

CASS STREET WATER MAIN REPLACEMENT

SECTION 16, CITY OF ST. JOHNS
CLINTON COUNTY, MICHIGAN

PUBLIC UTILITIES

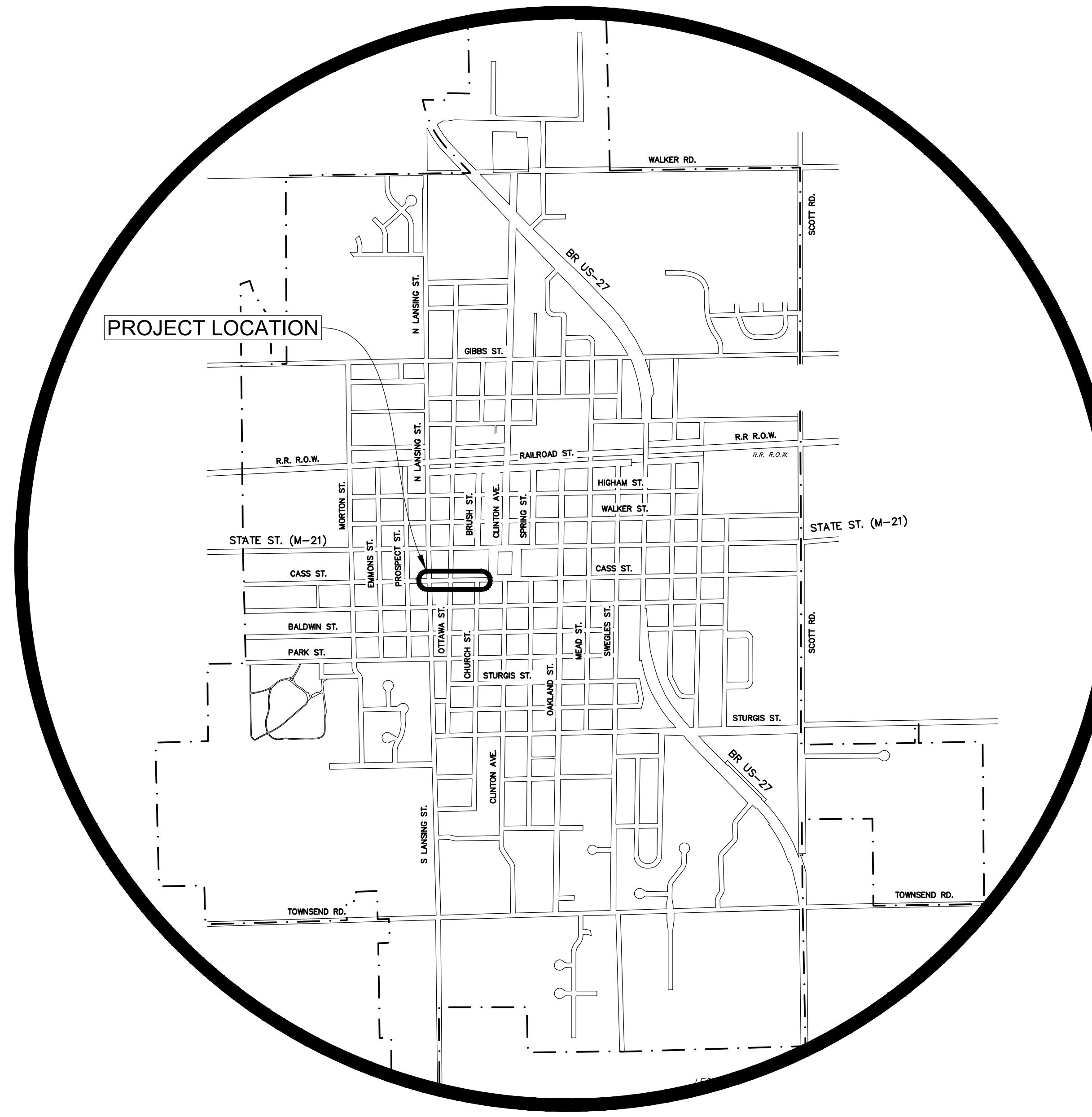
THE EXISTING UTILITIES LISTED BELOW AND SHOWN REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED FROM SERVICE PROVIDER AND FIELD OBSERVATION. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO SATISFY HIMSELF AS TO THEIR ACCURACY OR OF HIS RESPONSIBILITY TO NOTIFY THE PROPER UTILITIES BEFORE COMMENCING WORK. THE FOLLOWING UTILITIES ARE LOCATED IN OR NEAR THE RIGHT OF WAY FOR THIS PROJECT.

NAME AND ADDRESS OF UTILITY	TYPE OF UTILITY
CONSUMERS ENERGY (LOCAL OFFICE) 530 WEST WILLOW STREET LANSING, MI 48909 PH: 517-374-2375 CELL: 517-930-0879 DOUG FURMAN	GAS
CONSUMERS ENERGY (LOCAL OFFICE) 530 WEST WILLOW STREET LANSING, MI 48909 PH: 517-374-2329 CELL: 517-580-2049 JACOB CHALUT	ELECTRIC
CHARTER COMMUNICATIONS 1145 SOUTH TELEGRAPH ROAD MONROE, MI 48161 PH: 734-240-4015 MARK PRICE	CABLE TELEVISION
COMLINK 1781 HOLLOWAY DRIVE HOLT, MI 48842 PH: 517-742-4109 RYAN SCHANER	FIBER
FRONTIER COMMUNICATIONS 1943 WEST M-21 OWOSO, MI 48667 PH: 989-723-0373 MARK STEVENS	TELEPHONE
CITY OF ST. JOHNS 100 EAST STATE STREET, SUITE 1000 ST. JOHNS, MI 48979 PH: 989-224-8944 JUSTIN SMITH	SANITARY SEWER & WATER MAIN
CLINTON COUNTY DRAIN COMMISSION 100 E STATE STREET, SUITE 2300 ST. JOHNS, MI 48879 PH: 989-224-5160 JON MORRISON	STORM SEWER

OWNERS OF PUBLIC UTILITIES WILL NOT BE REQUIRED TO MOVE POLES OR STRUCTURES THAT ARE NOT WITHIN GRADING OR STRUCTURE LIMITS IN ORDER TO FACILITATE THE OPERATION OF CONSTRUCTION EQUIPMENT, UNLESS IT IS DETERMINED BY THE ENGINEER THAT SUCH LINES OR STRUCTURES CONSTITUTE A HAZARD TO THE PUBLIC OR ARE EXTRA-ORDINARILY DANGEROUS TO THE CONTRACTOR'S OPERATIONS. (SEE SPECIAL PROVISIONS FOR UTILITY COORDINATION)

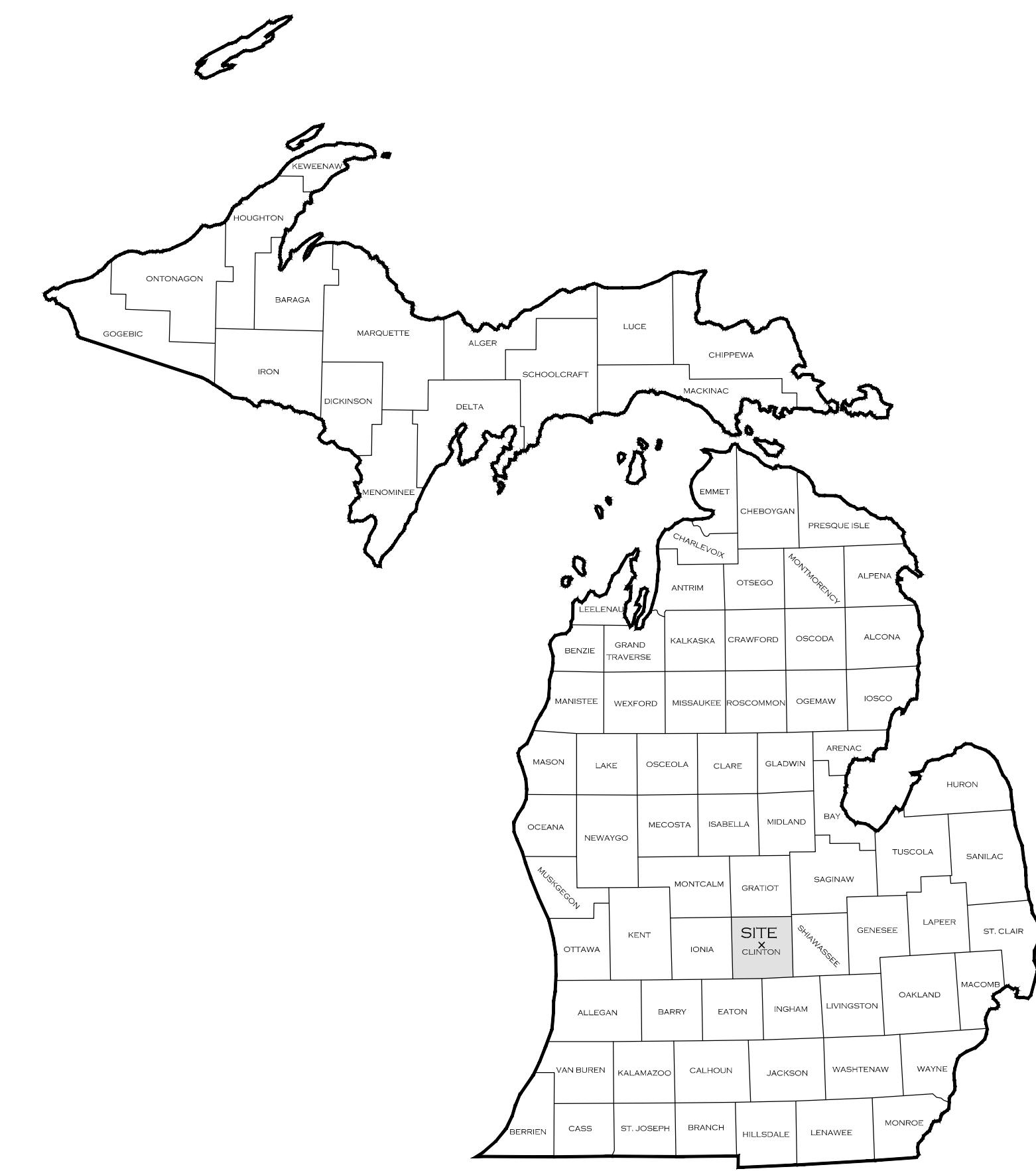
OWNER CONTACT INFORMATION

CITY OF ST. JOHNS
CONTACT: CALVIN GALECKA
100 E STATE STREET, SUITE 2900
ST. JOHNS, MICHIGAN 48820
PH: 517-224-8944 EXT. 235
Fx: 517-224-2204
EMAIL: PROPERTY OWNER EMAIL ADDRESS



