

GATE WELL COVER

12" & 16" PRECAST GATE & WELL DETAIL

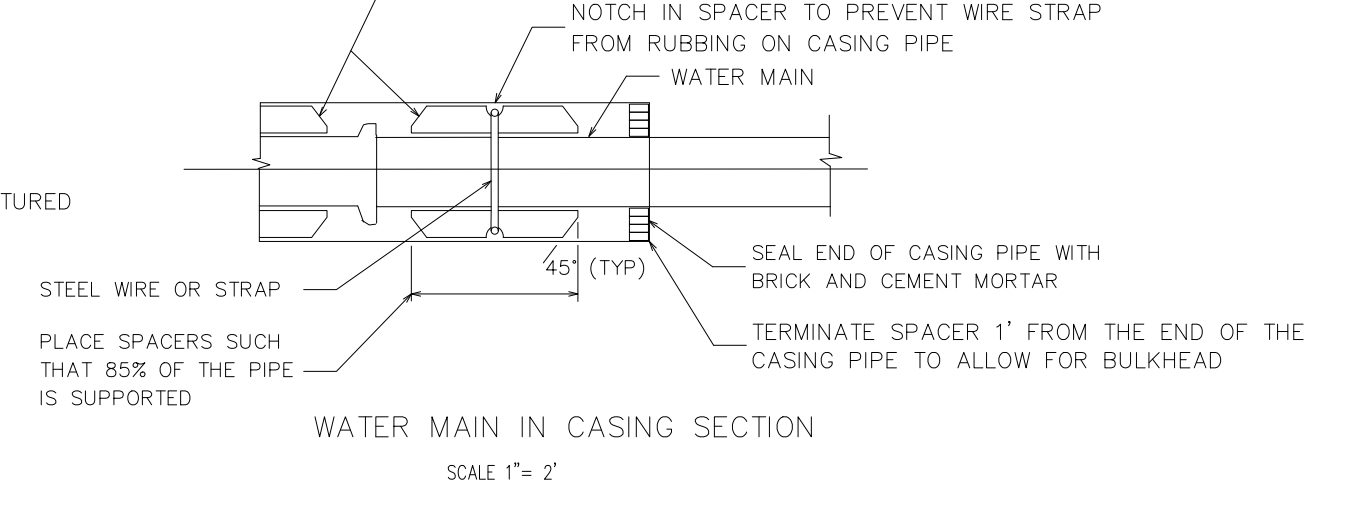
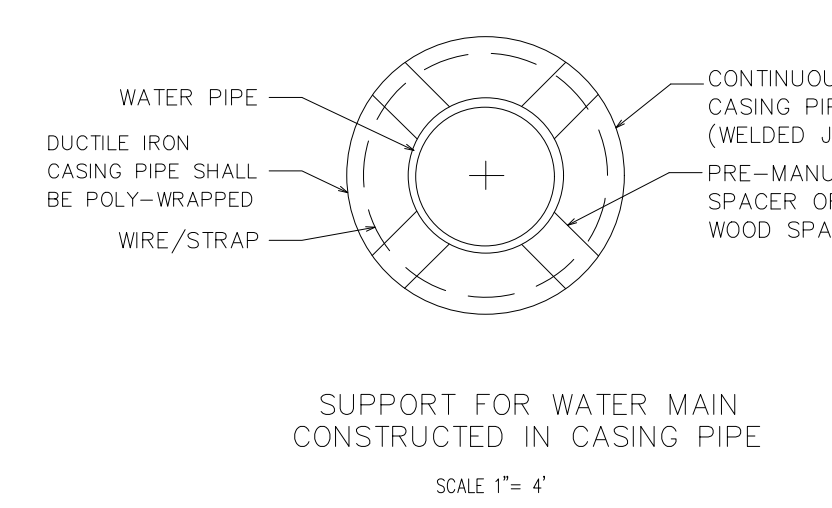
8" PRECAST GATE & WELL DETAIL

UNLESS OTHERWISE SPECIFIED, MINIMUM CASING PIPE SHALL BE ASTM A-139 GRADE B, WALL THICKNESS AS FOLLOWS:

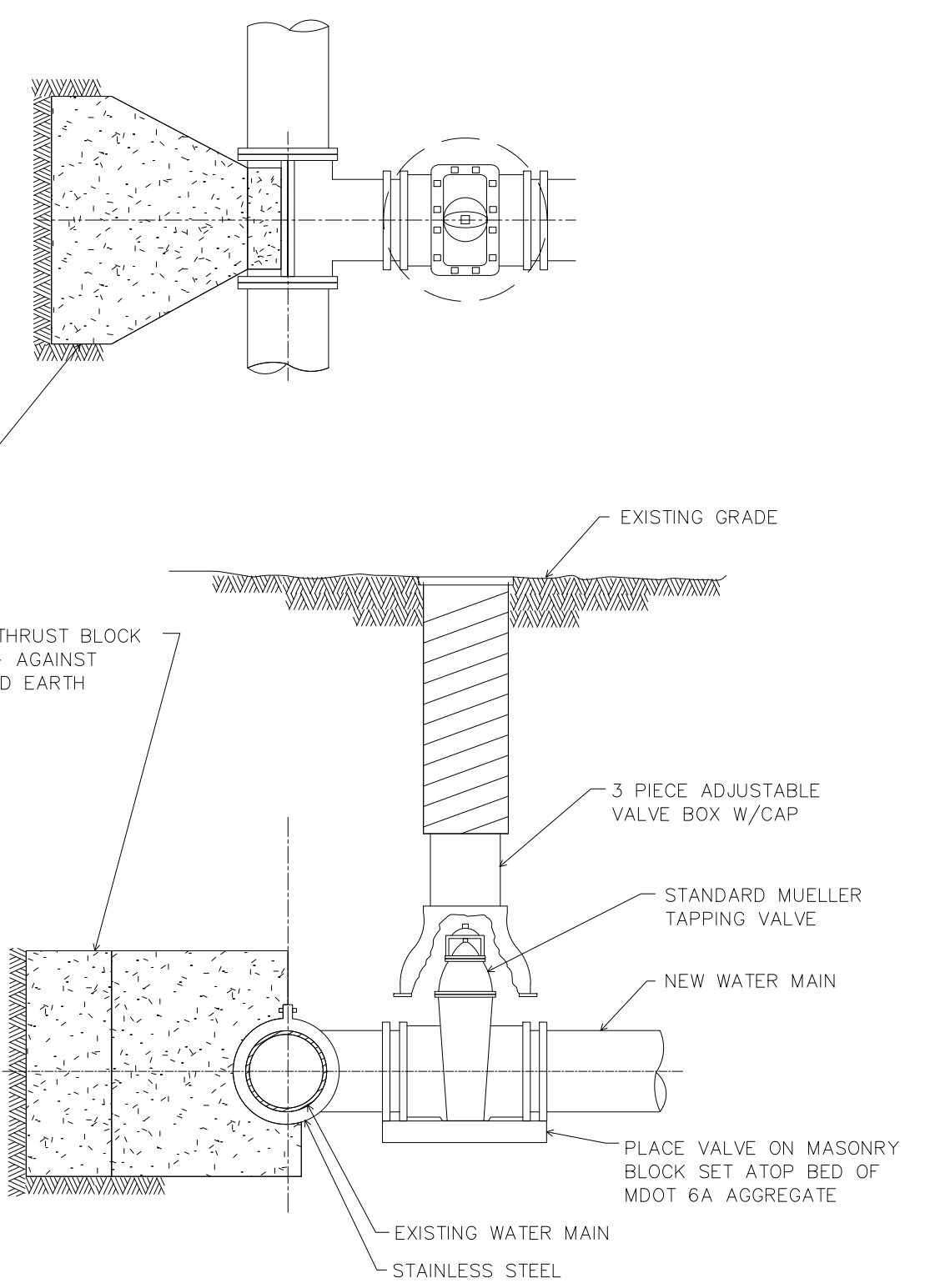
NOMINAL SIZE	MINIMUM WALL THICKNESS
8" - 42"	0.375
48" - 60"	0.500

REQUIRED QUANTITY OF RUNNERS IN ACCORDANCE WITH SIZE:

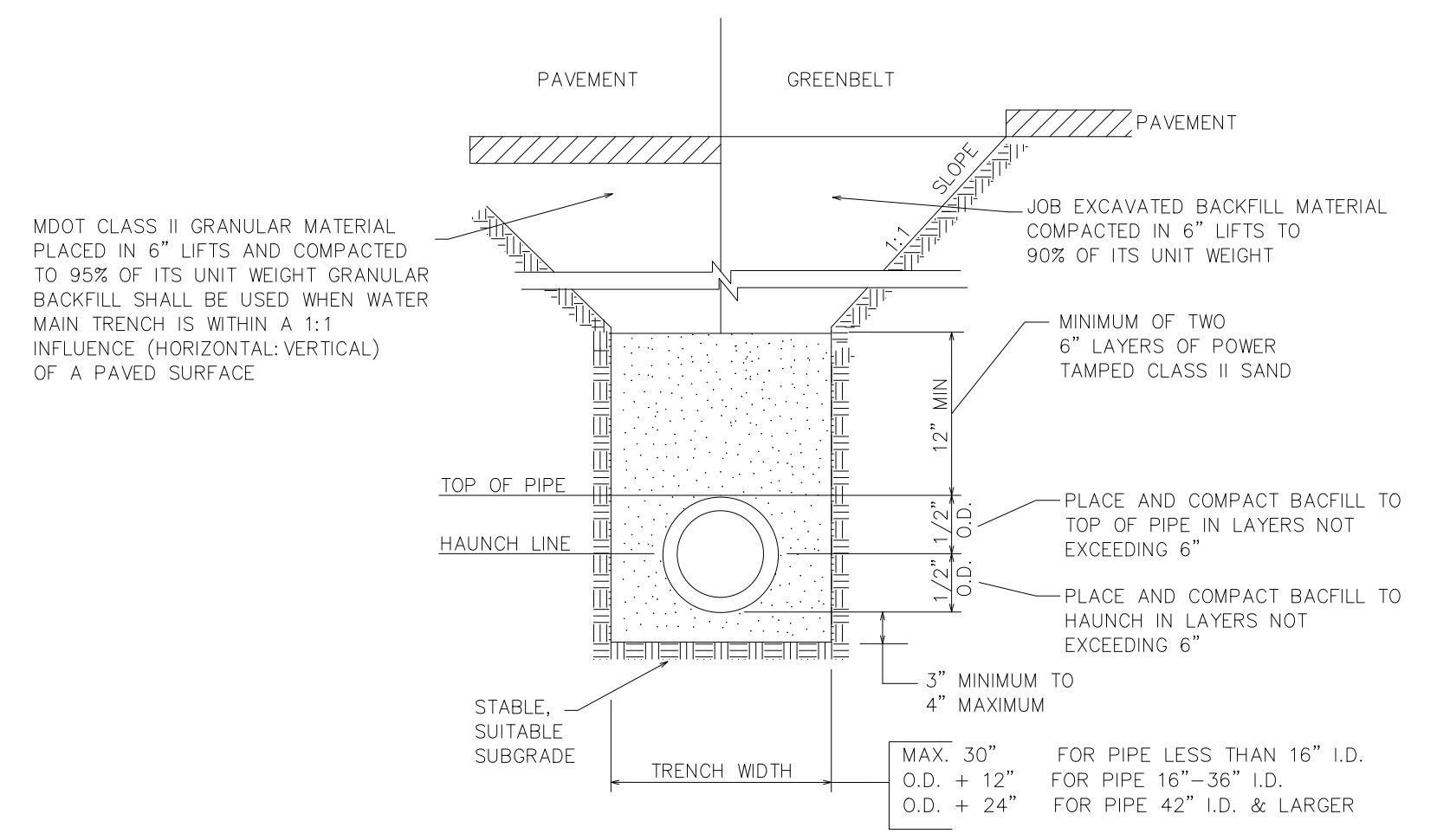
TO 14" DIA.	4 RUNNERS
16" TO 36" DIA.	6 RUNNERS
38" TO 48" DIA.	8 RUNNERS



