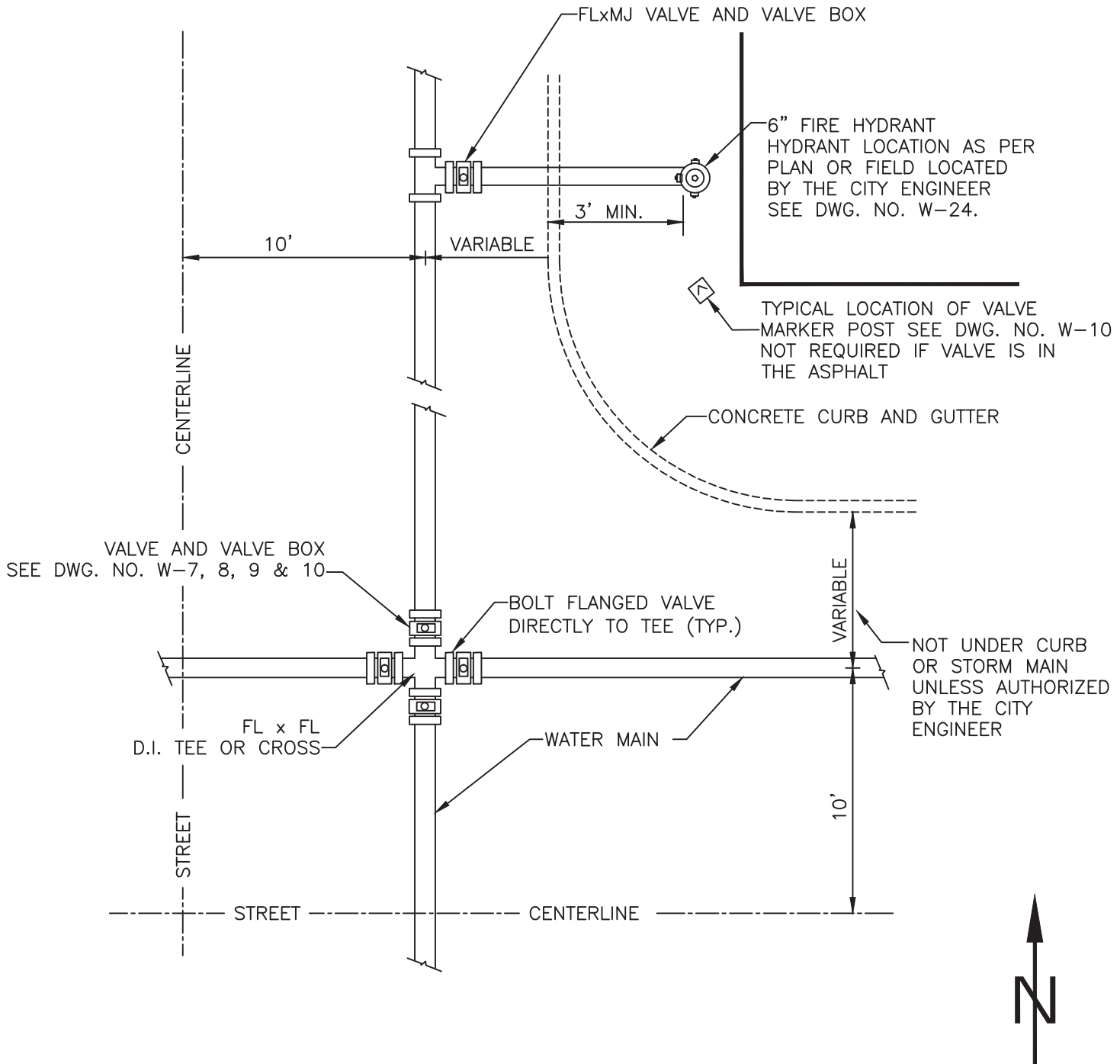


CITY OF MERCER ISLAND WATER - STANDARD DETAIL DRAWING INDEX

<u>NUMBER</u>	<u>NAME</u>
W-1	Not Used
W-2	Intersection Layout
W-3	Trench Section
W-4	Not Used
W-5	Not Used
W-5A	Horizontal Concrete Blocking
W-5B	Vertical Concrete Blocking
W-6	Not Used
W-6A	Alternate "A" Pipe Anchor
W-6B	Alternate "B" Pipe Anchor
W-7	Water Valve Box
W-8	Water Valve Box
W-9	Water Valve Extension
W-10	Valve Marker Post
W-11	Tapping Tee
W-12	Not Used
W-13	1" Water Meter Installation
W-14	1 ½" Water Meter Installation
W-14A	2" Water Meter Installation
W-15	3" – 4" Domestic Meter Installation
W-16	Water Meter Placement
W-17	1" & 2" Steel Water Meter Box
W-18	Not Used
W-18A	1", 1 ½" & 2" Plastic Water Meter Box
W-19	Not Used
W-19A	Double Detector Check Valve Assembly