LOCATION MAP

NOT TO SCALE



Sheet List Table

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August 20, 2025

ABBREVIATIONS

ABN	ABANDON
ABND	ABANDONED
AB	AS-BUILT
BIT	BITUMINOUS
BLK	BULK HEAD
BM	BENCH MARK
BOC	BACK OF CURB
CB	CATCH BASIN
CI	CAST IRON
CIP	CAST IN PLACE
CL	CENTER LINE
CON	CONDUIT
CONC	CONCRETE
DI	DUCTILE IRON
DIA	DIAMETER
EGL	EXISTING GROUND LEVEL
EL	ELEVATION
EOP	EDGE OF PAVEMENT
EX	EXISTING
FF	FINISHED FLOOR
FOC	FACE ON CURB
HA	HYDRANT ASSEMBLY
HMA	HOT MIX ASPHALT
HYD	HYDRANT
LT	LEFT
O:	OFFSET
MH	MANHOLE
PAV	PAVEMENT
PR	PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
FM	FORCE MAIN
REC	RECORD
REL	RELOCATE
REM	REMOVE
RT	RIGHT
S:	STATION
SAN	SANITARY
STM	STORM
TOC	TOP OF CONCRETE
TOP	TOP OF PIPE OR TOP OF PAVEMENT
TOW	TOP OF WALL OR TOP OF WALK
WTR	WATER MAIN
TOPO	TOPOGRAPHIC SURVEY

EXISTING LEGEND

— 900 —	CONTOUR - MJR
— 901 —	CONTOUR - MNR
— — — — —	SANITARY SEWER
— — — — —	STORM SEWER
— — — — —	WATER MAIN
— GAS — GAS — GAS — GAS —	GAS MAIN
— OHU — OHU — OHU — OHU —	OVERHEAD UTILITY
— COM —	COMMUNICATION LINE
— O — O — O —	CHAIN LINK FENCE
— O — O — O —	WOOD FENCE
— O — O — O —	VINYL FENCE
— — — — —	CURB
— — — — —	ROW
— PARCEL-L — PARCEL-L —	PARCEL LINE
— GOVT — GOVT —	GOVERNMENT LINE
— — — — —	CENTERLINE
— — — — —	TREE LINE
— — — — —	STRUCTURE
— — — — —	ASPHALT
— — — — —	CONCRETE
— — — — —	GRAVEL
— — — — —	STONE
— — — — —	SURFACE WATER
— — — — —	WETLANDS
— — — — —	DECIDUOUS TREE
— — — — —	EVERGREEN TREE
— — — — —	SHRUB
— — — — —	STUMP
— — — — —	SANITARY MANHOLE
— — — — —	SANITARY CLEAN OUT
— — — — —	SANITARY TRACE BOX
— — — — —	STORM MANHOLE
— — — — —	STORM CLEAN OUT
— — — — —	STORM CATCH BASIN-CURB
— — — — —	STORM CATCH BASIN-YARD
— — — — —	STORM END SECTION
— — — — —	STORM TRACE BOX
— — — — —	HYDRANT
— — — — —	WATER SERVICE VALVE
— — — — —	WATER ISOLATION VALVE
— — — — —	WATER MANHOLE
— — — — —	WATER METER PIT
— — — — —	WATER WELL
— — — — —	WATER TRACE BOX
— — — — —	LIGHT POLE
— — — — —	UTILITY POLE
— — — — —	GUY POLE
— — — — —	GUY WIRE
— — — — —	TELEPHONE RISER
— — — — —	TELEPHONE MANHOLE
— — — — —	GAS VALVE
— — — — —	MAILBOX
— — — — —	POST
— — — — —	STREET SIGN
— — — — —	SECTION CORNER
— — — — —	FOUND PROPERTY IRON
— — — — —	MONUMENT BOX
— — — — —	SET PROPERTY IRON
— — — — —	BENCHMARK
— — — — —	SOIL BORING
— — — — —	SATELLITE DISH

REMOVALS LEGEND

— 900 —	SAW CUT, INTERMEDIATE
— X — X — X — X — X — X — X —	CURB AND GUTTER, REM
— — — — —	PAVT, REM ASPHALT
— — — — —	PAVT, REM CONCRETE
— — — — —	ABANDON
— — — — —	REMOVAL
— — — — —	SAVE
— — — — —	SAWCUT
— — — — —	RELOCATE
— — — — —	RELOCATE BY OTHERS
— — — — —	PROTECT
— SF — SF — SF —	EROSION CONTROL ITEM NUMBER (SEE STANDARD PLAN R-96 SERIES)
— SS — — — —	SLOPE STAKE LINE

PROPOSED LEGEND

— — — — —	SANITARY SEWER
— — — — —	STORM SEWER
— — — — —	WATER MAIN
— — — — —	SANITARY MANHOLE
— — — — —	SANITARY TRACE BOX
— — — — —	STORM MANHOLE
— — — — —	STORM CATCH BASIN CURB/YARD
— — — — —	STORM OUTLET STRUCTURE
— — — — —	STORM TRACE BOX
— — — — —	STORM SEWER END SECTION
— — — — —	STORM OR SANITARY CLEANOUT
— — — — —	FIRE HYDRANT
— — — — —	ISOLATION VALVE
— — — — —	WATER SERVICE VALVE
— — — — —	METER PIT
— — — — —	WATER TRACE BOX
— — — — —	ASPHALT
— — — — —	CONCRETE
— 900 —	CURB AND GUTTER
— 900 —	CONTOUR - MJR
— 900 —	CONTOUR - MNR
— — — — —	WORKOUT STATION
— — — — —	LIGHT POLE
— — — — —	ELECTRIC LINE
— OH-E — OH-E —	OVERHEAD ELECTRIC LINE
— CTV — CTV —	CABLE LINE
— OH-CTV — OH-CTV —	OVERHEAD CABLE LINE
— FO — FO —	FIBER OPTIC LINE
— TEL — TEL —	TELEPHONE LINE
— OH-TEL — OH-TEL —	OVERHEAD TELEPHONE LINE

SURVEY NOTES:

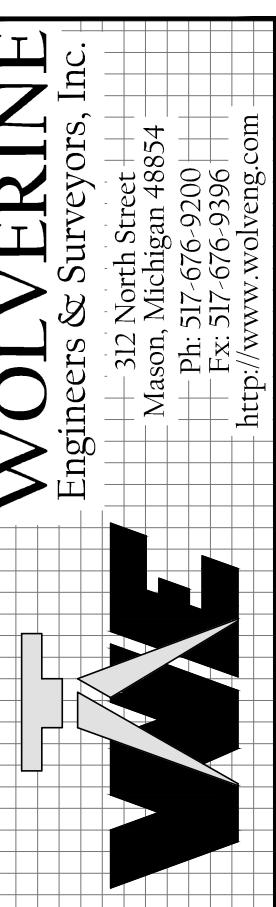
COORDINATE SYSTEM:	STATE PLANE GRID
ZONE:	MICHIGAN SOUTH 2113
HORIZONTAL DATUM:	NAD 83 (MSRN CORS96)
VERTICAL DATUM:	NAVD 88
UNITS:	INTERNATIONAL FEET

BENCH MARKS:

BM#	POINT#	NORTHING	EASTING	ELEVATION DESCRIPTION
1	783	546744.1377	13071693.32	803.6594 TOP ARROW HYDRANT
2	1312	546818.7868	13070989.32	787.9143 ESE FLANGE BOLT

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REVISION	DATE	DRAWN	DESCRIPTION
1	8/19/2025	TAP	EASEL COMMENT: ADD FULL STOCK NOTES



PROJECT	CASS STREET WATER MAIN REPLACEMENT
SHEET TITLE	CITY OF ST. JOHNS
SHEET NO.	CLINTON COUNTY, MICHIGAN
APPROVED	DBH
CHECKED	DBH
DRAWN	TAP
JOB NO.	25-0016
DATE	7/19/2025
SCALE	NO SCALE
SHEET NO.	2

WATER MAIN SPECIFICATIONS

1. SCOPE OF THE WORK

THIS WORK INCLUDES THE FURNISHING AND INSTALLING OF ALL PIPE, FITTINGS, FIRE HYDRANTS WITH VALVES, VALVE BOXES, AND VALVES, INCLUDING ALL CONNECTIONS TO EXISTING WATERMANS AS SHOWN ON THE PLANS. PIPE IS SPECIFIED IN CLASSIFICATIONS SPECIFIED BY THE AMERICAN WATER WORKS ASSOCIATION, HEREIN DESIGNATED AS AWWA. ALL AWWA SPECIFICATIONS REFERRED TO HEREIN SHALL BE THE MOST RECENT VERSION OF THAT SPECIFICATION.

2. PIPE MATERIALS

GENERAL

ENSURE THAT ALL WATER MAIN PIPE MEETS THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) WATER BUREAU SUGGESTED PRACTICE FOR WATER WORKS DESIGN, CONSTRUCTION AND OPERATION FOR TYPE I WATER SUPPLIES.

USE PIPE AND FITTINGS CONFORMING TO LEAD-FREE REQUIREMENTS AND BEARING THE MARK NSF 61, NSF 61 - ANNEX G, NSF-PW-G, NSF 14 AND/OR NSF 372 AS APPLICABLE FOR WATER SYSTEMS.

USE JOINT LUBRICANTS AS RECOMMENDED BY THE PIPE MANUFACTURER.

DUCTILE IRON PIPE AND APPURTENANCES

DI PIPE CONFORMING TO AWWA C150/A21.50, AWWA C151/A21.51, CLASS 52.

DI FITTINGS CONFORMING TO AWWA C110/A21.10 OR AWWA C153/A21.53, MATCH PIPE CLASS AND LINING, CLASS 53 MINIMUM.

FIRE HYDRANTS CONFORMING TO AWWA C502.

CEMENT-MORTAR LINING CONFORMING TO AWWA C104/A21.4.