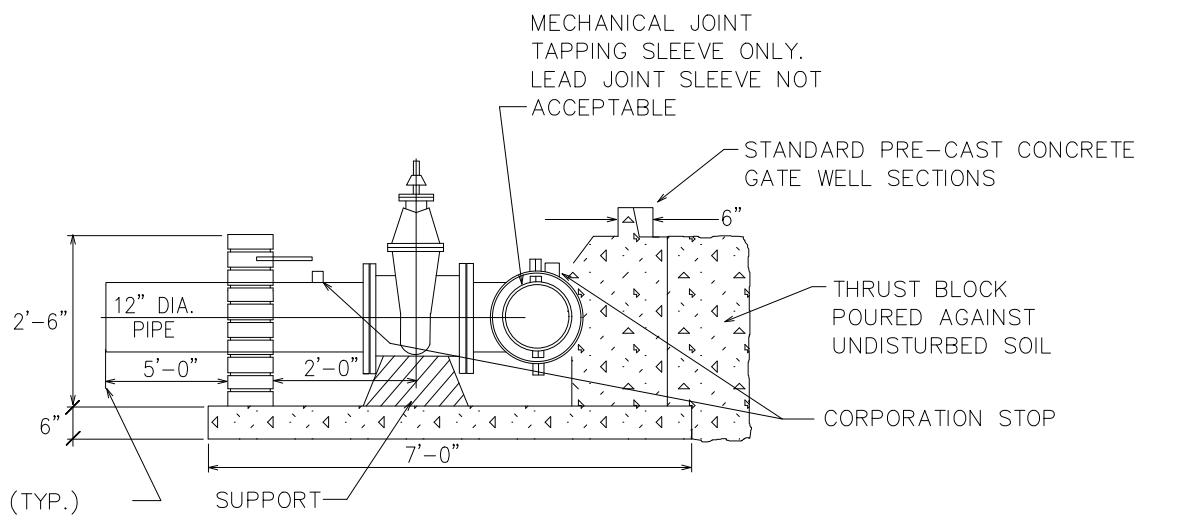
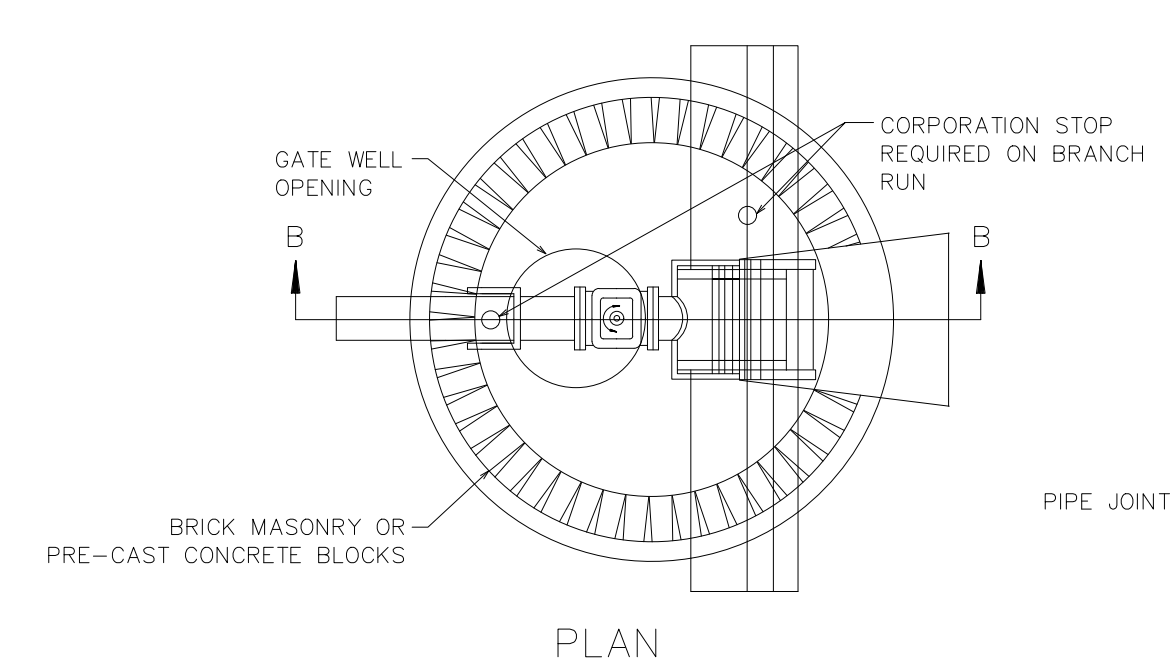
WATER MAIN IN CASING DETAILS



