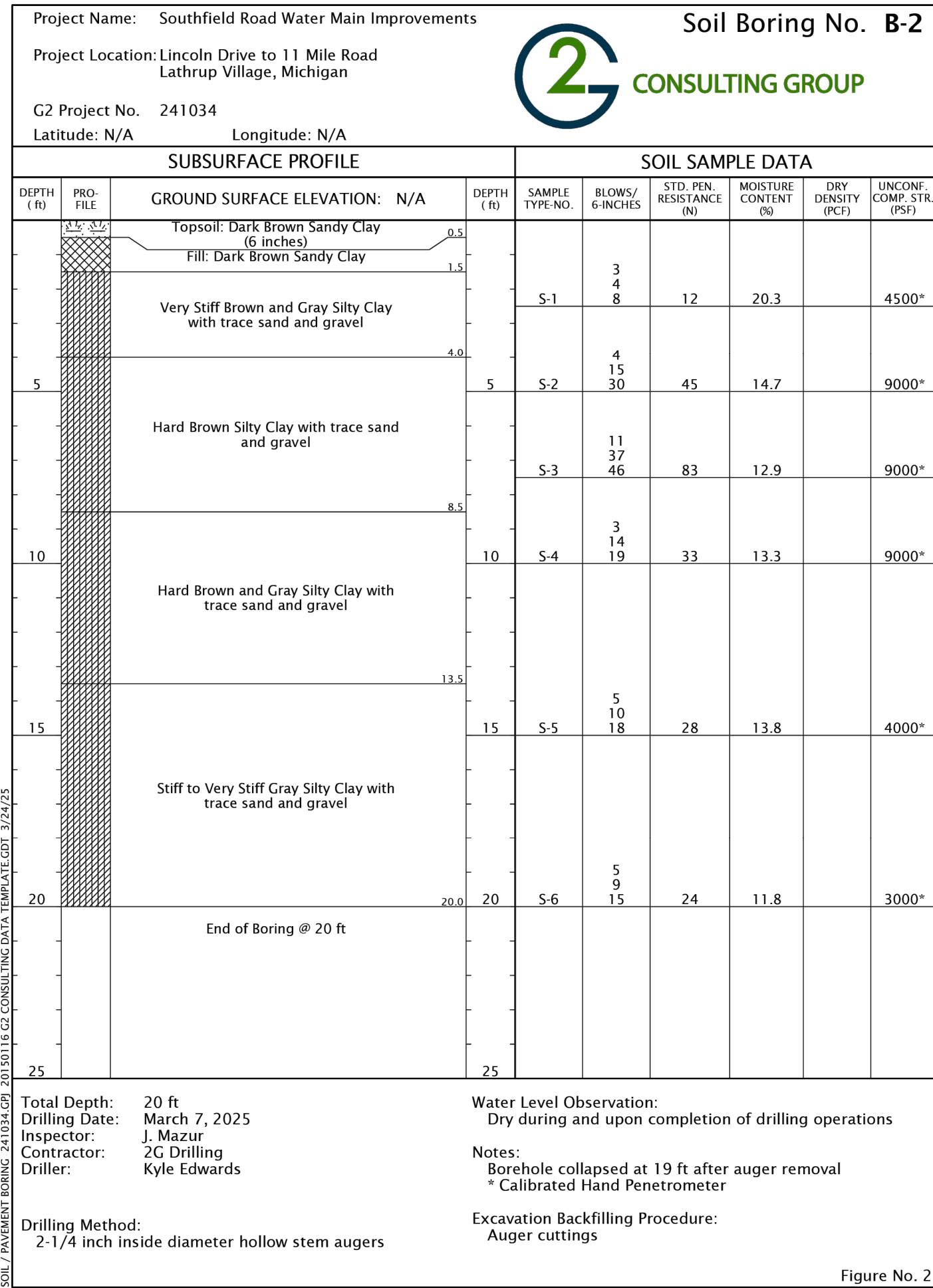
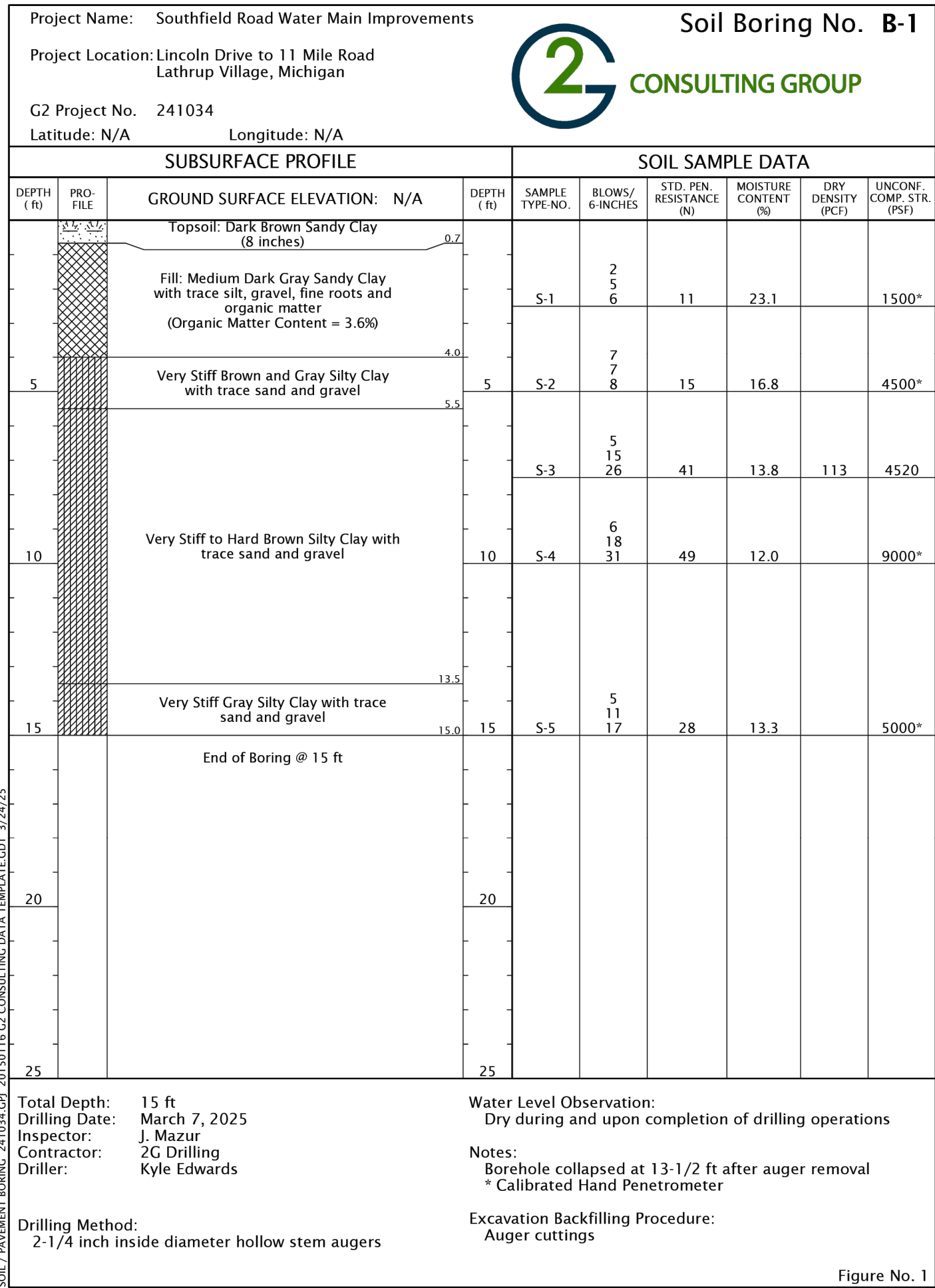
- EXCAVATION OF EXISTING SOIL REQUIRED TO LOWER/WIDEN SIDEWALK RAMP SHALL BE INCLUDED IN THE CORRESPONDING ITEMS FOR AGGREGATE BASE.
- TREE ROOTS IN CONFLICT WITH THE RAMP CONSTRUCTION SHALL BE CLEANLY CUT/GROUND BEYOND THE LIMITS/DEPTH OF THE PROPOSED AGGREGATE BASE. THIS WORK SHALL BE INCLUDED IN THE CORRESPONDING ITEM FOR AGGREGATE BASE.
- CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER FOR ALL CONCRETE FORMS A MINIMUM OF ONE HOUR PRIOR TO PLACEMENT OF CONCRETE.



1. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES FOR NOISE LEVELS, VIBRATIONS OR ANY OTHER RESTRICTIONS WHILE REMOVING PAVEMENT OR ANY OTHER CONSTRUCTION OPERATION WITHIN THIS CONTRACT.
2. IF THE WORK EXTENDS BEYOND THE DATES SPECIFIED FOR SEASONAL SUSPENSION, IN THE ABSENCE OF APPROVED EXTENSION(S) OF TIME, NO COMPENSATION WILL BE DUE TO THE CONTRACTOR FOR ANY WINTER PROTECTION MEASURES THAT MAY BE REQUIRED BY THE ENGINEER.
3. IF IN THE OPINION OF THE ENGINEER, THE CONTRACTOR FAILS TO PERFORM THE DUTIES AS SPECIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE ENGINEER MAY REQUIRE CITY FORCES TO PERFORM WORK, WITH OR WITHOUT NOTIFICATION TO THE CONTRACTOR OR THE SURETY. THE CONTRACTOR SHALL BE CHARGED LABOR AND EQUIPMENT RENTAL RATES AS DETERMINED BY THE CITY.
4. THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE AND POLICE DEPARTMENTS A MINIMUM OF 48 HOURS IN ADVANCE OF PROPOSED ROAD OR LANE CLOSURES.
5. THE CONTRACTOR AND SUBCONTRACTORS SHALL NOTIFY "MISS DIG" A MINIMUM OF 72 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
6. THE USE OF PRIVATE PROPERTY BY THE CONTRACTOR AND SUBCONTRACTORS IS PROHIBITED, UNLESS A WRITTEN AGREEMENT, NOTARIZED BY A PUBLIC NOTARY, BETWEEN THE CONTRACTOR AND PROPERTY OWNER IS PROVIDED TO THE ENGINEER PRIOR TO THE USE OF SAID PROPERTY. THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN THE FOLLOWING PERMITS PRIOR TO THE START OF CONSTRUCTION:
 - ROCOC (ROAD COMMISSION OF OAKLAND COUNTY)
8. SOIL BORING AND PAVEMENT CORE INFORMATION IS PROVIDED FOR GENERAL INFORMATION ONLY AND IS SPECIFIC TO THE POINT LOCATION IDENTIFIED ON THE PLANS.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY TREES DETERMINED TO BE IN CONFLICT OF THE PROPOSED IMPROVEMENTS. THE ENGINEER SHALL NOTIFY THE CITY OF SAID CONFLICT(S) AND CITY FORCES SHALL REMOVE SAID TREE(S) OR PORTIONS THEREOF. NO ADDITIONAL COMPENSATION WILL BE DUE TO THE CONTRACTOR FOR DELAYS CAUSED BY TREE REMOVAL.
10. THE CONTRACTOR SHALL PROVIDE ACCESS TO TRASH AND RECYCLING COLLECTION SERVICES DURING CONSTRUCTION. FURTHERMORE, AN AREA FOR EACH RESIDENT TO PLACE TRASH AND RECYCLING CURBSIDE SHALL BE PROVIDED. COLLECTION DATES WILL BE PROVIDED TO THE SELECTED CONTRACTOR.
11. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE LOCAL POSTMASTER OF ANY MAILBOXES THAT REQUIRE RELOCATION DURING CONSTRUCTION.
12. EXISTING PAVEMENT (HMA OR CONCRETE) THAT IS TEMPORARILY REMOVED TO CONSTRUCT PROPOSED SIDEWALK OR CURB AND GUTTER SHALL BE SAW CUT TO PROVIDE A CLEAN EDGE. THIS WORK SHALL BE PAID AS PAVT, REM, MODIFIED. REPLACEMENT OF THIS PAVEMENT SHALL MATCH THE THICKNESS OF THE ADJACENT PAVEMENT AND PAID AS HAND PATCHING (HMA) OR CORRESPONDING CONCRETE ITEM(S).
13. THE CONTRACTOR IS REQUIRED TO USE MAINTENANCE GRAVEL THROUGHOUT THE PROJECT TO MAINTAIN ACCESS.

<u>MISCELLANEOUS PAY ITEMS</u>	<u>QTY</u>	<u>UNIT</u>
MOBILIZATION, MAX. 3%	1	LUMP SUM
PROJECT CLEANUP	1	LUMP SUM
DR STRUCTURE COVER, TYPE B	13	EACH
WATER MAIN, ADD DEPTH	25	FOOT
FIRE HYDRANT, EXTENSION	10	FOOT
IRRIGATION SYSTEM REPR, HEAD, MODIFIED	5	EACH
IRRIGATION SYSTEM REPR, PIPE, MODIFIED	50	FOOT
REIMBURSED PERMIT FEES	1000	DOLLARS





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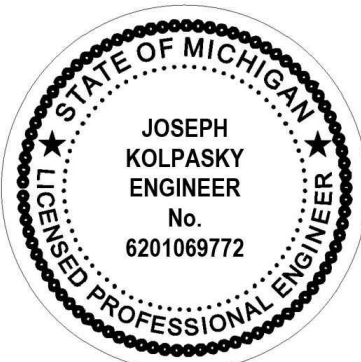
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Manager: J.P.K.
Designer: A.F.N.
Quality Control: J.R.W.



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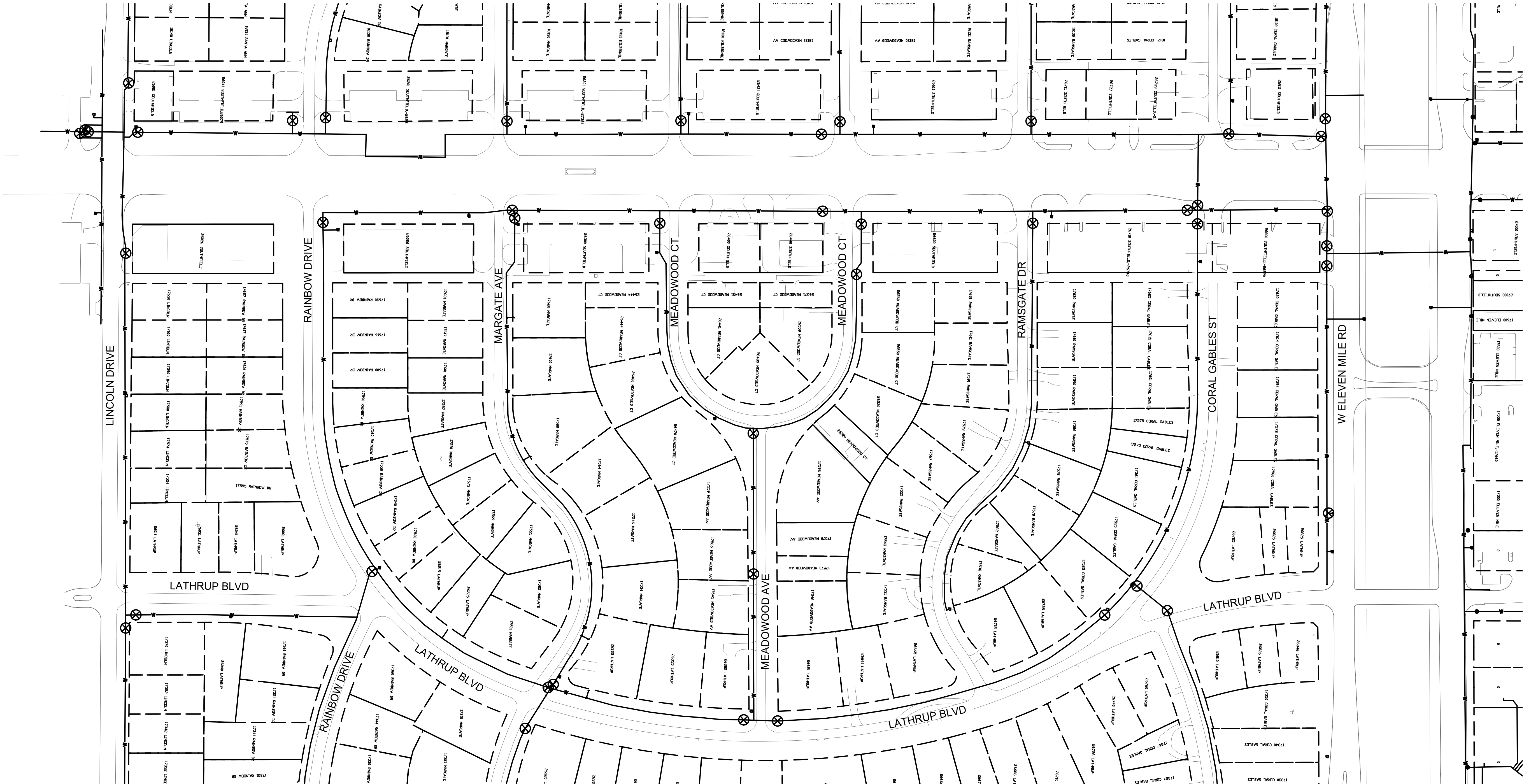
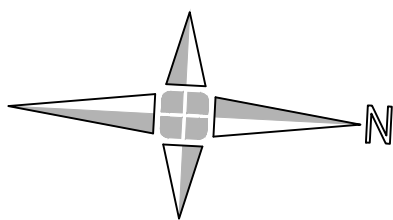
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SOIL BORINGS

SOUTHFIELD RD.
WATER MAIN
IMPROVEMENT
CITY OF LATHRUP VILLAGE
OAKLAND COUNTY
MICHIGAN

Date: 03.12.25
Scale: AS SHOWN
Sheet: 3 of 22
Project: 16496.54

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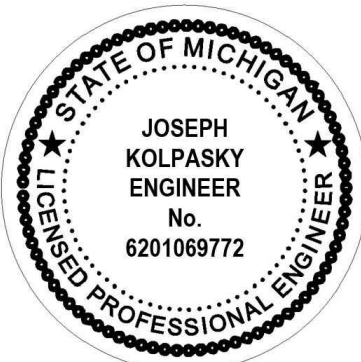
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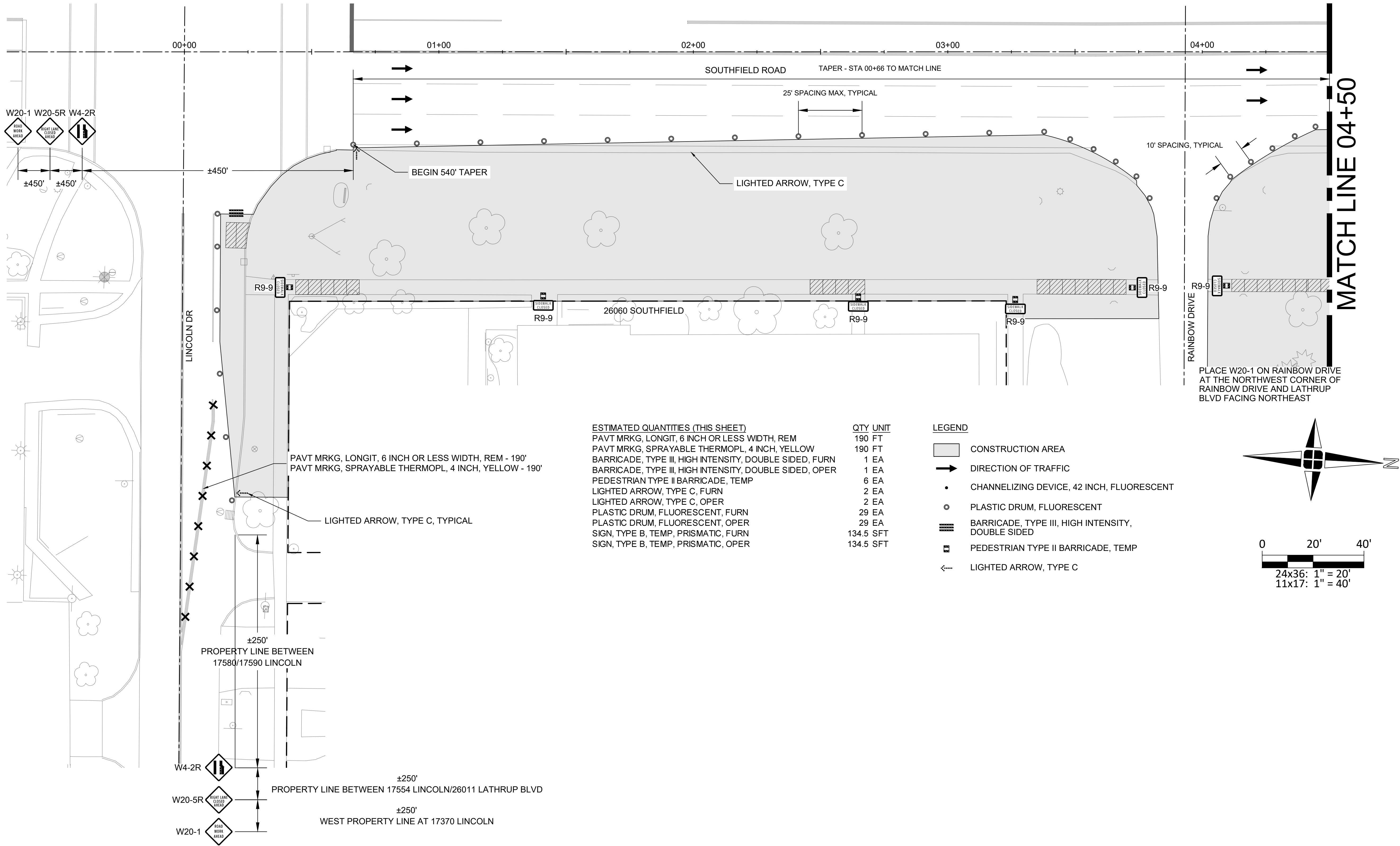
GATE VALVE LOCATION MAP

**SOUTHFIELD RD.
WATER MAIN
IMPROVEMENT**
CITY OF LATHRUP VILLAGE
OAKLAND COUNTY
MICHIGAN

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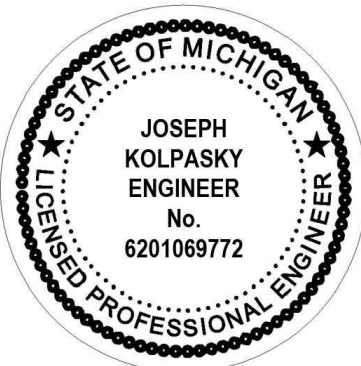
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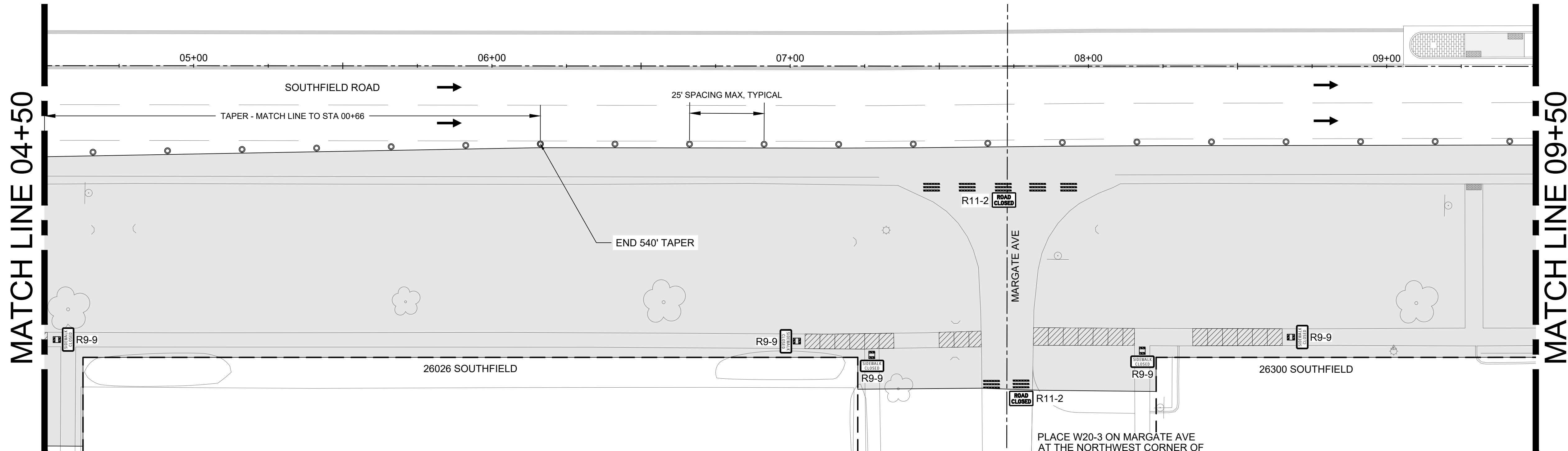
**TRAFFIC
CONTROL
(P.O.B - 04+50)**

**SOUTHFIELD RD.
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IMPROVEMENT**
CITY OF LATHRUP VILLAGE
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MICHIGAN

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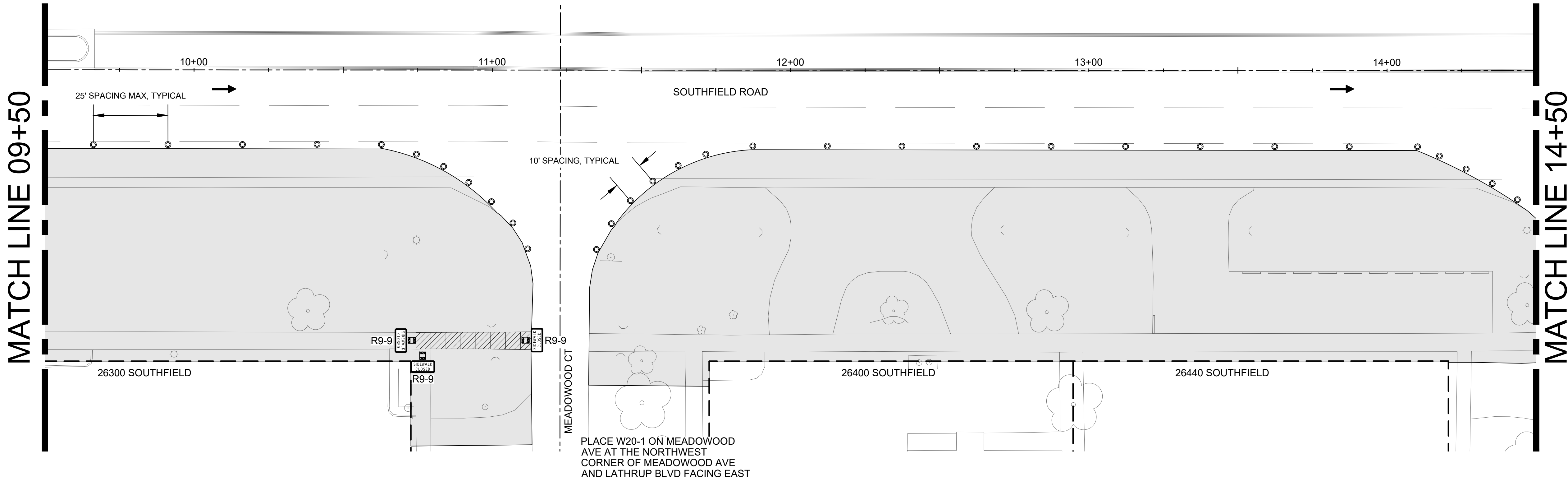
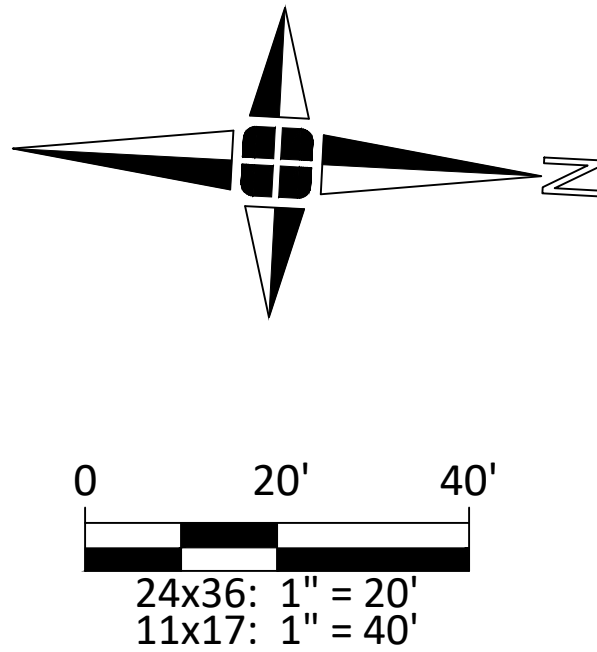


NOTE: LANE CLOSURE SHALL ONLY BE IN PLACE DURING CONSTRUCTION ACTIVITIES. NORMAL TRAFFIC WILL RESUME OUTSIDE OF WORKING HOURS.

***REFER TO MDOT 123-NFW-1LC-(R) (1 RIGHT LANE CLOSURE ON A 4-LANE UNDIVIDED ROADWAY), MDOT 101-GEN-SPACING-CHARTS, MDOT 102-GEN-NOTES, AND MDOT 103-GEN-SIGN**

ESTIMATED QUANTITIES (THIS SHEET)	
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, FURN	7 EA
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, OPER	7 EA
PEDESTRIAN TYPE II BARRICADE, TEMP	9 EA
PLASTIC DRUM, FLUORESCENT, FURN	51 EA
PLASTIC DRUM, FLUORESCENT, OPER	51 EA
SIGN, TYPE B, TEMP, PRISMATIC, FURN	54.75 SFT
SIGN, TYPE B, TEMP, PRISMATIC, OPER	54.75 SFT

LEGEND	
	CONSTRUCTION AREA
	DIRECTION OF TRAFFIC
	CHANNELIZING DEVICE, 42 INCH, FLUORESCENT
	PLASTIC DRUM, FLUORESCENT
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	LIGHTED ARROW, TYPE C



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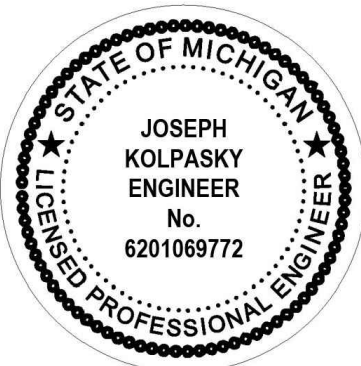
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Quality Control:	J.R.W.