CERAMIC-EPOXY LINING (WHEN SPECIFIED) AS MANUFACTURED BY INDURON COATINGS INC., 3333 RICHARD ARRINGTON JR. BLVD N, BIRMINGHAM, ALABAMA 35234-2303, PH. 800.324.9584, PRODUCT NAME: PROTECTO 401

JOINTS CONFORMING TO AWWA C11/A21.11. PIPE RESTRAINT

U.S. PIPE, TWO CHASE CORPORATE DRIVE, SUITE 200, BIRMINGHAM, AL 35244, PH. 866.347.7473, PRODUCT NAME: TR FLEX

U.S. PIPE, TWO CHASE CORPORATE DRIVE, SUITE 200, BIRMINGHAM, AL 35244, PH. 866.347.7473, PRODUCT NAME: TYTON JOINT® PIPE WITH FIELD LOK 350 GASKETS

AMERICAN DUCTILE IRON PIPE, 1500 32ND AVE NORTH, BIRMINGHAM, AL 35207, PH. 500.112.2347, PRODUCT NAME: FASTITE JOINT PIPE WITH FAST-GRIP GASKET

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 1700 MEGALUG HARNESS

GRIPPER GASKET LLC, 1660 LEESON LANE, CORONA, CA 92879, PH: 951.479.4999

MJ/RESTRAINED FITTINGS

U.S. PIPE, TWO CHASE CORPORATE DRIVE, SUITE 200, BIRMINGHAM, AL 35244, PH. 866.347.7473, PRODUCT NAME: TYTON JOINT® FITTINGS WITH FIELD LOK 350 GASKETS

AMERICAN DUCTILE IRON PIPE, 1500 32ND AVE NORTH, BIRMINGHAM, AL 35207, PH. 500.112.2347, PRODUCT NAME: FLEX-RING FITTINGS WITH FAST-GRIP GASKET

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 1100 MEGALUG

POLYETHYLENE ENCASING CONFORMING TO AWWA C105/A21.5, SINGLE LAYER, LAPPED OVER PIPE JOINT 1 FOOT MINIMUM, AND SECURED WITH 10 MIL POLYETHYLENE TAPE.

PVC PIPE AND APPURTENANCES

PVC PIPE CONFORMING TO AWWA C900, DR18 (235

PSI). INJECTION-MOLDED PVC FITTINGS

CONFORMING TO AWWA C907.

FABRICATED PVC FITTINGS CONFORMING TO AWWA C900. CONFIGURATIONS REQUIRING FIBERGLASS REINFORCEMENT SHALL CONFORM TO QUALITY REQUIREMENTS OF ASTM D2563.

DI FITTINGS CONFORMING TO AWWA C110/A21.10 OR AWWA C153/A21.53, WITH CEMENT-MORTAR LINING CONFORMING TO AWWA C104/A21.4 UNLESS OTHERWISE SPECIFIED, CLASS 53 MINIMUM.

JOINTS CONFORMING TO ASTM D3139, WITH ASTM F477

GASKETS. COLOR: BLUE.

PIPE RESTRAINT

JM EAGLE, 5200 WEST CENTURY BOULEVARD, LOS ANGELES, CA 90045, PH. 800.621.4404, PRODUCT NAME: EAGLE LOC 900

NAPCO PIPE & FITTINGS, 2801 POST OAK BLVD # 600, HOUSTON, TX 77056, PH. 800.621.4404, PRODUCT NAME: C900/PVC CERTA-LOK®

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 1900

MJ FITTING RESTRAINT

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 2000PV FOR DUCTILE IRON MJ FITTINGS AND SERIES 2600 FOR PVC MJ FITTINGS

PVC PIPE APPURTENANCES

PVC PIPE CONFORMING TO AWWA C909, PRESSURE CLASS 235 PSI, (6"-12"). INJECTION-MOLDED PVC FITTINGS CONFORMING TO AWWA C907.

DI FITTINGS CONFORMING TO AWWA C110/A21.10 OR AWWA C153/A21.53, WITH CEMENT-MORTAR LINING CONFORMING TO AWWA C104/A21.4, CLASS 53 MINIMUM.

JOINTS CONFORMING TO ASTM D3139, WITH ASTM F477

GASKETS. COLOR: BLUE.

PIPE RESTRAINT

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 1900

MJ FITTING RESTRAINT

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 19M400 FOR DUCTILE IRON MJ FITTINGS AND SERIES 2600 FOR PVC MJ FITTINGS

FUSIBLE PVC PIPE AND APPURTENANCES

FUSIBLE PVC PIPE CONFORMING TO THE FUSIBLE POLYVINYLCHLORIDE PIPE SPECIFICATION AS PREPARED BY UNDERGROUND SOLUTIONS, 13135 DANIELSON STREET, SUITE 201, POWAY, CA 92064, PH. 858.679.9551

COLOR: BLUE.

PIPE RESTRAINT (FUSIBLE PVC TO BELL & SPIGOT PVC)

EBAA IRON SALES, INC, PO BOX 857, EASTLAND, TX 76448, PH. 800.433.1716, PRODUCT NAME: SERIES 3800

POLYETHYLENE PIPE AND APPURTENANCES (4 INCH TO 63 INCH)

POLYETHYLENE PIPE CONFORMING TO AWWA C906, ASTM D3350, AND ASTM F714, DR11 (200 PSI), DUCTILE IRON PIPE SIZE (DIPS) OR IRON PIPE SIZE (IPS).

HDPE FITTINGS CONFORMING TO ASTM D3261, MATCH PIPE PRESSURE RATING. JOINTS CONFORMING TO ASTM F2620.

COLOR: BLACK WITH BLUE STRIPING.

3. LEAD-FREE REQUIREMENT

ALL PIPES, PIPING FITTINGS, PLUMBING FITTINGS, AND FIXTURES THAT ARE USED FOR POTABLE WATER MUST COMPLY WITH THE LEAD-FREE REQUIREMENT AND MUST BEAR THE MARK NSF/ANSI STANDARD 61, NSF/ANSI 61 - ANNEX G, NSF/ANSI 14 AND/OR NSF 372.

4. TRACER WIRE

ALL UNDERGROUND PIPING (WATER MAIN) SHALL HAVE COPPERHEAD INDUSTRIES #12 SOLID CCS HIGH STRENGTH - BREAK LOAD 452 LBS. (COLOR BLUE), OR AN ENGINEER APPROVED EQUAL, TRACER WIRE INSTALLED AND TAPE TO THE NEW PIPE EVERY FIVE FEET. THIS WIRE SHALL EXTEND FROM THE NEW WATER MAIN CONNECTION POINT TO THE NEW WATER MAIN TERMINATION POINT. THE TRACER WIRE SHALL TERMINATE IN A SNAKEIT MAGNETIZED TRACER BOX, PRODUCT # LD14TP (COLOR BLUE), OR ENGINEER APPROVED EQUAL, (IN A VISIBLE LOCATION) ABOVE GROUND AT ALL NEW HYDRANT SNAKEITE DRYCON DIRECT BURY LUG, PRODUCT # SW5-01 (COLOR BLUE), OR ENGINEER APPROVED EQUAL, SHALL BE INSTALLED TO CONNECT TRACER WIRE. WATER MAIN WILL NOT BE ACCEPTED UNTIL THE TRACER WIRE HAS BEEN LOCATED AND TESTED.

5. VALVES & BOXES

VALVES SHALL MEET THE REQUIREMENTS OF AWWA C515 & C153 GATE VALVES WITH NON-RISING STEM WITH "O" RING SEAL (0-12"). ALL VALVES SHALL AMERICAN FLOW CONTROL, WITH STAINLESS STEEL STEMS AND SHALL OPEN LEFT. CAST IRON BOXES SHALL BE PROVIDED FOR ALL VALVES. VALVE BOXES SHALL BE MUELLER H-10357 - 3 PIECE.

6. LAYING PIPE

PIPE SHALL BE LAID TO LINE AND GRADE AND SHALL HAVE BEARING OVER ITS ENTIRE LENGTH EXCEPT AT JOINTS WHERE JOINT HOLES SHALL BE OF SUCH SIZE AS TO GIVE ADEQUATE ROOM FOR WORKING. DEPTH OF EXCAVATION SHALL BE SUCH AS TO GIVE AT LEAST FIVE FEET OF COVER OVER THE PIPE EXCEPT WHERE PIPE IS BEING LAID IN FUTURE STREETS, THE DEPTH OF EXCAVATION SHALL BE SUFFICIENT TO PROVIDE A MINIMUM OF FIVE FEET OF COVER BELOW ESTABLISHED GRADES AS INDICATED ON THE PLANS.

7. JOINTS

SPLIT-ON JOINTS SHALL BE USED AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

8. THRUST BLOCKS

THRUST BLOCKS SHALL BE OF CONCRETE HAVING A COMPRESSIVE STRENGTH OF 2,000 POUNDS AT 28 DAYS, PLACED BETWEEN THE PIPE AND UNDISTURBED EARTH OF THE TRENCH WALL. THRUST BLOCKS SHALL BE PLACED AT ALL BENDS AND FITTINGS. CONCRETE SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE PIPE WITHIN THE LIMITS OF LAYING LENGTH OF THE FITTING.

9. JOINT RESTRAINT GASKETS OR MECHANICAL JOINT RESTRAINTS

WHERE SOIL AND INSTALLATION CONDITIONS PRECLUDE THE USE OF CONCRETE THRUST BLOCKS AS SPECIFIED AND DETAILED ON THE PLANS, THE CONTRACTOR MAY INSTALL A JOINT RESTRAINT GASKET SYSTEM IN LIEU OF THE THRUST BLOCK ON DUCTILE IRON PIPE. THE GASKET SHALL BE COMPATIBLE TO THE PIPE SUPPLIED AND FURNISHED BY THE PIPE MANUFACTURER. THE GASKET SHALL BE CAPABLE OF JOINT RESTRAINT FOR PIPE UNDER WORKING PRESSURES UP TO 250 PSI. THE GASKET SHALL BE CAPABLE OF JOINT RESTRAINT FOR PIPE UNDER WORKING PRESSURES UP TO 250 PSI. PRIOR TO INSTALLATION OF THE JOINT RESTRAINT GASKET SYSTEM, THE SUPPLIER SHALL PROVIDE ASSISTANCE TO THE CONTRACTOR AND ENGINEER IN CALCULATING THE REQUIRED LENGTH OF PIPE TO BE RESTRAINED AT THRUST LOCATIONS SUCH AS FITTINGS AND DEAD ENDS. JOINT RESTRAINT GASKETS SHALL BE SIMILAR AND/OR EQUAL TO U.S. PIPE'S FIELD LOK (TM) GASKET SYSTEM. PAYMENT SHALL BE INCIDENTAL TO THE COST OF THE PIPE.

10. FITTINGS FOR WATER MAIN CONSTRUCTION

THE COST OF ALL FITTINGS FOR WATERMAIN CONSTRUCTION, INCLUDING ADAPTERS, TEES, ELBOWS AND TURNS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CAST IRON PIPE AND NO PAYMENT WILL BE ALLOWED THEREFORE.

11. FIRE HYDRANTS

FIRE HYDRANT ASSEMBLIES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. FIRE HYDRANT ASSEMBLY WILL BE PAID FOR AS ONE ITEM AND SHALL INCLUDE THE HYDRANT, 6" BY 12" DUCTILE (SWIVEL BY SWIVEL) OFFSET 6" GATE VALVE AND VALVE BOX. FIRE HYDRANTS SHALL BE MANUFACTURED IN CONFORMANCE WITH THE LATEST REQUIREMENTS OF THE AMERICAN WATER WORKS ASSOCIATION STANDARDS AND SHALL BE TESTED TO 300 PSI PRESSURE FROM THE INLET SIDE, FIRST WITH THE VALVE CLOSED AND SECOND WITH THE VALVE OPEN. VALVE OPENING SHALL BE 5 1/4 INCH WITH A 6 INCH FLANGED OPENING.

