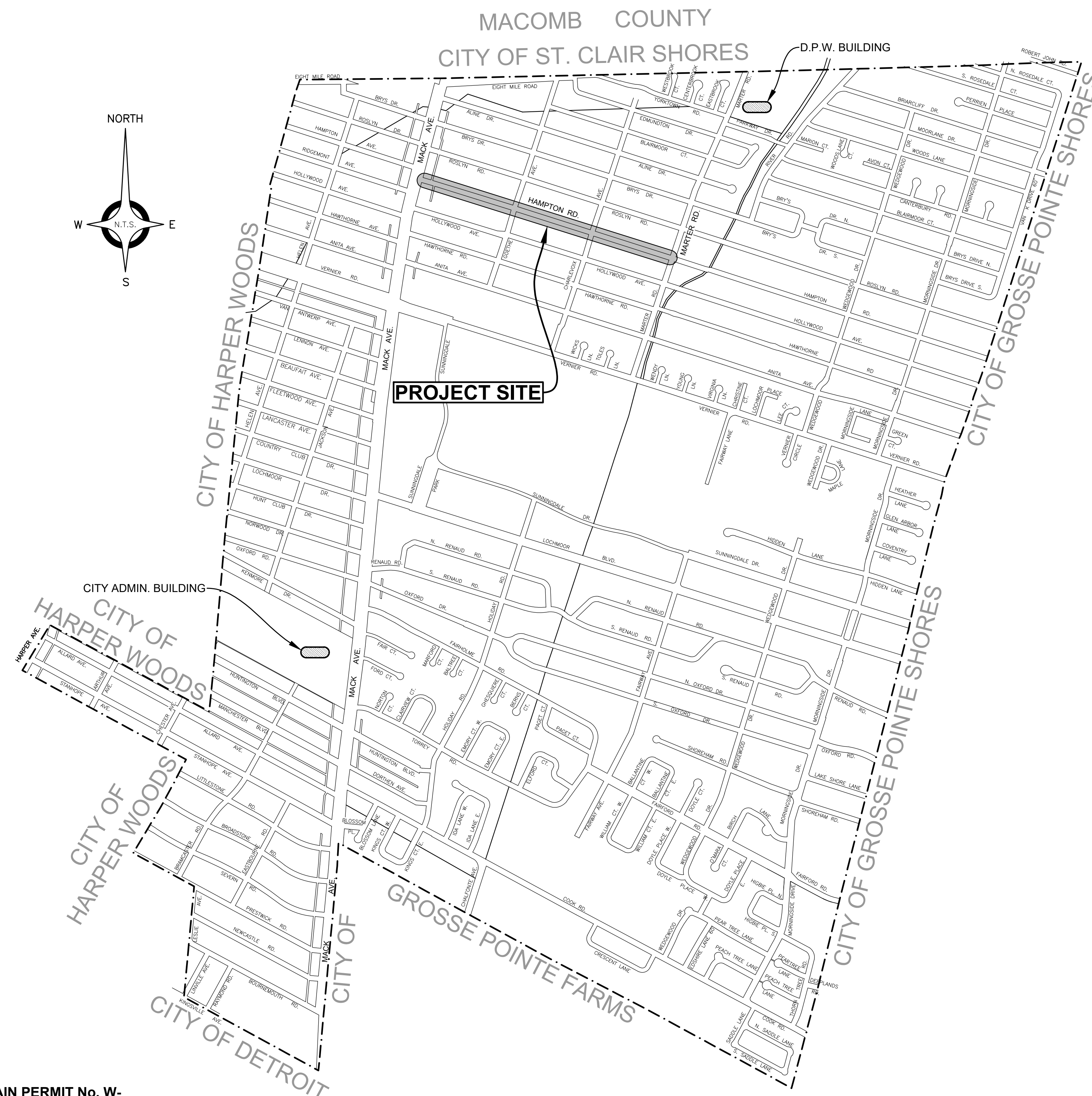


City of Grosse Pointe Woods

ANDERSON, ECKSTEIN AND
WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS

Wayne County, Michigan Hampton Road Water Main & Resurfacing Mack Avenue to Marter Road



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CITY OF GROSSE POINTE WOODS STD. DETAILS

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PAVING DETAILS	E
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DESIGN & CONSTRUCTION STANDARD

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE PERFORMED IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE CITY OF GROSSE POINTE WOODS STANDARD SPECIFICATIONS UNLESS MODIFIED BY A SPECIAL PROVISION.

ALL TRAFFIC CONTROL DEVICES SUCH AS LIGHTED ARROW BOARDS, PLASTIC DRUMS, BARRICADES, TEMPORARY SIGNAGE, AND LANE CLOSURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE SUPPLEMENTARY MAINTAINING TRAFFIC SPECIAL PROVISION.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF 0.6 MILES OF WATER MAIN REPLACEMENT BY PIPE BURSTING AND ROAD RESURFACING. THE RESURFACING WORK INVOLVES HMA MILLING AND RESURFACING ALONG THE ENTIRE ROAD WIDTH ALONG WITH STORM DRAINAGE REPLACEMENT. THE ROAD WORK INCLUDES NEW CONCRETE CURB AND GUTTER AND DRIVE APPROACHES ALONG THE SOUTH SIDE OF THE ROAD. THE PROJECT ALSO INCLUDES SIDEWALK RAMP RECONSTRUCTION, AND OTHER MISCELLANEOUS RELATED ITEMS OF WORK.

LOCAL AUTHORITY APPROVAL
CITY OF GROSSE POINTE WOODS

JIM KOWALSKI, DIRECTOR OF PUBLIC SERVICES

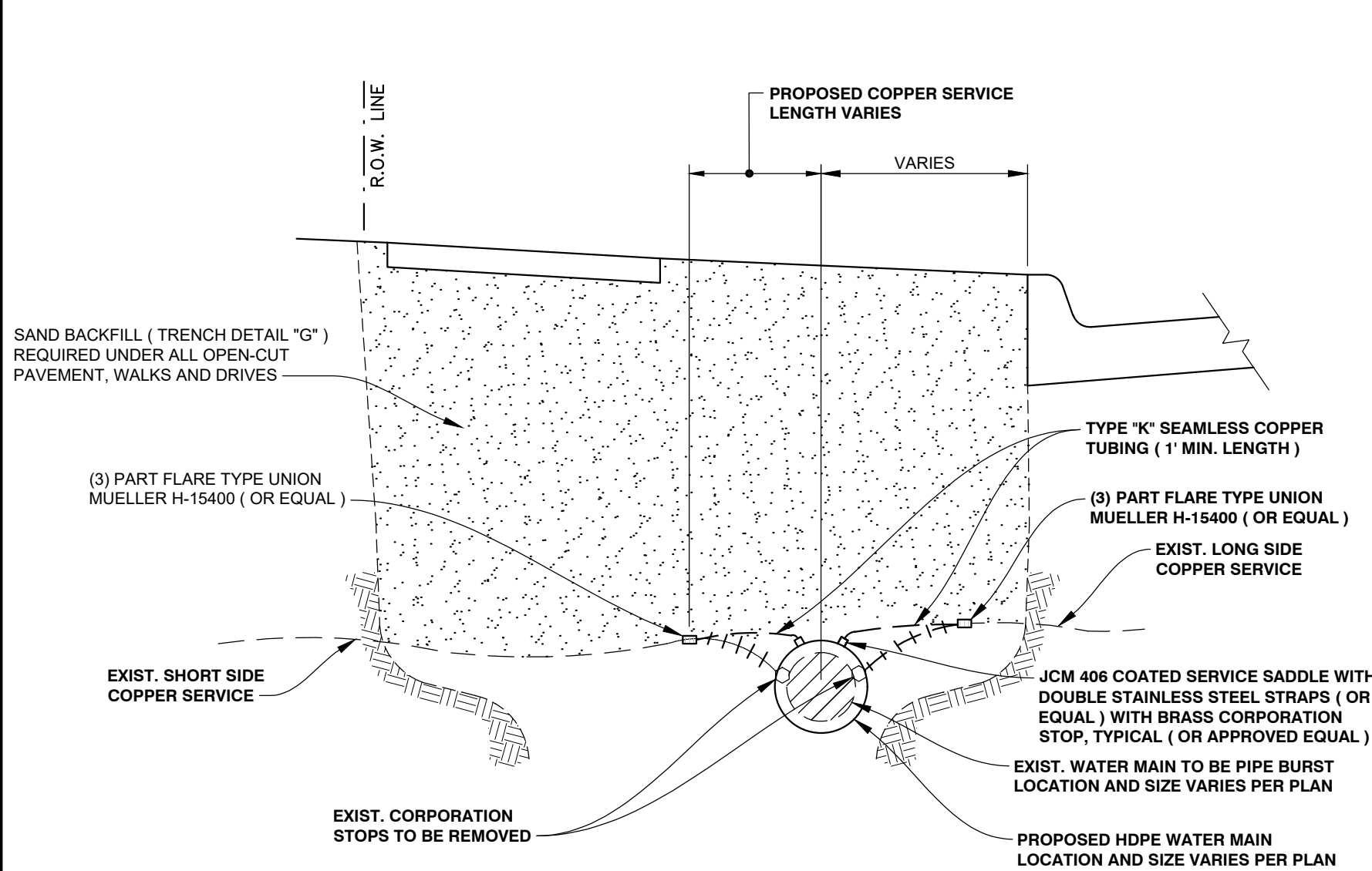
DATE

"I HEREBY CERTIFY THESE PLANS HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH ACT 240, PUBLIC ACTS OF 1937 AS AMENDED- STATE OF MICHIGAN."

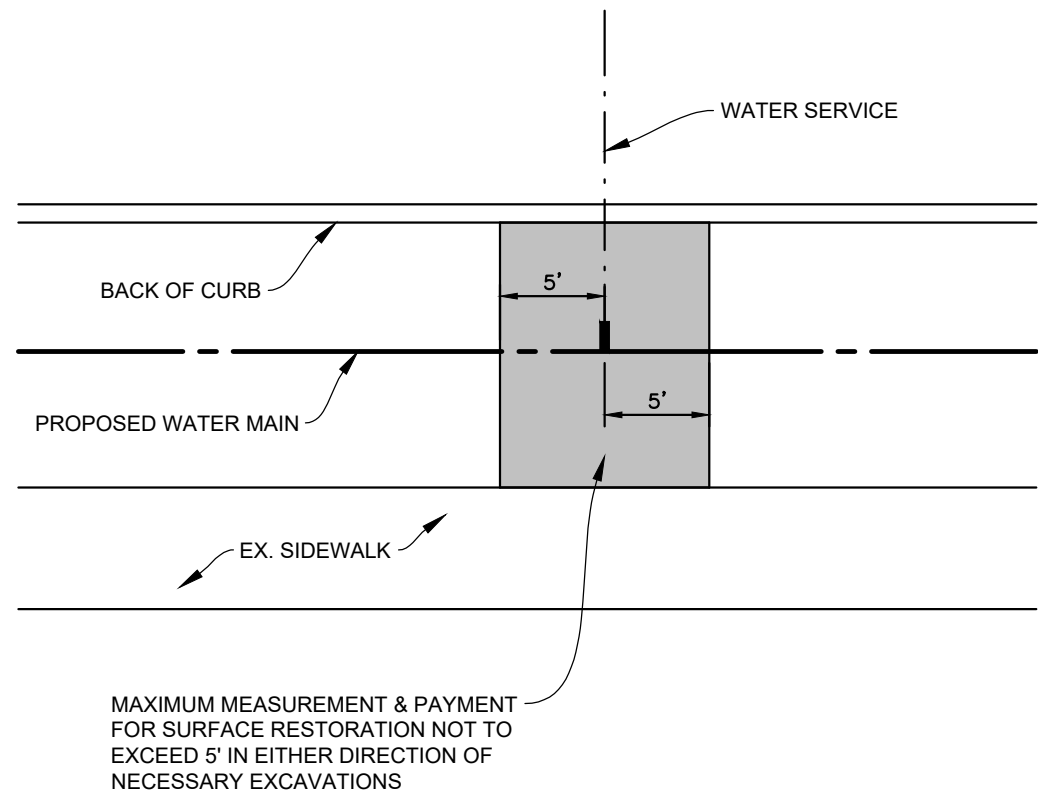
ROSS T. WILBERDING, P.E. No. 6201068836

1/31/2023
DATE

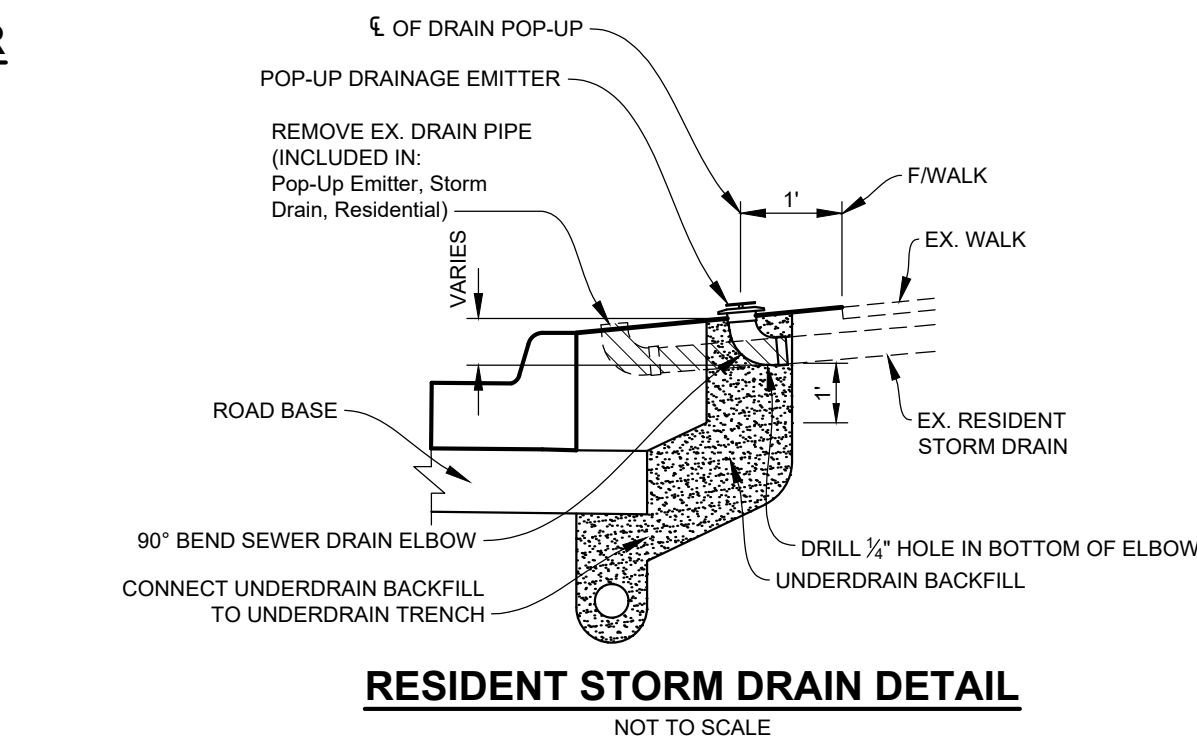




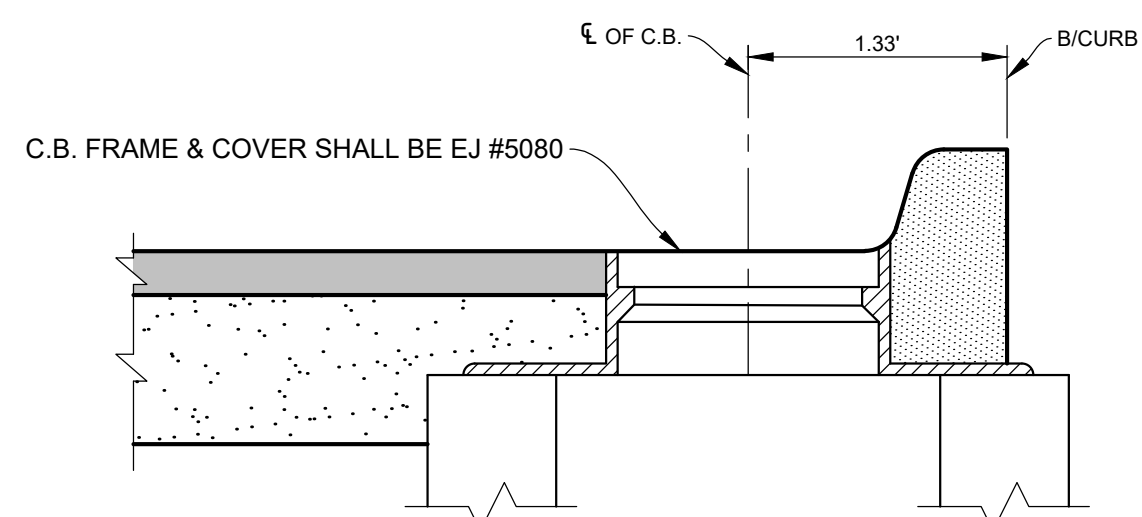
SHORT SIDE LONG SIDE
TYPICAL COPPER SERVICE TRANSFER
NOT TO SCALE



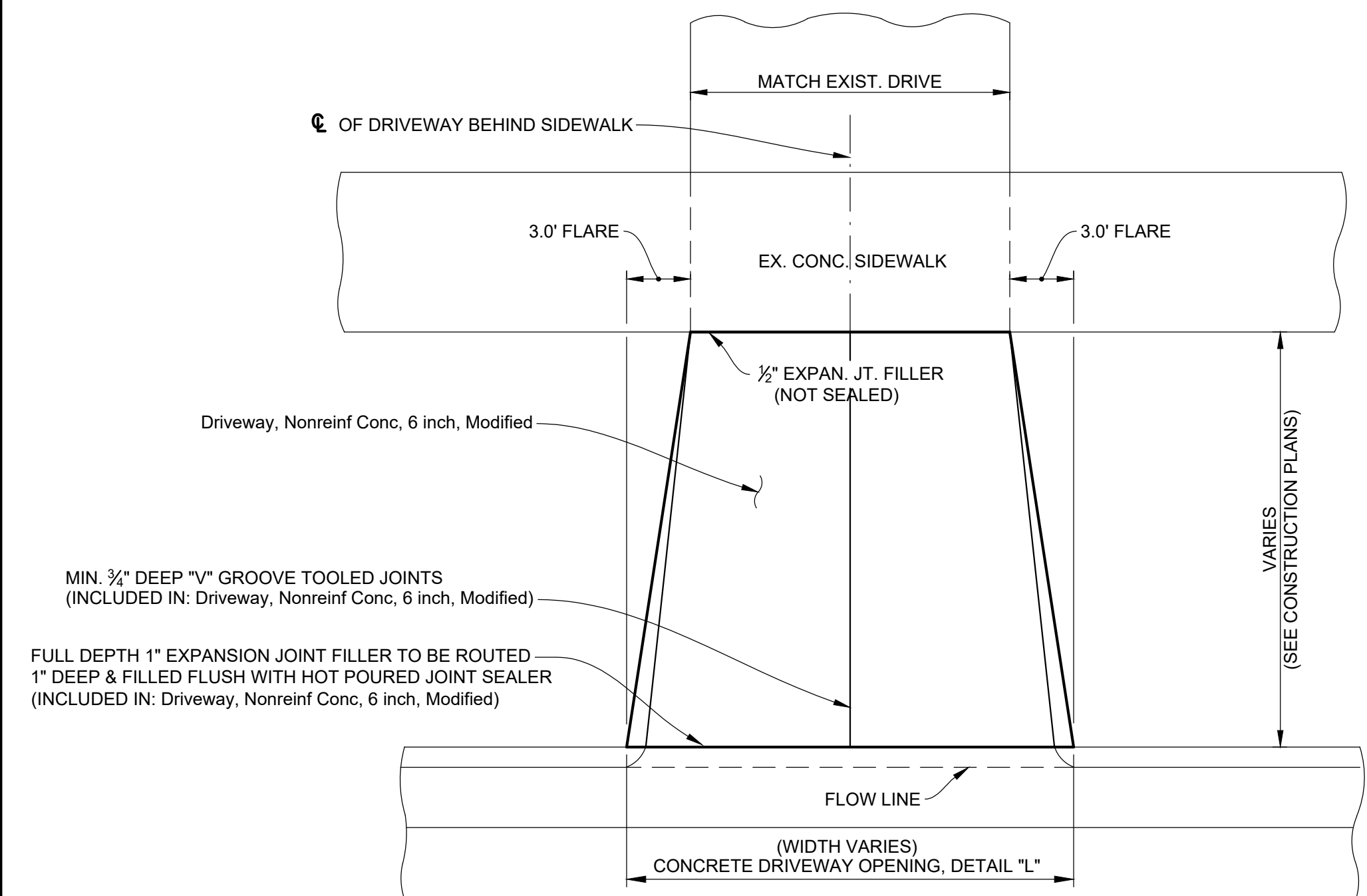
SURFACE RESTORATION LIMITS
NOT TO SCALE



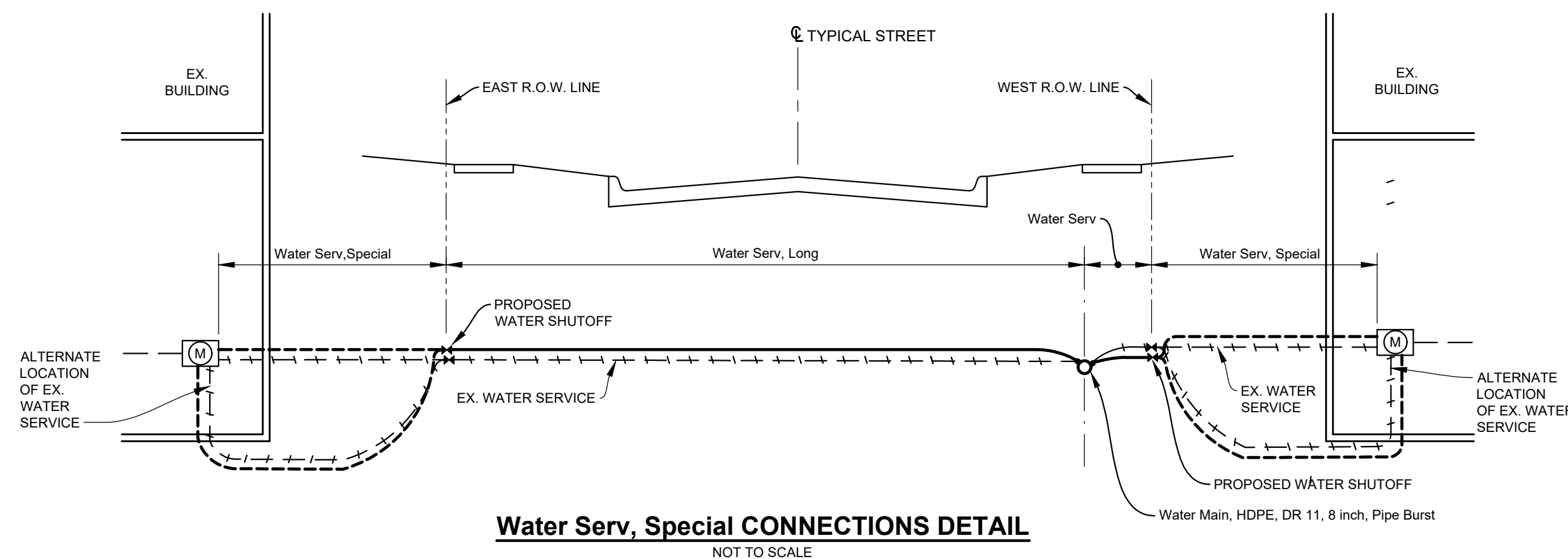
RESIDENT STORM DRAIN DETAIL
NOT TO SCALE



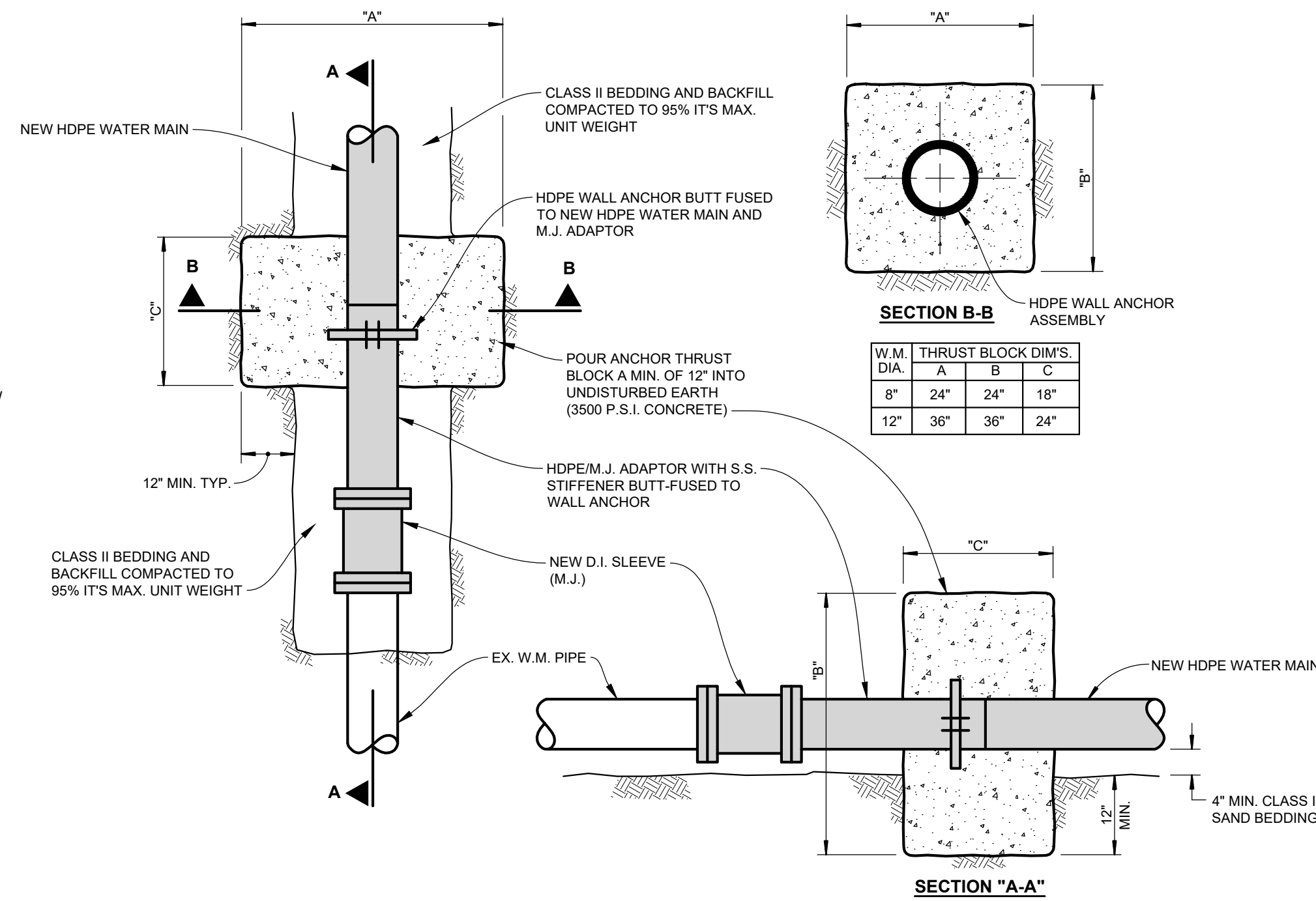
TYPICAL CATCH BASIN STAKING DIAGRAM
NOT TO SCALE



TYPICAL FLARED DRIVE APPROACH
N.T.S.

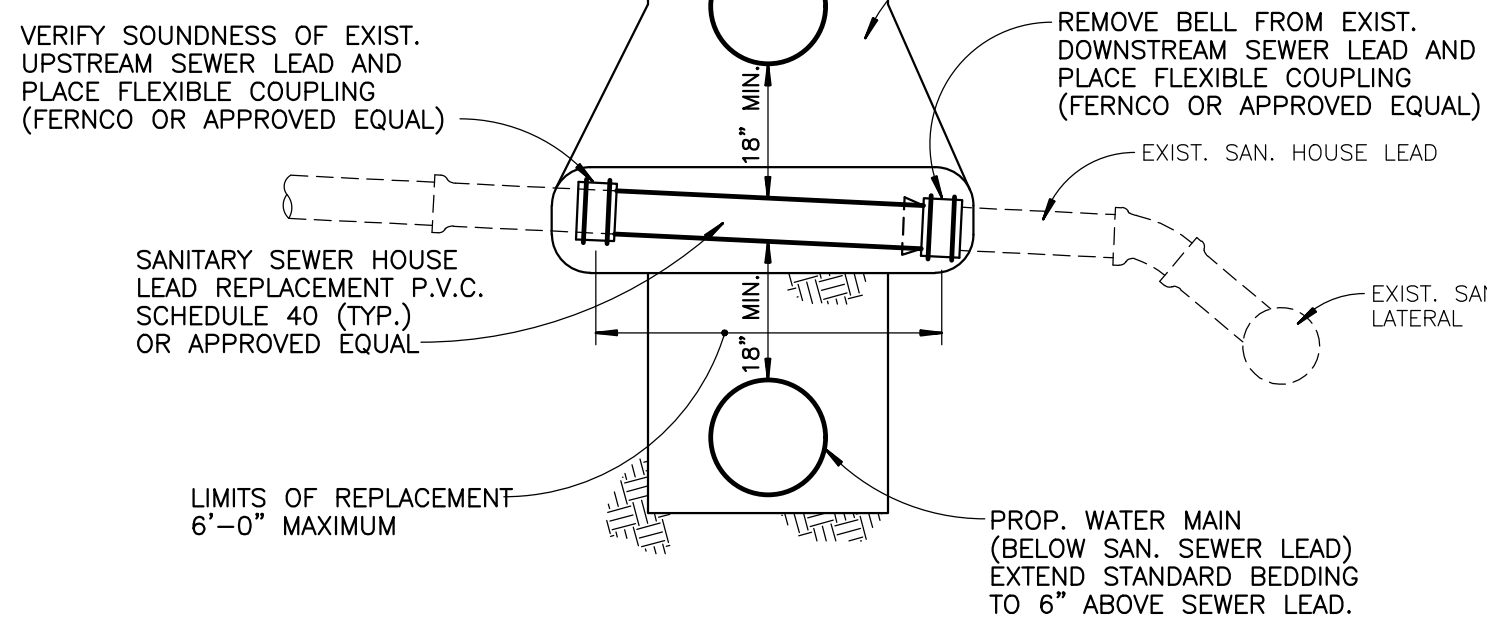


Water Serv, Special CONNECTIONS DETAIL
NOT TO SCALE



TYPICAL WATER MAIN CONNECTION
NOT TO SCALE

NOTE:
IF THE CONTRACTOR DAMAGES OR ELECTS TO REMOVE ANY SAN. SEWER LEAD, IN SOUND CONDITION, REPLACEMENT AS SHOWN IN THIS DETAIL SHALL BE CONSIDERED INCLUDED IN WATER MAIN CONSTRUCTION. REQUIRED WATER MAIN BENDS & THRUST BLOCKS SHALL ALSO BE CONSIDERED INCLUDED IN WATER MAIN INSTALLATION.



TYPICAL SANITARY SEWER HOUSE LEAD REPAIR
NOT TO SCALE

GENERAL HDPE WATER MAIN NOTES

- ALL DUCTILE IRON BENDS AND FITTINGS REQUIRE JOINT RESTRAINTS AND CONCRETE THRUST BLOCKS AND SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RELATED WATER MAIN ITEMS OF WORK.
- ALL 5/8" WATER SERVICE TRANSFERS SHALL BE COMPLETED WITH A 3/4" JCM 406 COATED SERVICE SADDLE WITH DOUBLE STAINLESS STEEL STRAPS, 3/4" BRASS CORPORATION STOP AND A 3/4" X 5/8" FLARE UNION, AS SHOWN IN THE TYPICAL SERVICE CONNECTION DETAILS.
- ALL EXCAVATION AND PLACEMENT OF BENDS REQUIRED TO AVOID CONFLICTS WITH EXISTING UTILITIES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RELATED WATER MAIN ITEMS OF WORK.
- CONTINUOUS, UNBROKEN, TRACER WIRE (S) SHALL BE PROVIDED THROUGHOUT THE ENTIRE LENGTH OF THE NEW WATER MAIN INSTALLATION, THE COST OF WHICH SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RELATED WATER MAIN ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A TEMPORARY WATER MAIN AS WELL AS TEMPORARY WATER SERVICES TO ALL BUILDINGS THAT ARE TO BE TAKEN OUT OF SERVICE DUE TO THIS PROJECT. AT THE PRE-CONSTRUCTION MEETING THE CONTRACTOR SHALL PROPOSE, IN WRITING, WHAT METHODS AND MATERIALS HE INTENDS TO USE TO PROVIDE TEMPORARY WATER SERVICE FOR THIS PROJECT. THE CONTRACTOR'S PROPOSED METHODS AND MATERIALS SHALL BE SUBJECT TO REVIEW AND APPROVAL OF THE ENGINEER. PAYMENT FOR TEMPORARY WATER SERVICE SHALL BE AT THE CONTRACT LUMP SUM AMOUNT.

GENERAL PIPE BURSTING NOTES

- ALL DRIVEWAY, SIDEWALK AND CONCRETE PAVEMENT SHOWN FOR REMOVAL AND REPLACEMENT ARE ANTICIPATED FOR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO IMPLEMENT CONSTRUCTION TECHNIQUES OR PRACTICES WHICH MAY REDUCE OR ELIMINATE THESE DISTURBANCES.
- TREES SHALL BE REMOVED ONLY AS NECESSARY. PRIOR TO REMOVING ANY TREE, THE CONTRACTOR SHALL CONTACT THE CITY FOR APPROVAL.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL OVERHEAD AND BURIED UTILITIES.
- CONTRACTOR SHALL EXPOSE THE SANITARY LEADS AT ALL WATER MAIN CROSSING PRIOR TO PIPE BURSTING OPERATIONS.
- ALL CONCRETE PAVEMENT REMOVED SHALL BE SAWCUT FULL DEPTH ALONG THE REMOVAL LIMITS. CONCRETE REMOVAL LIMITS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. ACTUAL REMOVAL LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
- SIDEWALK CROSSING DRIVE APPROACHES, DRIVE APPROACHES AND PAVEMENT AREAS NOT IMMEDIATELY RESTORED SHALL BE TEMPORARILY MAINTAINED WITH 6" MINIMUM 21AA CRUSHED CONCRETE. ("MAINTENANCE GRAVEL")
- ALL STREETS, SIDEWALKS AND DRIVE APPROACHES LOCATED WITHIN THE CONSTRUCTION INFLUENCE AREA SHALL BE CLEANED AND MAINTAINED DAILY, THE COST OF WHICH SHALL BE INCLUDED IN THE PROJECT.
- ALL SIGNS TEMPORARILY REMOVED FOR CONSTRUCTION SHALL BE SALVAGED AND REPLACED. (INCLUDED IN UNIT PRICES BID FOR RELATED WATER MAIN ITEMS OF WORK.) DAMAGED SIGNS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.

NOTES RELATED TO MAKING FINAL CONNECTIONS TO EXISTING WATER MAINS

- HDPE WATER MAIN AND D.I. WATER MAIN SHALL NOT BE PAID FOR SEPARATELY. PIPE REMOVAL, FITTINGS, RETAINERS AND BACKFILL ASSOCIATED WITH MAKING THE FINAL CONNECTIONS SHALL BE INCLUDED IN THE CONNECTION.
- WATER MAIN CONSTRUCTION MATERIALS, THRUST BLOCKS AND RETAINER, GLANDS, SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF GROSSE POINTE WOODS (SEE STANDARD DETAIL SHEET).
- ALL EXISTING WATER MAINS (INCLUDING FITTINGS), TO BE REMOVED AND REPLACED AS PART OF MAKING FINAL CONNECTIONS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONNECTIONS.
- UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL ASSUME THAT ALL EXISTING WATER MAINS ENCOUNTERED ARE DUCTILE IRON OR CAST IRON. JOINTS ARE UNKNOWN.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OPERATE, SHUT OFF, AND RESTORE WATER MAINS AND SERVICES AS NECESSARY DURING CONSTRUCTION. A TRIAL SHUT-DOWN OF EXISTING GATE VALVES WHICH ISOLATE THE PROPOSED CONNECTIONS SHALL BE COORDINATED WITH THE CITY AND PERFORMED PRIOR TO ANY SCHEDULED CONNECTION. THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS WILL REQUIRE (48) HOURS NOTICE FOR SHUT-DOWN SCHEDULES. ANY DELAYS ASSOCIATED WITH OBTAINING A SHUT-DOWN SHALL NOT BE RECOGNIZED AS CAUSE FOR EXTRA COMPENSATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY AFFECTED RESIDENTS, BUSINESSES AND DESIGNATED CITY DEPARTMENTS A MIN. OF 24 HOURS PRIOR TO ANY SCHEDULED WATER MAIN SHUT-DOWNS.

WATER SERVICE CONSTRUCTION NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LABOR, MATERIALS, EXCAVATION (INCLUDING BORES), INSTALLATION, BACKFILL AND RESTORATION OF ALL SERVICES TRANSFERRED OR REPLACED (AS REQUIRED) FROM THE EXISTING TO NEW WATER MAIN.
- COPPER SERVICE TRANSFERS BETWEEN MAINS SHALL BE COMPLETED WITH TYPE "K" COPPER, THREE PART UNION (MUELLER H-15400 OR EQUAL), BRASS CORPORATION STOP (MUELLER H-15000 OR EQUAL) AND JCM 406 COATED SERVICE SADDLE WITH DOUBLE STAINLESS STEEL STRAPS (OR EQUAL).
- COPPER SERVICE REPLACEMENTS (LONG & SHORT SIDE) FROM THE NEW WATER MAIN TO A CONNECTION POINT (1) ONE FOOT BEYOND THE EXISTING STOP BOX LOCATION SHALL BE COMPLETED WITH A JCM 406 COATED SERVICE SADDLE WITH DOUBLE STAINLESS STEEL STRAPS (OR EQUAL), CONVENTIONAL BRASS CORPORATION STOP (MUELLER H-15000 OR EQUAL), TYPE "K" COPPER COUPLING, LEAD X COPPER TUBE/NUT MUELLER H-15006 OR FORD Q-32-33 OR EQUAL, CURB STOP (MUELLER H-15201 OR H-15200 OR EQUAL), AND ADJUSTABLE C.I. SCREW TYPE SERVICE BOX WITH FOOT PIECE.
- LONG SIDE SERVICE REPLACEMENT UNDER ROADWAY SHALL BE BORED, OR JACKED (UTILITY PERMITTING) AND PAID FOR AT THE ESTABLISHED UNIT PRICE FOR EACH.
- PRIOR TO PLACING THE NEWLY TRANSFERRED WATER SERVICE INTO SERVICE, THE CITY OF GROSSE POINTE WOODS WILL REMOVE THE EXISTING METER (IF REQUIRED) AND THOROUGHLY FLUSH THE LINE BEFORE RESETTING METER AND ACTIVATING THE SYSTEM. WORK SHALL BE PERFORMED WITH THE CONTRACTORS ASSISTANCE AND INCLUDED IN THE SERVICE TRANSFER OR REPLACEMENT.
- EXISTING WATER SERVICE LOCATIONS ARE RECORDED AS STOP BOX LOCATIONS ONLY AND NOT NECESSARILY THE "TAP" POINT ON THE EXISTING WATER MAIN. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF THE SERVICE BY WHATEVER MEANS OR METHODS NECESSARY, WITHOUT UNNECESSARY EXPLORATORY EXCAVATION. ANY DELAYS ASSOCIATED WITH LOCATING EXISTING SERVICES SHALL NOT BE RECOGNIZED AS CAUSE FOR EXTRA COMPENSATION.



ANDERSON, ECKSTEIN AND
WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road Phone 586 726 1234
Shelby Township Fax 586 726 8780
Michigan 48315

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

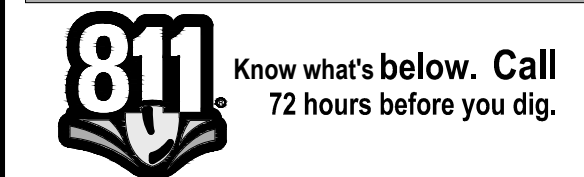
SHEET TITLE:

**MISCELLANEOUS
DETAIL SHEET**

CLIENT:

CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> RECORD
1/31/2023	1/31/2023	
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022
SCALE:	AS NOTED	



UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING UTILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0160-0456

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SHEET NO.



CIVIL ENGINEERS SURVEYORS ARCHITECTS
1301 Schoenherr Road Phone 586 726 1234
Melby Township Fax 586 726 8789
Michigan 48315

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ENGINEERING STRONG COMMUNITIES



**HAMPTON ROAD
(60' WIDE)**

DATE	SUBMITTALS/REVISIONS
------	----------------------

PROJECT NAME

HAMPTON ROAD WATER MAIN & RESURFACING

(MACK AVE. TO MARTER RD.)

HEET TITLE

ALIGNMENT SHEET

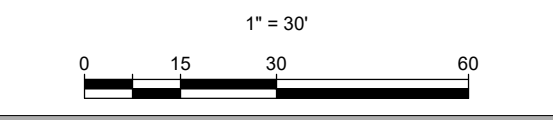
MACK AVENUE
TO STA. 23+50

LIEN

CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION 1/31/2023	<input type="checkbox"/> RECORD
DRAWN BY: RO	CHECKED BY: RTW	DATE: AUGUST 2022

SCALE



Know what's below. Call
72 hours before you dig

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BEFORE CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD BEFORE THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION, VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NC

0160-0456

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SHEET NO.



ENGINEERING STRONG COMMUNITIES



STA. 23+50 TO
MARTER ROAD

1" = 30'

A horizontal scale bar with tick marks at 0, 15, 30, and 60 feet. The bar is divided into alternating black and white segments. The total length represents 60 feet.



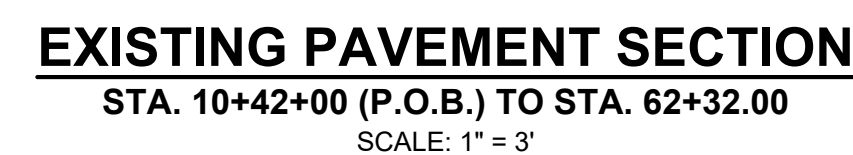
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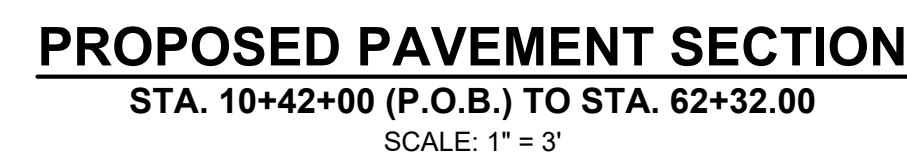
ENGINEERING STRONG COMMUNITIES



* FOR INFORMATION ONLY (PAYMENT FOR BOND COATS SHALL BE INCLUDED IN HMA MIXTURES)

- HMA MIXTURES SHALL BE PLACED IN LIFTS WHICH DO NOT EXCEED THE MAXIMUM HMA APPLICATION RATES IN SECTION 501 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

- INTERSECTION PAVING IS INCLUDED IN MAINLINE PAVING



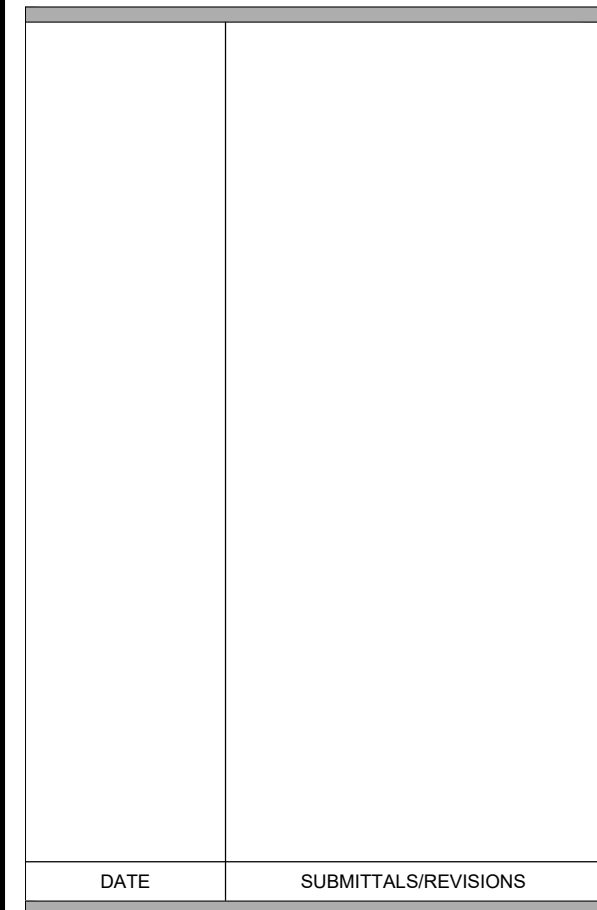


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ENGINEERING STRONG COMMUNITIES



PROJECT NAME

HAMPTON ROAD WATER MAIN & RESURFACING

(MACK AVE. TO MARTER RD.)

SHEET TITLE

WATER MAIN CONSTRUCTION PLAN & PROFILE

MACK AVE. TO STA. 16+51

CLIENT: CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION 1/31/2023	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022
SCALE: <div style="display: flex; justify-content: space-around; align-items: center;"> <div>1" = 3' VERT.</div> <div>1" = 30' HORIZ.</div> </div> <div style="text-align: center; margin-top: 10px;"> </div>		



Know what's below. Call 800-452-4529 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION. THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION, VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

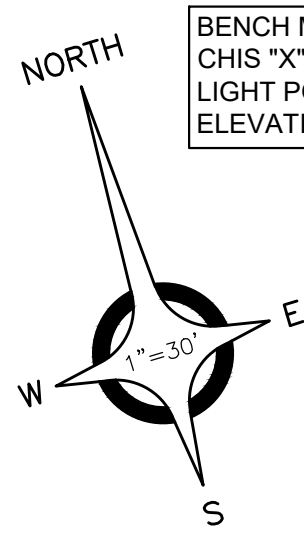
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0160-0456

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SHEET NO.