TAPPING SLEEVE & VALVE W/VALVE BOX



STANDARD BEDDING FOR WATER MAIN NO SCALE

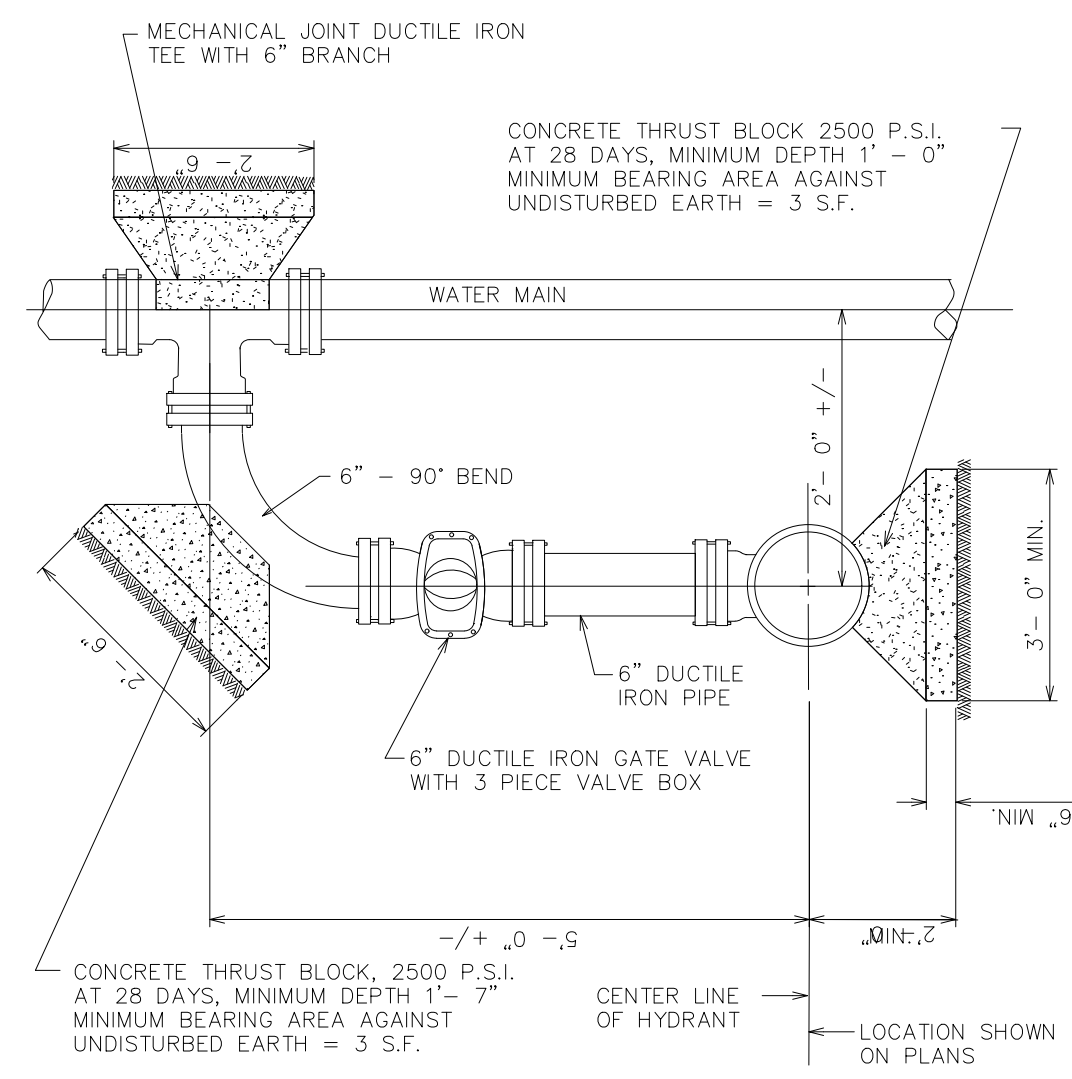


TAPPING SLEEVE GATE VALVE & WELL DETAILS NO SCALE

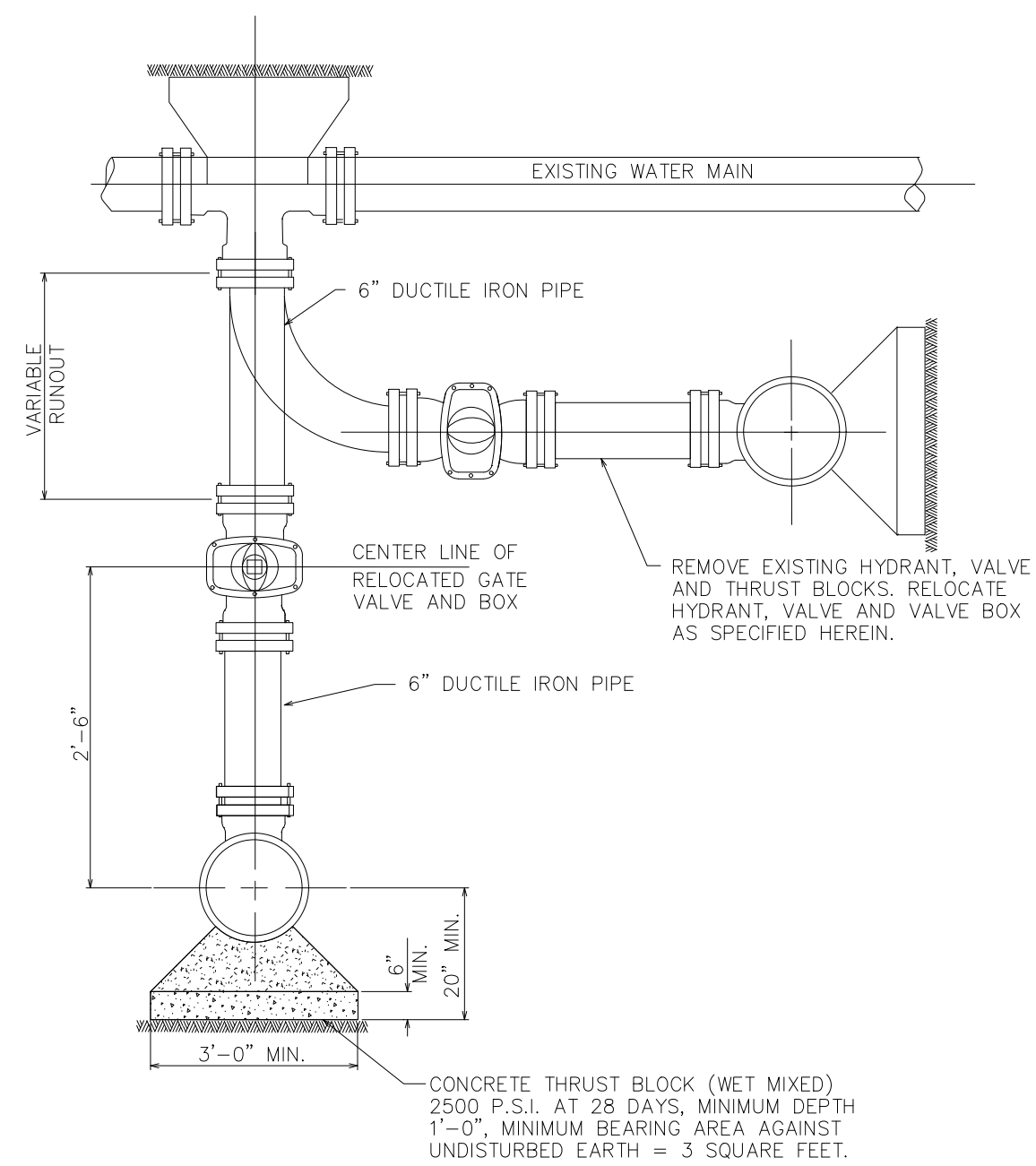
CITY OF SOUTHFIELD
PUBLIC SERVICES GROUP ENGINEERING DEPARTMENT

WATERMAIN DETAILS

DRAWN BY	SP	REVISIONS		
DESIGNED BY	No.	DESCRIPTION	DATE	BY
APPROVED BY	LS	1	SOUTHFIELD SPEC. UPDATES	05/22 ZJH
DATE	2014			
SC. VERT.	NTS			
SHEET	1 OF 4			
JOB No.				