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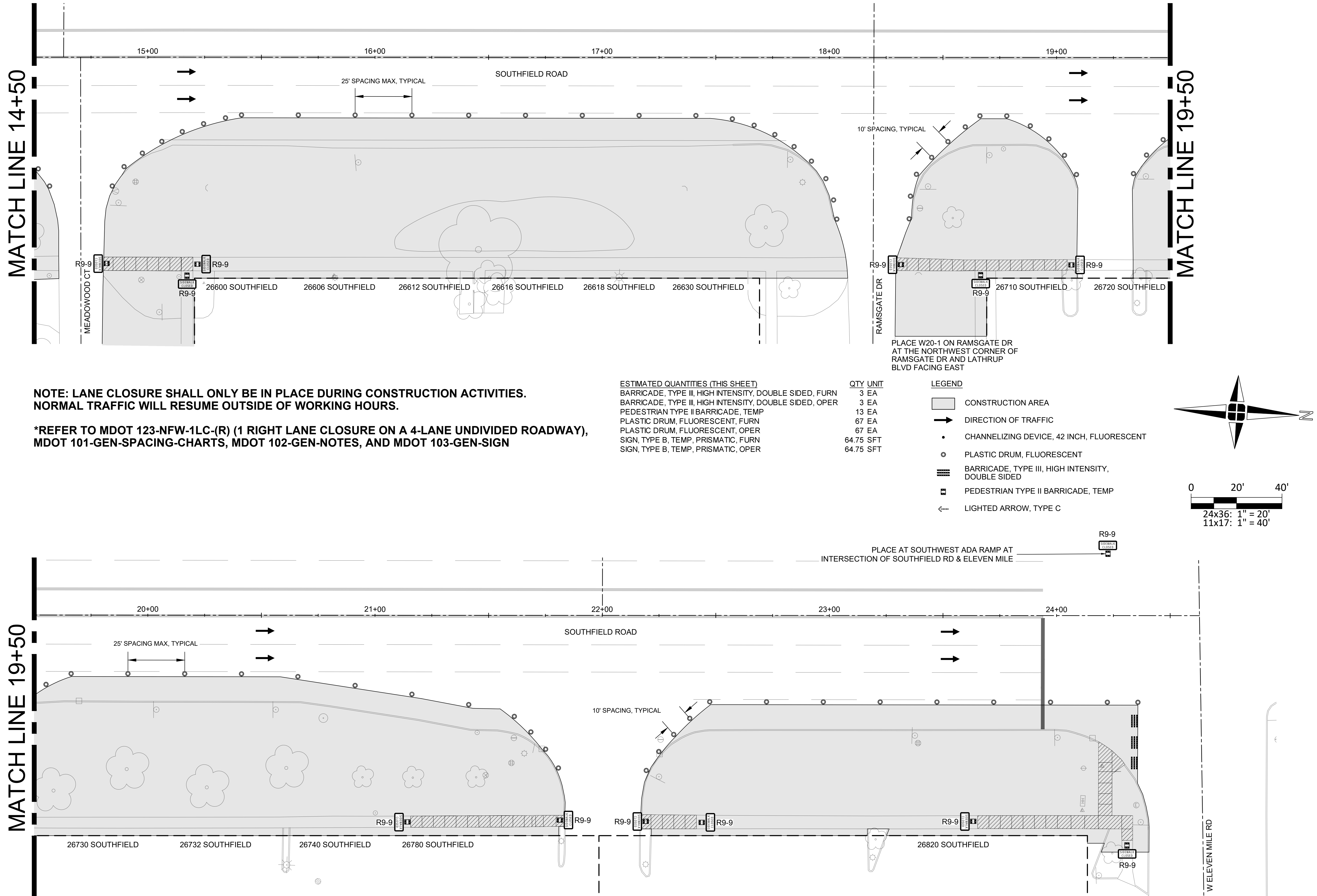
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(04+50 - 14+50)**

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CITY OF LATHRUP VILLAGE
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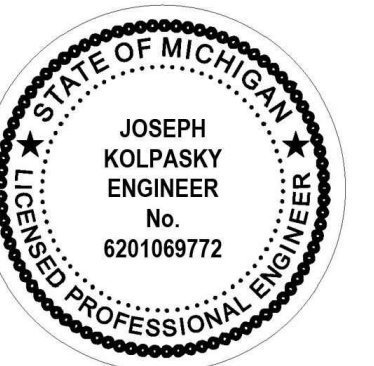
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Manager: J.P.K.
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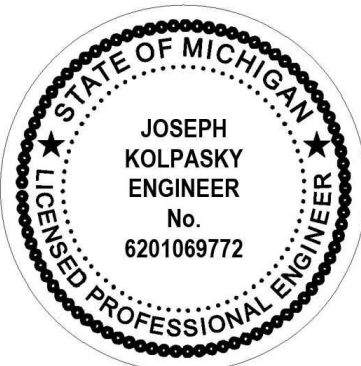
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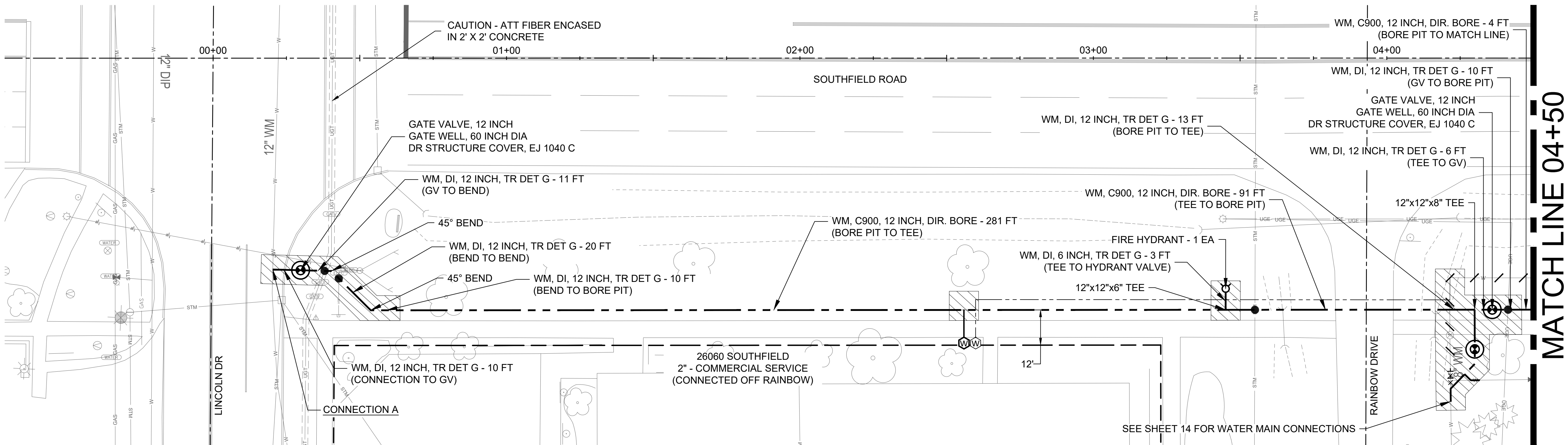
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WATER MAIN
(P.O.B - 04+50)

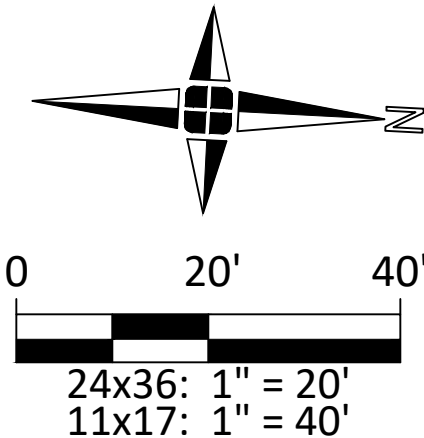
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MATCH LINE 04+50



UTILITY CROSSING SCHEDULE				
STA/OFFSET	UTILITY A	TP ELEV	UTILITY B	BP ELEV
00+38, 72.5' R	12" W.M.	684.15±	2' ENC. FIBER	685.65±
00+43, 75.1' R	12" W.M.	684.37±	2" U.G.E.	688.11±
03+55, 85.9' R	18" STORM	684.29±	12" W.M.	685.79±
04+41, 85.8' R	12" W.M.	684.98±	2" U.G.E.	688.39±

UTILITY CROSSING INFORMATION IS FOR INFORMATION ONLY.
THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE
DEPTH AND LOCATION OF ALL UTILITIES.

NOTE: AT CROSSINGS, ONE FULL LENGTH OF WATER MAIN
PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR
FROM THE SEWER AS POSSIBLE.

WATER SERVICE NOTES:

- CONTRACTOR SHALL EXPOSE EXISTING PRIVATE
PROPERTY WATER SERVICE TO VERIFY PIPE
MATERIAL PRIOR TO DISCONNECTION FROM THE
EXISTING WATER MAIN. AT NO TIME SHALL A
CONNECTION BE MADE TO A LEAD OR GALVANIZED
WATER SERVICE.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS
NECESSARY TO CONNECT TO EXISTING WATER
SERVICES REGARDLESS OF EXISTING SIZE OR
MATERIAL OF THE EXISTING SERVICE.

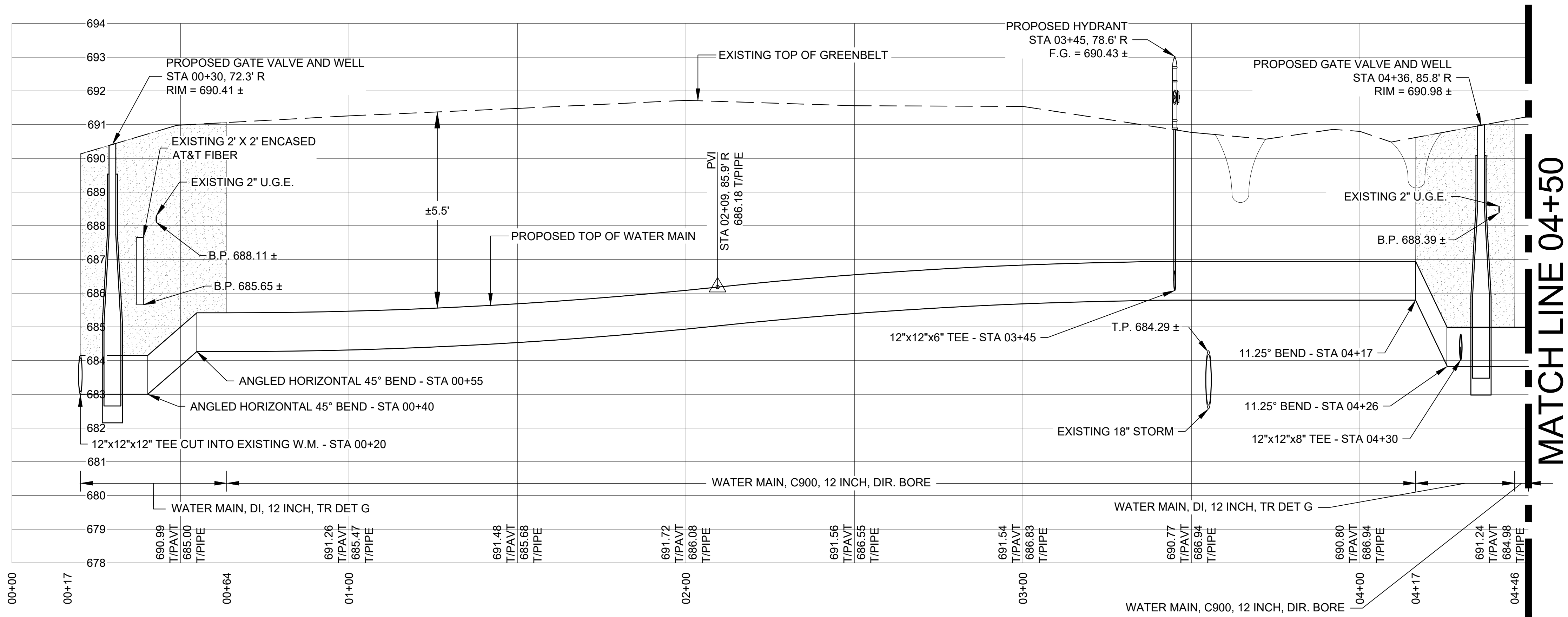
ESTIMATED QUANTITIES (THIS SHEET)

	QTY	UNIT
FIRE HYDRANT	1	EA
GATE VALVE, 12 INCH	2	EA
WATER MAIN, DI, 6 INCH, TR DET G	3	FT
WATER MAIN, DI, 12 INCH, TR DET G	80	FT
WATER MAIN, C900, 12 INCH, DIR. BORE	376	FT
GATE WELL, 60 INCH DIA	2	EA
DR STRUCTURE COVER, EJ 1040 C	2	EA
CONNECTION A	1	EA
WATER SERV, SHORT, 2 INCH	1	EA

CONNECTION TABLE		
ID	CONNECTION TYPE	LOCATION
A	12"X12"X12" TEE	LINCOLN

LEGEND

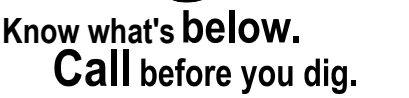
	ABANDON EXISTING WATER MAIN
	WATER MAIN, C900/DI, 12 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



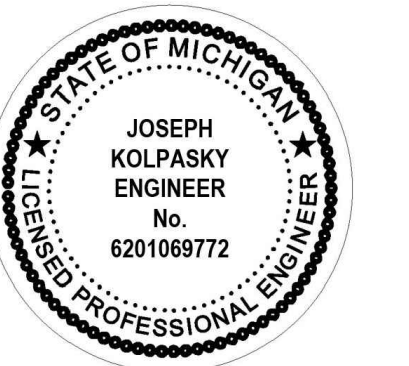
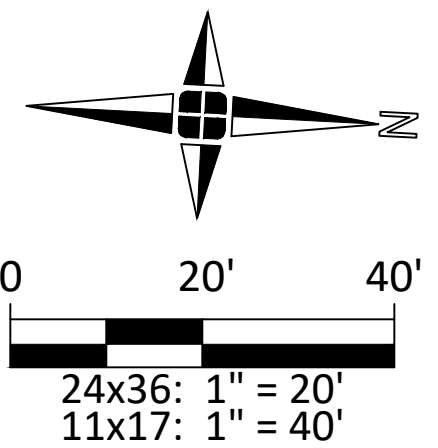
MATCH LINE 04+50

WATER MAIN PROFILE

Executive:	J.R.W.
Manager:	J.P.K.
Designer:	A.F.N.
Quality Control:	J.R.W.



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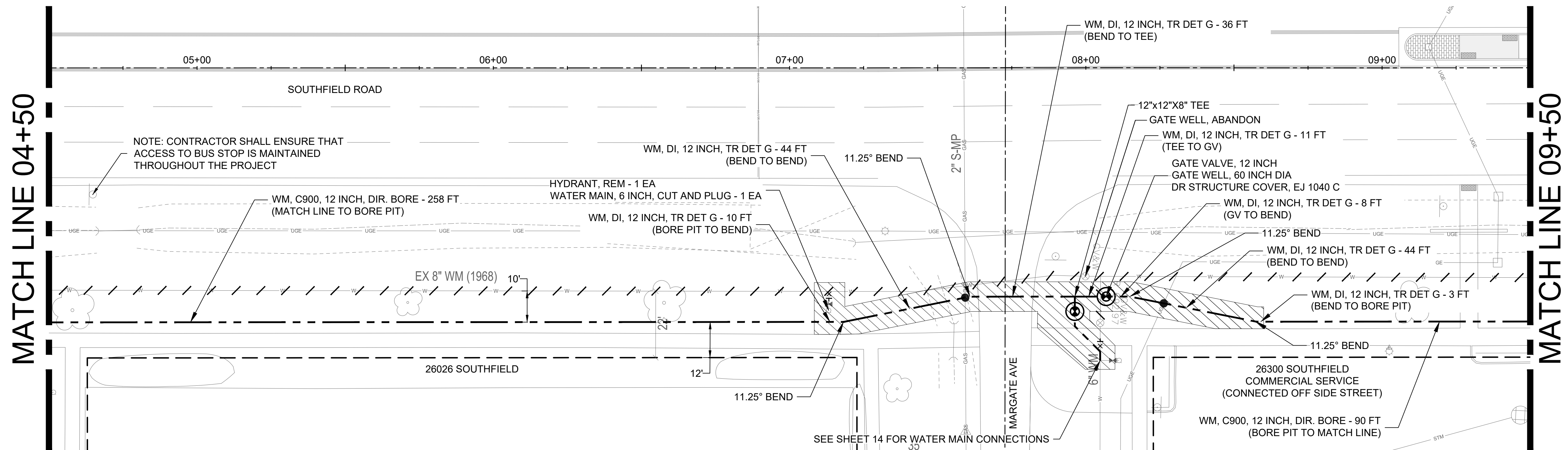
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WATER MAIN
(04+50 - 09+50)

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UTILITY CROSSING SCHEDULE ●				
STA/OFFSET	UTILITY A	TP ELEV	UTILITY B	BP ELEV
07+59, 85.7' R	12" W.M.	685.75±	2" GAS	687.25±
08+23, 85.6' R	12" W.M.	687.36±	2" U.G.E.	690.46±

UTILITY CROSSING INFORMATION IS FOR INFORMATION ONLY.
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DEPTH AND LOCATION OF ALL UTILITIES.

NOTE: AT CROSSINGS, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.










WATER SERVICE NOTES:

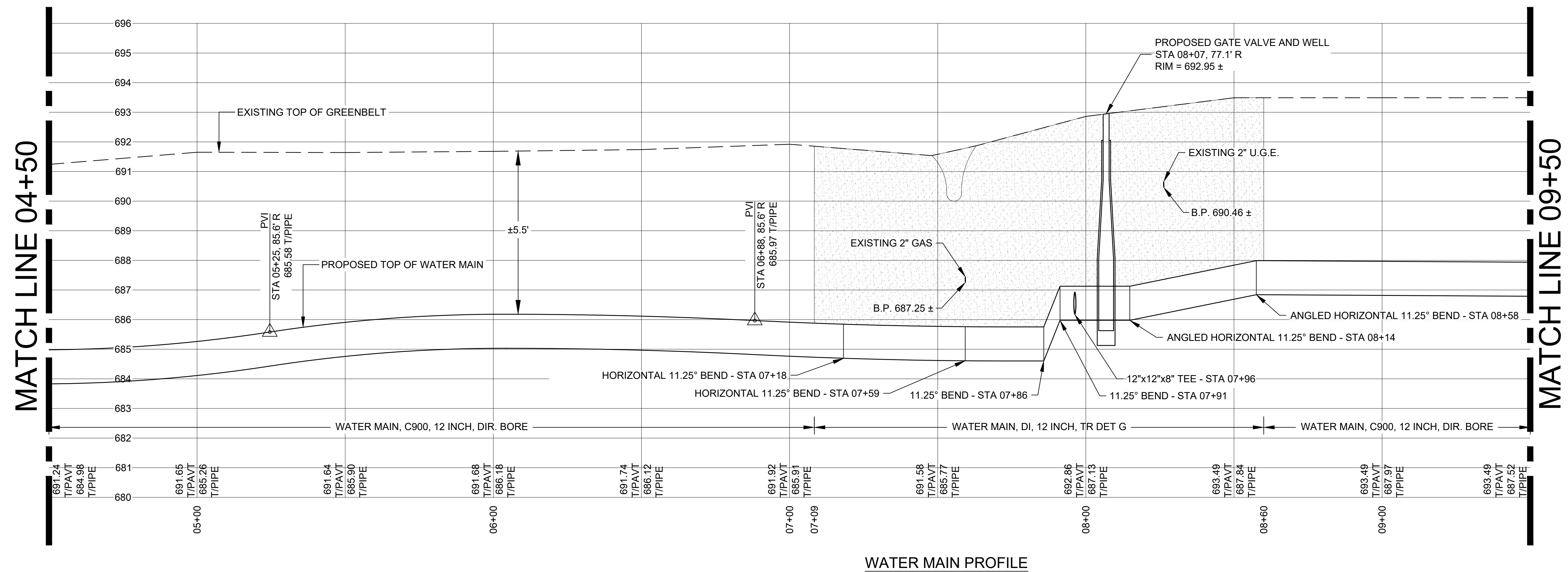
1. CONTRACTOR SHALL EXPOSE EXISTING PRIVATE PROPERTY WATER SERVICE TO VERIFY PIPE MATERIAL PRIOR TO DISCONNECTION FROM THE EXISTING WATER MAIN. AT NO TIME SHALL A CONNECTION BE MADE TO A LEAD OR GALVANIZED WATER SERVICE.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS NECESSARY TO CONNECT TO EXISTING WATER SERVICES REGARDLESS OF EXISTING SIZE OR MATERIAL OF THE EXISTING SERVICE.

ESTIMATED QUANTITIES (THIS SHEET)

<u>ESTIMATED QUANTITIES (THIS SHEET)</u>	<u>QTY</u>	<u>UNIT</u>
GATE VALVE, 12 INCH	1	EA
GATE WELL, ABANDON	1	EA
HYDRANT, REM	1	EA
WATER MAIN, 6 INCH, CUT AND PLUG	1	EA
WATER MAIN, DI, 12 INCH, TR DET G	156	FT
WATER MAIN, C900, 12 INCH, DIR. BORE	348	FT
GATE WELL, 60 INCH DIA	1	EA
DR STRUCTURE COVER, EJ 1040 C	1	EA

LEGEND

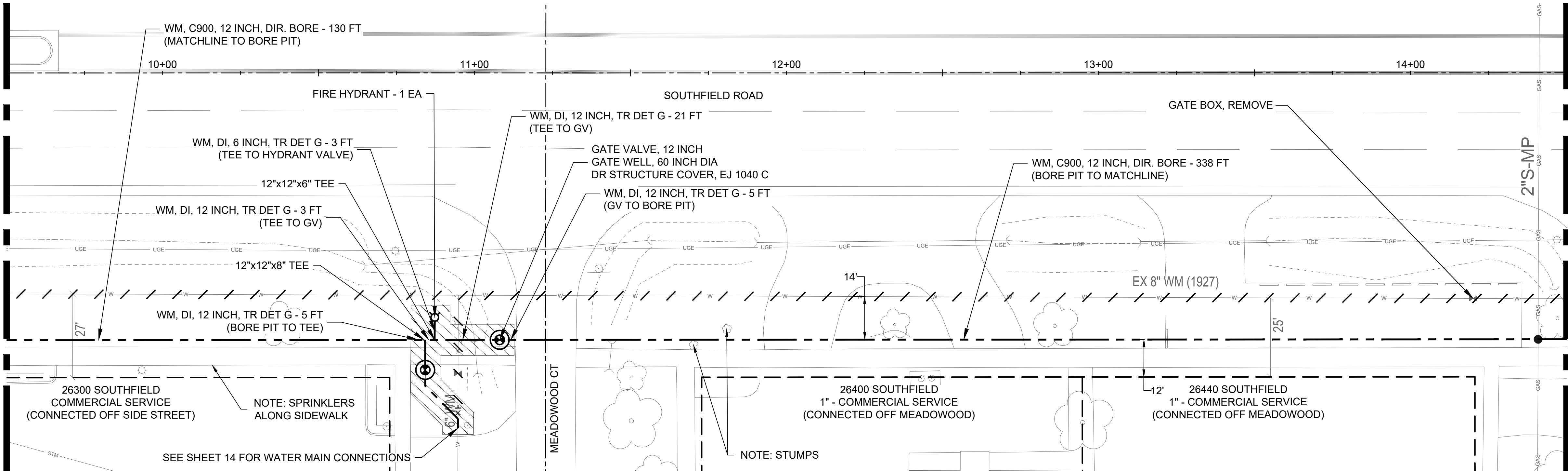
	ABANDON EXISTING WATER MAIN
	WATER MAIN, C900/DI, 12 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



WATER MAIN PROFILE

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MATCH LINE 09+50



MATCH LINE 14+50

UTILITY CROSSING SCHEDULE				
STA/OFFSET	UTILITY A	TP ELEV	UTILITY B	BP ELEV
14+41, 85.3' R	12" W.M.	690.53±	2" GAS	692.53±

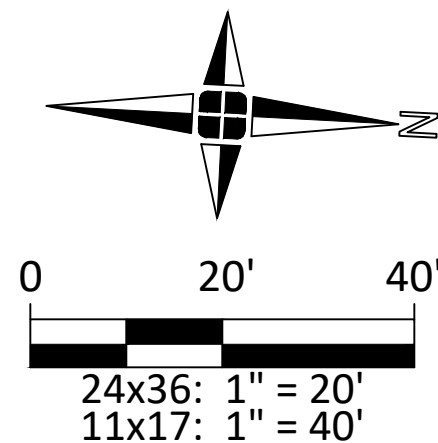
UTILITY CROSSING INFORMATION IS FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE DEPTH AND LOCATION OF ALL UTILITIES.

NOTE: AT CROSSINGS, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.

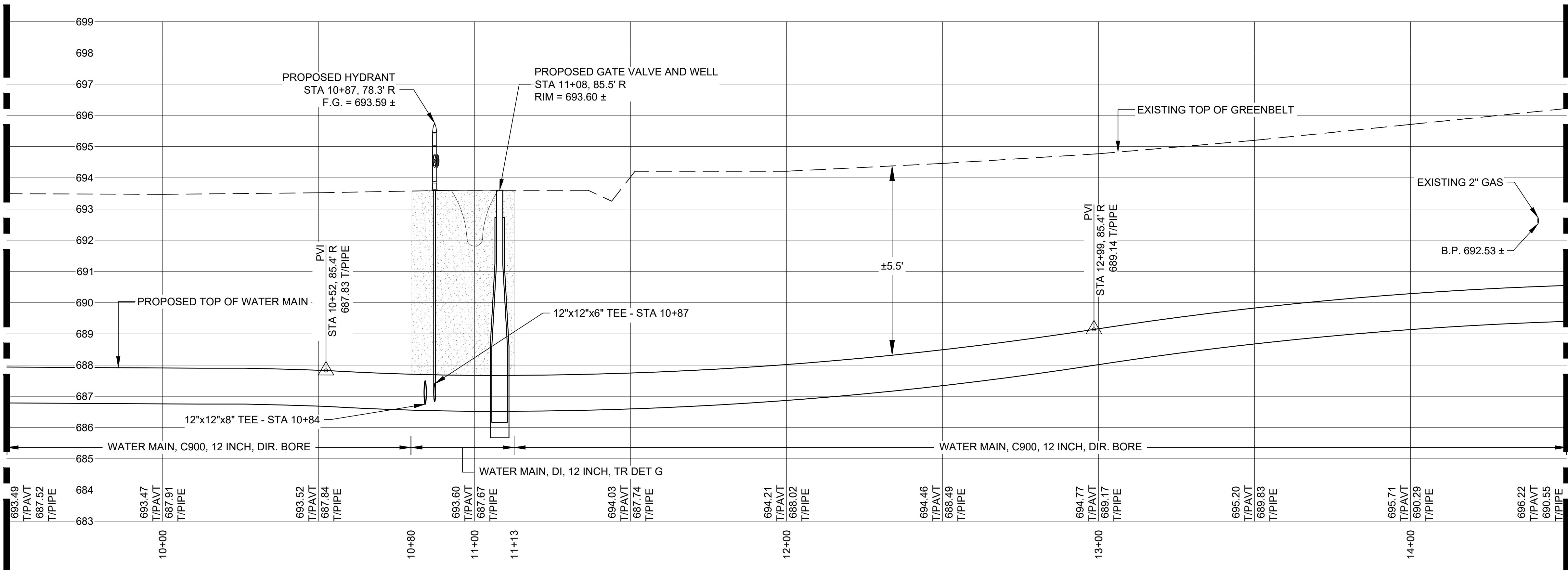
- WATER SERVICE NOTES:**
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 - CONTRACTOR SHALL PROVIDE ALL MATERIALS NECESSARY TO CONNECT TO EXISTING WATER SERVICES REGARDLESS OF EXISTING SIZE OR MATERIAL OF THE EXISTING SERVICE.