7



BENCH MARK #240
CHIS "X" ON SOUTEAST BOLT
LIGHT POLE AT HSE. #1760.
ELEVATION: 580.81 (NAVD88)

16+52.5 SERVICE SHOOT 28.2'

16+64.7 LIGHT POLE 16.4'

17+28.2 12" DECIDUOUS 15.9'

17+29.6 SERVICE SHOOT 28.9'

17+46.4 COMBINED MH 9.2'

17+48.5 14" DECIDUOUS 16.4'

17+49.6 ROAD CR 12.4'

17+50.1 COMBINED MH 16.8'

18+49.6 12" DECIDUOUS 31.7'

18+51.6 12" DECIDUOUS 31.7'

18+43.5 16" DECIDUOUS 18.6'

19+27.4 12" DECIDUOUS 20.0'

19+45.1 LIGHT POLE 10.7'

19+71.1 SERVICE SHOOT 28.3'

20+23.5 47" DECIDUOUS 32.2'

20+58.7 SERVICE SHOOT 28.4'

20+77.1 COMBINED MH 16.5'

20+77.7 BOLLARD 12.9'

20+91.2 14" DECIDUOUS 13.9'

20+94.7 SERVICE SHOOT 28.4'

21+42.0 12" DECIDUOUS 46.5'

21+46.3 COMBINED MH 16.7'

21+52.7 8" DECIDUOUS 46.7'

21+53.4 30" R.O.W. 14.6'

21+53.9 30" R.O.W. 14.6'

21+54.3 30" R.O.W. 14.6'

21+54.7 30" R.O.W. 14.6'

21+55.1 30" R.O.W. 14.6'

21+55.5 30" R.O.W. 14.6'

21+55.9 30" R.O.W. 14.6'

21+56.3 30" R.O.W. 14.6'

21+56.7 30" R.O.W. 14.6'

21+57.1 30" R.O.W. 14.6'

21+57.5 30" R.O.W. 14.6'

21+57.9 30" R.O.W. 14.6'

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21+69.5 30" R.O.W. 14.6'

21+69.9 30" R.O.W. 14.6'

21+70.3 30" R.O.W. 14.6'

21+70.7 30" R.O.W. 14.6'

21+71.1 30" R.O.W. 14.6'

21+71.5 30" R.O.W. 14.6'

21+71.9 30" R.O.W. 14.6'

21+72.3 30" R.O.W. 14.6'

21+72.7 30" R.O.W. 14.6'

21+73.1 30" R.O.W. 14.6'

21+73.5 30" R.O.W. 14.6'

21+73.9 30" R.O.W. 14.6'

21+74.3 30" R.O.W. 14.6'

21+74.7 30" R.O.W. 14.6'

21+75.1 30" R.O.W. 14.6'

21+75.5 30" R.O.W. 14.6'

21+75.9 30" R.O.W. 14.6'

21+76.3 30" R.O.W. 14.6'

21+76.7 30" R.O.W. 14.6'

21+77.1 30" R.O.W. 14.6'

21+77.5 30" R.O.W. 14.6'

21+77.9 30" R.O.W. 14.6'

21+78.3 30" R.O.W. 14.6'

21+78.7 30" R.O.W. 14.6'

21+79.1 30" R.O.W. 14.6'

21+79.5 30" R.O.W. 14.6'

21+79.9 30" R.O.W. 14.6'

21+80.3 30" R.O.W. 14.6'

21+80.7 30" R.O.W. 14.6'

21+81.1 30" R.O.W. 14.6'

21+81.5 30" R.O.W. 14.6'

21+81.9 30" R.O.W. 14.6'

21+82.3 30" R.O.W. 14.6'

21+82.7 30" R.O.W. 14.6'

21+83.1 30" R.O.W. 14.6'

21+83.5 30" R.O.W. 14.6'

21+83.9 30" R.O.W. 14.6'

21+84.3 30" R.O.W. 14.6'

21+84.7 30" R.O.W. 14.6'

21+85.1 30" R.O.W. 14.6'

21+85.5 30" R.O.W. 14.6'

21+85.9 30" R.O.W. 14.6'

21+86.3 30" R.O.W. 14.6'

21+86.7 30" R.O.W. 14.6'

21+87.1 30" R.O.W. 14.6'

21+87.5 30" R.O.W. 14.6'

21+87.9 30" R.O.W. 14.6'

21+88.3 30" R.O.W. 14.6'

21+88.7 30" R.O.W. 14.6'

21+89.1 30" R.O.W. 14.6'

21+89.5 30" R.O.W. 14.6'

21+89.9 30" R.O.W. 14.6'

21+90.3 30" R.O.W. 14.6'

21+90.7 30" R.O.W. 14.6'

21+91.1 30" R.O.W. 14.6'

21+91.5 30" R.O.W. 14.6'

21+91.9 30" R.O.W. 14.6'

21+92.3 30" R.O.W. 14.6'

21+92.7 30" R.O.W. 14.6'

21+93.1 30" R.O.W. 14.6'

21+93.5 30" R.O.W. 14.6'

21+93.9 30" R.O.W. 14.6'

21+94.3 30" R.O.W. 14.6'

21+94.7 30" R.O.W. 14.6'

21+95.1 30" R.O.W. 14.6'

21+95.5 30" R.O.W. 14.6'

21+95.9 30" R.O.W. 14.6'

21+96.3 30" R.O.W. 14.6'

21+96.7 30" R.O.W. 14.6'

21+97.1 30" R.O.W. 14.6'

21+97.5 30" R.O.W. 14.6'

21+97.9 30" R.O.W. 14.6'

21+98.3 30" R.O.W. 14.6'

21+98.7 30" R.O.W. 14.6'

21+99.1 30" R.O.W. 14.6'

21+99.5 30" R.O.W. 14.6'

21+99.9 30" R.O.W. 14.6'

22+00.3 30" R.O.W. 14.6'

22+00.7 30" R.O.W. 14.6'

22+01.1 30" R.O.W. 14.6'

22+01.5 30" R.O.W. 14.6'

22+01.9 30" R.O.W. 14.6'

22+02.3 30" R.O.W. 14.6'

22+02.7 30" R.O.W. 14.6'

22+03.1 30" R.O.W. 14.6'

22+03.5 30" R.O.W. 14.6'

22+03.9 30" R.O.W. 14.6'

22+04.3 30" R.O.W. 14.6'

22+04.7 30" R.O.W. 14.6'

22+05.1 30" R.O.W. 14.6'

22+05.5 30" R.O.W. 14.6'

22+05.9 30" R.O.W. 14.6'

22+06.3 30" R.O.W. 14.6'

22+06.7 30" R.O.W. 14.6'

22+07.1 30" R.O.W. 14.6'

22+07.5 30" R.O.W. 14.6'

22+07.9 30" R.O.W. 14.6'

22+08.3 30" R.O.W. 14.6'

22+08.7 30" R.O.W. 14.6'

22+09.1 30" R.O.W. 14.6'

22+09.5 30" R.O.W. 14.6'

22+09.9 30" R.O.W. 14.6'

22+10.3 30" R.O.W. 14.6'

22+10.7 30" R.O.W. 14.6'

22+11.1 30" R.O.W. 14.6'

22+11.5 30" R.O.W. 14.6'

22+11.9 30" R.O.W. 14.6'

22+12.3 30" R.O.W. 14.6'

22+12.7 30" R.O.W. 14.6'

22+13.1 30" R.O.W. 14.6'

22+13.5 30" R.O.W. 14.6'

22+13.9 30" R.O.W. 14.6'

22+14.3 30" R.O.W. 14.6'

22+14.7 30" R.O.W. 14.6'

22+15.1 30" R.O.W. 14.6'

22+15.5 30" R.O.W. 14.6'

22+15.9 30" R.O.W. 14.6'

22+16.3 30" R.O.W. 14.6'

22+16.7 30" R.O.W. 14.6'

22+17.1 30" R.O.W. 14.6'

22+17.5 30" R.O.W. 14.6'

22+17.9 30" R.O.W. 14.6'

22+18.3 30" R.O.W. 14.6'

22+18.7 30" R.O.W. 14.6'

22+19.1 30" R.O.W. 14.6'

22+19.5 30" R.O.W. 14.6'

22+19.9 30" R.O.W. 14.6'

22+20.3 30" R.O.W. 14.6'

22+20.7 30" R.O.W. 14.6'

22+21.1 30" R.O.W. 14.6'

22+21.5 30" R.O.W. 14.6'

22+21.9 30" R.O.W. 14.6'

22+22.3 30" R.O.W. 14.6'

22+22.7 30" R.O.W. 14.6'

22+23.1 30" R.O.W. 14.6'

22+23.5 30" R.O.W. 14.6'

22+23.9 30" R.O.W. 14.6'

22+24.3 30" R.O.W. 14.6'

22+24.7 30" R.O.W. 14.6'

22+25.1 30" R.O.W. 14.6'

22+25.5 30" R.O.W. 14.6'

22+25.9 30" R.O.W. 14.6'

22+26.3 30" R.O.W. 14.6'

22+26.7 30" R.O.W. 14.6'

22+27.1 30" R.O.W. 14.6'

22+27.5 30" R.O.W. 14.6'

22+27.9 30" R.O.W. 14.6'

22+28.3 30" R.O.W. 14.6'

22+28.7 30" R.O.W. 14.6'

22+29.1 30" R.O.W. 14.6'

22+29.5 30" R.O.W. 14.6'

22+29.9 30" R.O.W. 14.6'

22+30.3 30" R.O.W. 14.6'

22+30.7 30" R.O.W. 14.6'

22+31.1 30" R.O.W. 14.6'

22+31.5 30" R.O.W. 14.6'

22+31.9 30" R.O.W. 14.6'

22+32.3 30" R.O.W. 14.6'

22+32.7 30" R.O.W. 14.6'

22+33.1 30" R.O.W. 14.6'

22+33.5 30" R.O.W. 14.6'

22+33.9 30" R.O.W. 14.6'

22+34.3 30" R.O.W. 14.6'

22+34.7 30" R.O.W. 14.6'

22+35.1 30" R.O.W. 14.6'

22+35.5 30" R.O.W. 14.6'

22+35.9 30" R.O.W. 14.6'

22+36.3 30" R.O.W. 14.6'

22+36.7 30" R.O.W. 14.6'

22+37.1 30" R.O.W. 14.6'

22+37.5 30" R.O.W. 14.6'

22+37.9 30" R.O.W. 14.6'

22+38.3 30" R.O.W. 14.6'

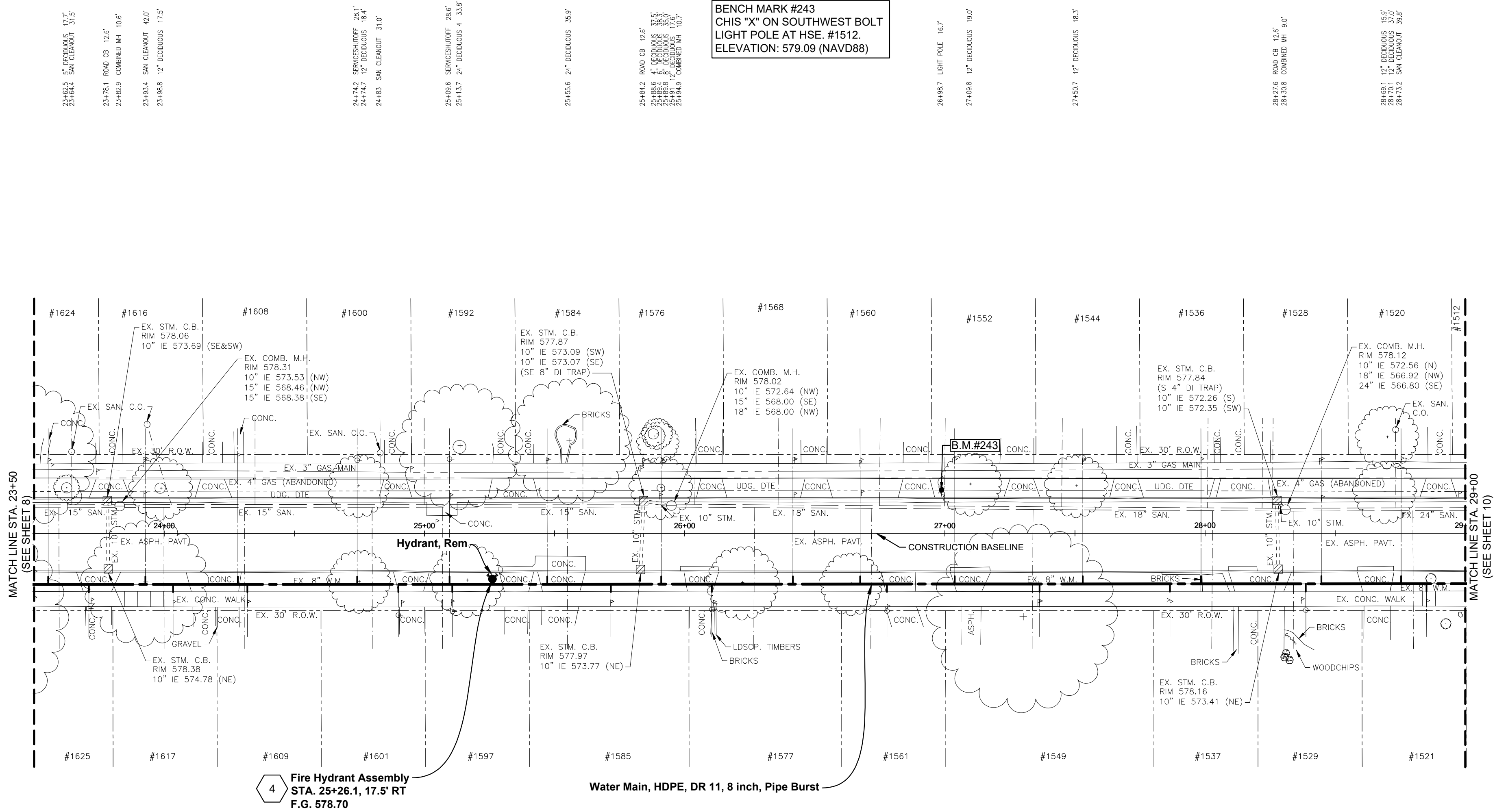
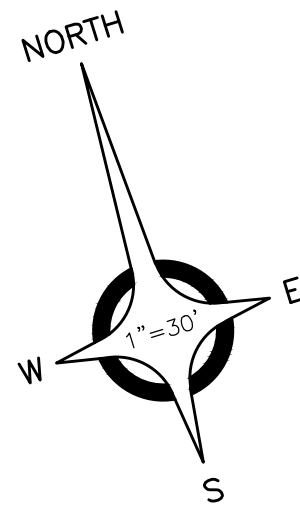
22+38.7 30" R.O.W. 14.6'

22+39.1 30" R.O.W. 14.6'

22+39.5 30" R.O.W. 14.6'

22+39.9 30" R.O.W. 14.6'

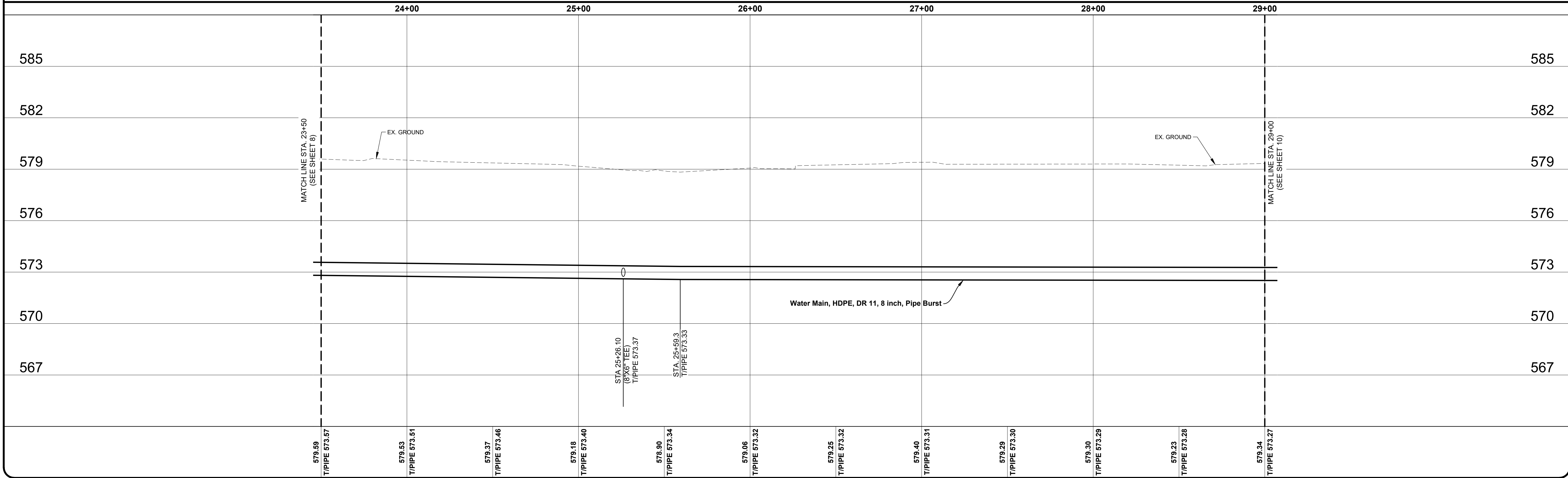
22+40.3 30" R.O.W. 14.6'



HAMPTON ROAD
(60' WIDE)

ESTIMATED QUANTITIES (THIS SHEET)

1. Hydrant, Rem	1 Ea
2. Gate Well, Rem	1 Ea
3. Fire Hydrant	1 Ea
4. Gate Valve, 8 inch	1 Ea
5. Gate Valve, 60 inch dia	1 Ea
6. Gate Well Cover, GPW	1 Ea
7. Water Main, HDPE, DR 11, 8 inch, Pipe Burst	700 Ft
8. Water Serv, Modified	26 Ea



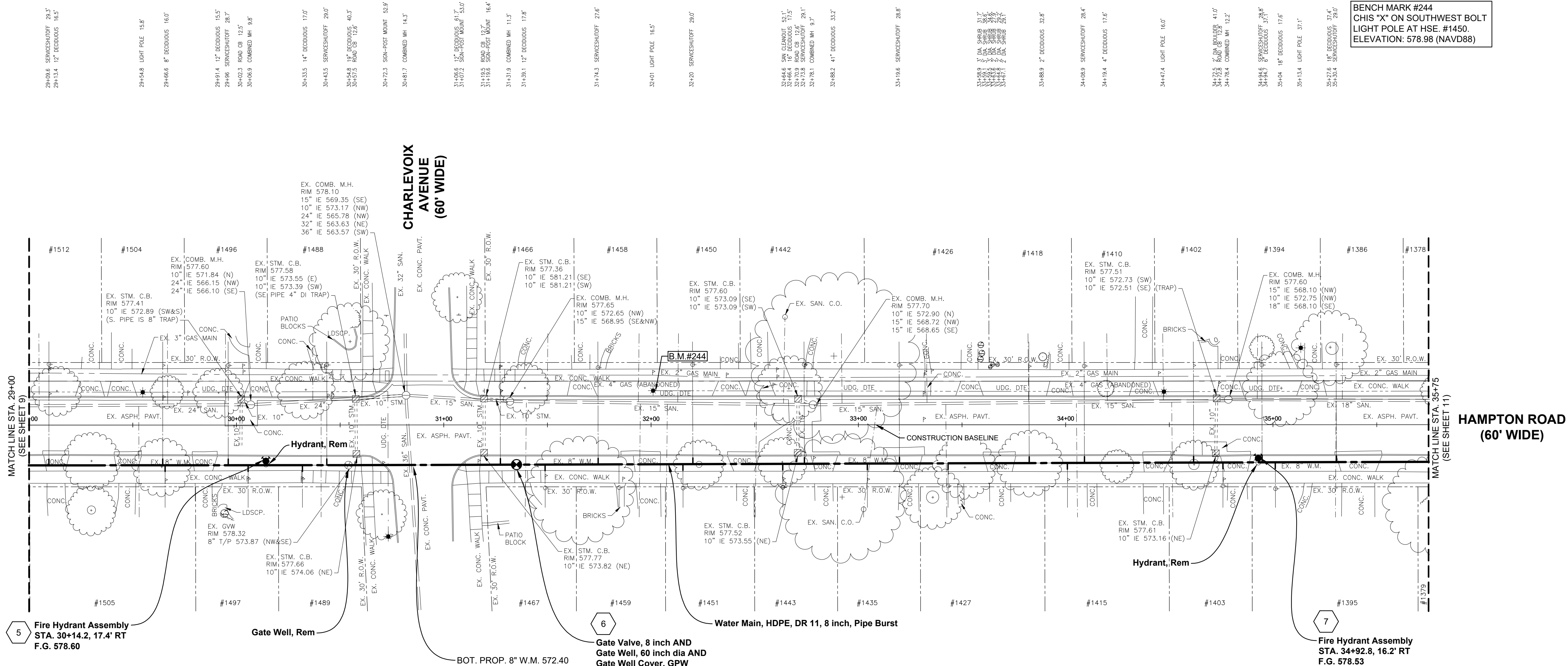
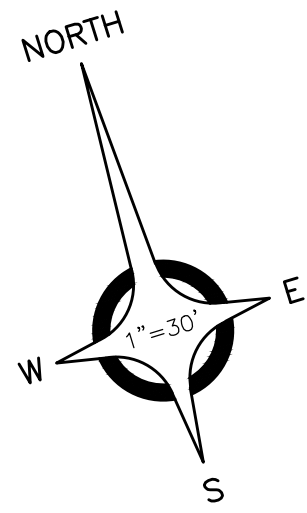
DATE	SUBMITTALS/REVISIONS

PROJECT NAME:
**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:
**WATER MAIN
CONSTRUCTION
PLAN & PROFILE**
STA. 23+50 TO STA. 29+00

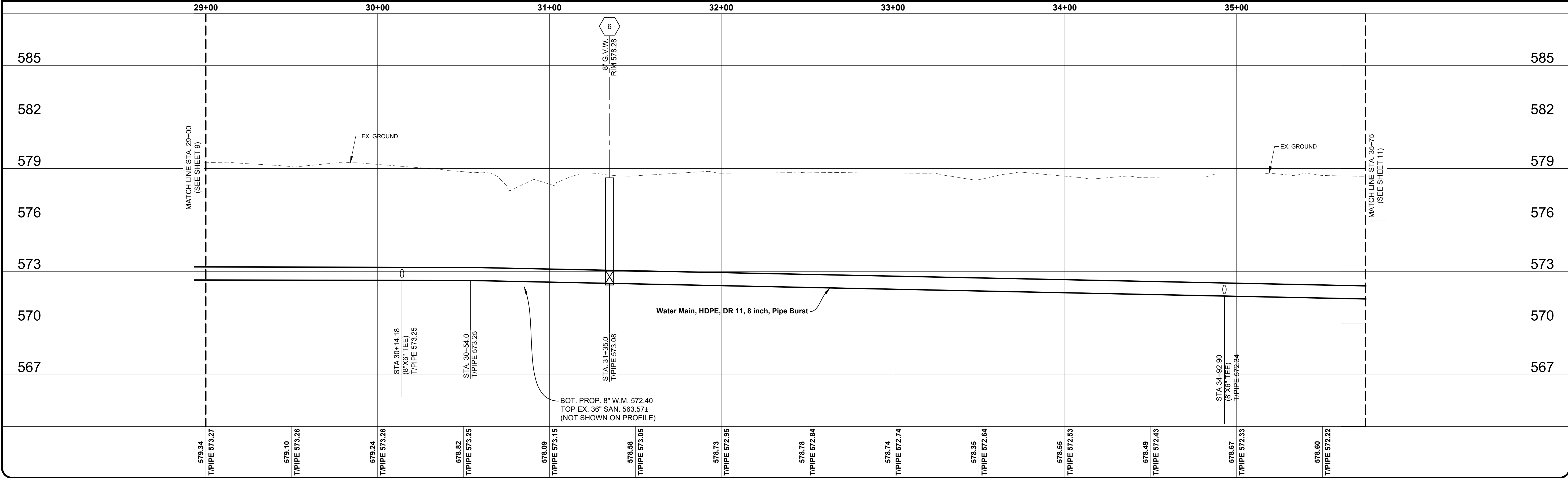
CLIENT:
CITY OF GROSSE POINTE WOODS

LEGEND:
PRELIMINARY CONSTRUCTION RECORD
DRAWN BY: KJP CHECKED BY: RTW DATE: AUGUST 2022
SCALE: 1" = 3' VERT. 1" = 30' HORIZ.
0 15 30 60



ESTIMATED QUANTITIES
(THIS SHEET)

1. Hydrant, Rem	2 Ea
2. Gate Well, Rem	1 Ea
3. Fire Hydrant	2 Ea
4. Gate Valve, 8 inch	1 Ea
5. Gate Well, 60 inch dia	1 Ea
6. Gate Well Cover, GPW	1 Ea
7. Water Main, HDPE, DR 11, 8 inch, Pipe Burst	675 Ft
8. Water Serv, Modified	25 Ea





ANDERSON, ECKSTEIN AND
WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road Phone 586 726 1234
Shelby Township Fax 586 726 8780
Michigan 48315

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
PROJECT NAME:	
HAMPTON ROAD WATER MAIN & RESURFACING (MACK AVE. TO MARTER RD.)	
SHEET TITLE:	

WATER MAIN
CONSTRUCTION
PLAN & PROFILE
STA. 29+00 TO STA. 35+75

CLIENT:
CITY OF GROSSE POINTE WOODS

PRELIMINARY

CONSTRUCTION

RECORD

DRAWN BY:
KJP

CHECKED BY:
RTW

DATE:
AUGUST 2022

SCALE:

1" = 3' VERT.
1" = 30' HORIZ.

0

15

30

60



Know what's below. Call
72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

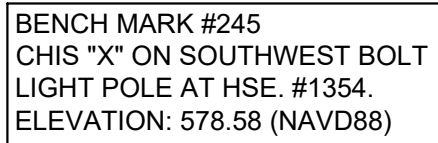
PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY ALL OVERHEAD AND / OR BURIED UTILITIES.

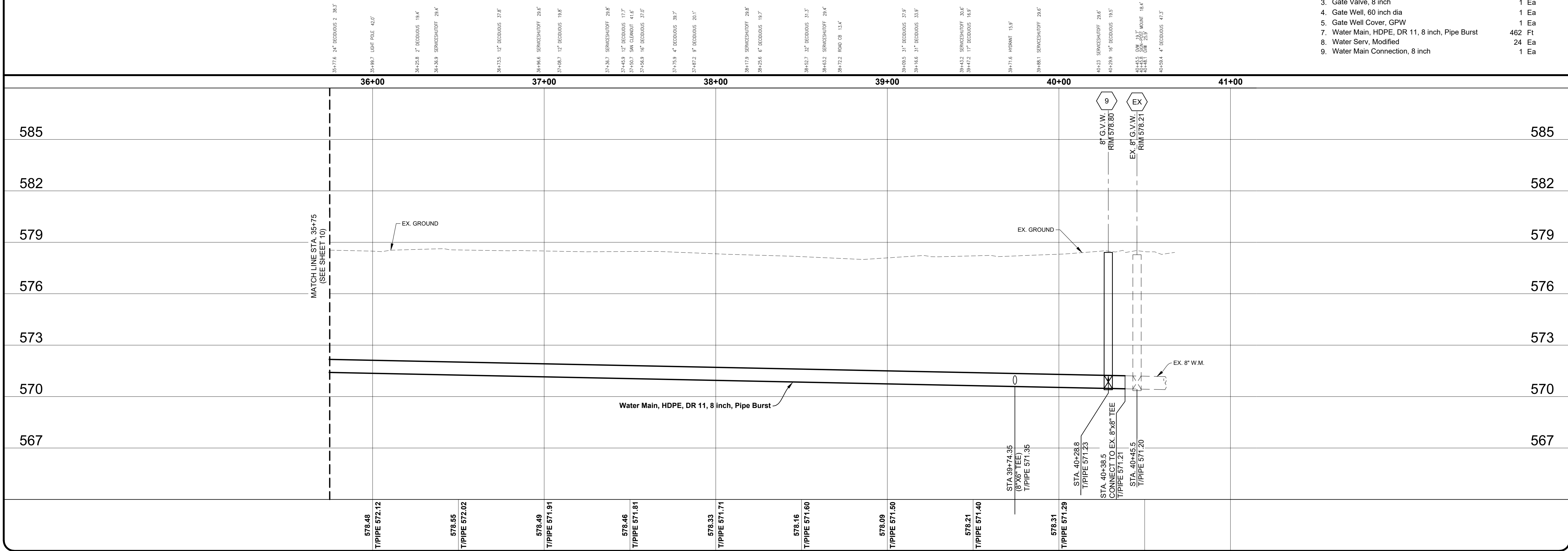
PROJECT NO. 0160-0456

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SHEET NO.



1. Hydrant, Rem	1 Ea
2. Fire Hydrant Assembly	1 Ea
3. Gate Valve, 8 inch	1 Ea
4. Gate Well, 60 inch dia	1 Ea
5. Gate Well Cover, GPW	1 Ea
7. Water Main, HDPE, DR 11, 8 inch, Pipe Burst	462 Ft
8. Water Serv, Modified	24 Ea
9. Water Main Connection, 8 inch	1 Ea



CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road Phone 586 726 1234
Shelby Township Fax 586 726 8780
Michigan 48315

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

HAMPTON ROAD WATER MAIN & RESURFACING

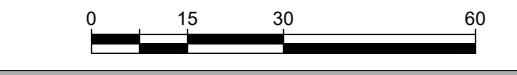
(MACK AVE. TO MARTER RD.)

SHEET TITLE

WATER MAIN CONSTRUCTION PLAN & PROFILE

CLIENT:
CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> RECORD
1/31/2023		
DRAWN BY:	CHECKED BY:	DATE:
KJP	RTW	AUGUST 2022
SCALE:		
1" = 3' VERT.		
1" = 30' HORIZ.		



UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (WHICH MAY CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION, VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

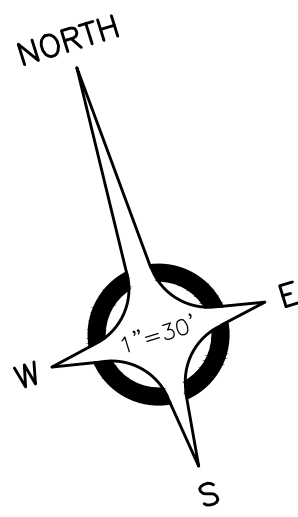
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NC

0160-0456

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SHEET NO.



BENCH MARK #147
NORTHWEST BOLT ON
LIGHT POLE IN MACK
MEDIAN AT SOUTH OF
HAMPTON RD.
ELEVATION: 588.98 (NAVD88)

BENCH MARK #239
CHIS "X" ON SOUTHEAST
BOLT LIGHT POLE NORTH
SIDE OF HAMPTON RD.
WEST OF ALLEY.
ELEVATION: 585.70 (NAVD88)

11+118.5 SPRINKLER MOUNT 39.9'
11+118.5 SPRINKLER MOUNT 39.9'
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11+118.5 SPRINKLER MOUNT 39.9'

10+65.4 PARKING METER 22.5'

11+402.5 GAS METER 28.7'

11+402.5 PARKING METER 22.7'

11+154.4 GUY WIRE 28.3'

11+142 GUY WIRE 29.2'

11+26.7 LIGHT POLE 18.7'

11+56.1 LIGHT POLE 25.5'

11+56.2 LIGHT POLE 26.7'

11+46.9 COMBINED MH 11.1'

11+46.4 COMBINED MH 11.4'

11+50.9 COMBINED MH 11.1'

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11+50.9 COMBINED MH 11.1'

CAUTION:
EX. BURIED DTE
CONDUITS IN THIS AREA
(STREET LIGHTING)

CAUTION:
EX. GAS MAIN
IN THIS AREA

MACK AVENUE

CAUTION:
CRITICAL UNDERGROUND UTILITY
BURIED AT&T CONDUIT(S)
IN THIS VICINITY

CAUTION:
MULTIPLE EX. OVHD. & UGD.
UTILITIES IN THIS AREA

Dr Structure, Rem AND
Sewer, Rem, Less than 24 inch (33 Ft)

Driveway, Rem (TYPICAL)

Cold Milling Pavt (TYPICAL)

CAUTION:
EX. GAS MAIN
IN THIS AREA

CAUTION:
EX. BURIED DTE
CONDUITS IN THIS AREA
(STREET LIGHTING)

HAMPTON ROAD
(60' WIDE)

MATCHLINE STA. 16+30
(SEE SHEET 15)

Sidewalk, Rem (TYPICAL)

Dr Structure, Rem

Tree, Rem, 6 inch to 18 inch

Tree, Rem, 19 inch to 36 inch

Pavt, Rem (TYPICAL)

Curb and Gutter, Rem (TYPICAL)

HMA Surface, Rem (TYPICAL)

ESTIMATED QUANTITIES (THIS SHEET)

1. Pavt, Rem	13 Syd
2. HMA Surface, Rem	971 Syd
3. Cold Milling Pavt	998 Syd
4. Curb and Gutter, Rem	542 Ft
5. Sidewalk, Rem	25 Syd
6. Driveway, Rem	165 Syd
7. Dr Structure, Rem	2 Ea
8. Sewer, Rem, Less than 24 inch	33 Ft
9. Tree, Rem, 6 inch to 18 inch	2 Ea
10. Tree, Rem, 19 inch to 36 inch	2 Ea

10+57.1 SIGN-POST MOUNT 30.3'
10+57.1 SIGN-POST MOUNT 30.3'
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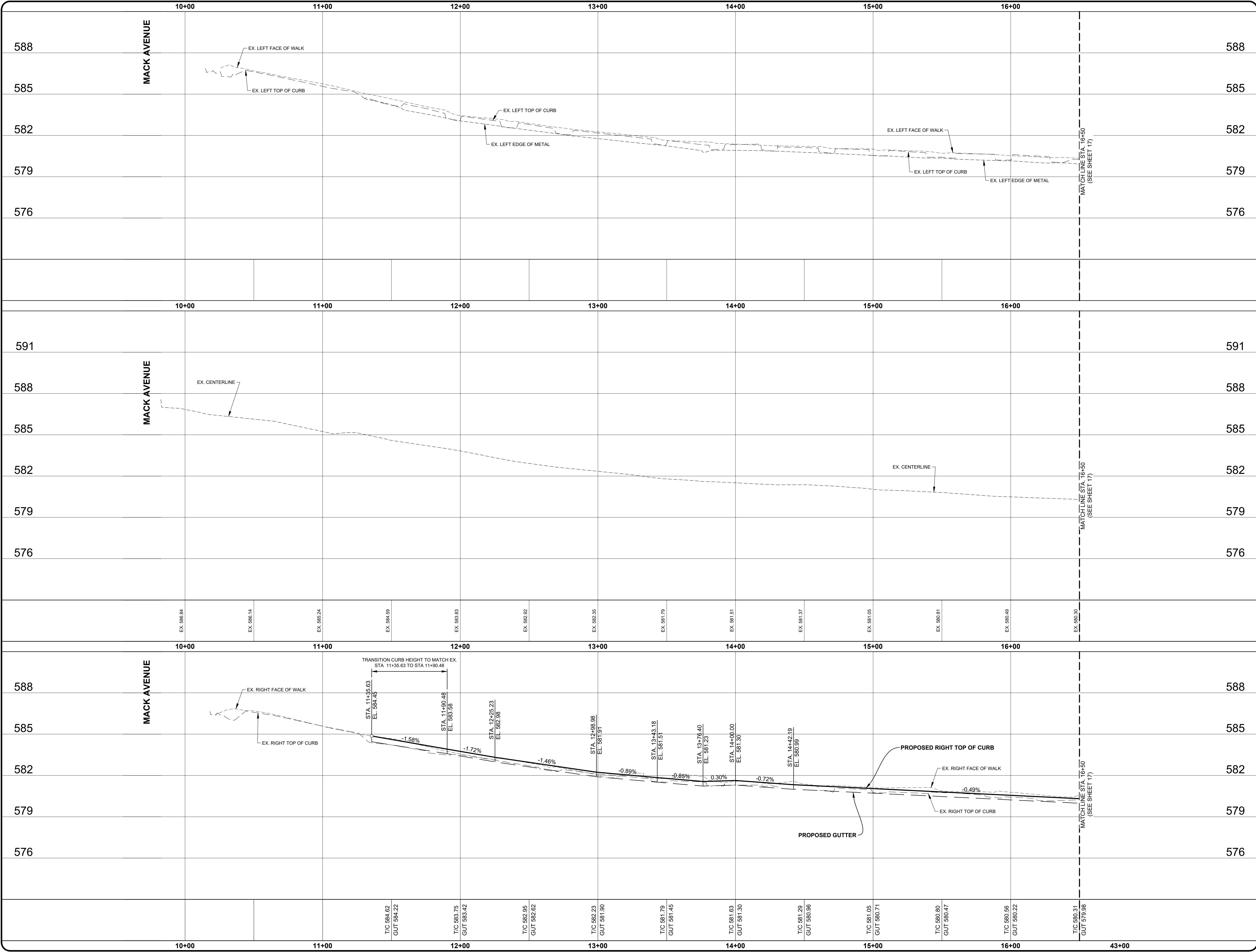
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11+57.4 PARKING METER 23.7'



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51301 Schoenherr Road Phone 586 726 1234
Shelby Township Fax 586 726 8780
Michigan 48315
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
------	----------------------

PROJECT NAME:
HAMPTON ROAD WATER MAIN & RESURFACING
(MACK AVE. TO MARTER RD.)

SHEET TITLE:
PAVEMENT CONSTRUCTION PROFILES
MACK AVENUE TO STA. 16+50.00

CLIENT:
CITY OF GROSSE POINTE WOODS

PRELIMINARY

CONSTRUCTION

RECORD

1/31/2023

1/31/2023

DRAWN BY:	CHECKED BY:	DATE:
KJP	RTW	AUGUST 2022

SCALE: 1" = 3' VERT.
1" = 30' HORIZ.

0

15

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60

Know what's below. Call 811 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY. AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

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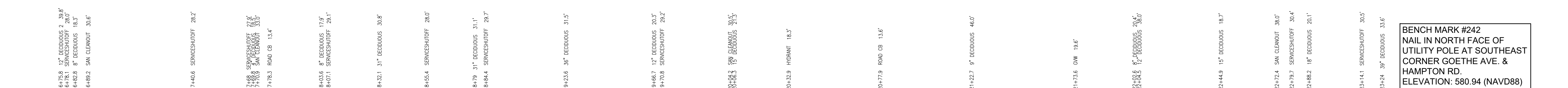
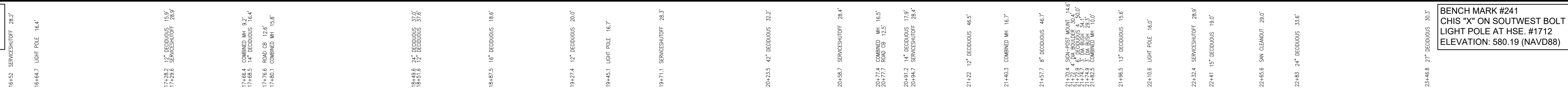
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0160-0456

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SHEET NO.
14

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ENGINEERING STRONG COMMUNITIES

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**

(MACK AVE. TO MARTER RD.)


REMOVAL PLAN

STA. 16+50 TO STA. 23+50

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION 1/31/2023	<input type="checkbox"/> RECORD
DRAWN BY:	CHECKED BY:	DATE:
KJP	RTW	AUGUST 2022

SCALE:

1" = 30'





PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

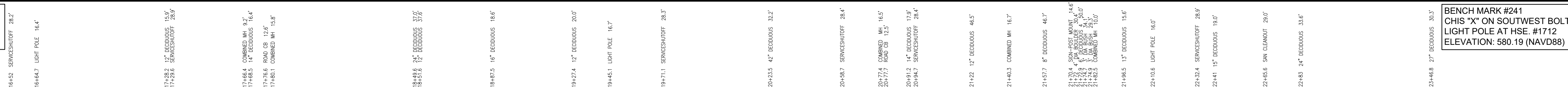
PROJECT NO.

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BENCH MARK #242
NAIL IN NORTH FACE OF
UTILITY POLE AT SOUTHEAST
CORNER GOETHE AVE. &
HAMPTON RD.
ELEVATION: 580.94 (NAVD88)



SUBMITTALS/REVISIONS	
DATE	

PROJECT NAME:
**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

PAVEMENT CONSTRUCTION PLAN

STA 16+50 TO STA 23+50

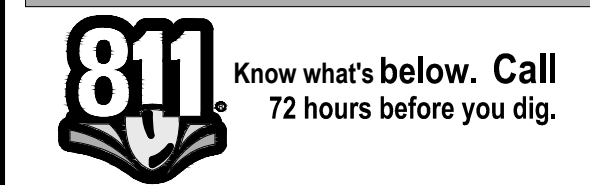
CLIENT: CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION 1/31/2023	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022

SCALE:

1" = 30'

A horizontal scale bar with tick marks at 0, 15, 30, and 60 feet. The bar is divided into segments: 0 to 15 feet is black, 15 to 30 feet is white, 30 to 45 feet is black, 45 to 60 feet is white, and the final segment to 60 feet is black.



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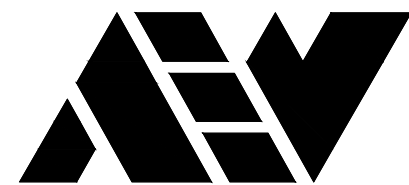
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PROJECT NO. 0160-0456

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SHEET NO.

16



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CIVIL ENGINEERS SURVEYORS ARCHITECTS

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Michigan 48315

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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

**PAVEMENT
CONSTRUCTION
PROFILES**
STA. 16+50 TO STA. 23+50

CITY:

CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION 1/31/2023	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022
SCALE: 1" = 3' VERT. 1" = 30' HORIZ.		



Know what's below. Call
72 hours before you dig.

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PROJECT NO.

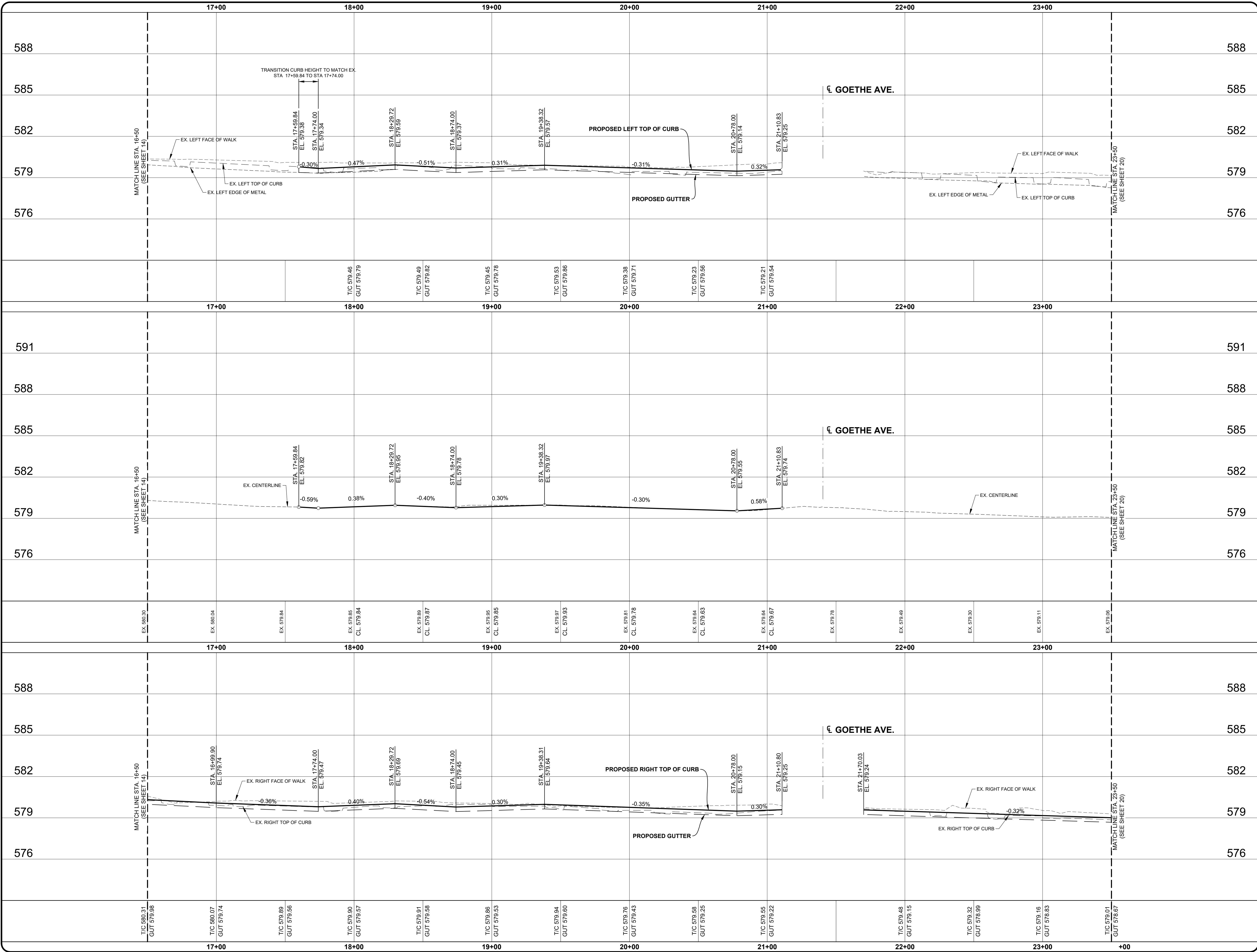
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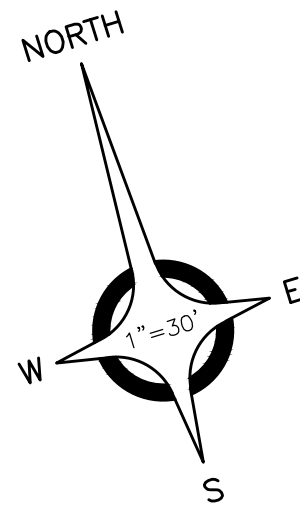
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SHEET NO.

17

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23+464.4 12' DEODIUS 17.7'
23+464.4 5' DEODIUS 9.5'

23+78.1 ROAD CB 12.4'

23+82.9 COMBINED MH 10.6'

23+464.4 SAN CLEANOUT 42.0'

23+468.8 12' DEODIUS 17.5'

24+74.2 SERVICESHOFF 26.1'

24+74.2 12' DEODIUS 18.4'

24+85 SAN CLEANOUT 31.0'

24+08.6 SERVICESHOFF 28.6'

25+13.7 24' DEODIUS 4 33.8'

25+55.6 24' DEODIUS 34.9'

26+44.2 ROAD CB 13.4'

26+44.2 4' DEODIUS 17.4'

26+44.2 5' DEODIUS 18.4'

26+44.2 12' DEODIUS 17.0'

26+44.2 12' DEODIUS 10.7'

BENCH MARK #243
CHIS "X" ON SOUTHWEST BOLT
LIGHT POLE AT HSE. #1512.
ELEVATION: 579.09 (NAVD88)

26+44.2 LIGHT POLE 16.7'

27+02.8 12' DEODIUS 18.9'

27+50.7 12' DEODIUS 18.3'

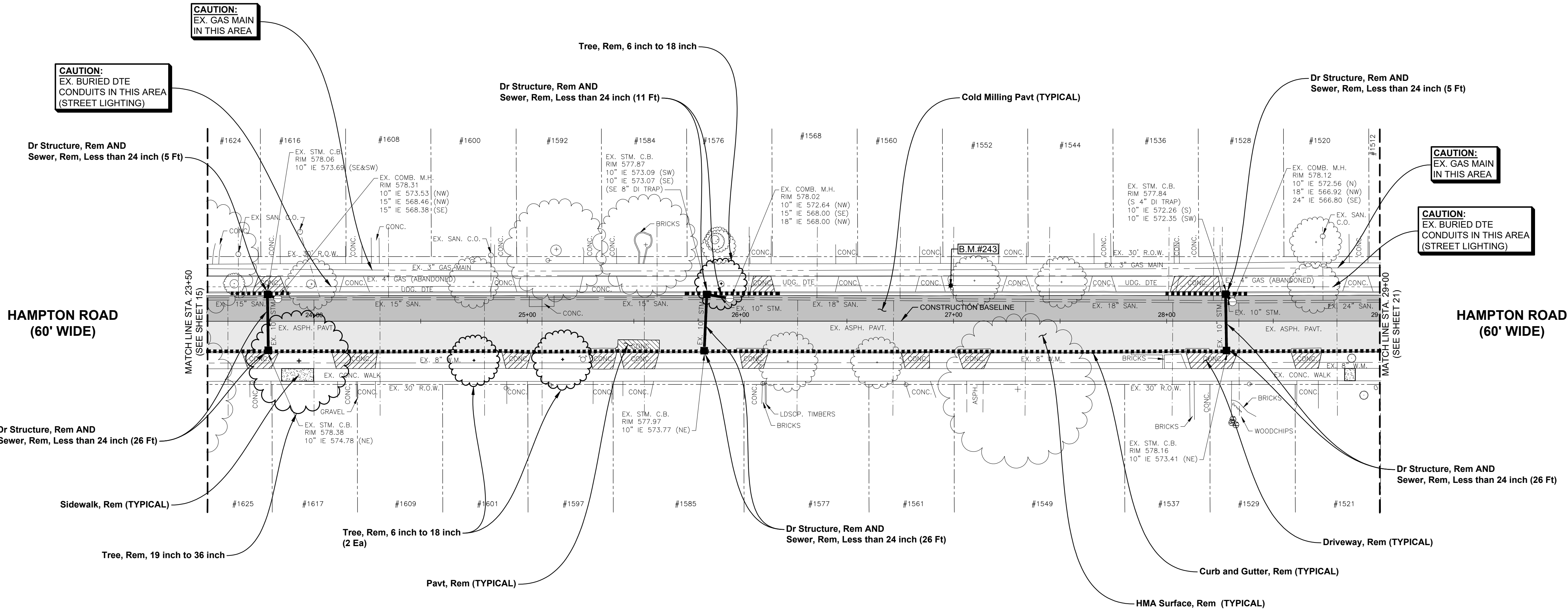
28+27.6 ROAD CB 12.4'

28+30.8 COMBINED MH 9.0'

28+46.1 12' DEODIUS 18.4'

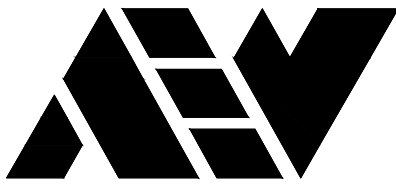
28+46.1 12' DEODIUS 17.0'

28+46.1 12' DEODIUS 10.7'



ESTIMATED QUANTITIES (THIS SHEET)

1. Pavt, Rem	13 Syd
2. HMA Surface, Rem	870 Syd
3. Cold Milling Pavt	735 Syd
4. Curb and Gutter, Rem	660 Ft
5. Sidewalk, Rem	14 Syd
6. Driveway, Rem	154 Syd
7. Dr Structure, Rem	6 Ea
8. Sewer, Rem, Less than 24 inch	99 Ft
9. Tree, Rem, 6 inch to 18 inch	3 Ea
10. Tree, Rem, 19 inch to 36 inch	1 Ea



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Michigan 48315

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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
PROJECT NAME:	
HAMPTON ROAD WATER MAIN & RESURFACING (MACK AVE. TO MARTER RD.)	
SHEET TITLE:	
REMOVAL PLAN STA. 23+50 TO STA. 29+00	
CLIENT:	
CITY OF GROSSE POINTE WOODS	
PRELIMINARY	CONSTRUCTION
1/31/2023	1/31/2023
RECORD	
DRAWN BY:	CHECKED BY:
KJP	RTW
DATE:	AUGUST 2022
SCALE:	
1" = 30'	
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DATE

SUBMITTALS/REVISIONS

PROJECT NAME:

HAMPTON ROAD
WATER MAIN &
RESURFACING
(MACK AVE. TO MARTER RD.)