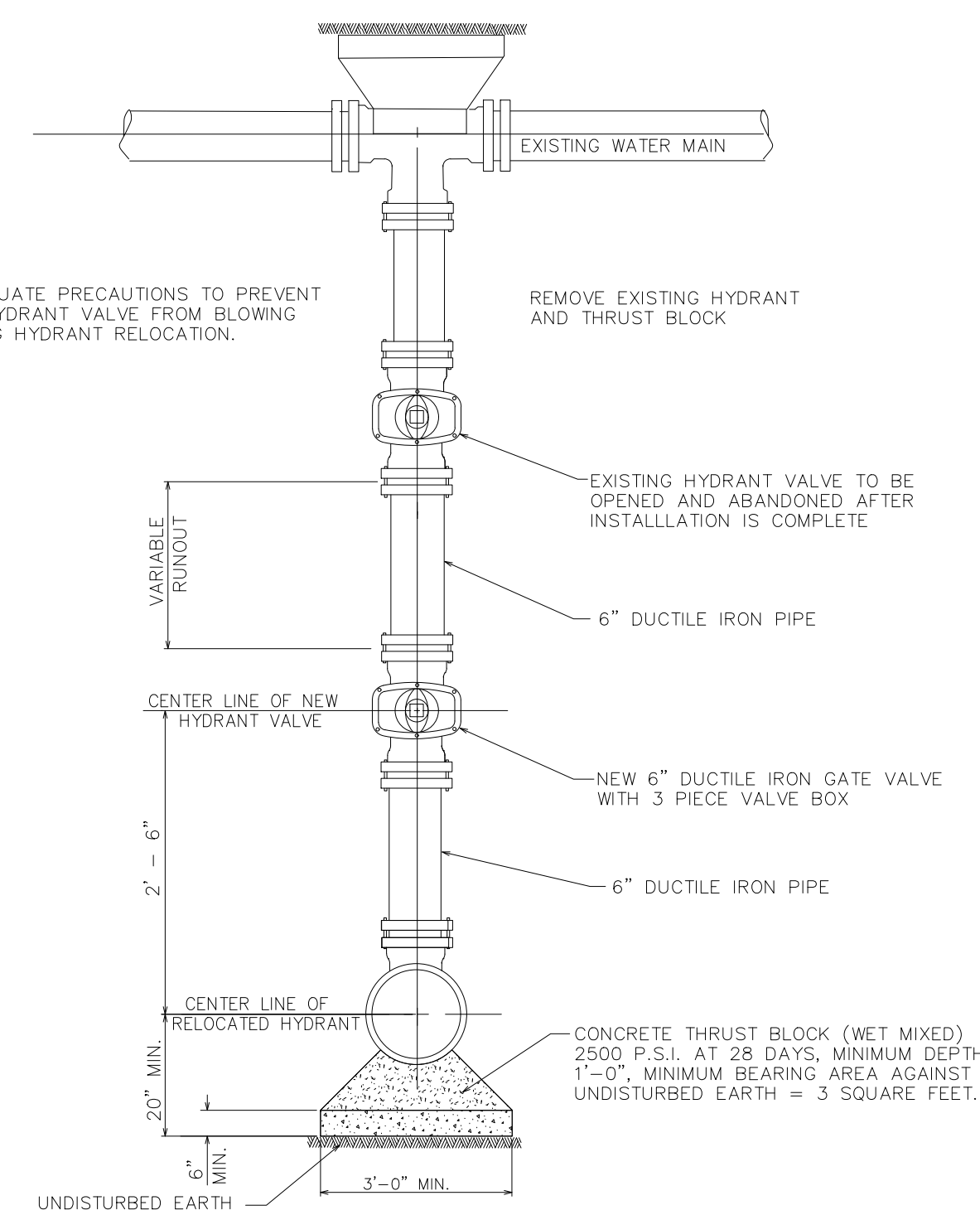


"L" HYDRANT CONNECTION



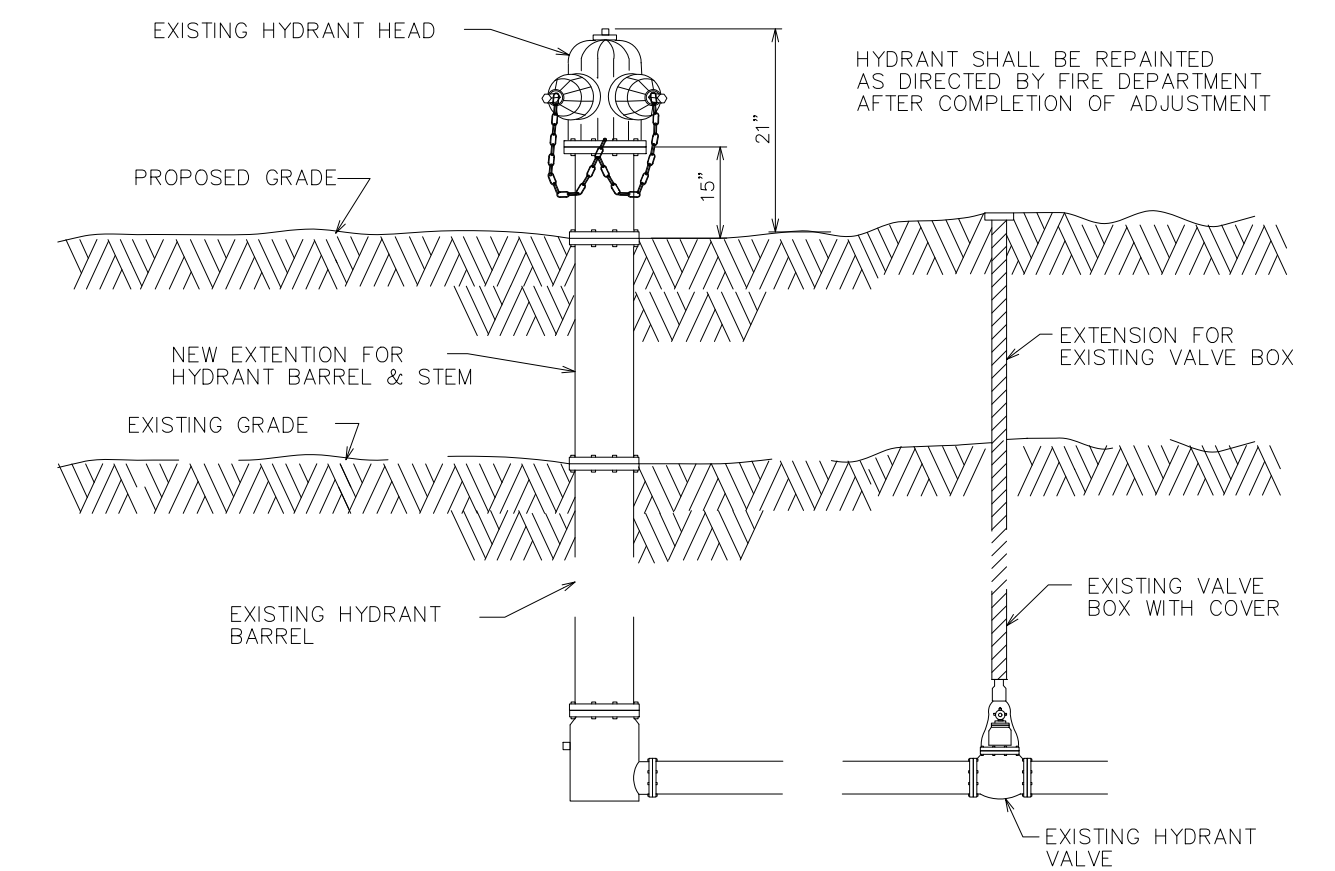
HYDRANT RELOCATION

NOTE: TRAVERSE CITY OF CITY OF DETROIT FIRE DEPARTMENT HYDRANTS SHALL BE REPLACED

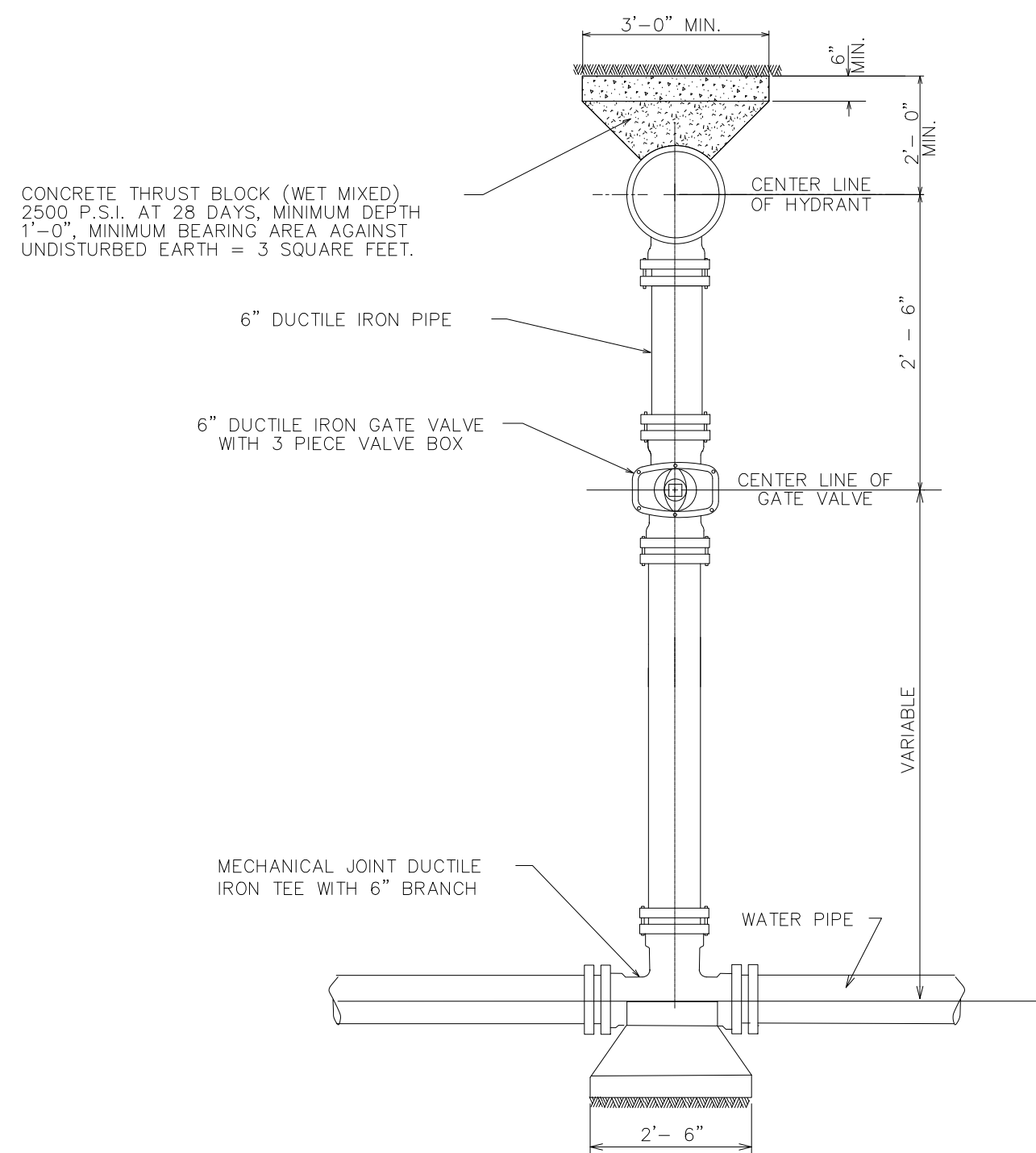


HYDRANT RELOCATION

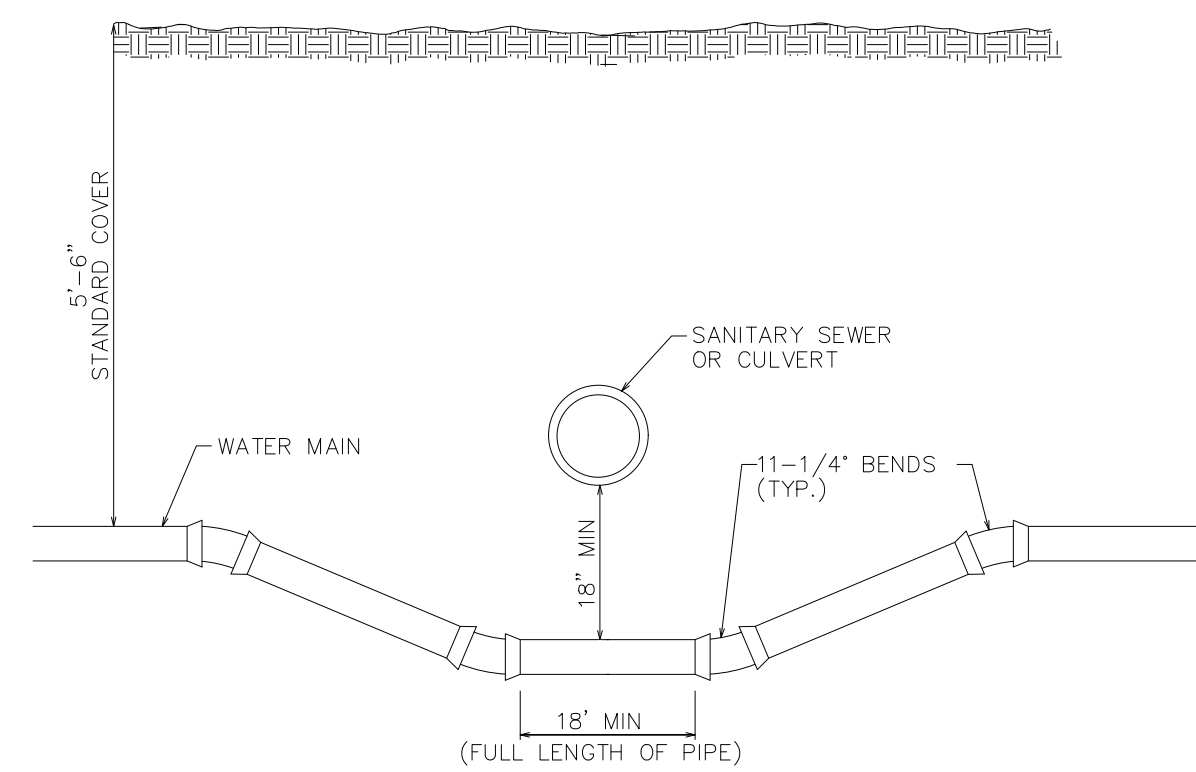
NOTE: TRAVERSE CITY OF CITY OF DETROIT FIRE DEPARTMENT HYDRANTS SHALL BE REPLACED