W-19B	Material List Double Detector Check
W-20	Not Used
W-21	Not Used
W-22	Not Used
W-23	Not Used
W-24	Fire Hydrant Connection
W-24A	Fire Hydrant Assembly- Wet Tap Installation
W-25	1" Air & Vacuum Valve Assembly
W-25A	2" Air & Vacuum Valve Assembly
W-26	2" Blow-Off Assembly
W-27	Not Used
W-27A	Pressure Reducing Valve (PRV) Top View
W-27B	Pressure Reducing Valve (PRV) Side View
W-27C	Pressure Reducing Valve (PRV) Ladder, Pipe Penetration, & Wall Flange
W-27D	Pressure Reducing Valve (PRV) Davit
W-27E	Pressure Reducing Valve (PRV) 1" Air Vacuum Valve Assembly Installation
W-28	Residential Pressure Reducing Valve


**CITY OF MERCER ISLAND
WATER - STANDARD DETAIL DRAWING INDEX**

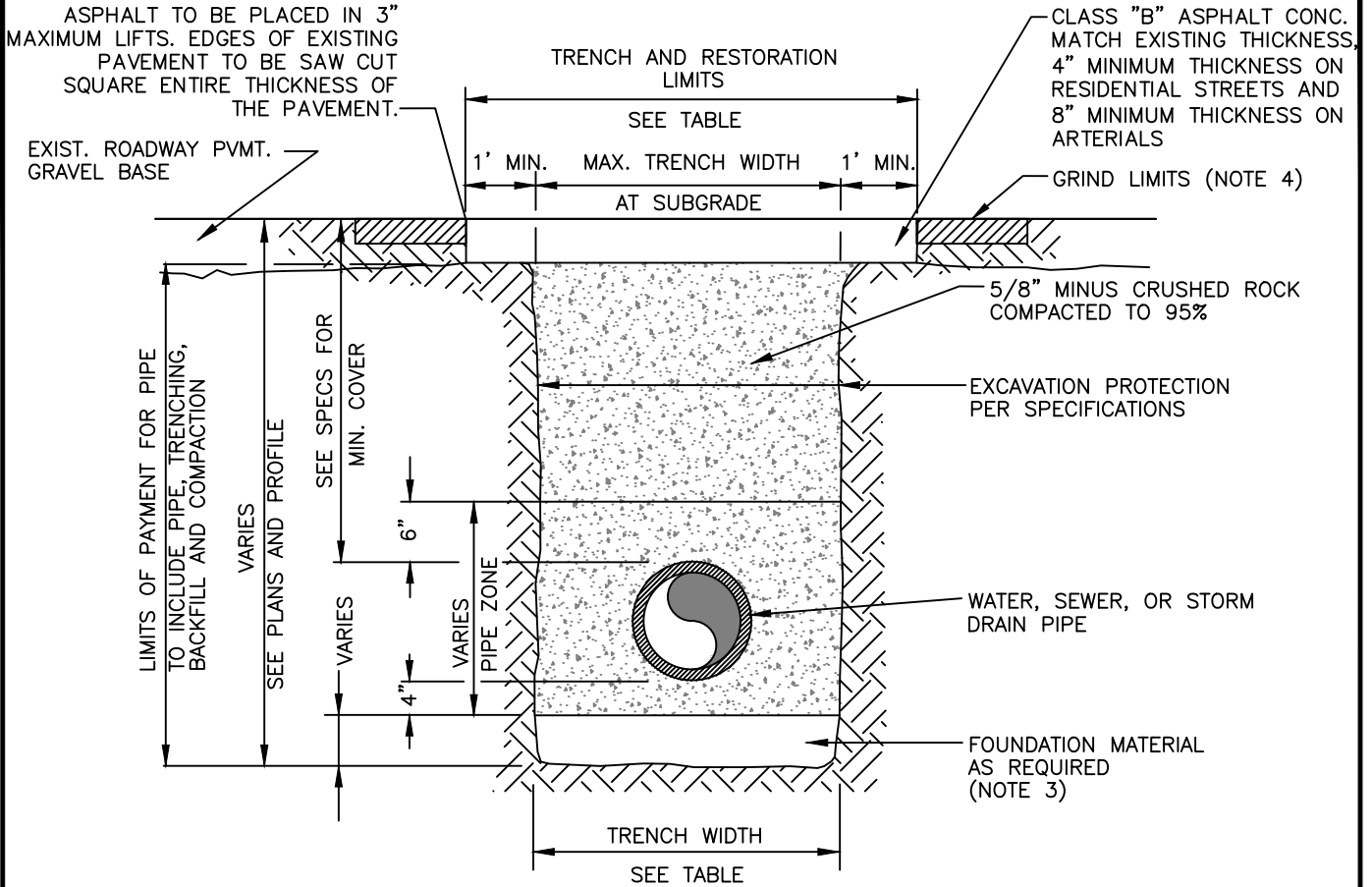
W-29	Not Used
W-30	Not Used
W-31	Not Used
W-32	Water Main Flushing