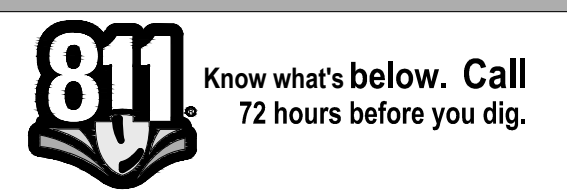
SHEET TITLE:

REMOVAL PLAN
STA. 23+50 TO STA. 29+00

CLIENT:

CITY OF GROSSE POINTE WOODS

PRELIMINARY	CONSTRUCTION	RECORD
1/31/2023	1/31/2023	
DRAWN BY:	CHECKED BY:	DATE:
KJP	RTW	AUGUST 2022
SCALE:		
1" = 30'		
0 15 30 60		



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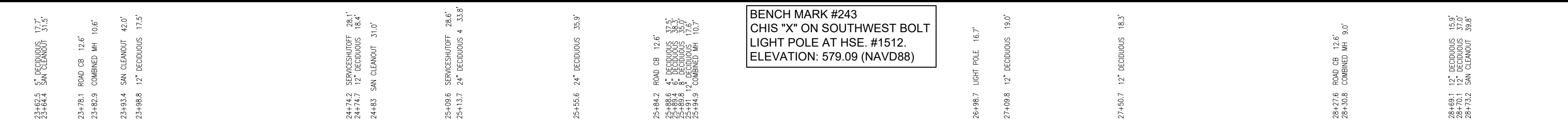
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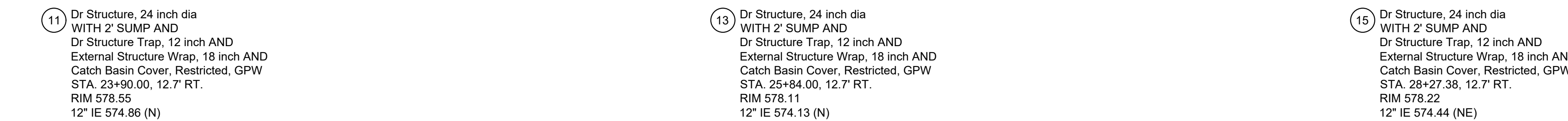
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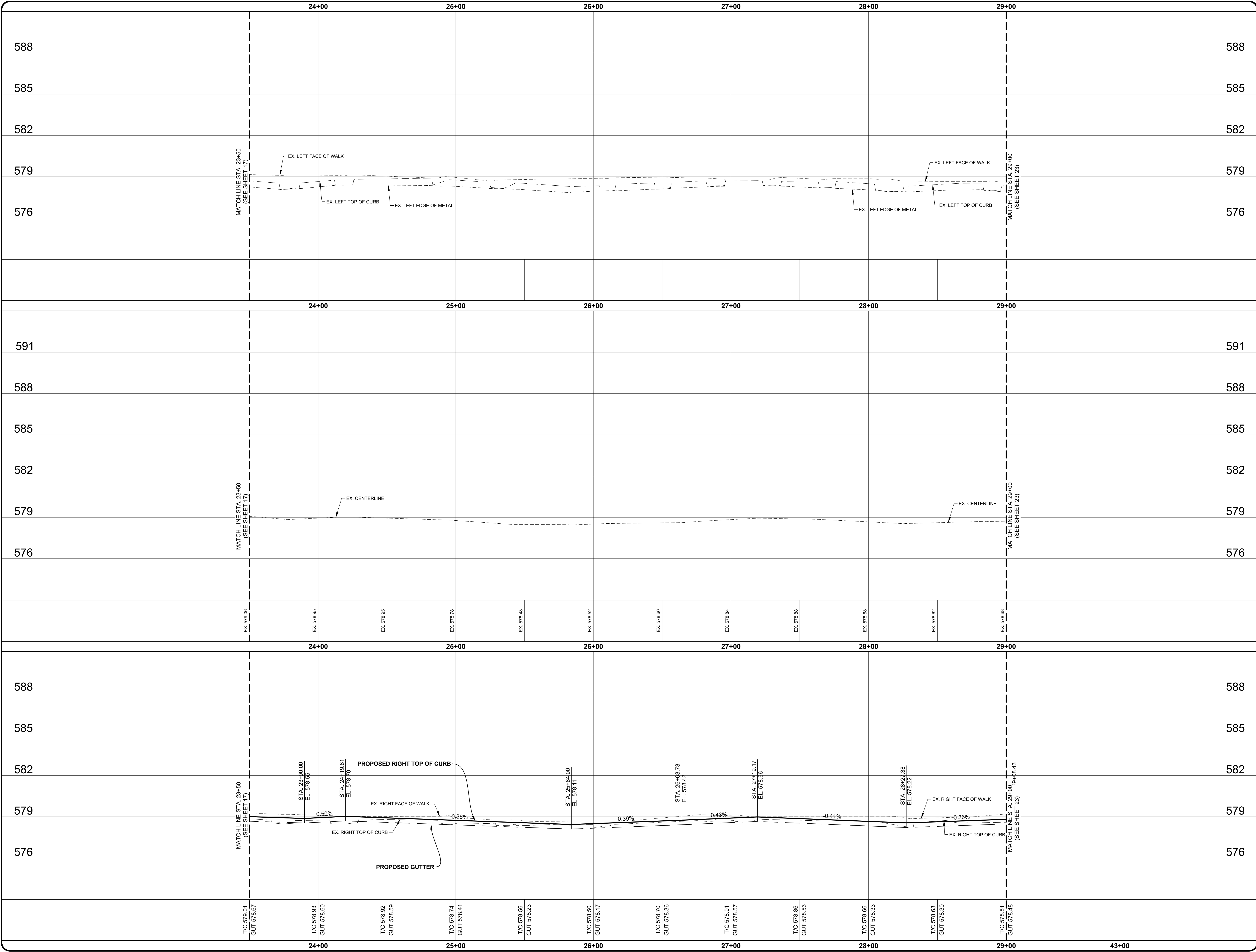


12 Dr Structure, 48 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 25.84.00, 12.5' LT.
RIM 577.84
12" IE 572.86 (SE)
12" IE 574.00 (S)

14 Dr Structure, 48 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 25.84.00, 12.5' LT.
RIM 577.90
12" IE 572.61 (SE)



1	Dr Structure Cover, Adj, Case 1	3 Ea
2	Dr Structure, 24 inch dia	3 Ea
3	Dr Structure, 48 inch dia	3 Ea
4	Dr Structure Trap, 12 inch	5 Ea
5	Dr Structure, Tap, 12 inch	9 Ea
6	External Structure Wrap, 18 inch	9 Ea
7	Catch Basin Cover, Restricted, GPW	6 Ea
8	Combined Manhole Cover, GPW	3 Ea
9	Sewer, G.I.V, 12 inch, Tr Det B	92 Ft
10	Aggregate Base, 5 inch	216 Syc
11	Aggregate Base 11, inch	84 Syc
12	Aggregate Base, Conditioning	764 Syc
13	Driveway Nonreinf Conc, 6 inch, Modified	185 Syc
14	HMA, 4EML	126 Tr
15	HMA, 5EML	165 Tr
16	Curb and Gutter, Conc, Det F1, Modified	660 Ft
17	Sidewalk, Conc, 4 inch	118 Sft





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Michigan 48315

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ENGINEERING STRONG COMMUNITIES

DATE

SUBMITTALS/REVISIONS

PROJECT NAME:

HAMPTON ROAD
WATER MAIN &
RESURFACING
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

PAVEMENT
CONSTRUCTION
PROFILES
STA. 23+50 TO STA. 29+00

CLIENT:

CITY OF GROSSE POINTE WOODS

PRELIMINARY

CONSTRUCTION

RECORD

DRAWN BY:

CHECKED BY:

DATE:

KJP

RTW

AUGUST 2022

SCALE:


1" = 3' VERT.
1" = 30' HORIZ.

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72 hours before you dig.

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PROJECT NO.

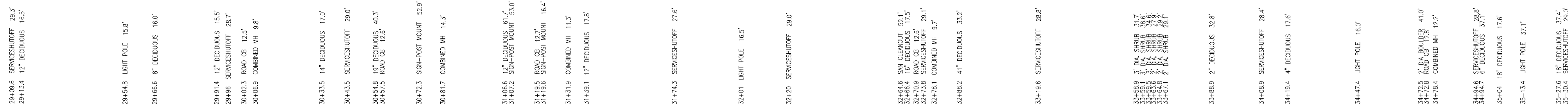
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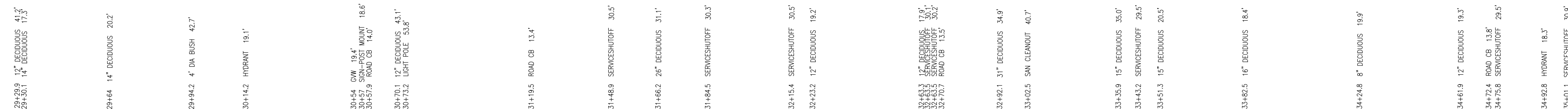
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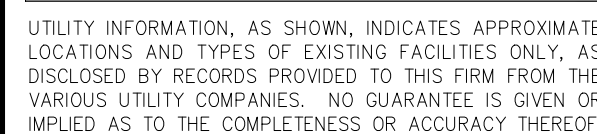
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SHEET TITLE

CLIENT:
CITY OF GROSSE POINTE WOODS

1" = 30'

0 15 30 60



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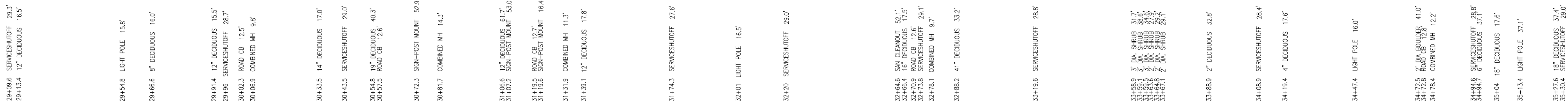
PROJECT NO. _____

0160-0456

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SHEET NO.

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17 Dr Structure, 48 inch dia
WITH 2" SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 30+56.51, 12.4' LT.
RIM 577.61
12" IE 573.66 (E)
12" IE 574.15 (S)

19 Dr Structure, 48 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 31+19.91, 12.8' LT.
RIM 577.44
12" IE 572.89 (SE)
12" IE 574.14 (S)

21 Dr Structure, 24 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 31+72.71, 12.8' LT.
RIM 577.60
12" IE 573.04 (SE)

23 Dr Structure, 24 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 34+72.83, 12.8' LT.
RIM 577.55
12" IE 572.87 (E)
12" IE 574.12 (S)



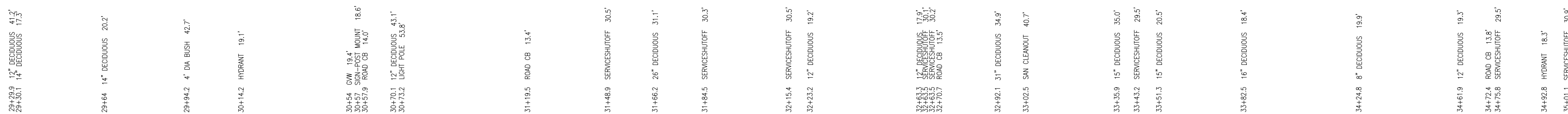
1	Dr Structure Cover, Adj, Case 1	5 Ea
2	Dr Structure, 24 inch dia	7 Ea
3	Dr Structure, 48 inch dia	2 Ea
4	Dr Structure Trap, 12 inch	6 Ea
5	Dr Structure, Tap, 12 inch	6 Ea
6	External Structure Wrap, 18 inch	14 Ea
7	Catch Basin Cover, Restrictd, GPW	9 Ea
8	Combined Manhole Cover, GPW	5 Ea
9	Sewer, CI IV, 12 inch, Tr Det B	117 Ft
10	Aggregate Base, 6 inch	229 Syd
11	Aggregate Base, 11 inch	145 Syd
12	Aggregate Base, Conditioning	1,002 Syd
13	Driveway, Nonreinf Conc, 6 inch, Modified	160 Syd
14	HMA, 4EMA	165 Ton
15	HMA, 5EMA	214 Ton
16	Curb and Gutter, Conc, Det F1, Modified	790 Ft
17	Curb Ramp, Conc, 8 inch	289 Ft
18	Curb Ramp, Conc, 8 inch	305 St
19	Detactable Warning Surface	35 Ft
20	Sidewalk, Conc, 4 inch	74 St
21	Sidewalk, Conc, 6 inch	126 St
22	Curb Ramp Opening, Conc	42 Ft

18 Dr Structure, 24 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 30+57.00, 12.7' RT.
RIM 577.74
12" IE 574.27 (N)

20 Dr Structure, 24 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 31+20.00, 12.5' RT.
RIM 577.80
12" IE 574.26 (N)

22 Dr Structure, 24 inch dia
WITH 2' SUMP AND
Dr Structure Trap, 12 inch AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 32+71.32, 12.7' RT.
RIM 577.87
12" IE 574.25 (NE)

24 Dr Structure, 24 inch dia
WITH 2' SUMP AND
External Structure Wrap, 18 inch AND
Catch Basin Cover, Restricted, GPW
STA. 32+71.32, 12.7' RT.
RIM 577.76
12" IE 574.25 (N)



51301 Schoenherr Road Phone 586 726 1234
Shelby Township Fax 586 726 8780
Michigan 48315

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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**

(MACK AVE. TO MARTER RD.)

SHEET TITLE

PAVEMENT CONSTRUCTION PLAN


STA. 29+00 TO STA. 35+75

CLIENT: CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION 1/31/2023	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022

SCALE:

$1" = 30'$



A horizontal graphic scale bar with tick marks at 0, 15, 30, and 60 feet. The bar is divided into segments: 0 to 15 feet is white, 15 to 30 feet is black, 30 to 45 feet is white, and 45 to 60 feet is black.



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PROJECT NO.

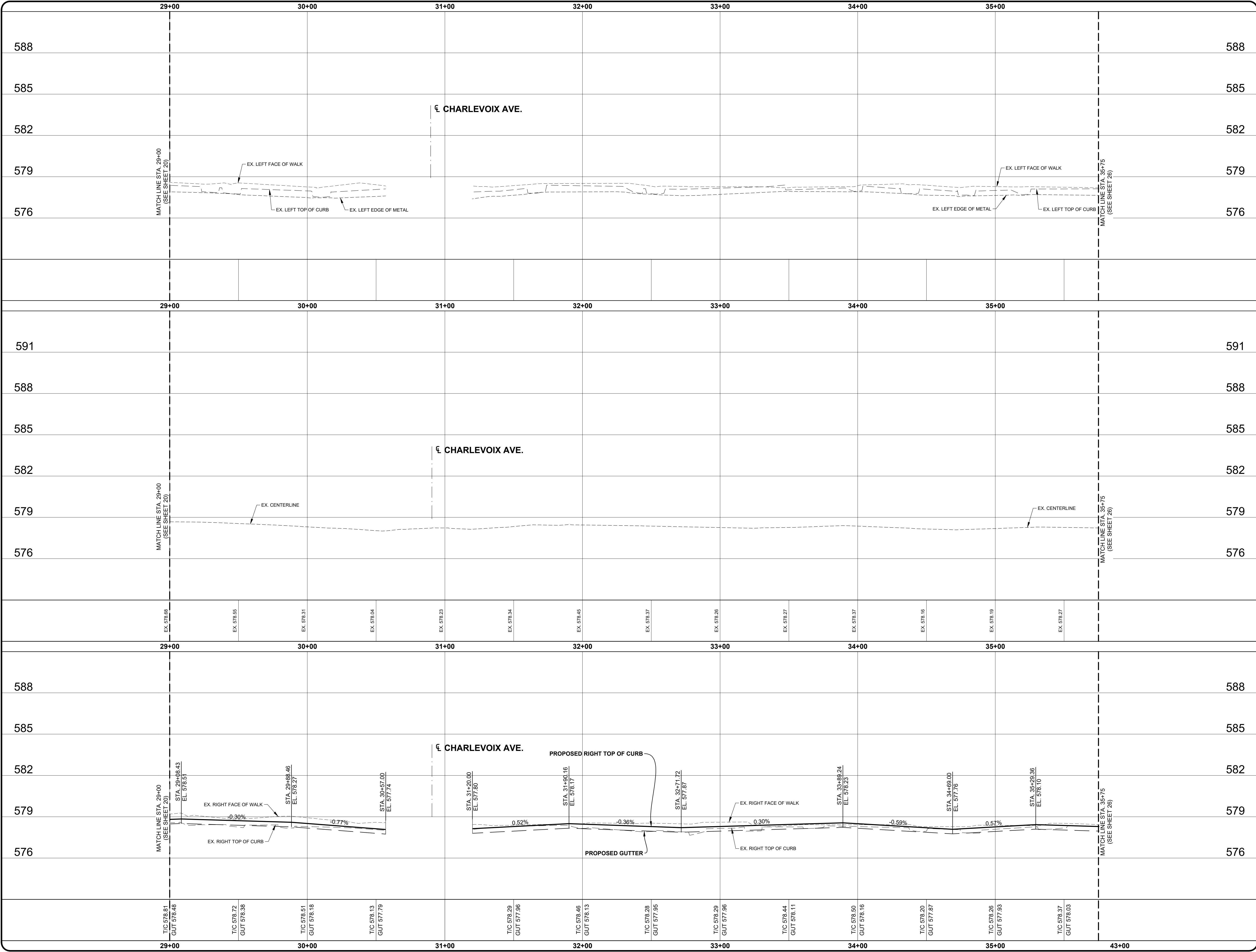
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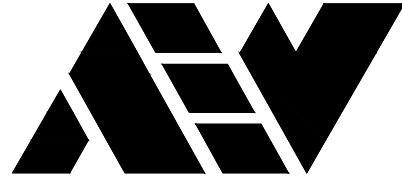
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SHEET NO.

22

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Michigan 48315
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
------	----------------------

PROJECT NAME:
HAMPTON ROAD WATER MAIN & RESURFACING
(MACK AVE. TO MARTER RD.)

SHEET TITLE:
PAVEMENT CONSTRUCTION PROFILES
STA. 29+00 TO STA. 35+75

CLIENT:
CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022

SCALE: 1" = 3' VERT.
1" = 30' HORIZ.





Know what's below. Call 811 72 hours before you dig.

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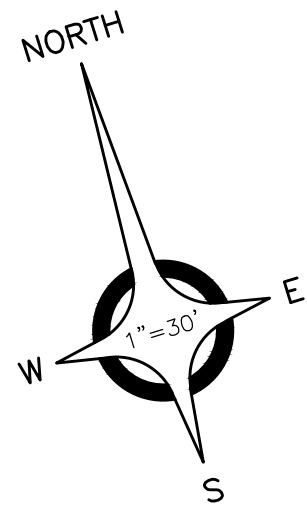
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PROJECT NO.
0160-0456

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SHEET NO.
23

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BENCH MARK #245
CHIS "X" ON SOUTHWEST BOLT
LIGHT POLE AT HSE. #1354.
ELEVATION: 578.58 (NAVD88)

35+79.2 6" DEODIUS 16.4'

35+80.2 6" DIA BUSH 37.0'

36+15 16" DEODIUS 17.0'

36+20.8 24" DEODIUS 16.5'

36+88.8 6" DEODIUS 16.4'

36+86.1 SAN CLEANOUT 31.0'

36+89.9 SERVICEHURF 28.6'

36+94.4 6" DIA BUSH 37.0'

37+08.7 COMBINED MH 11.0'

37+53.8 2" DEODIUS 16.9'

37+46.8 SERVICEHURF 27.4'

38+11 16" DEODIUS 14.7'

38+16.8 SERVICEHURF 28.0'

38+19.2 15" DEODIUS 16.5'

38+53.8 SAN CLEANOUT 43.0'

38+73.4 ROAD CB 13.3'

38+76 24" DEODIUS 2 39.7'

38+81.1 COMBINED MH 8.6'

39+05.3 12" DEODIUS 17.5'

39+15.8 6" DEODIUS 16.5'

39+15.8 6" DEODIUS 16.5'

39+15.8 6" DEODIUS 16.5'

39+15.8 6" DEODIUS 16.5'

39+15.8 6" DEODIUS 16.5'

39+15.8 6" DEODIUS 16.5'

39+15.8 6" DEODIUS 16.5'

40+00.2 14" DEODIUS 32.1'

40+08.3 12" DEODIUS 19.7'

40+13.3 SERVICEHURF 28.7'

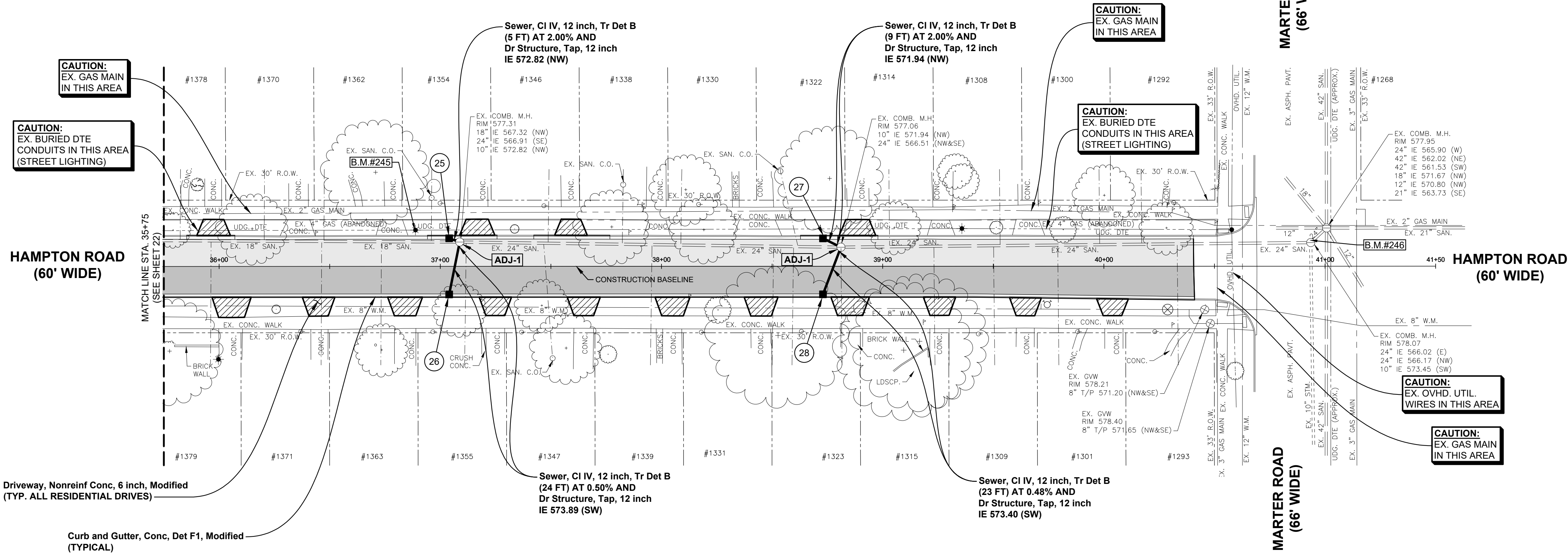
40+00.2 GAS SERVICE 18.4'

40+57.8 U.P. W/THANF 16.5'

40+53.5 COMBINED MH 18.6'

41+00.7 COMBINED MH 17.3'

BENCH MARK #246
CHIS "X" ON NORTH OF RIM
SANITARY M.H. ±15' NORTH
E. RHAMPTON IN GUT. LINE
OF HAMPTON RD.
ELEVATION: 578.11 (NAVD88)



Driveway, Nonreinf Conc, 6 inch, Modified
(TYP. ALL RESIDENTIAL DRIVES)

Curb and Gutter, Conc, Det F1, Modified
(TYPICAL)

35+77.6 24" DEODIUS 2 38.5'

35+89.7 LIGHT POLE 42.0'

36+25.8 2" DEODIUS 19.4'

36+56.9 SERVICEHURF 26.4'

36+73.5 12" DEODIUS 37.8'

36+86.6 SERVICEHURF 28.6'

37+08.7 12" DEODIUS 19.8'

37+53.7 SERVICEHURF 29.8'

37+45.9 12" DEODIUS 17.7'

37+50.7 SAN CLEANOUT 41.6'

37+56.9 16" DEODIUS 37.0'

37+75.9 4" DEODIUS 39.7'

37+82.2 9" DEODIUS 20.1'

38+17.9 SERVICEHURF 28.9'

38+26.6 6" DEODIUS 19.7'

38+62.7 37" DEODIUS 31.3'

38+62.8 SERVICEHURF 29.4'

38+72.2 ROAD CB 13.4'

39+09.3 37" DEODIUS 37.9'

39+16.8 37" DEODIUS 33.9'

39+42.2 SERVICEHURF 30.0'

39+47.2 17" DEODIUS 40.8'

39+71.6 HYDRANT 15.9'

39+86.1 SERVICEHURF 29.6'

40+23 SERVICEHURF 29.6'

40+29.8 16" DEODIUS 19.5'

40+41.3 37" DEODIUS 37.9'

40+41.3 37" DEODIUS 37.9'

40+41.3 37" DEODIUS 37.9'

ESTIMATED QUANTITIES (THIS SHEET)

1. Dr Structure Cover, Adj, Case 1	2 Ea
2. Dr Structure, 24 inch dia	4 Ea
3. Dr Structure Trap, 12 inch	4 Ea
4. Dr Structure, Tap, 12 inch	4 Ea
5. External Structure Wrap, 18 inch	6 Ea
6. Catch Basin Cover, Restricted, GPW	4 Ea
7. Combined Manhole Cover, GPW	2 Ea
8. Sewer, CI IV, 12 inch, Tr Det B	61 Ft
9. Aggregate Base, 6 inch	164 Syd
10. Aggregate Base, 11 inch	56 Syd
11. Aggregate Base, Conditioning	654 Syd
12. Driveway, Nonreinf Conc, 6 inch, Modified	167 Syd
13. HMA, 4EML	108 Ton
14. HMA, 5EML	142 Ton
15. Curb and Gutter, Conc, Det F1, Modified	589 Ft



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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
PROJECT NAME:	
HAMPTON ROAD WATER MAIN & RESURFACING (MACK AVE. TO MARTER RD.)	
SHEET TITLE:	
PAVEMENT CONSTRUCTION PLAN STA. 35+75 TO MARTER RD.	
CLIENT:	
CITY OF GROSSE POINTE WOODS	
LEGEND:	
PRELIMINARY CONSTRUCTION RECORD	
DRAWN BY: KJP CHECKED BY: RTW DATE: AUGUST 2022	
SCALE: 1" = 30'	
0 15 30 60	



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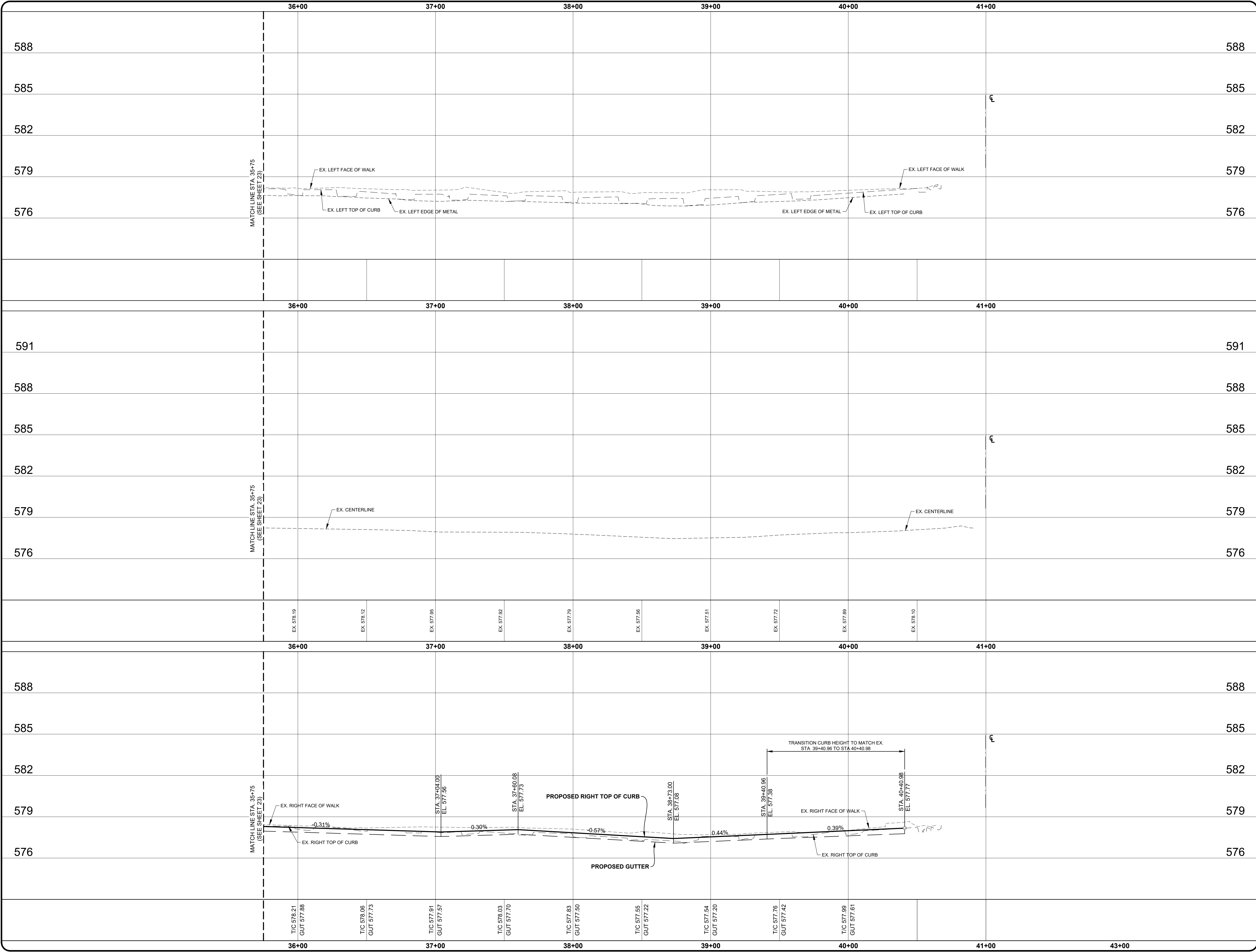
PROJECT NO.

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25



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ENGINEERING STRONG COMMUNITIES

DATE

SUBMITTALS/REVISIONS

PROJECT NAME:

HAMPTON ROAD
WATER MAIN &
RESURFACING
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

PAVEMENT
CONSTRUCTION
PROFILES
STA. 35+75 TO
MARTER ROAD

CLIENT:

CITY OF GROSSE POINTE WOODS

PRELIMINARY

CONSTRUCTION

RECORD

KJP

RTW

AUGUST 2022

SCALE:

1" = 3' VERT.
1" = 30' HORIZ.

0

15

30

60

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72 hours before you dig.

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PROJECT NO.

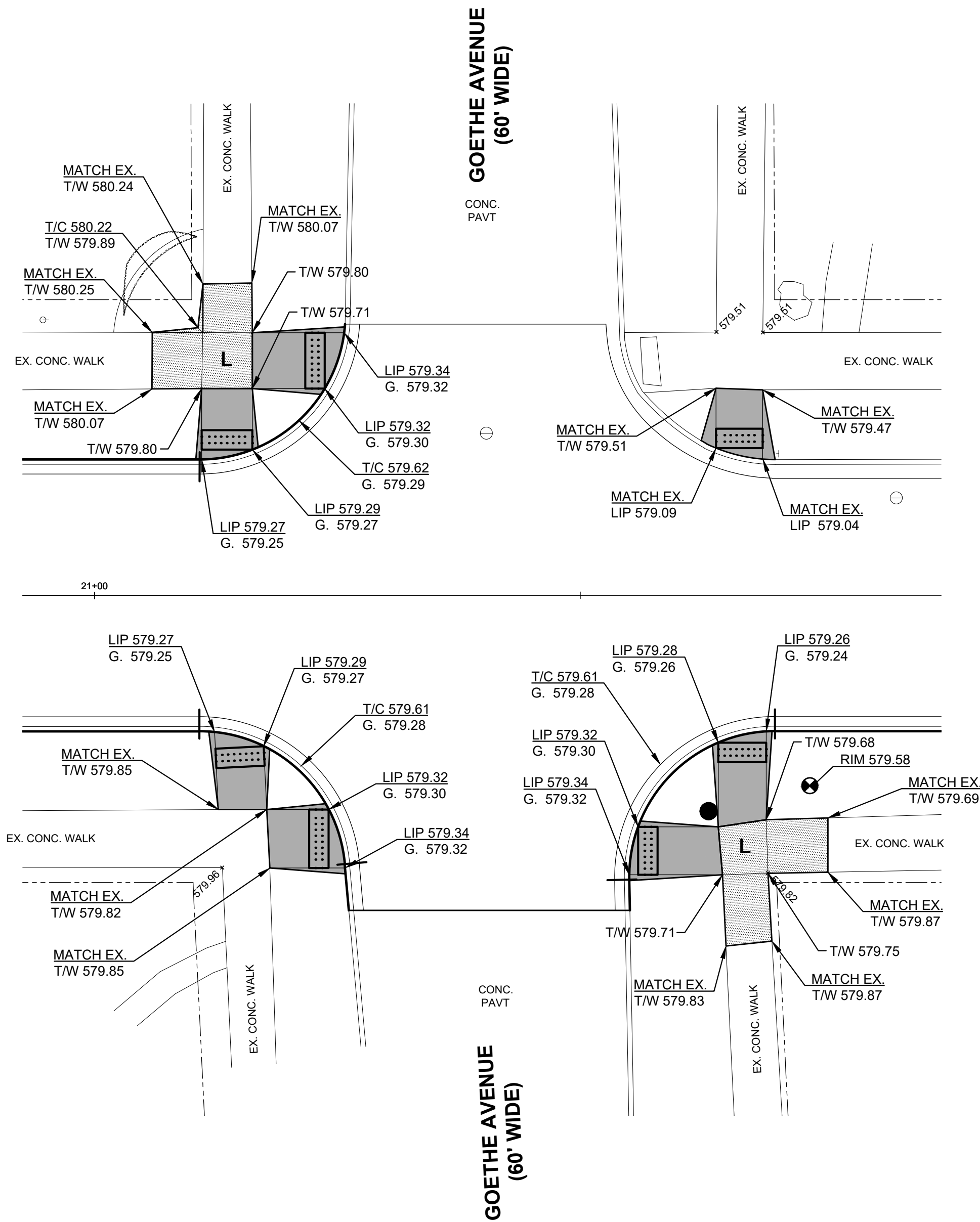
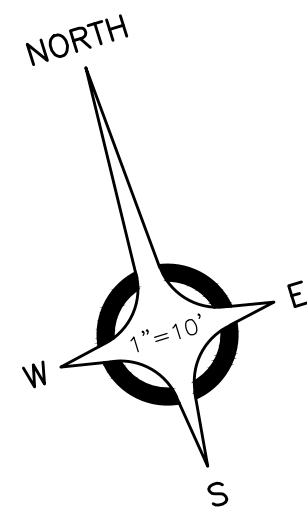
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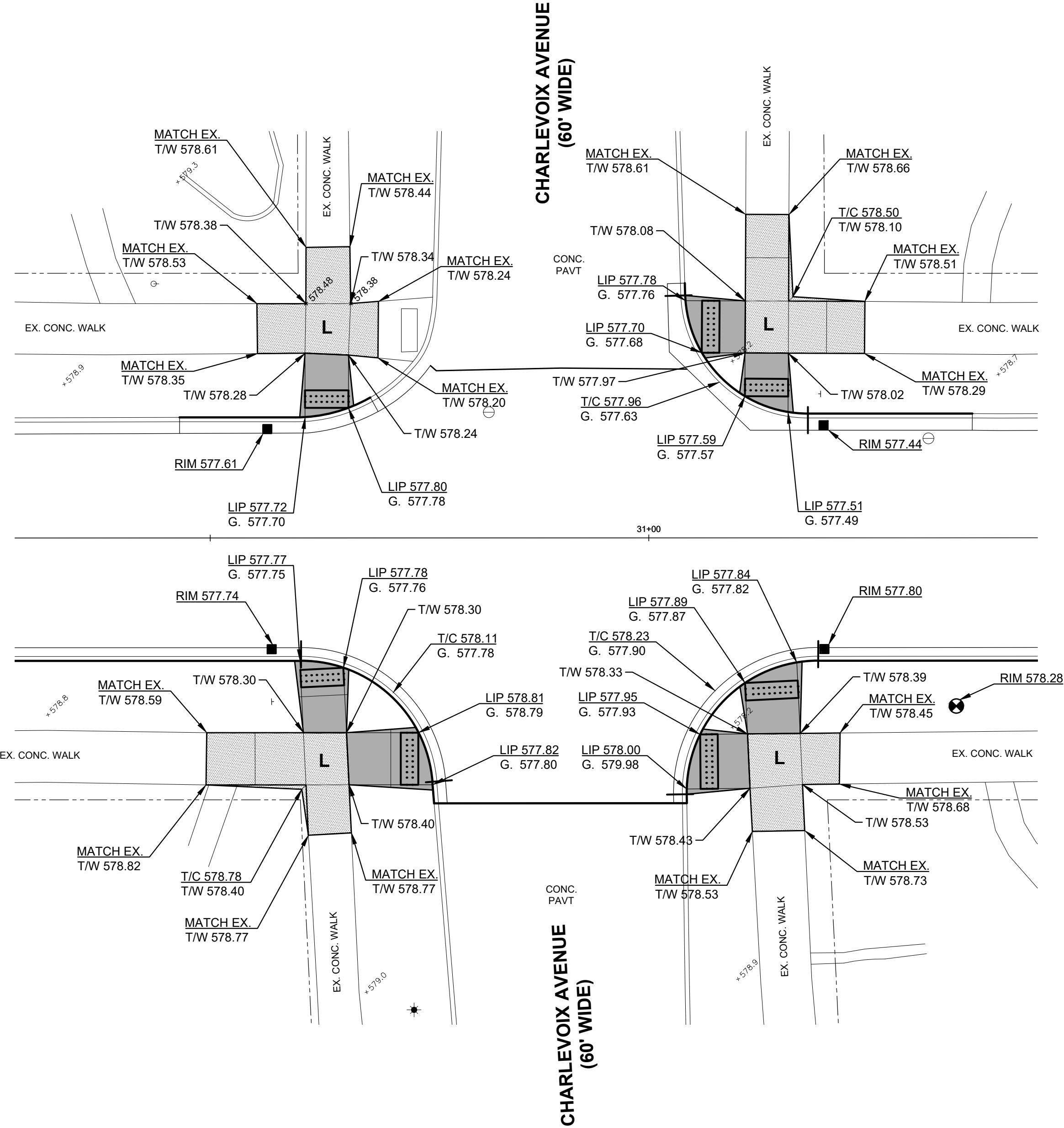
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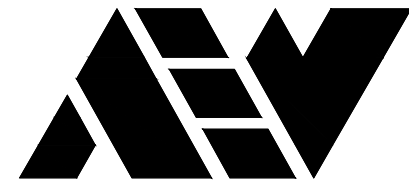
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HAMPTON ROAD
(60' WIDE)



CHARLEVOIX AVENUE
(60' WIDE)



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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
PROJECT NAME:	
HAMPTON ROAD WATER MAIN & RESURFACING (MACK AVE. TO MARTER RD.)	
SHEET TITLE:	
INTERSECTION GEOMETRICS & SIDEWALK RAMP SCHEMATICS	
CLIENT:	
CITY OF GROSSE POINTE WOODS	
PRELIMINARY CONSTRUCTION RECORD	
DRAWN BY: KJP CHECKED BY: RTW DATE: AUGUST 2022	
SCALE: 1" = 10'	
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HAMPTON ROAD
WATER MAIN &
RESURFACING
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

INTERSECTION
GEOMETRICS &
SIDEWALK RAMP
SCHEMATICS

CLIENT:
CITY OF GROSSE POINTE WOODS

PRELIMINARY	CONSTRUCTION	RECORD
KJP	RTW	AUGUST 2022
SCALE: 1" = 10'		
0 5 10 20		



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PROJECT NO.

0160-0456

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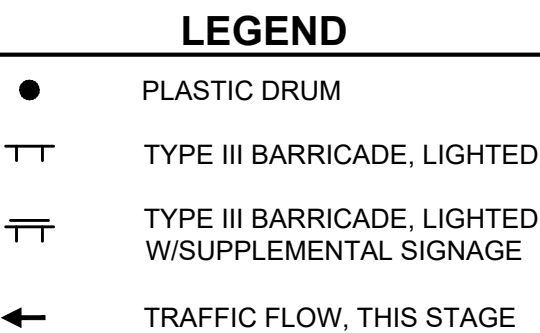
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ENGINEERING STRONG COMMUNITIES



PROJECT NAME

**HAMPTON ROAD
WATER MAIN &
RESURFACING**

(MACK AVE. TO MARTER RD.)

CLIENT: CITY OF GROSSE POINTE WOODS

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

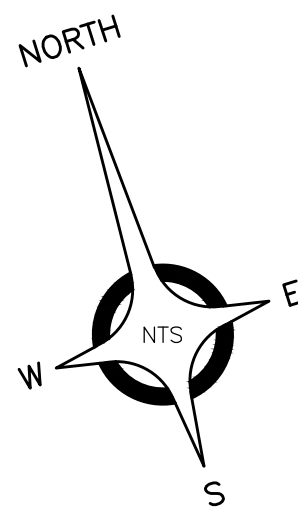
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PROJECT NO. 0160-0456

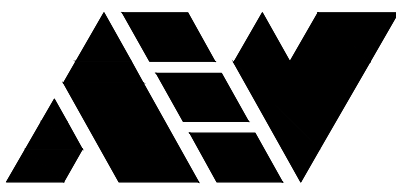
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NOTE:
- MAINTAIN A MINIMUM OF 11' LANE
WIDTH AT ALL TIMES



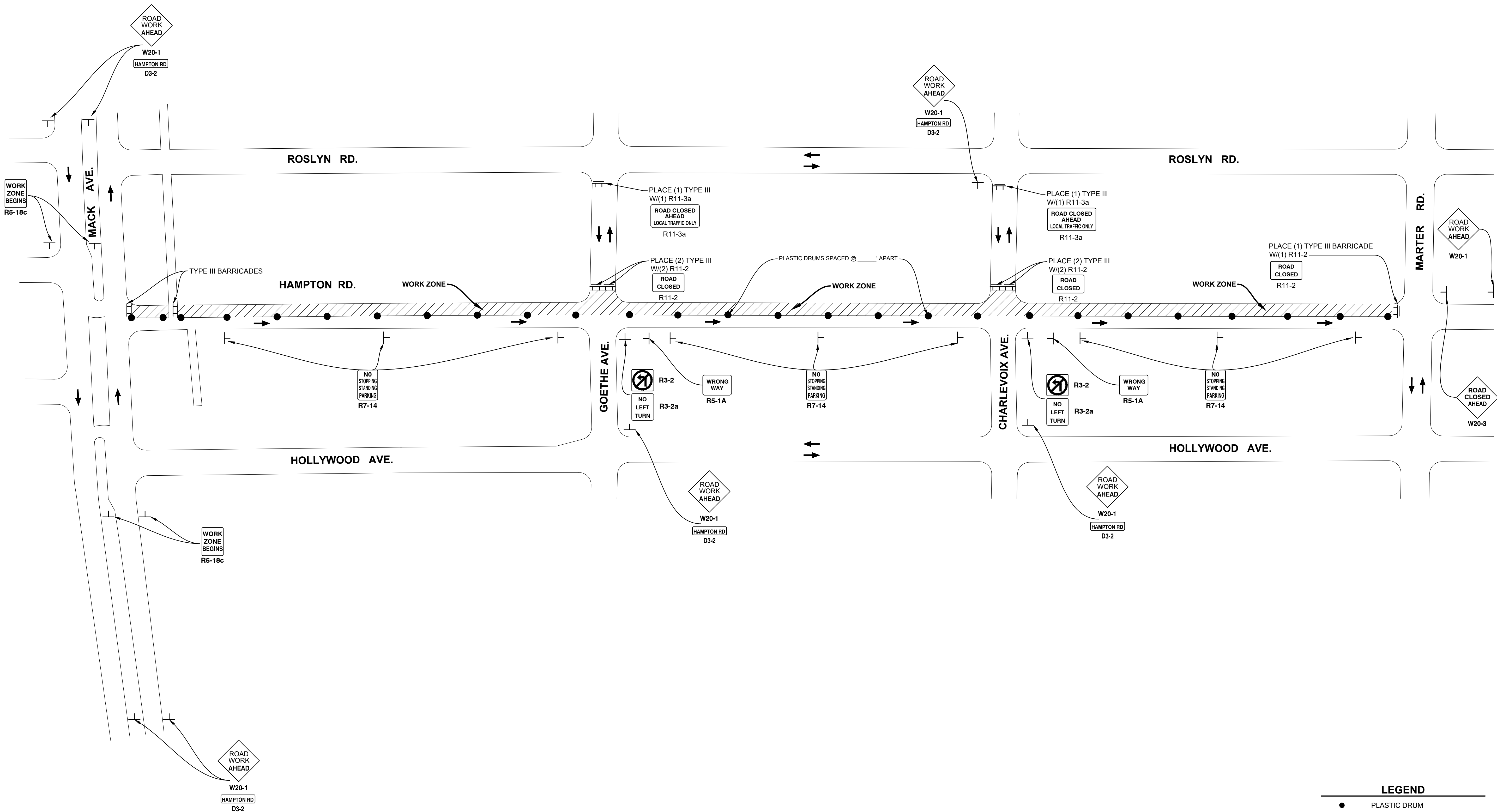
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ENGINEERING STRONG COMMUNITIES



LEGEND

- PLASTIC DRUM
- TT TYPE III BARRICADE, LIGHTED
- TT TYPE III BARRICADE, LIGHTED
W/SUPPLEMENTAL SIGNAGE
- ← TRAFFIC FLOW, THIS STAGE

DATE SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

**STAGE 2
MAINTAINING
TRAFFIC
PLAN**

CLIENT:

CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022
SCALE: NOT TO SCALE		



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IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
DURING THE CONSTRUCTION, THE CONTRACTOR SHALL
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ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION
VERIFICATION, SUPPORT AND PROTECTION SHALL BE
INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH
THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE
EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL
OVERHEAD AND / OR BURIED UTILITIES.

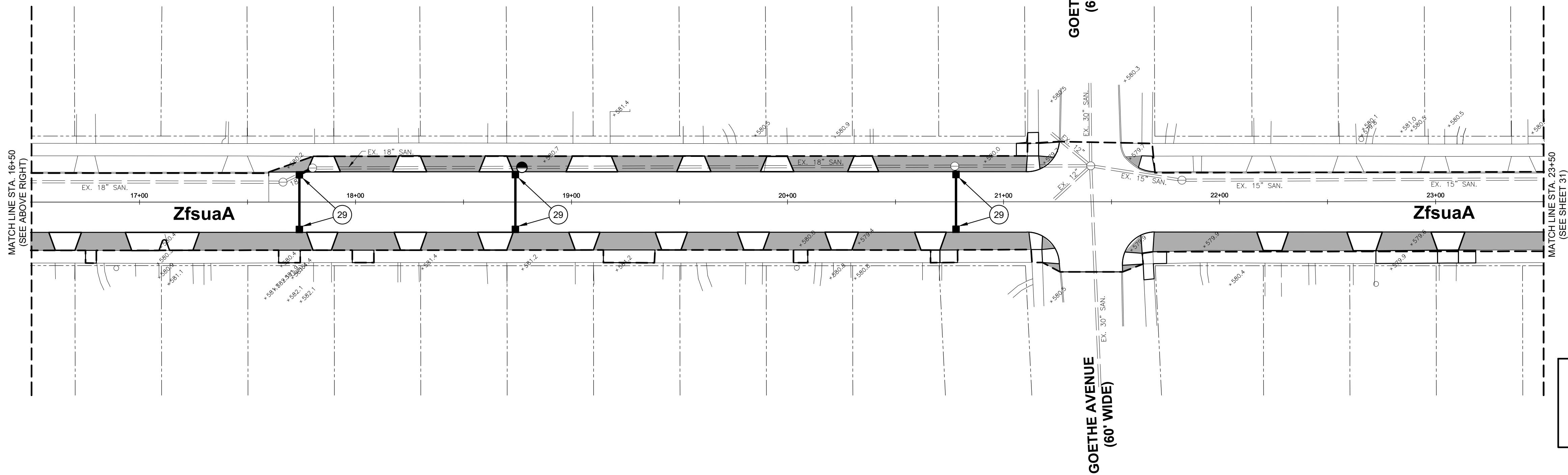
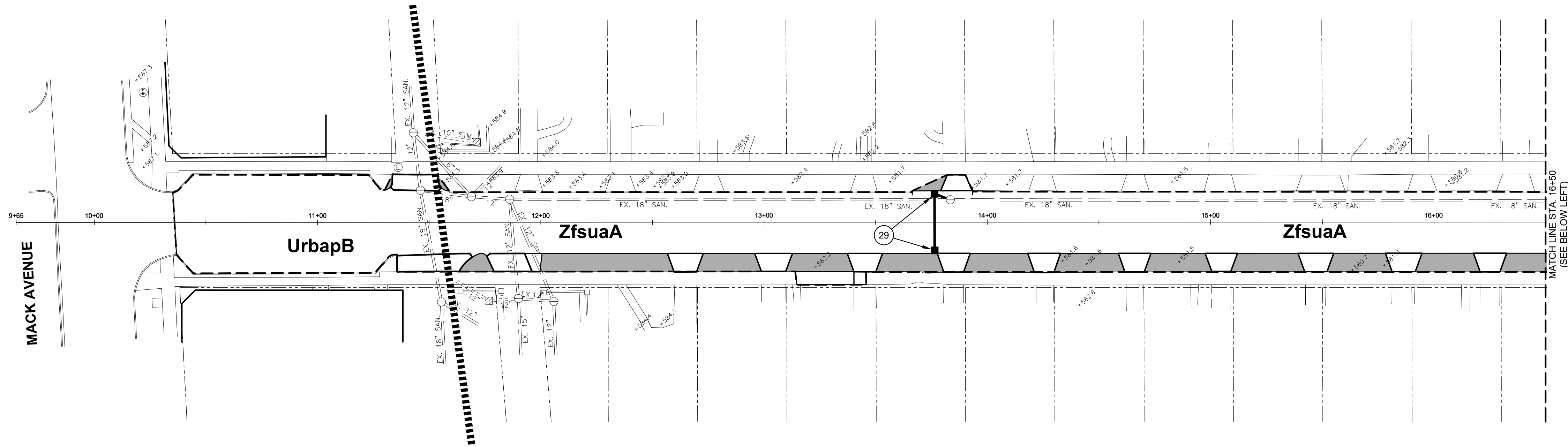
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SHEET NO.

29



SOIL EROSION CONTROL LEGEND	
KEY #	ITEM
29	Erosion Control, Inlet Protection, Fabric Drop

LEGEND	
---	LIMITS OF DISTURBANCE
■	Topsail Surface, Furn, 3 inch AND Sodding (TYP.)