ESTIMATED QUANTITIES (THIS SHEET)	QTY	UNIT
FIRE HYDRANT	1	EA
GATE VALVE, 12 INCH	1	EA
GATE BOX, REMOVE	1	EA
WATER MAIN, DI, 6 INCH, TR DET G	3	FT
WATER MAIN, DI, 12 INCH, TR DET G	37	FT
WATER MAIN, C900, 12 INCH, DIR. BORE	468	FT
GATE WELL, 60 INCH DIA	1	EA
DR STRUCTURE COVER, EJ 1040 C	1	EA

LEGEND	
	ABANDON EXISTING WATER MAIN
	WATER MAIN, C900/DI, 12 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



MATCH LINE 09+50



MATCH LINE 14+50

WATER MAIN PROFILE

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Manager: J.P.K.
Designer: A.F.N.
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(09+50 - 14+50)

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CITY OF LATHRUP VILLAGE
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MICHIGAN

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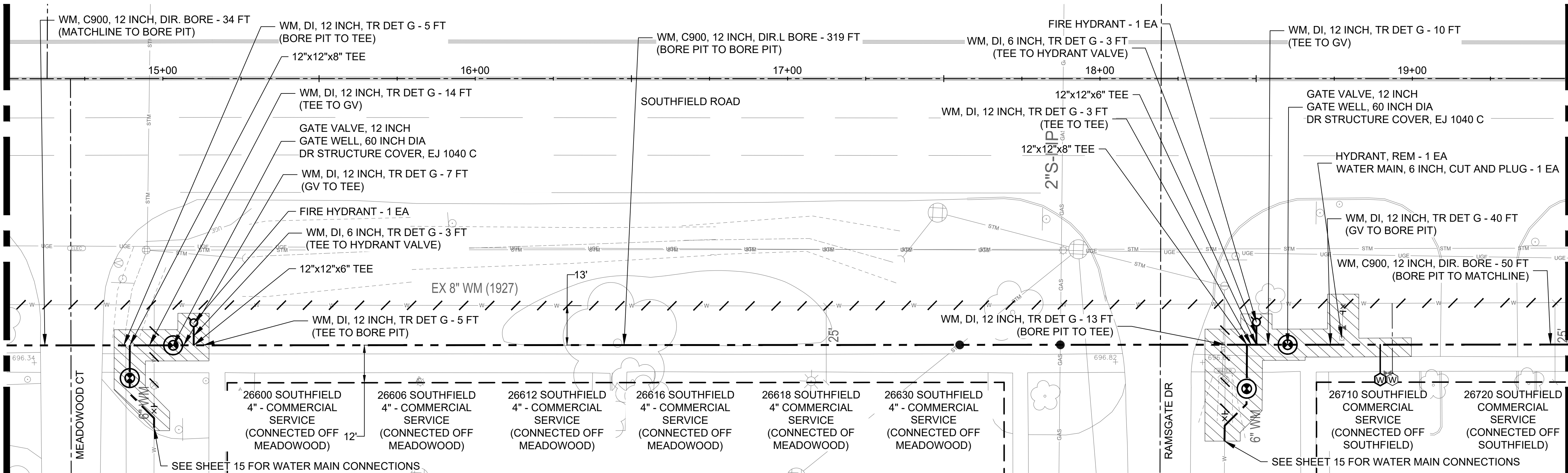
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MATCH LINE 14+50

MATCH LINE 14+50

MATCH LINE 19+50

MATCH LINE 19+50



UTILITY CROSSING SCHEDULE				
STA/OFFSET	UTILITY A	TP ELEV	UTILITY B	BP ELEV
17+55, 85.2' R	12" W.M.	689.62±	12" STORM	691.12±
17+87, 85.2' R	12" W.M.	689.67±	2" GAS	693.20±

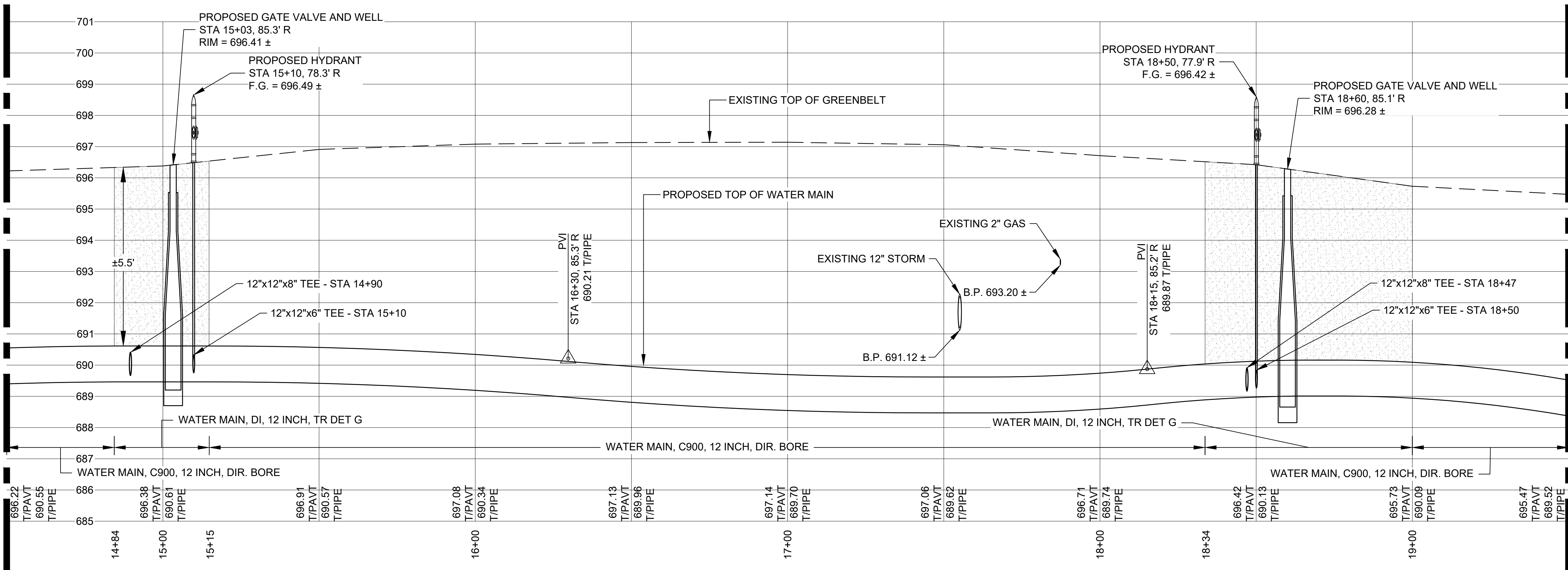
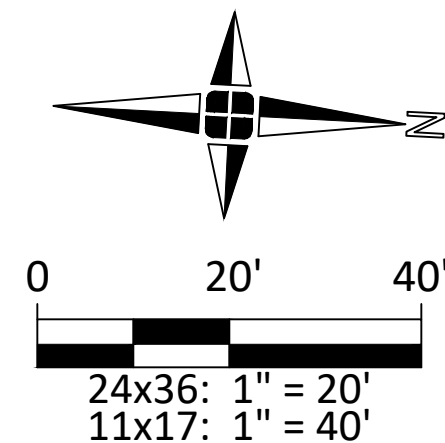
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ESTIMATED QUANTITIES (THIS SHEET)	QTY	UNIT
FIRE HYDRANT	2	EA
GATE VALVE, 12 INCH	2	EA
HYDRANT, REM	1	EA
WATER MAIN, 6 INCH, CUT AND PLUG	1	EA
WATER MAIN, DI, 6 INCH, TR DET G	6	FT
WATER MAIN, DI, 12 INCH, TR DET G	97	FT
WATER MAIN, C900, 12 INCH, DIR. BORE	403	FT
GATE WELL, 60 INCH DIA	2	EA
DR STRUCTURE COVER, EJ 1040 C	2	EA
WATER SERV, SHORT, 1 INCH	1	EA

LEGEND	
	ABANDON EXISTING WATER MAIN
	WATER MAIN, C900/DI, 12 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



WATER MAIN PROFILE

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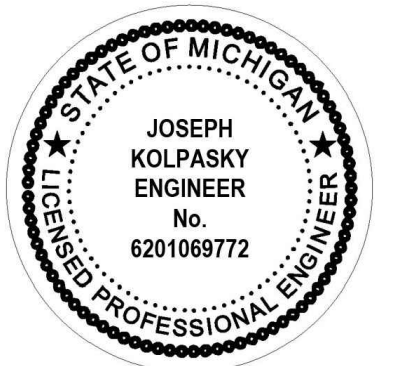
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WATER MAIN
(14+50 - 19+50)

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OAKLAND COUNTY
MICHIGAN

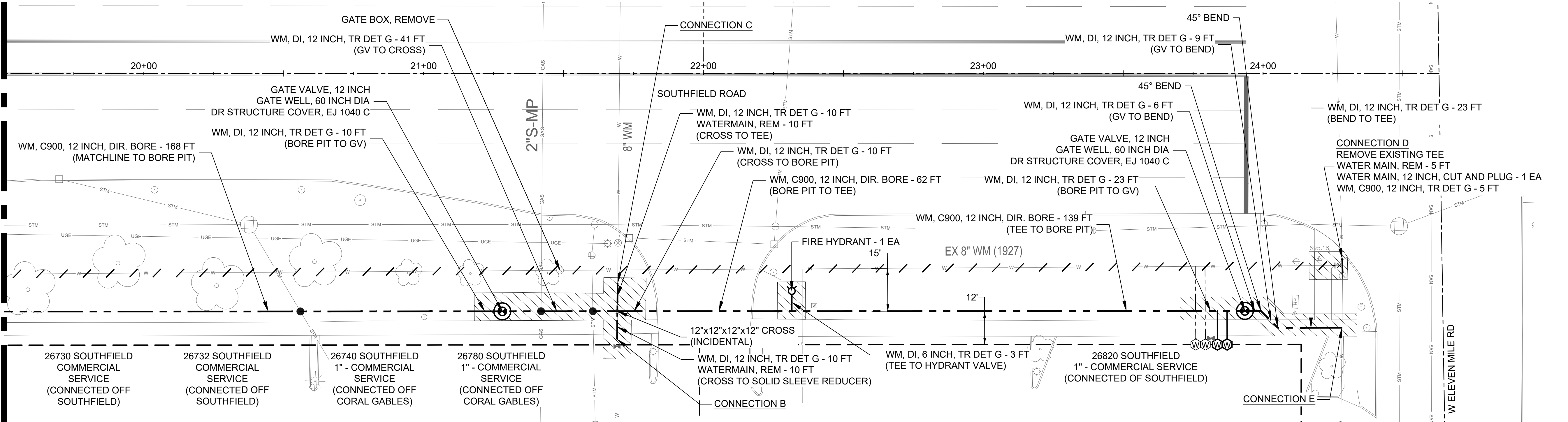
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MATCH LINE 19+50

MATCH LINE 19+50



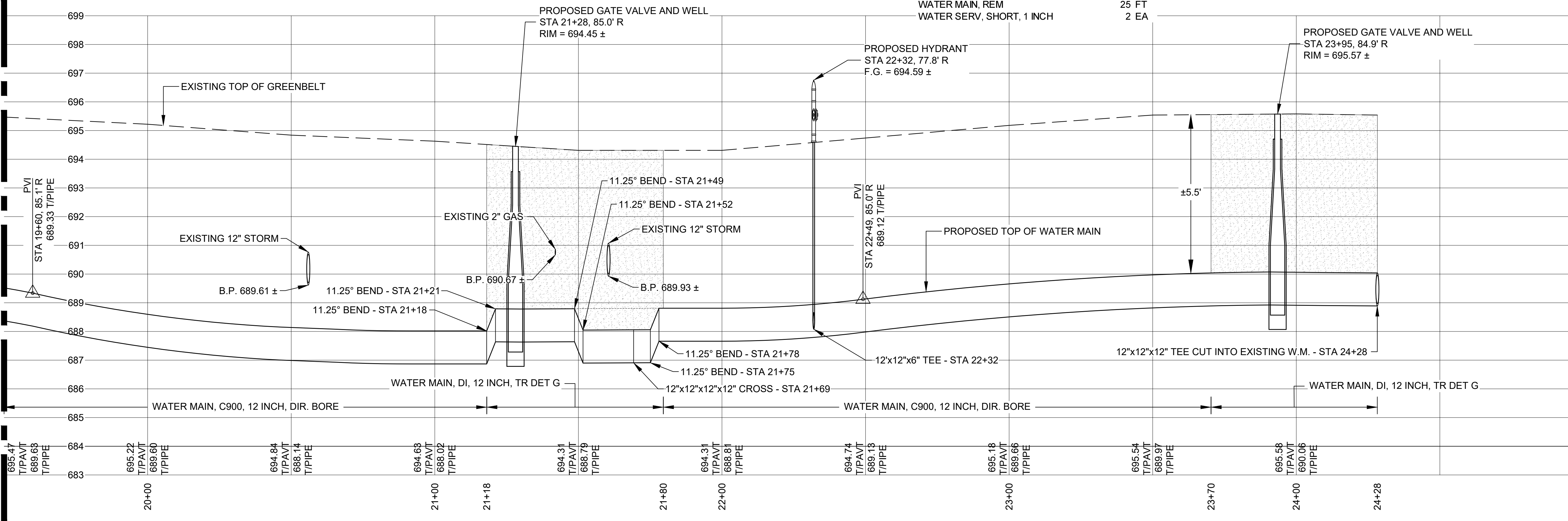
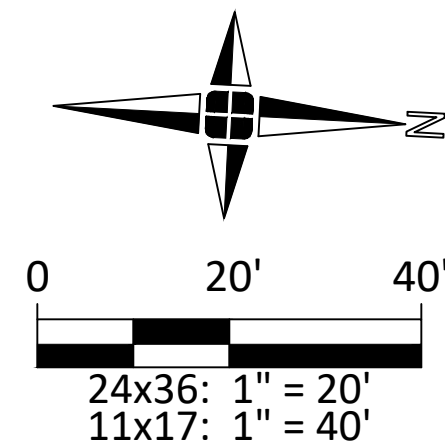
UTILITY CROSSING SCHEDULE				
STA/OFFSET	UTILITY A	TP ELEV	UTILITY B	BP ELEV
20+56, 85.1' R	12" W.M.	688.11±	12" STORM	689.61±
21+42, 85.1' R	12" W.M.	688.79±	2" GAS	690.67±
21+60, 85.0' R	12" W.M.	688.05±	12" STORM	689.93±

- WATER SERVICE NOTES:**
- CONTRACTOR SHALL EXPOSE EXISTING PRIVATE PROPERTY WATER SERVICE TO VERIFY PIPE MATERIAL PRIOR TO DISCONNECTION FROM THE EXISTING WATER MAIN. AT NO TIME SHALL A CONNECTION BE MADE TO A LEAD OR GALVANIZED WATER SERVICE.
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CONNECTION TABLE		
ID	CONNECTION TYPE	LOCATION
B	12"x8" REDUCER	CORAL GABLES
C	12"x8" REDUCER	CORAL GABLES
D	12"x12" SOLID SLEEVE	ELEVEN MILE
E	12"x12"x12" TEE	ELEVEN MILE

ESTIMATED QUANTITIES (THIS SHEET)	
FIRE HYDRANT	1 EA
GATE VALVE, 12 INCH	2 EA
GATE BOX, REMOVE	1 EA
WATER MAIN, 12 INCH, CUT AND PLUG	1 EA
WATER MAIN, DI, 12 INCH, TR DET G	3 FT
WATER MAIN, C900, 12 INCH, DIR. BORE	147 FT
WATER MAIN, C900, 12 INCH, DIR. BORE	369 FT
GATE WELL, 60 INCH DIA	2 EA
DR STRUCTURE COVER, EJ 1040 C	2 EA
CONNECTION B	1 EA
CONNECTION C	1 EA
CONNECTION D	1 EA
CONNECTION E	1 EA
WATER MAIN, REM	25 FT
WATER SERV, SHORT, 1 INCH	2 EA

LEGEND	
	ABANDON EXISTING WATER MAIN
	WATER MAIN, C900/DI, 12 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



WATER MAIN PROFILE

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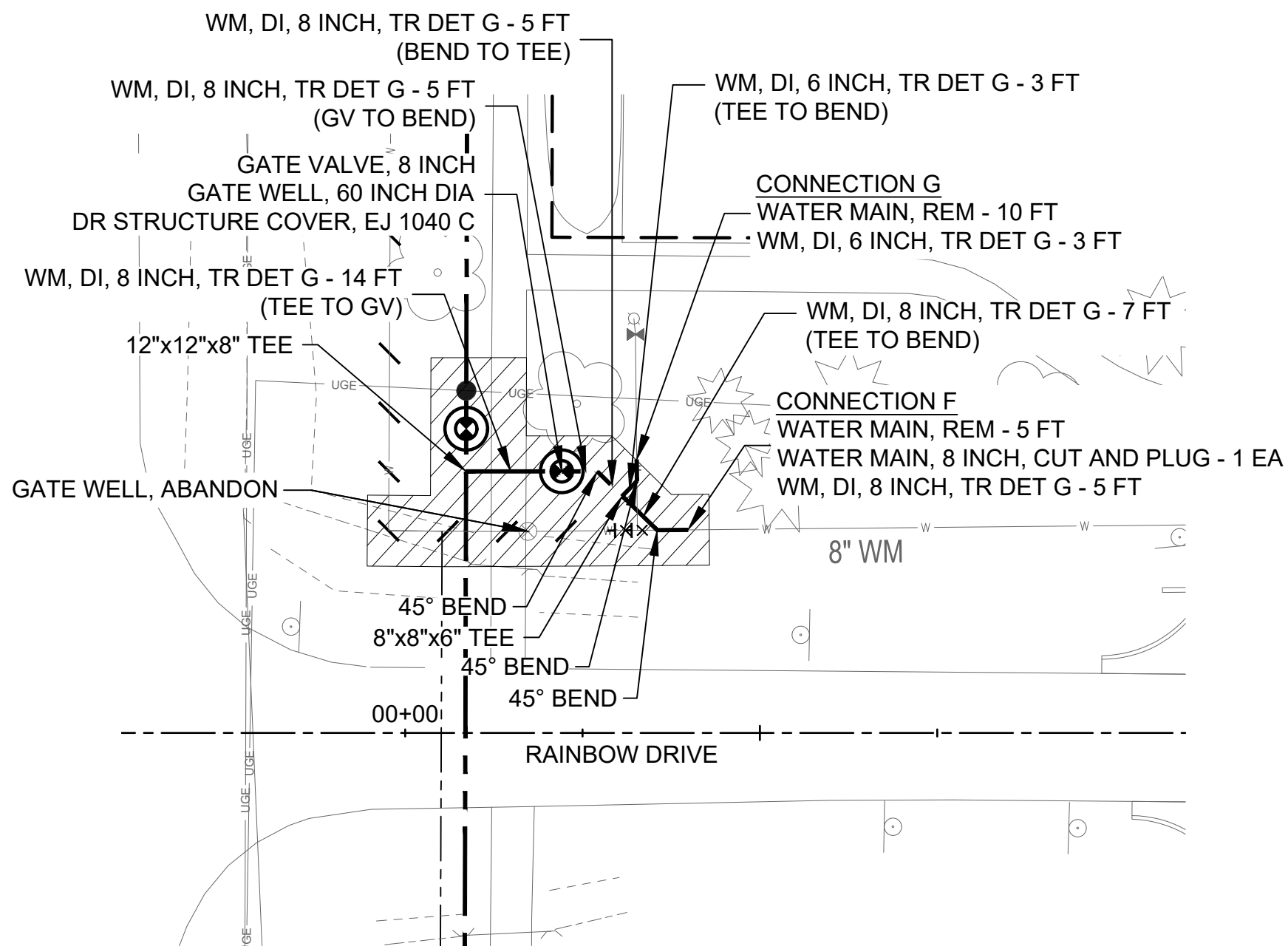
**WATER MAIN
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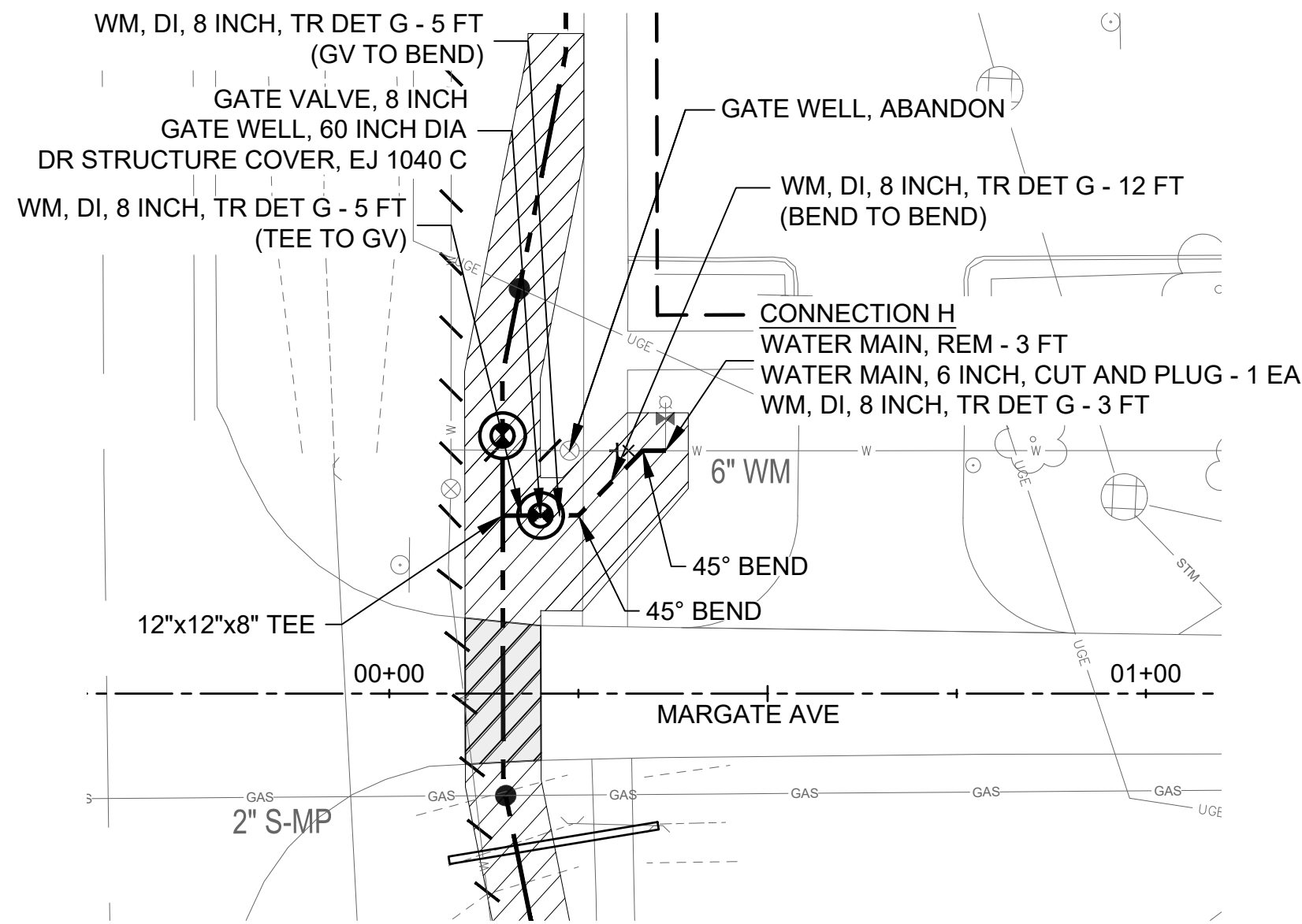
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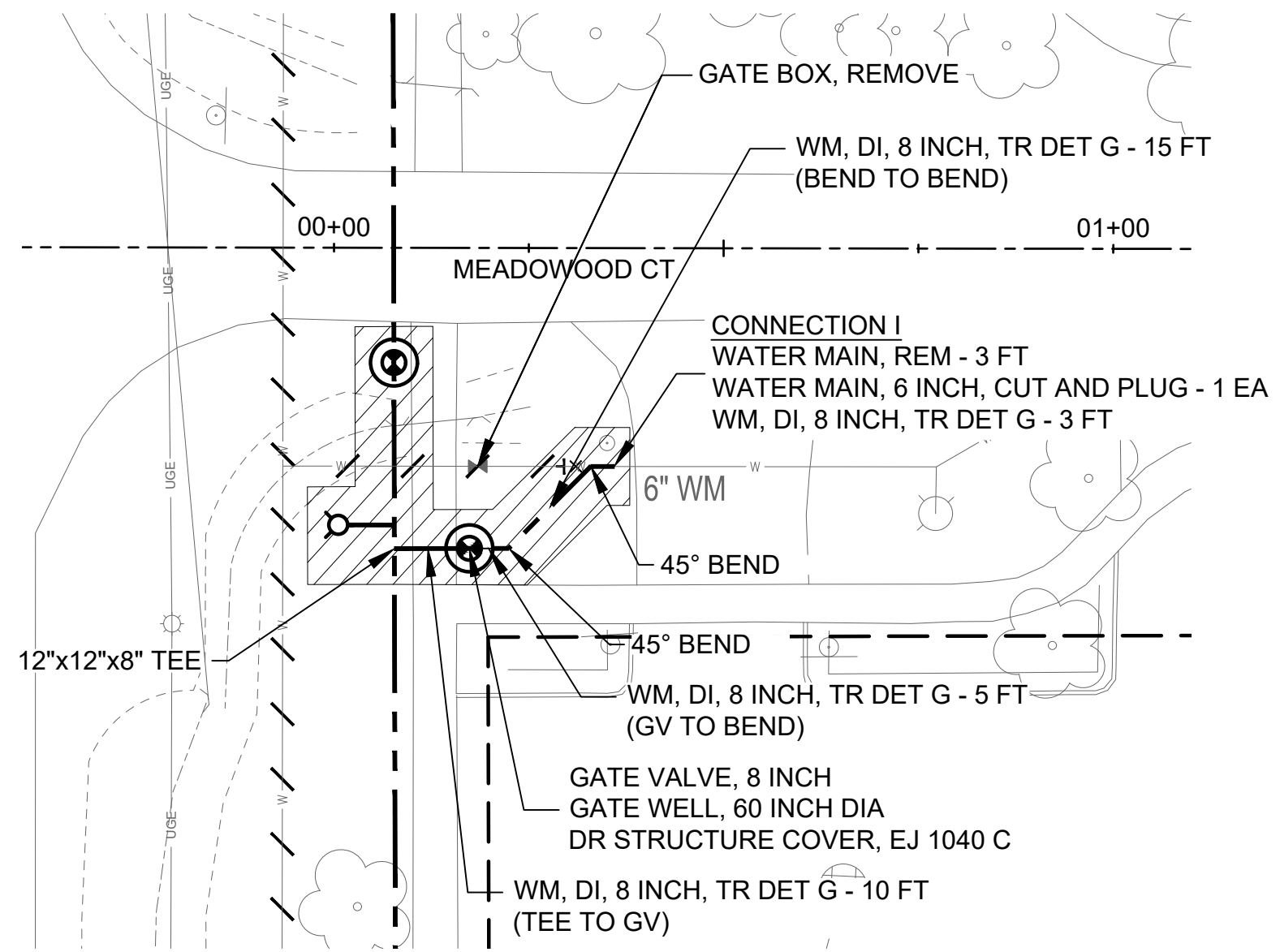
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RAINBOW DRIVE
WATER MAIN CONNECTION PLAN



MARGATE AVE
WATER MAIN CONNECTION PLAN



MEADOWOOD CT SOUTH
WATER MAIN CONNECTION PLAN

ESTIMATED QUANTITIES (THIS SHEET)

GATE VALVE, 8 INCH	3 EA
GATE WELL, ABANDON	2 EA
GATE BOX, REMOVE	1 EA
WATER MAIN, 6 INCH, CUT AND PLUG	2 EA
WATER MAIN, 8 INCH, CUT AND PLUG	1 EA
WATER MAIN, DI, 6 INCH, TR DET G	6 FT
WATER MAIN, DI, 8 INCH, TR DET G	94 FT
GATE WELL, 60 INCH DIA	3 EA
DR STRUCTURE COVER, EJ 1040 C	3 EA
CONNECTION F	1 EA
CONNECTION G	1 EA
CONNECTION H	1 EA
CONNECTION I	1 EA
WATER MAIN, REM	21 FT

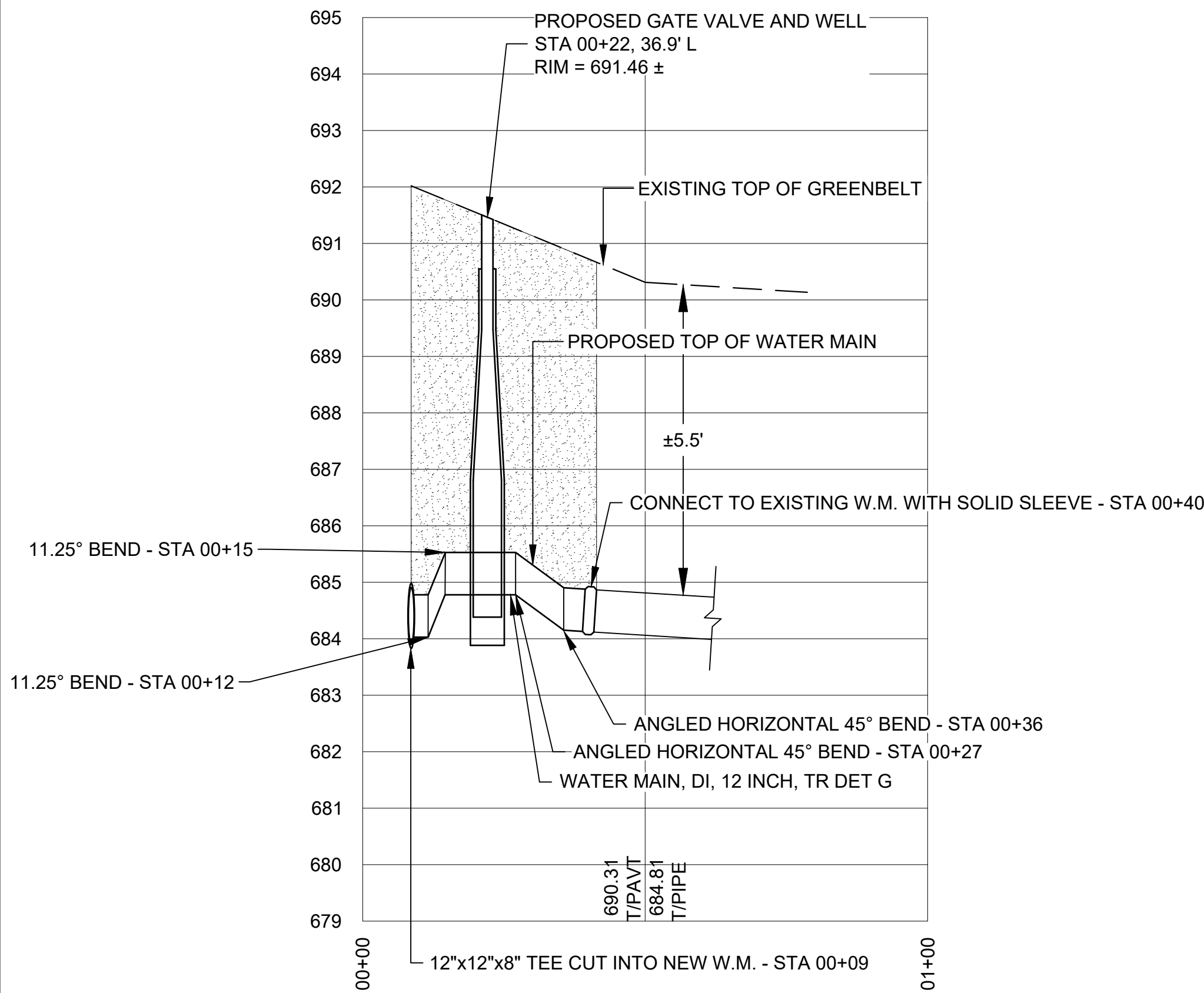
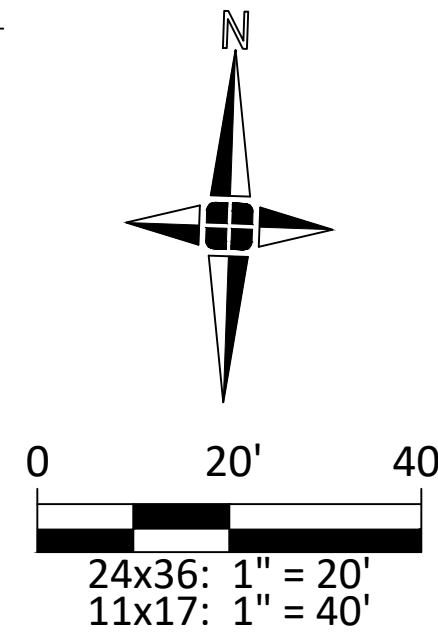
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CONNECTION TABLE