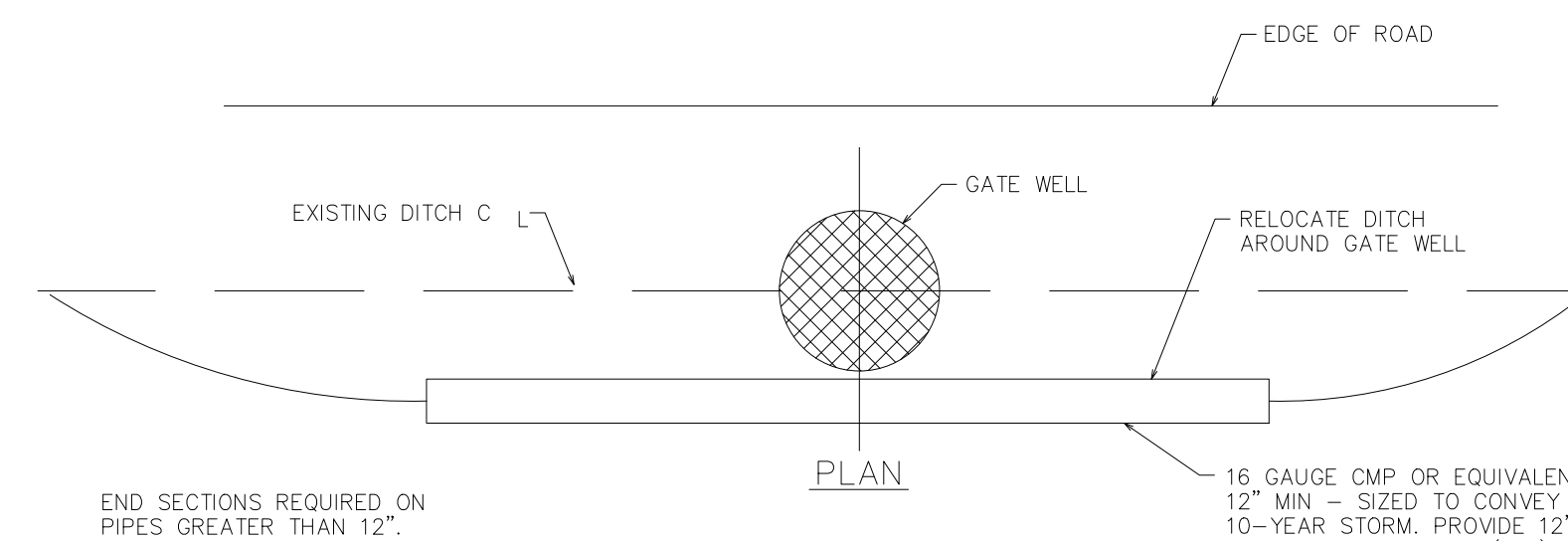
HYDRANT ADJUSTMENT



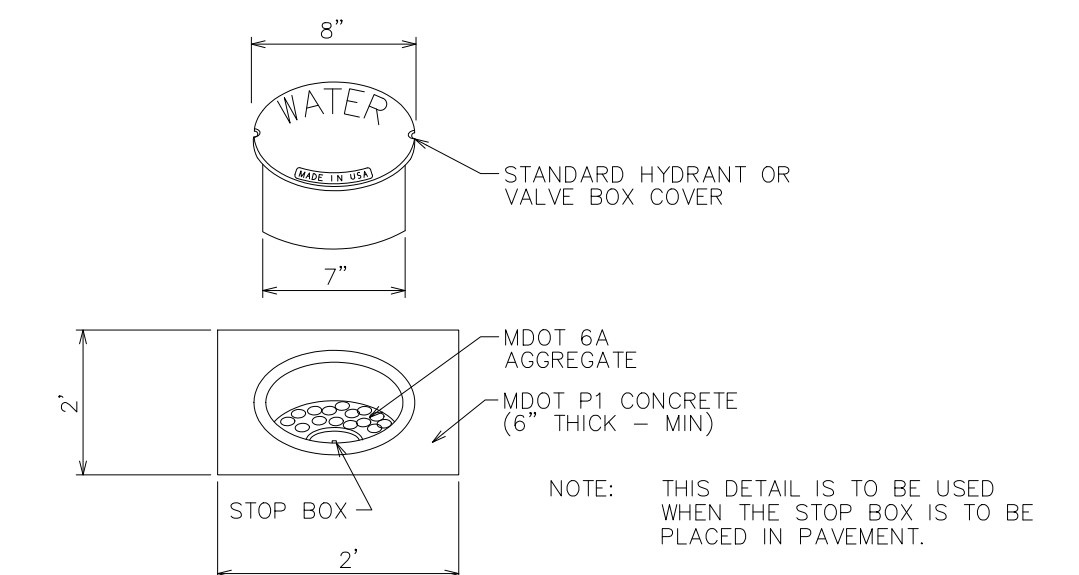
STRAIGHT HYDRANT CONNECTION



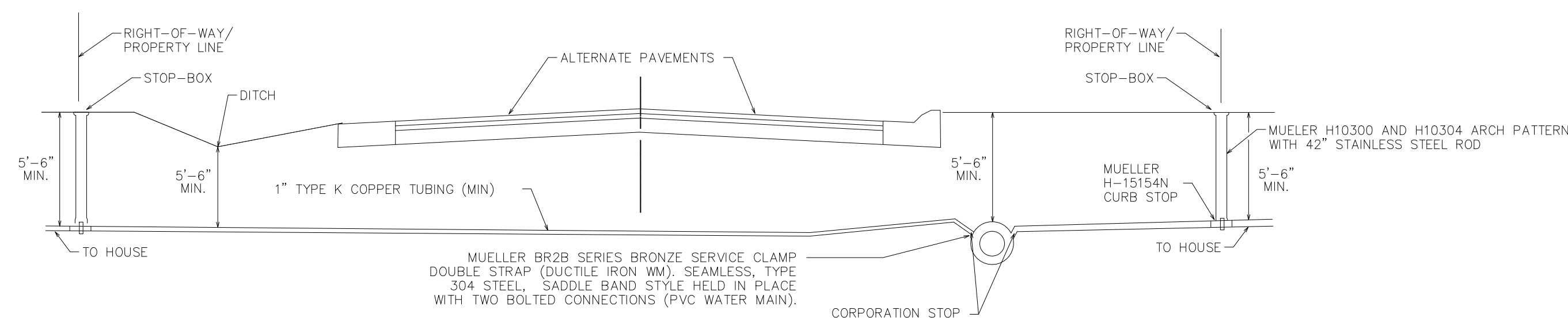
SEWER OR CULVERT CROSSING
NO SCALE



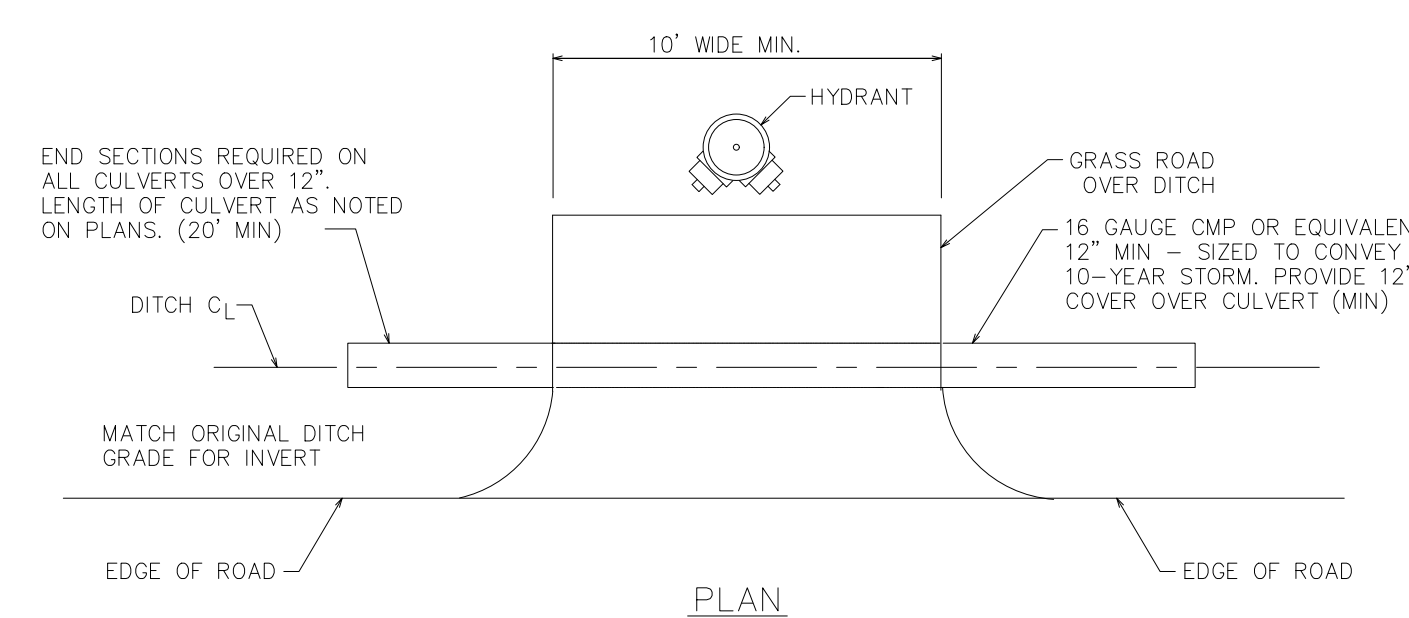
DITCH ENCLOSURE AT GATE WELL
NO SCALE



STOP BOX PROTECTION
(PAVED AREAS)



TYPICAL PUBLIC ROAD
WATER SERVICE CONNECTION
NO SCALE



DITCH ENCLOSURE AT HYDRANT
NO SCALE

CITY OF SOUTHFIELD PUBLIC SERVICES GROUP ENGINEERING DEPARTMENT					
WATERMAIN DETAILS					
DRAWN BY	SP	REVISIONS			
DESIGNED BY	No.	DESCRIPTION	DATE	BY	
APPROVED BY	LS	1	SOUTHFIELD SPEC. UPDATES	05/22	ZJH
DATE	2014				
HORZ.	NTS				
SC. VERT.	NTS				
SHEET	2 OF 4				
JOB No.					

SIZE	TEE	END CAP	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	REDUCERS	VERT OFFSET
6"	*	36'	14'	6'	3'	2'	19'	*
8"		47'	18'	8'	4'	2'	20'	
12"		67'	25'	11'	5'	3'	36'	

*ENGINEER SHALL PROVIDE CALCULATIONS FOR SPECIFIC RESTRAINT SCENARIOS

PIPE RESTRAINT NOTES

- THE ABOVE TABLE IS FOR INFORMATION ONLY. THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING RESTRAINT SCHEDULES AND PROVIDING IT TO THE CITY OF SOUTHFIELD OR ITS REPRESENTATIVE FOR REVIEW.
- THE VALUES PROVIDED REPRESENT RESTRAINT LENGTH IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FROM TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM IS INCLUDED.
- REDUCER RESTRAINT LENGTH ASSUMES ONE STEP-DOWN IN SIZE.
- THE ABOVE PIPE RESTRAINT WAS CALCULATED USING THE EBAA IRON RESTRAINT CALCULATOR ASSUMING THE FOLLOWING PARAMETERS:
 - SOIL TYPE: CL GRAN. FILL
 - SAFETY FACTOR: 1.5 TO 1
 - TRENCH TYPE 4
 - DEPTH OF BURY: 5 FEET
 - TEST PRESSURE: 150 PSI

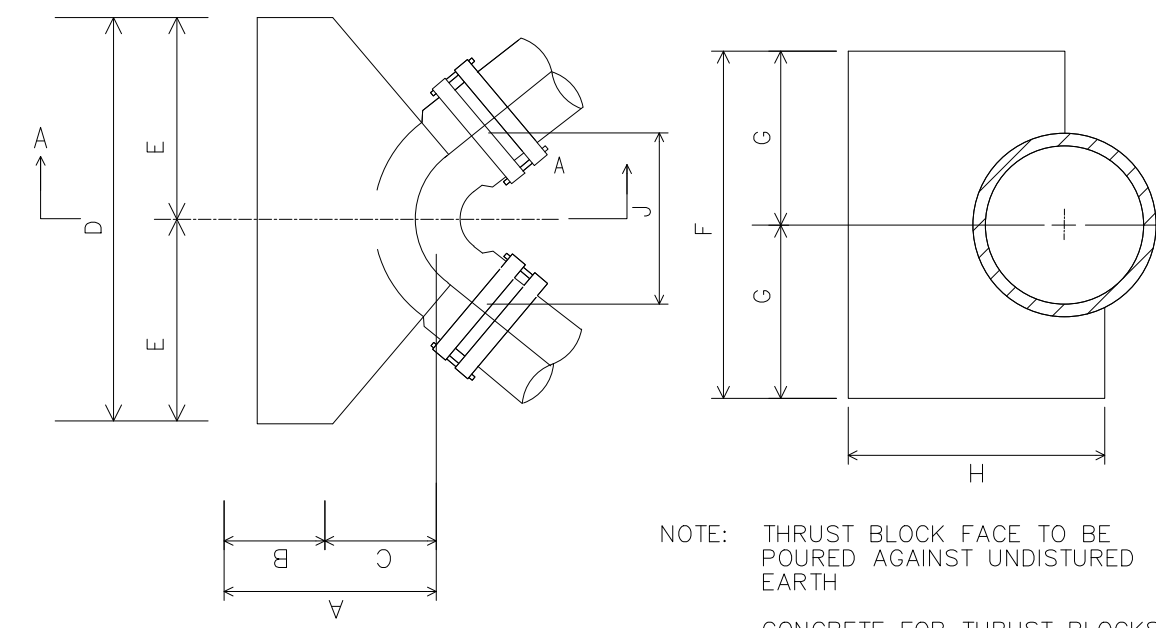
WATER MAIN NOTES

- All water main construction shall have full-time inspection provided by or caused to be provided by the City of Southfield Engineering Department. Contractor shall contact the Engineering Department for inspection at least 48 hours prior to start of construction.
- When it is necessary to shut down existing water mains, the contractor shall contact the City of Southfield Water and Sewer Department and shall cooperate with the City forces in closing the necessary gate valves and in notifying the affected residents and places of business.
- All water mains shall be constructed with a minimum cover of five and a half (5.5) feet and a maximum of seven (7) feet below finished grade. Where water mains must dip to pass under other utilities, the sections which are deeper than normal shall be kept to a minimum length by the use of 11-1/4 degree bends, properly anchored or restrained.
- Contractor shall use lengths of pipe and/or additional bends to accomplish horizontal and/or vertical deflections as indicated on the plan.
- All water main under or within three (3) feet of existing or proposed pavement shall be back filled with MDOT granular material, Class II, mechanically tamped in 12-inch lifts to 95% compaction.
If construction is within the Road Commission for Oakland County and/or Michigan Department of Transportation rights-of-way, permits shall be required from the respective agencies.
- All new water main and services shall include tracer wire and test points at ground appurtenances, valves and hydrants. Tracer wire layout and installation shall be in accordance with the special detail sheet.
- Please refer to the City of Southfield Water Main Specifications for additional requirements for construction, materials, etc..