NOTES

1. MECHANICAL JOINTS WITH ROMAC PIPE RESTRAINERS MAY BE USED AT FITTINGS IN LIEU OF FLANGE TO FLANGE CONNECTIONS SHOWN ABOVE, WHERE APPROVED BY THE CITY ENGINEER.
2. BUTTERFLY VALVE OPERATING NUTS SHALL BE ON THE NORTH AND WEST SIDE OF THE MAIN.

	<p>CITY OF MERCER ISLAND STANDARD DETAILS WATER</p>	
<p>INTERSECTION LAYOUT</p>		
<p>08-12-2009</p>	<p>NO SCALE</p>	<p>W-2</p>
<p>REV DATE</p>		<p>APPROVED</p>



WIDTH TRENCH			
PIPE SIZE	PIPE ZONE MAX. TRENCH WIDTH	MAX. TRENCH WIDTH AT SUBGRADE	MAX. RESTORATION WIDTH AT SURFACE
WATER SERVICES	2'-0"	2'-0"	4'-0"
4" OR 6"	2'-2"	3'-0"	5'-0"
8"	2'-4"	4'-0"	6'-0"
10"	2'-6"	4'-0"	6'-0"
12"	2'-8"	4'-6"	6'-6"
16"	3'-0"	5'-0"	7'-0"

NOTES

1. CALL IN LOCATES TWO BUSINESS DAYS BEFORE YOU DIG. (1-800-424-5555)
2. IN RIGHT-OF-WAY USE 100% 5/8 MINUS CRUSHED ROCK FOR BEDDING, PIPE ZONE AND BACKFILL
3. FOUNDATION MATERIAL SHALL BE 1 1/4" MINUS CRUSHED ROCK OR OTHER AGGREGATE AS APPROVED BY CITY ENGINEER.
4. GRIND AND OVERLAY LIMITS SHALL EXTEND A MINIMUM OF 10' PAST THE END OF TRENCH AREAS.
5. SEAL ALL FINAL PATCHING AND PAVING SEAMS WITH LIQUID ASPHALT. SQUEEGEE OR MOP THE SEALER. COVER WITH DRY SAND.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

TRENCH SECTION

3-29-2021

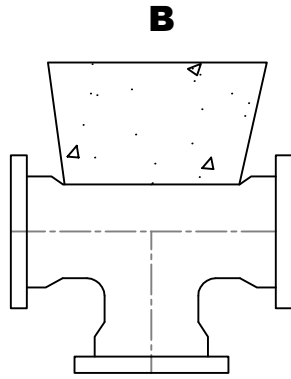
NO SCALE

W-3

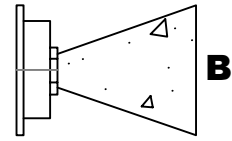
APPROVED

THRUST BLOCKING TABLE

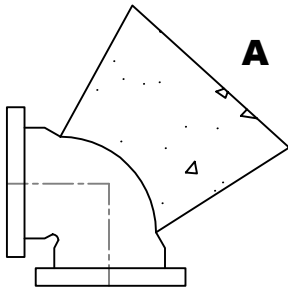
PIPE SIZE	MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL IN SQUARE FEET				
	A	B	C	D	E
4	2	2	2	2	2
6	4	3	2	2	2
8	7	5	4	2	2
10	11	8	6	3	2
12	16	12	9	5	3
14	22	16	12	6	3
16	29	20	16	8	4