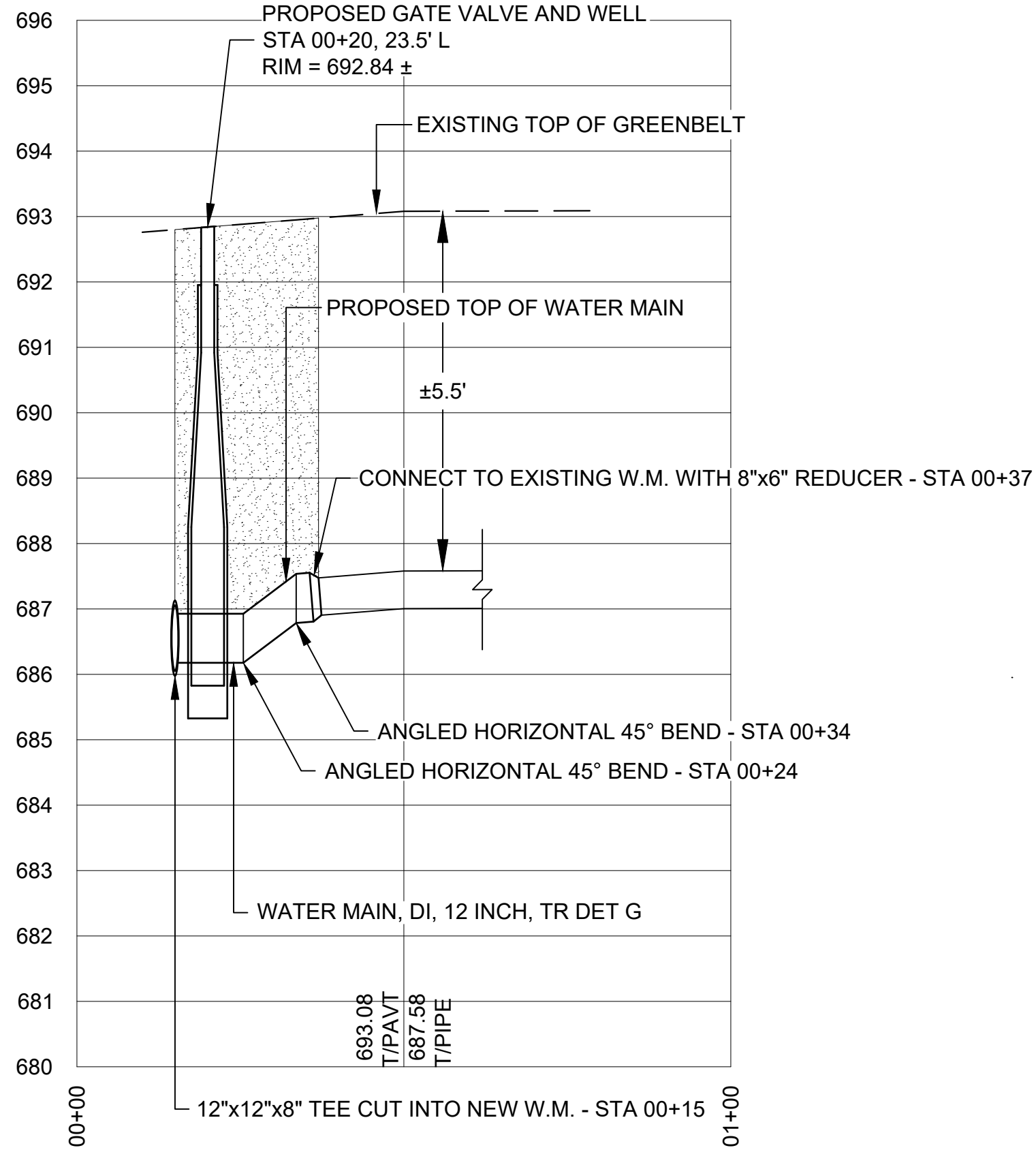
ID	CONNECTION TYPE	LOCATION
F	6"X6" SOLID SLEEVE	RAINBOW DRIVE
G	8"X8" SOLID SLEEVE	RAINBOW DRIVE
H	8"X6"X6" TEE	MARGATE AVE
I	8"X6" REDUCER	MEADOWOOD CT

LEGEND

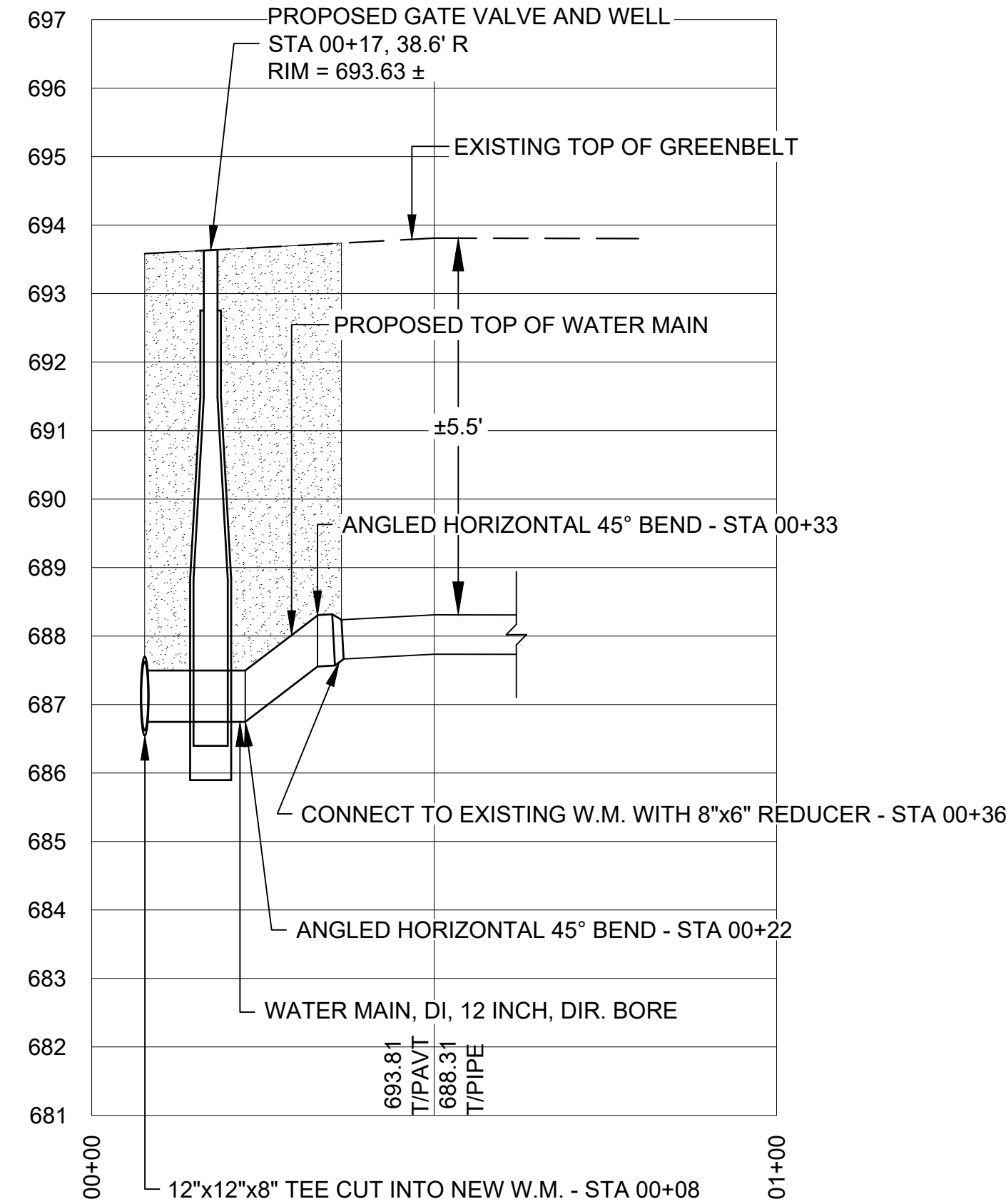
	ABANDON EXISTING WATER MAIN
	WATER MAIN, DI, 8 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



RAINBOW DRIVE
WATER MAIN PROFILE



MARGATE AVE
WATER MAIN PROFILE



MEADOWOOD CT SOUTH
WATER MAIN PROFILE

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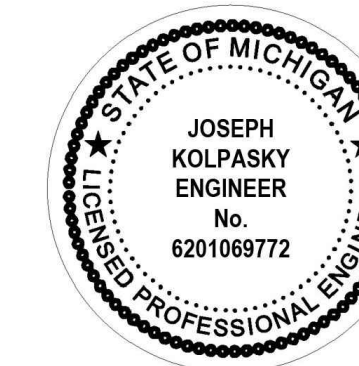
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Manager: J.P.K.
Designer: A.F.N.
Quality Control: J.R.W.



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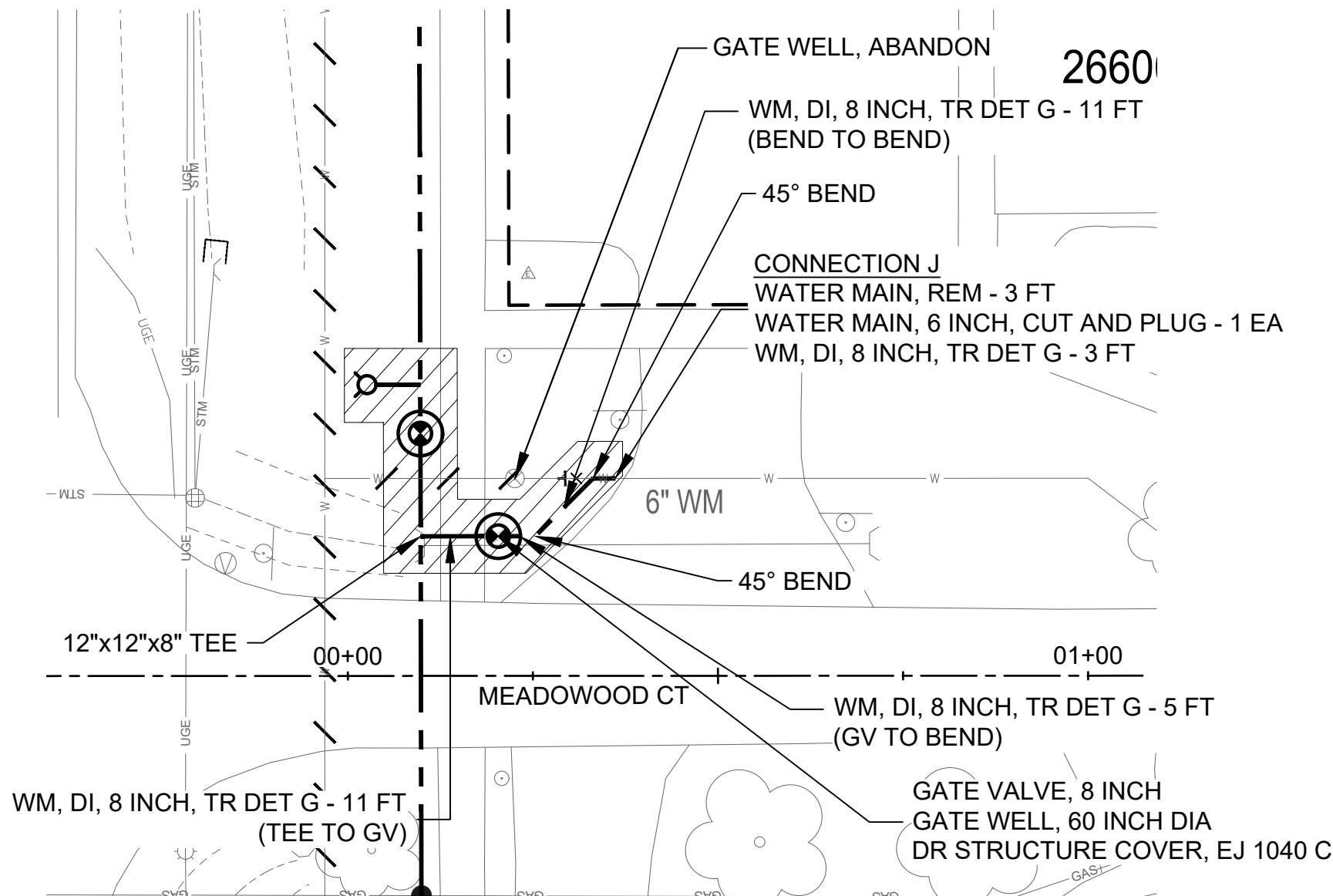
**WATER MAIN
CONNECTIONS
(1 OF 2)**

**SOUTHFIELD RD.
WATER MAIN
IMPROVEMENT**
CITY OF LATHRUP VILLAGE
OAKLAND COUNTY
MICHIGAN

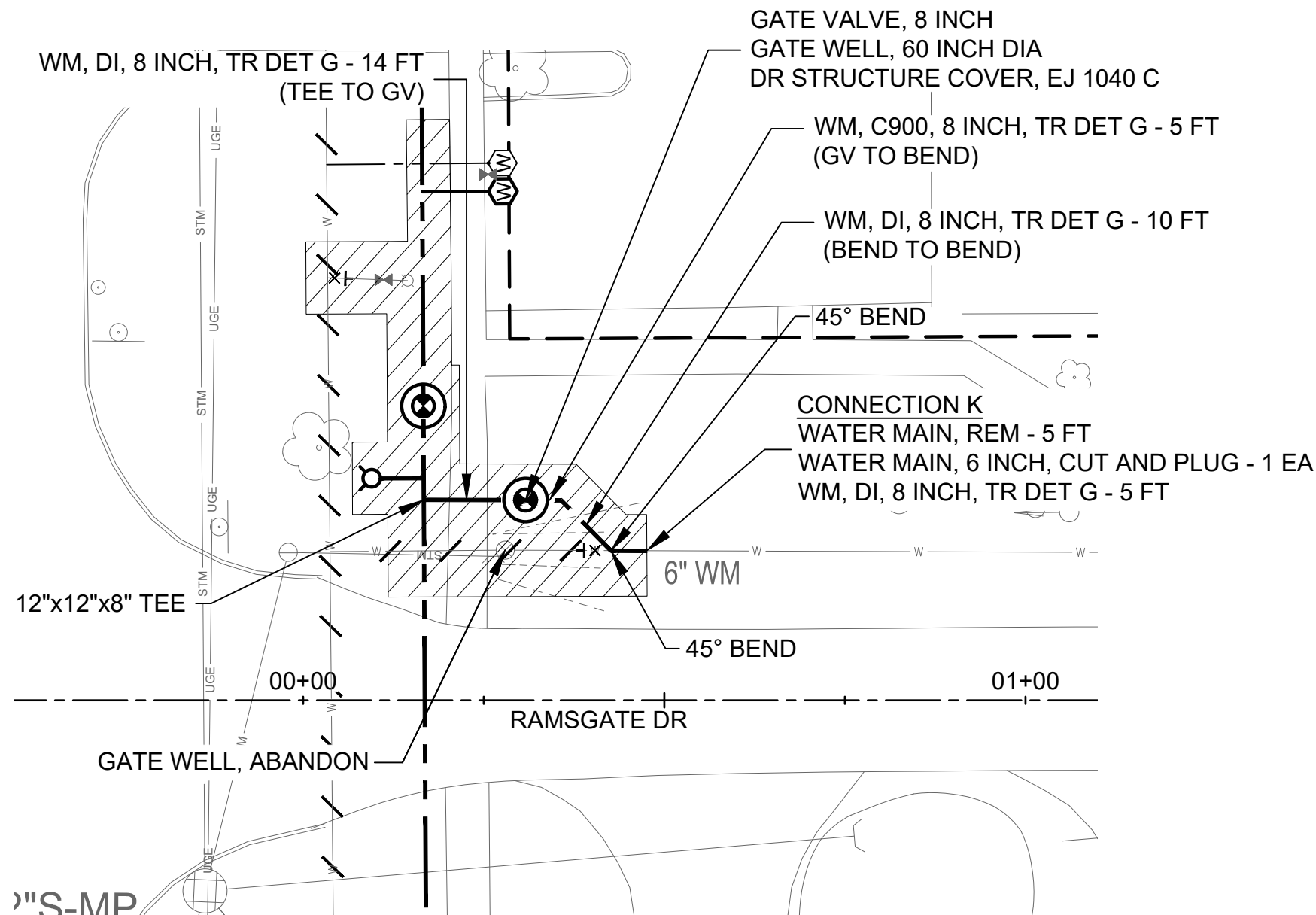
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Project: 16496.54

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MEADOWOOD CT NORTH
WATER MAIN CONNECTION PLAN



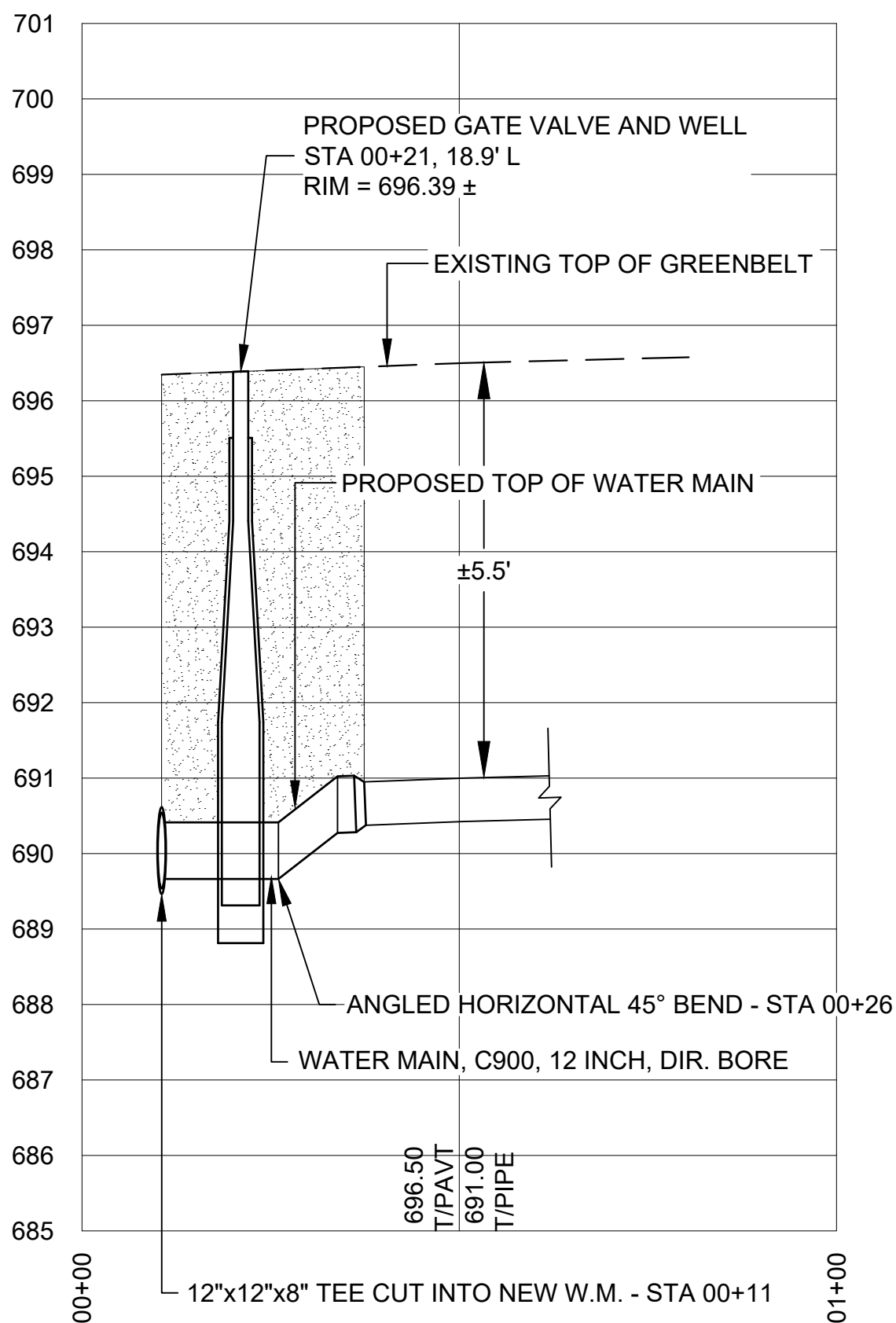
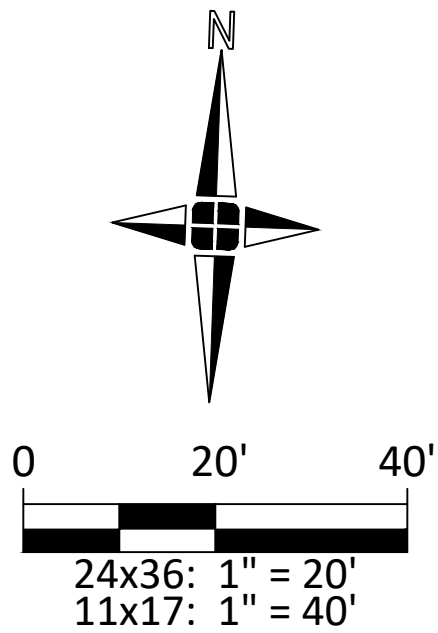
RAMSGATE DR
WATER MAIN CONNECTION PLAN

ESTIMATED QUANTITIES (THIS SHEET)	
GATE VALVE, 8 INCH	2 EA
GATE WELL, ABANDON	2 EA
WATER MAIN, 6 INCH, CUT AND PLUG	2 EA
WATER MAIN, DI, 8 INCH, TR DET G	64 FT
GATE WELL, 60 INCH DIA	2 EA
DR STRUCTURE COVER, EJ 1040 C	2 EA
CONNECTION J	1 EA
CONNECTION K	1 EA
WATER MAIN, REM	8 FT

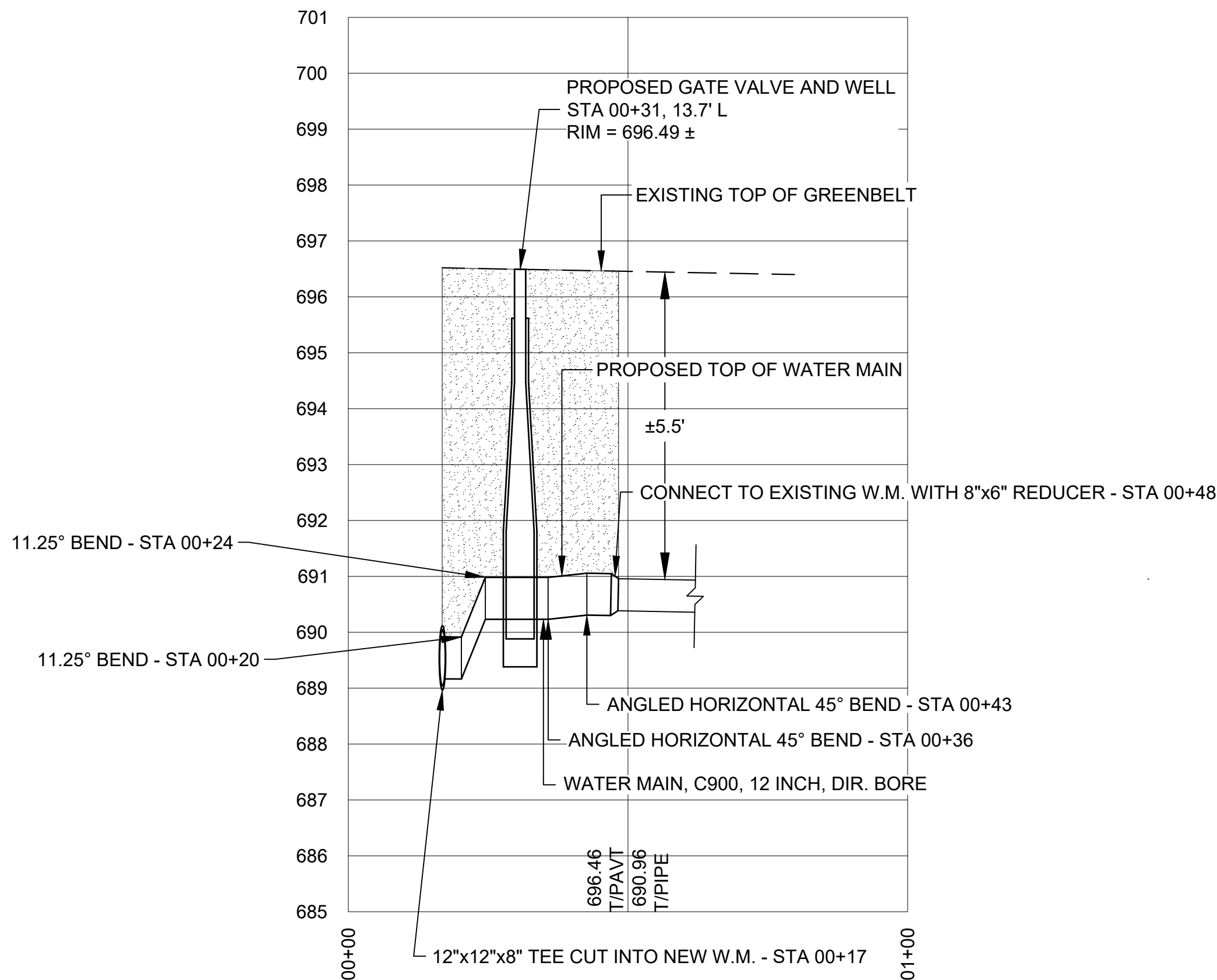
QTY	UNIT
2	EA
2	EA
2	EA
64	FT
2	EA
2	EA
1	EA
1	EA
8	FT

ID	CONNECTION TYPE	LOCATION
J	8"X6" REDUCER	MEADOWOOD CT
K	8"X6" REDUCER	RAMSGATE DR

LEGEND	
	ABANDON EXISTING WATER MAIN
	WATER MAIN, DI, 12 INCH
	WATER MAIN, DI, 6 INCH
	REPLACEMENT WATER SERVICE
	WATER MAIN TRENCH/BORE PIT
	PROPOSED GATE VALVE AND WELL
	PROPOSED HYDRANT
	PROPOSED CUT AND PLUG
	UTILITY CROSSING



MEADOWOOD CT NORTH
WATER MAIN PROFILE



RAMSGATE DR
WATER MAIN PROFILE

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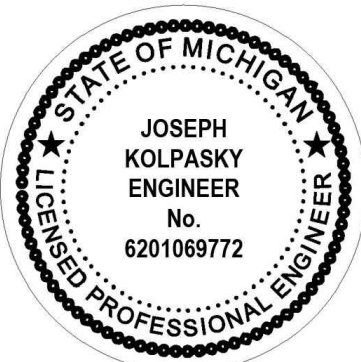
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**WATER MAIN
CONNECTIONS
(2 OF 2)**

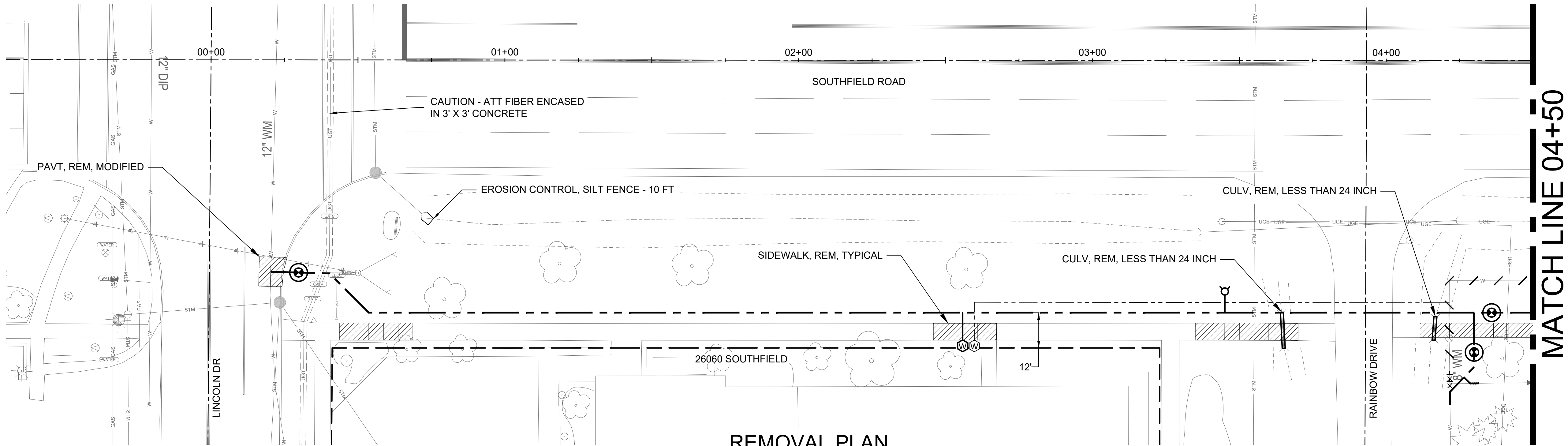
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WATER MAIN
IMPROVEMENT

CITY OF LATHRUP VILLAGE
OAKLAND COUNTY
MICHIGAN

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REMOVAL PLAN

ESTIMATED QUANTITIES (THIS SHEET)