GENERAL CONSTRUCTION NOTES

- All construction shall conform to the current standards and specifications of the City of Southfield. A pre-construction meeting shall be held prior to start of construction and shall be scheduled by the City of Southfield Engineering Department at 248-796-4810.
- The Standard Details and Specifications of the City of Southfield are incorporated as part of these plans.
- Prior to any excavation, the Contractor shall contact "MISS DIG" (by dialing 811) for location of underground utilities and shall also notify representatives of other utilities located in the vicinity of the work. The Contractor shall make any necessary arrangements with utility companies for relocation of existing utilities, if required. Utility poles shall be properly supported, tunneled and/or temporarily relocated as required.
- No City street shall be closed without prior permission from the City of Southfield. Forty-eight (48) hours prior to closing any City street, the Contractor shall notify the City Police, Fire and Streets and Highway Department. Traffic control, routing and signing shall be in accordance with the requirements of the City of Southfield and the Michigan Manual of Uniform Traffic Control Devices.
- All property irons and monuments disturbed or destroyed by the Contractor's operation shall be replaced by a Registered Land Surveyor provided by or caused to be provided by the Contractor at the Contractor's expense.
- Existing fences shall be removed and restored to their original condition or better.
- Cost of protection of any removal and/or replacement of public and private utilities shall be borne by the Contractor
- All necessary easements for public water mains shall be provided in the name of the City of Southfield of the water main prior to acceptance of the water distribution system for operation.

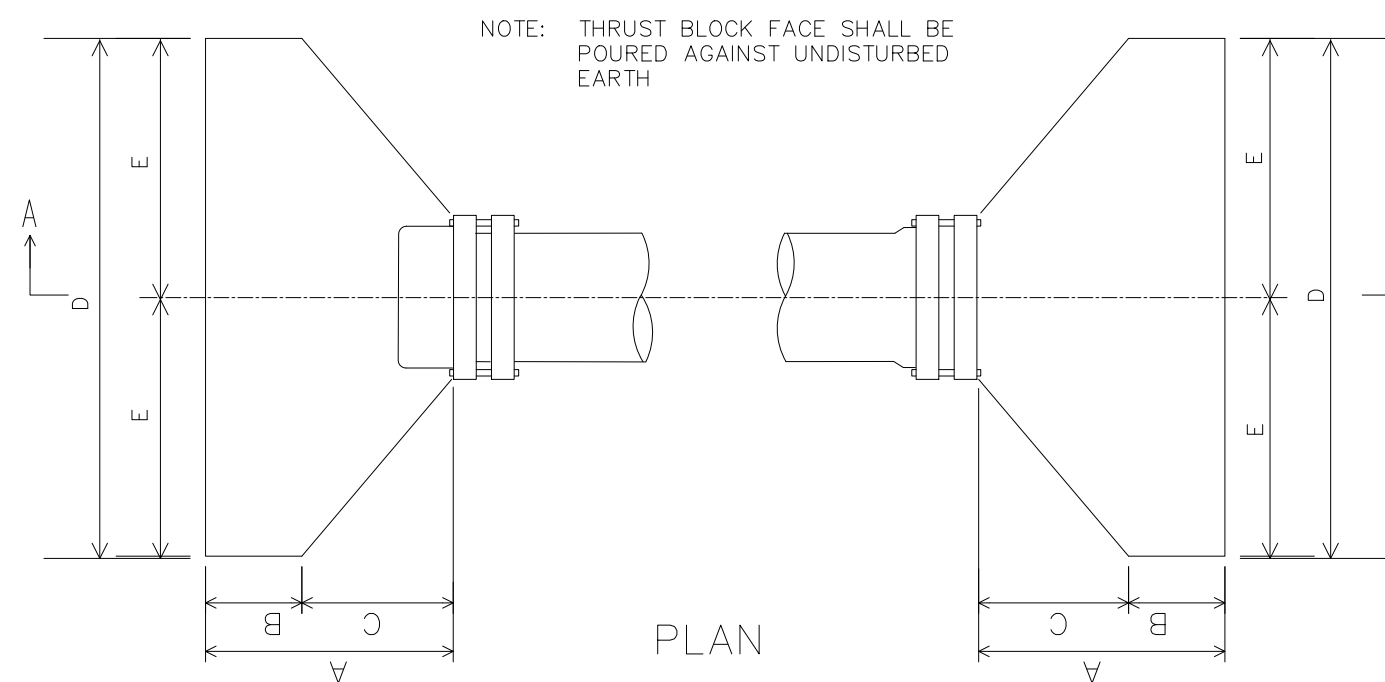
MECHANICAL RESTRAINT FOR PVC



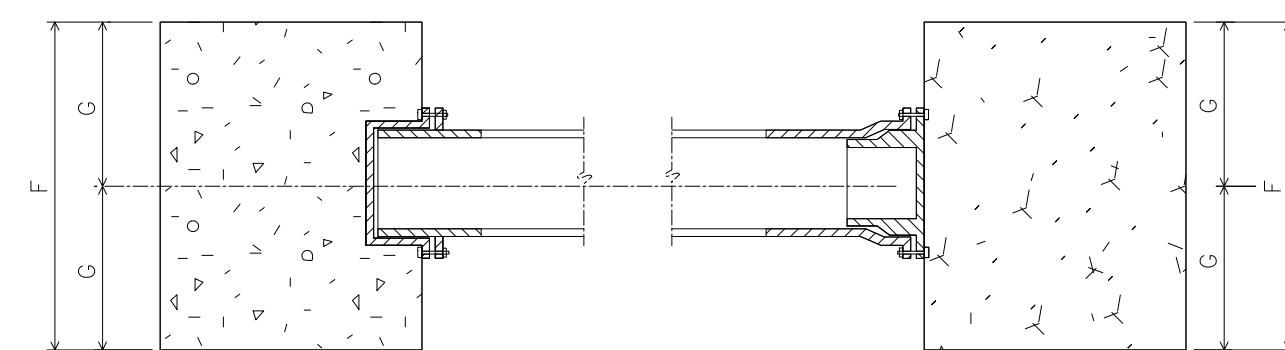
NOTE: THRUST BLOCK FACE TO BE POURED AGAINST UNDISTURBED EARTH.
CONCRETE FOR THRUST BLOCKS TO BE WET MIXED 2500 P.S.I.

CONCRETE THRUST BLOCK FOR BENDS

SIZE	ANGLE	A MIN.	B MIN.	C	D	E	F	G	H MIN.	J
6"	45°	1'-6"	0'-9"	0'-9"	1'-6"	0'-9"	1'-6"	0'-9"	1'-8"	0'-10"
6"	90°	1'-6"	0'-9"	0'-9"	2'-0"	1'-0"	2'-0"	1'-0"	1'-8"	0'-10"
8"	45°	1'-9"	0'-9"	1'-0"	2'-4"	1'-2"	2'-0"	1'-0"	1'-11"	1'-4"
8"	90°	1'-9"	0'-9"	1'-0"	3'-4"	1'-8"	2'-6"	1'-3"	1'-11"	1'-2"
12"	22-1/2°	1'-9"	0'-9"	1'-0"	2'-6"	1'-3"	2'-0"	1'-0"	2'-0"	1'-4"
12"	45°	2'-1"	0'-9"	1'-4"	3'-6"	1'-9"	2'-6"	1'-3"	2'-4"	1'-4"
12"	90°	2'-1"	0'-9"	1'-4"	5'-6"	2'-9"	3'-0"	1'-6"	2'-4"	1'-8"
16"	22-1/2°	2'-8"	1'-0"	1'-8"	3'-4"	1'-8"	2'-6"	1'-3"	3'-0"	1'-2"
16"	45°	2'-8"	1'-0"	1'-8"	5'-4"	2'-8"	3'-0"	1'-6"	3'-0"	1'-6"
16"	90°	2'-8"	1'-0"	1'-8"	6'-0"	3'-0"	5'-0"	2'-6"	3'-0"	1'-8"
24"	90°	4'-7"	1'-0"	3'-7"	10'-0"	5'-0"	7'-0"	3'-6"	5'-4"	2'-4"



PLAN



SECTION A - A

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"

CONCRETE THRUST BLOCK FOR ENDS

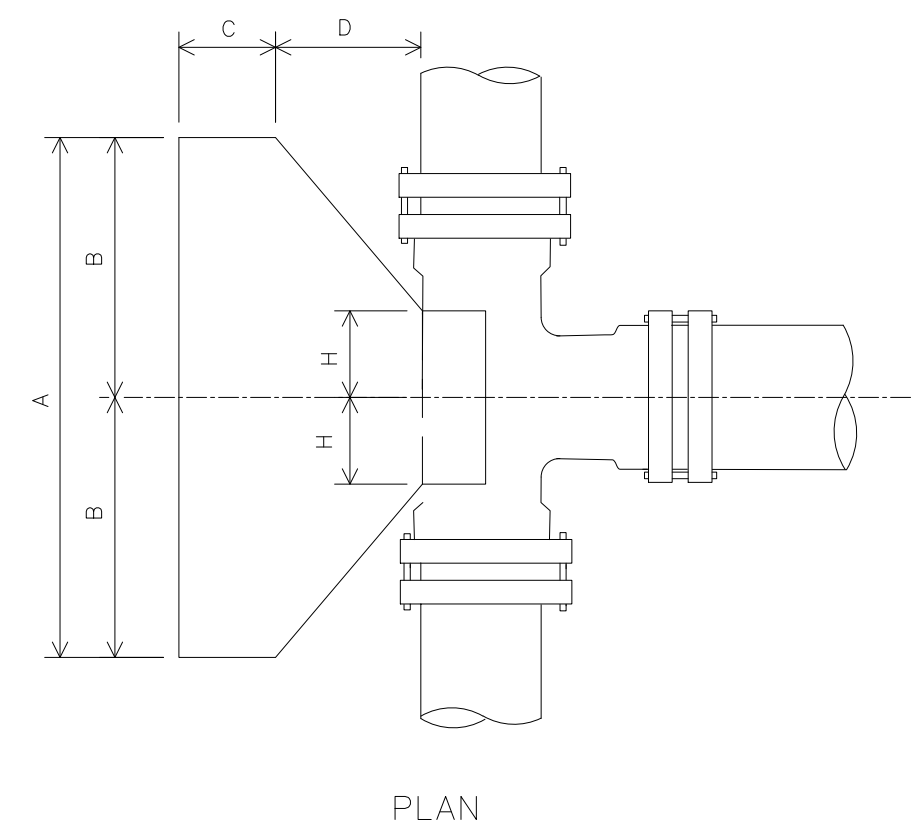
SIZE	TEE	END CAP	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	REDUCERS	VERT OFFSET
6"	*	56'	16'	7'	3'	2'	29'	*
8"		73'	20'	9'	4'	2'	31'	
12"		104'	28'	12'	6'	3'	55'	