ANDERSON, ECKSTEIN AND
WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road Phone 586 726 1234
Shelby Township Fax 586 726 8780
Michigan 48315

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

**SOIL EROSION &
SEDIMENTATION
CONTROL PLAN**
MACK AVENUE
TO STA. 23+50

CLIENT:

CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> RECORD
DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022
SCALE: 1" = 30'		
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Know what's below. Call
72 hours before you dig.

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PROJECT NO.

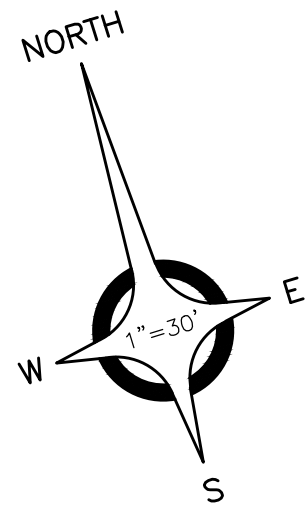
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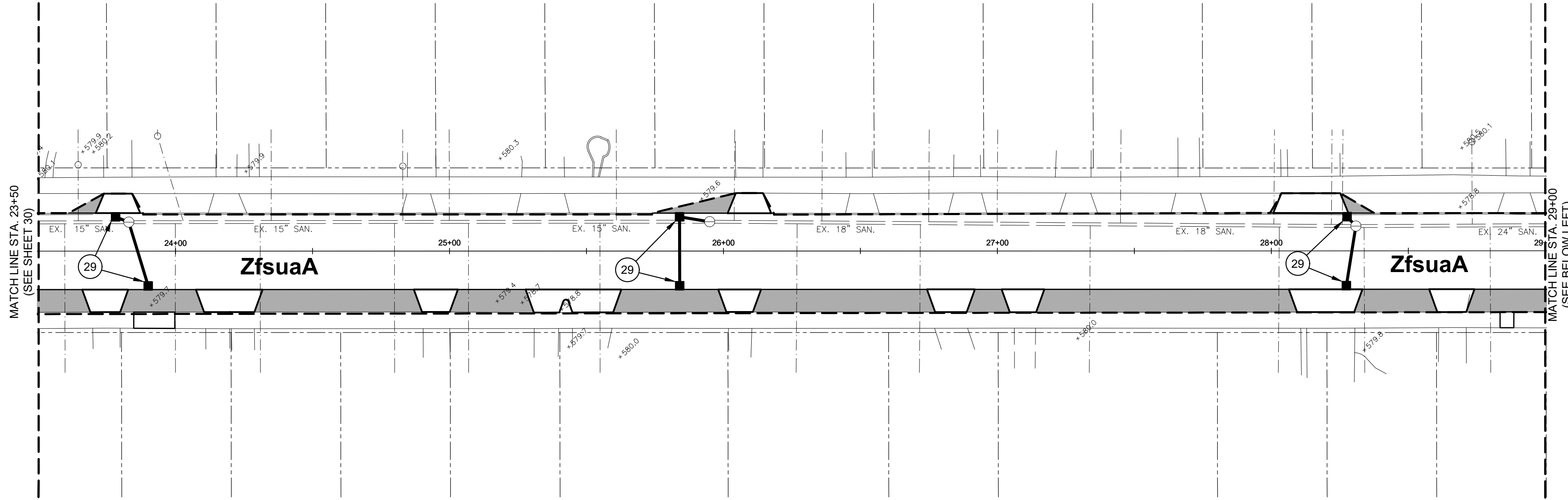
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30

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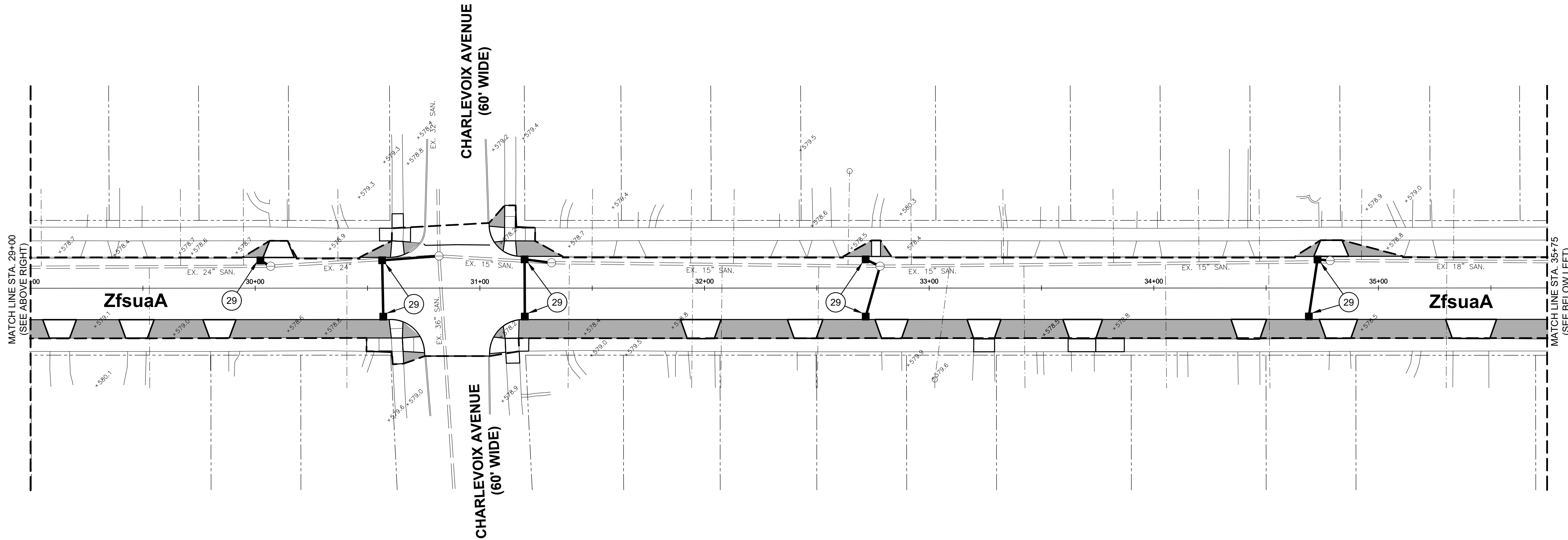


HAMPTON ROAD
(60' WIDE)



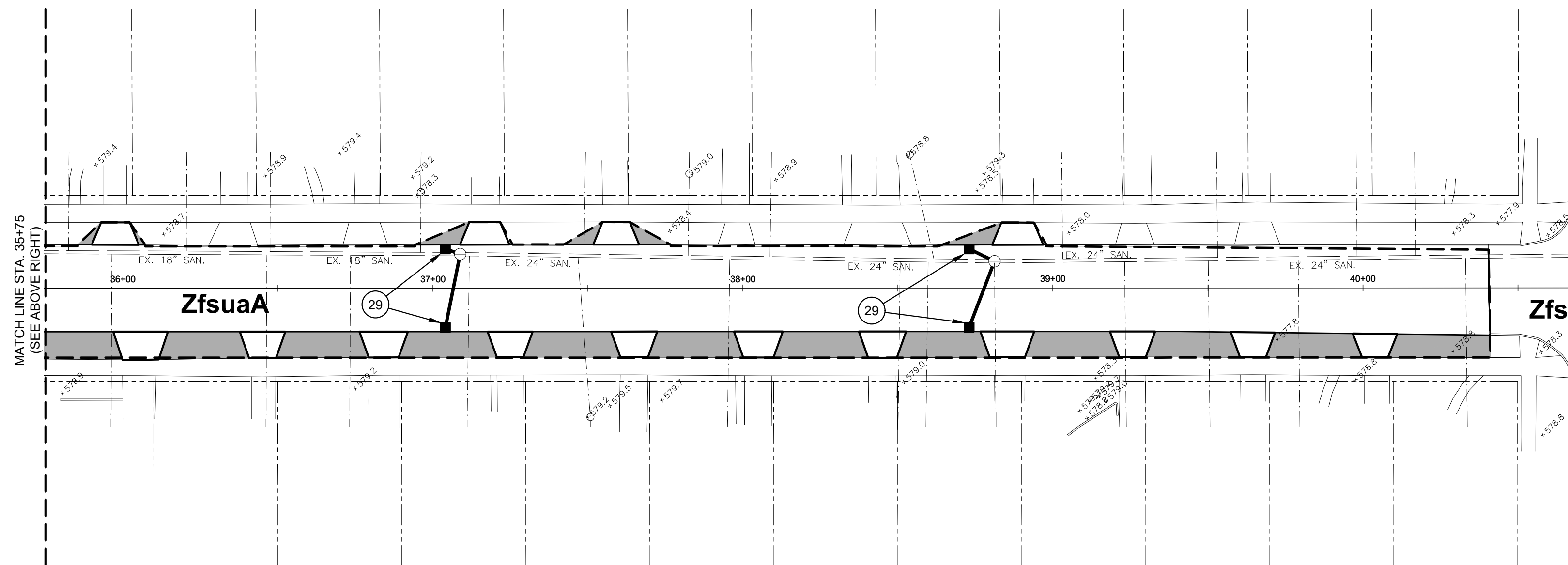
HAMPTON ROAD
(60' WIDE)

HAMPTON ROAD
(60' WIDE)



HAMPTON ROAD
(60' WIDE)

HAMPTON ROAD
(60' WIDE)



MARTER ROAD
(66' WIDE)

MARTER ROAD
(66' WIDE)

HAMPTON ROAD
(60' WIDE)

SOIL EROSION CONTROL LEGEND	
KEY #	ITEM
29	Erosion Control, Inlet Protection, Fabric Drop

LEGEND	
---	LIMITS OF DISTURBANCE
■	Topsail Surface, Furn, 3 inch AND Sodding (TYP.)



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WESTRICK, INC.

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ENGINEERING STRONG COMMUNITIES

DATE SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

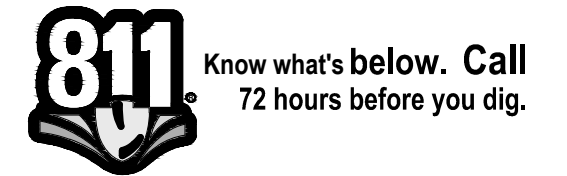
SHEET TITLE:

**SOIL EROSION &
SEDIMENTATION
CONTROL PLAN**
STA. 23+50 TO
MARTER ROAD

CLIENT:

CITY OF GROSSE POINTE WOODS

PRELIMINARY	CONSTRUCTION	RECORD
KJP	RTW	AUGUST 2022
DRAWN BY:	CHECKED BY:	DATE:
KJP	RTW	AUGUST 2022
SCALE: 1" = 30'		
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PROJECT NO.

0160-0456

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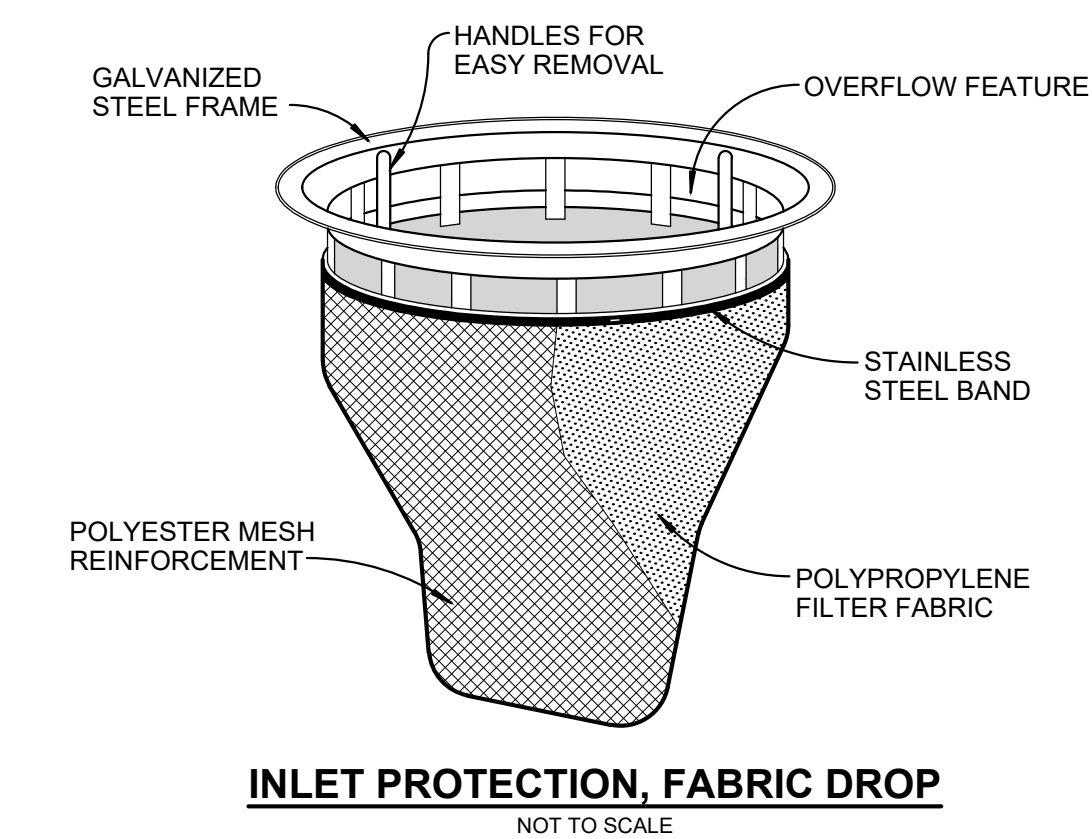
31

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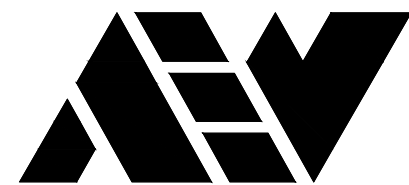
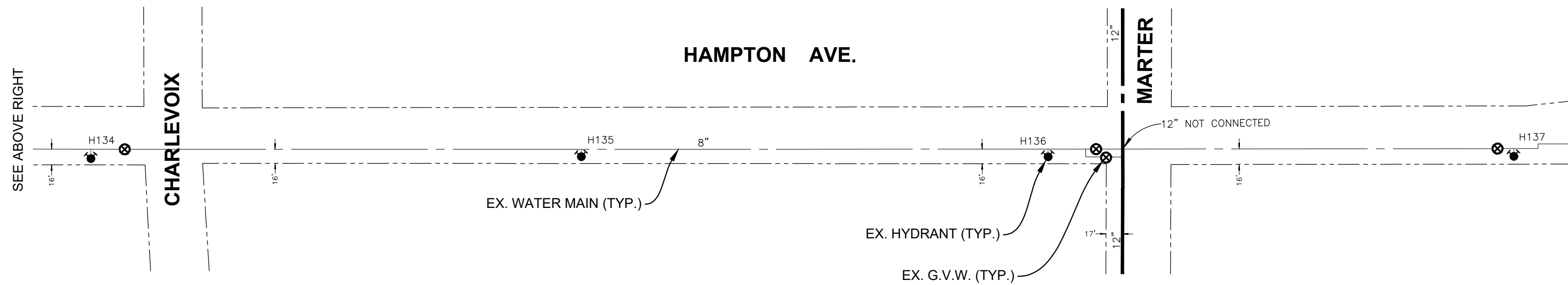
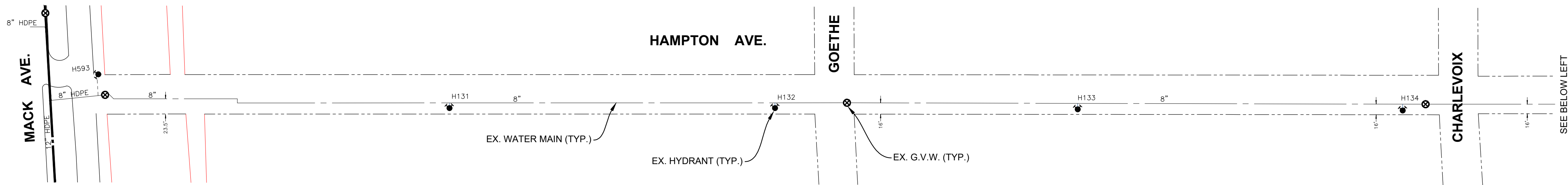
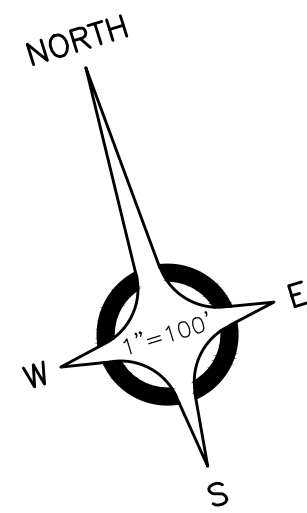
ENGINEERING STRONG COMMUNITIES



1. Erosion Control, Inlet Protection, Fabric Drop	28	Ea
2. Topsoil Surface, Furn, 3 inch	2,177	Syd
3. Sodding	2,177	Syd

- IF NECESSARY, SILT FENCE SHALL BE USED AND INSTALLED AS SHOWN IN THE DETAIL ON THIS SHEET.

SHEET NO.



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Shelby Township Fax 586 726 8780
Michigan 48315

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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

EXISTING VALVE MAP

CLIENT:

CITY OF GROSSE POINTE WOODS

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DRAWN BY: KJP	CHECKED BY: RTW	DATE: AUGUST 2022
SCALE: 1" = 100' 0 50 100 200		



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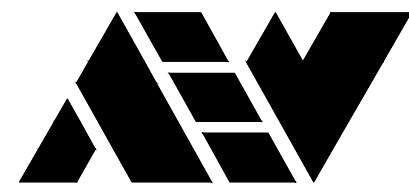
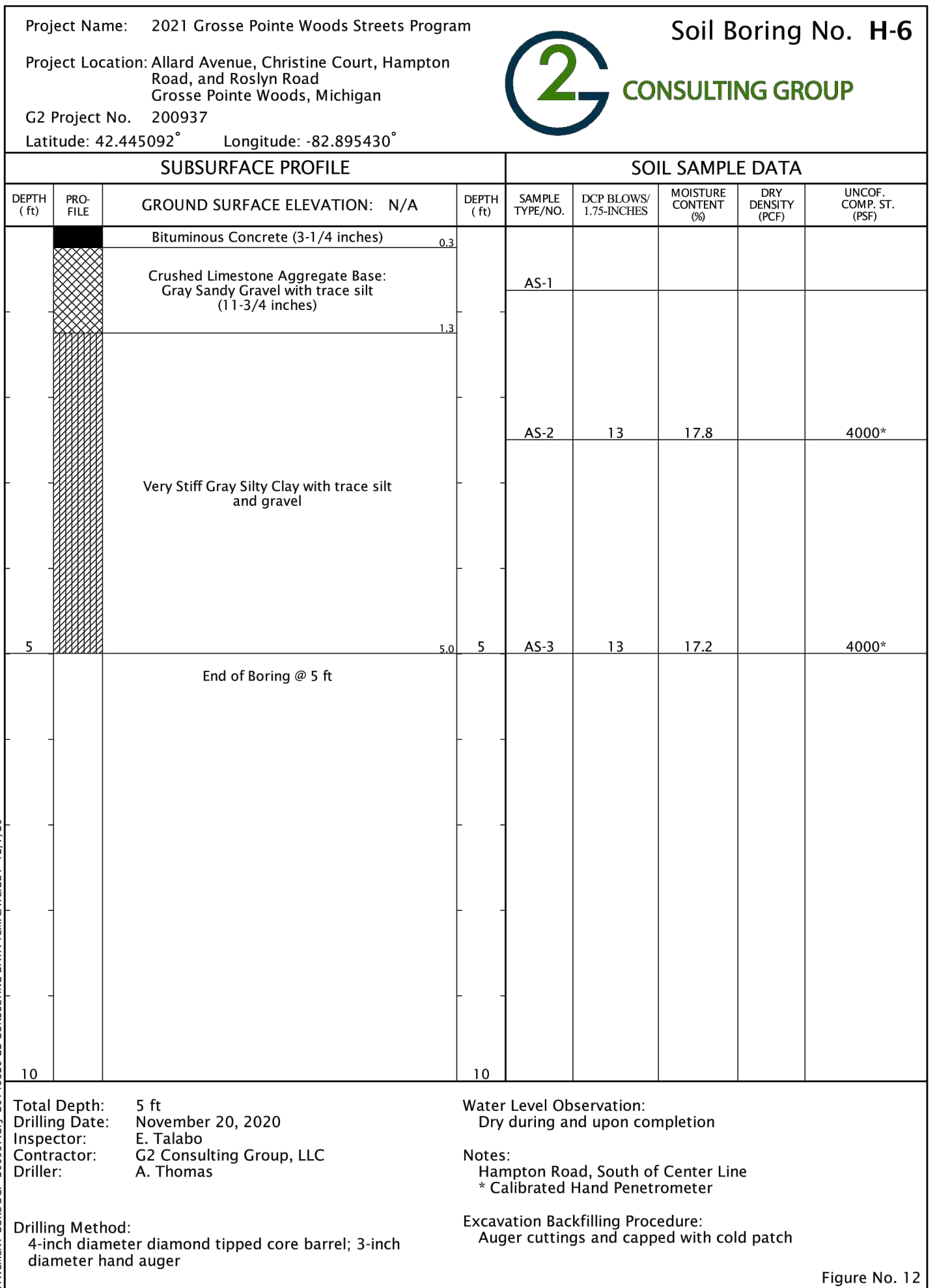
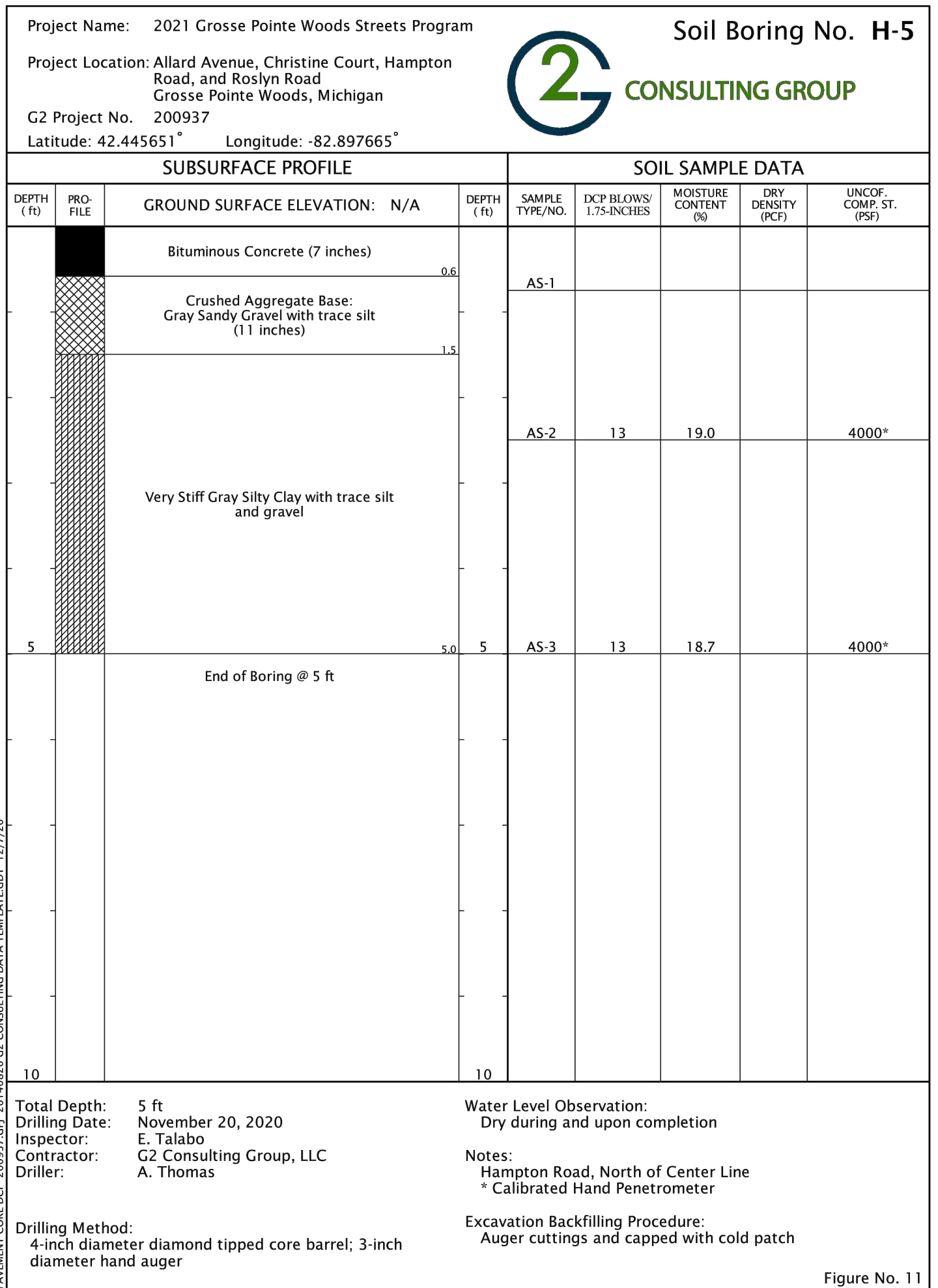
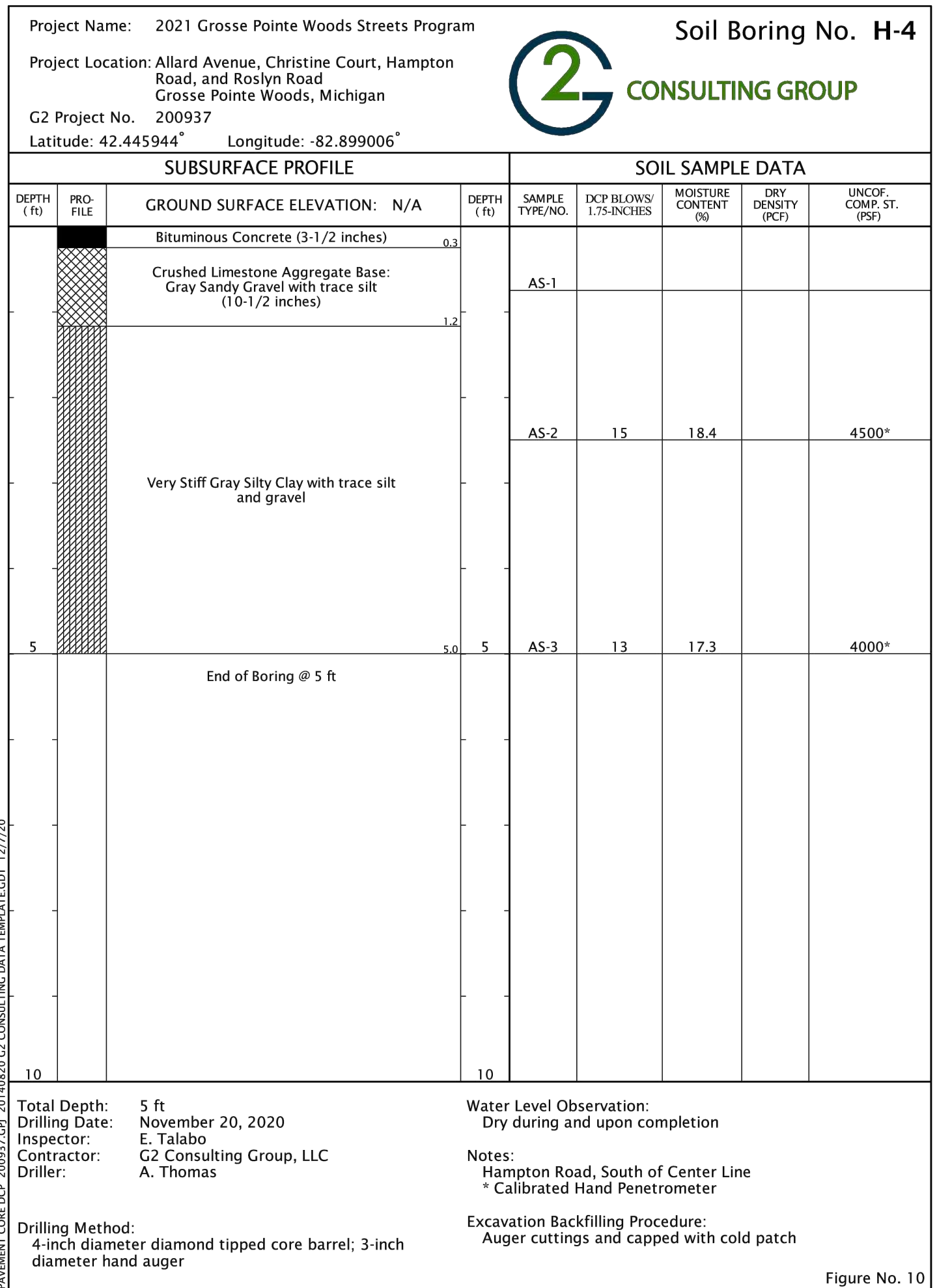
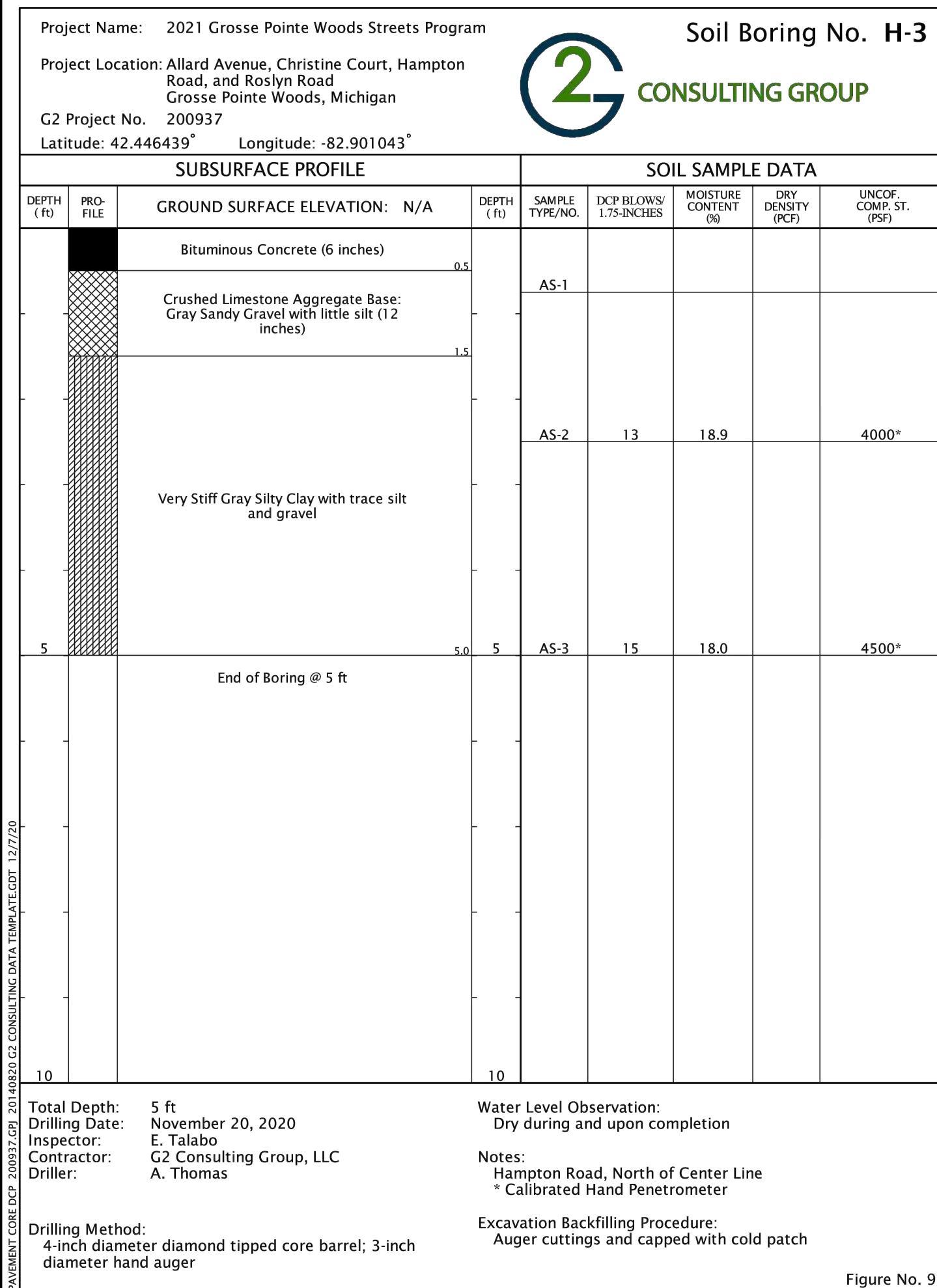
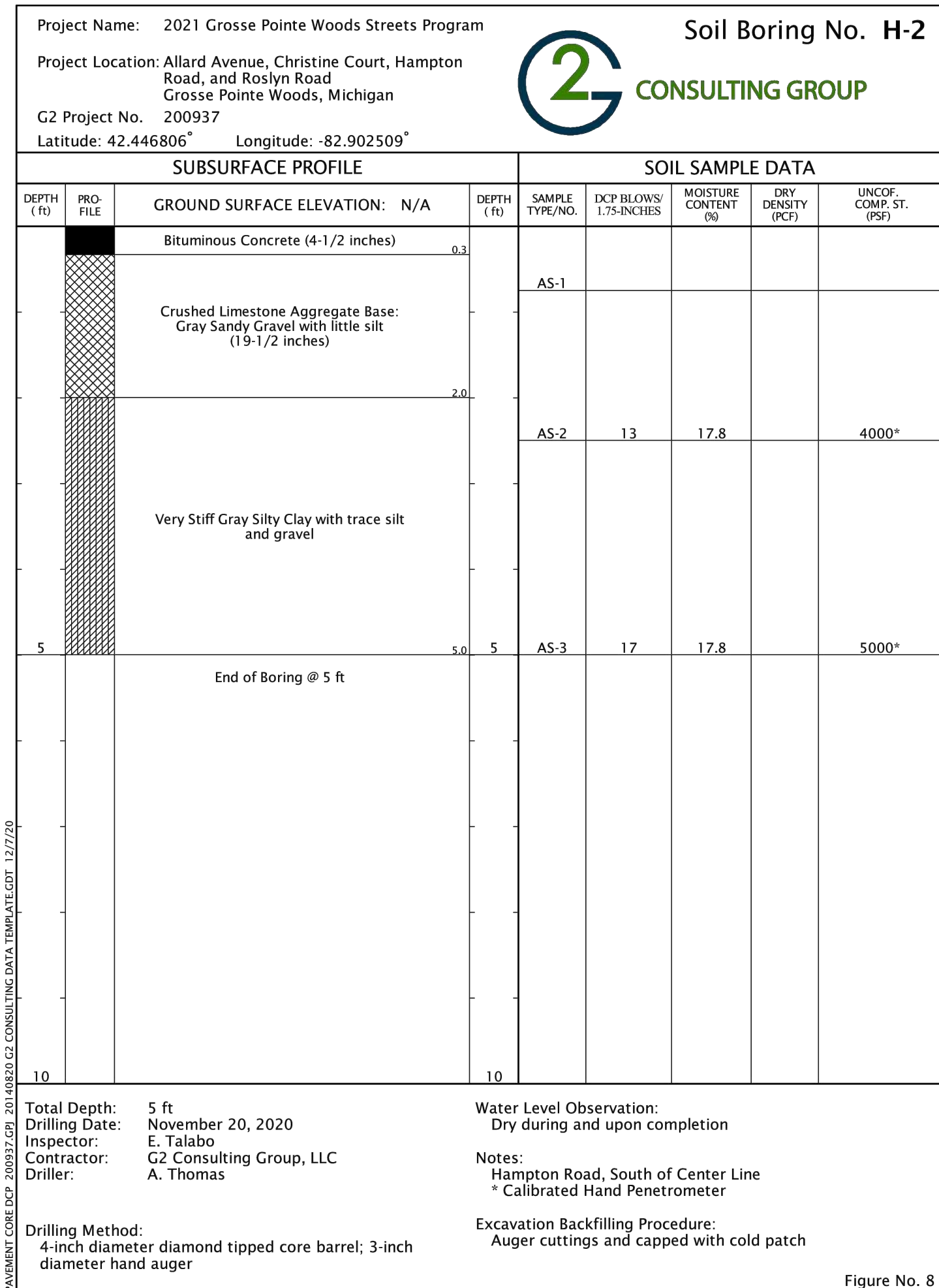
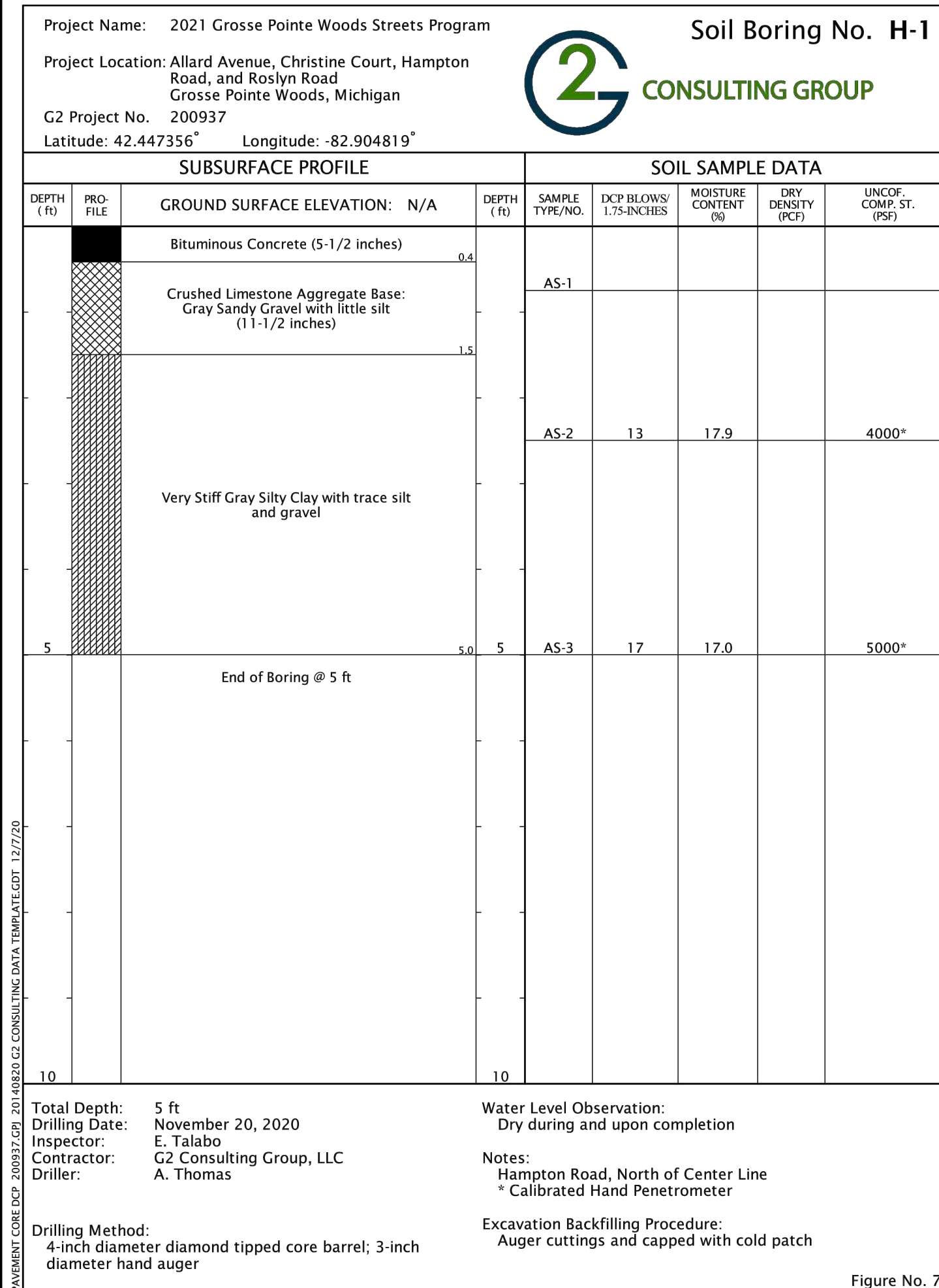
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Michigan 48315

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ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

**HAMPTON ROAD
WATER MAIN &
RESURFACING**
(MACK AVE. TO MARTER RD.)

SHEET TITLE:

SOIL BORINGS

CLIENT:

CITY OF GROSSE POINTE WOODS

<input checked="" type="checkbox"/> PRELIMINARY	<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> RECORD
DRAWN BY: RO	CHECKED BY: RW	DATE: AUGUST 2022
SCALE: 		



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PROJECT NO.

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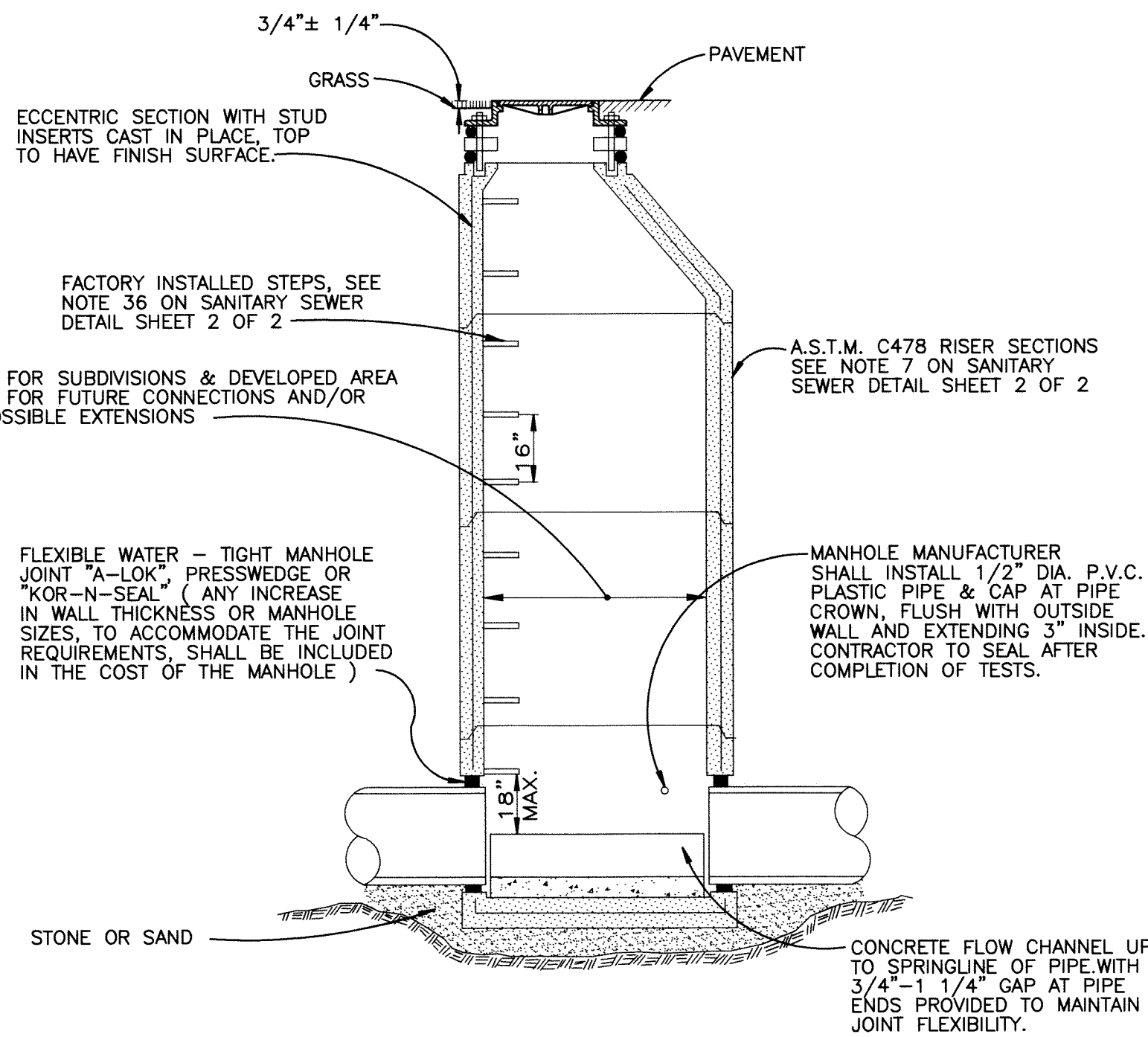
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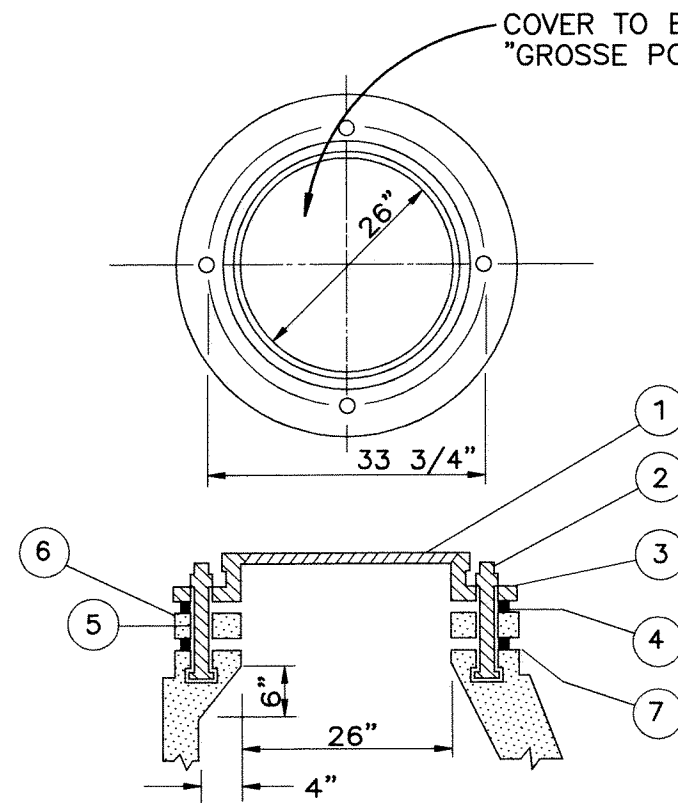
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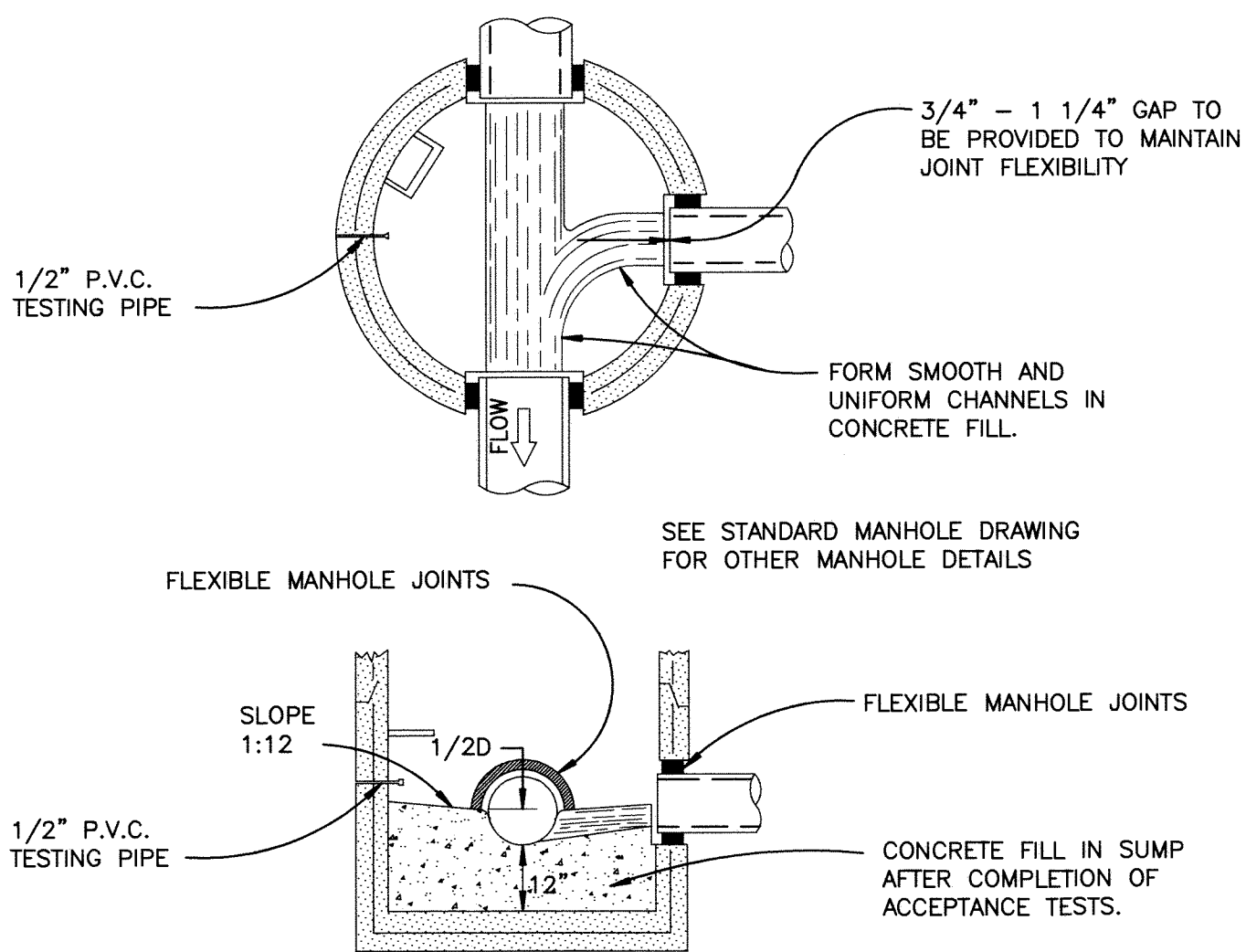