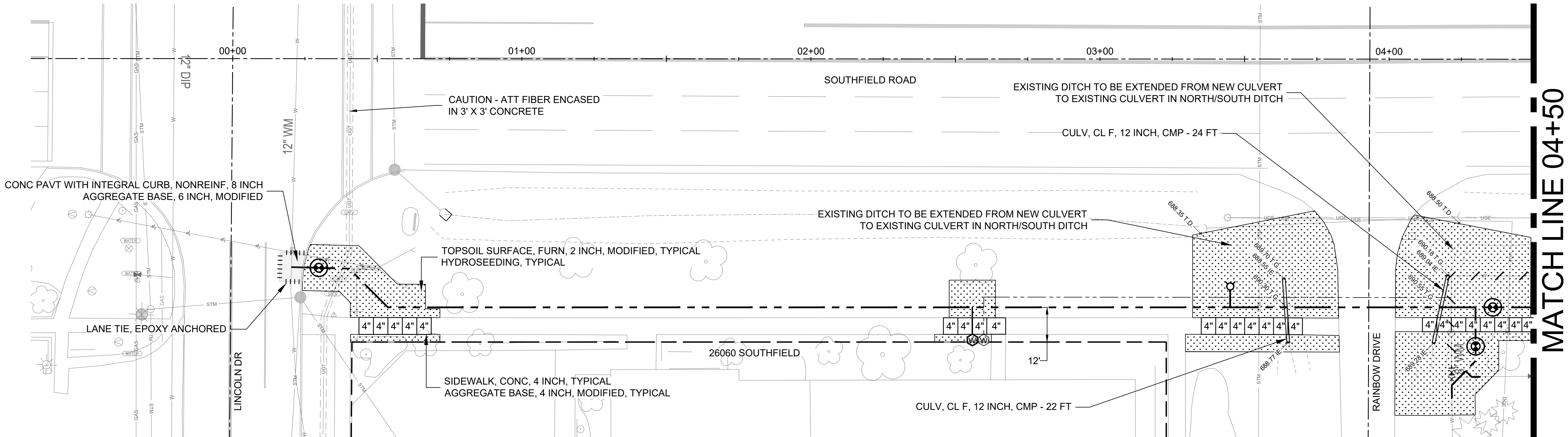
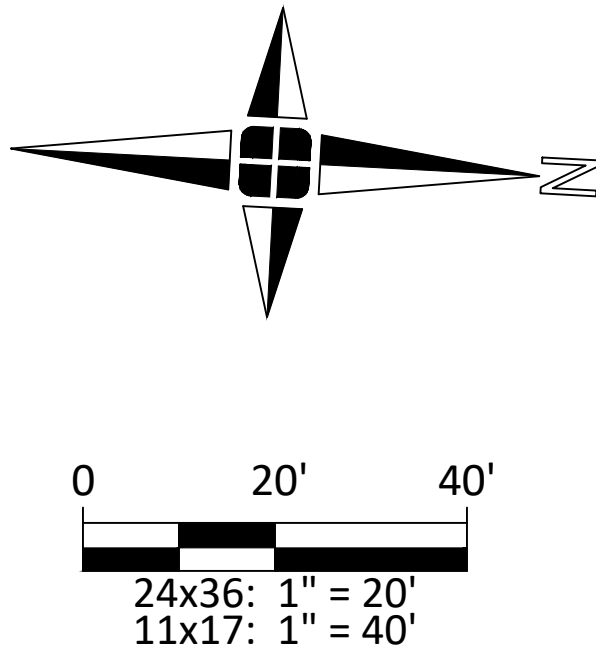
CULV, REM, LESS THAN 24 INCH	2 EA
SIDEWALK, REM	60 SYD
PAVT, REM, MODIFIED	9 SYD
EMBANKMENT, CIP	2 CYD
EROSION CONTROL, WRC INLET FILTER, INSTALL	2 EA
EROSION CONTROL, WRC INLET FILTER, REM	2 EA
EROSION CONTROL, SILT FENCE	10 FT
CULV, CL F, 12 INCH, CMP	46 FT
AGGREGATE BASE, 4 INCH, MODIFIED	60 SYD
AGGREGATE BASE, 6 INCH, MODIFIED	9 SYD
LANE TIE, EPOXY ANCHORED	15 EA
CONC PAVT WITH INTEGRAL CURB, NONREINF, 8 INCH	9 SYD
SIDEWALK, CONC, 4 INCH	544 SFT
WATER, SODDING/SEEDING	11 UNIT
HYDROSEEDING	601 SYD
TOPSOIL SURFACE, FURN, 2 INCH, MODIFIED	601 SYD

PAVING NOTES:

- AGGREGATE BASE, AS SPECIFIED, SHALL BE PLACED UNDER ALL CURB AND GUTTER, SIDEWALKS, SIDEWALK RAMPS AND DRIVEWAYS.
- THE CONTRACTOR SHALL CONNECT ALL PROPOSED CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY ANCHORED LANE TIES.
- ALL CONCRETE SHALL BE BACKFILLED WITH EMBANKMENT, CIP AND GRADED TO 2 INCH BELOW TOP OF CONCRETE.
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LEGEND

- PAVEMENT AND SIDEWALK REMOVAL
- HMA SURFACE REMOVAL
- CONCRETE CURB AND GUTTER REMOVAL
- CONCRETE PAVEMENT, NON-REINF, 8 INCH
- LANDSCAPE RESTORATION
- SIDEWALK / RAMP (THICKNESS SPECIFIED)
- EROSION CONTROL, WRC INLET FILTER (WRC DETAIL SI-4 OR SI-4A)
- FOLLOW WRC STANDARDS FOR SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS



CONSTRUCTION PLAN

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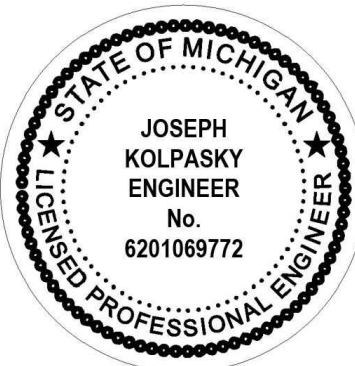
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REMOVAL &
CONSTRUCTION
(P.O.B - 04+50)

SOUTHFIELD RD.
WATER MAIN
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CITY OF LATHRUP VILLAGE
OAKLAND COUNTY
MICHIGAN

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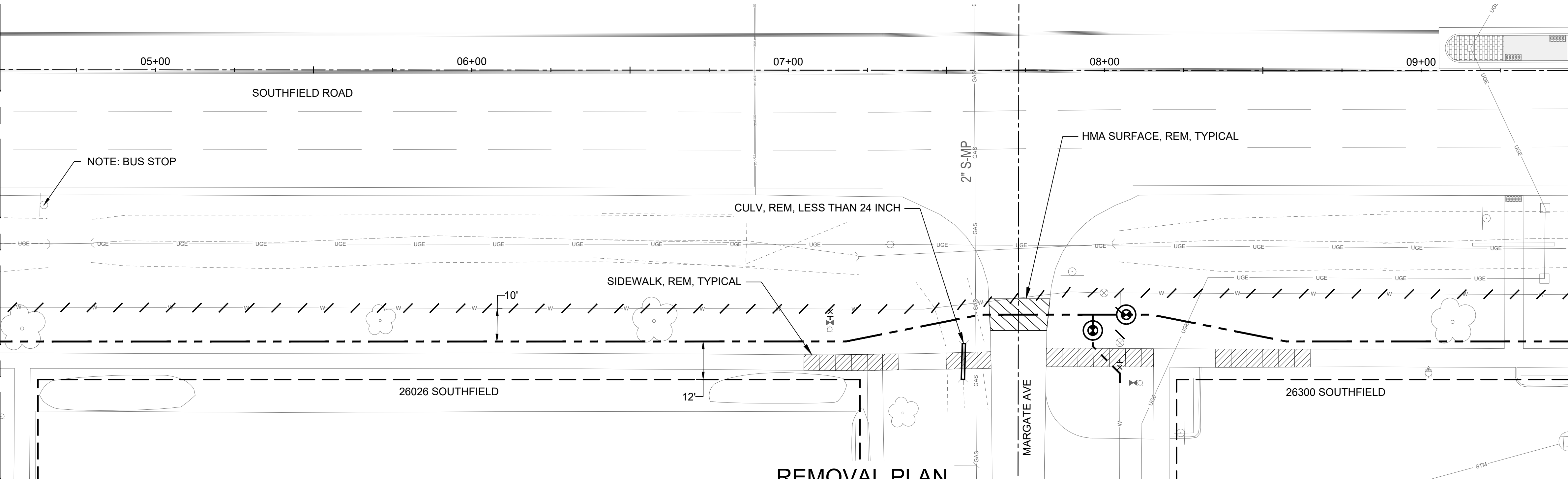
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MATCH LINE 04+50

MATCH LINE 04+50

MATCH LINE 09+50

MATCH LINE 09+50

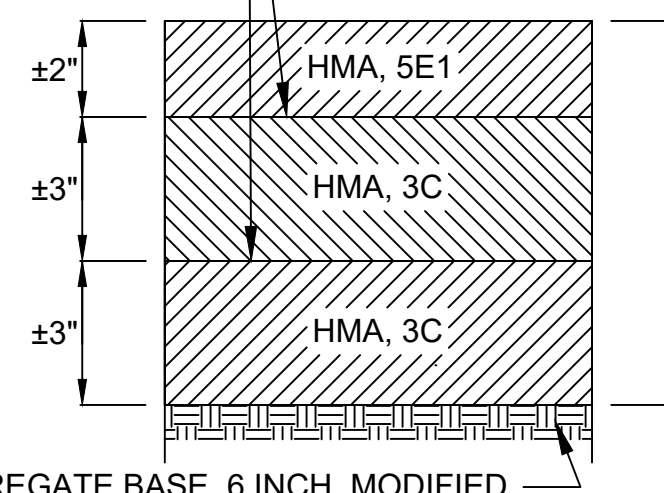


REMOVAL PLAN

ESTIMATED QUANTITIES (THIS SHEET)	
CULV, REM, LESS THAN 24 INCH	1 EA
SIDEWALK, REM	66 SYD
EMBANKMENT, CIP	1 CYD
AGGREGATE BASE, 4 INCH, MODIFIED	66 SYD
AGGREGATE BASE, 6 INCH, MODIFIED	19 SYD
HMA SURFACE, REM	19 SYD
HAND PATCHING	9 TON
SIDEWALK, CONC, 4 INCH	494 SFT
CURB RAMP, CONC, 6 INCH	100 SFT
DETECTABLE WARNING SURFACE, MODIFIED	10 FT
WATER, SODDING/SEEDING	8 UNIT
HYDROSEEDING	435 SYD
TOPSOIL SURFACE, FURN, 2 INCH, MODIFIED	435 SYD

QTY UNIT

BOND COAT BETWEEN LIFTS
(SS-1H AT 0.1 GAL/SYD)



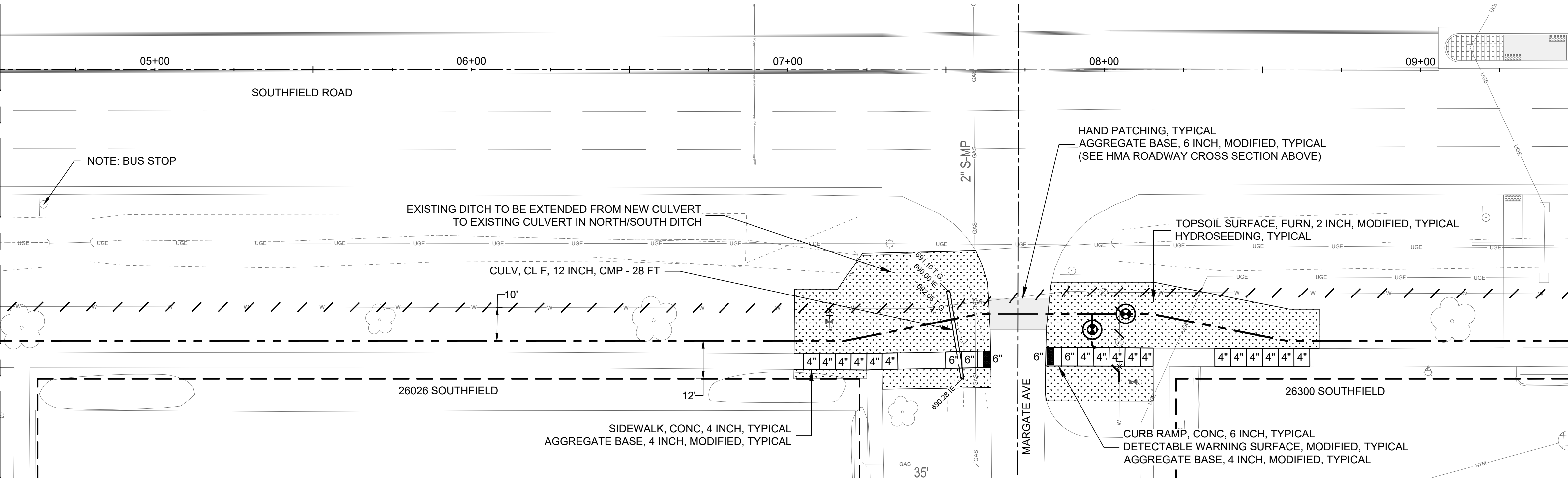
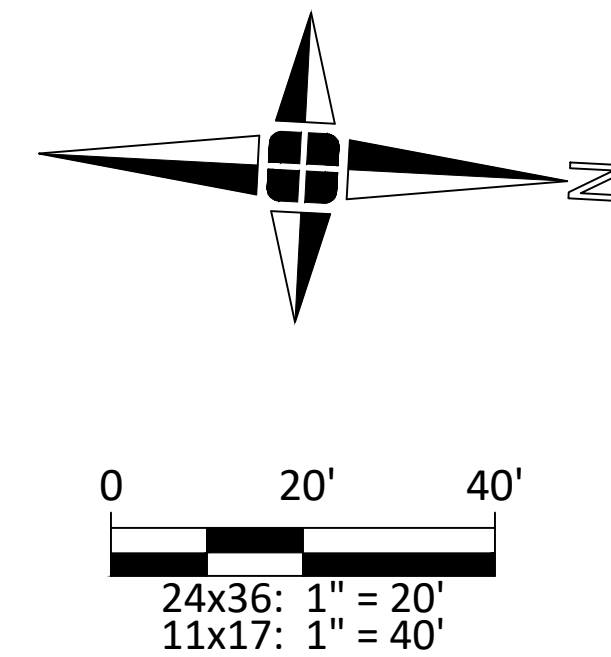
HMA ROADWAY
CROSS-SECTION

PAVING NOTES:

- AGGREGATE BASE, AS SPECIFIED, SHALL BE PLACED UNDER ALL CURB AND GUTTER, SIDEWALKS, SIDEWALK RAMP AND DRIVEWAYS.
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LEGEND

- PAVEMENT AND SIDEWALK REMOVAL
- HMA SURFACE REMOVAL
- CONCRETE CURB AND GUTTER REMOVAL
- HMA PAVING
- LANDSCAPE RESTORATION
- SIDEWALK / RAMP (THICKNESS SPECIFIED)
- EROSION CONTROL, WRC INLET FILTER (WRC DETAIL SI-4 OR SI-4A)
- FOLLOW WRC STANDARDS FOR SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS



CONSTRUCTION PLAN

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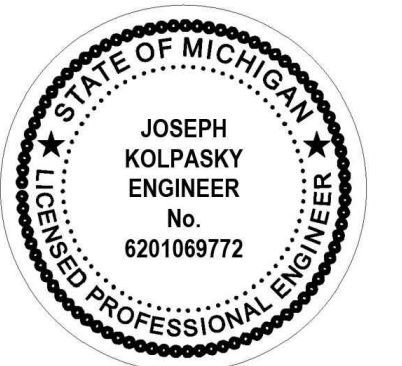
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Quality Control: J.R.W.



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CITY OF LATHRUP VILLAGE
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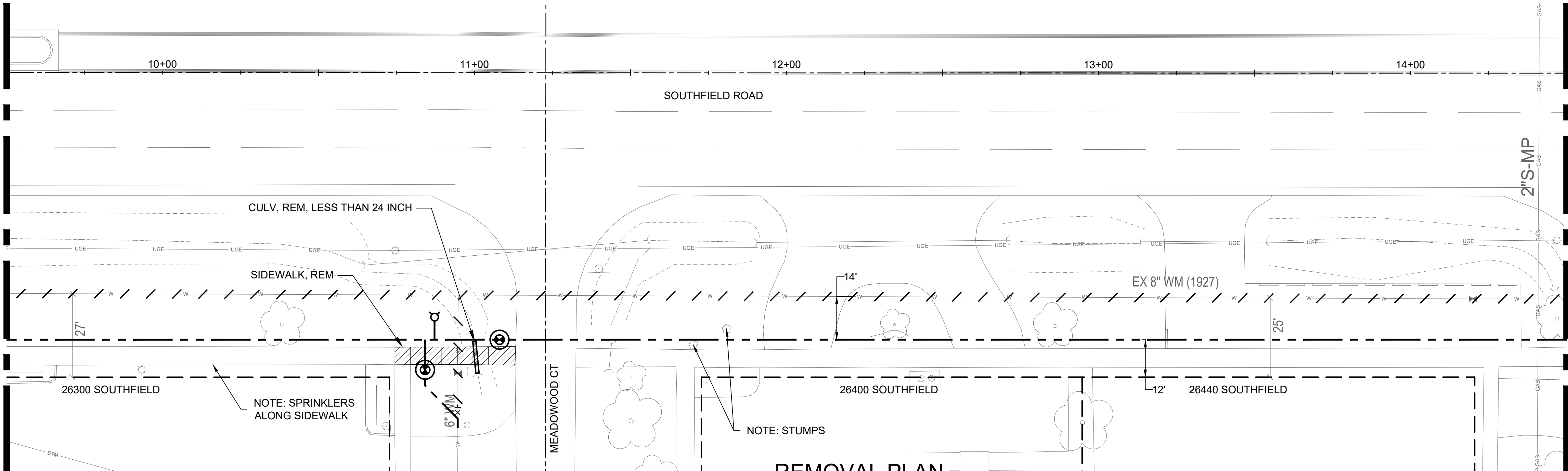
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MATCH LINE 09+50

MATCH LINE 09+50

MATCH LINE 14+50

MATCH LINE 14+50

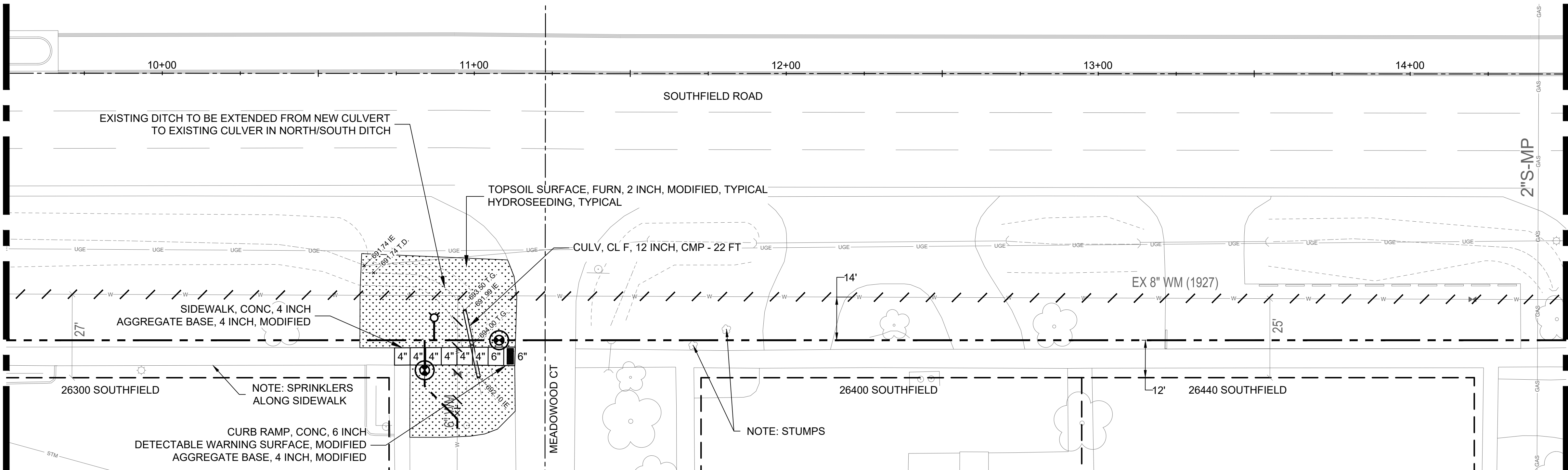
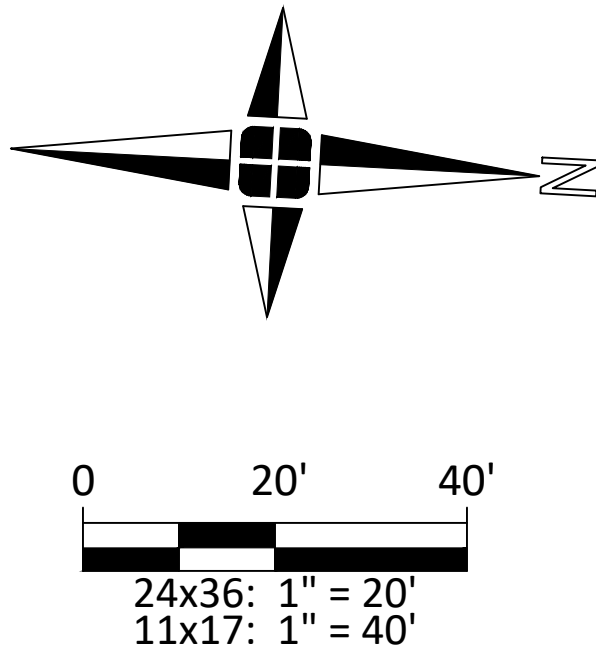


REMOVAL PLAN

ESTIMATED QUANTITIES (THIS SHEET)	QTY	UNIT
CULV, REM, LESS THAN 24 INCH	1	EA
SIDEWALK, REM	24	SYD
EMBANKMENT, CIP	0.6	CYD
AGGREGATE BASE, 4 INCH, MODIFIED	24	SYD
SIDEWALK, CONC, 4 INCH	169	SFT
CURB RAMP, CONC, 6 INCH	50	SFT
DETECTABLE WARNING SURFACE, MODIFIED	5	FT
WATER, SODDING/SEEDING	4	UNIT
HYDROSEEDING	240	SYD
TOPSOIL SURFACE, FURN, 2 INCH, MODIFIED	240	SYD

- PAVING NOTES:**
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- LEGEND**
- PAVEMENT AND SIDEWALK REMOVAL
 - HMA SURFACE REMOVAL
 - CONCRETE CURB AND GUTTER REMOVAL
 - HMA PAVING
 - LANDSCAPE RESTORATION
 - SIDEWALK / RAMP (THICKNESS SPECIFIED)
 - EROSION CONTROL, WRC INLET FILTER (WRC DETAIL SI-4 OR SI-4A)
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CONSTRUCTION PLAN

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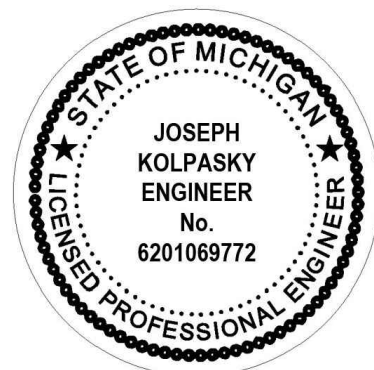
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MATCH LINE 14+50

MATCH LINE 19+50

MATCH LINE 19+50

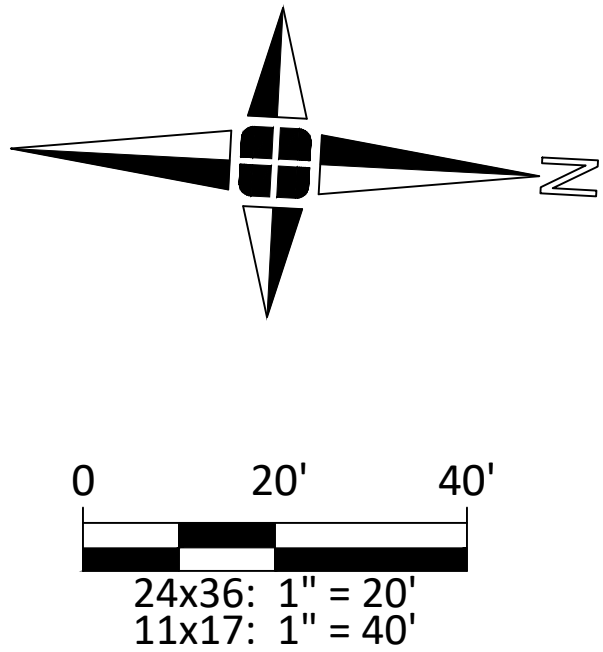
REMOVAL PLAN

CONSTRUCTION PLAN

ESTIMATED QUANTITIES (THIS SHEET)	QTY UNIT
SIDEWALK, REM	68 SYD
EMBANKMENT, CIP	2 CYD
EROSION CONTROL, SILT FENCE	20 FT
AGGREGATE BASE, 4 INCH, MODIFIED	68 SYD
SIDEWALK, CONC, 4 INCH	559 SFT
CURB RAMP, CONC, 6 INCH	50 SFT
WATER, SODDING/SEEDING	6 UNIT
HYDROSEEDING	367 SYD
TOPSOIL SURFACE, FURN, 2 INCH, MODIFIED	367 SYD

- PAVING NOTES:**
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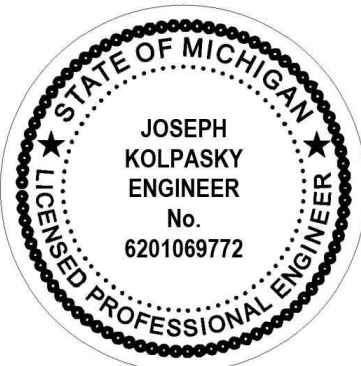
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**REMOVAL &
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(14+50 - 19+50)**

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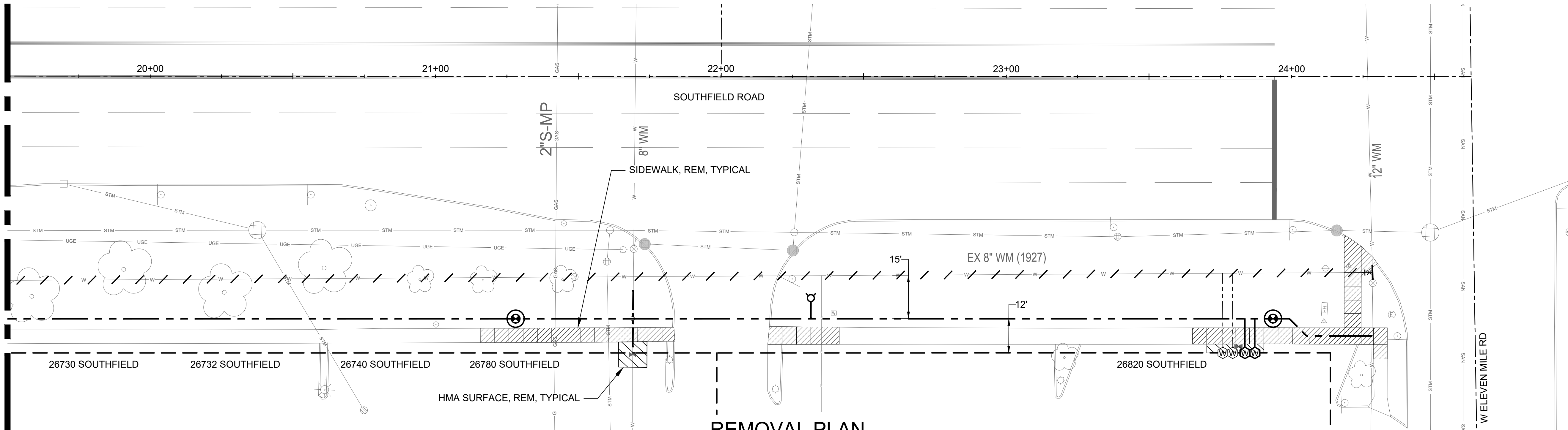
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MICHIGAN

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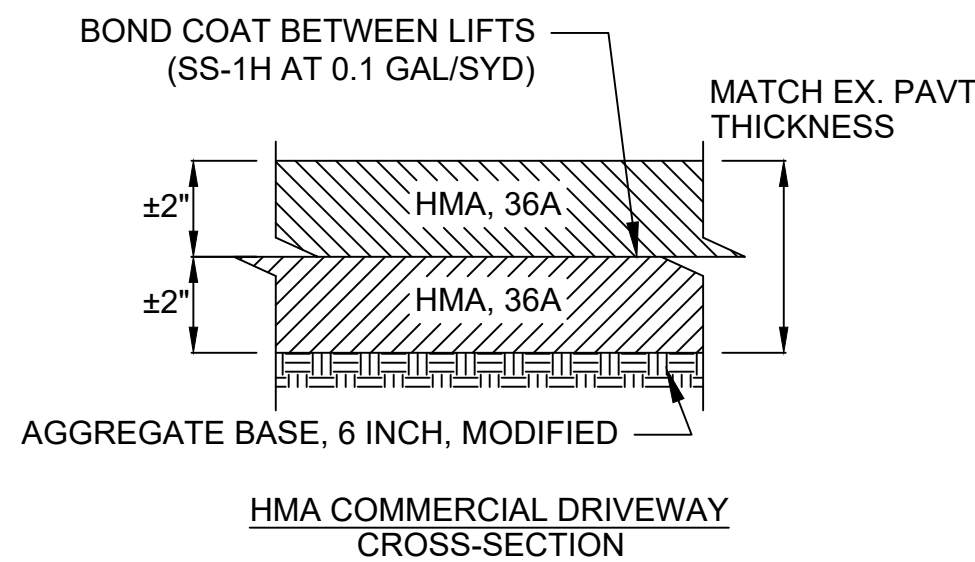
MATCH LINE 19+50



REMOVAL PLAN

ESTIMATED QUANTITIES (THIS SHEET)