HYDRANTS SHALL BE OF PROPER LENGTH FOR 5 1/2 FEET OF COVER OVER THE INLET PIPE. WHERE NECESSARY, FITTINGS SHALL BE PROVIDED BETWEEN MAIN AND HYDRANT TO INSURE PROPER BURY. EACH HYDRANT SHALL BE FURNISHED WITH 2 - 2 1/2" HOSE CONNECTIONS AND 1- 4" PUMPER CONNECTION. THREADS FOR HOSE CONNECTIONS AND THE PUMPER CONNECTION, AND THE CONFIGURATION OF THE CAST IRON OPERATING NUT, SHALL BE CONFIRMED BY THE OWNER. HYDRANTS SHALL OPEN LEFT (COUNTER CLOCKWISE). THE OPERATING NUT SHALL BE CAST IRON 1-1/8" PENTAGON. HYDRANTS SHALL BE DESIGNED SO THAT ONE MAN CAN REPLACE ANY OR ALL WORKING PARTS WITHOUT REMOVING THE MAIN VALVE SEAT AND IN CASE OF ACCIDENT OR BREAKING OF THE HYDRANT BARREL, THE VALVE WILL REMAIN CLOSED BY MECHANICAL DESIGN. HYDRANTS SHALL BE FURNISHED WITH AN 18-INCH SPACER PIPE BETWEEN THE HYDRANT AND AUXILIARY VALVE, AND WITH SUITABLE TWO PIECE CAST IRON VALVE BOX. VALVES SHALL CONFORM TO AMERICAN WATER WORKS ASSOCIATION STANDARD C515. HYDRANTS SHALL MEET THE LATEST REQUIREMENTS OF AWWA 502. HYDRANTS SHALL BE WATEROUS PACER.

REQUIREMENTS FOR RESTORATION OF THE SURFACE AREA OF TRENCHES SHALL BE AS REQUIRED UNDER THE SPECIAL CONDITIONS SECTION OF THESE SPECIFICATIONS OR AS REQUIRED ON THE PLANS.

ANY PIPE OR STRUCTURES WHICH SHALL BE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

(c) CLASS_B_MODIFIED_BACKFILL-- BACKFILLING UNDER THIS DESIGNATION SHALL MEET ALL OF THE REQUIREMENTS OF "CLASS B" AS DESCRIBED ABOVE EXCEPT THAT THE BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM LAYERS OF 12 INCH DEPTH AND COMPACTED WITH SUITABLE EQUIPMENT WHICH WILL UNIFORMLY OBTAIN MINIMUM 95% MAXIMUM UNIT WEIGHT AS DETERMINED BY THE LATEST A.A.S.H.T.O. METHOD. EXCAVATED MATERIAL NOT CONSIDERED TO BE SUITABLE BY THE ENGINEER FOR BACKFILL SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS FOR DISPOSITION OF SURPLUS EXCAVATED MATERIALS UNDER THE STANDARD PROJECT REQUIREMENTS.

12. WATER SERVICE LINES

ALL SERVICES SHALL BE INSTALLED UNDER THE SUPERVISION OF THE VILLAGE ENGINEER OR QUALIFIED VILLAGE AGENT. MATERIALS FOR SERVICE LEADS SHALL BE AS FOLLOWS:

A. CORPORATION STOP, CURB STOP, AND CURB BOX:

1" CORPORATION VALVE FORD CORPORATION VALVE 1"-F-1000-4-Q-NL OR ENGINEER APPROVED EQUAL.

1" CURB VALVE FORD CURB VALVE 1"-B43-4-44-M-NL OR ENGINEER APPROVED EQUAL.

1" UNION COUPLING FORD THREE PART UNION 1"-C66-44-Q-NL OR ENGINEER APPROVED EQUAL.

1"-1/2" CURB VALVE FORD CURB VALVE 1"-B43-6-66-M-NL OR ENGINEER APPROVED EQUAL.

1"-1/2" UNION COUPLING FORD THREE PART UNION 1"-C66-66-Q-NL OR ENGINEER APPROVED EQUAL.

1"-1/2" CURB VALVE BOX FORD CURB BOX EXTENSION EM2-55-66-36R-TW OR ENGINEER APPROVED EQUAL.

2" UNION COUPLING FORD CORPORATION VALVE 1"-F1000-6-Q-NL OR ENGINEER APPROVED EQUAL.

2" CORPORATION VALVE FORD CORPORATION VALVE 2"-F1000-7-Q-NL OR ENGINEER APPROVED EQUAL.

2" CURB VALVE FORD CURB VALVE 2"-B43-7-77-M-NL OR ENGINEER APPROVED EQUAL.

2" UNION COUPLING FORD THREE PART UNION 2"-C66-77-Q-NL OR ENGINEER APPROVED EQUAL.

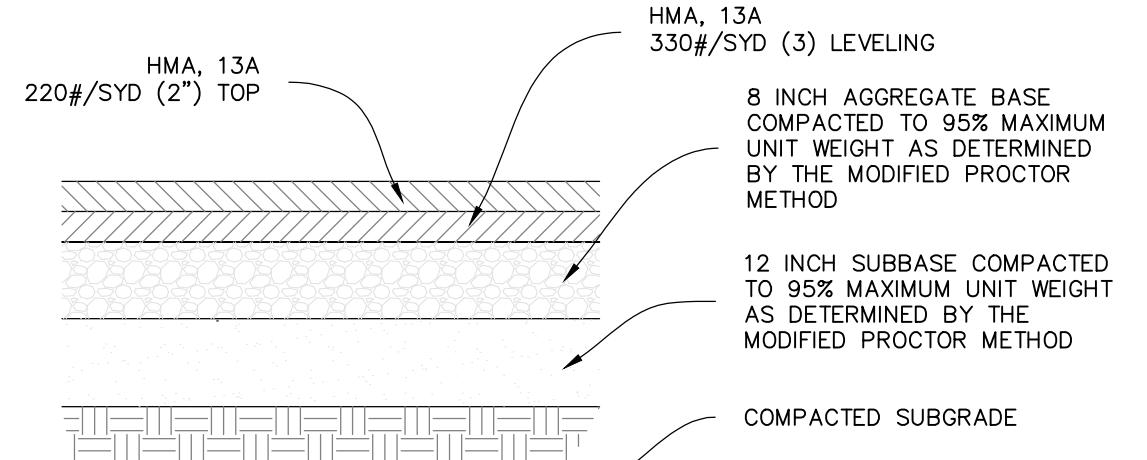
2" CURB VALVE BOX FORD CURB BOX EXTENSION EM2-55-66-36R-TW OR ENGINEER APPROVED EQUAL.

13. FLUSHING AND DISINFECTION OF MAINS

BEFORE THE MAIN IS CHLORINATED, IT SHALL BE FILLED WITH POTABLE WATER TO ELIMINATE AIR POCKETS AND FLUSHED TO REMOVE PARTICULATES. THE FLUSHING VELOCITY IN THE MAIN SHALL NOT BE LESS THAN 3.0 FT./SEC. (0.91 M/SEC).

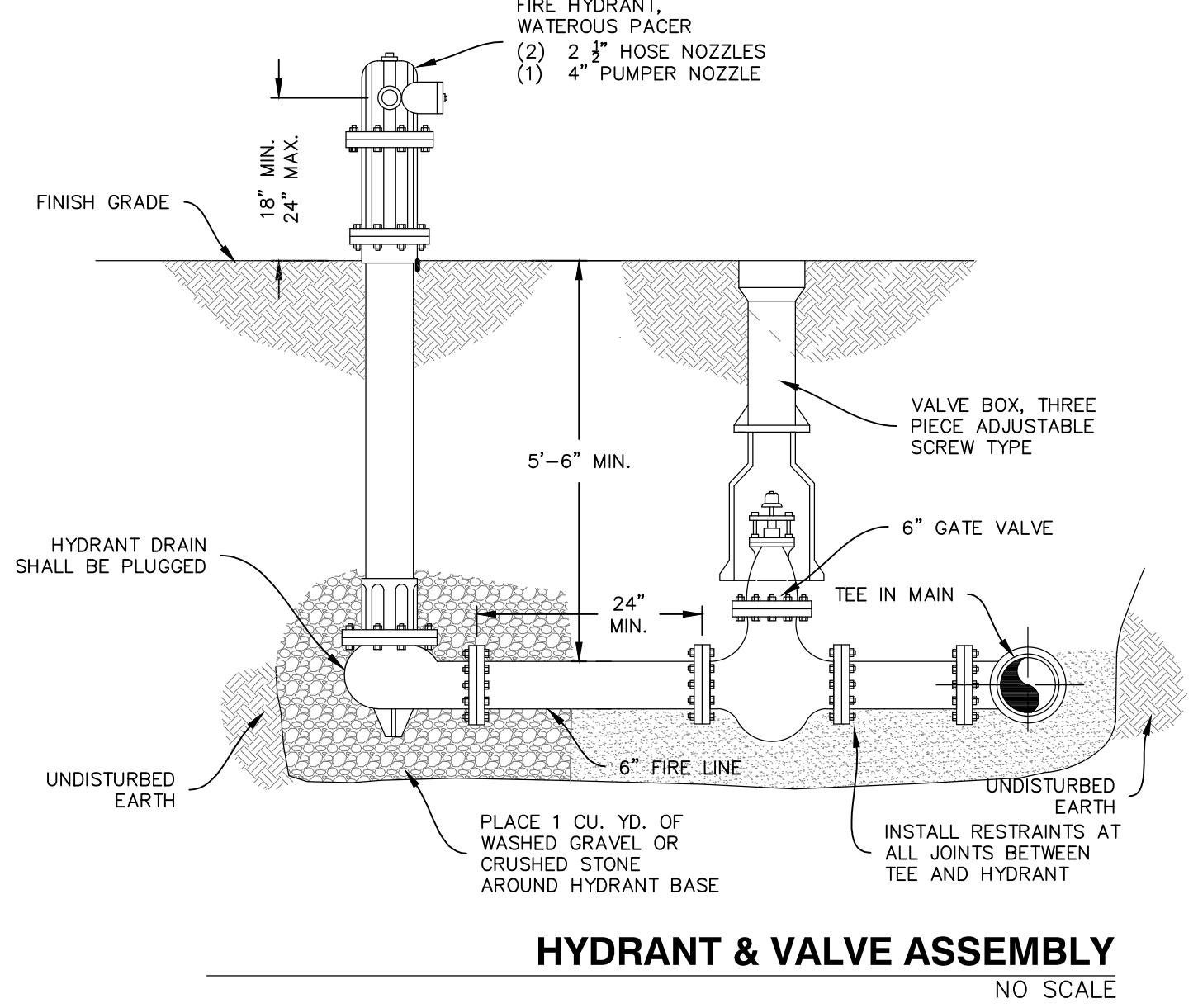
FLUSHING IS NO SUBSTITUTE FOR PREVENTATIVE MEASURES DURING CONSTRUCTION. CERTAIN CONTAMINANTS, SUCH AS CAKED DEPOSITS, RESIST FLUSHING AT ANY FEASIBLE VELOCITY, AND PIGGING OF THE MAIN, OR OTHER SUITABLE METHOD ACCEPTABLE TO THE PURCHASER, MAY BE REQUIRED. WHERE SUCH FLOW RATES ARE NOT POSSIBLE, FLUSHING AT THE MAXIMUM EXPECTED FLOW RATE FOR THE LINE FOR 2-3 VOLUMES MAY BE ACCEPTABLE.