SANITARY SEWER MANHOLE

(8" THRU 15" DIA. SEWERS)

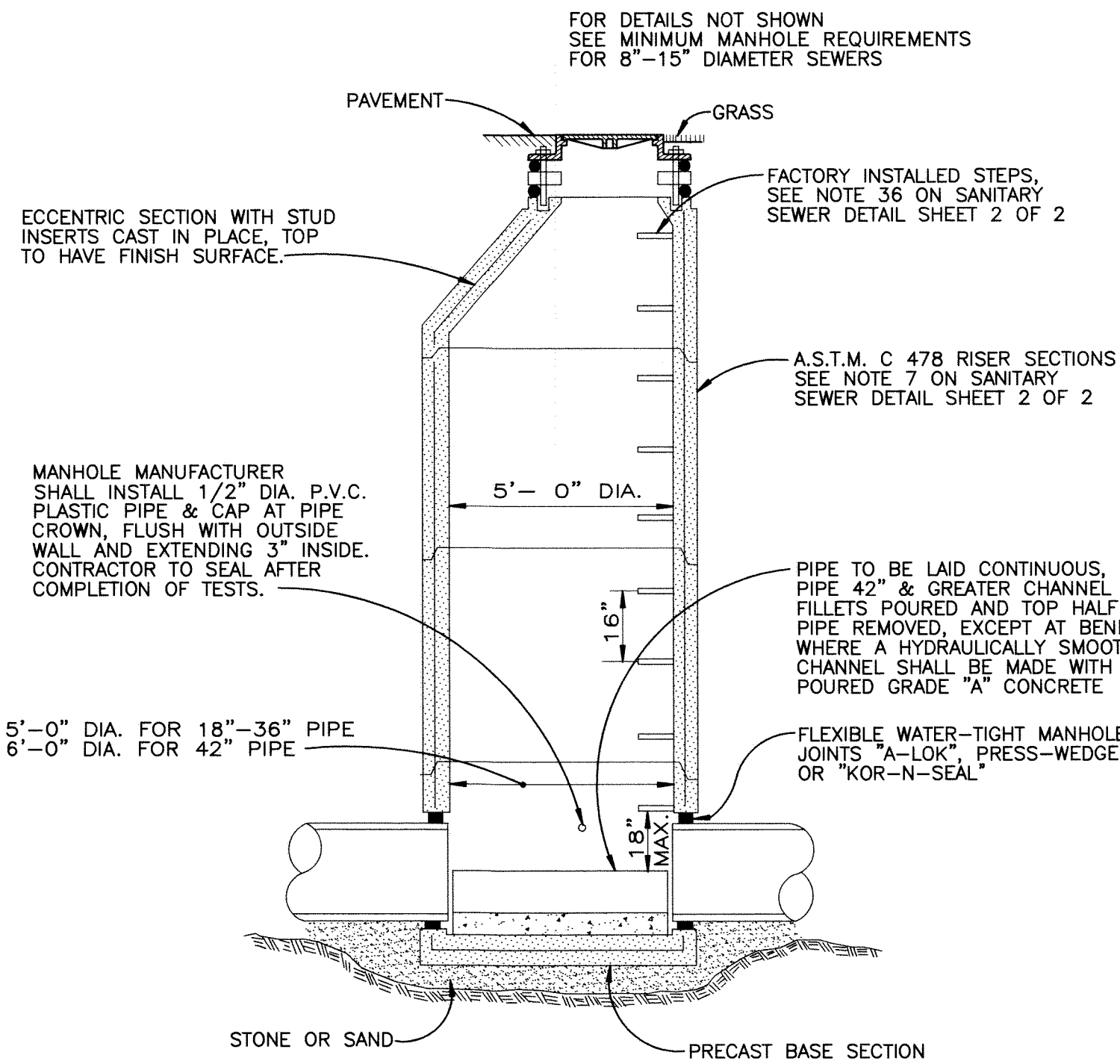


WATERPROOF MANHOLE FRAME & COVER



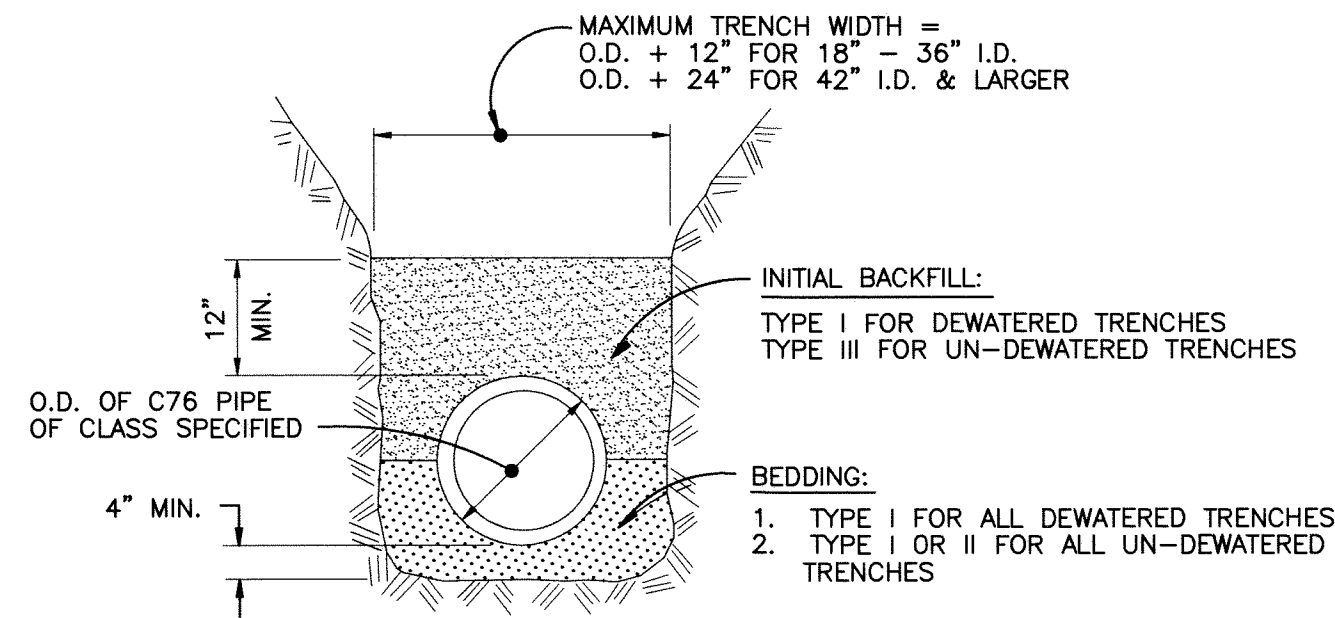
SUMP MANHOLE

FOR
TESTING, CLEANING & DEWATERING



SANITARY SEWER MANHOLE

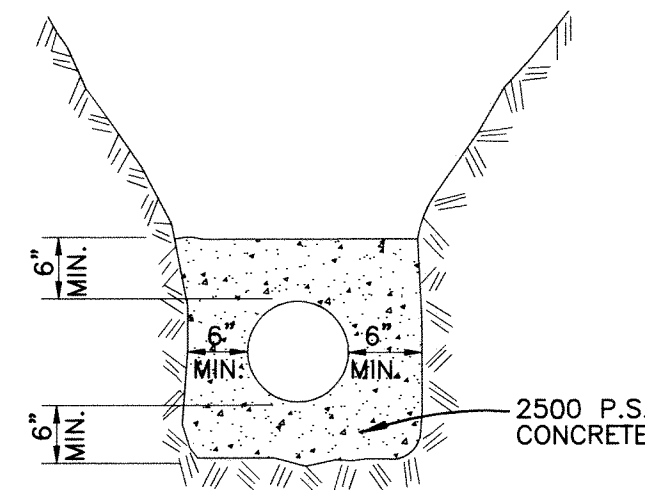
(18" THRU 42" DIA. SEWERS)



BEDDING & TRENCH DETAIL, 18" & LARGER SEWER

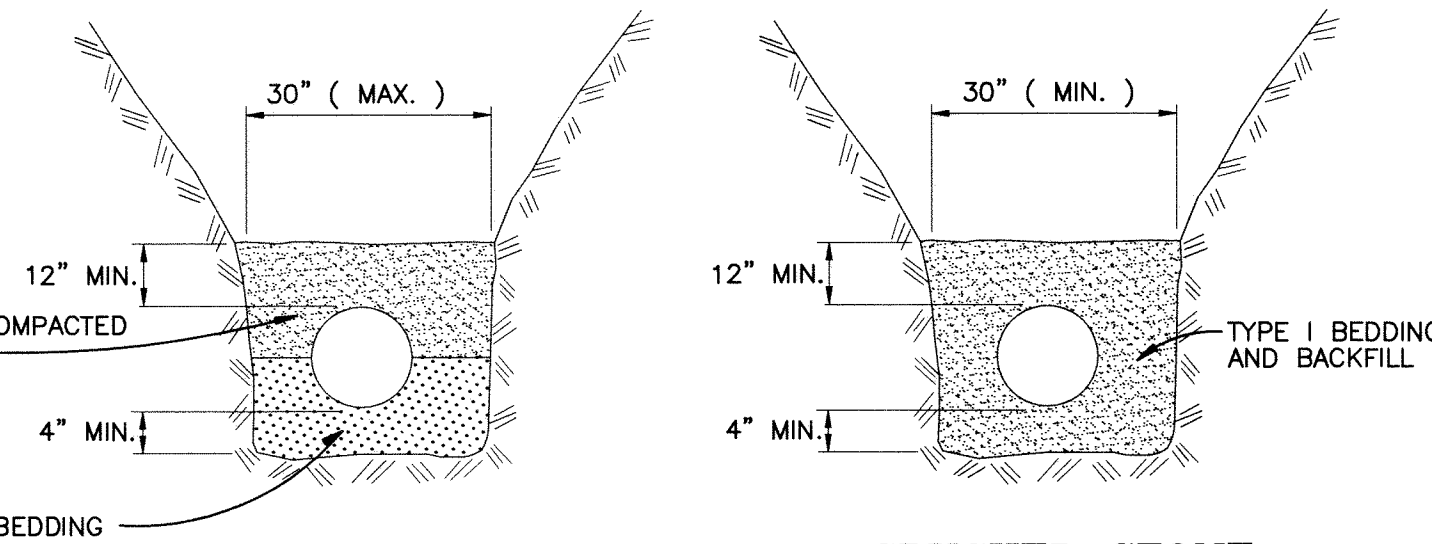
CLASS C

NOTE: APPROVAL MAY BE GIVEN TO ALTERNATE MATERIALS AND METHODS TO ACHIEVE CLASS C BEDDING.

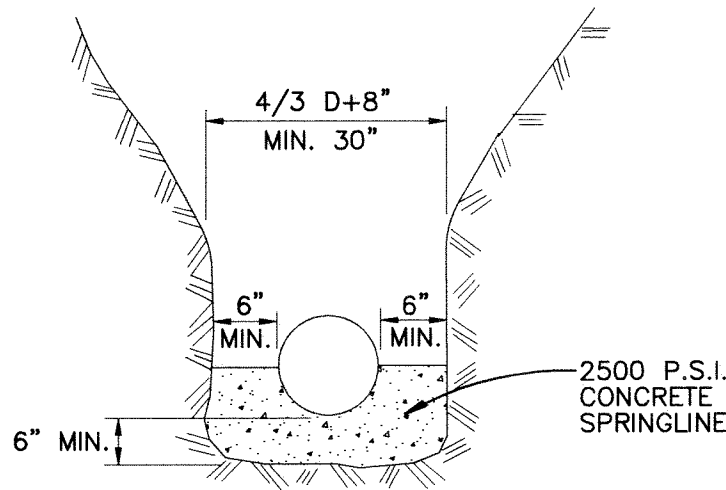


CONCRETE ENCASEMENT DETAIL

1. PLACE 2,500 PSI CONCRETE AGAINST UNDISTURBED EARTH FOR ENTIRE WIDTH OF TRENCH.
2. FOR SANITARY SEWER IN EXCESS OF 15 INCHES IN DIAMETER CLASS V REINFORCED PIPE MAY BE SUBSTITUTED FOR CONCRETE ENCASEMENT, WITH OWNER'S APPROVAL.

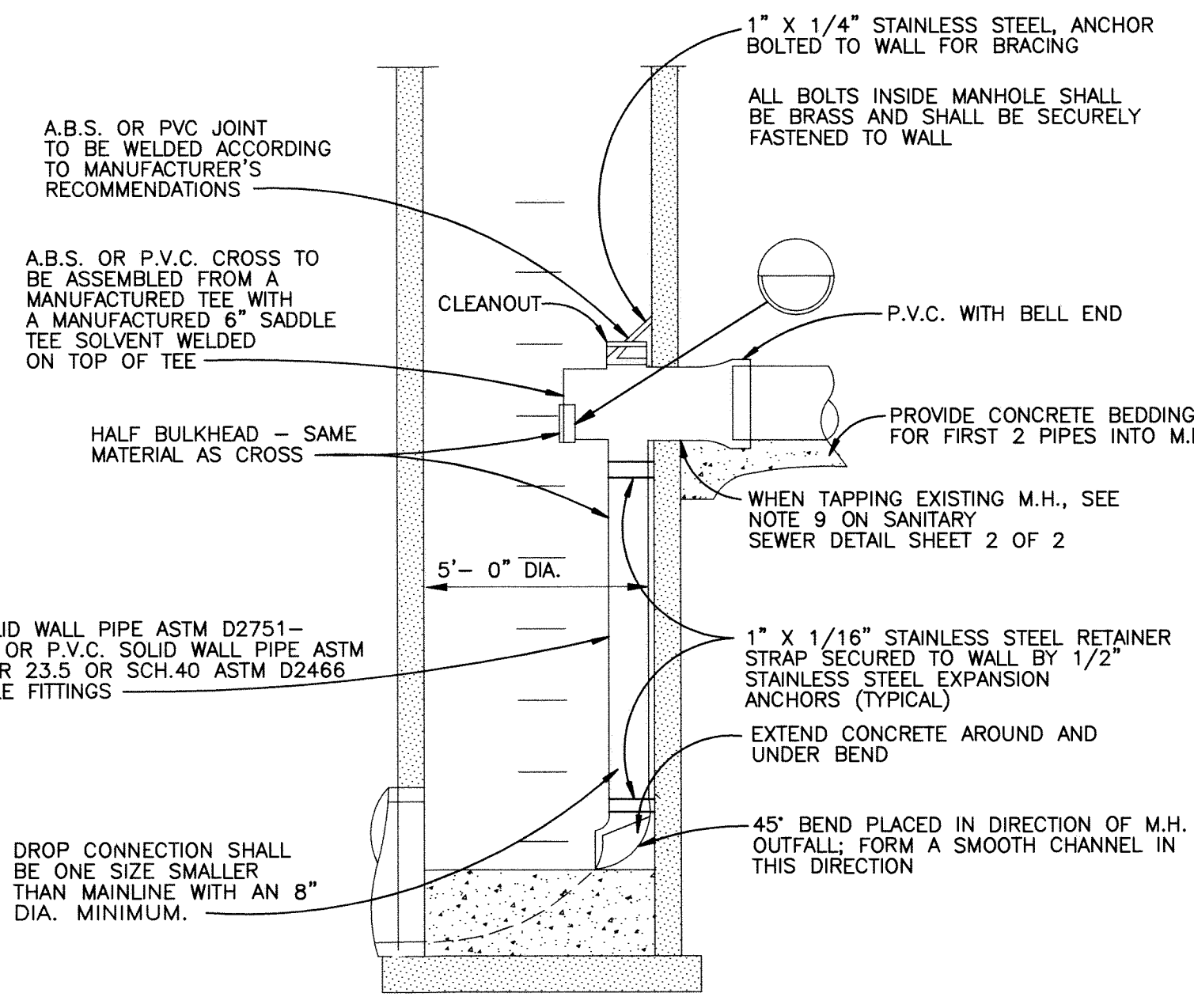


BEDDING & TRENCH DETAIL, 6"-15" SEWERS



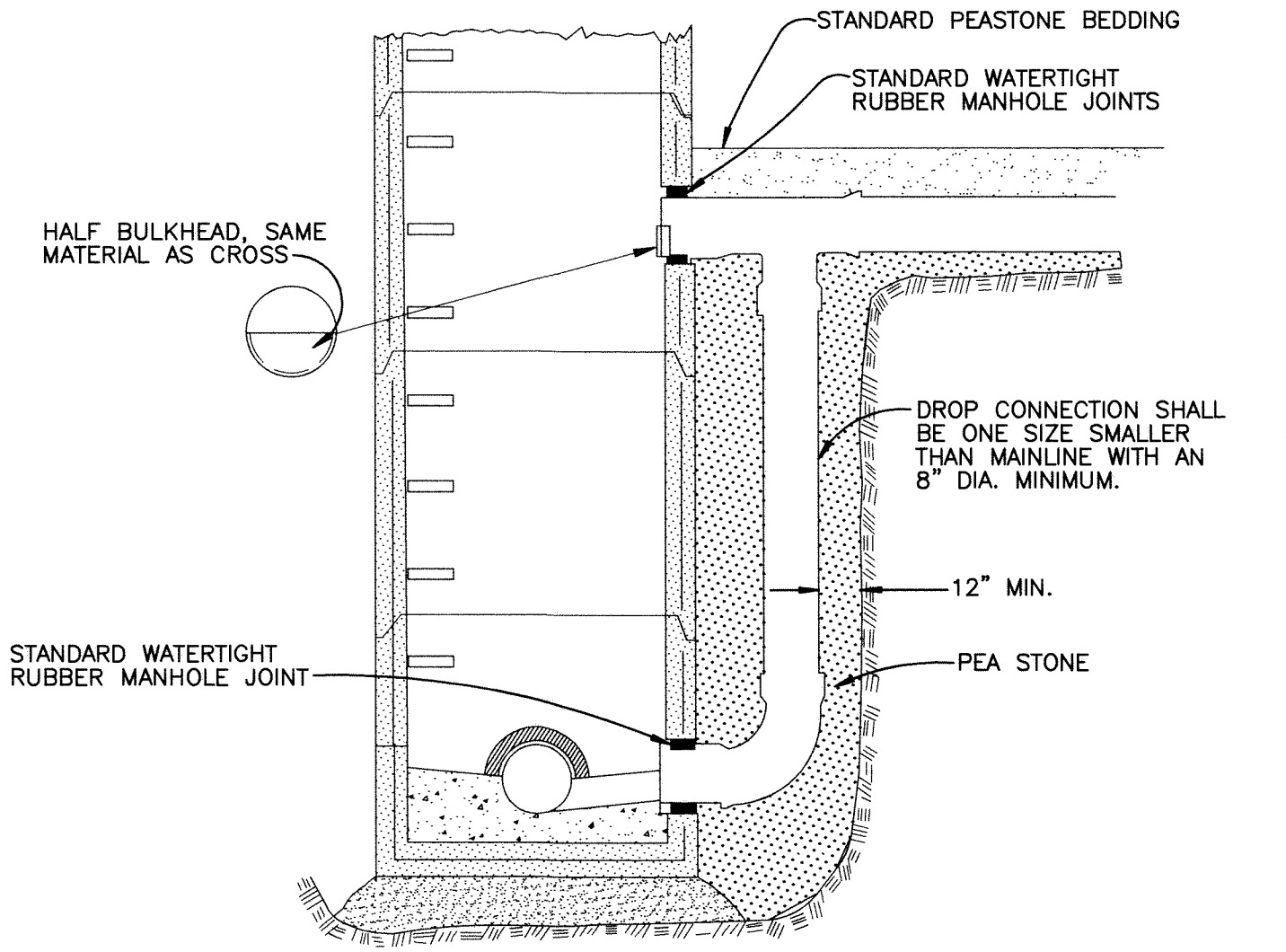
CONCRETE CRADLE DETAIL

1. CONCRETE CRADLE MAY BE SPECIFIED AT OWNER'S DISCRETION WHERE THE TRENCH WIDTH IS EXCESSIVE, OR WHERE THE TRENCH IS NOT SUITABLE FOR PIPE LAYING.



INTERIOR DROP ASSEMBLY

(ONLY WITH SEWER AND WATER DEPARTMENT APPROVAL)



EXTERIOR DROP CONNECTION

FOR ALL DROP CONNECTIONS

GENERAL PIPE BEDDING TRENCH NOTES

1. THE CONTRACTOR SHALL INSTALL THE PIPE IN ACCORDANCE WITH THE CLASS BEDDING DETAIL REQUIRED FOR THE TYPE OF PIPE DEPTH (MEASURED TO THE TOP OF THE PIPE), AND TRENCH WIDTH (MEASURED ACROSS THE TRENCH AT THE TOP OF THE PIPE) CONSTRUCTED. A CONTRACTOR MAY ALWAYS USE A HIGHER QUALITY BEDDING CLASS THAN REQUIRED. ANY OTHER VARIATIONS MUST BE APPROVED IN WRITING BY THE ENGINEER.
2. CRUSHED STONE ENCASEMENT SHALL BE UTILIZED FOR ALL DEWATERED GROUND TRENCHES AND SHALL UTILIZE A TRENCH WIDTH OF 30" (MINIMUM).
3. BACKFILL MATERIAL SHALL BE AS FOLLOWS:

TYPE I: SHALL CONSIST OF WELL GRADED CRUSHED STONE. THE STONE SHALL CONFORM TO ASTM D 448 #5, 56, 57, 6, 67 & 68. ASTM D 2321 CLASS I, OR ALTERNATIVE APPROVED BY THE ENGINEER. ANY MATERIAL INCORPORATED SHALL PROVIDE A MINIMUM OF 95% CRUSHED MATERIAL. MDOT COURSE AGGREGATES 6A, 6AA, 9A, 17A & 25 SERIES ARE ALSO APPROVED FOR USE IF THEY ARE MANUFACTURED WITH SUFFICIENT CRUSHED MATERIAL AND NO STONE IS LARGER THAN 1".

TYPE II: SHALL CONSIST OF WELL GRADED COURSE SANDS AND GRAVEL (1 INCH MAXIMUM DIAMETER) CONTAINING A SMALL PERCENTAGE OF FINES. THE MATERIAL SHALL CONFORM TO ASTM D 2321 CLASS II AND SHALL INCLUDE PEA PEBBLE AND MDOT AGGREGATES 20 SERIES, 21 SERIES, 22 SERIES, 23A, 26A, 28 SERIES & 31 SERIES. 95% MINIMUM DENSITY REQUIRED. TYPE II MAY BE SUBSTITUTED FOR TYPE III BACKFILL.

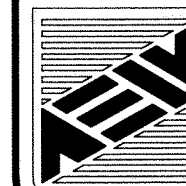
TYPE III: SHALL CONSIST OF FINE SAND AND CLAYEY GRAVELS CONFORMING TO ASTM 2321 CLASS III AND SHALL INCLUDE PEA PEBBLE. IT SHALL NOT CONTAIN ANY STONE LARGER THAN 1 INCH IN DIAMETER AND SHALL REQUIRE 95% MINIMUM DENSITY.

CITY OF GROSSE POINTE WOODS SANITARY SEWER (1 of 2)

DEPARTMENT OF PUBLIC WORKS

APPROVED BY : *Joseph J. Ahne Jr.*
JOSEPH J. AHNE JR. : DFW, DIRECTOR

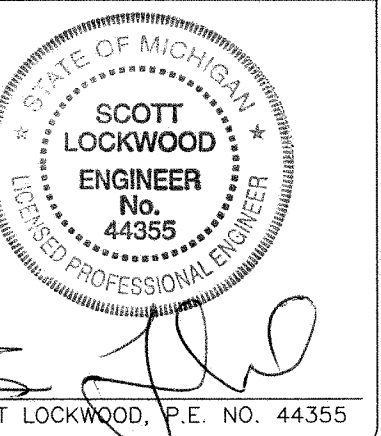
DATE: 2/6/07



ANDERSON, ECKSTEIN AND WESTRICK, INC.
Civil Engineers • Surveyors • Architects
51301 Schoenherr Road, Shelby Township, Michigan 48315
Phone 586-726-1234 Fax 586-726-8780

PROJECT NO. SHEET NO.
DATE: FEBRUARY, 2007
DRAWN BY: KJP/KAO CHECKED BY: SPL

B



SANITARY SEWER CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF GROSSE POINTE WOODS SEWER AND WATER DEPARTMENT. ALL SANITARY SEWER CONSTRUCTION SHALL HAVE COMPETENT FULL TIME INSPECTION PROVIDED BY OR CAUSED TO BE PROVIDED BY THE CITY OF GROSSE POINTE WOODS.
2. AT ALL CONNECTIONS TO CITY OF GROSSE POINTE WOODS SANITARY SEWERS OR TO EXTENSIONS THERE TO, AND BEFORE START OF CONSTRUCTION, THE CONTRACTOR MUST REQUEST AND HAVE IN HIS POSSESSION AN APPROVED CONNECTIONS PERMIT ISSUED BY THE CITY OF GROSSE POINTE WOODS SEWER & WATER DEPARTMENT. THE CONTRACTOR SHALL NOTIFY THE CITY OF GROSSE POINTE WOODS SEWER AND WATER DEPARTMENT 48 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION.
3. NO SEWER INSTALLATION SHALL HAVE AN INFILTRATION EXCEEDING 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOUR PERIOD. EXFILTRATION TESTING SHALL BE CONDUCTED WHERE GROUND WATER IS INSUFFICIENT. ALL INSTALLATIONS SHALL ALSO PASS LOW PRESSURE AIR TEST AS SPECIFIED IN THE CITY OF GROSSE POINTE WOODS STANDARD SPECIFICATIONS.

ABS COMPOSITE PIPE AND ANY APPROVED PLASTIC PIPE SHALL BE SUBJECT TO DEFLECTION TEST 30 DAYS AFTER CONSTRUCTION WITH A NINE SIDED MANDREL. THE CONTRACTOR MUST SUPPLY THE MANDREL AND PERFORM THE TEST. THE OWNER WILL WITNESS THE TEST. DEFLECTION SHALL NOT EXCEED 5%. THE OWNER OR THEIR REPRESENTATIVE RESERVES THE RIGHT TO TEST THE SEWER FOR DEFLECTION NOT TO EXCEED 7% DURING THE PERIOD OF THE MAINTENANCE BOND. ANY SEWER FOUND EXCEEDING THESE LIMITS SHALL BE REPLACED BY AND AT THE CONTRACTOR'S EXPENSE.

AS PART OF THE FINAL INSPECTION, THE CONTRACTOR SHALL PROVIDE FOR TELEVISION INSPECTION OF THE SANITARY SEWER LINES INSTALLED UNDER THIS CONTRACT. THE CONTRACTOR SHALL ARRANGE FOR, ENGAGE AND PAY ALL EXPENSES INVOLVED FOR THE SERVICES OF A COMPETENT COMPANY TO PERFORM THIS TELEVISION INSPECTION. THE INSPECTION SHALL BE CARRIED OUT UNDER THE DIRECT SUPERVISION OF THE ENGINEER WITH ALL TELEVISION INSPECTION BEING OBSERVED BY REPRESENTATIVES OF THE OWNER OR ENGINEER AND THE CONTRACTOR. ANY TELEVISION VIEWING PERFORMED IN THE ABSENCE OF THE ENGINEER OR A REPRESENTATIVE OF THE OWNER SHALL NOT BE CONSIDERED A PART OF THE FINAL INSPECTION. THE COLOR TELEVISION CAMERA SHALL BE ONE SPECIFICALLY DESIGNED AND CONSTRUCTED FOR SUCH INSPECTION. THE CAMERA SHALL BE OPERATIVE IN 100% HUMIDITY, HAVE A HIGH RESOLUTION LENS CAPABLE OF SCANNING 360° CIRCUMFERENCE AND 270° ON A HORIZONTAL AXIS TO TELEVIEW SEWER LINES AND LATERALS. ALL TELEVISION INSPECTION SHALL BE RECORDED ON VIDEO TAPE AND TURNED OVER TO THE OWNER FOR READY REFERENCE AT A LATER DATE. THE VIDEO RECORDING SHALL DISPLAY CONTINUOUSLY THE DATE, TIME AND ENGINEERING STATIONS AND SHALL PERIODICALLY DISPLAY THE NAME OF THE PROJECT, NAME OF THE AREA COVERED AND DIRECTION OF TRAVEL. THE TAPE MUST BE COMPATIBLE WITH RCA MODEL VKT-275 VIDEO CASSETTE PLAYER 1/2 INCH VHS FORMAT.

4. INFILTRATION SHALL BE TESTED BY THE OWNER UTILIZING CALIBRATED WEIRS OR FLUMES INSERTED IN THE PIPE FLOWLINE AT A MANHOLE. TEST SECTIONS SHALL GENERALLY BE LIMITED TO A MAXIMUM LENGTH OF ONE HALF MILE. THE OWNER RESERVES THE RIGHT TO TEST SHORTER PIPE LENGTH SEGMENTS IF HE DEEMS IT NECESSARY TO ASSURE THAT NO SEGMENT EXCEEDS THE INFILTRATION LIMITS.
5. HOUSE OR BUILDING LEAD PIPE, WYES AND CAPS SHALL BE SOLID WALL PLASTIC PIPE, ABS (A.S.T.M. D-2751, SDR 23.5) OR PVC (A.S.T.M. D-2241, SDR 23.5 OR A.S.T.M. D-2466, SCH. 40) WITH JOINTS AS SPECIFIED IN NOTE #15. THE JOINT BETWEEN TWO DISSIMILAR SIZES OR TYPES OF BUILDING LEAD PIPE SHALL BE MADE WITH A PROPER SIZE FERNCO DONUT, OR APPROVED EQUAL, WITH POLYVINYL JOINT SEALER. A RUBBER BOOT WITH CLAMPS IS NOT ACCEPTABLE.
6. ALL SEWER PIPE SHALL BE INSTALLED IN CLASS "C" BEDDING OR BETTER, IN CONFORMANCE WITH THE DETAILS PROVIDED.
7. ALL NEW MANHOLES SHALL HAVE WATER AND SEWER DEPARTMENT APPROVED FLEXIBLE, WATER-TIGHT SEALS WHERE PIPES PASS THROUGH WALLS. MANHOLES SHALL BE PRECAST REINFORCED CONCRETE IN ACCORDANCE WITH ASTM C478 CURRENT SPECIFICATIONS. PRECAST MANHOLE JOINTS AND GASKETS SHALL BE MODIFIED TONGUE AND GROOVE IN ACCORDANCE WITH ASTM C361 CURRENT SPECIFICATIONS. PRECAST MANHOLE CONE SECTIONS SHALL BE CITY OF GROSSE POINTE WOODS APPROVED SEWER & WATER MODIFIED ECCENTRIC CONE TYPE. ALL MANHOLES SHALL BE PROVIDED WITH GASKET SEAL FRAMES. MANHOLE STEPS SHALL NORMALLY BE PROVIDED ON A BACK WALL OF THE MANHOLE FURTHEST FROM TRAFFIC.
8. AT THE CONNECTIONS TO MANHOLES, SEWERS OR EXTENSIONS THERETO, DROP CONNECTIONS WILL BE REQUIRED WHEN THE DIFFERENCE IN INVERT ELEVATIONS EXCEEDS 18 INCHES. THE DROP CONNECTIONS WILL BE EXTERIOR TYPE AS APPROVED BY THE SEWER AND WATER DEPARTMENT. THE USE OF INTERIOR TYPE DROP CONNECTIONS WILL BE BASED UPON MANHOLE SIZE, GROUND WATER AND SOIL CONDITIONS AT THE LOCATION WHERE THE TAP WILL BE PERFORMED.
9. EXISTING PRE-CAST CONCRETE MANHOLES SHALL BE TAPPED WITH THE "KOR-N-SEAL" METHOD FOR SEWERS 6" THRU 15" IN DIAMETER. EXISTING BRICK AND MANHOLE TAPS FOR 18" DIAMETER SEWERS AND LARGER SHALL HAVE HOLES DRILLED AT 4 INCHES CENTER TO CENTER AROUND THE PERIPHERY OF THE OPENING TO CREATE A PLANE OF WEAKNESS BEFORE BREAKING OUT THE SECTION. NON-SHRINK GROUT SHALL BE USED TO SEAL THE OPENING AND A CONCRETE COLLAR SHALL BE POURED 12 INCHES AROUND THE PIPE AND EXTEND 12 INCHES BEYOND THE OPENING.
10. NEW MANHOLES CONSTRUCTED DIRECTLY ON CITY OF GROSSE POINTE WOODS SANITARY SEWER SHALL BE PROVIDED WITH COVERS READING "GROSSE POINTE WOODS SANITARY SEWER" IN RAISED LETTERS. NEW MANHOLES BUILT OVER ANY EXISTING SANITARY SEWERS SHALL HAVE MONOLITHIC POURED BOTTOMS.

11. PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL TELEPHONE MISS DIG (1-800-482-7171) FOR THE LOCATION OF UNDERGROUND GAS AND CABLE FACILITIES AND SHALL ALSO NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK.

THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL COSTS FOR LOCATING, REMOVING AND REPLACING OR RELOCATING THESE UTILITIES SHALL BE INCLUDED IN THE COST OF CONSTRUCTING THE SANITARY SEWER. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH LIKE MATERIAL. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES BEFORE ANY WORK IS STARTED. THE EXACT LOCATION OF EXISTING UTILITIES SHALL BE DETERMINED BY HAND DIGGING.

12. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING SANITARY SEWER, WATER OR STORM SEWER SERVICE CONNECTIONS DURING CONSTRUCTION. ANY ADJUSTMENTS OR REPAIRS TO THESE SERVICES SHALL BE MADE BY THE CONTRACTOR AND THE COST SHALL BE INCLUDED IN THE COST FOR CONSTRUCTING THE SANITARY SEWER, UNLESS OTHERWISE PROVIDED IN THE CONTRACT.

13. SEWER PIPE MATERIAL:

1. 8" THROUGH 15" PIPE SHALL BE A.B.S. (ACRYLONITRILE-BUTADIENE-STYRENE) OR P.V.C. (POLY-VINYL-CHLORIDE) COMPOSITE SEWER PIPE CONFORMING TO THE CURRENT ASTM D2680 SPECIFICATIONS WITH TYPE SC JOINTS FOR A.B.S. AND GASKETED JOINTS FOR P.V.C. SOLID WALL PIPE SHALL BE SDR 23.5.
2. 18" AND LARGER PIPE SHALL BE REINFORCED CONCRETE CIRCULAR SEWER PIPE CONFORMING TO THE CURRENT ASTM SPECIFICATION C-76 (WALL C) WITH SIZE AND CLASS AS INDICATED ON THE PLANS. ALL REINFORCED CONCRETE SEWER PIPE SHALL BE CAST WITH REINFORCING STEEL EXTENDING INTO THE SPIGOTS. ALL JOINTS AND GASKETS SHALL BE MODIFIED TONGUE AND GROOVE, CONFORMING WITH THE REQUIREMENTS OF ASTM (C 361).
3. DUCTILE IRON PIPE--DOUBLE CEMENT LINED CLASS 54 PER ANSI A21.51 AND A21.4. JOINTS AND GASKETS SHALL BE PUSH-ON TYPE PER ANSI A21.11 (TYTON, BELL, TITE, FAST TITE OR APPROVED EQUAL).

14. IN INDUSTRIAL AREAS, PRIVATE SERVICE CONNECTIONS MADE TO THE SERVICE LEAD MUST HAVE AN ACCESSIBLE SAMPLING AND MONITORING MANHOLE. THE MANHOLE SHALL BE LOCATED ON PRIVATE PROPERTY AT A LOCATION APPROVED BY THE CITY OF GROSSE POINTE WOODS SEWER AND WATER DEPARTMENT. VITRIFIED PIPE MAY NOT BE USED.
15. BUILDING LEAD CONNECTIONS SHALL BE MADE WITH 6" WYES FOR A.B.S. AND P.V.C. PIPE AND 6" TEES FOR CONCRETE PIPE. WYES FOR ABS AND P.V.C. PIPE SHALL BE FACTORY FABRICATED (NOT EXTRUDED) AND SHALL BE CHECKED FOR IRREGULARITIES WHICH COULD AFFECT THE DEFLECTION TEST PRIOR TO INSTALLATION.
16. A CITY, WAYNE COUNTY ROAD COMMISSION, AND/OR MICHIGAN DEPARTMENT OF TRANSPORTATION PERMIT IS REQUIRED FOR ALL CONSTRUCTION WITHIN THEIR ROAD RIGHT-OF-WAYS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL PERMITS AND BONDS PRIOR TO CONSTRUCTION, OR INSURE THAT ALL REQUIRED PERMITS AND BONDS HAVE BEEN OBTAINED PRIOR TO CONSTRUCTION.
17. THE CONTRACTOR SHALL ABIDE BY ALL THE REQUIREMENTS OF THE ROAD RIGHT-OF-WAY OWNER REGARDING CONSTRUCTION OF WATER AND SEWER MAINS, MAINTAINING TRAFFIC, BARRICADING, BORING, BACKFILL AND RESTORATION.
18. NO WASTE EXCAVATION MATERIAL SHALL BE DISPOSED OF BY PLACING IT IN ANY FLOODPLAIN OR WET LAND OF THE STATE UNLESS APPROPRIATE PERMITS HAVE BEEN ISSUED. THE CONTRACTOR OR PROPERTY OWNER MUST OBTAIN LOCAL FILL PERMITS FOR ANY MATERIALS DEPOSITED UPON LANDS WITHIN ANY CITY, VILLAGE OR TOWNSHIP.
19. THE CONTRACTOR SHALL FURNISH A DETAILED PLAN TO THE WAYNE COUNTY DEPARTMENT OF PUBLIC WORKS AND OBTAIN A SOIL EROSION CONTROL PERMIT UNDER THE ACT 347 PRIOR TO MAKING ANY EARTH CHANGES.
20. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FURNISH MATERIAL CERTIFICATES TO THE OWNER VERIFYING THAT ALL THE MATERIALS USED ON THE PROJECT ARE IN ACCORDANCE WITH THE SPECIFICATIONS.
21. IF AN EXISTING GRAVEL ROAD IS DISTURBED BY CONSTRUCTION EQUIPMENT OR BY STOCKPILING OF MATERIALS OUTSIDE THE EXCAVATION AREA, A MINIMUM OF 8" OF 23A GRAVEL SHALL BE USED TO REPLACE THE DISTURBED AREAS.
22. ALL CONSTRUCTION CHANGES MUST HAVE WRITTEN APPROVAL OF THE PROJECT ENGINEER.
23. THE CONTRACTOR SHALL BE REQUIRED TO COMPLETE ALL WORK IN AN EXPEDITIOUS MANNER AND SHALL NOT STOP CONSTRUCTION EXCEPT FOR REASONS BEYOND HIS CONTROL SUCH AS, BUT NOT LIMITED TO STRIKES, WEATHER AND UNAVAILABILITY OF MATERIALS.

24. THE CONTRACTOR SHALL PROVIDE A ONE YEAR MAINTENANCE AND GUARANTEE BOND TO THE CITY, DATED FROM THE TIME OF FINAL ACCEPTANCE BY THE CITY.

25. THE CONTRACTOR SHALL HAVE THE OPTION OF STARTING CONSTRUCTION AT THE FIRST MANHOLE UPSTREAM OF THE POINT OF CONNECTION TO THE EXISTING SYSTEM. A TEMPORARY TEST MANHOLE MAY BE USED NEAR THE POINT OF CONNECTION RATHER THAN A PERMANENT ONE, AND THE CONTRACTOR MAY LEAVE THE BASE OF THE TEMPORARY MANHOLE IN PLACE. LINES UP TO 400 FEET IN LENGTH (TOTAL LENGTH OF EXTENSION) MAY BE TESTED WITHOUT PLACEMENT OF THE MANHOLE BASE PROVIDED THE LINES ARE TESTED AND PUT IN SERVICE IMMEDIATELY FOLLOWING CONSTRUCTION.

26. THE ENTIRE PROJECT AREA OF PUBLICLY FUNDED PROJECTS, AND ALL AREAS NOT UNDER THE OWNERSHIP OF ANY PRIVATE DEVELOPER FOR PRIVATELY FUNDED PROJECTS, SHALL BE VIDEO TAPED IN COLOR PRIOR TO THE START OF CONSTRUCTION. THE TAPE SHALL BE UTILIZED BY THE CITY TO DETERMINE CONSTRUCTION RELATED DAMAGE AND TO ASSURE ADEQUATE RESTORATION. THE TAPE SHALL BE STANDARD 1/2" VHS FORMAT.

27. ALL PRECAST MANHOLES, SLAB BASES AND CONCRETE PIPE SHALL BE MANUFACTURED WITH TYPE II, IP OR IIA CEMENT. ALL CONCRETE FOR CHANNELIZATION SHALL BE MADE WITH TYPE II, IP OR IIA CEMENT.

28. ALL TERMINAL MANHOLES AND ANY INTERMEDIATE MANHOLES WHERE FUTURE DROP CONNECTIONS ARE A POTENTIAL SHALL BE 1 FOOT LARGER IN DIAMETER THAN WOULD OTHERWISE BE REQUIRED, AND SHALL BE NO SMALLER THAN 5 FEET IN DIAMETER.

29. DUCTILE IRON PIPE SHALL BE USED FOR THE SANITARY SEWER AT ALL WATER MAIN AND SANITARY SEWER CROSSINGS WITH LESS THAN 2 (TWO) FEET OF VERTICAL CLEARANCE AND WHERE THE WATER MAIN CROSSES BELOW THE SEWER, REGARDLESS OF VERTICAL CLEARANCE DISTANCE. THE DUCTILE IRON PIPE SHALL BE OF EQUAL SIZE (OR LARGER) AS THE PROPOSED SEWER AND SHALL EXTEND FROM MANHOLE TO MANHOLE.

30. TRENCH DETAIL "A" (T.D.-A) - BACKFILL TO A POINT 12" ABOVE THE PIPE SHALL BE AS SPECIFIED ON THE PLANS. THE REMAINDER OF THE BACKFILL SHALL BE MADE WITH SUITABLE EXCAVATED MATERIAL (EXCLUDING BLUE CLAY) PLACED IN ONE-FOOT LAYERS WITH EACH LAYER BEING THOROUGHLY COMPACTED BY APPROVED MECHANICAL METHODS, OR OTHER EFFECTIVE MEANS HAVING THE APPROVAL OF THE ENGINEER, TO A DENSITY EQUIVALENT TO THE UNDISTURBED ADJACENT SOIL, OR 90% OF MAX. UNIT WEIGHT, WHICHEVER IS GREATER.

- WHEN TRENCH DETAIL "A" IS SPECIFIED, THERE WILL BE NO ADDITIONAL COMPENSATION FOR SAND BACKFILL. ALL AREAS OF SUCH TRENCH DETAIL "A" SHALL BE SURFACED WITH GRAVEL, STONE, PAVEMENT OR TOPSOIL IN ACCORDANCE WITH THE REQUIREMENTS OF RESTORATION (SEE NOTE 23).

31. TRENCH DETAIL "B" (T.D.-B) - BACKFILL TO A POINT 12" ABOVE THE PIPE SHALL BE AS SPECIFIED ON THE PLANS. THE REMAINDER OF ALL TRENCHES UNDER PUBLIC ROADWAYS AND WITHIN THAT AREA BELOW A LINE PROJECTED AT A 1 ON 1 SLOPE DOWN AND AWAY FROM A POINT 3 FEET OUTSIDE OF THE BACK OF CURB, EDGE OF PAVEMENT OR EDGE OF SHOULDER AREA, OR AS SPECIFIED ON THE PLANS, SHALL BE BACKFILLED WITH BANKRUN SAND MEETING THE REQUIREMENTS OF POROUS MATERIAL, MDOT SEC. 8.02.05, CLASS II, AND IS TO BE COMPACTED TO 95% OF MAX. UNIT WEIGHT. WHEN TRENCH DETAIL B IS IN A DITCH OR TURF AREA, IT SHALL BE SURFACED WITH 2" TO 12" OF ORGANIC CLAY MATERIAL AND WITH 3" OF TOPSOIL. ALL OTHER AREAS OF TRENCH DETAIL B SHALL BE SURFACED WITH GRAVEL, STONE OR PAVEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF RESTORATION (SEE NOTE 23).

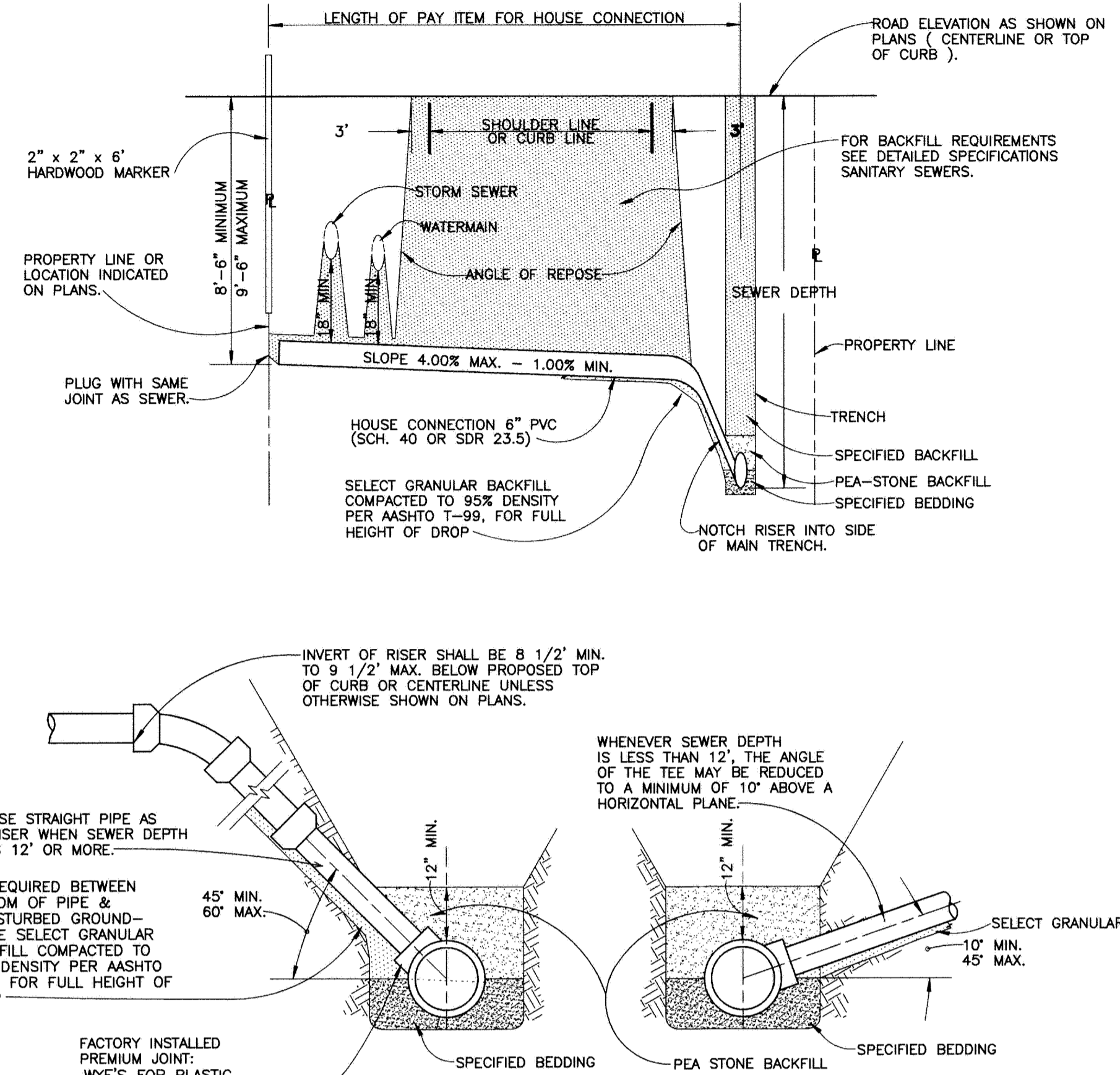
32. THE END OF A SANITARY LEAD SHALL BE CONSTRUCTED TO A MINIMUM DEPTH OF 8 1/2 FEET OR 9 1/2 FEET MAXIMUM BELOW THE PROPOSED GRADE AS SHOWN ON THE BUILDING LEAD DETAIL. THE LEAD LOCATION SHALL BE MARKED AS SHOWN IN THE DETAIL.

33. THE VERTICAL TOLERANCE FOR SANITARY MANHOLE RIM GRADES ARE AS FOLLOWS:

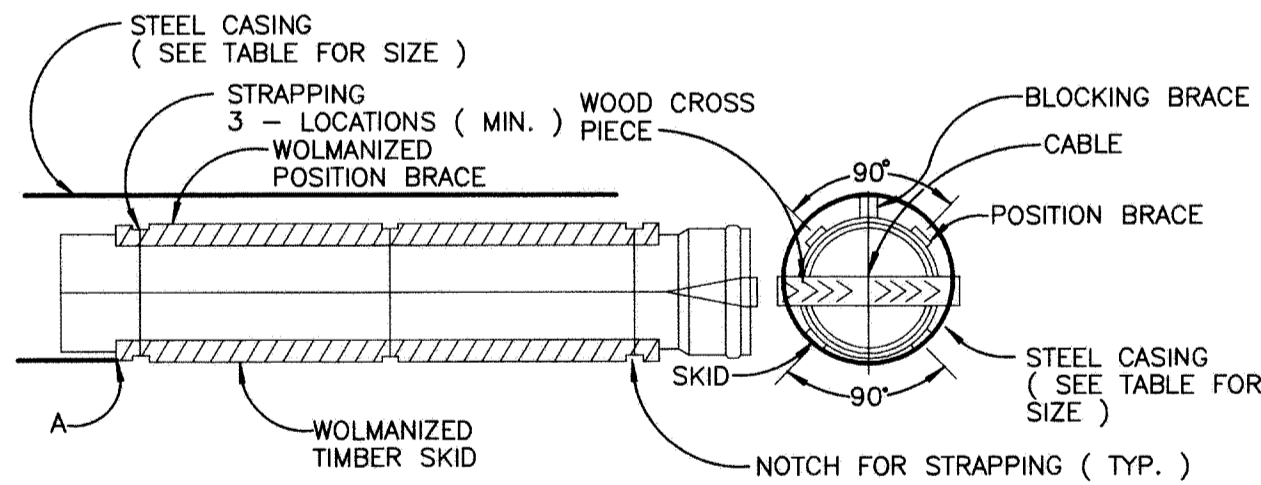
- A) IN RIGHT OF WAY 0.00 FEET TO +0.25 FEET
B) NOT IN RIGHT OF WAY +0.25 FEET

34. MANHOLE STEPS SHALL BE FACTORY INSTALLED AT 16 INCHES CENTER TO CENTER SPACING. STEPS SHALL BE M.A. INDUSTRIES P.S.I. POLYPROPYLENE MSU #360 ALU POLY (OR APPROVED EQUAL).