SIDEWALK, REM	125 SYD
EMBANKMENT, CIP	2 CYD
EROSION CONTROL, WRC INLET FILTER, INSTALL	3 EA
EROSION CONTROL, WRC INLET FILTER, REM	3 EA
AGGREGATE BASE, 4 INCH, MODIFIED	125 SYD
AGGREGATE BASE, 6 INCH, MODIFIED	17 SYD
HMA SURFACE, REM	17 SYD
HAND PATCHING	3.89 TON
SIDEWALK, CONC, 4 INCH	947 SFT
CURB RAMP, CONC, 6 INCH	180 SFT
DETECTABLE WARNING SURFACE, MODIFIED	20 FT
WATER, SODDING/SEEDING	5 UNIT
HYDROSEEDING	260 SYD
TOPSOIL SURFACE, FURN, 2 INCH, MODIFIED	260 SYD

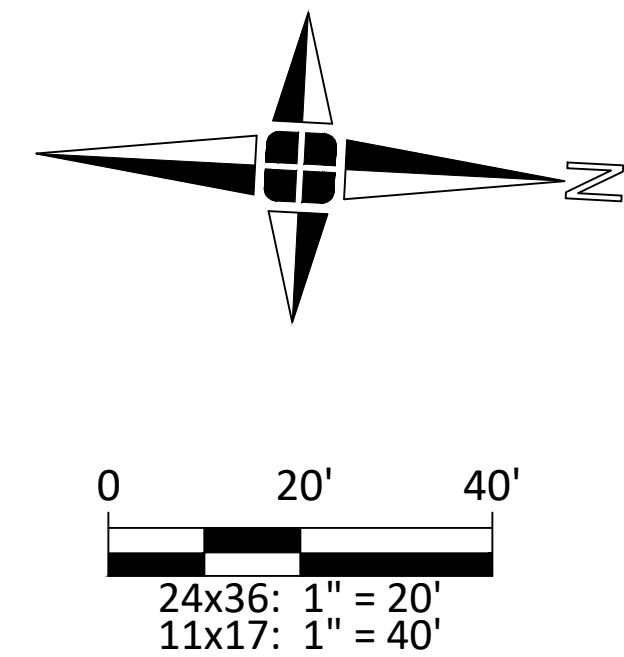


PAVING NOTES:

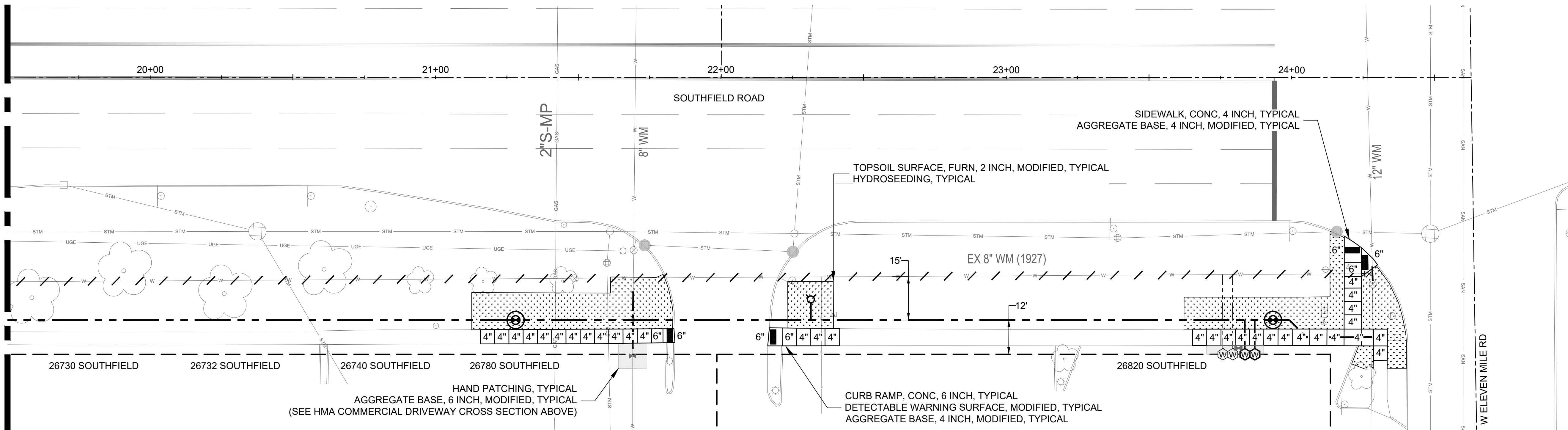
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LEGEND

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- HMA SURFACE REMOVAL
- CONCRETE CURB AND GUTTER REMOVAL
- HMA PAVING
- LANDSCAPE RESTORATION
- SIDEWALK / RAMP (THICKNESS SPECIFIED)
- EROSION CONTROL, WRC INLET FILTER (WRC DETAIL SI-4 OR SI-4A)
- FOLLOW WRC STANDARDS FOR SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS



MATCH LINE 19+50



CONSTRUCTION PLAN

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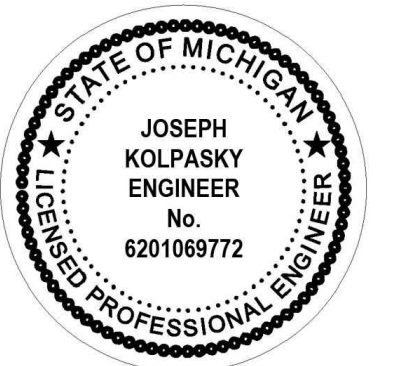
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Designer: A.F.N.
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CITY OF
LATHRUP VILLAGE
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**REMOVAL &
CONSTRUCTION
(14+50 - P.O.E)**

SOUTHFIELD RD.
WATER MAIN
IMPROVEMENT
CITY OF LATHRUP VILLAGE
OAKLAND COUNTY
MICHIGAN

Date: 03.12.25
Scale: AS SHOWN
Sheet: 19 of 22
Project: 16496.54

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GENERAL NOTES

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF LATHRUP VILLAGE AND DETROIT METRO WATER SERVICES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION A COPY OF THE CITY OF LATHRUP VILLAGE WATER USE PERMIT TO CONSTRUCT A CONNECTION TO OR AN EXTENSION OF THE WATER SUPPLY SYSTEM.
- A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION AND SHALL BE SCHEDULED BY MUNICIPAL ENGINEER. ATTENDANCE SHALL INCLUDE CITY OF LATHRUP VILLAGE, MUNICIPAL ENGINEER, DESIGN ENGINEER, OWNER/DEVELOPER, AND ALL UTILITY COMPANIES. CONTRACTOR SHALL PROVIDE MATERIALS LISTING FOR APPROVAL BY MUNICIPAL ENGINEER AND CITY OF LATHRUP VILLAGE.
- CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171) THREE WORKING DAYS BEFORE THE START OF CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE MARKED PRIOR TO THE START OF CONSTRUCTION.
- ALL NECESSARY EASEMENTS SHALL BE PROVIDED IN THE NAME OF THE CITY OF LATHRUP VILLAGE FOR THE INSTALLATION, OPERATION, AND MAINTENANCE OF THE PROPOSED WATER MAINS BEFORE ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM.
- AN INSPECTOR FROM THE CITY OF LATHRUP VILLAGE IS TO BE PRESENT DURING ALL INSTALLATION OPERATIONS.
- ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF 5' 6" BELOW FINISH GRADE. WHEN WATER MAINS MUST DIP TO PASS UNDER STORM SEWER, THE SECTIONS WHICH ARE DEEPER THAN MINIMAL SHALL BE KEPT TO A MINIMUM LENGTH BY THE USE OF 11-1/4 BENDS PROPERLY ANCHORED.
- ALL EXCAVATED TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING PROPOSED PAVEMENT, CONCRETE, ASPHALT, SIDEWALK, DRIVEWAY, ALLEY, PARKING AREA, BACK OF CURB, OR PATHWAY SHALL BE BACKFILLED WITH CLASS III SAND AND COMPACTED IN LIFTS TO 95% MAXIMUM UNIT WEIGHT.
- WHERE WATER MAINS MUST DIP TO PASS UNDER OTHER UTILITIES, VERTICAL BENDS SHALL BE INSTALLED AND PROPERLY ANCHORED.
- 1.5 FEET OF VERTICAL CLEARANCE IS REQUIRED BETWEEN PROPOSED WATER MAIN AND ALL EXISTING UTILITIES UNLESS OTHERWISE NOTED.
- BEFORE ANY WATER MAIN WILL BE ACCEPTED BY THE CITY, IT MUST PASS A PRESSURE TEST TO COMPLY WITH THE CURRENT SPECIFICATIONS AND PROCEDURES OF THE CITY OF LATHRUP VILLAGE.
- NO PHYSICAL CONNECTION CAN BE MADE TO THE EXISTING WATER MAIN UNTIL NEW WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, BACTERIA TESTED, AND DEEMED SATISFACTORY AND SAFE FOR PUBLIC USE.
- GATE WELLS SHALL BE PRECAST REINFORCED CONCRETE SECTIONS MANUFACTURED TO CONFORM WITH ASTM C478 CURRENT STANDARD SPECIFICATIONS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH ASTM C443 STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
- TEMPORARY CONNECTIONS MADE FOR FILLING, CHLORINATING, AND FLUSHING PURPOSES SHALL INCLUDE A DOUBLE CHECK VALVE BACKFLOW PREVENTER WITH CURRENT CERTIFICATION.
- RESTRAINING GLANDS SHALL BE USED AT ALL VALVES, FITTINGS, AND HYDRANTS FOR MECHANICAL JOINT ASSEMBLIES. THRUST BLOCKS SHALL ALSO BE CONSTRUCTED.
- THE CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO THE CITY OF LATHRUP PRIOR TO COMMENCING CONSTRUCTION TO FACILITATE INSPECTION.

WATER MAIN MATERIAL NOTES

- WATER MAIN PIPE SHALL BE DUCTILE IRON CLASS 54 (MIN.) FOR PIPE SIZES 3 INCH THROUGH 16 INCH. WATER MAIN PIPE LARGER THAN 16 INCH DIAMETER WILL BE DETERMINED BY CITY OF LATHRUP VILLAGE.
- ALL DUCTILE IRON PIPE WATER MAINS SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
- ALL DUCTILE IRON PIPE SHALL BE DOUBLE CEMENT LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
- MECHANICAL AND PUSH-ON JOINT GASKETS FOR DUCTILE IRON WATER MAIN PIPE SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
- JOINTS SHALL BE "SUPER BELL-TITE" OR "TYTON" OR AN APPROVED EQUAL.
- FLANGE JOINTS FOR DUCTILE IRON WATER MAIN PIPE SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
- FITTINGS FOR DUCTILE IRON WATER MAIN PIPE SHALL BE DUCTILE IRON OR CAST IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). FITTINGS SHALL BE RATED FOR 350 PSI.
- MECHANICAL JOINT RESTRAINING GLANDS SHALL BE ROMAGRIP AS MANUFACTURED BY ROMAC INDUSTRIES, INC., MEGALUG AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.
- WATER SERVICE LEADS 1 INCH THROUGH 2 INCH SHALL BE TYPE K COPPER TUBING.
- CURB STOP VALVES SHALL BE MUELLER H-15154, MINNEAPOLIS THREAD TOP.
- CURB STOP VALVE BOX SHALL BE MUELLER H-10300 (5-1/2"), EXTENSION TYPE WITH MINNEAPOLIS PATTERN BASE, WITH LID AND PLUG, WITH EXTENDED BOX LENGTH OF 5 FOOT 6 INCHES.
- FASTENERS SHALL BE FLUOROCARBON COATED (COR-BLUE BOLTS) T-HEAD BOLTS MANUFACTURED IN ACCORDANCE WITH AWW/ANSI C111/A21.11 CURRENT SPECIFICATIONS, GRADE ASTM A242, FOR ALL MECHANICAL JOINT FITTINGS, VALVES, AND HYDRANTS.
- DUCTILE IRON WATER MAIN MATERIALS MUST MEET ANS/NSF STANDARD 61, AND THE CERTIFICATION SHOULD BE STAMPED ON THE EXTERIOR WALL OF THE PIPE.
- PVC WATER MAIN MATERIALS MUST MEET ANS/NSF STANDARD 61, AND THE CERTIFICATION SHOULD BE STAMPED ON THE EXTERIOR WALL OF THE PIPE.
- RESTRAINED-JOINT PVC WATER MAIN PIPE (AWWA C900, DR18 MINIMUM) MAY BE USED ONLY FOR HORIZONTAL DIRECTIONAL DRILLING (HDD) INSTALLATIONS, WHERE OPEN-CUT DUCTILE IRON PIPE IS NOT FEASIBLE OR AS SPECIFIED ON THE PLANS. PVC PIPE USED FOR THIS PURPOSE SHALL BE RESTRAINED-JOINT, SUCH AS CERTA-LOK C900 RJ OR APPROVED EQUAL.
- ALL PVC PIPE SHALL BE PRESSURE-RATED FOR A MINIMUM WORKING PRESSURE OF 150 PSI AND SHALL BE CERTIFIED TO ANS/NSF STANDARD 61. CERTIFICATION MARKINGS MUST BE CLEARLY VISIBLE ON THE EXTERIOR WALL OF THE PIPE.
- TRANSITION FROM PVC TO DUCTILE IRON PIPE FITTINGS SHALL BE MADE USING MECHANICAL JOINT ADAPTERS WITH GASKETS APPROPRIATE FOR C900 PVC OUTSIDE DIAMETER (IPS O.D.). MECHANICAL JOINT RESTRAINT SHALL BE PROVIDED USING APPROVED RESTRAINING GLANDS SUCH AS EBBA IRON MEGALUG SERIES 1100, ROMAC ROMAGRIP OR APPROVED EQUAL.

WATER MAIN TESTING

- ALL WATER MAINS SHALL PASS A HYDROSTATIC PRESSURE TEST IN ACCORDANCE WITH THE MOST CURRENT VERSION OF THE AWWA STANDARD C600 FOR DUCTILE IRON PIPE AND THE MOST CURRENT VERSION OF THE AWWA STANDARD C605 FOR PVC PIPE.
- MINIMUM SIZE PRESSURE GAUGE IS TO BE 3 1/2 INCH DIAMETER GRADUATED IN (1) ONE PSI INCREMENTS. ALL GAUGES SHALL BE CALIBRATED EVERY SIX MONTHS WITH THE LAST CERTIFICATION DATE PROVIDED AT THE TIME OF THE HYDROSTATIC PRESSURE TEST.
- WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651, MOST CURRENT VERSION, PRIOR TO BEING PUT IN SERVICE. PRIOR TO THE NEW WATER MAIN BEING CONNECTED OR PLACED IN SERVICE, TWO CONSECUTIVE SETS OF WATER SAMPLES FOR BACTERIOLOGICAL ANALYSIS SHALL BE COLLECTED 24 HOURS APART AND EACH ANALYSIS SHALL NOT INDICATE THE PRESENCE OF COLIFORM IN ACCORDANCE WITH R325.1110 OF THE ADMINISTRATIVE RULES PROMULGATED UNDER MICHIGAN SAFE DRINKING WATER ACT, 1971 PA 399, AS AMENDED.
- IF WATER MAIN IS NOT CONNECTED WITHIN 30 DAYS AFTER INITIAL TESTING, BACTERIOLOGICAL TESTING SHALL BE REPEATED TO ASSURE A SAFE WATER SUPPLY SYSTEM.

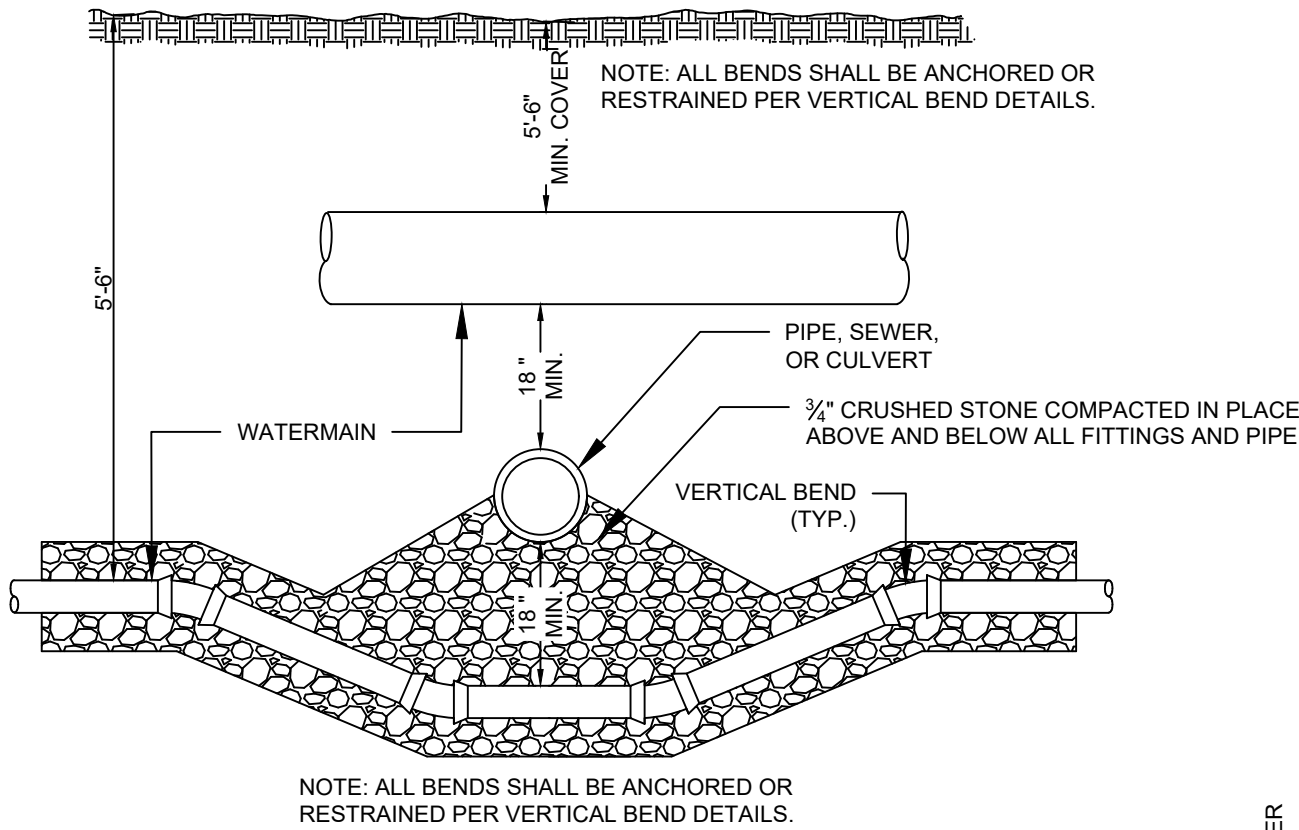
HYDRANT NOTES

- HYDRANTS SHALL BE EJ WATERMASTER 5BR250 54972D (55972D 6"O" OR 55972D 6" IF NEEDED).
- HYDRANTS SHALL BE 5 FOOT 6 INCH BURN IN UNLESS OTHERWISE APPROVED BY CITY OF LATHRUP VILLAGE.
- HYDRANT SHALL OPEN LEFT (COUNTERCLOCKWISE).
- HYDRANTS SHALL HAVE A MINIMUM 5 1/4" OPENING.
- HYDRANTS SHALL BE OF A TRUE COMPRESSION TYPE, OPENING AGAINST THE PRESSURE AND CLOSING WITH THE PRESSURE. COMPOSITION OF THE MAIN VALVE SHALL BE A MOLDED RUBBER HAVING DUROMETER HARDNESS OF 91±5. THE RUBBER SEAT VALVE SHALL FIT A 5 1/4" OPENING AND NOT BE LESS THAN 1" THICK.
- HYDRANTS SHALL BE TWO-WAY IN DESIGN, HAVING 3 3/4" DETROIT FD C & X DOME AND 5" HARRINGTON STORZ C & X DOME PUMPER NOZZLES. NOZZLES SHALL "THREAD" COUNTERCLOCKWISE INTO HYDRANT BARREL UTILIZING O-RING PRESSURE SEALS. A SUITABLE NOZZLE LOCK SHALL BE IN PLACE TO PREVENT I NADVERTENT NOZZLE REMOVAL. WEDGING DEVICES AND/OR DUCTILE IRON RETAINER RINGS TO SECURE NOZZLES SHALL NOT BE ALLOWED.
- THE LUBRICATION SYSTEM SHALL BE SEALED FROM THE WATERWAY AND ANY EXTERNAL CONTAMINANTS BY USE OF O-RING PRESSURE SEALS. ANTI-FRICTION WASHERS SHALL BE IN PLACE ABOVE AND BELOW THE THRUST COLLAR OF THE OPERATING NUT TO FURTHER MINIMIZE OPERATING TORQUE. THE GREASE RESERVOIR SHALL BE FACTORY FILLED WITH AN FDA APPROVED FOOD GRADE LUBRICANT. OIL SHALL NOT BE USED.
- THE OPERATING NUT SHALL BE 1 1/8" PENTAGON POINT TO FLAT IN SIZE/SHAPE AND ONE-PIECE IN DESIGN MANUFACTURED OF ASTM B-584 BRONZE. THE OPERATING NUT SHALL BE AFFIXED TO THE BONNET BY MEANS OF AN ASTM B-584 HOLD DOWN NUT. THE HOLD DOWN NUT SHALL BE THREADED INTO THE BONNET IN SUCH A MANNER AS TO PREVENT ACCIDENTAL DISENGAGEMENT DURING THE OPENING CYCLE OF THE HYDRANT. A RESILIENT WEATHER SEAL SHALL BE INCORPORATED WITH THE HOLD DOWN NUT, FOR THE

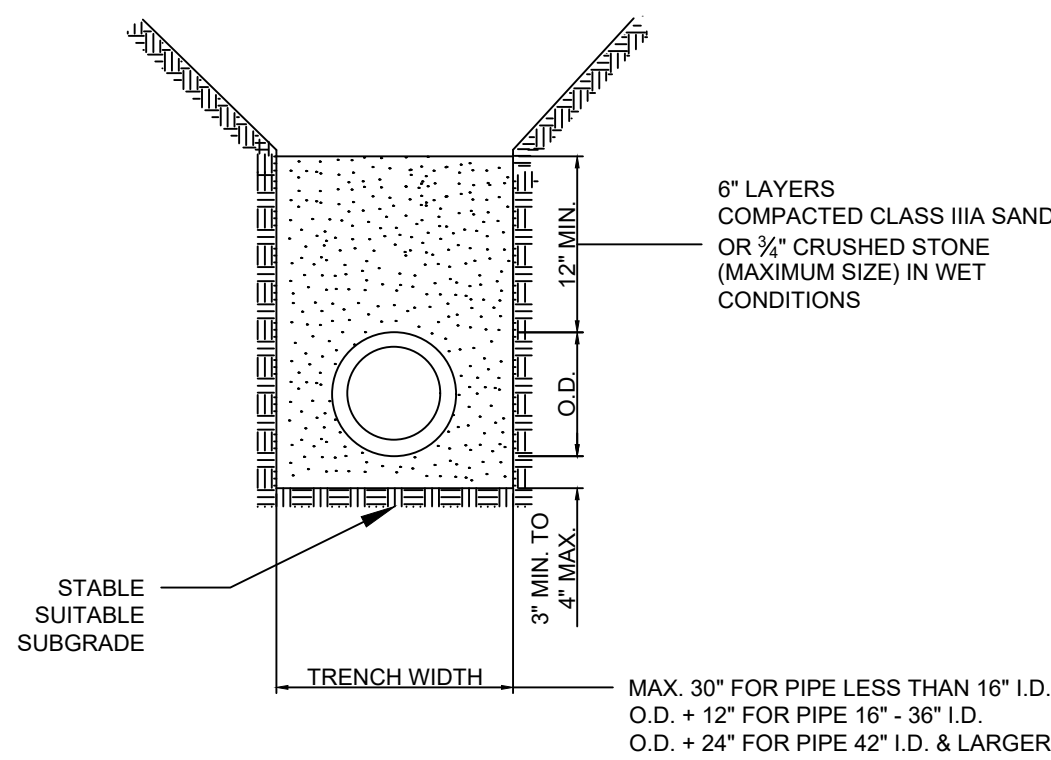
- PURPOSE OF PROTECTING THE OPERATING MECHANISM FROM THE ELEMENTS.
- THE DIRECTION OF THE OPENING SHALL BE LEFT. AN ARROW SHALL BE CAST ON THE TOP OF THE HYDRANT TO INDICATE THE OPENING DIRECTION.
- THE HYDRANT BONNET SHALL BE ATTACHED TO THE UPPER BARREL BY NO MORE THAN SIX BOLTS AND NUTS. ALL NUTS AND BOLTS BELOW GRADE SHALL BE 304 STAINLESS STEEL.
 - HYDRANTS SHALL BE OF THE "TRAFFIC MODEL" DESIGN, PROVIDED WITH A SAFETY COUPLING AND FLANGE DESIGN THAT WILL PERMIT A FULL 360 DEGREE FACING OF THE NOZZLES. O-RINGS SHALL BE THE QUAD RING TYPE AND BE INSTALLED IN A GROOVE ON THE BOTTOM OF THE JOIN SO THAT TAPING OR GLUING TO THE UPPER STANDPIPE OR EXTENSION IS NOT REQUIRED. THE SAFETY COUPLING SHALL BE A ONE PIECE DESIGN. MULTIPLE PARTS AND CAST IRON NOT ALLOWED.
 - THE OPERATING STEM SHALL BE A TWO-PIECE DESIGN, NOT LESS THAN 1 1/4" DIAMETER (EXCLUDING THREADED OR MACHINED AREAS). THREADS SHALL BE ACME TYPE WITH NO 60 DEGREE V THREADS ALLOWED.
 - TRAVEL STOPS SHALL BE IN THE INLET/SHOE AND ARE NOT ALLOWED IN THE BONNET AREA. SCREWS, PINS, BOLTS OR FASTENERS USED IN CONJUNCTION WITH THE STEM COUPLING SHALL BE STAINLESS STEEL.
 - FIRE HYDRANTS SHALL MEET ANSI/AWWA C502.
 - THE INSIDE DIAMETER OF THE HYDRANT BARRELS SHALL NOT BE LESS THAN 7 1/4" AND THE HYDRANT SHALL BE PAINTED RED.
 - HEAVY DUTY DRIP SHUTOFF (TOP PLATE) AND VALVE SEAT SHALL BE HIGH STRENGTH MANGANESE BRONZE. VALVE SEAT SHALL BE INSTALLED IN A BRONZE SEAT RING. DRAIN SHALL BE TAPPED AND PLUGGED. BRONZE LINED AND 3/8 INCH DIAMETER MINIMUM. THEY SHALL OPERATE WITHOUT THE USE OF SPRINGS, TOGGLES, TUBES, LEVERS, OR OTHER INTRICATE SYNCHRONIZING MECHANISMS. LOWER VALVE PLATE SHALL BE A ONE PIECE DUCTILE IRON CASTING AND NOT REQUIRE A SEPARATE CAP NUT. DRAINS SHALL BE OPEN AND FLUSHED DURING THE FIRST FOUR TURNS OF OPENING THE HYDRANT BEFORE POSITIVELY CLOSING WHILE OPERATING THE HYDRANT.
 - THE SHOE CONNECTION SHALL BE MECHANICAL JOINT OR AS SPECIFIED. THE INLET/SHOE SHALL BE FUSION BONDED EPOXY COATED PER ANSI/AWWA C550 AND WITH AN NSF 61 APPROVED COATING HAVING AMPLE BLOCKING PADS FOR STURDY SETTING. SIX STAINLESS STEEL BOLTS AND NUTS ARE REQUIRED TO FASTEN THE SHOE TO THE LOWER BARREL. THE SHOE/INLET SHALL BE DIRECTLY CONNECTED TO THE STANDPIPE FLANGE, DESIGNS USING A SANDWICH PIECE IN BETWEEN THE STANDPIPE AND SHOE/INLET SHALL NOT BE ALLOWED.
 - THE TOP BONNET, UPPER STANDPIPE, LOWER STANDPIPE, AND SHOE SHALL BE DUCTILE IRON TO ENSURE STRENGTH THROUGHOUT THE EXTERIOR OF THE HYDRANT. GRAY IRON HYDRANT BODY PARTS WILL NOT BE ALLOWED.
 - ALL HYDRANT VALVES SHALL BE ACCOMPANIED WITH EJ 8560, THREE PIECE SCREW TYPE VALVE BOX AND DROP LID LABELED "WATER" OR APPROVED EQUAL.
 - HYDRANT VALVE BOX SHALL BE SUPPORTED WITH BRICK/BLOCK AND STONE.
 - HYDRANTS SHALL BE FIELD PAINTED ABOVE GRADE LINE WITH FINISH COAT OF HIGH GLOSS, FIRE HYDRANT RED PAINT AS MANUFACTURED BY RUSTOLEUM, GLAMORTX, OR APPROVED EQUAL.
 - HYDRANT WEEP/DRAIN HOLES SHALL BE PLUGGED.