MAINS SHALL BE DISINFECTED IN CONJUNCTION WITH TESTING AND AS SPECIFIED AWWA C 651, CURRENT EDITION, THE CHLORINATED WATER SHALL REMAIN IN THE MAIN UNT



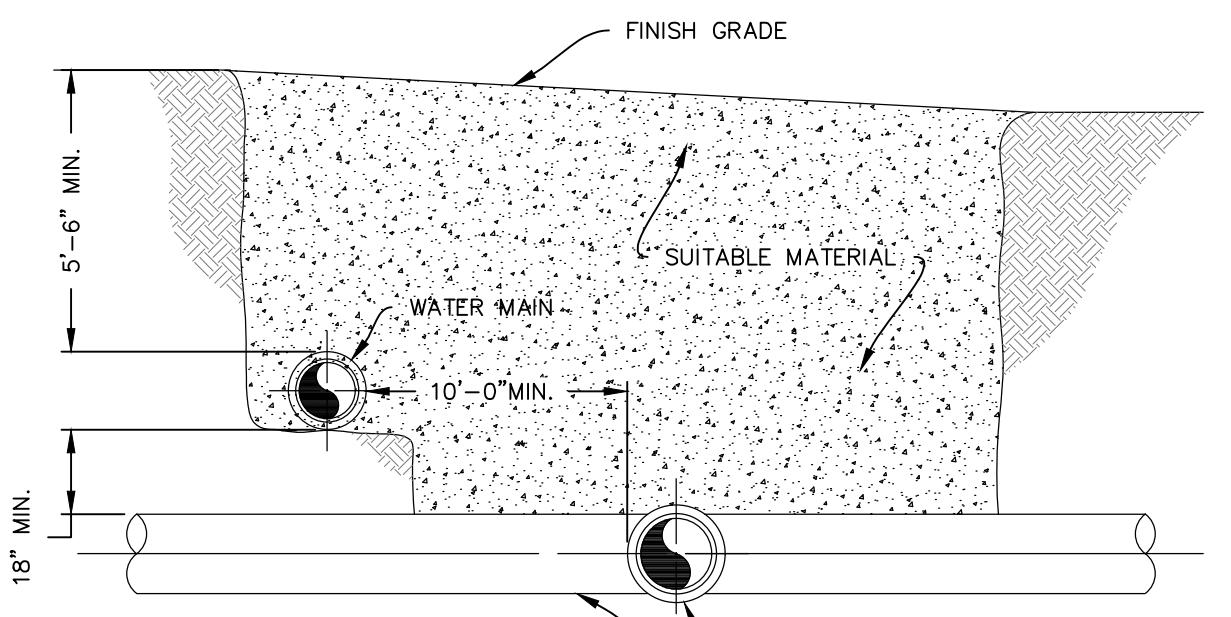
PAVEMENT REPLACEMENT SECTION

NO SCALE



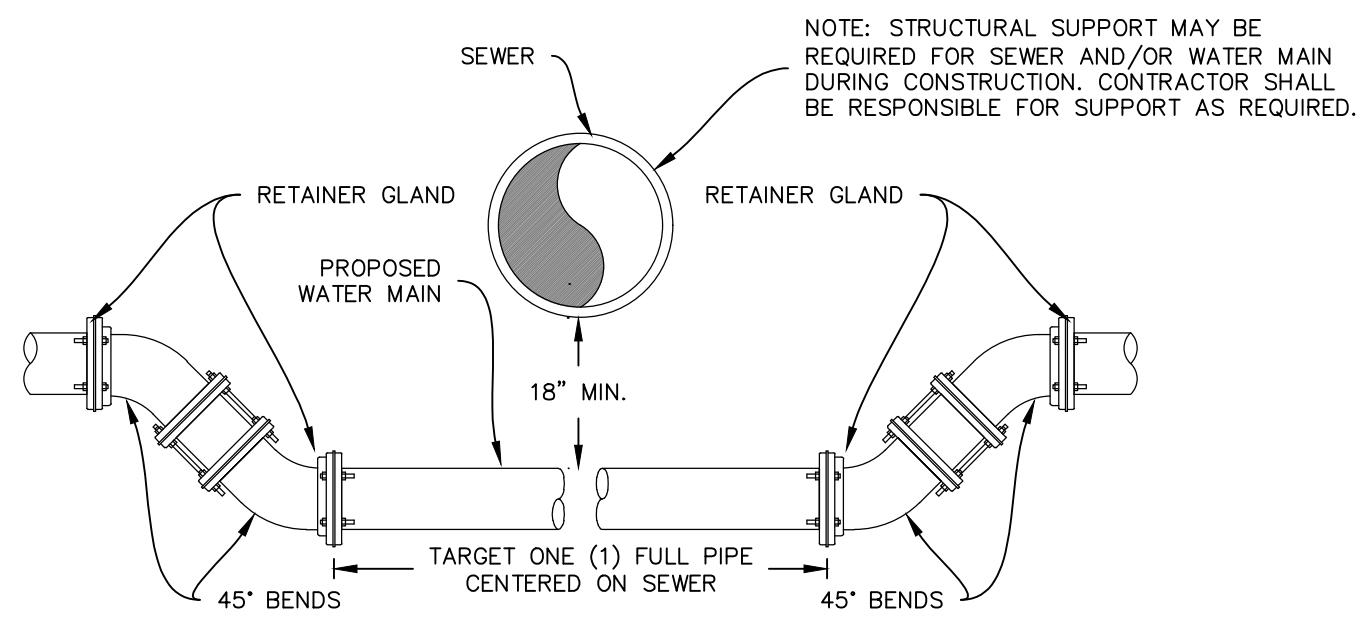
HYDRANT & VALVE ASSEMBLY

NO SCALE



VERTICAL SEPARATION FOR WATER MAINS FROM SEWERS

NO SCALE

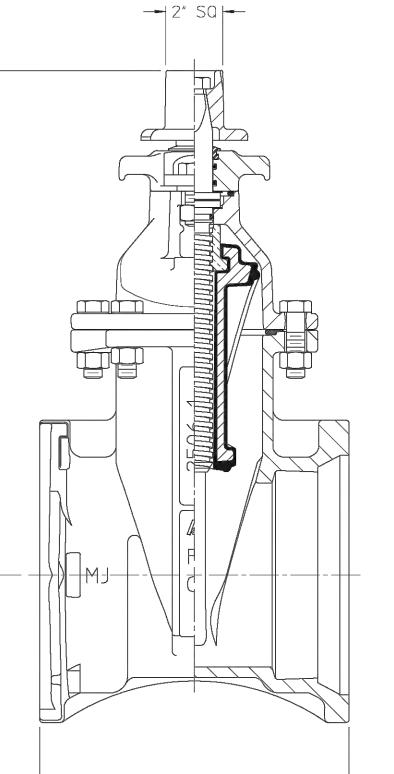


LOWERING WATER MAIN DETAIL

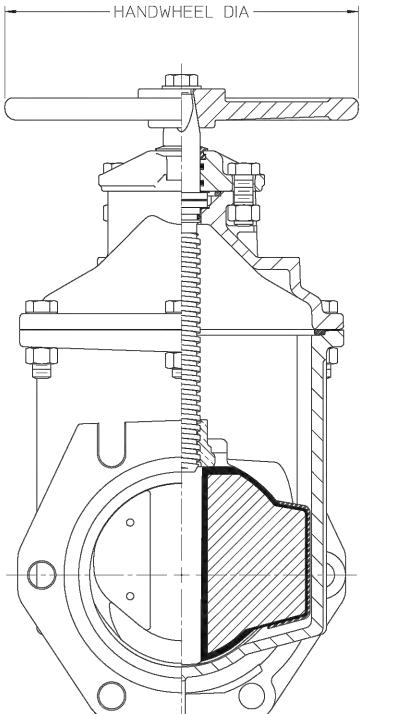
NO SCALE

AMERICAN Flow Control Submittal Information

4" - 12" SERIES 2500-1 RESILIENT WEDGE GATE VALVE, NRS



SHOWN WITH 2" OPERATING NUT



SHOWN WITH OPTIONAL HANDWHEEL

DIMENSION	4"	6"	8"	10"	12"
End to End - MJM	10.00	10.50	11.50	12.50	13.50
End to End - FUF	9.00	10.50	11.50	13.00	14.00
End to End - TYT	13.00	15.88	17.50	18.75	19.75
End to End - FUM	9.50	10.50	12.38	13.62	14.38
End to End - FUT	11.00	13.19	14.5	15.88	16.88
End to End - PVC/	13.00	15.88	17.50	-	-
PVC					
A	13.91	17.12	20.47	24.06	27.59
B	2.50	2.50	2.50	2.50	2.50
C	4.00	5.22	5.50	-	-
D	4.00	5.22	5.50	5.62	5.62
E	9.00	11.19	13.50	15.88	18.00
F DIA	1.00	1.00	1.00	1.31	1.31
Handwheel Diameter	10.00	12.00	14.00	16.00	16.00
No. of Turns to Open	14	20	26	32	38



AMERICAN
FLOW CONTROL
THE RIGHT WAY

TYTON® is a registered trademark of United States Pipe and Foundry Co., LLC.