35. THE CONTRACTOR IS REQUIRED TO CONTACT THE OFFICE OF THE WAYNE COUNTY PUBLIC WORKS COMMISSIONER AT 469-5325, 48 HRS. BEFORE CONSTRUCTION.



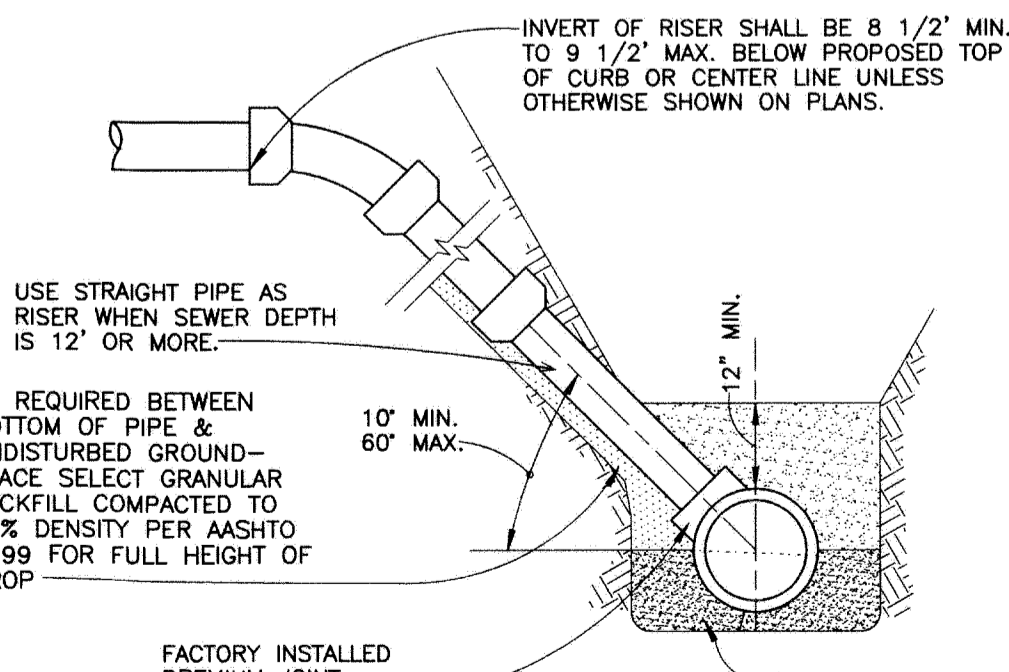
SANITARY SEWER HOUSE/ BUILDING CONNECTION



NOTE: THE ENDS OF THE CASING SHALL BE SEALED AFTER THE SEWER IS INSTALLED THROUGH THE CASING

PIPE SIZE	RECOMMENDED MINIMUM CASTING DIAMETER	MINIMUM WALL THICKNESS
6"	12"	.375
8"	16"	.375
10"	18"	.375
12"	20"	.375
15"	24"	.406
18" & 21"	36"	.532
24"	42"	.563
27" & 30"	48"	.625
36"	54"	.688
42"	60"	.750
48"	66"	.813

STEEL CASING REQUIREMENTS



REQUIREMENT FOR FIELD TAP: CORE-DRILLING PORT IN SEWER WALL. INSTALL PREMOLDED FLEXIBLE WATERTIGHT BOOT TO RECEIVE SERVICE CONNECTION. ALL JOINTS SHALL BE WATERTIGHT. NO PART OF CONNECTION SHALL PROTRUDE INTO MAINLINE I.D..

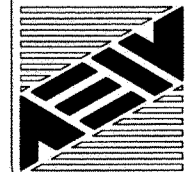
FIELD TAP DETAIL

CITY OF GROSSE POINTE WOODS
SANITARY SEWER (2 of 2)

DEPARTMENT OF PUBLIC WORKS

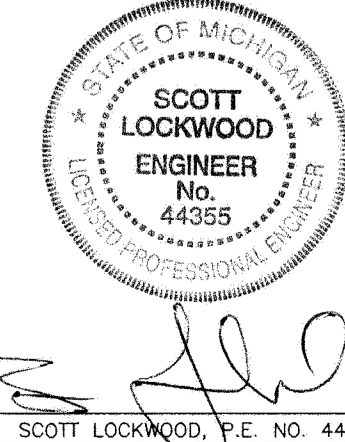
APPROVED BY: Joseph J. Ahee Jr. : DPW DIRECTOR

DATE: 2/6/07



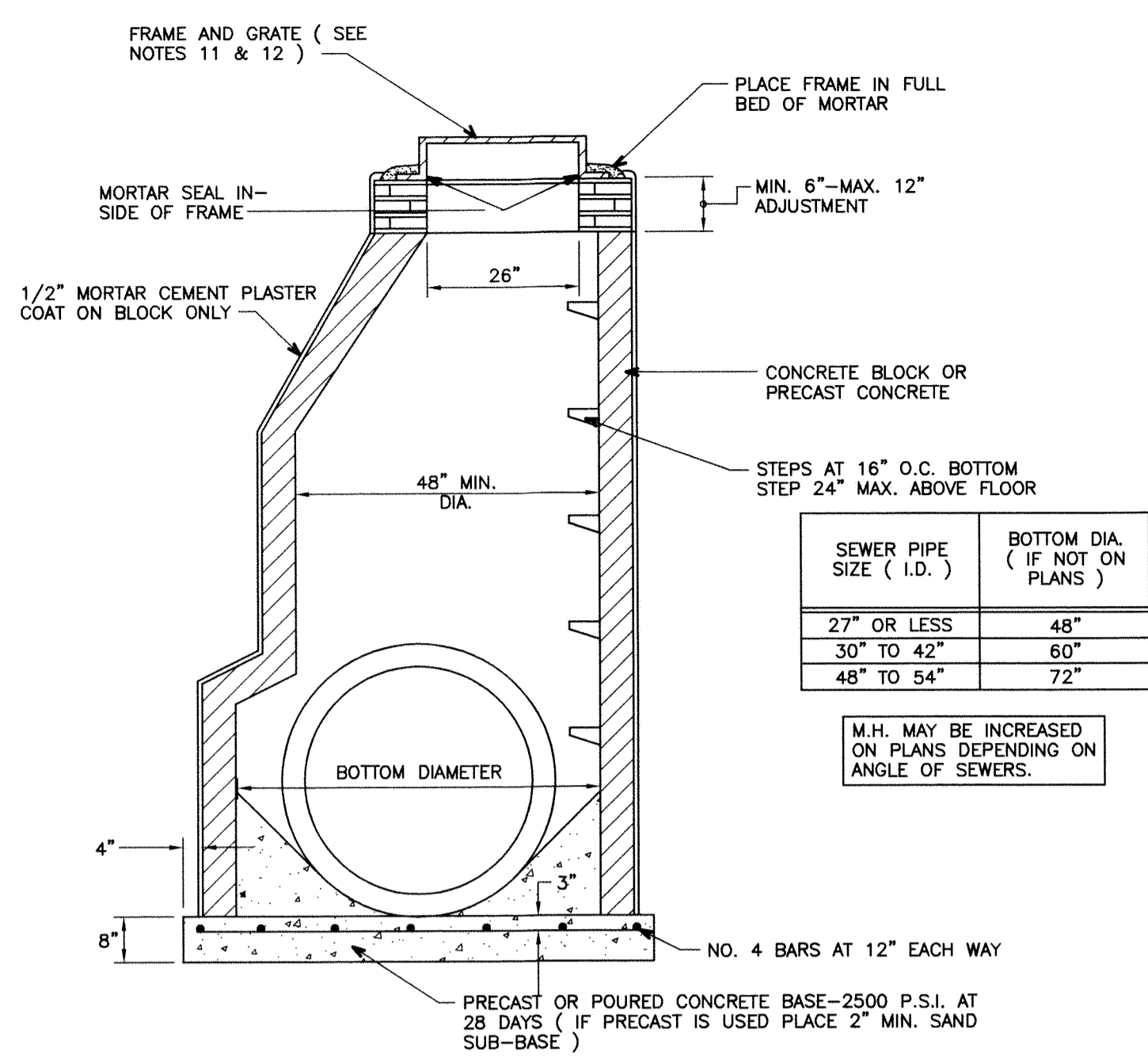
ANDERSON, ECKSTEIN AND WESTRICK, INC.
Civil Engineers • Surveyors • Architects
51301 Schoenherr Road, Shelby Township, Michigan 48315
Phone 586-726-1234 Fax 586-726-8780

PROJECT NO.	SHEET NO.
DATE	FEBRUARY 2007
DRAWN BY	CHECKED BY
DMS	FDV

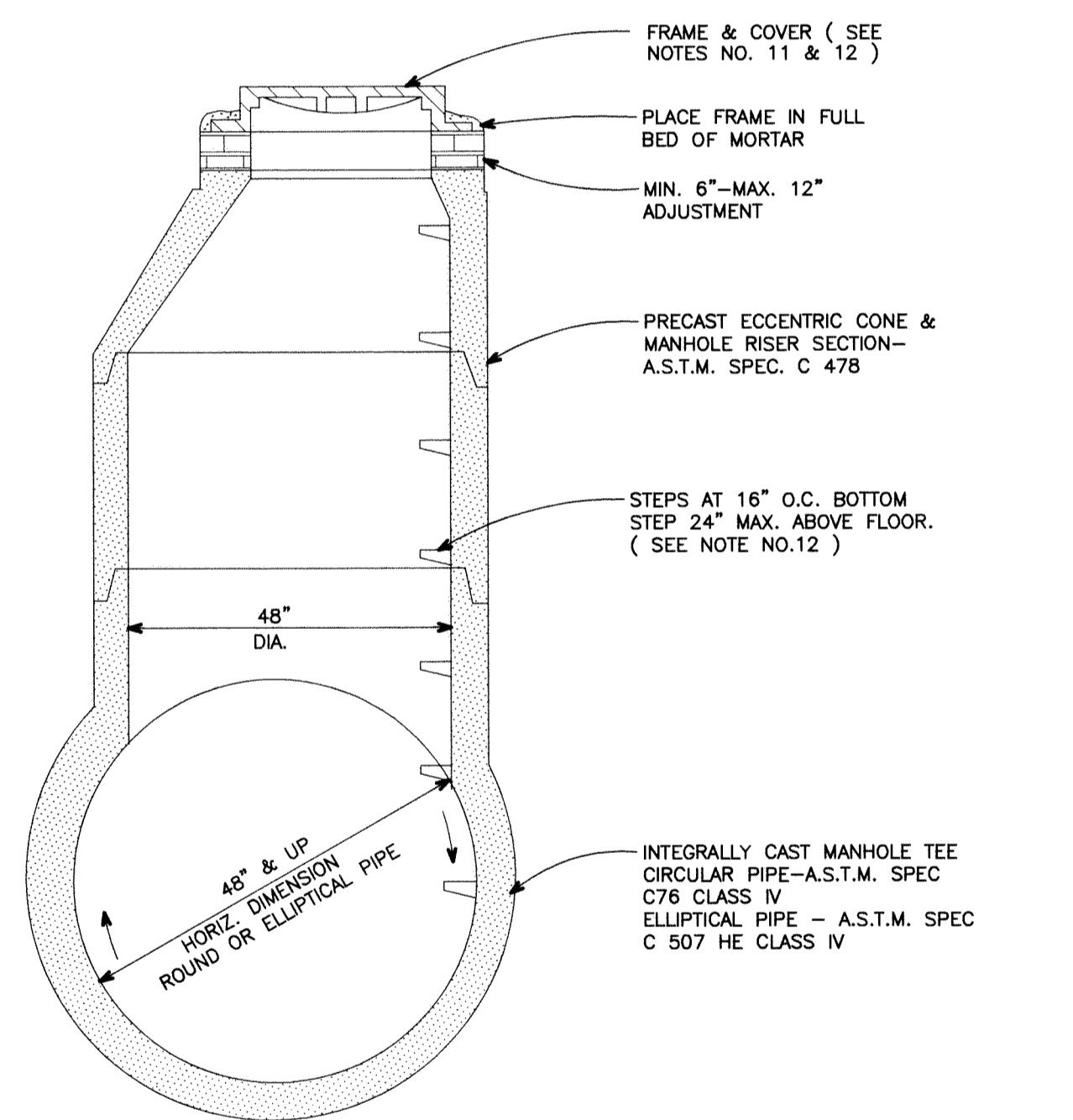


STORM SEWER NOTES

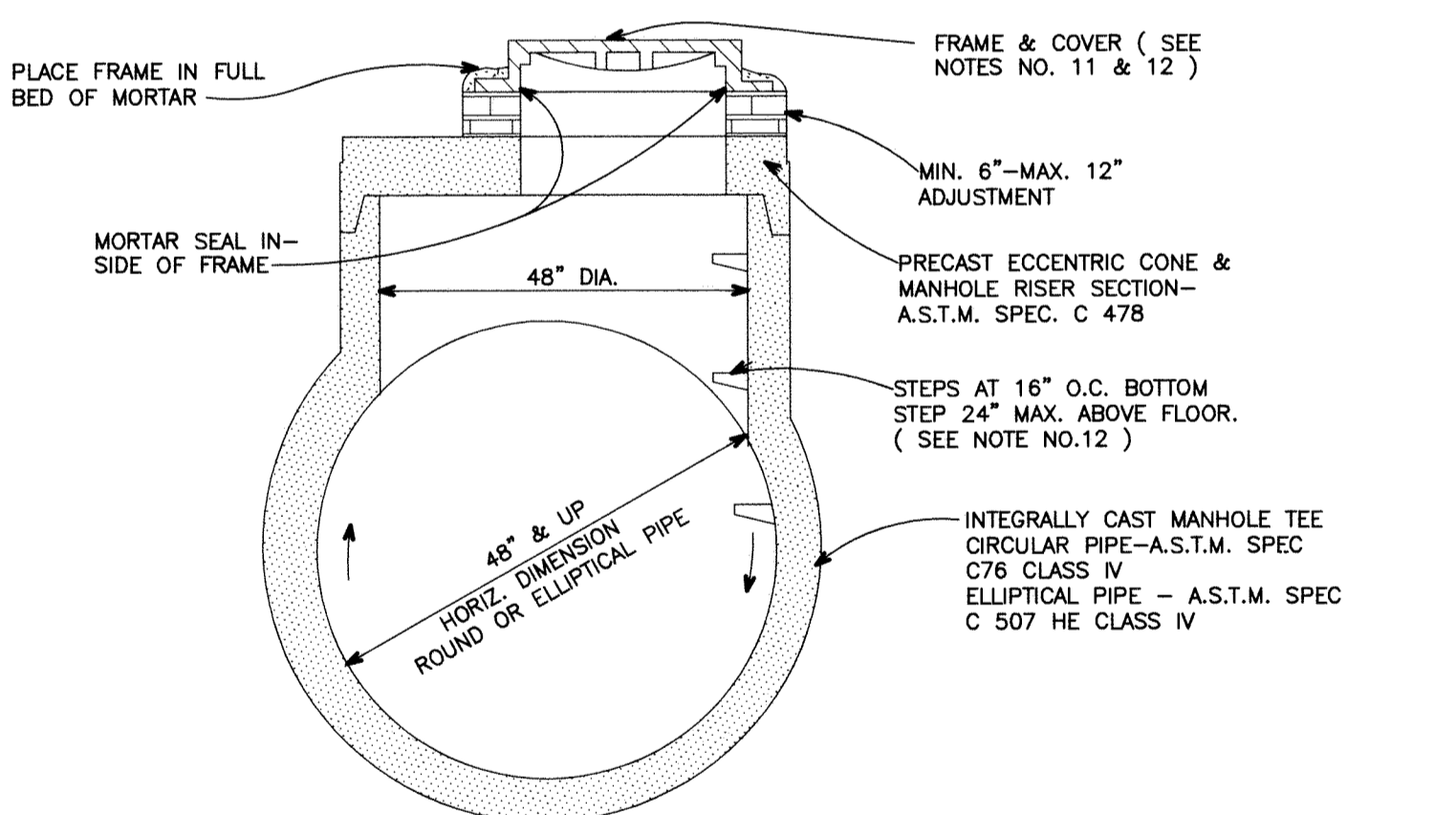
- AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL GIVE NOTIFICATION OF HIS INTENTION TO BEGIN CONSTRUCTION TO THE CITY OF GROSSE POINTE WOODS ENGINEERING DEPARTMENT, THE WAYNE COUNTY PUBLIC WORKS COMMISSION OR THE ROAD COMMISSION OF WAYNE COUNTY WHEN INSPECTIONS ARE NEEDED BY THAT AGENCY.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION A COPY OF A VALID PERMIT TO CONSTRUCT A CONNECTION TO, OR AN EXTENSION OF, THE STORM WATER DRAINAGE SYSTEM, FROM REQUIRED AGENCY ON THE JOB AT ALL TIMES OF CONSTRUCTION.
- THE CONTRACTOR SHALL SECURE PERMITS FROM THE WAYNE COUNTY PUBLIC WORKS COMMISSION FOR ALL TAPS AND CROSSINGS OF COUNTY DRAINS AND SHALL PAY THE COSTS OF SAID PERMITS AND THE COST OF ANY INSPECTION CHARGES BY THAT AGENCY FOR WORK DONE UNDER THE PERMITS.
- PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL TELEPHONE MISS DIG (1-800-482-7171) FOR LOCATION OF UNDERGROUND FACILITIES, AND SHALL ALSO NOTIFY REPRESENTATIVES OF ANY OTHER FACILITIES, LOCATED IN THE VICINITY OF THE WORK, WHICH MAY NOT BE HANDLED BY MISS DIG.
- ALL STORM WATER DRAINAGE SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY, COUNTY ROAD COMMISSION AND/OR COUNTY PUBLIC WORKS COMMISSION AS APPLICABLE.
- ALL REINFORCED CONCRETE SEWER PIPE SHALL CONFORM TO ASTM SPECIFICATION C76 WITH CLASS DESIGNATION ON PLANS.
- UNLESS OTHERWISE INDICATED ON THE PLANS, ALL STORM SEWER JOINTS SHALL BE TONGUE AND GROOVE WITH RUBBER "O" RING GASKETS.
- UNLESS OTHERWISE INDICATED ON THE PLANS, ALL STORM SEWER BEDDING SHALL BE STANDARD BEDDING.
- ALL WYES AND BUILDING SERVICE CONNECTIONS SHALL BE 3" POLY VINYL CHLORIDE (PVC) SEWER PIPE SCH.40 OR SDR 23.5.
- ALL STORM SEWER WYE OPENINGS SHALL BE FACTORY INSTALLED EXCEPT WHEN USING ABS TRUSS PIPE FOR SUMP PUMP DISCHARGE OUTLET. WHEREVER POSSIBLE SERVICE CONNECTIONS SHOULD DISCHARGE DIRECTLY INTO A CATCH BASIN.
- UNLESS OTHERWISE NOTED ON THE PLANS, STRUCTURE FRAME AND COVERS SHALL BE AS FOLLOWS:
MANHOLE
E.J.I.W. 1040 FRAME, TYPE A, SOLID COVER OR APPROVED EQUAL.
CATCH BASIN OR INLET (PAVEMENT TYPE)
E.J.I.W. 5080 FRAME, TYPE M-3 (2, 4 OR 6 HOLE) RESTRICTED COVER OR APPROVED EQUAL.
CATCH BASIN (YARD TYPE)
E.J.I.W. 1045 FRAME, TYPE C (2 OR 4 SLOT) VENTED COVER OR APPROVED EQUAL.
- ALL CATCH BASIN COVERS SHALL BE RESTRICTED PER THE CITY OF GROSSE POINTE WOODS ENGINEER'S REQUIREMENTS.
- STEPS TO BE INSTALLED DURING MANUFACTURING OF MANHOLE SECTION. STEPS MUST BE E.J.I.W. NO. 8503 M.A. INDUSTRIES P.S.I. POLYPROPYLENE OR APPROVED EQUAL.
- UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER, EACH STRUCTURE SHALL BE CONSTRUCTED TOTALLY OF EITHER PRE-CAST CONCRETE SEGMENTS OR BUILT-UP MORTAR & BLOCK.
- PRIVATE DEVELOPMENTS:
BEFORE FINAL ACCEPTANCE, A FINAL INSPECTION MUST BE MADE BY THE OWNER AND (1) SET OF AS-BUILT SEPIA MYLARS AND (2) SETS OF BLUELINE PRINTS MUST BE SUBMITTED TO THE CITY OF GROSSE POINTE WOODS BUILDING DEPARTMENT.



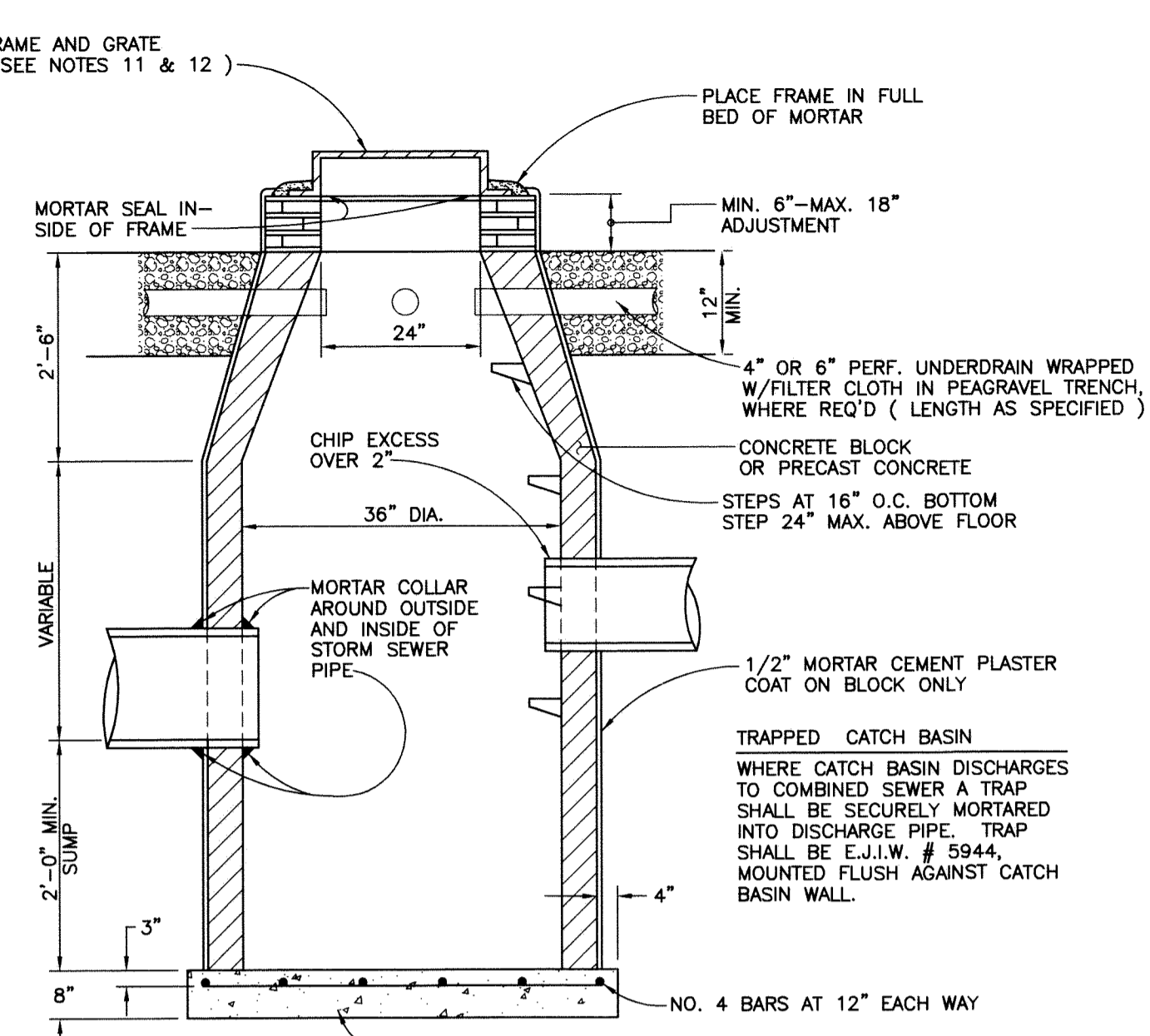
STORM SEWER MANHOLE "A"



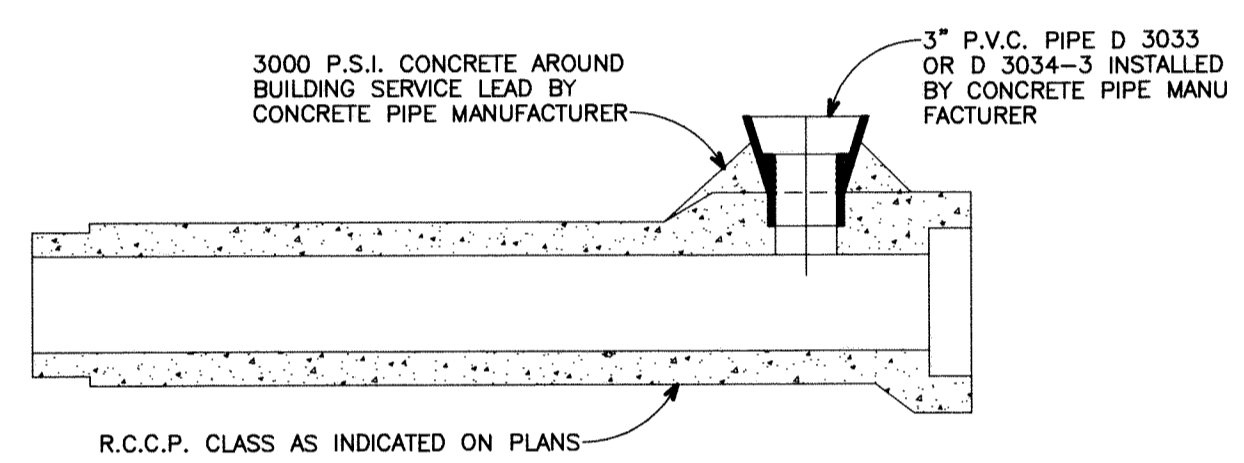
STORM SEWER TEE MANHOLE "B"



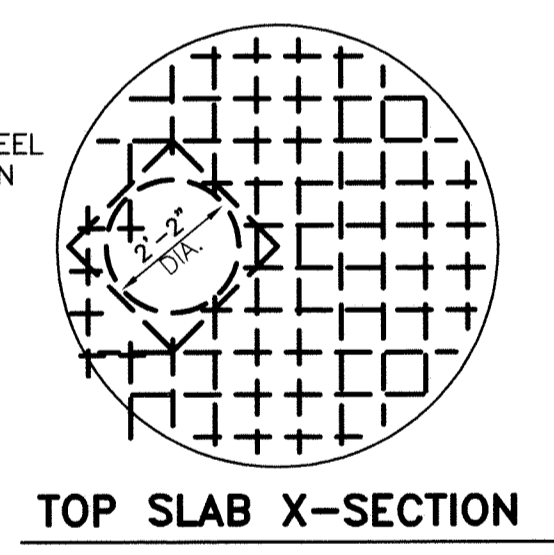
STORM SEWER TEE MANHOLE "B" WITH FLAT SLAB



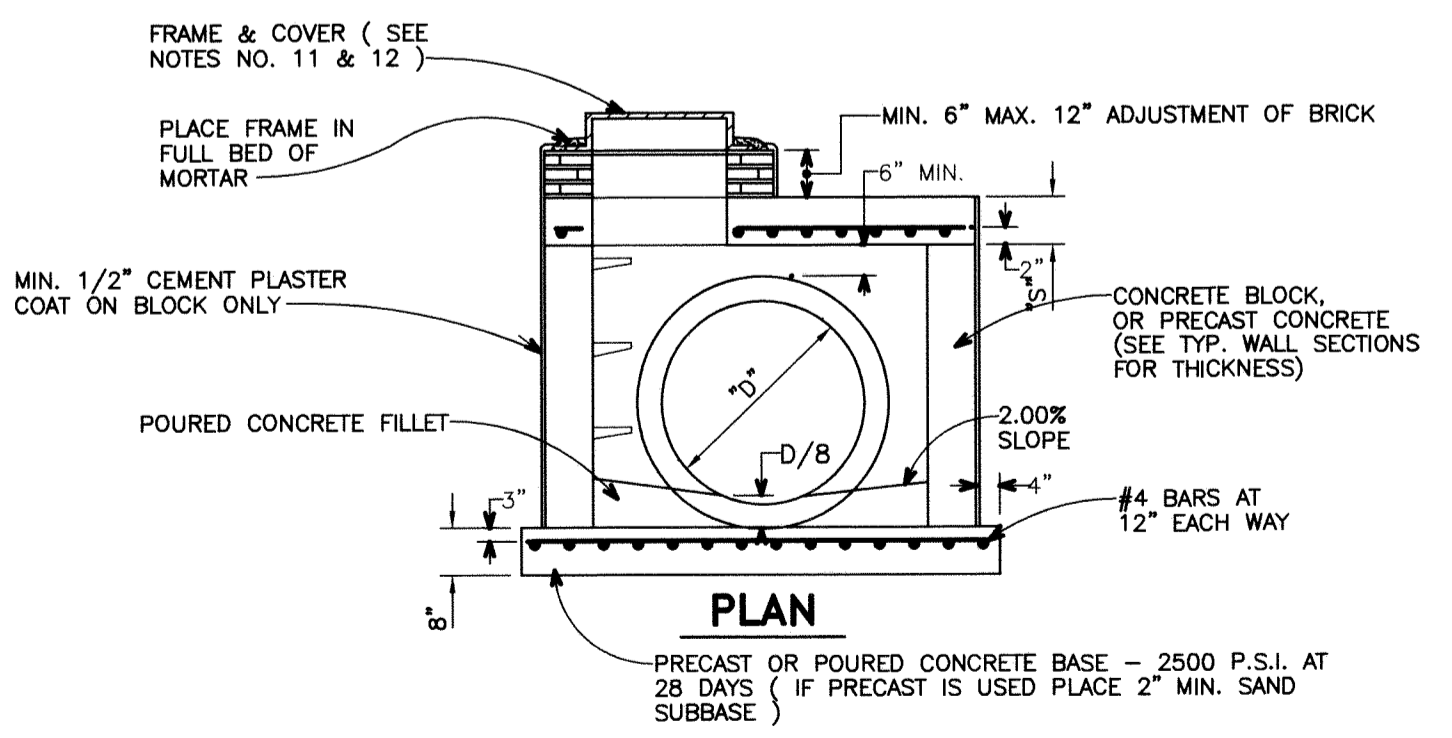
3 FT. DIAMETER CATCH BASIN



STANDARD WYE DETAIL IN CONCRETE PIPE FOR SUMP PUMP CONNECTION



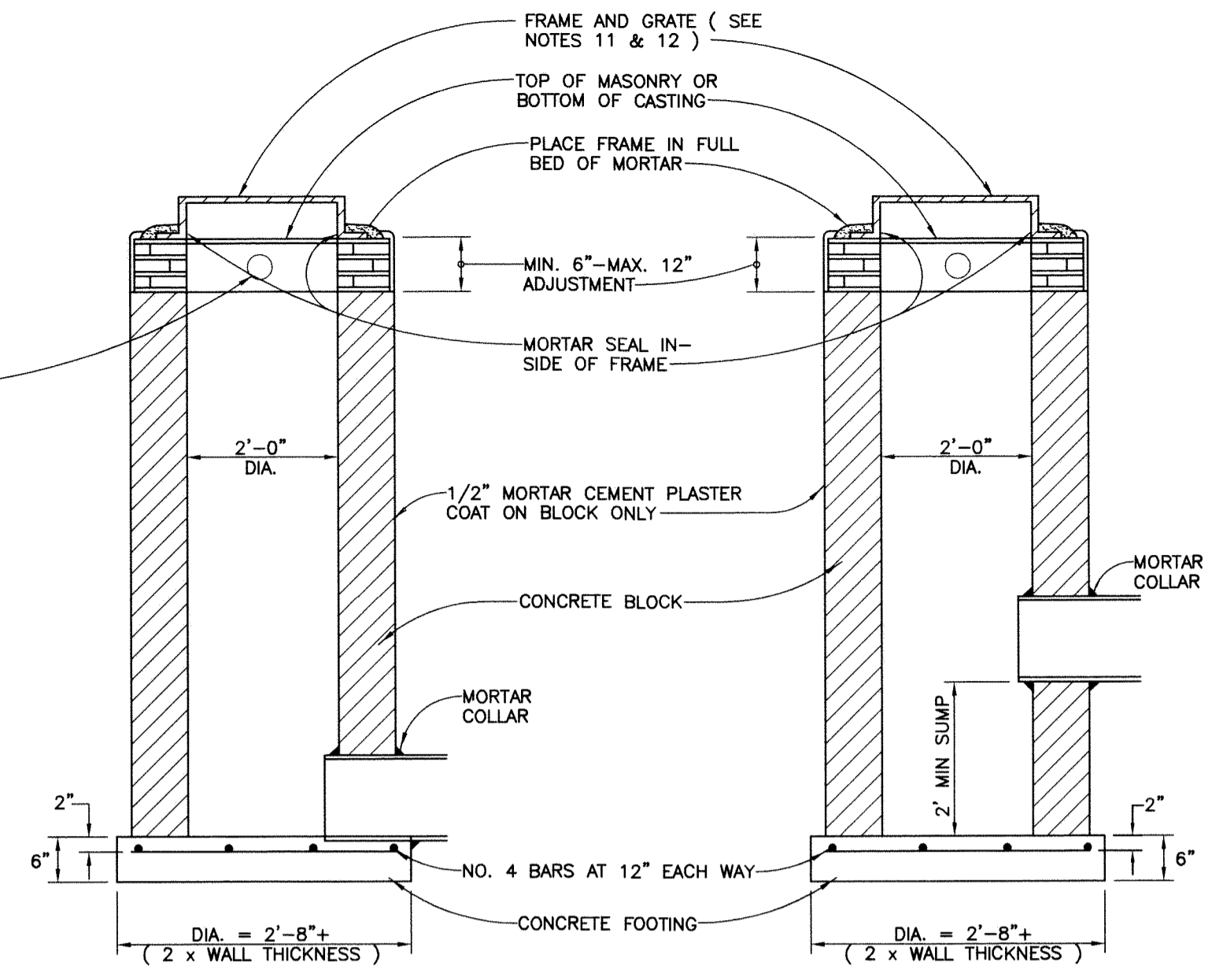
TOP SLAB X-SECTION



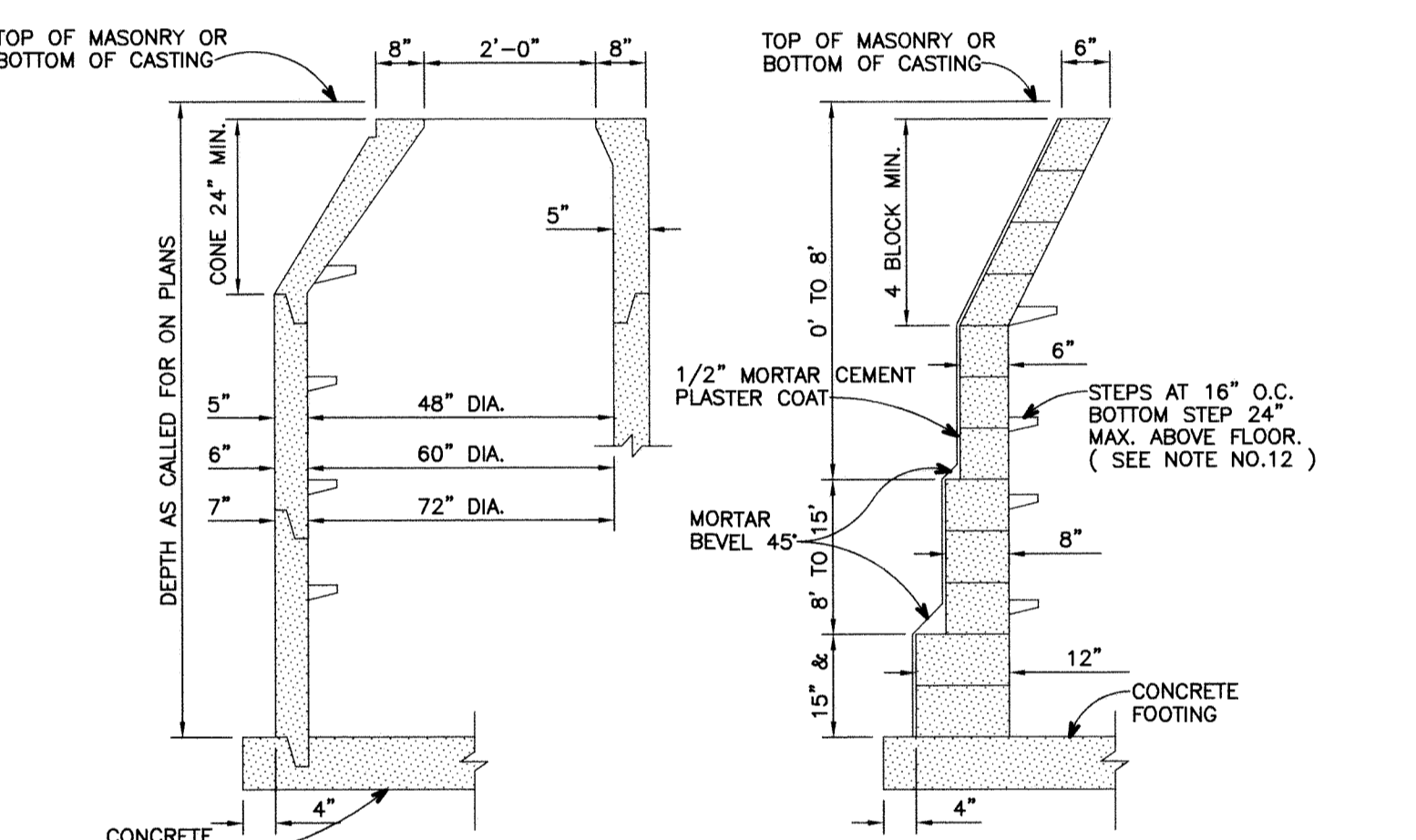
OUTLET "D"	M.H. I.D. #	TOP SLAB "S"	REINFORCING STEEL (T.S.)
27" OR LESS	4	9"	3/4" @ 9" EA. WAY
42"	5	10"	3/4" @ 9" EA. WAY
48"-54"	6	11"	7/8" @ 9" EA. WAY
	7	12"	1" @ 9" EA. WAY
	8	12"	1" @ 9" EA. WAY

* DIAMETER OF MANHOLE SHALL BE INCREASED AS SHOWN ON THE PLANS DEPENDING ON THE ANGLE OF SEWERS

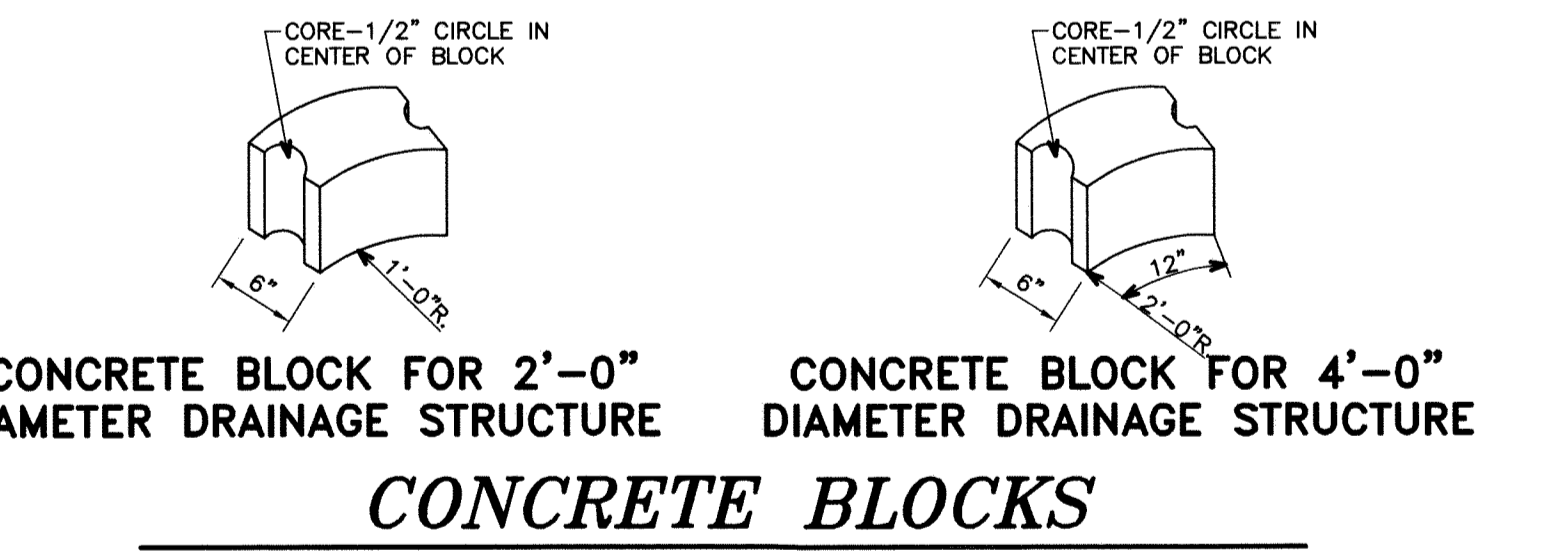
STORM SEWER MANHOLE "A" WITH FLAT SLAB TOP



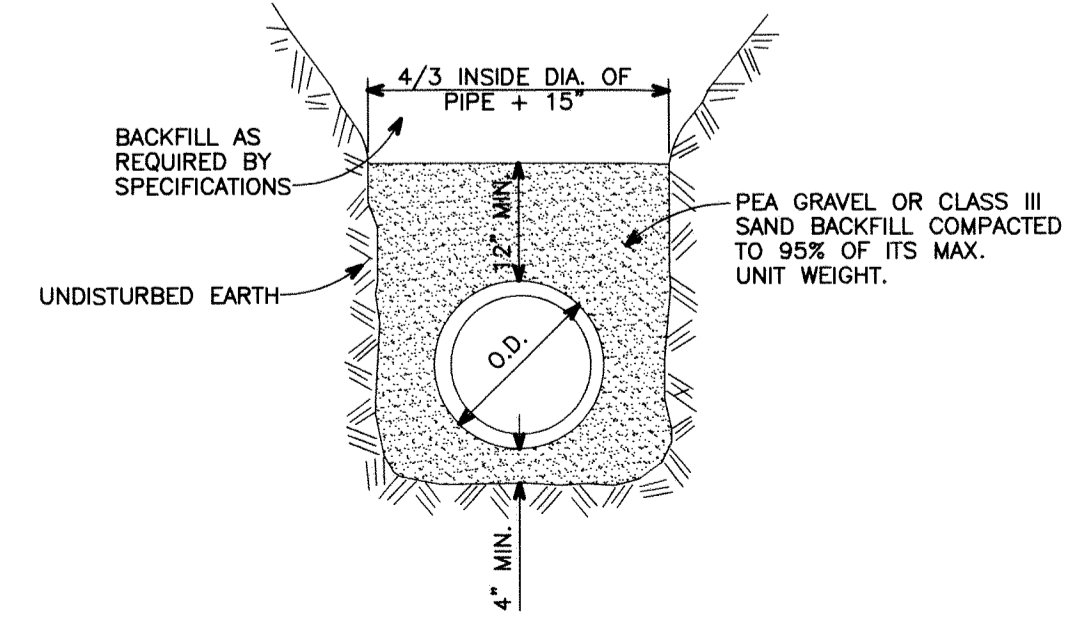
2 FT. DIAMETER INLET 2 FT. DIAMETER CATCH BASIN



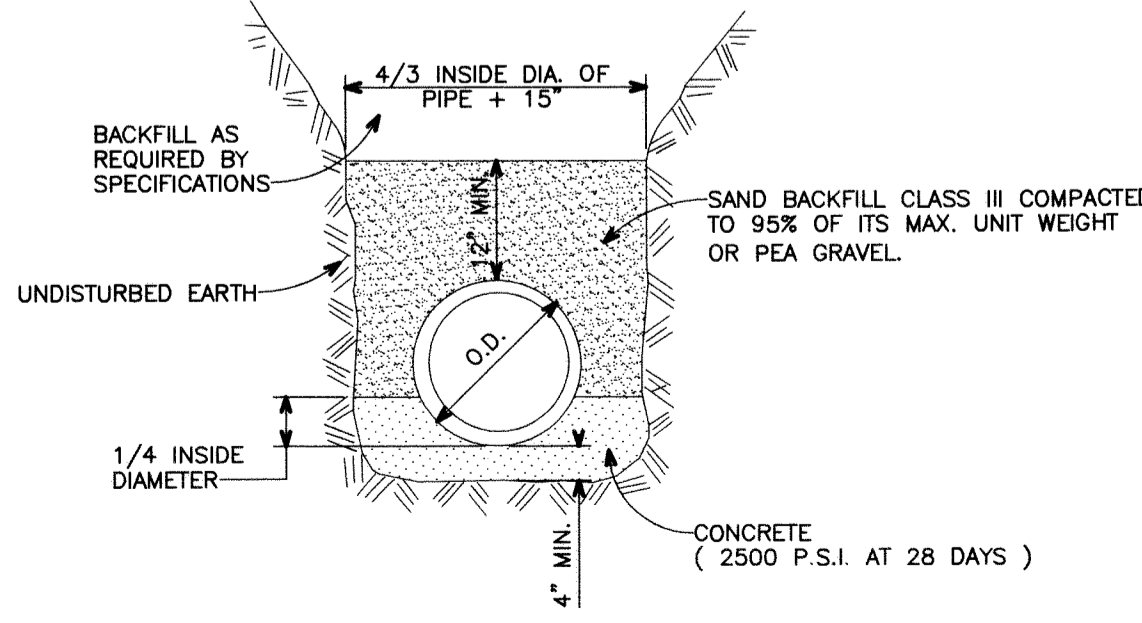
TYPICAL WALL SECTIONS FOR ALL DRAINAGE STRUCTURES



CONCRETE BLOCKS



STANDARD BEDDING



CONCRETE BEDDING

CITY OF GROSSE POINTE WOODS STORM SEWER DETAILS

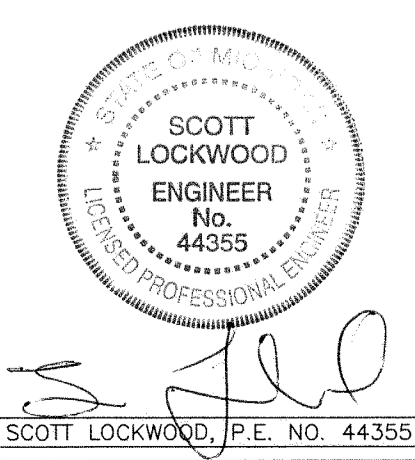
DEPARTMENT OF PUBLIC WORKS

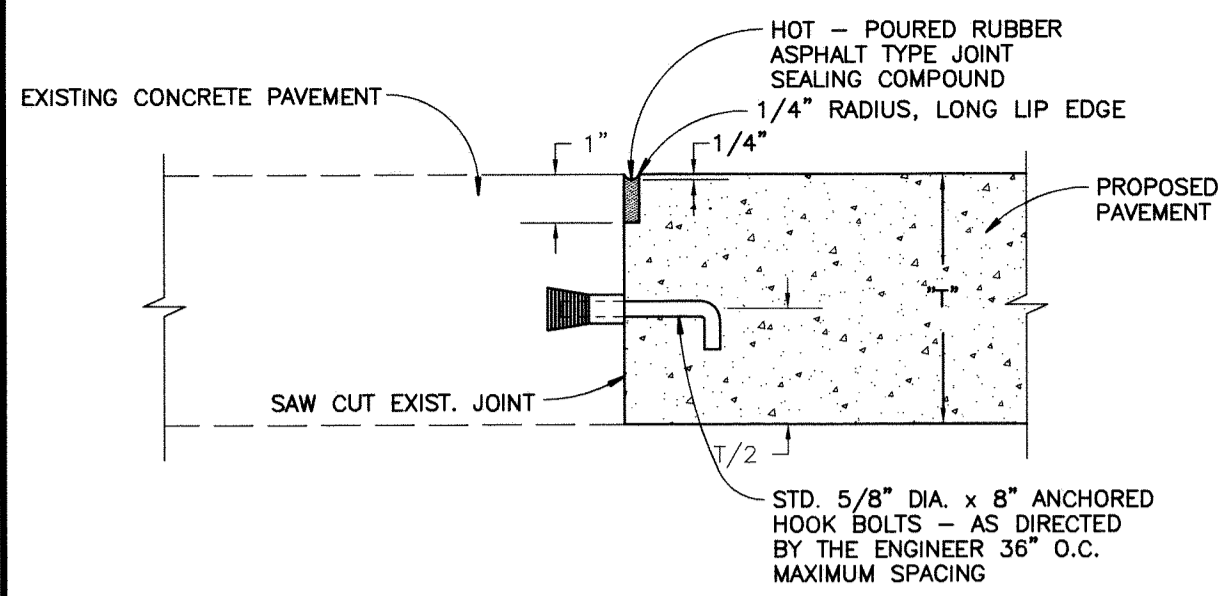
APPROVED BY : JOSEPH J. ALEE JR. : DPW DIRECTOR

DATE: 2/6/07

ANDERSON, ECKSTEIN AND WESTRICK, INC. Civil Engineers • Surveyors • Architects 51301 Schoenherr Road, Shelby Township, Michigan 48315 Phone 586*726*1234 Fax 586*726*8780

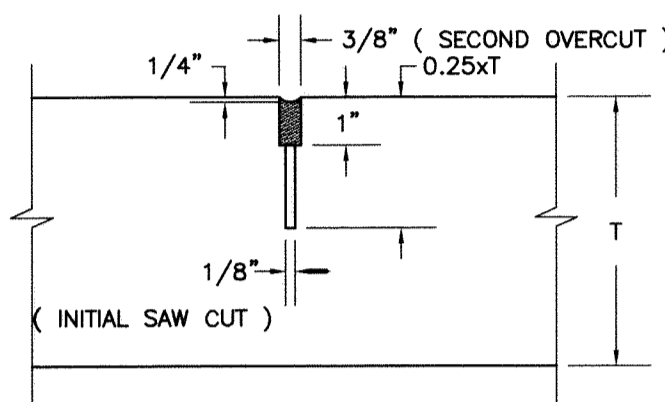
PROJECT NO. SHEET NO. DATE FEBRUARY, 2007 DRAWN BY D.M.S. CHECKED BY GFL



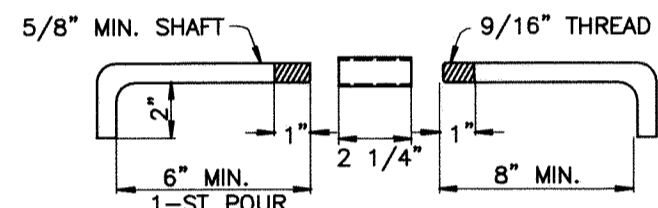


A CONSTRUCTION JOINTS

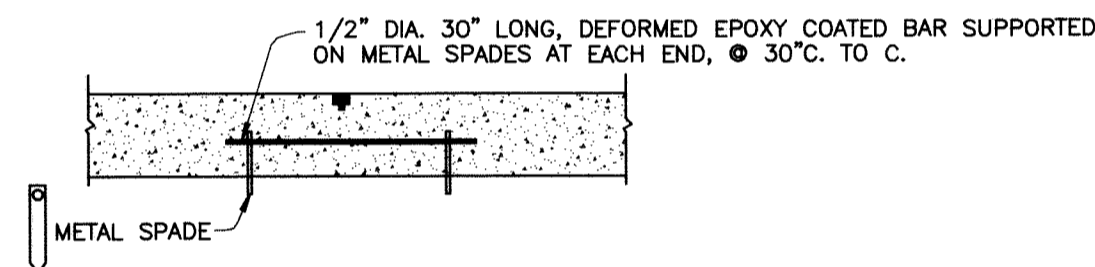
USE JOINT (A) OR (B) IF REPLACEMENT CONCRETE EXTENDS BEYOND EXPANSION ANCHOR HOOK BOLTS.