GATE VALVES AND TAPPING SLEEVE NOTES

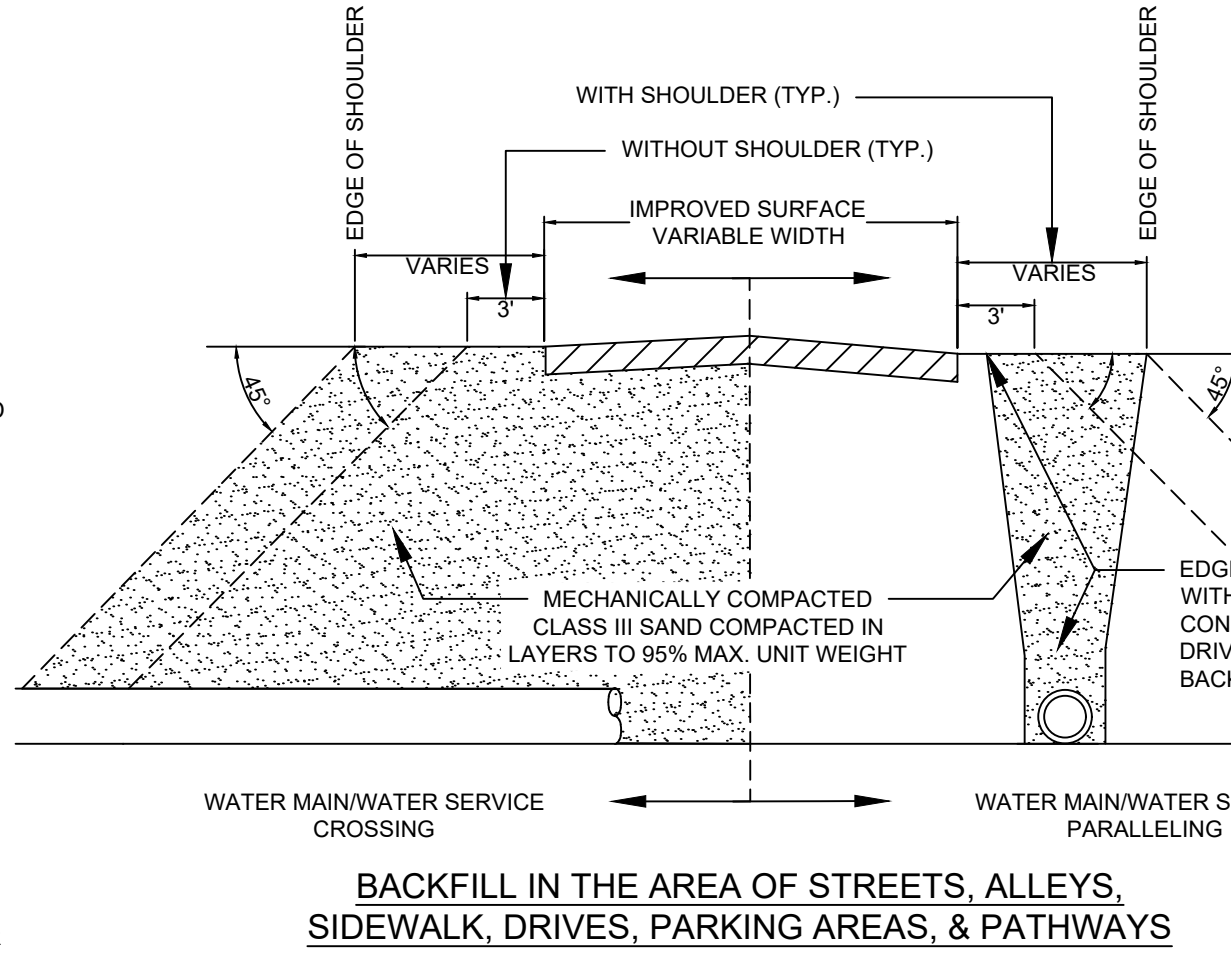
- GATE VALVES SHALL BE EJ FLOWMASTER RESILIENT WEDGE GATE VALVE, WITH NON-RISING STEM, WITH WORKING PRESSURE OF 250 PSI AND TEST PRESSURE OF 500 PSI MEETING THE LATEST VERSION OF ANSI/AWWA STANDARD C515.
- GATE VALVES SHALL OPEN RIGHT (CLOCKWISE).
- GATE VALVES WITH OPERATING NUT SHALL BE 2" SQUARE OPERATING NUT, PAINTED RED, AND WHERE A DISTANCE GREATER THAN 5 FEET BELOW FINISH GRADE SHALL BE PROVIDED WITH AN EXTENSION STEM. THE EXTENSION STEM SHALL BE HELD IN PLACE BY AN EXTENSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL AND MECHANICALLY CONNECTED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND ATTACHMENT METHODS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- GATE WELLS LOCATED IN CONCRETE OR ASPHALT SURFACES SHALL BE ADJUSTED TO SURFACE GRADE WITH A MINIMUM THREE COURSES OF BRICK AND CEMENT IN LIEU OF CONCRETE GRADE RINGS.
- ALL GATE VALVES 4 INCH AND LARGER A SHALL BE IN GATE WELLS UNLESS OTHERWISE APPROVED BY CITY OF LATHRUP VILLAGE.
- TAPPING VALVES SHALL BE EJ RESILIENT WEDGE TAPPING VALVE, WITH NON-RISING STEM, OPENING RIGHT (CLOCKWISE) WITH PRESSURE OF 250 PSI AND TEST PRESSURE OF 500 PSI.
- TAPPING SLEEVES SHALL BE ALL STAINLESS STEEL AND SHALL BE MANUFACTURED BY ROMAC INDUSTRIES, JCM 432, SMITH-CLAIR, OR APPROVED BY THE CITY OF LATHRUP VILLAGE.
- TWO EACH, 1" DIAMETER AWW/CX COPPER FLARE, PLUG STYLE CORPORATION STOP SHALL BE INSTALLED IN ALL GATE VALVE AND WELL STRUCTURES. CORPORATION STOP SHALL BE MANUFACTURED IN COMPLIANCE WITH ANSI/AWWA C800 CURRENT STANDARD AND FOR USE WITH POTABLE WATER.



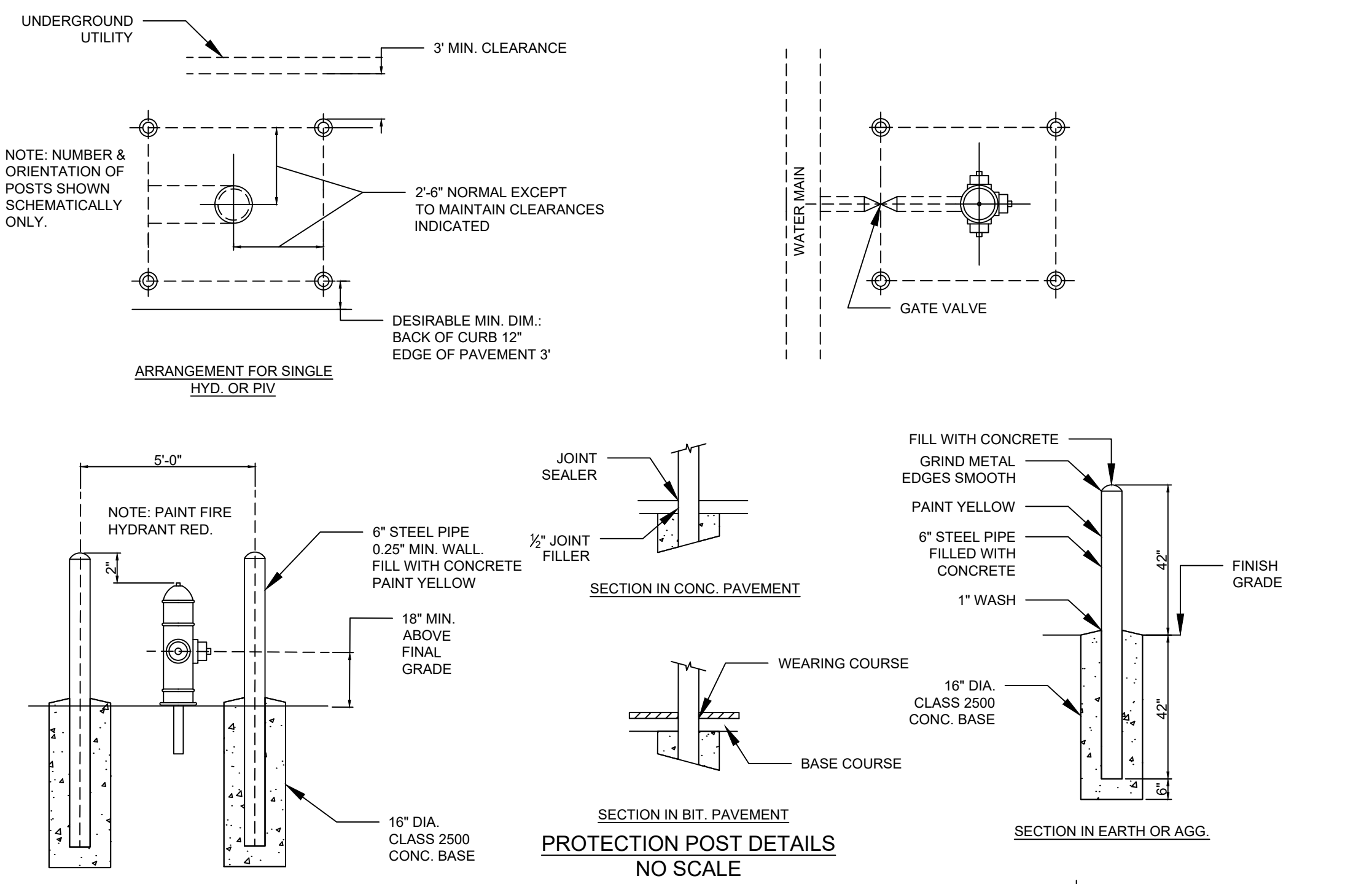
SEWER, PIPE, OR CULVERT CROSSING
NO SCALE



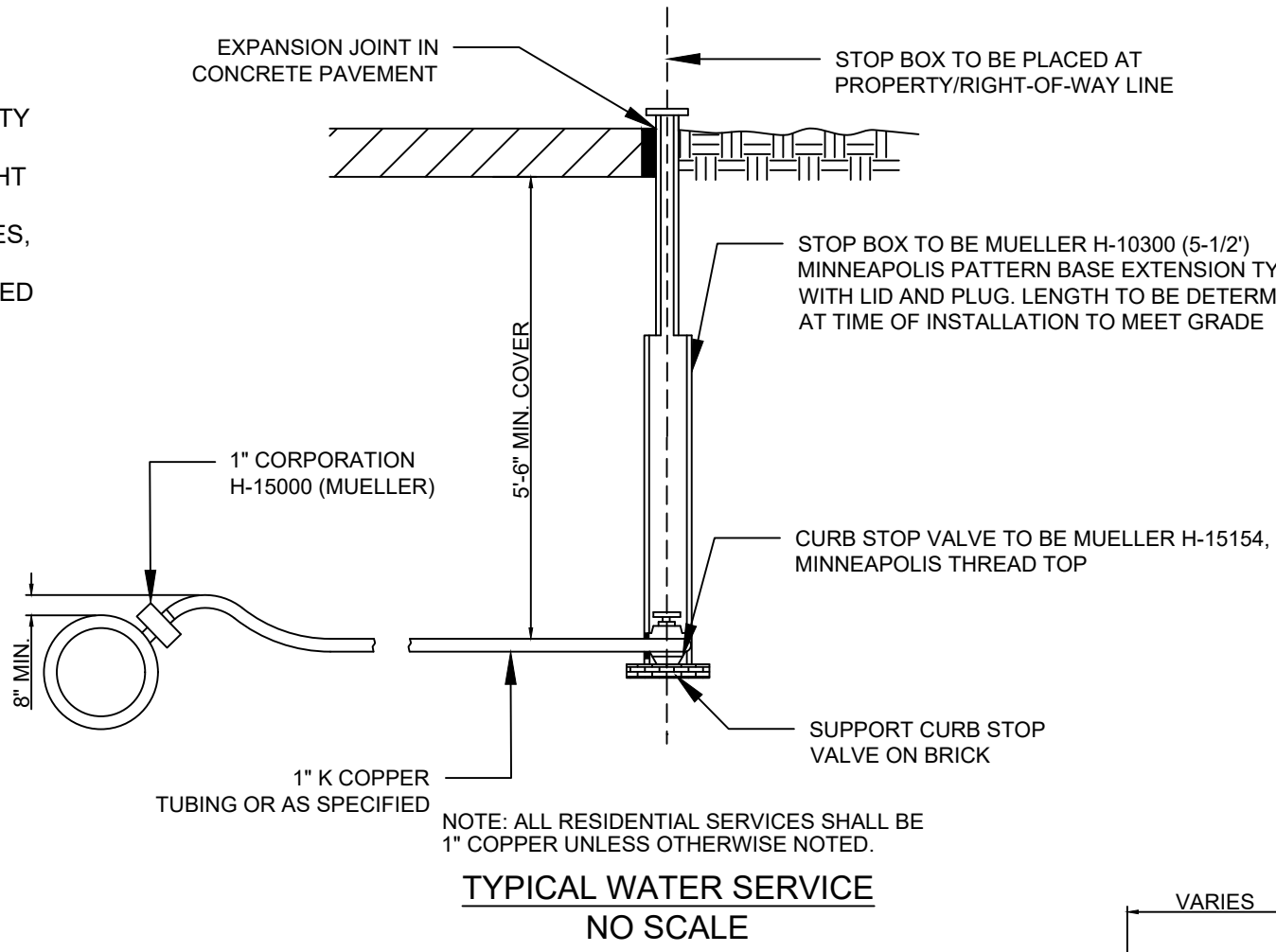
STANDARD BEDDING FOR WATER PIPE
NO SCALE



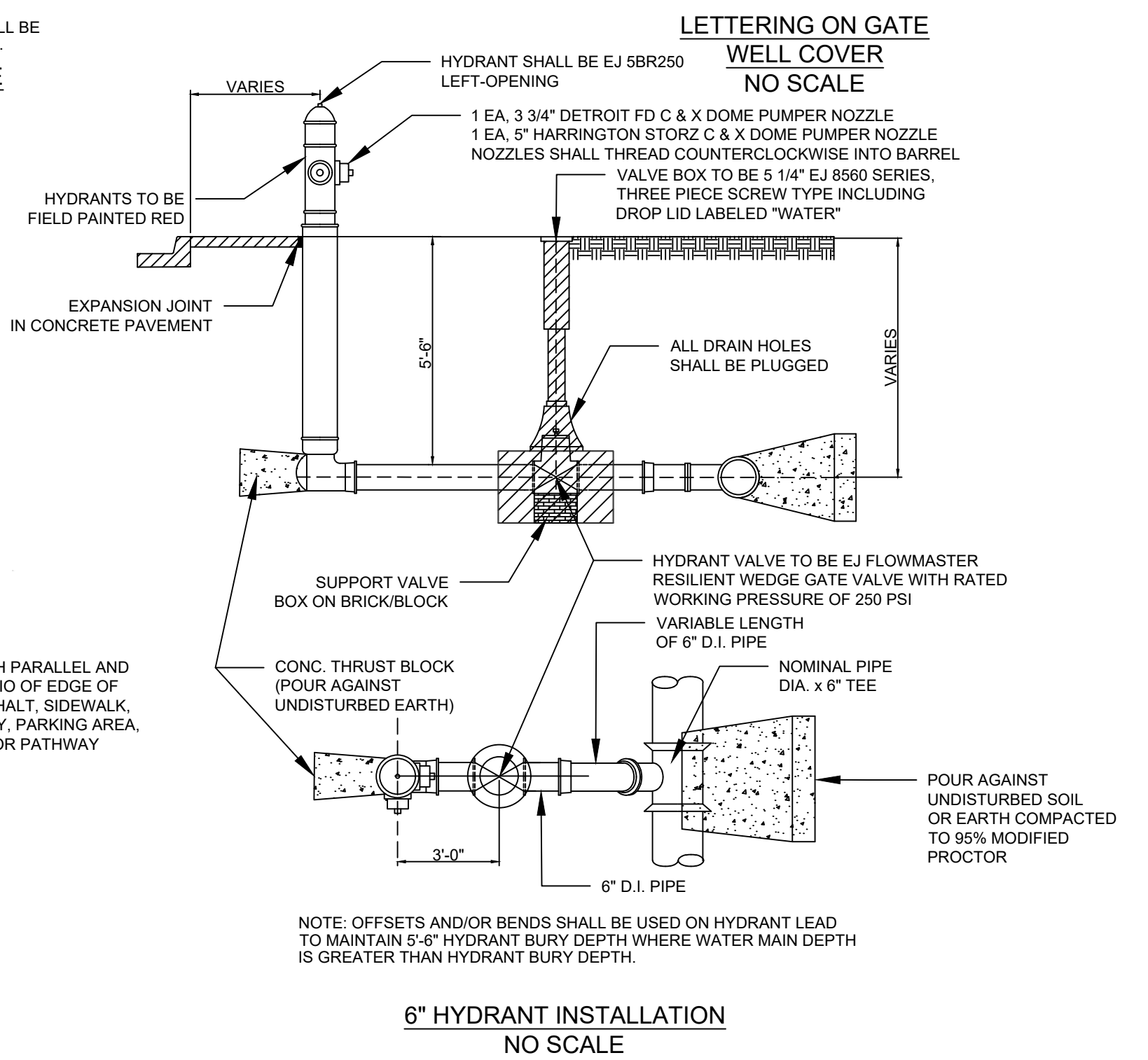
BACKFILL IN THE AREA OF STREETS, ALLEYS,
SIDEWALK, DRIVES, PARKING AREAS, & PATHWAYS
NO SCALE



PROTECTION POST DETAILS
NO SCALE



TYPICAL WATER SERVICE
NO SCALE



6" HYDRANT INSTALLATION
NO SCALE

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WATER MAIN
DETAILS
(1 OF 2)

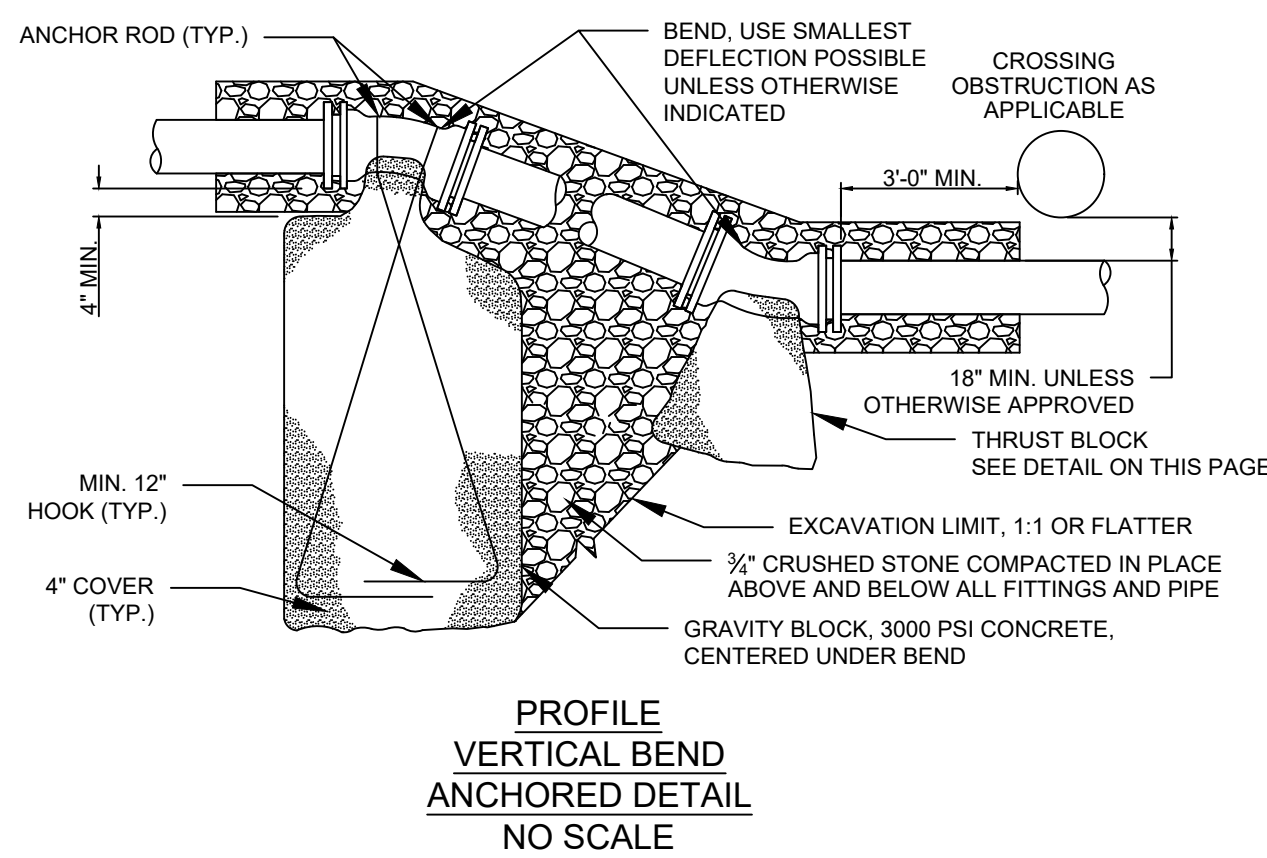
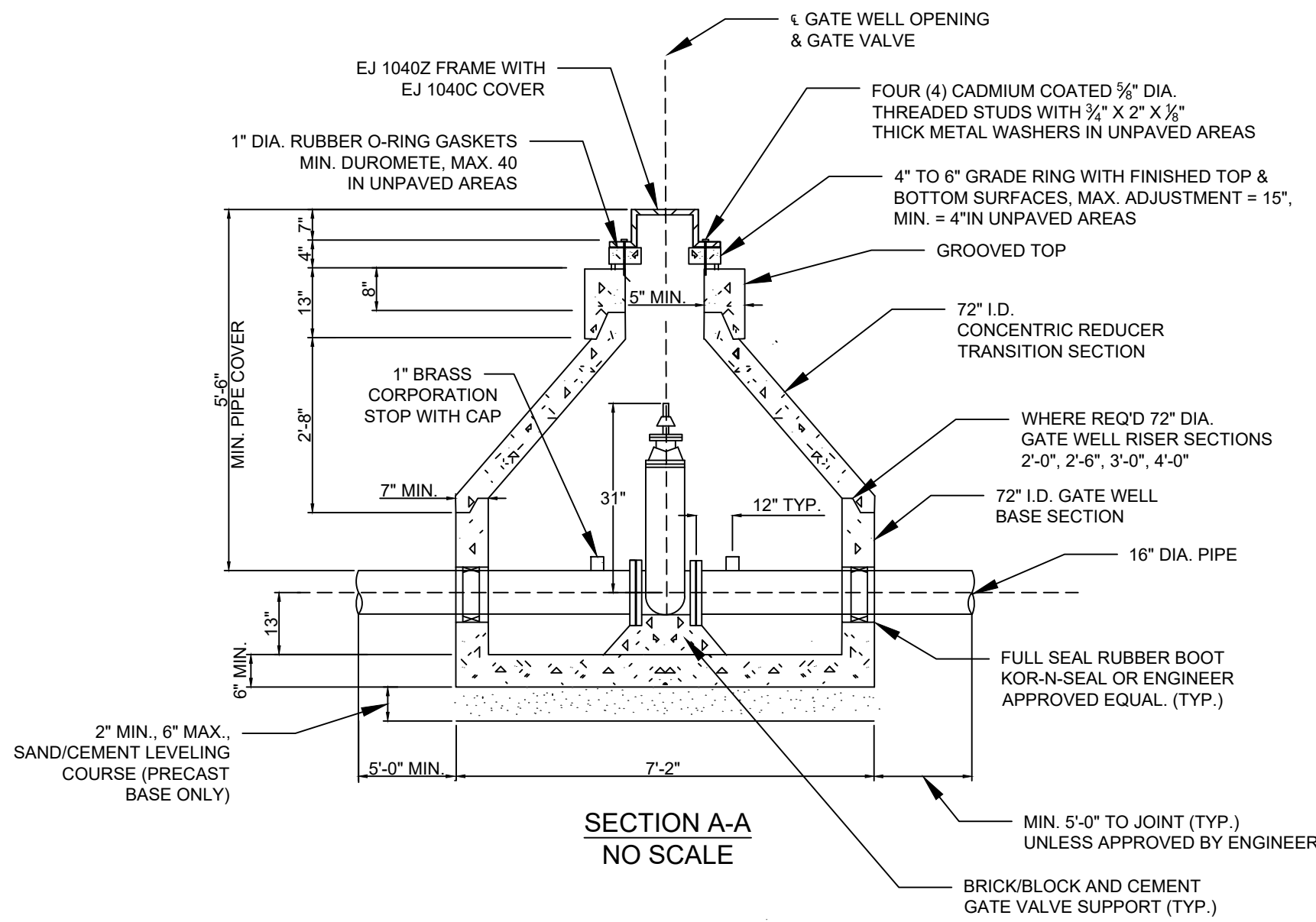
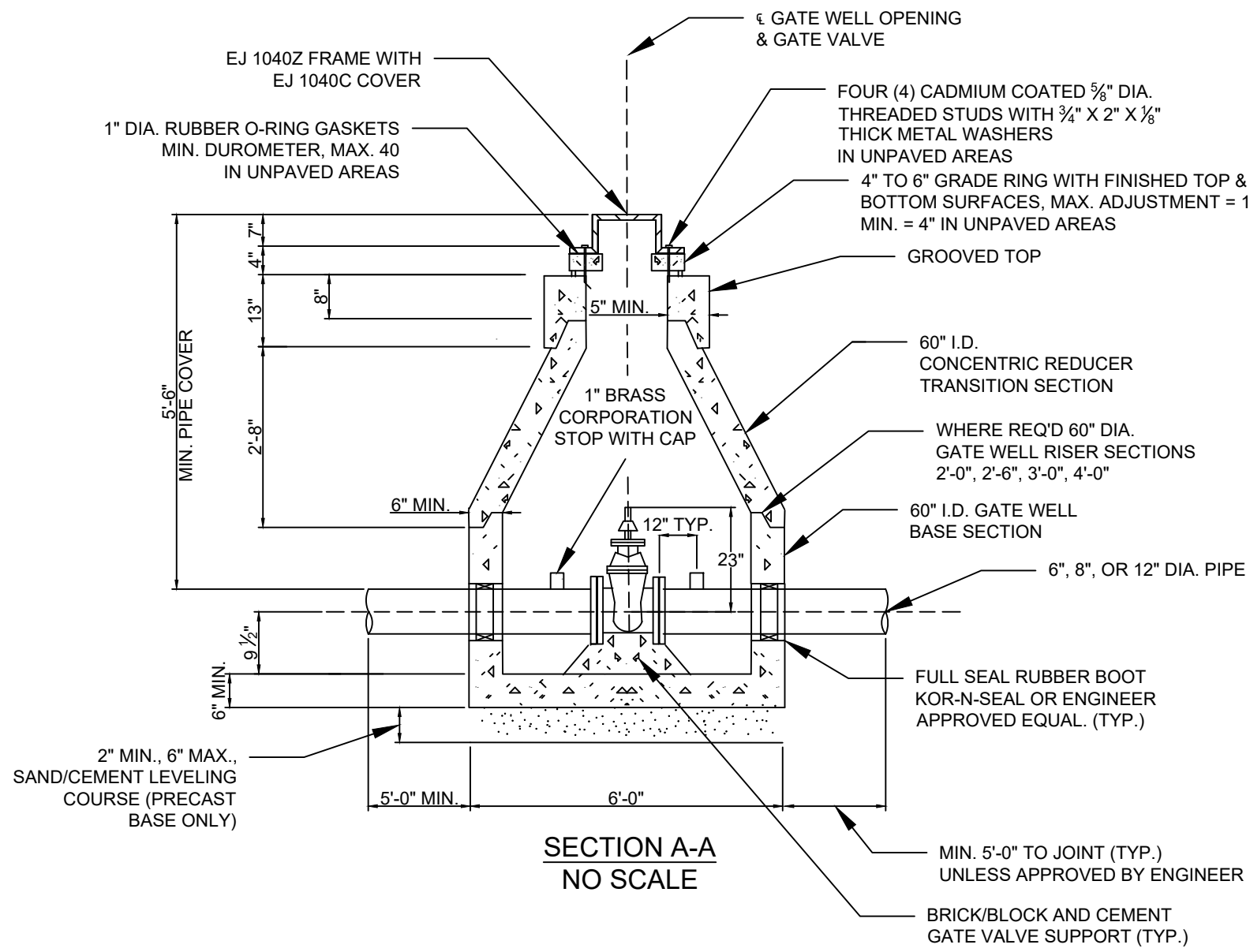
SOUTHFIELD RD.
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IMPROVEMENT