AMERICAN Flow Control
Waterous Company
P.O. Box 2737
Birmingham, AL 35202-2737
Phone: 1-800-326-0551
Fax: 1-800-410-5569
E-mail: afsales@american-usa.com

WWW.AMERICAN-USA.COM

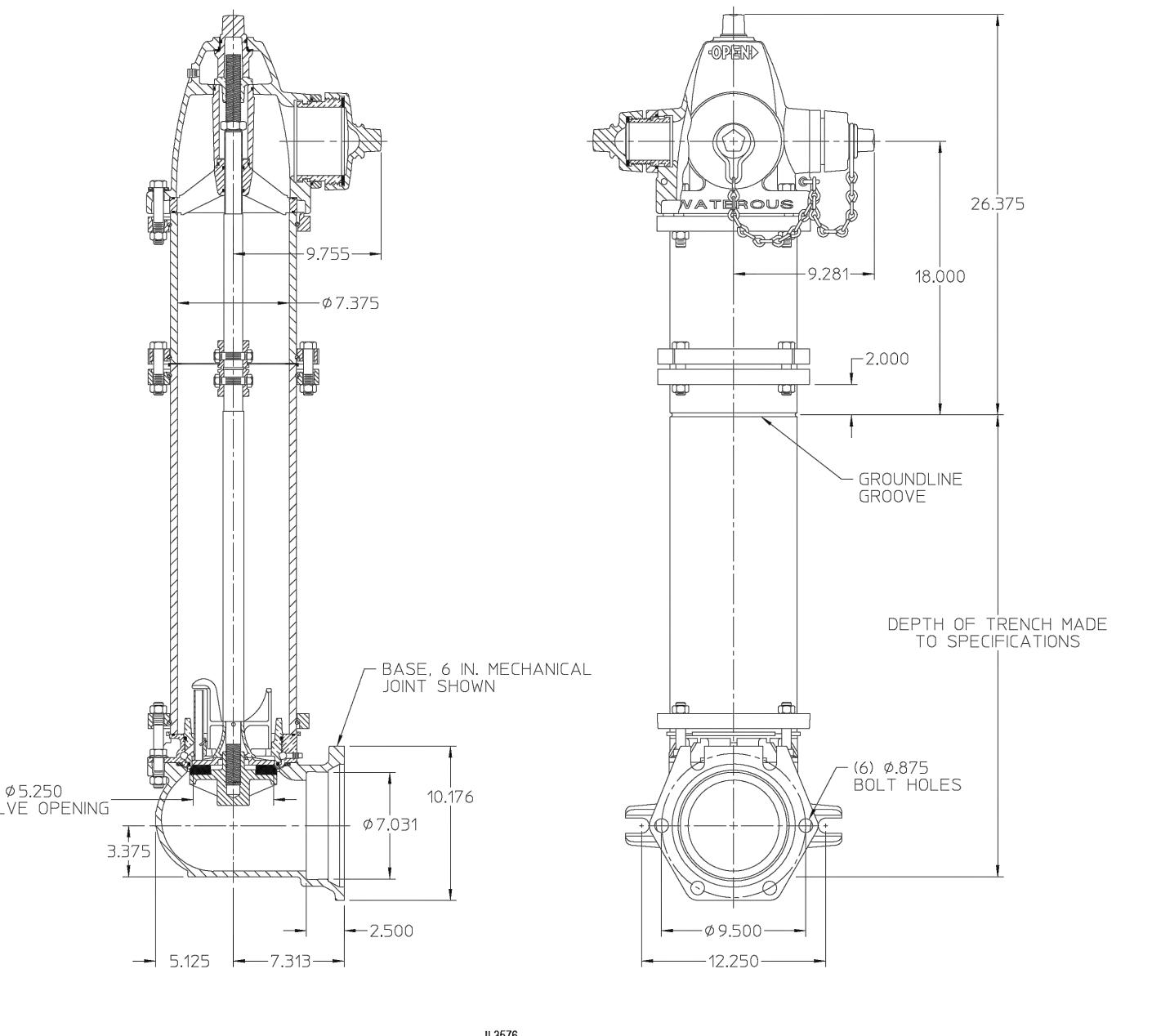
Page 1 of 2

GV11055

Issued: 2/26/2021

AMERICAN Flow Control Submittal Information

5-1/4 WATEROUS PACER® TRAFFIC MODEL WB67-250 FIRE HYDRANT



NOTES:
1. 250 psig rated working pressure.
2. This hydrant meets or exceeds all requirements of AWWA C602.
3. 10 in. upper standpipe (traffic section) is standard. 16 in., 22 in., 28 in. and 34 in. upper standpipes are available by special order.
4. Nozzle elevations vary accordingly.
5. 5-1/4" valve opening.
6. Hydrants are available with counterclockwise opening direction (open-left) or clockwise opening direction (open-right).
7. Operating nut and nozzle cap wrench nuts are available in various shapes and sizes.
8. Certified to NSF/ANSI/CAN 61 & NSF/ANSI 372.



AMERICAN
FLOW CONTROL
THE RIGHT WAY

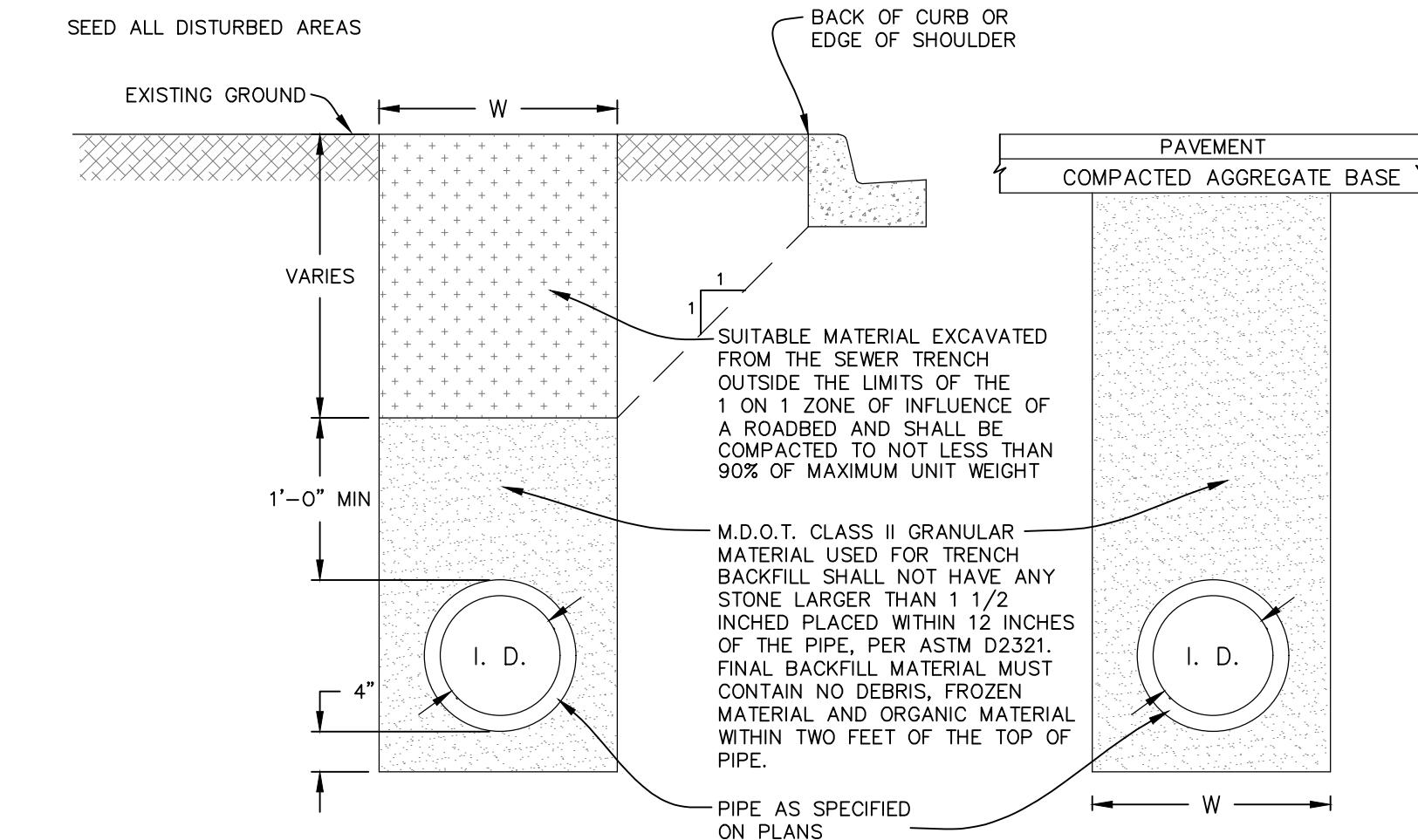
AMERICAN Flow Control
Waterous Company
P.O. Box 2737
Birmingham, AL 35202-2737
Phone: 1-800-326-0551
Fax: 1-800-410-5569
E-mail: afsales@american-usa.com

WWW.AMERICAN-USA.COM

Page 1 of 4

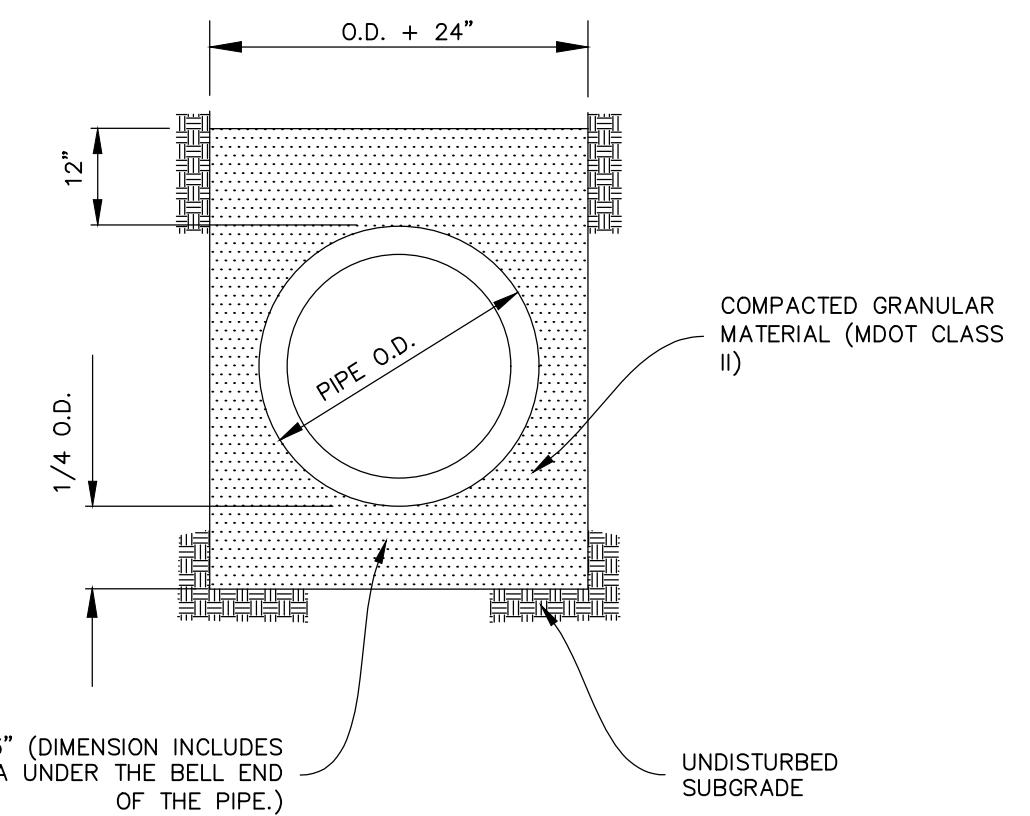
FH1104

Issued: 3/25/2020



UTILITY TRENCH UNDER OR WITHIN INFLUENCE OF ROADWAY

NO SCALE

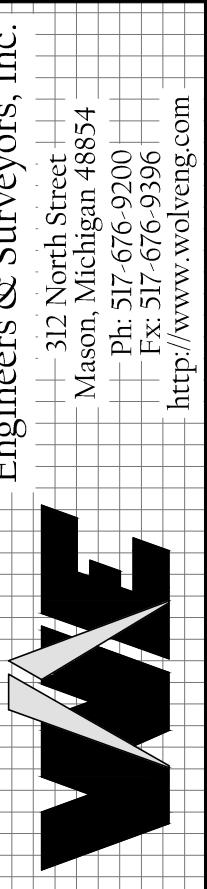


PIPE BEDDING DETAIL

NO SCALE

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REVISION	DATE	DRAWN	TAP	EGLE COMMENT AND FULL STOCK NOTES
1	8/19/2025			