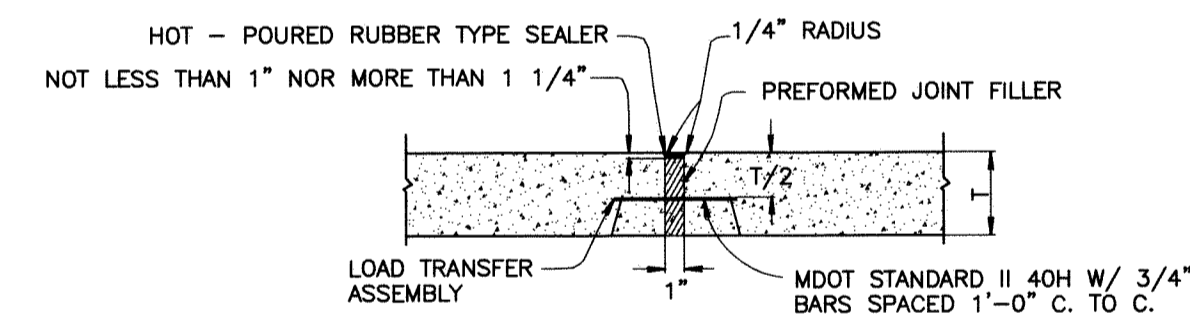
B TRANSVERSE / LONGITUDINAL PLANE OF WEAKNESS JOINT



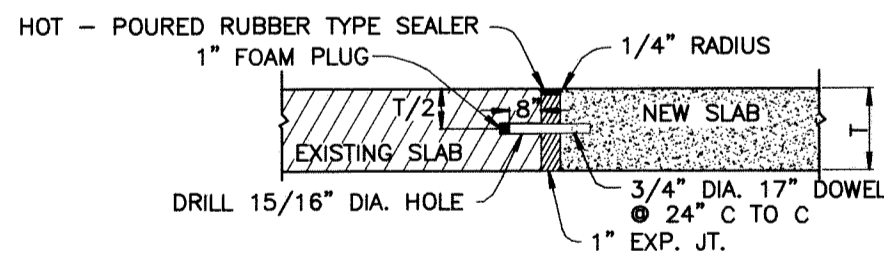
C HOOK BOLT DETAIL



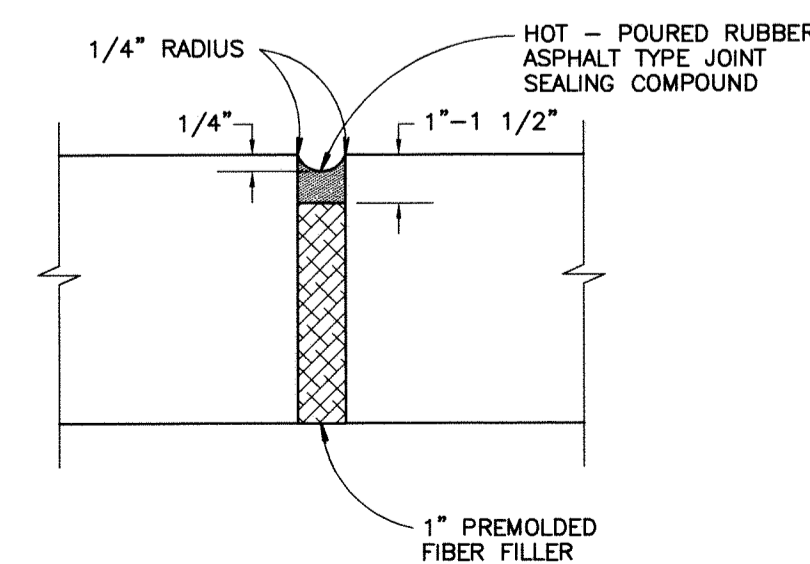
D TIEBAR DETAIL



E LOAD TRANSFER ASSEMBLY WITH PREFORMED EXPANSION JOINT FILLER



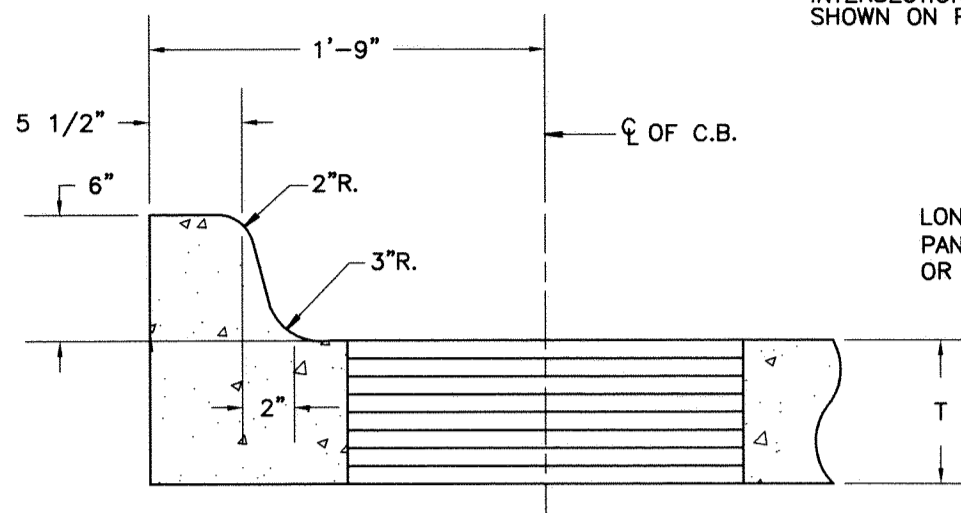
F EXPANSION JOINT WITH 3/4\"/>



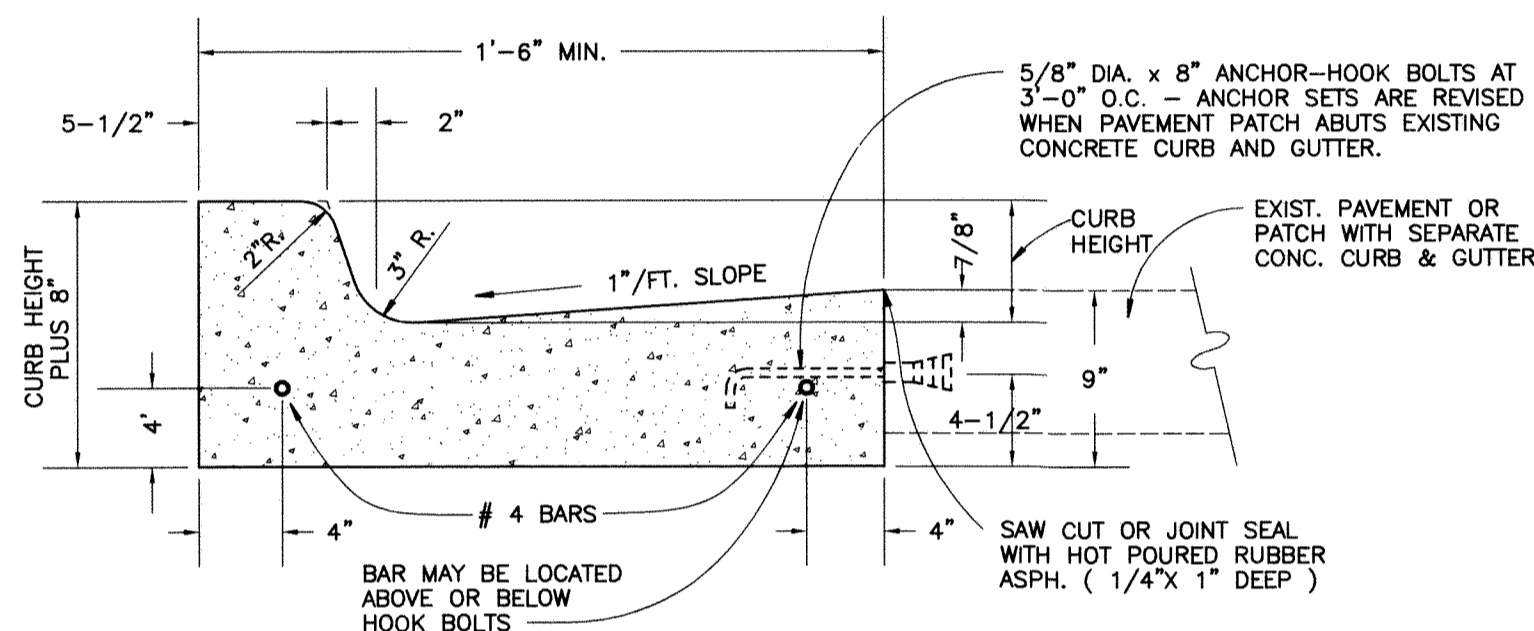
G EXPANSION JOINT

4 EXPANSION JOINT SPACING

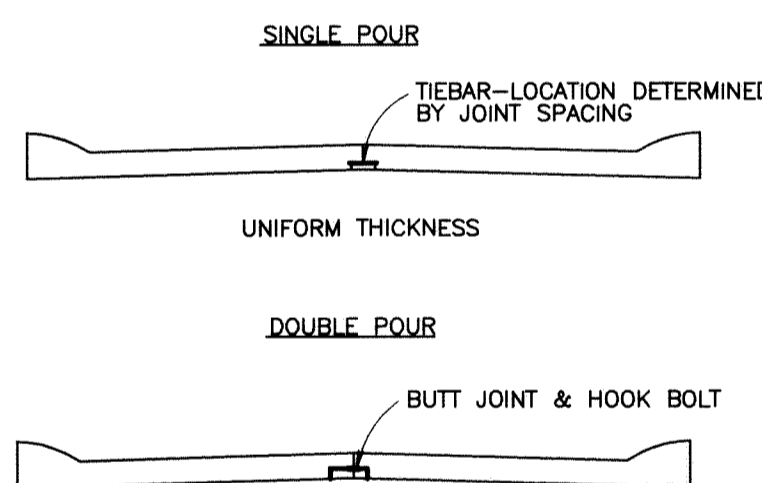
DAYTIME TEMPERATURES 50°F AND ABOVE:
AT ALL INTERSECTIONS; MAXIMUM SPACING 700 FEET; AS SHOWN ON PLANS.
DAYTIME TEMPERATURES BELOW 50°F:
AT ALL INTERSECTIONS; MAXIMUM SPACING 450 FEET; AS SHOWN ON PLANS.



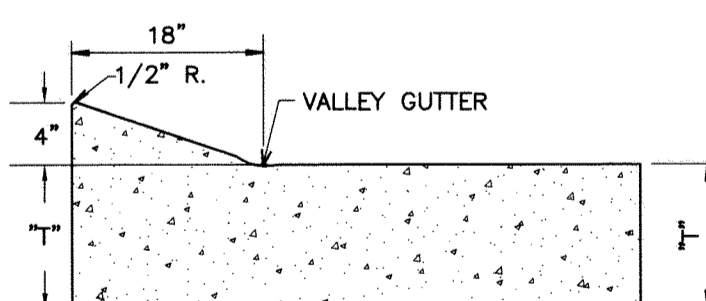
H 6\"/>



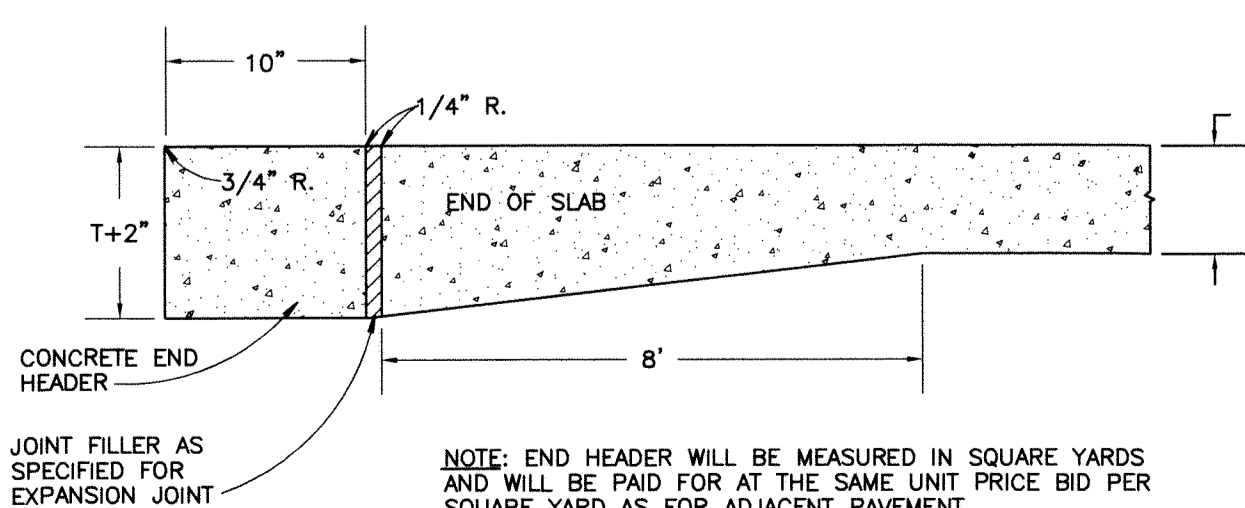
I TYPICAL CONCRETE CURB AND GUTTER DETAIL



J PAVEMENT SECTION



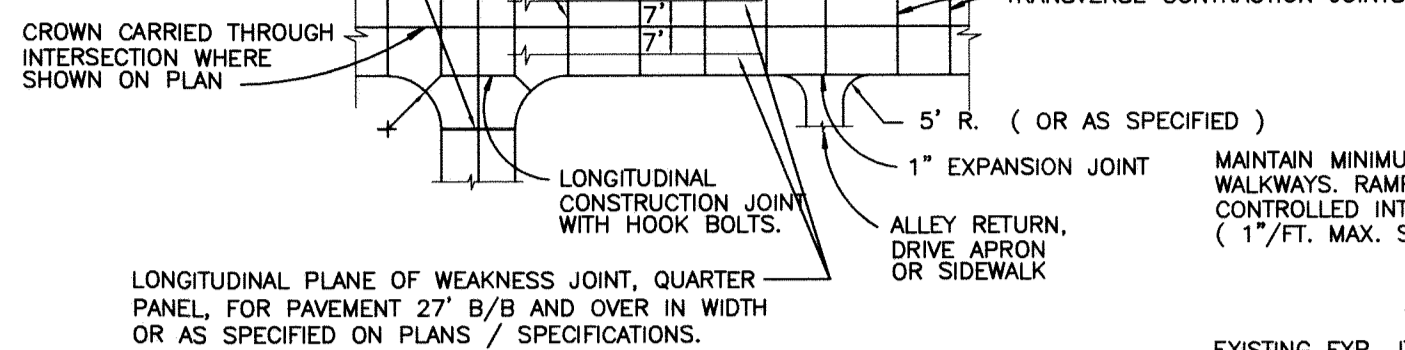
K 4\"/>



L END HEADER

5 JOINTING DETAIL

1. BUTT JOINT OR
2. PREFORMED STRIP
3. SAWED WEAKENED PLANE JOINT



* EXPANSION JOINTS

1. PLACE 1/2" FIBER EXP. JOINT FILLERS AT LOT LINES WHEN LOTS ARE 50' OR LESS.
2. ADDITIONAL 1/2" FIBER EXP. JOINT FILLERS FOR LOTS GREATER THAN 50', NOT TO EXCEED 50' INTERVALS.
3. PLACE 1/2" FIBER EXP. JOINT FILLERS EACH SIDE, IF EDGE OF DRIVE IS WITHIN 2' OF LOT LINES PLACE EXPANSION PAPER AT PROPERTY LINE.
4. PLACE 1" FIBER EXP. JOINT FILLERS AT CURB AND BUILDING OR R.O.W. LINE.
- 4A. AT CURB LINE, EXPANSION JOINTS SHALL BE SEALED WITH HOT RUBBERIZED SEALANT.
5. PLACE 1/2" FIBER EXP. JOINT FILLERS AT R.O.W. LINES OF CROSS - WALKS.
6. PLACE 1" FIBER EXP. JOINT FILLERS AT INTERSECTIONS OF CURB RADIUS AND IN LINE WITH EXISTING JOINTS.
7. PLACE 1/2" FIBER EXP. JOINT FILLER AT INTERSECTION OF SERVICE WALK & CURB ALSO AT SERVICE WALK & WALK.

8. PLACE 1/2" FIBER EXP. JOINT FILLERS AT EITHER SIDE OF SIDEWALK ABUTTING TREE AND AT CENTERLINE JOINT.

CONTRACTION JOINTS

10. PLACE CONTRACTION JOINTS AT INTERVALS NOT LESS THAN 5' OR GREATER THAN 7'. FULL WIDTH OF WALK. JOINT DEPTH SHALL BE 1/2 THICKNESS OF CONCRETE.
20. PLACE CONTRACTION JOINTS AT WALK LINES FOR FULL WIDTH SIDEWALK.

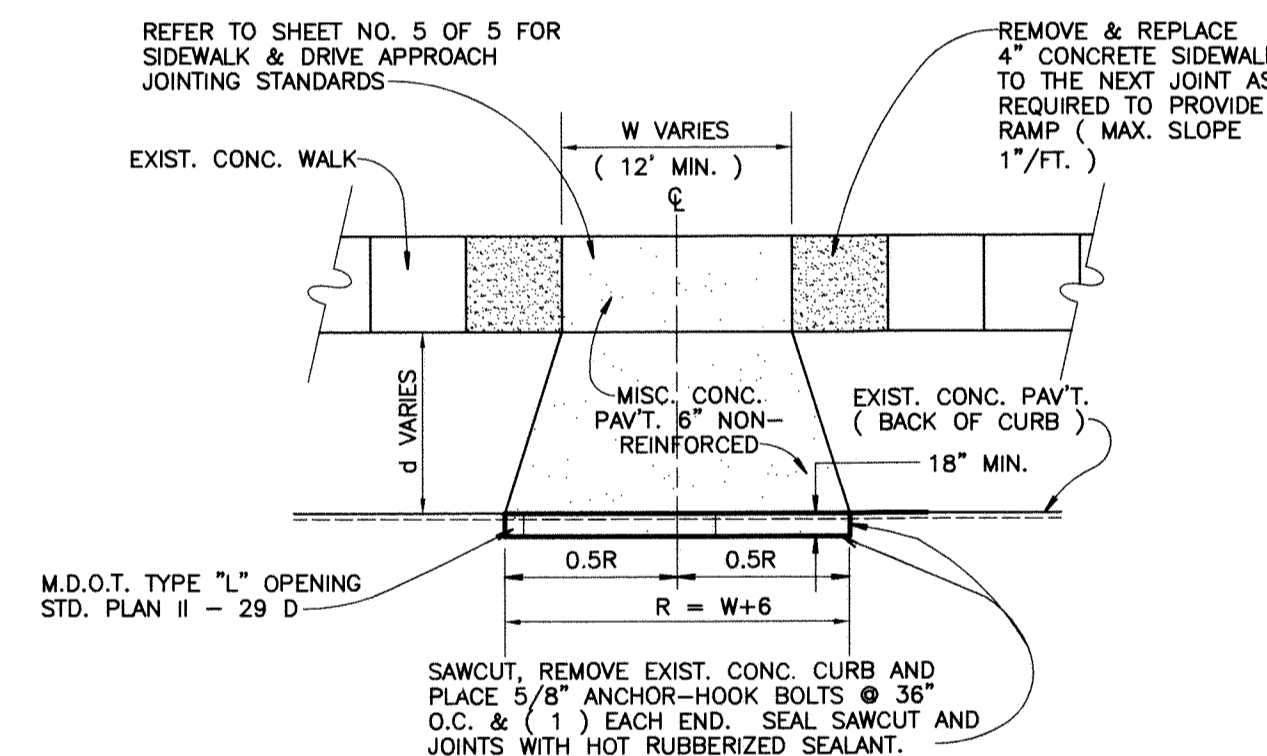
DRIVEWAYS

10. PLACE CONTRACTION JOINTS SO THAT NO SECTION OF THE CONCRETE DRIVEWAY EXCEEDS A DIMENSION OF 15'x15'.
20. PLACE 1" FIBER EXPANSION FILLER AT ALL SIDES OF A COMMERCIAL DRIVE.
30. WIDTH OF APPROACH AT STREET SHOULD BE MIN. 2' WIDER THAN WIDTH AT SIDEWALK, EACH SIDE.

* FIBER EXPANSION JOINT FILLERS SHALL BE FULL DEPTH

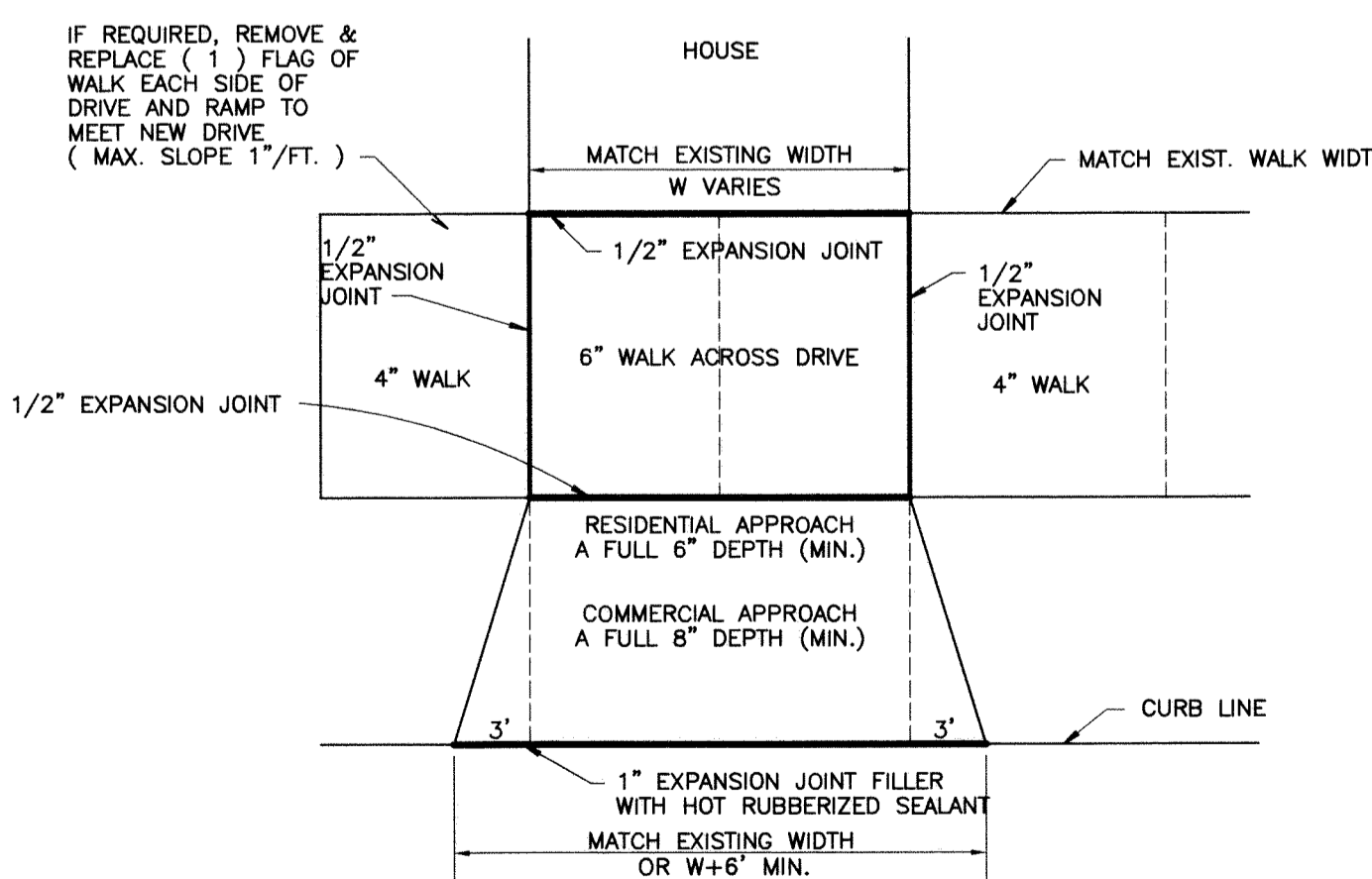
NOTES

1. CONCRETE WORK NOT CONSTRUCTED UNDER THE CITY'S CONTRACTOR, MUST BE DONE UNDER A PERMIT, SECURED THROUGH THE CITY'S ENGINEERING DEPARTMENT.
2. NO CONCRETE SHALL BE PLACED UNTIL A PRE-CHECK HAS BEEN REQUESTED BY THE CONTRACTOR OR HOME-OWNER AND APPROVED BY THE CITY'S ENGINEERING DEPARTMENT AT LEAST (8) HOURS IN ADVANCE, FINAL INSPECTION IS ALSO REQUIRED AT PLACEMENT OF CONCRETE.
3. ALL WORK SHALL CONFORM TO THE CITY'S STANDARDS & SPECIFICATIONS AVAILABLE THROUGH THE ENGINEERING DEPARTMENT.
4. HANDICAP RAMP SHALL MEET PAVEMENT GUTTER ELEVATION. NO LIP PERMITTED.



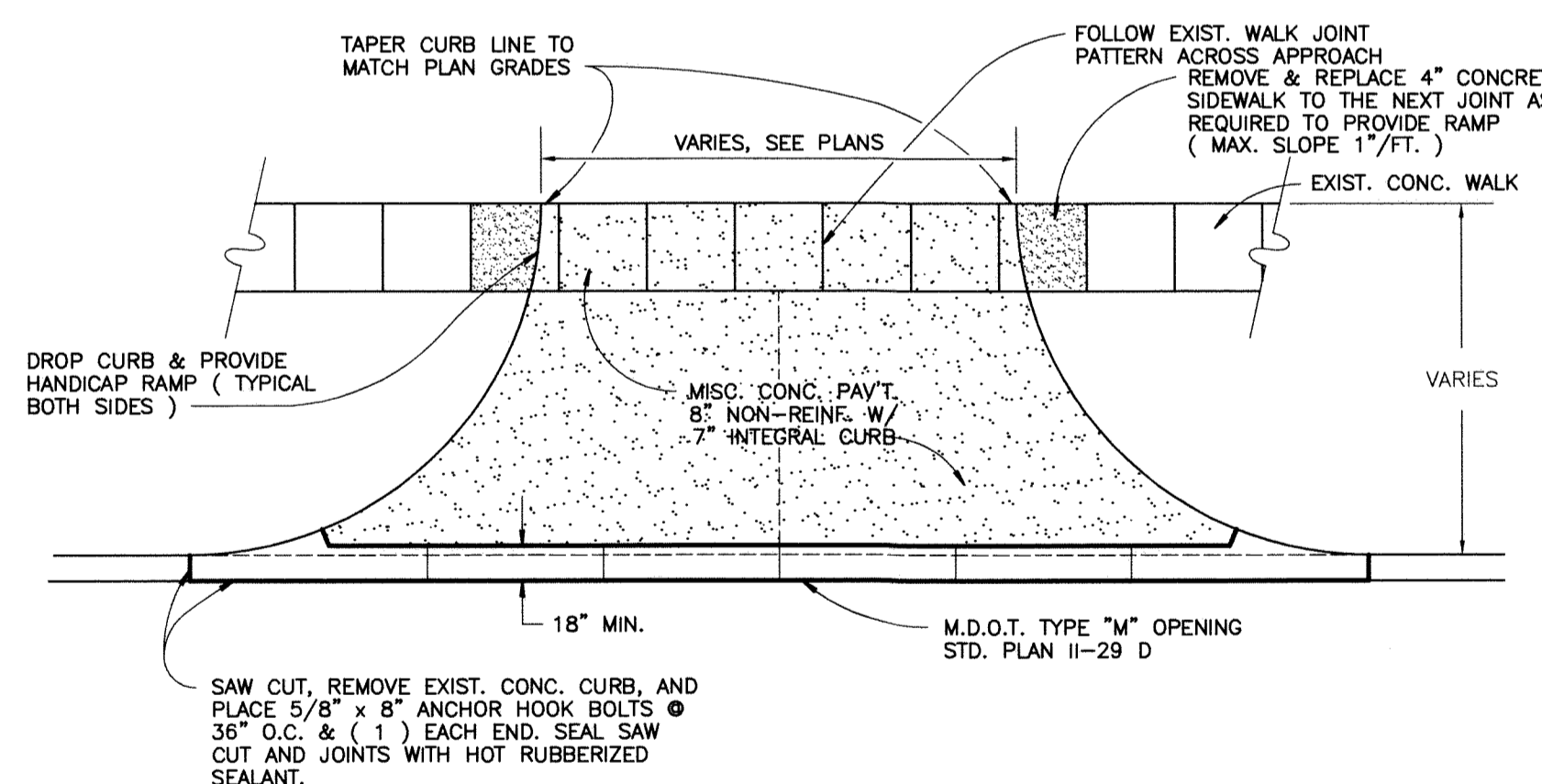
N NEW RESIDENTIAL DRIVEWAY LAYOUT FOR EXISTING PAVEMENT CONDITION

NOT TO SCALE



O REMOVAL AND REPLACEMENT OF EXISTING DRIVE APPROACH FOR EXISTING OR NEW PAVEMENT CONDITION

NOT TO SCALE



P NEW COMMERCIAL DRIVEWAY LAYOUT FOR EXISTING PAVEMENT CONDITION

NOT TO SCALE

CITY OF GROSSE POINTE WOODS STANDARD PAVING DETAILS

DEPARTMENT OF PUBLIC WORKS

APPROVED BY: *Joseph J. Allee Jr.*
JOSEPH J. ALLEE JR., DPW DIRECTOR

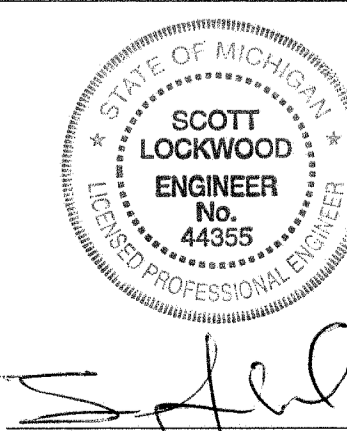
DATE: 2/6/07



ANDERSON, ECKSTEIN AND WESTRICK, INC.
Civil Engineers • Surveyors • Architects
51301 Schoenherr Road, Shelby Township, Michigan 48315
Phone 586•726•1234 Fax 586•726•8780

PROJECT NO.
DATE: FEBRUARY, 2007
DRAWN BY: DMS
CHECKED BY: FDV

SHEET NO.
E



SCOTT LOCKWOOD P.E. NO. 44355

GENERAL NOTES

1. STANDARDS AND SPECIFICATIONS

A. ALL WATER MAIN AND WATER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS AND THE DETROIT WATER AND SEWERAGE DEPARTMENT (DWSD). DETAILED WRITTEN SPECIFICATIONS ARE AVAILABLE UPON REQUEST.

B. ANY MATERIALS OTHER THAN THOSE LISTED ON THE STANDARD DETAIL SHEETS MUST BE APPROVED IN WRITING BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. CONTRACTOR MUST SUBMIT THREE (3) COPIES OF SHOP DRAWINGS AND SPECIFICATIONS FOR PROPOSED ALTERNATE MATERIAL TO THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS FOR REVIEW AS AN APPROVED EQUAL DETERMINATION OF ACCEPTANCE BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS SHALL BE CONSIDERED FINAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REVIEW OF THE PROPOSED ALTERNATE MATERIAL AS AN APPROVED EQUAL.

2. PRECONSTRUCTION REQUIREMENTS

A. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL ATTEND A PRECONSTRUCTION MEETING AT A TIME AND PLACE AS ARRANGED BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS SHALL NOTIFY AFFECTED UTILITY COMPANIES AND GOVERNMENTAL AGENCIES A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE PRECONSTRUCTION MEETING. THE OWNER'S ENGINEER SHALL SUBMIT APPROVED PLANS TO ALL UTILITY COMPANIES AND GOVERNMENTAL AGENCIES A MINIMUM OF TEN (10) DAYS PRIOR TO PRECONSTRUCTION MEETING. CONSTRUCTION SHALL START WITHIN TWO (2) WEEKS OF MEETING UNLESS WAIVED BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS.

B. THE CONTRACTOR SHALL NOTIFY MISS DIG AT (800) 482-7171, THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS AT (313) 343-2460, THE DETROIT WATER AND SEWERAGE DEPARTMENT (INSPECTION DIVISION) AT (313) 833-8649 AND ANDERSON, ECKSTEIN AND WESTRICK, INC. AT (586) 726-1234 THREE (3) WORKING DAYS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY REPRESENTATIVES OF ANY OTHER FACILITIES LOCATED IN THE VICINITY OF THE WORK, WHICH ARE NOT PARTICIPANTS OF THE MISS DIG SYSTEM.

3. PIPE MATERIAL

A. DUCTILE IRON PIPE WITH EXTERIOR ASPHALTIC MATERIAL COATING SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C151/A21.51 CURRENT SPECIFICATIONS FOR DUCTILE-IRON PIPE, CENTRIFUGALLY CAST, FOR WATER. DUCTILE IRON PIPE SHALL BE SPECIAL THICKNESS CLASS 54 FOR PUSH-ON JOINT DUCTILE-IRON PIPE. DUCTILE IRON PIPE SHALL BE DOUBLE CEMENT LINED WITH ASPHALTIC MATERIAL SEAL COATING MEETING THE REQUIREMENTS OF ANSI/AWWA C104/A21.4 CURRENT SPECIFICATIONS FOR CEMENT-MORTAR LINING FOR DUCTILE-IRON PIPE AND FITTINGS FOR WATER. PUSH-ON JOINTS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C111/A21.11 CURRENT SPECIFICATIONS FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS. PUSH-ON JOINTS SHALL BE TYTON OR SUPER BELLITE WITH SERRATED BRASS WEDGES. 6" THROUGH 12" PIPE REQUIRES TWO (2) WEDGES PER JOINT, 16" AND LARGER REQUIRES FOUR (4) WEDGES PER JOINT.

B. HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C906 CURRENT SPECIFICATIONS FOR POLYETHYLENE PIPE AND FITTINGS, 4 INCH THROUGH 63 INCH, FOR WATER DISTRIBUTION AND TRANSMISSION, AND NSF 61. HDPE PIPE SHALL BE DIPS, DR 11 (MINIMUM), BLUE STRIPE AND MEET THE REQUIREMENTS OF STANDARD PE CODE DESIGNATION PE 3408. HDPE PIPE SHALL BE JOINED BY AN APPROVED BUTT FUSION OR ELECTROFUSION TECHNIQUE ACCORDING TO THE MANUFACTURERS SPECIFICATIONS. THE CONTRACTOR SHALL INSTALL TWO (2) NUMBER 6 TRACER WIRES HAVING "UF" OR "USE" COVER INSULATION AT THE SAME TIME NEW WATER MAIN IS INSTALLED.

NOTE: HDPE WATER MAIN SHALL ONLY BE USED WITH WRITTEN AUTHORIZATION OF THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. IN NO CASE SHALL THE INSIDE DIAMETER OF THE EQUIVALENT HDPE PIPE BE LESS THAN THE INSIDE DIAMETER OF THE STANDARD DUCTILE IRON PIPE.

4. HYDRANTS

A. HYDRANTS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C502 CURRENT SPECIFICATIONS FOR DRY-BARREL FIRE HYDRANTS. HYDRANTS SHALL BE EAST JORDAN IRON WORKS 5BR-250 WATERMASTER WITH PENTAGON OPERATING NUT MEASURING 1-1/8" POINT TO FLAT AND BREAKAWAY FLANGE. THE CONTRACTOR SHALL PLUG ANY HYDRANT DRAIN HOLES.

B. HYDRANTS SHALL OPEN COUNTER CLOCKWISE. HYDRANTS SHALL BE SUPPLIED WITH TWO (2) THREE AND THREE-QUARTER INCH (3-3/4") PUMPER NOZZLES HAVING DETROIT STANDARD THREAD.

C. HYDRANTS SHALL HAVE A MINIMUM BURY OF FIVE AND ONE-HALF FEET (5-1/2') FROM FINISH GRADE TO BOTTOM INLET INVERT WITH A MINIMUM GROUND CLEARANCE FROM CENTER OF PUMPER NOZZLE TO FINISH GRADE OF TWENTY-ONE INCHES (21") AND FROM CENTER OF BASE FLANGE TO FINISH GRADE OF AT LEAST TWO AND ONE-HALF INCHES (2-1/2").

D. PRIOR TO FINAL ACCEPTANCE BY THE MUNICIPALITY, ALL HYDRANTS MUST BE DEWATERED AND PAINTED. PAINT SHALL BE MARINE ENAMEL WITH TWO (2) APPLICATIONS. HYDRANTS SHALL BE YELLOW IN COLOR.

4. HYDRANTS (CONTINUED)

E. HYDRANTS SHALL BE OF THE "L" OR "T" TYPE CONNECTION AS SPECIFIED ON THE PLANS OR DIRECTED BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. HYDRANT PUMPER NOZZLES SHALL FACE THE ROAD CENTERLINE IN PUBLIC RIGHT-OF-WAYS OR FACE THE DIRECTION OF FIRE EQUIPMENT ACCESS ON PRIVATE DEVELOPMENTS. HYDRANTS SHALL BE SET TO THE PROPOSED PLAN GRADE ELEVATION UNLESS OTHERWISE AUTHORIZED BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. ALL VERTICAL EXTENSIONS REQUIRED TO OBTAIN THE DESIRED GRADE SHALL BE INCLUDED IN THE COST OF THE HYDRANT.

5. GATE VALVES

A. ALL VALVES LESS THAN SIXTEEN INCH (16") IN DIAMETER SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C515 CURRENT SPECIFICATIONS FOR REDUCED-WALL, RESILIENT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE. THE VALVE SHALL BE CAST WITH A DUCTILE IRON BODY AND BRONZE MOUNTED WITH A BRONZE NON-RISING STEM, DOUBLE "O"-RING REPLACEABLE SEALS AND MECHANICAL JOINTS. IT SHALL BE FURNISHED WITH A TWO INCH (2") SQUARE OPERATING NUT AND SHALL TURN CLOCKWISE TO OPEN. GATE VALVES SHALL BE EAST JORDAN IRON WORKS FLOWMASTER RESILIENT SEATED GATE VALVES.

B. ALL VALVES SIXTEEN INCH (16") IN DIAMETER, OR LARGER, SHALL BE BUTTERFLY VALVES THAT MEET THE REQUIREMENTS OF ANSI/AWWA C504 CURRENT SPECIFICATIONS FOR RUBBER-SEATED BUTTERFLY VALVES, CLASS 150B. THE VALVE SHALL BE CAST WITH AN IRON BODY AND A CORROSION RESISTANT STAINLESS STEEL SHAFT AND MECHANICAL JOINTS. IT SHALL BE FURNISHED WITH A MANUAL ACTUATOR WITH A TWO INCH (2") SQUARE OPERATING NUT AND SHALL TURN CLOCKWISE TO OPEN. BUTTERFLY VALVES SHALL BE MUELLER LINSEAL III (CLASS 150B) BUTTERFLY VALVES WITH MANUAL ACTUATOR.

C. TAPPING VALVES SHALL CONFORM TO THE REQUIREMENTS OF GATE VALVES AS SPECIFIED IN THESE STANDARDS. THE VALVE SHALL BE CONSTRUCTED TO ALLOW A TAPPING MACHINE TO TAP DIRECTLY THROUGH THE OPEN VALVE. THE VALVE SHALL BE SUPPLIED WITH A FLANGED JOINT FOR CONNECTION TO THE TAPPING SLEEVE AND A MECHANICAL JOINT FOR CONNECTION TO THE BRANCH WATER MAIN. THE TAPPING SLEEVES SHALL BE STAINLESS STEEL, SPLIT SLEEVES WITH A DUCTILE IRON FLANGED OUTLET.

D. GATE VALVES AND TAPPING VALVES SHALL BE HOUSED WITHIN A PRECAST CONCRETE GATEWELL. PRECAST BOTTOM SECTIONS, RISER SECTIONS AND CONCENTRIC TRANSITION SECTIONS SHALL CONFORM TO ASTM SPECIFICATION C478. HYDRANT VALVES SHALL BE HOUSED IN A CAST IRON VALVE BOX. VALVE BOX SHALL BE A THREE (3) PIECE SCREW TYPE BOX (5-1/4" SHAFT) WITH AN ENLARGED BASE.

E. GATEWELL FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS 1040 WITH TYPE A COVER. COVER SHALL READ "GROSSE POINTE WOODS WATER SUPPLY" IN TWO INCH (2") RECESSED FLUSH LETTERS AND THE CITY LOGO SHALL BE CENTERED.

F. ALL END-OF-THE-LINE GATEWELLS SHALL HAVE A CAPPED STUB EXTENDING ONE FULL LENGTH OF PIPE BEYOND THE GATEWELL. THE VALVE, PIPE AND CAP SHALL BE INSTALLED WITH RETAINER GLANDS AND A CONCRETE THRUST BLOCK AT THE CAP.

G. STEPS SHALL BE EAST JORDAN IRON WORKS #8503 OR M.A. INDUSTRIES P.S.I. POLYPROPYLENE WITH FOOT RECESS AND INSTALLED BY THE GATEWELL MANUFACTURER AT SIXTEEN INCHES (16") CENTER TO CENTER SPACING. BOTTOM STEP SHALL BE TWENTY-FOUR INCHES (24") MAXIMUM ABOVE FLOOR. TOP STEP SHALL BE EIGHTEEN INCHES (18") MAXIMUM BELOW RIM. ALL STEPS SHALL BE SUITABLY SCORED TO PROVIDE A NON-SLIP SURFACE.

6. FITTINGS

A. ALL FITTINGS SHALL BE DUCTILE IRON AND MEET THE REQUIREMENTS OF ANSI/AWWA C153/A21.53 CURRENT SPECIFICATIONS FOR DUCTILE-IRON COMPACT FITTINGS FOR WATER SERVICE. FITTINGS SHALL BE CEMENT LINED WITH ASPHALTIC MATERIAL SEAL COATING MEETING THE REQUIREMENTS OF ANSI/AWWA C104/A21.4 CURRENT SPECIFICATIONS FOR CEMENT-MORTAR LINING FOR DUCTILE-IRON PIPE AND FITTINGS FOR WATER OR EPOXY COATED MEETING THE REQUIREMENTS OF ANSI/AWWA C116/A21.16 FOR PROTECTIVE FUSION-BONDED EPOXY COATINGS FOR THE INTERIOR SURFACES OF DUCTILE-IRON AND GRAY-IRON FITTINGS FOR WATER SUPPLY SERVICE. FITTINGS SHALL BE 350 PSI PRESSURE RATED WITH MECHANICAL JOINTS AND RETAINING GLANDS. SPLIT RETAINERS ARE NOT ALLOWED.

B. CONCRETE THRUST BLOCKS ARE REQUIRED AT ALL BENDS, TEES, CAPS OR PLUGS. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 2500 PSI (MINIMUM) AT 28 DAYS.

C. MECHANICAL JOINTS AND BOLTS FOR ALL FITTINGS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C111/A21.11 CURRENT SPECIFICATIONS FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS. ALL BOLTS SHALL BE COR-TEN BLUE WITH T-HEADS AND HEX NUTS.