CITY OF LATHRUP VILLAGE
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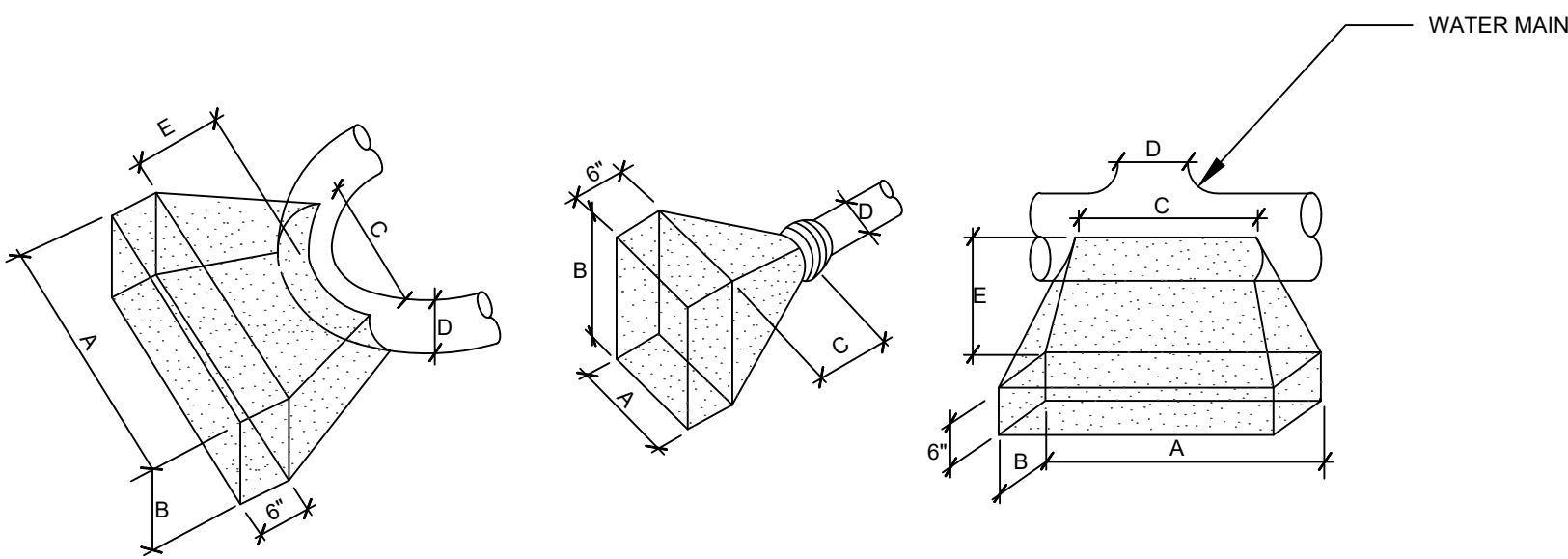
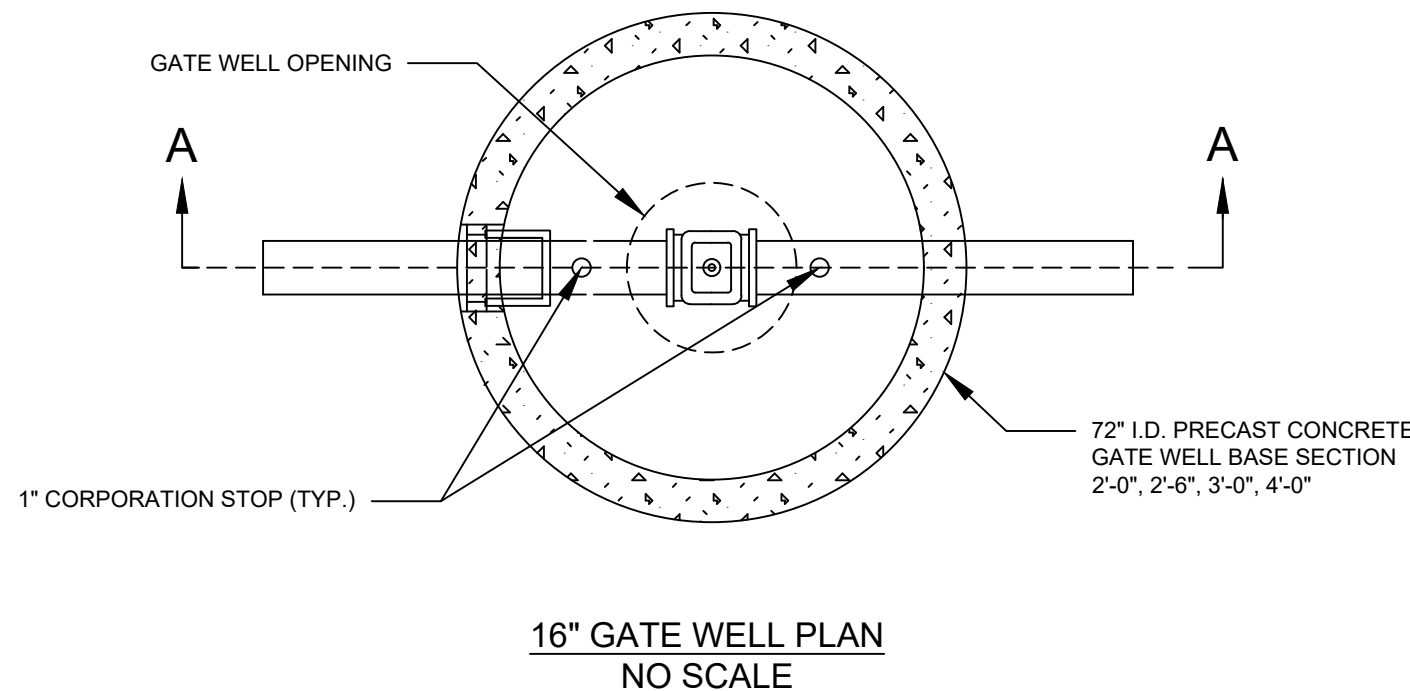
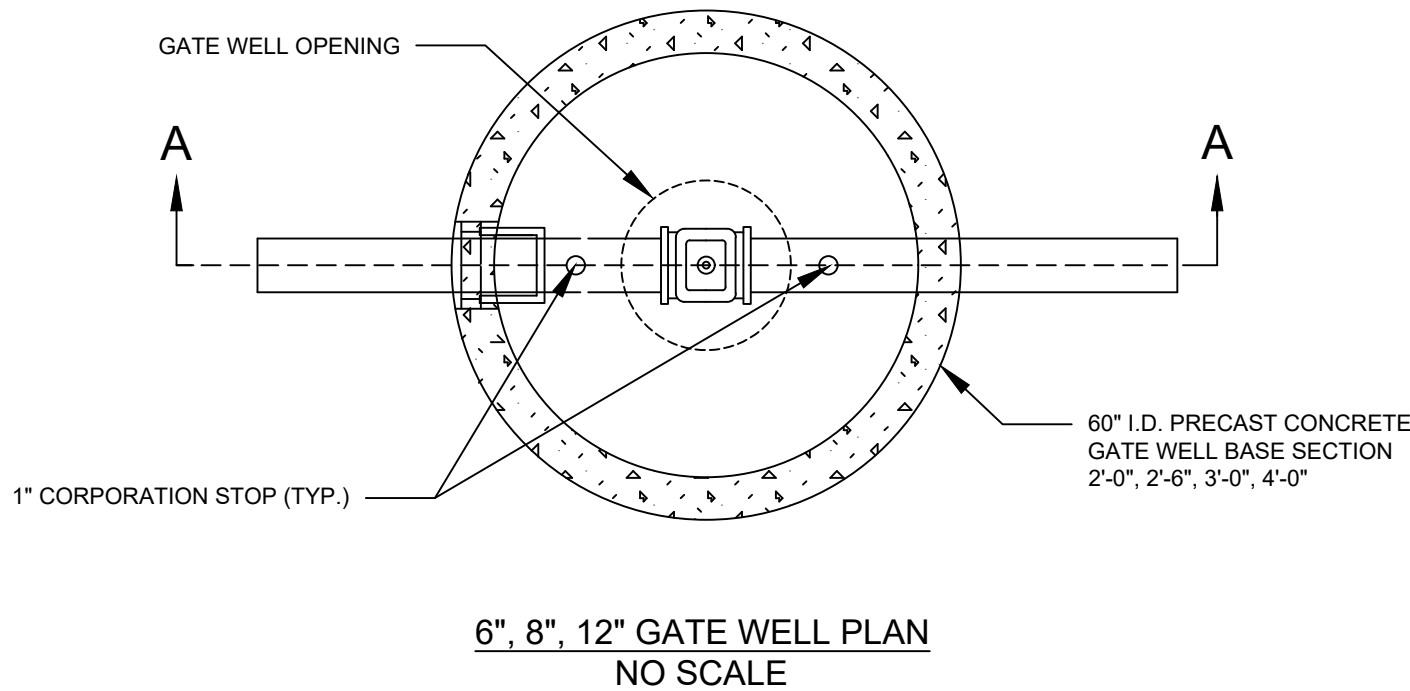


PIPE SIZE (IN.)	ANCHOR ROD DIA. (IN.)	GRAVITY BLOCK MINIMUM VOLUME (CU. YD.)		
		11 1/4" BEND	22 1/2" BEND	45" BEND
3	1/2	0.2	0.3	0.5
4	1/2	0.3	0.5	0.8
6	1/2	0.6	1.0	1.6
8	5/8	1.0	1.7	3.0
10	3/4	2.0	3.0	N.A.
12	3/4	2.5	N.A.	N.A.

N.A. = NOT ALLOWED

SIZE SCHEDULE

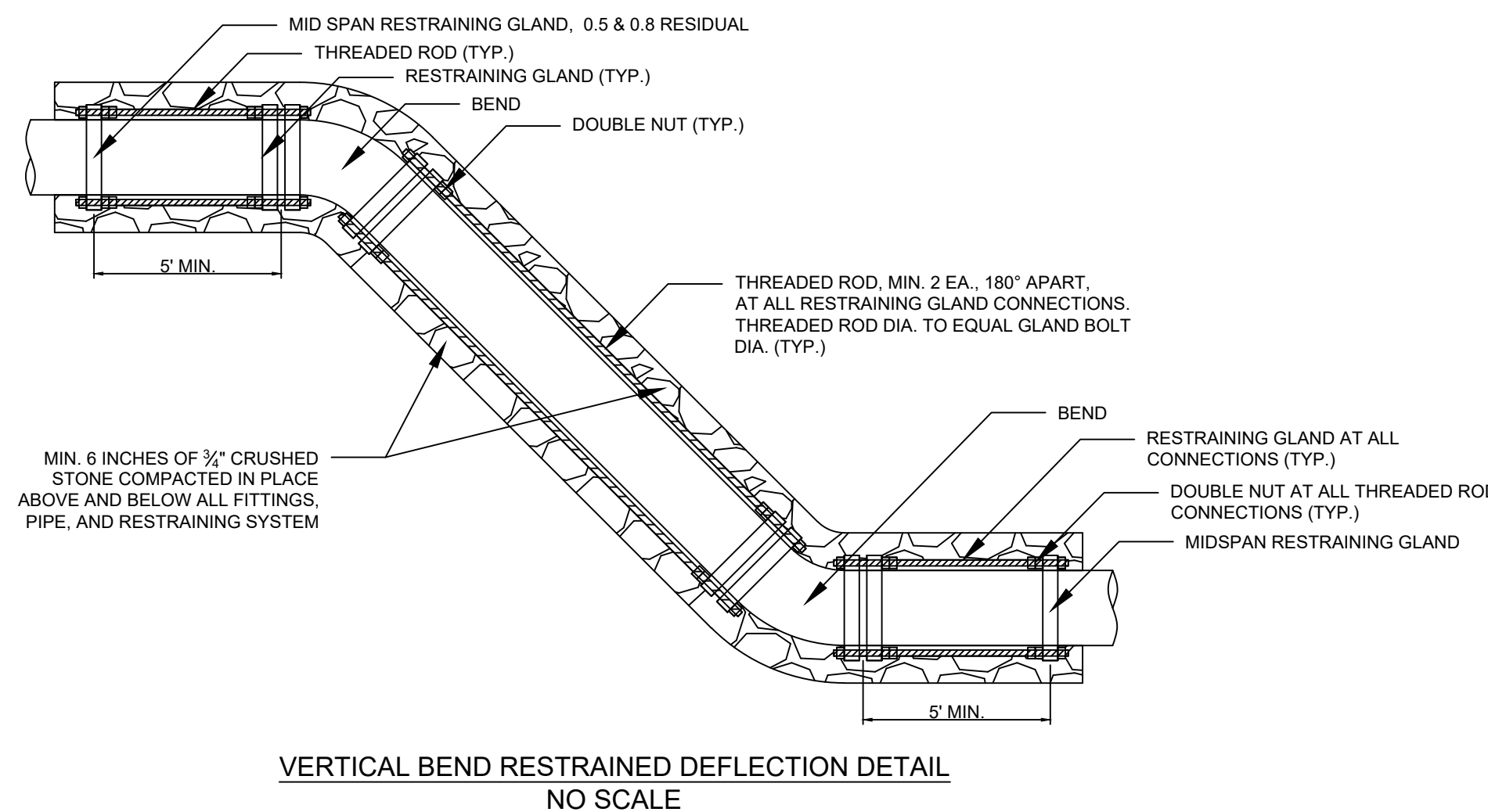
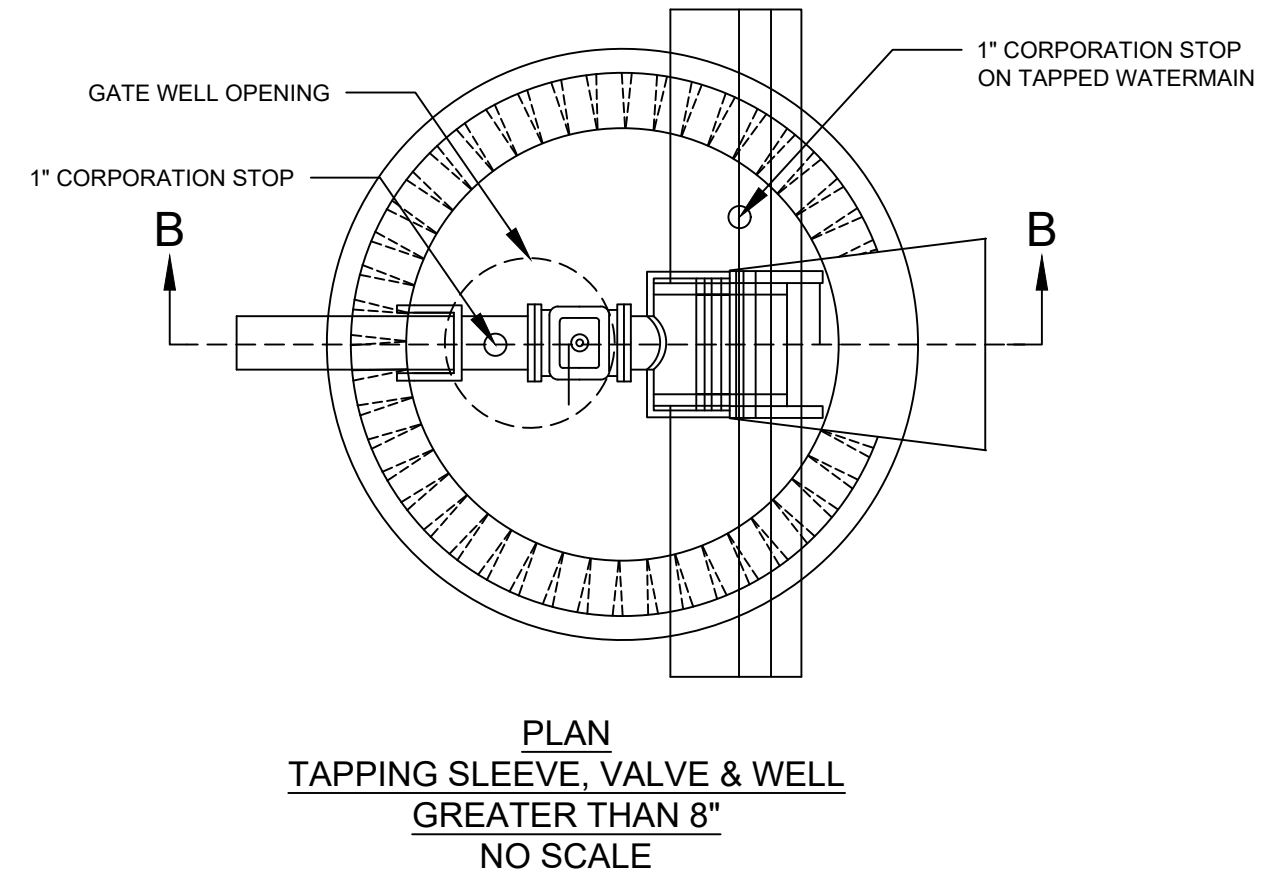
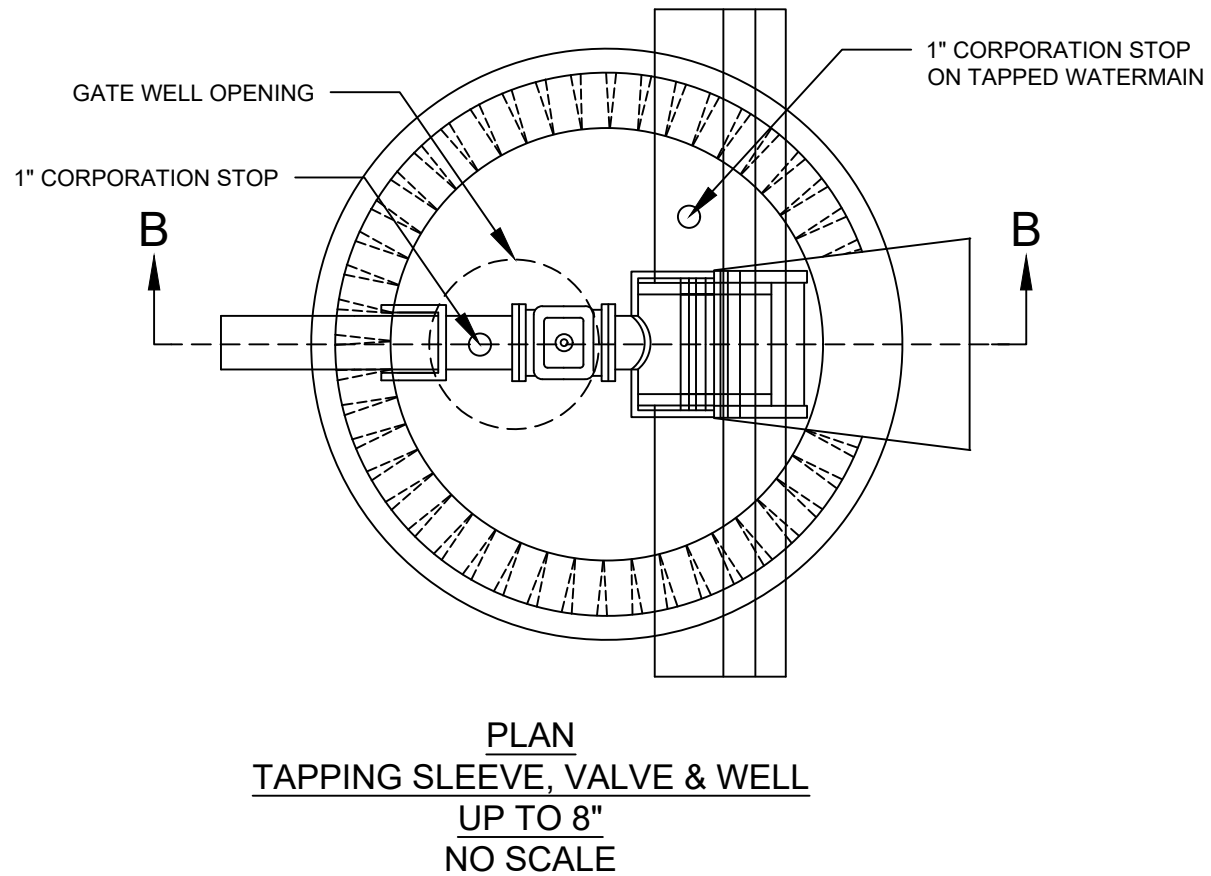
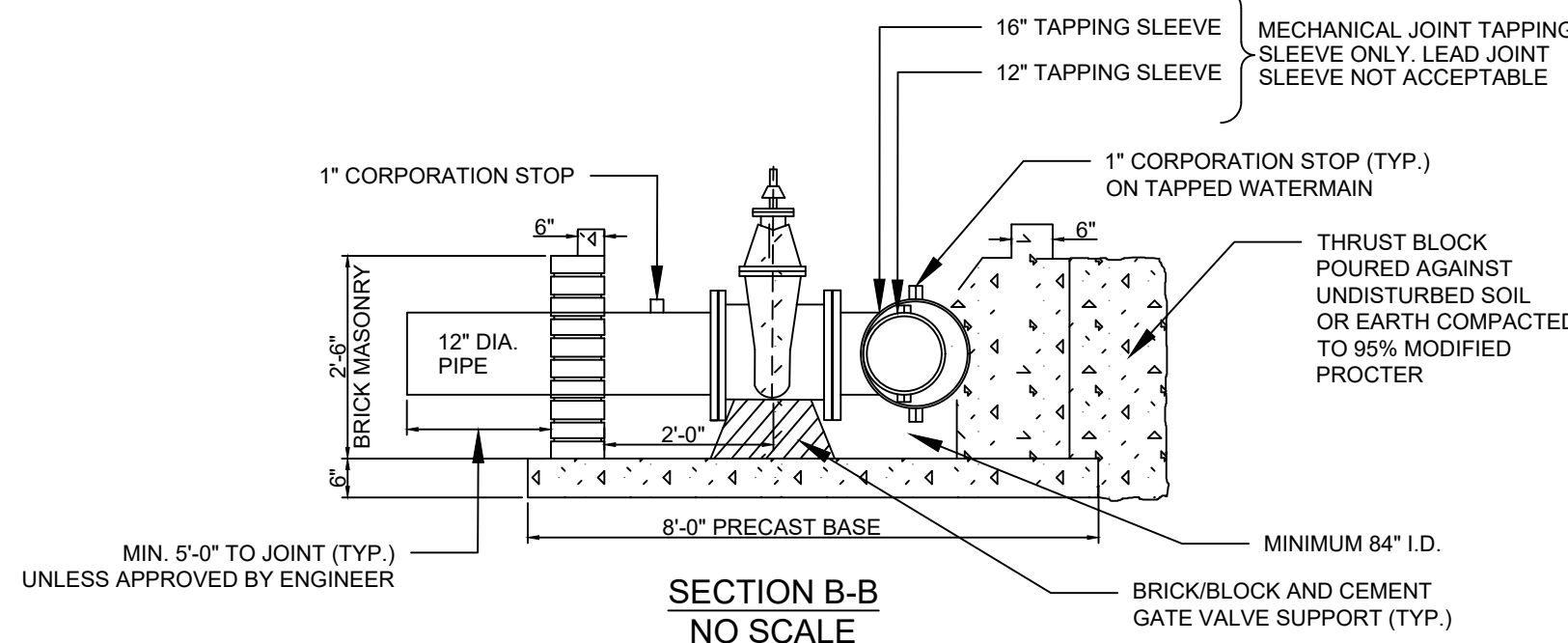
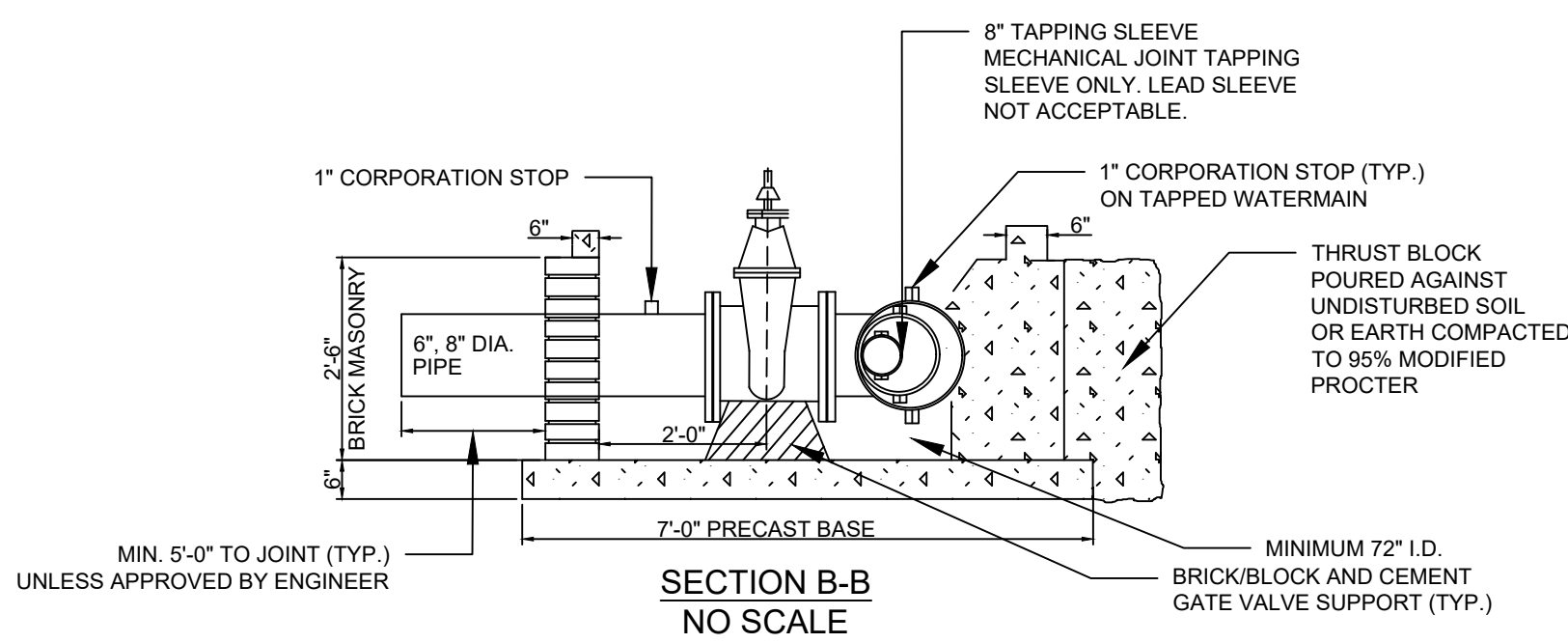
- NOTES:
1. GRAVITY BLOCK SIZES ARE BASED ON 225 P.S.I.G. PRESSURE AND DRY TRENCH CONDITIONS. PROVIDE ADDITIONAL RESTRAINT DURING TEST AS NECESSARY.
 2. JOINTS ARE SHOWN SCHEMATICALLY.
 3. IN LIEU OF THIS DETAIL, WHERE SPACE PERMITS, PIPE JOINTS MAY BE DEFLECTED UP TO 50% OF THE MANUFACTURER'S RECOMMENDED MAXIMUM.
 4. PROVIDE CLEARANCE FOR BOLT REMOVAL.



FOR 90° BENDS OR SMALLER					FOR PLUGS				FOR TEES				
D	A	B	C	E MIN.	D	A	B	C MIN.	D	A	B	C	E MIN.
20"	8'	6.5'	3.5'	2.5'	20"	7'	5'	2.5'	20"	6.5'	4.5'	3.5'	3'
16"	6'	4'	2.5'	2'	16"	4'-10"	4'-10"	2'	16"	4'-8"	4'-8"	2.5'	2.75'
12"	4'	3'	2'	1.75'	12"	4'-4"	3'	1'-9"	12"	4'	3'	2.5'	2.5'
10"	3'	3'	2'	1.75'	10"	3'	2'	1'-6"	10"	3'	2'	2'	2.25'
8"	3'	2'	2'	1.5'	8"	2'-10"	2'-6"	1'-6"	8"	2'-6"	2'	2'	2.25'
6"	2'	1.5'	2'	1.25'	6"	1'-6"	1'-6"	3'	6"	2'	2'	2'	2.25'

NOTE: 3000 PSI TO BE USED. THRUST BLOCK TO ABUTT AND REST AGAINST UNDISTURBED SOIL OR EARTH COMPACTED TO 95% MODIFIED PROCTOR.

THRUST BLOCK DETAILS
NO SCALE



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Planners
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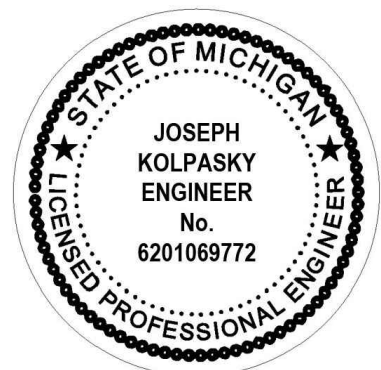
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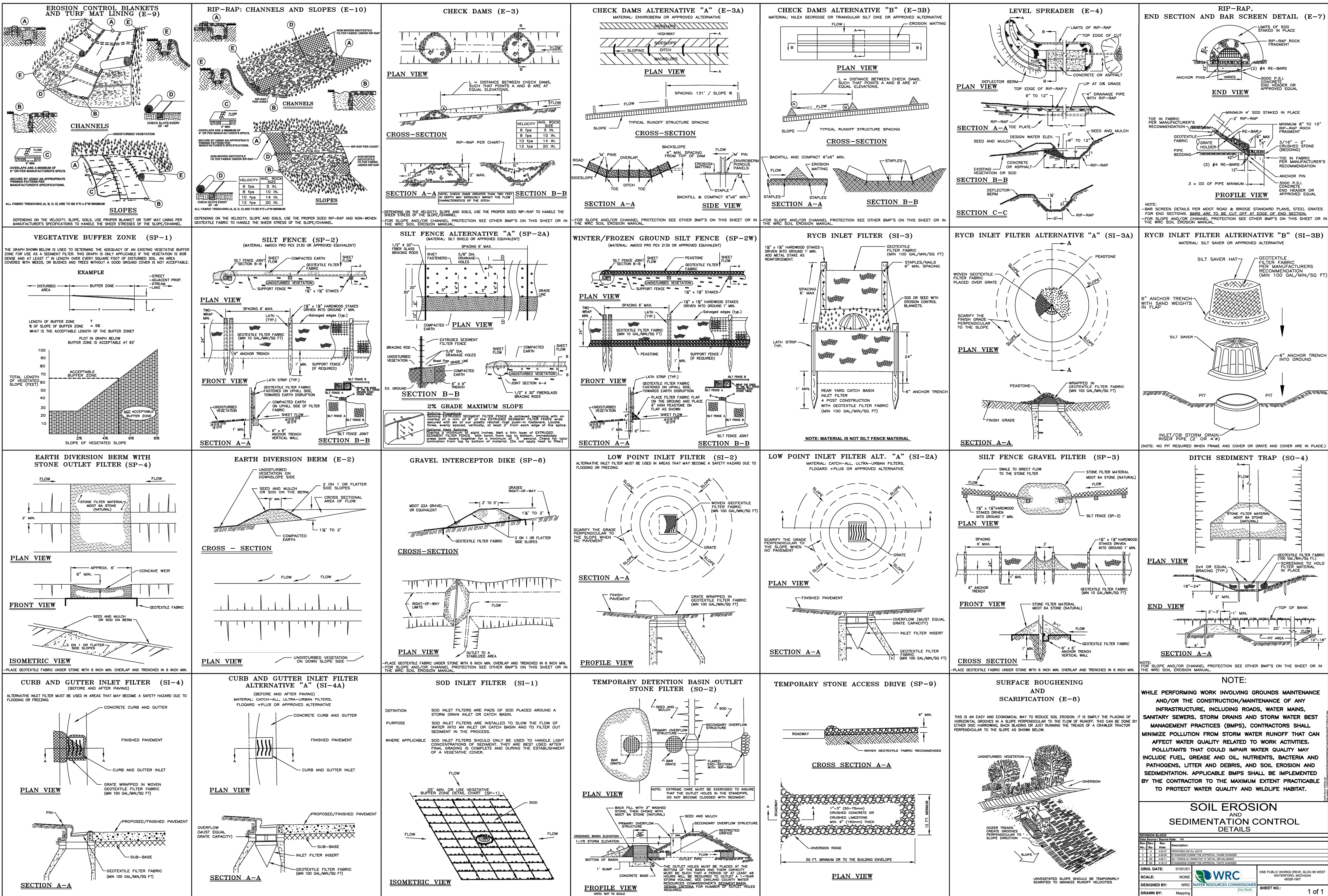
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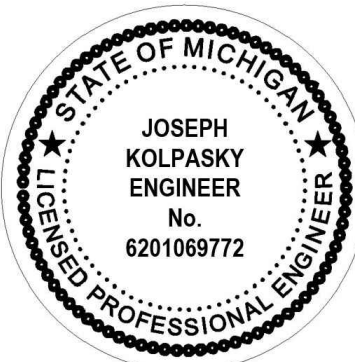
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