*ENGINEER SHALL PROVIDE CALCULATIONS FOR SPECIFIC RESTRAINT SCENARIOS

PIPE RESTRAINT NOTES

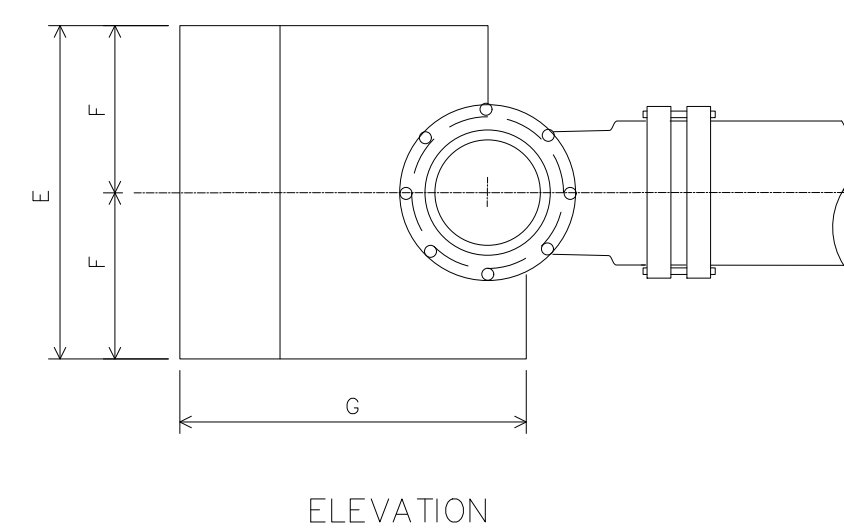
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 - TRENCH TYPE 4
 - DEPTH OF BURY: 5 FEET
 - TEST PRESSURE: 150 PSI

MECHANICAL RESTRAINT FOR POLY-WRAPPED DUCTILE IRON



THRUST BLOCK FACE SHALL BE POURED AGAINST UNDISTURBED EARTH.
CONCRETE FOR THRUST BLOCKS TO BE WET MIXED 2500 P.S.I.

SCHEDULE OF THRUST BLOCK DIMENSIONS			
CODE	TEE SIZE		
	8"x8"	12"x12"	16"x16"
A	3'-0"	4'-0"	5'-0"
B	1'-6"	2'-0"	2'-6"
C	0'-9"	0'-9"	1'-0"
D	1'-0"	1'-4"	1'-8"
E	2'-0"	3'-0"	4'-0"
F	1'-0"	1'-6"	2'-0"
G	8"	2'-2"	2'-10"
	12"	2'-6"	3'-11"
	16"	2'-10"	3'-8"
H	8"	3'-3"	3'-7"
	12"	3'-3"	3'-7"
	16"	3'-3"	3'-7"
H	8"	0'-6"	0'-10"
	12"	0'-6"	0'-10"
	16"	0'-6"	0'-10"



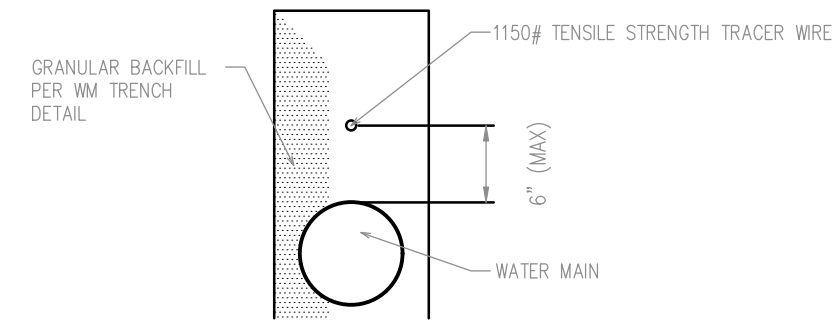
ELEVATION

CONCRETE THRUST BLOCK FOR TEES

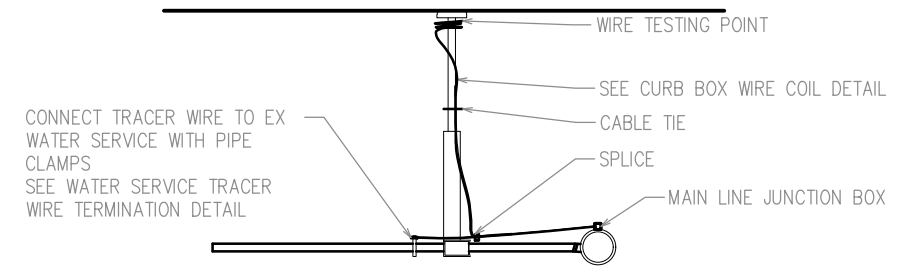
CITY OF SOUTHFIELD
PUBLIC SERVICES GROUP ENGINEERING DEPARTMENT

WATERMAIN DETAILS

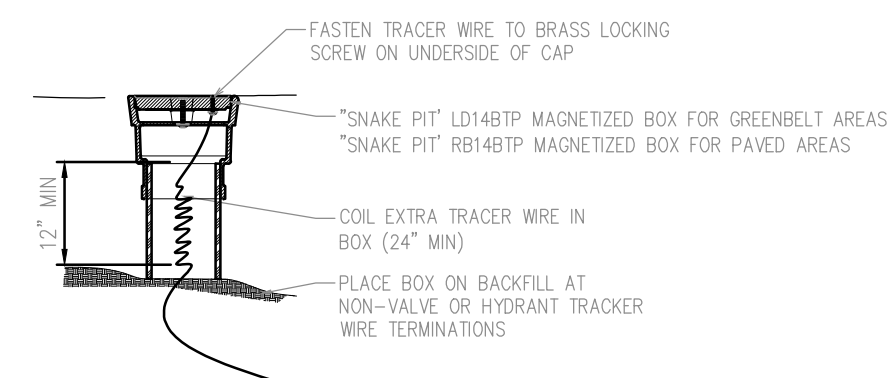
DRAWN BY		REVISIONS			
DESIGNED BY	No.	DESCRIPTION	DATE	BY	
APPROVED BY	LS	1	SOUTHFIELD SPEC. UPDATES	05/22	ZJH
DATE	2014				
HORZ.	NTS				
SC. VERT.					
SHEET	3 OF 4				
JOB No.					