D. ALL MECHANICAL JOINTS, FITTINGS, GLANDS AND BOLTS SHALL BE COATED WITH BITUMASTIC.

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CITY OF GROSSE POINTE WOODS
STANDARD WATER MAIN DETAILS (1 OF 2)

DEPARTMENT OF PUBLIC WORKS

APPROVED BY: *Joseph J. Mee, Jr.*
JOSEPH J. MEE, JR., D.P.W. DIRECTOR

DATE: 12-13-05



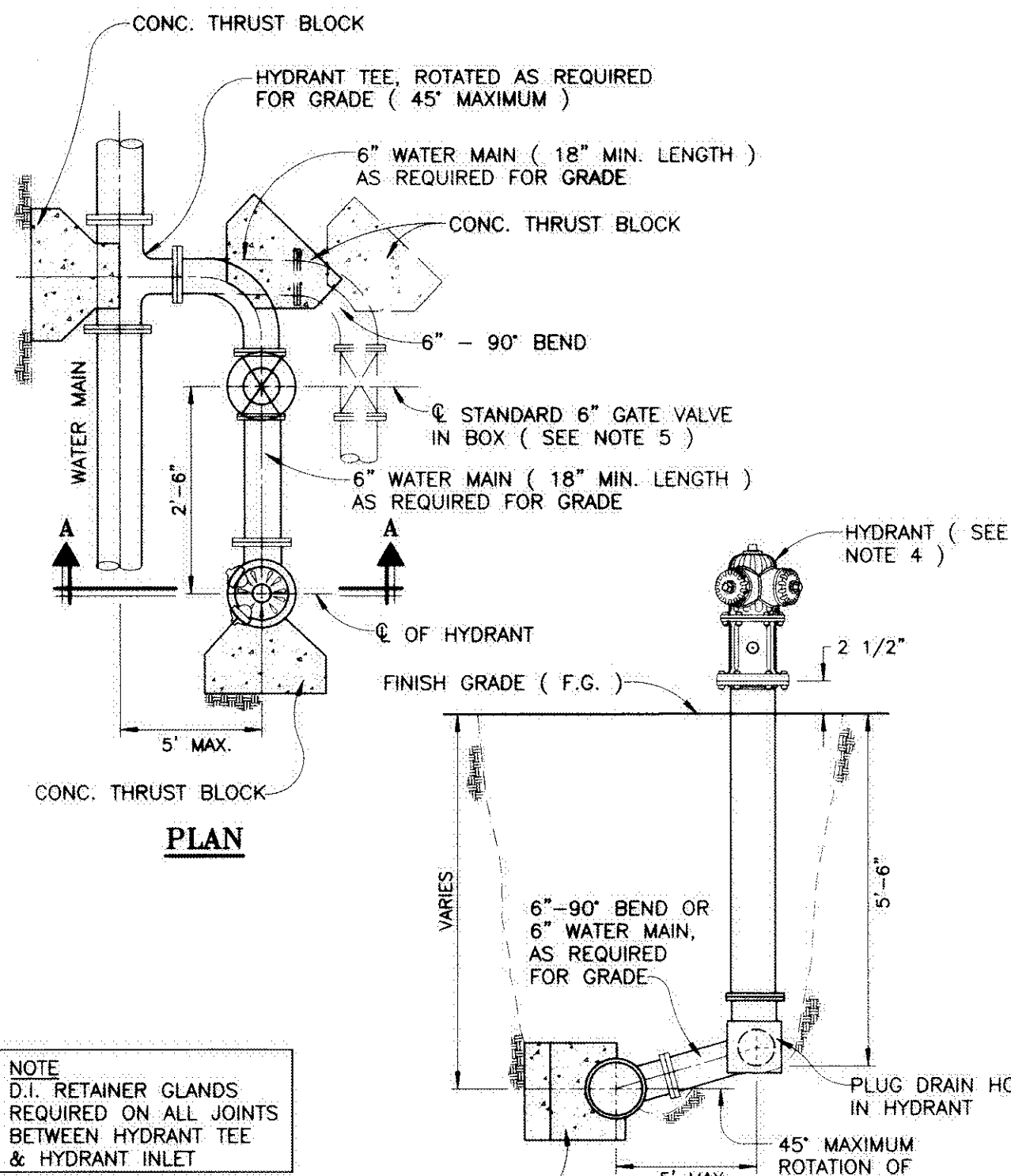
ANDERSON, ECKSTEIN AND WESTRICK, INC.
Civil Engineers • Surveyors • Architects
51301 Schoenherr Road, Shelby Township, Michigan 48315
Phone: 586*726*1234 Fax: 586*726*8780

PROJECT NO.
DATE: DECEMBER 2005
DRAWN BY: SMH
CHECKED BY: CRP

SHEET NO.
W1

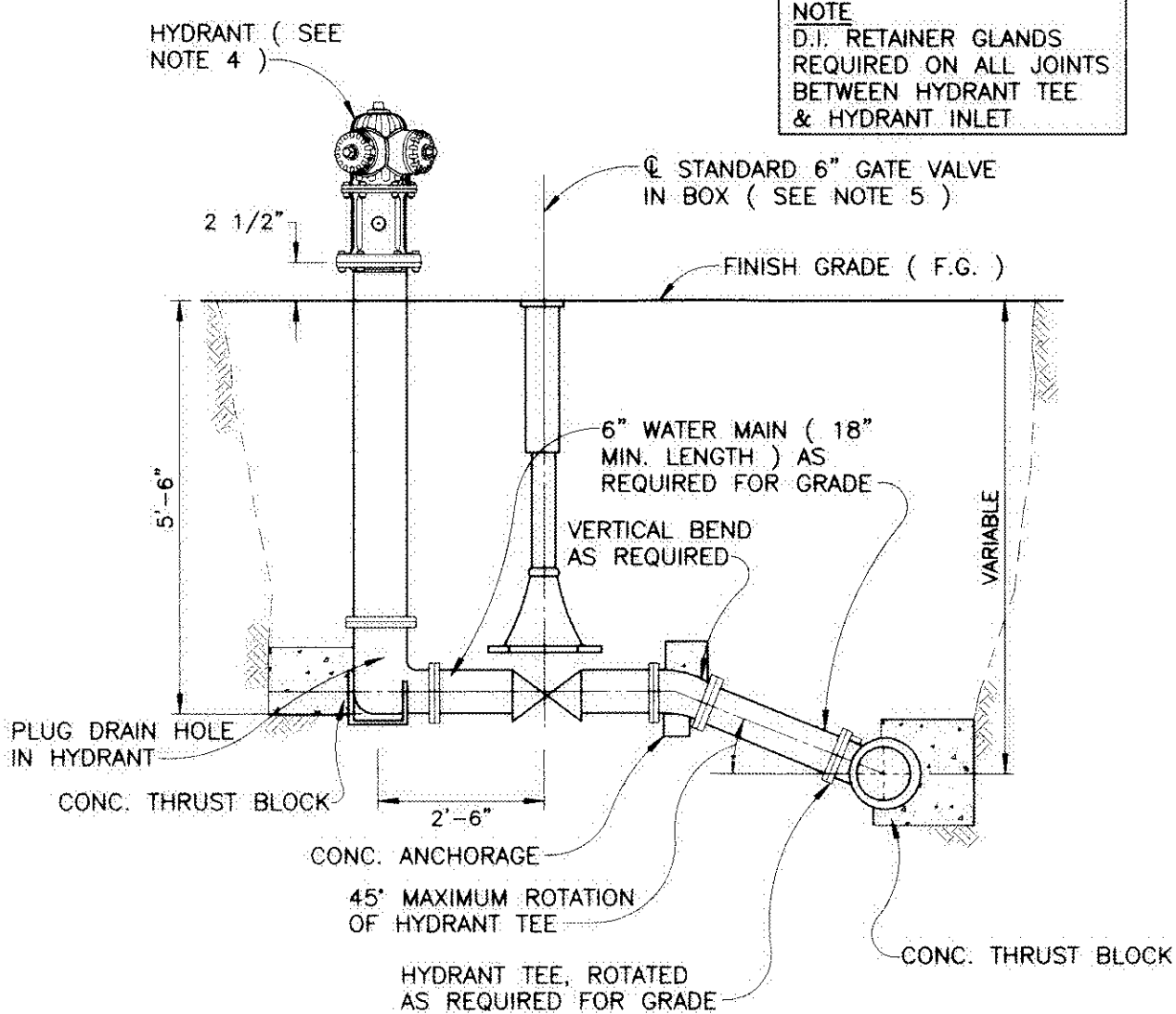


SCOTT LOCKWOOD P.E. NO. 44355



"L" HYDRANT CONNECTION

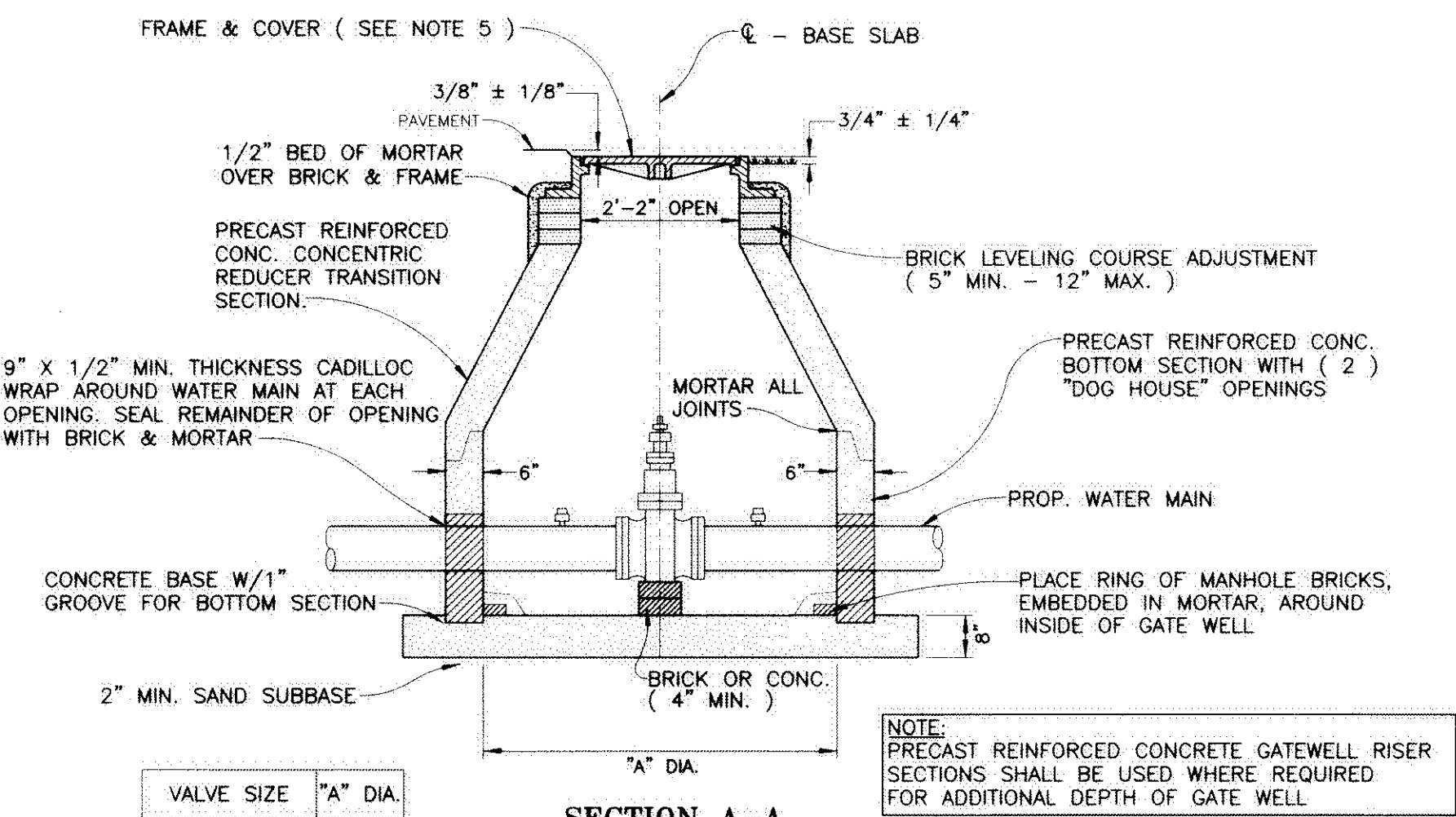
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"T" HYDRANT CONNECTION

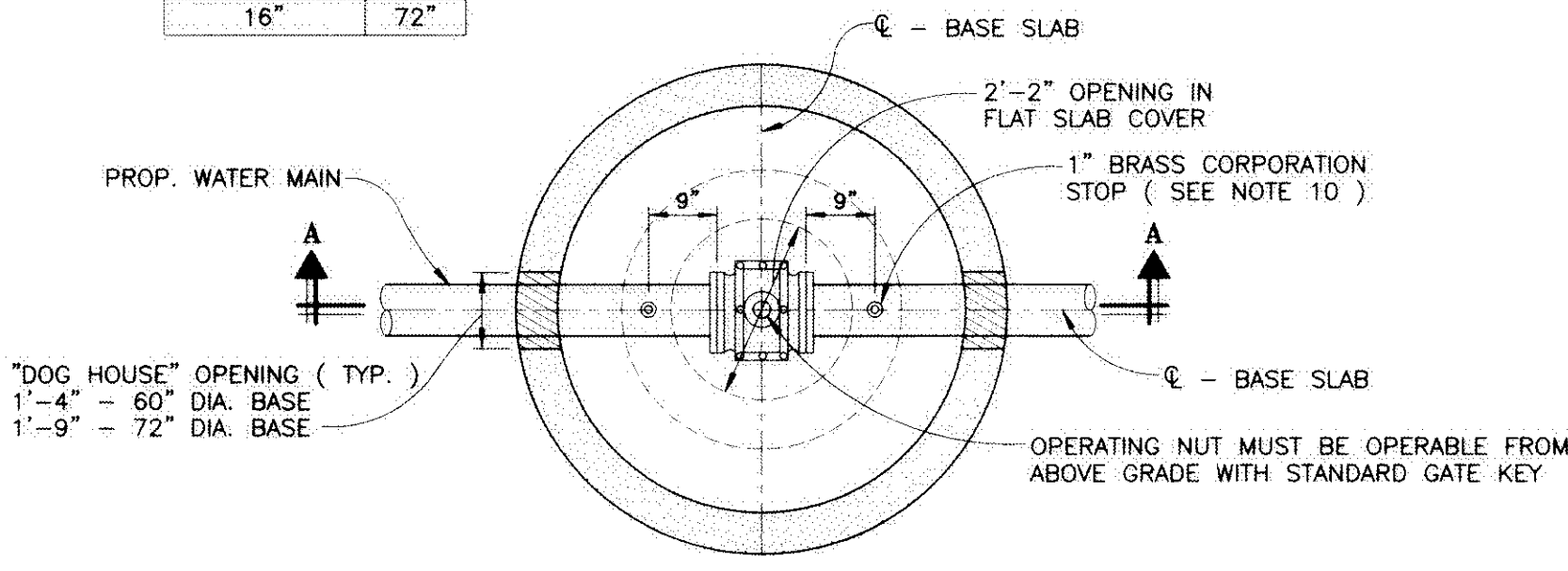
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NOTE:
PRECAST REINFORCED CONCRETE GATEWELL RISER SECTIONS SHALL BE USED WHERE REQUIRED FOR ADDITIONAL DEPTH OF GATE WELL.



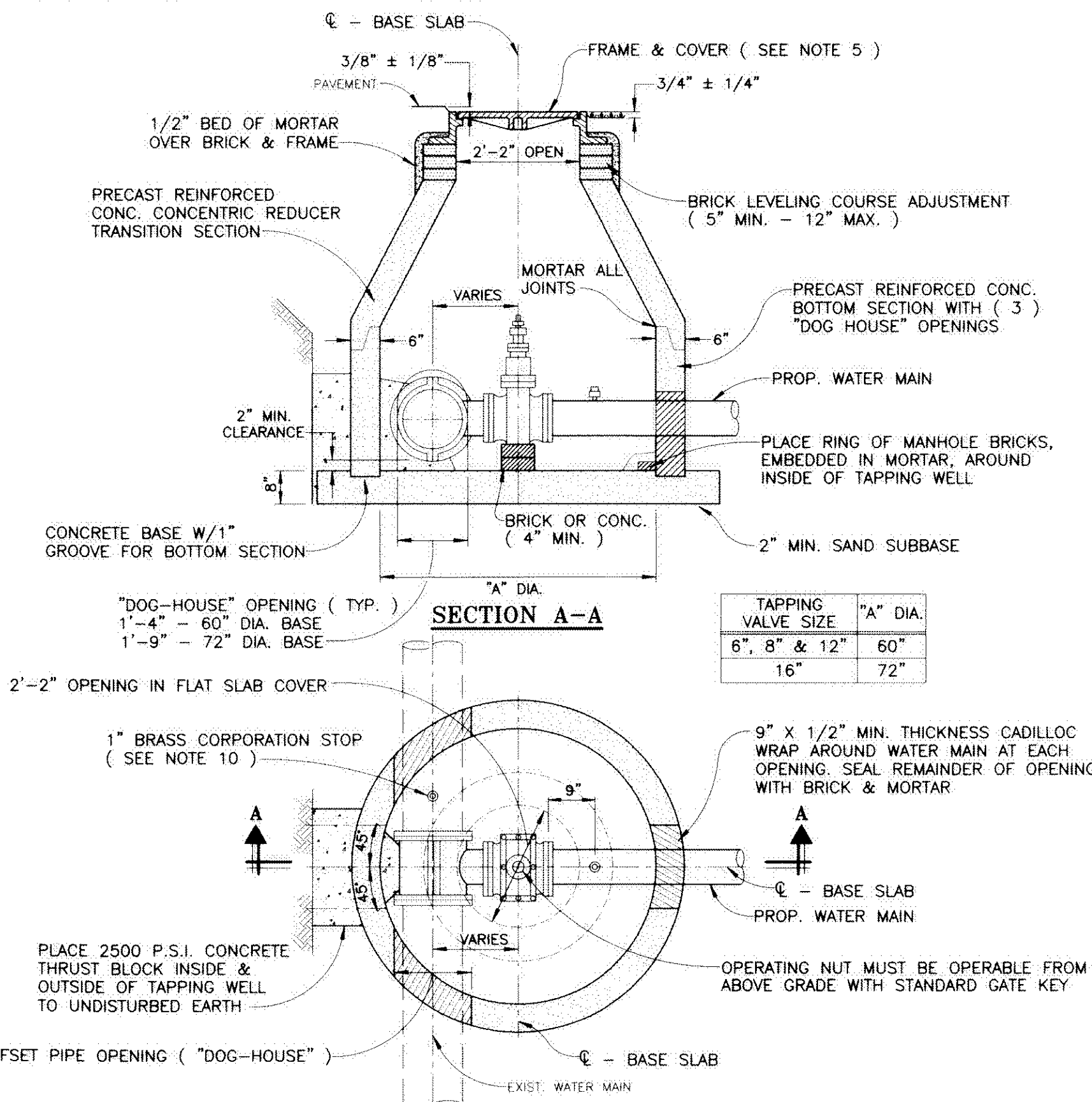
SECTION A-A

VALVE SIZE	"A" DIA.
6", 8" & 12"	60"
16"	72"



GATE VALVE IN WELL

NOT TO SCALE



SECTION A-A

TAPPING VALVE SIZE	"A" DIA.
6", 8" & 12"	60"
16"	72"

OFFSET PIPE OPENING ("DOG-HOUSE")

TAPPING SLEEVE & VALVE IN WELL

NOT TO SCALE

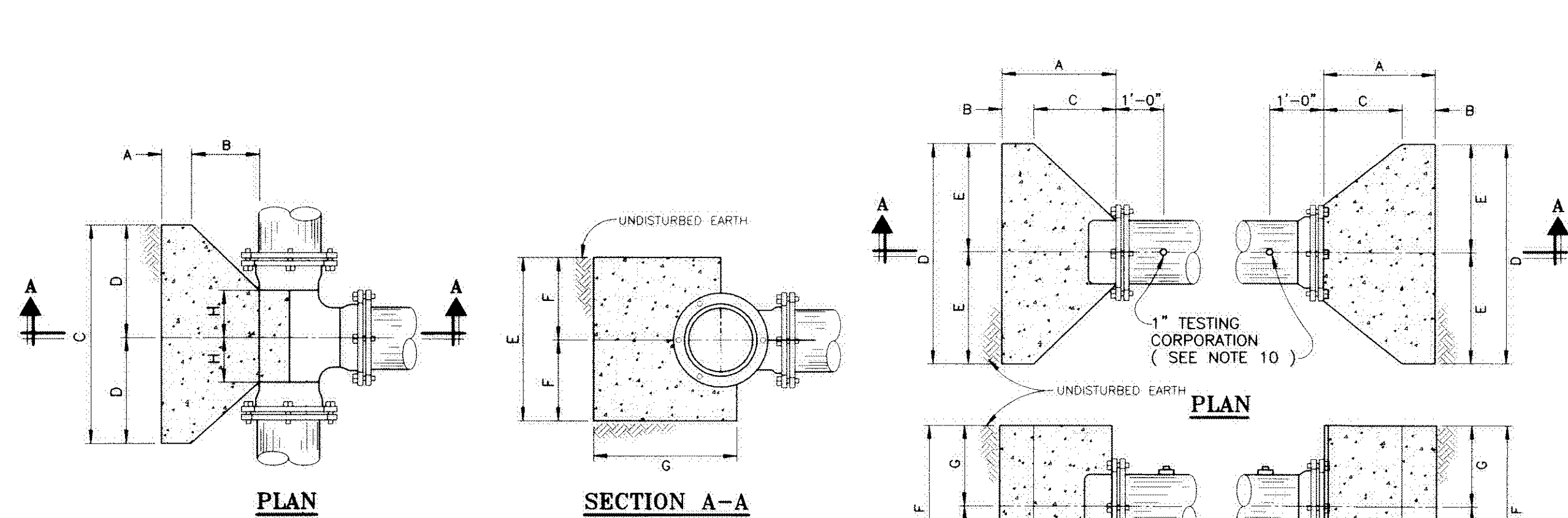
GENERAL NOTES

7. CONSTRUCTION

- A. THE WATER MAIN SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF FIVE AND ONE-HALF FEET (5'-½'), MEASURED FROM THE PAVEMENT CENTERLINE ELEVATION OR THE EXISTING GROUND, WHICHEVER IS LOWER, TO THE TOP OF PIPE. GENERALLY, THE MAXIMUM DEPTH OF COVER SHALL NOT EXCEED SEVEN FEET (7') FROM FINAL FINISH GRADE.
- B. A MINIMUM VERTICAL CLEARANCE OF ONE AND ONE-HALF FEET (1'-½') MUST BE MAINTAINED BETWEEN THE WATER MAIN AND ANY UTILITIES. ADJUSTMENTS TO THE WATER MAIN DEPTH IN ORDER TO OBTAIN THE DESIRED CLEARANCES MUST BE ACCOMPLISHED WITH VERTICAL BENDS, THRUST BLOCKS AND ANCHORAGES.
- C. DEFLECTION OF PIPE JOINTS TO OBTAIN THE DESIRED CLEARANCES OR ALIGNMENT SHALL ONLY BE ACCOMPLISHED WITH THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS APPROVAL. THE MAXIMUM ALLOWABLE DEFLECTION (FOR 1 FULL LENGTH OF PIPE) IS FOURTEEN INCHES (14") FOR 4" THROUGH 12" PIPE AND EIGHT INCHES (8") FOR 16" AND 24" PIPE.
- D. THE CONTRACTOR SHALL SUPPLY AND PLACE A PLUG OR CAP OVER THE END OF THE PIPE AT THE END OF EACH WORK DAY.
- E. IN NEW DEVELOPMENTS, WATER MAIN SHALL NOT BE INSTALLED UNTIL ROUGH GRADING IS COMPLETED TO WITHIN TWELVE INCHES (12") OF PROPOSED FINISH GRADE.
- F. INDIVIDUAL WATER SERVICES AND METERS SHALL BE REQUIRED FOR EACH SEPARATE UNIT WITHIN PROPOSED COMMERCIAL, INDUSTRIAL AND/OR MULTIPLE FAMILY RESIDENTIAL BUILDINGS.

8. CONNECTION TO EXISTING SYSTEM

- A. A ONE INCH (1") CORPORATION SHALL BE INSTALLED, FOR TESTING PURPOSES, IN ALL STUBS AND POINTS OF CONNECTION TO EXISTING MAINS. SEE NOTE 10 FOR CORPORATION STOP SPECIFICATION. UPON SUCCESSFUL COMPLETION OF THE TESTS AND WITH THE APPROVAL OF THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS, THE CONTRACTOR SHALL REMOVE THE TESTING CORPORATION AND INSTALL PLUGS.
- B. THE MAXIMUM PERMISSIBLE LEAKAGE, DURING HYDROSTATIC TESTING, SHALL NOT EXCEED 0.18 GALLONS PER INCH DIAMETER OF MAIN PER 1000 FEET OF PIPE IN 2 HOURS AT A TEST PRESSURE OF 150 PSI. THE MAXIMUM TEST LENGTH IS 3000 FEET. THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS RESERVES THE RIGHT TO TEST SHORTER LENGTHS. THE CONTRACTOR IS TO SUPPLY ALL TESTING EQUIPMENT AND PERFORM THE TEST. THE DWSO AND THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS WILL WITNESS THE TEST.
- C. A DOUBLE CHECK VALVE ASSEMBLY, FOR BACKFLOW PREVENTION, SHALL BE UTILIZED ON ALL TEMPORARY LINES USED TO FILL AND FLUSH THE NEWLY INSTALLED MAIN. THE DOUBLE CHECK VALVE ASSEMBLY SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C510 CURRENT SPECIFICATIONS FOR DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY.
- D. ALL WATER MAINS SHALL BE DISINFECTED ACCORDING TO THE REQUIREMENTS OF ANSI/AWWA C651 CURRENT SPECIFICATIONS FOR DISINFECTING WATER MAINS.
- E. ALL WATER USED FOR FLUSHING NEW WATER MAINS MAY BE OBTAINED FROM THE LOCAL WATER SUPPLY. THE CONTRACTOR SHALL SECURE WRITTEN PERMISSION AND/OR PERMIT FROM THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS FOR WATER USED AND BEAR ALL EXPENSES OF SUCH PERMIT AND FOR THE WATER USED. WHERE CONNECTIONS ARE MADE TO HYDRANTS, THE CONTRACTOR SHALL ALSO OBTAIN PERMISSION FOR SUCH CONNECTIONS FROM THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. STANDARD HYDRANT WRENCHES SHALL BE USED FOR OPENING AND CLOSING THE HYDRANT. PIPE WRENCHES SHALL NOT BE USED TO OPEN OR CLOSE HYDRANTS. USE OF ANY HYDRANT AFTER OCTOBER 15 SHALL INCLUDE THE REQUIREMENT THAT EACH HYDRANT SO USED BE COMPLETELY PUMPED DRY AFTER EACH USE.
- F. CONNECTIONS TO THE EXISTING WATER SYSTEM SHALL NOT BE MADE UNTIL THE NEW MAIN HAS BEEN SUCCESSFULLY PRESSURE TESTED AND HAS PASSED BACTERIOLOGICAL TESTING IN ACCORDANCE WITH CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS AND DWSO STANDARDS AND A COPY OF BOTH RESULTS ARE SUBMITTED TO THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. FINAL CONNECTIONS SHALL BE COORDINATED WITH THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS.
- G. BEFORE ACCEPTANCE A FINAL REVIEW MUST BE MADE BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. FOR PRIVATE DEVELOPMENTS, A SET OF AS-BUILT SEPIA MYLARS, AN AUTOCAD DIGITAL FILE AND THREE (3) SETS OF BLUE LINE PRINTS SHALL BE SUBMITTED TO THE CITY OF GROSSE POINTE WOODS ENGINEER.
9. MAINTENANCE AND GUARANTEE BOND
- A. THE CONTRACTOR SHALL PROVIDE A TWO (2) YEAR MAINTENANCE AND GUARANTEE BOND TO THE CITY OF GROSSE POINTE WOODS FROM A SURETY, LICENSED IN THE STATE OF MICHIGAN, WITH A RATING OF B+ OR BETTER, DATED FROM THE TIME OF FINAL ACCEPTANCE BY THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS, FOR 100% OF THE CONSTRUCTION COSTS.
10. WATER SERVICES
- A. ALL WATER SERVICE TRANSFERS SHALL INCLUDE NEW COPPER TUBING, CORPORATION STOPS AND UNIONS AS REQUIRED. SEE TYPICAL WATER SERVICE TRANSFER DETAIL.
- B. ALL WATER SERVICE REPLACEMENTS SHALL INCLUDE NEW COPPER TUBING, CORPORATION STOPS, CURB STOP VALVES, SERVICE BOXES AND UNIONS AS REQUIRED. SERVICE REPLACEMENTS SHALL BE FROM THE WATER MAIN TO A CONNECTION POINT ONE FOOT (1') BEYOND THE EXISTING CURB STOP VALVE. SEE TYPICAL WATER SERVICE REPLACEMENT DETAIL.
- C. UNIONS FOR WATER SERVICE TRANSFERS SHALL BE MUELLER H-15400 STRAIGHT THREE PART UNION WITH COPPER FLARE NUT (BOTH ENDS). UNIONS FOR WATER SERVICE REPLACEMENT SHALL BE MUELLER H-15506 STRAIGHT UNION EXTRA STRONG (XS) WITH LEAD FLANGE COUPLING AND COPPER FLARE NUT.
- D. WATER SERVICES SHALL BE NEW TYPE "K" SEAMLESS COPPER TUBING. CONTRACTOR SHALL MATCH EXISTING WATER SERVICE SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- E. CORPORATION STOPS SHALL BE MUELLER H-15000 GROUND KEY CORPORATION VALVE WITH AWWA TAPER (MUELLER "CC") THREAD AND COPPER FLARE STRAIGHT CONNECTION OUTLET. A BRONZE DOUBLE STRAP SADDLE IS REQUIRED FOR ONE AND ONE-HALF INCH (1'-½") AND TWO INCH (2") WATER SERVICES. BRONZE DOUBLE STRAP SADDLES SHALL BE MUELLER BR 2 B SERIES WITH AWWA TAPER (MUELLER "CC") THREAD.
- F. CURB STOP VALVES SHALL BE MUELLER H-15204 MARK II ORISEAL CURB VALVE WITH COPPER FLARE NUT (BOTH ENDS) AND QUARTER TURN CHECK. CURB BOXES SHALL BE TYLER CAST IRON ADJUSTABLE SERVICE BOXES, 6500 SERIES, SCREW TYPE 95-E.
- G. CURB STOPS SHALL ONLY BE INSTALLED IN SIDEWALKS, DRIVES, OR PAVEMENT WITH THE WRITTEN AUTHORIZATION OF THE CITY OF GROSSE POINTE WOODS DEPARTMENT OF PUBLIC WORKS. ADDITIONAL COPPER TUBING AND FITTINGS SHALL BE USED AS REQUIRED TO INSTALL CURB STOPS IN GREEN BELT AREA.
- H. ALL ABANDONED SERVICES MUST BE CAPPED AT THE MAIN.



TEE SIZE	A	B	C	D	E	F	G	H
8" X 8"	0'-9"	0'-9"	2'-8"	1'-4"	2'-0"	1'-0"	2'-2"	0'-7"
12" X 8"	0'-9"	0'-9"	2'-8"	1'-4"	2'-0"	1'-0"	2'-6"	0'-8"
16" X 8"	0'-9"	0'-9"	2'-8"	1'-4"	2'-0"	1'-0"	2'-10"	0'-8"
12" X 12"	0'-9"	1'-3"	4'-0"	2'-0"	3'-0"	1'-6"	2'-10"	0'-10"
16" X 12"	0'-9"	1'-3"	4'-0"	2'-0"	3'-0"	1'-6"	3'-4"	0'-10"
16" X 16"	1'-0"	1'-4"	4'-8"	2'-4"	4'-8"	2'-4"	3'-6"	1'-0"

NOTE: THRUST BLOCKS FOR 6" TEES SHALL MATCH THE REQUIREMENTS FOR 8" TEES

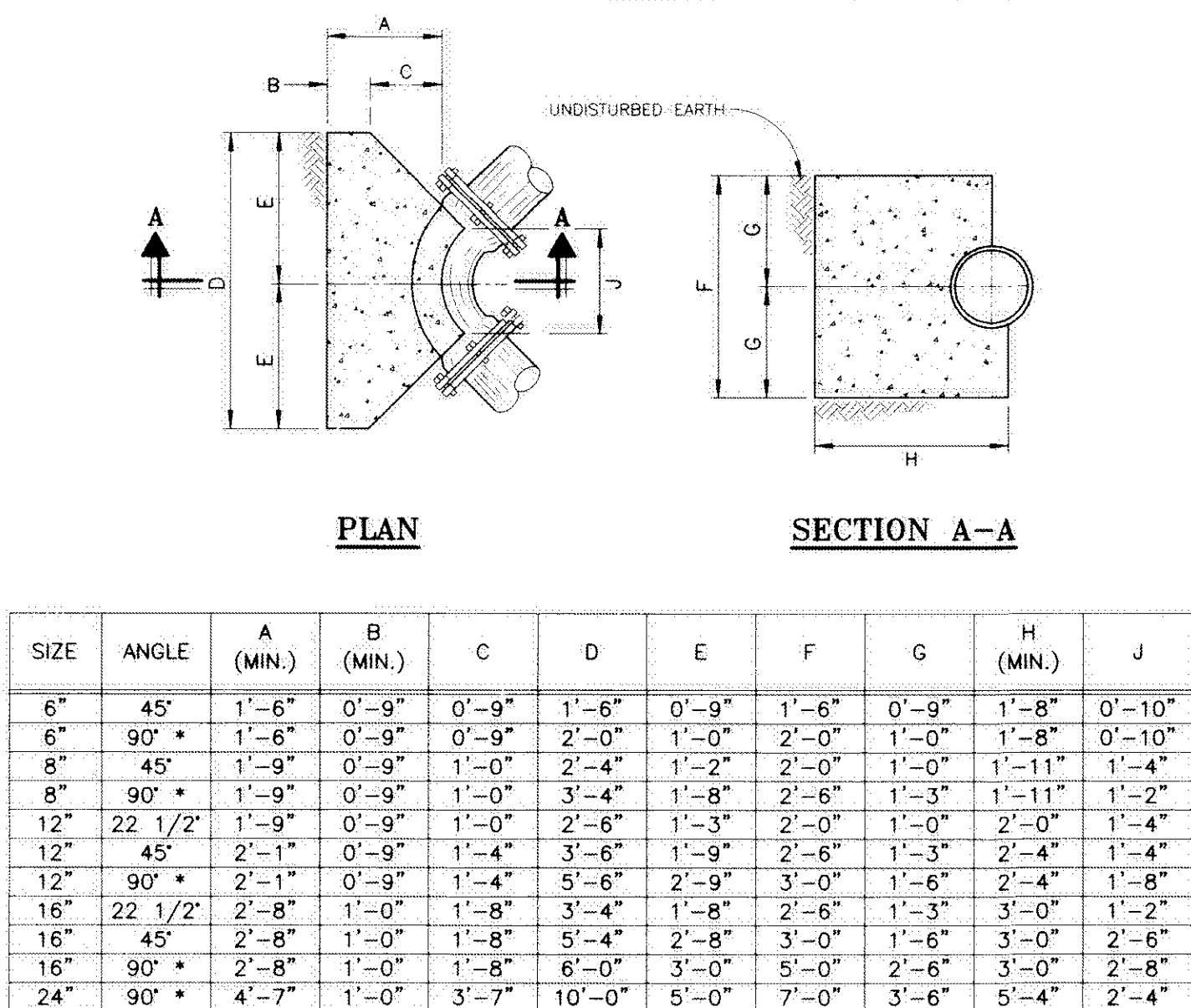
CONCRETE THRUST BLOCKS FOR TEES

NOT TO SCALE

SIZE	A MIN.	B MIN.	C	D	E	F	G
8"	1'-11"	0'-9"	1'-2"	3'-0"	1'-6"	2'-0"	1'-0"
12"	2'-1"	0'-9"	1'-4"	4'-0"	2'-0"	3'-0"	1'-6"
16"	2'-8"	1'-0"	1'-8"	5'-0"	2'-6"	4'-0"	2'-0"
24"	4'-2"	1'-6"	2'-8"	6'-0"	3'-0"	4'-0"	2'-0"

CONCRETE THRUST BLOCKS FOR CAPS

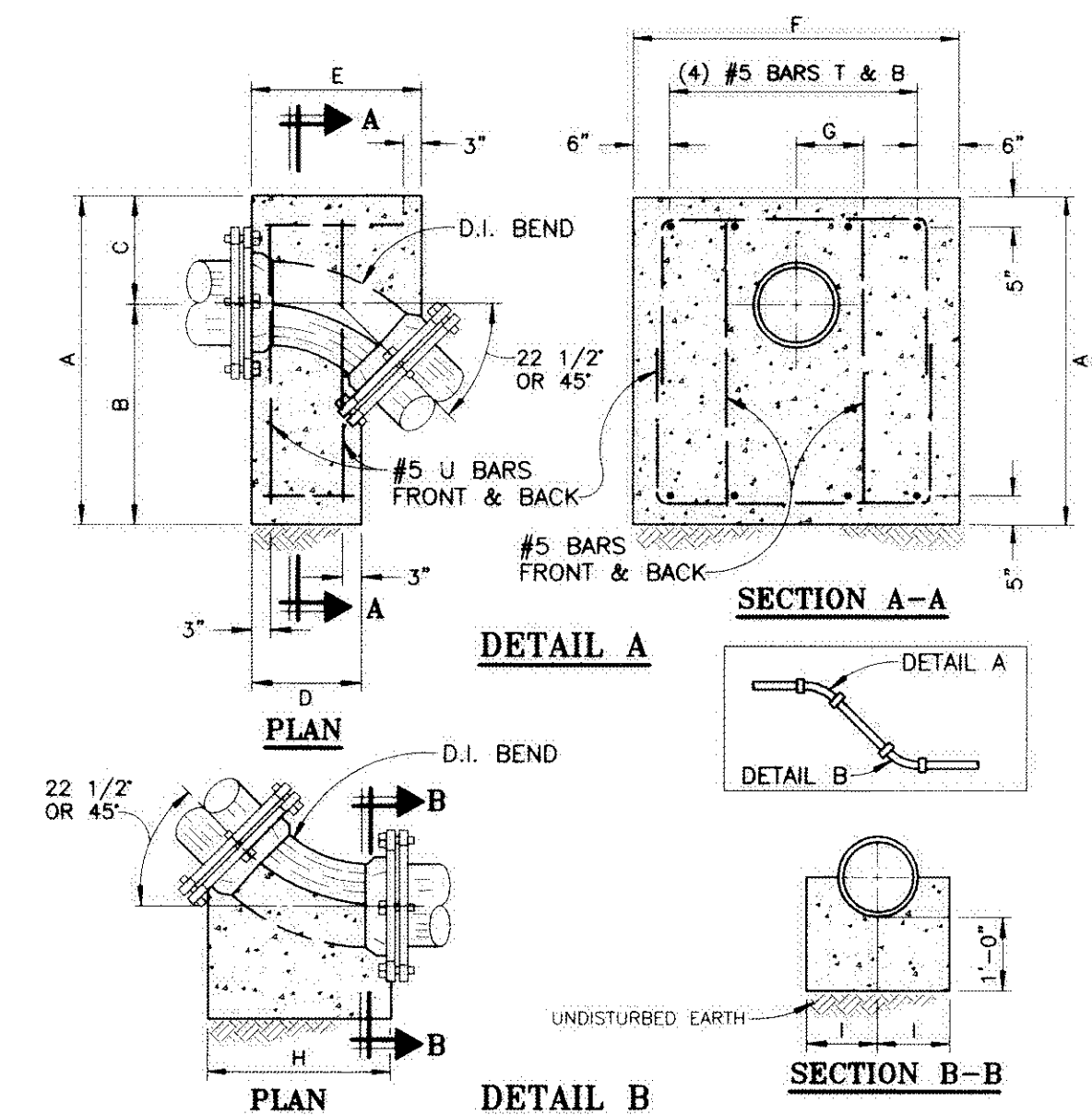
NOT TO SCALE



* 90° BENDS TO BE INSTALLED ONLY WITH WRITTEN APPROVAL OF THE COMMUNITY

CONCRETE THRUST BLOCKS FOR HORIZONTAL BENDS

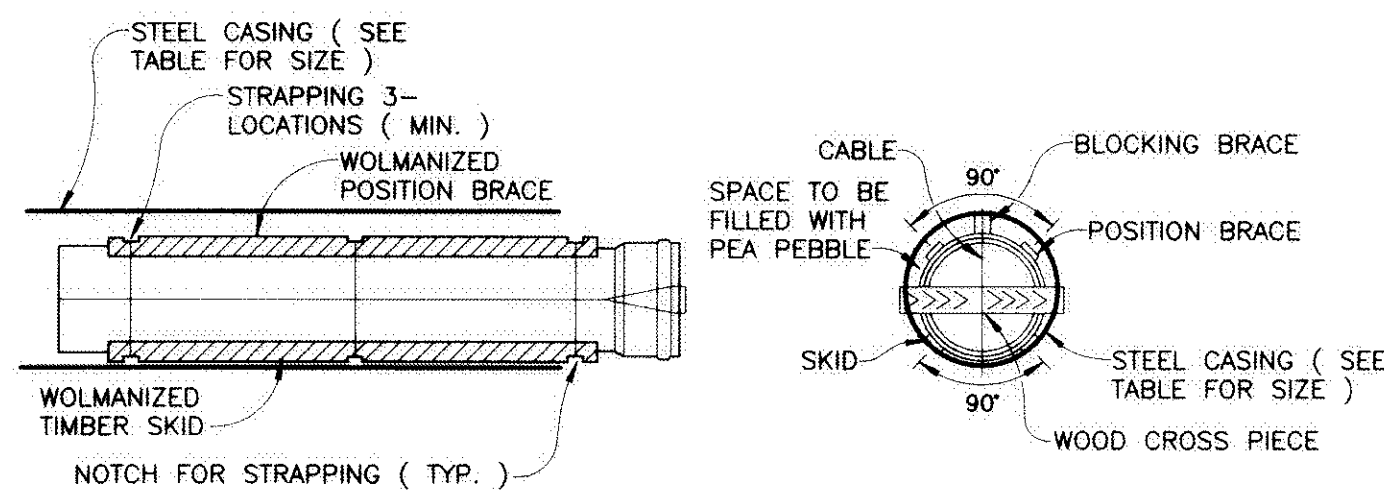
NOT TO SCALE



SIZE	ANGLE	A	B	C	D	E	F	G	H	I
8"	22 1/2°	3'-0"	1'-8"	1'-4"	1'-4"	1'-7"	2'-8"	0'-8"	1'-9"	1'-0"
8"	45°	4'-0"	2'-6"	1'-6"	1'-6"	1'-8"	3'-2"	0'-10"	2'-0"	1'-0"
12"	22 1/2°	4'-0"	2'-6"	1'-6"	1'-7"	2'-0"	4'-0"	0'-10"	2'-6"	1'-0"
12"	45°	4'-6"	3'-0"	1'-6"	1'-6"	2'-4"	5'-0"	0'-11"	2'-6"	1'-0"
16"	22 1/2°	4'-6"	2'-10"	1'-8"	1'-7"	2'-2"	5'-0"	0'-11"	2'-4"	1'-6"

ANCHORAGE FOR VERTICAL BENDS

NOT TO SCALE

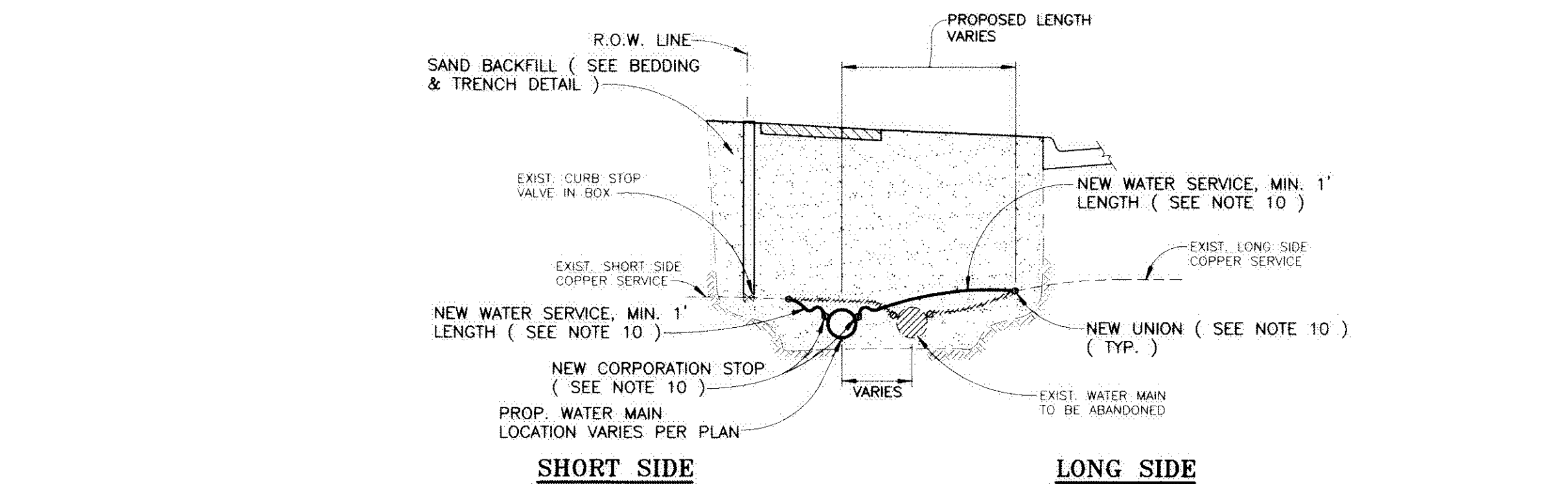


NOTE: THE ENDS OF THE CASING SHALL BE SEALED AFTER THE WATER MAIN IS INSTALLED THROUGH THE CASING

PIPE SIZE	RECOMMENDED MINIMUM CASING DIAMETER (O.D.)	MINIMUM CASING WALL THICKNESS
4"	12.75"	0.375"
6"	14"	0.375"
8"	16"	0.375"
12"	20"	0.375"
16"	24"	0.406"
24"	36"	0.532"

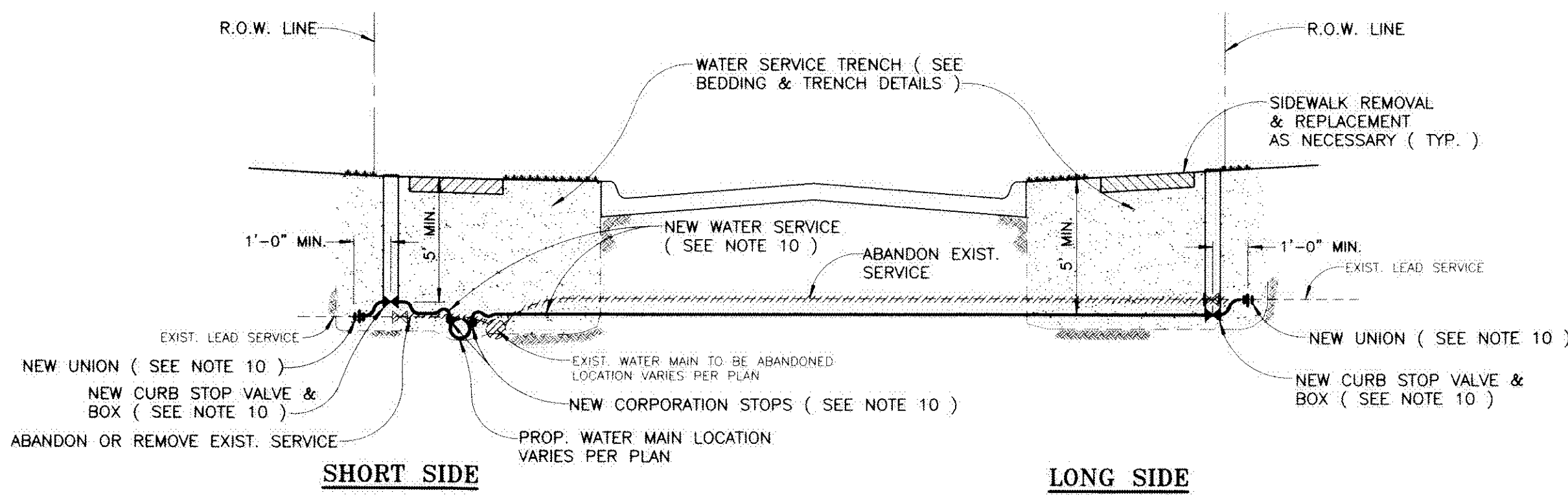
STEEL CASING REQUIREMENTS

NOT TO SCALE



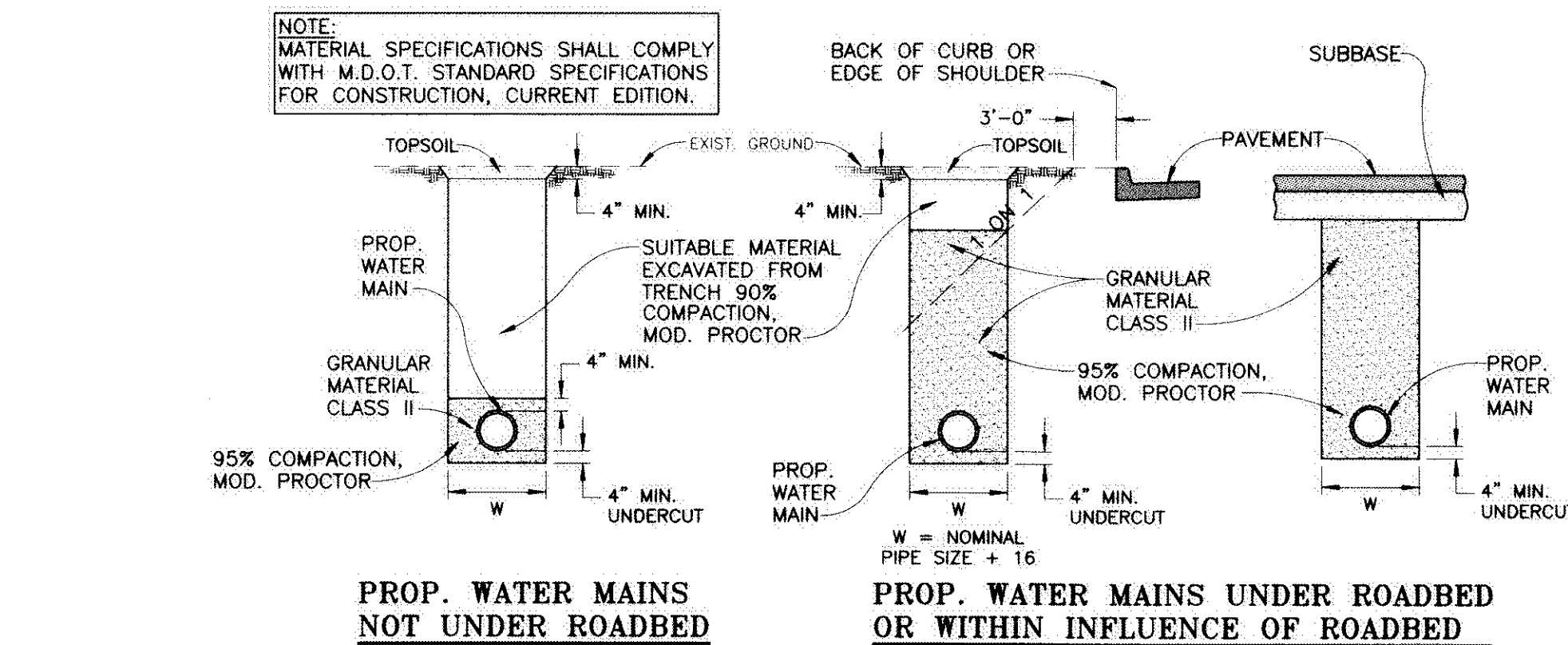
TYPICAL WATER SERVICE TRANSFER

NOT TO SCALE



TYPICAL WATER SERVICE REPLACEMENT

NOT TO SCALE



BEDDING & TRENCH DETAILS

NOT TO SCALE

CITY OF GROSSE POINTE WOODS
STANDARD WATER MAIN DETAILS (2 OF 2)

DEPARTMENT OF PUBLIC WORKS

APPROVED BY : *Joseph J. Ahee, Jr.*
JOSEPH J. AHEE, JR., D.P.W. DIRECTOR

DATE : 12-13-05



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PROJECT NO. SHEET NO.
DATE DECEMBER 2005
DRAWN BY SMH CHECKED BY CRF



SCOTT LOCKWOOD P.E. NO. 44355