312 North Street

Mason, Michigan 48844

Ph: 517-676-9396

http://www.wolving.com

CASS STREET WATER MAIN REPLACEMENT
CITY OF ST. JOHNS
CLINTON COUNTY, MICHIGAN
DETAILS

PERMIT SET	PROJECT	APPROVED	DBH
	CHECKED	DBH	DBH
	DRAWN	TAP	TAP
	JOB NO.	25-0016	
	DATE	7/19/2025	
	SCALE		
	AS NOTED		
	SHEET NO.		
	4		

W CASS STREET

ROW 66' - EOP/EOP 27'

REVISION	DATE	DRAWN	DESCRIPTION
1	8/19/2025	TAP	EGLE COMMENT, ADD FULL STICK NOTES

WOLVERINE
Engineers & Surveyors, Inc.

312 North Street
Mason, Michigan 48854

Ph: 517-676-9200
Fx: 517-676-9396

<http://www.wolveng.com>

40

PERMIT SET		CASS STREET WATER MAIN REPLACEMENT CITY OF ST. JOHNS CLINTON COUNTY, MICHIGAN	
PROJECT APPROVED	DBH	CASS STREET PLAN AND PROFILE	
CHECKED	DBH		
DRAWN	TAP		
JOB NO.	25-0016		
DATE	7/19/2025		
SCALE	AS NOTED		
SHEET NO.	5		

W CASS STREET
ROW 66' - EOP/EOP 27'

WATER SERV, LONG, TR DET B (FIELD VERIFY LOCATION)

!! CAUTION !! HAZARDOUS OR FLAMMABLE MATERIAL

LANSING ST

OTTAWA ST

CHURCH ST

RESTORATION NOTES:
SAWCUT, REMOVE AND REPLACE PAVEMENT SECTION AND CURB AS REQUIRED FOR SERVICE, HYDRANT AND WATER MAIN CONNECTIONS, SEE PAVEMENT REPLACEMENT SECTION, MATCH EXISTING CURB

SEE SHEET 6 FOR OTTAWA STREET PLAN AND PROFILE

SEE CONNECTION DETAIL 1

SEE CONNECTION DETAIL 2

SEE NOTE FOR ALL WATER MAIN, SERVICE, HYDRANT AND CONNECTIONS (TYP)

PROVIDE A FULL STICK OF PIPE CENTERED ON UTILITY CROSSING TO THE GREATEST EXTENT POSSIBLE

PROVIDE A FULL STICK OF PIPE CENTERED ON UTILITY CROSSING TO THE GREATEST EXTENT POSSIBLE

PROVIDE A FULL STICK OF WTR PIPE, CENTERED ON SANITARY STRUCTURE

PROVIDE A FULL STICK OF PIPE CENTERED ON UTILITY CROSSING TO THE GREATEST EXTENT POSSIBLE

!! CAUTION !! OVERHEAD UTILITY

!! CAUTION !! OVERHEAD UTILITY

!! CAUTION !! OVERHEAD UTILITY

EX 4" VALVE
E:781.37 S:4+38

PR 8" VALVE
E:789.03 S:3+59

PR 8" VALVE
E:789.89 S:4+30

PR 8" VALVE
E:790.00 S:4+35

EX 4" VALVE
E:785.78 (#3010)

EX 4" VALVE
E:786.47 (#305)

EX 4" VALVE
E:786.22 (#1309)

EX 4" VALVE
E:787.51 (#307)

EX 4" VALVE
E:795.10 (#859)

EX 4" VALVE
E:795.16 (#860)

EX 4" VALVE
E:795.20 (#857)

EX 4" VALVE
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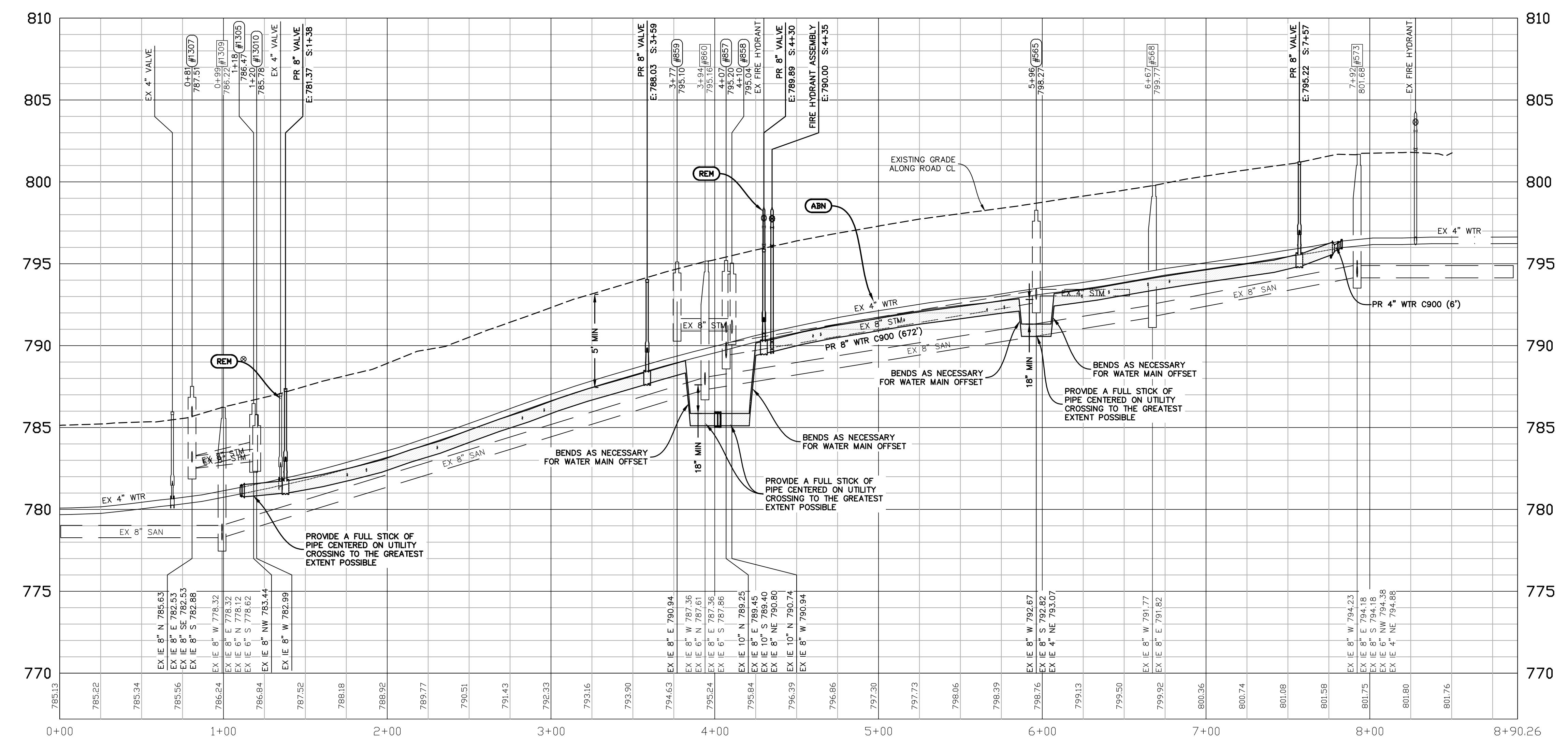
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WATER MAIN NOTES:

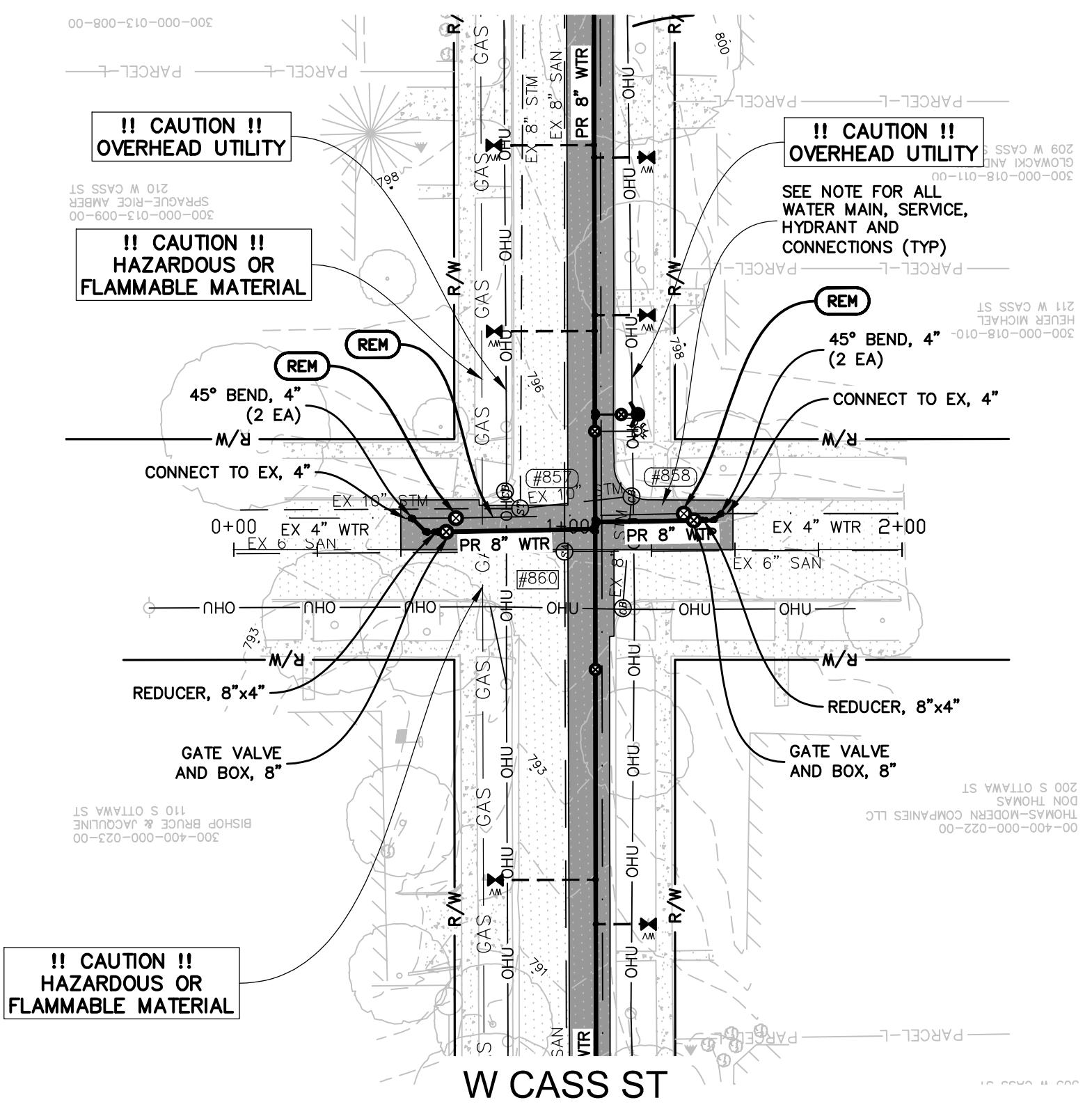
PROVIDE A FULL STICK OF PIPE CENTERED ON ALL UTILITY CROSSINGS AND AT DRAINAGE STRUCTURES WITH LESS THAN 10-FEET OF SEPARATION TO THE GREATEST EXTENT POSSIBLE

ISOLATION CONFLICTS		
STATION	STRUCTURE	DISTANCE
1+10 TO 3+94	EX 8" SAN	8.4' MIN
1+17	EX STM CB	8.1'
3+77	EX STM CB	5.4
3+94	EX SAN MH	6.6'
3+94 TO 7+81	EX 8" SAN	8.4' MIN
4+10	EX STM CB	8.0'



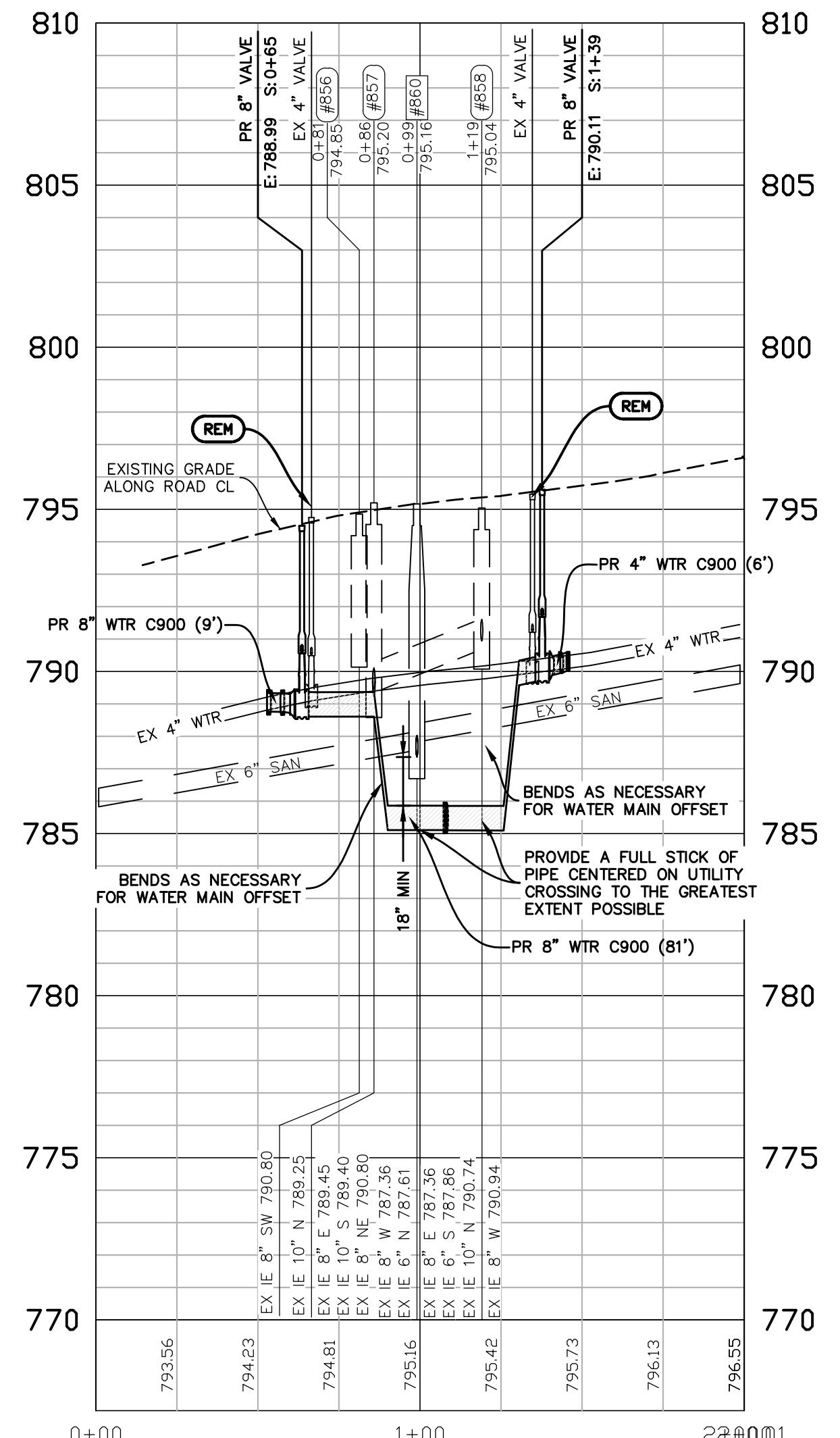
S OTTAWA STREET

ROW 66' - EOP/EOP 30'

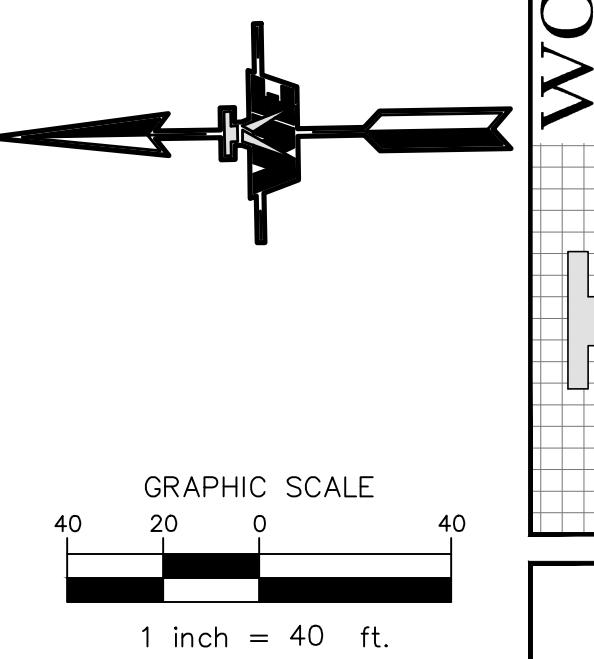


RESTORATION NOTES:
SAWCUT, REMOVE AND REPLACE PAVEMENT SECTION AND CURB AS REQUIRED FOR SERVICE, HYDRANT AND WATER MAIN CONNECTIONS, SEE PAVEMENT REPLACEMENT SECTION, MATCH EXISTING CURB

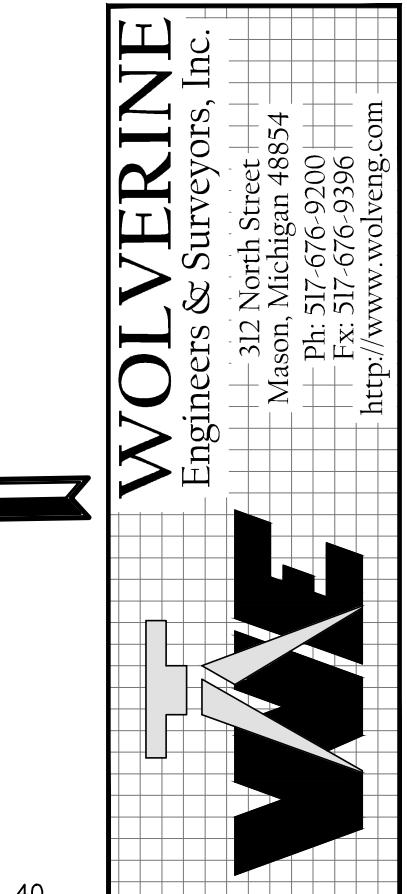
WATER MAIN NOTES:
PROVIDE A FULL STICK OF PIPE CENTERED ON ALL UTILITY CROSSINGS AND AT DRAINAGE STRUCTURES WITH LESS THAN 10'-FEET OF SEPARATION TO THE GREATEST EXTENT POSSIBLE



ISOLATION CONFLICTS (OTTAWA)		
STATION	STRUCTURE	DISTANCE
0+56 TO 0+65	EX 10" STM	7.0' MIN
0+56 TO 1+08	EX 6" SAN	6.0' MIN
0+65	EX STM CB	3.8'
0+86 TO 1+08	EX 10" STM	5.9'
0+99	EX SAN MH	3.8'
0+99 TO 1+08	EX 6" SAN	6.0' MIN
1+08 TO 1+19	EX 10" STM	6.0' MIN
1+08 TO 1+43	EX 6" SAN	7.9' MIN
1+19	EX STM CB	4.6'



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PERMIT SET
PROJECT: CASS STREET WATER MAIN REPLACEMENT
CITY OF ST. JOHNS
CLINTON COUNTY, MICHIGAN
SHEET TITLE: CROSS STREETS PLAN AND PROFILE

APPROVED: DBH
CHECKED: DBH
DRAWN: TAP
JOB NO.: 25-0016
DATE: 7/19/2025
SCALE: AS NOTED
SHEET NO.: 6