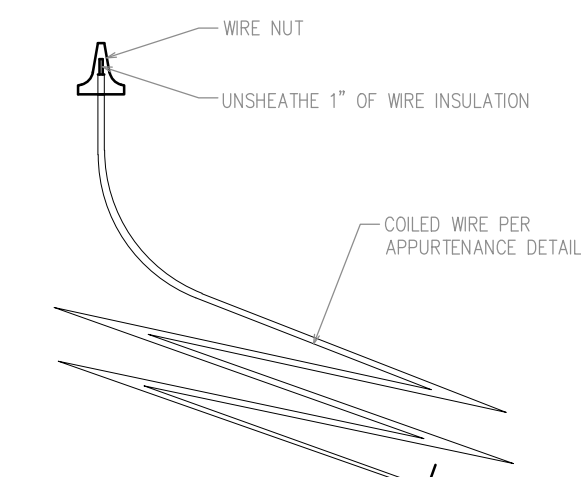
OPEN CUT MAIN LINE TRENCH
NO SCALE



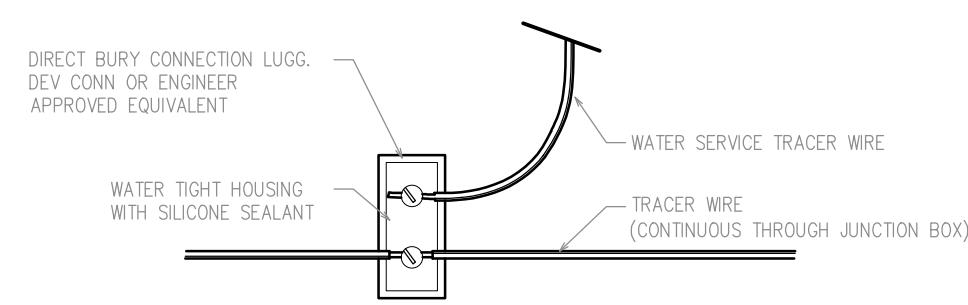
CURB STOP CONNECTION
NO SCALE



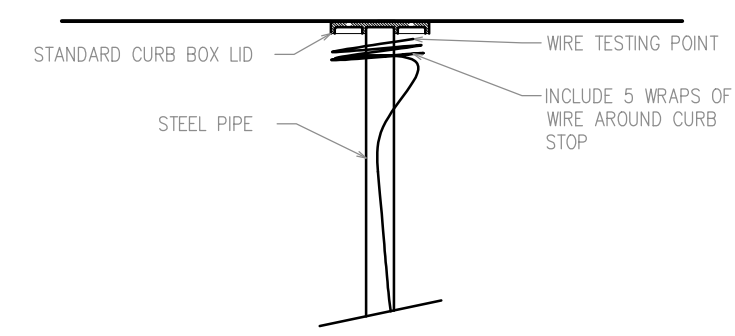
TRACER WIRE TEST POINT
NO SCALE



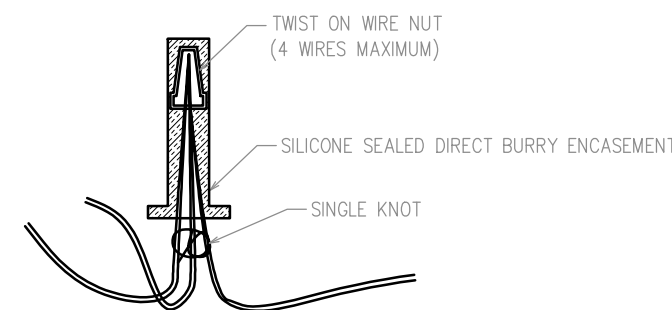
WIRE TESTING POINT
NO SCALE



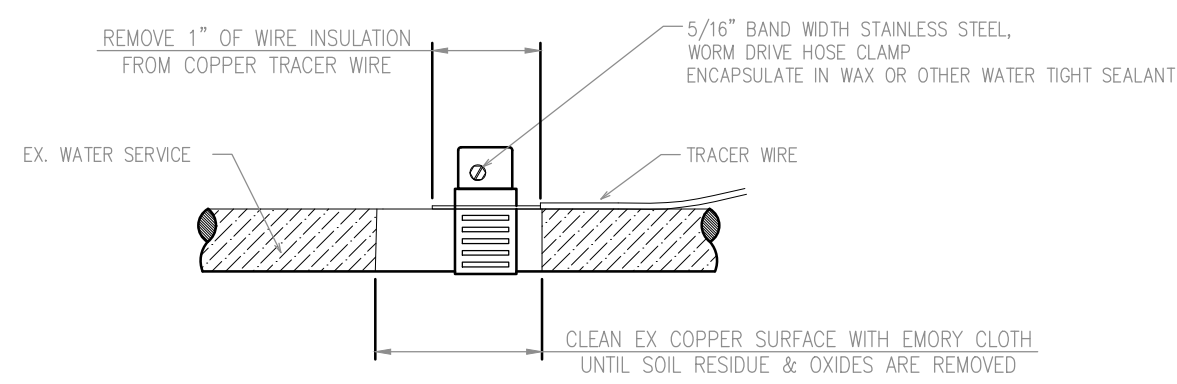
MAIN LINE JUNCTION BOX
NO SCALE



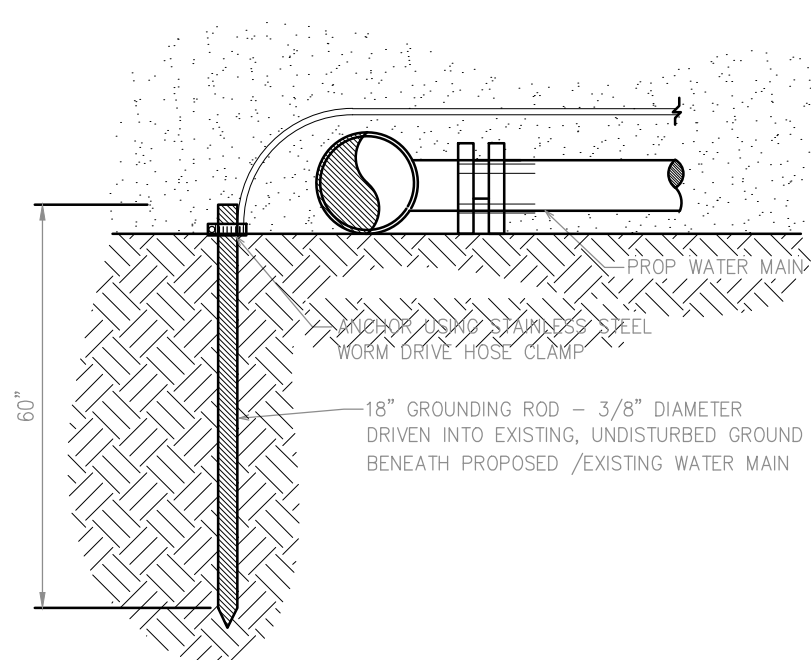
CURB BOX WIRE COIL
NO SCALE



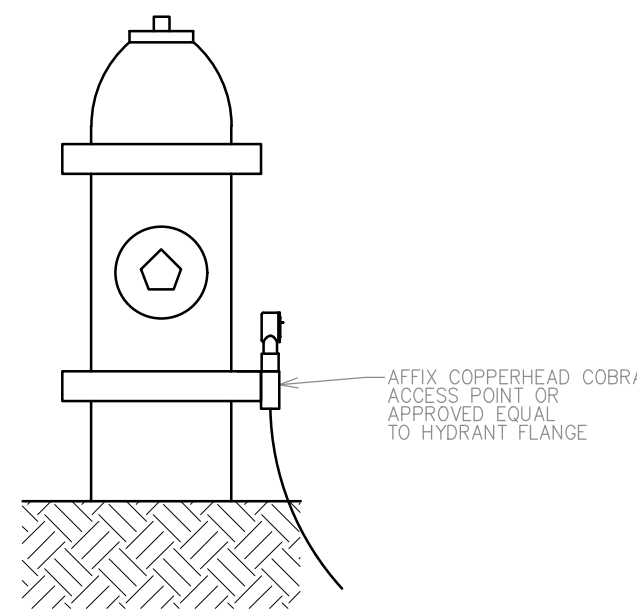
SPLICE CONNECTOR
NO SCALE



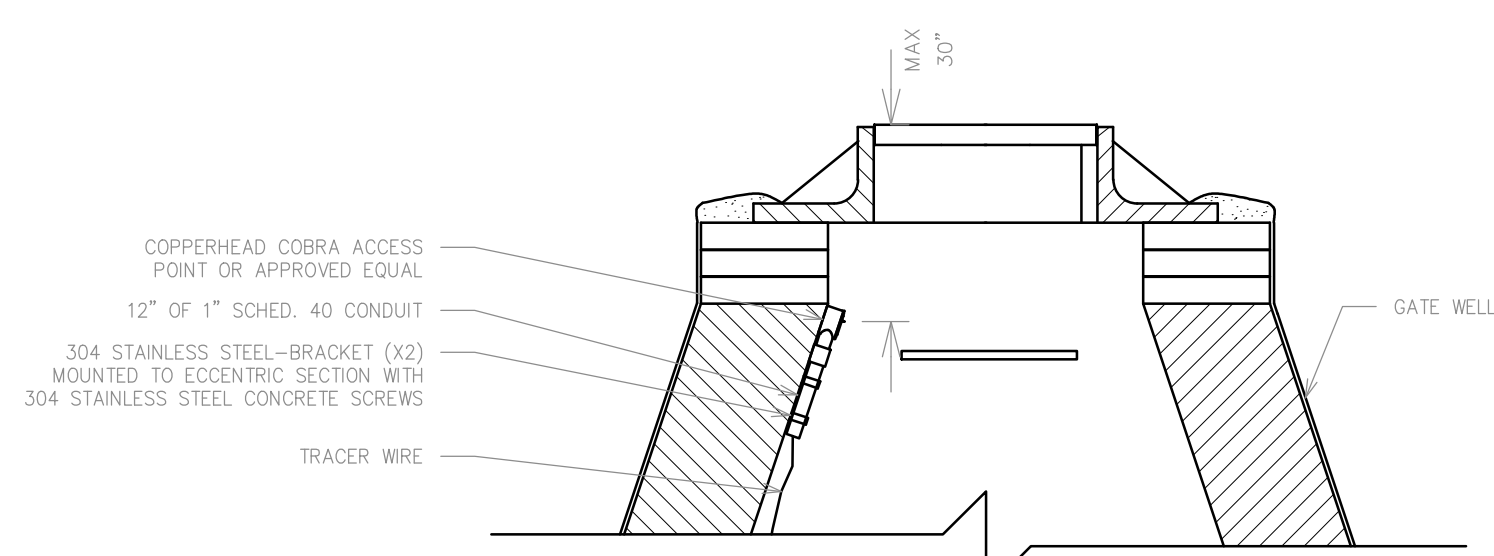
WATER SERVICE TERMINATION
NO SCALE



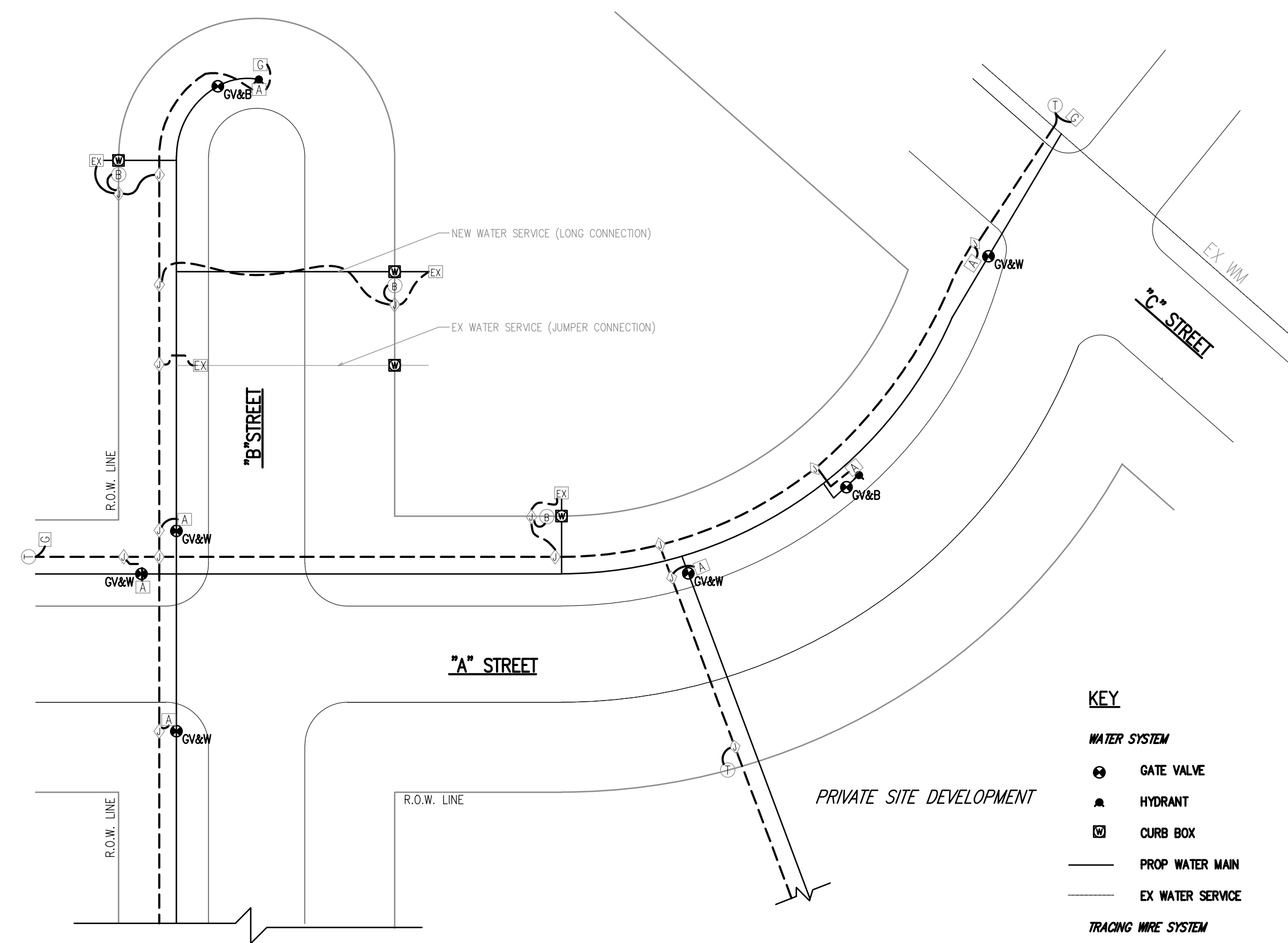
GROUNDING ROD TERMINATION
NO SCALE



HYDRANT TRACER WIRE ACCESS POINT
NO SCALE



GATE WELL TRACER WIRE ACCESS POINT
NO SCALE



TRACER WIRE SYSTEM SCHEMATIC

- KEY**
- WATER SYSTEM**
- ⊕ GATE VALVE
 - ▲ HYDRANT
 - ⊠ CURB BOX
 - PROP WATER MAIN
 - EX WATER SERVICE
- TRACING WIRE SYSTEM**
- ⊕ JUNCTION
 - ⊖ CURB BOX WIRE COIL
 - ⊗ WATER SERVICE TERMINATION
 - ⊙ TEST POINT
 - ⊚ GROUNDING ROD TERMINATION
 - ⊛ ACCESS POINT
 - TRACING WIRE

CITY OF SOUTHFIELD					
PUBLIC SERVICES GROUP			ENGINEERING DEPARTMENT		
WATERMAIN TRACER SYSTEM DETAILS					
DRAWN BY	PD	REVISIONS			
DESIGNED BY	No.	DESCRIPTION	DATE	BY	
APPROVED BY	LS	1 ADD HYDRANT TEST POINT	01/17	LS	
DATE	2014	2 SOUTHFIELD SPEC. UPDATES	05/22	ZJH	
HORIZ.	NTS				
SC. VERT.					
SHEET	4 OF 4				
JOB No.					