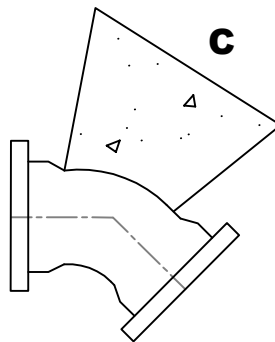
TEE



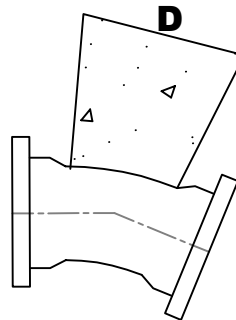
MJ CAP



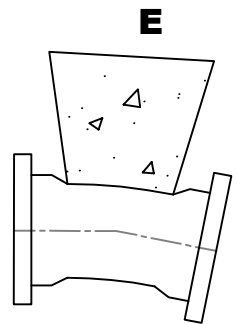
90° BEND



45° BEND



22-1/2° BEND



11-1/4° BEND

NOTES

1. ROMAC MJ WEDGE ACTION RETAINER MAY BE SUBSTITUTED FOR VERTICAL BLOCKING UPON PRIOR APPROVAL OF THE CITY ENGINEER.
2. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. THRUST BLOCKS SHALL BE CAST-IN-PLACE AND BE CONSTRUCTED WITH CLASS 3000 OR COMMERCIAL CONCRETE.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF BOLTS AND JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT. WRAP FITTINGS WITH 8 MIL THICK POLYETHYLENE SHEETING PRIOR TO POURING CONCRETE.
5. BEARING AREA MUST BE ADJUSTED FOR HIGHER INTERNAL PRESSURES AND LOWER SOIL BEARING VALUES.
6. THE CONTRACTOR SHALL INSTALL BLOCK WHICH IS ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY STAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.



CITY OF MERCER ISLAND STANDARD DETAILS WATER

HORIZONTAL CONCRETE BLOCKING

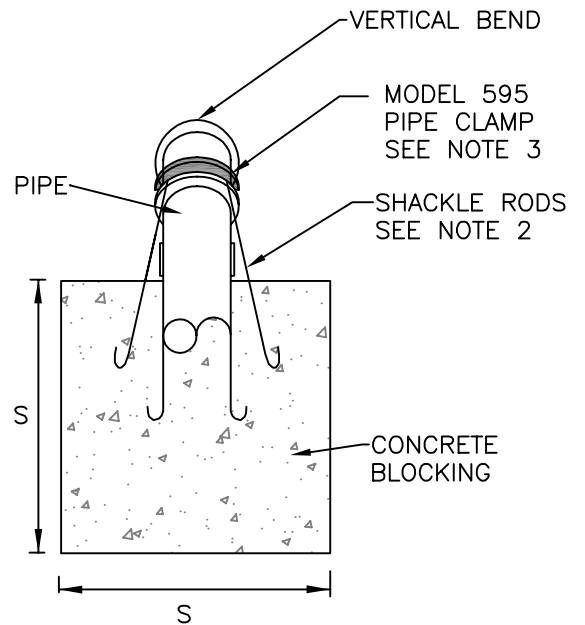
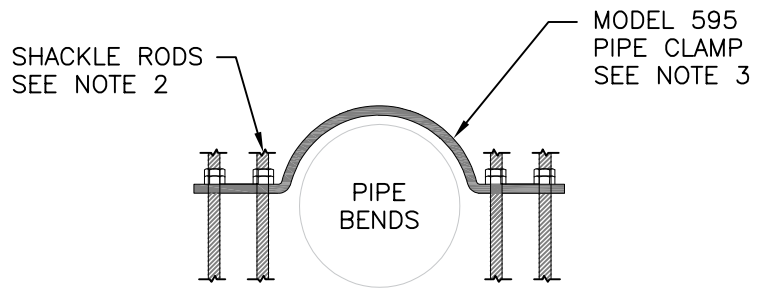
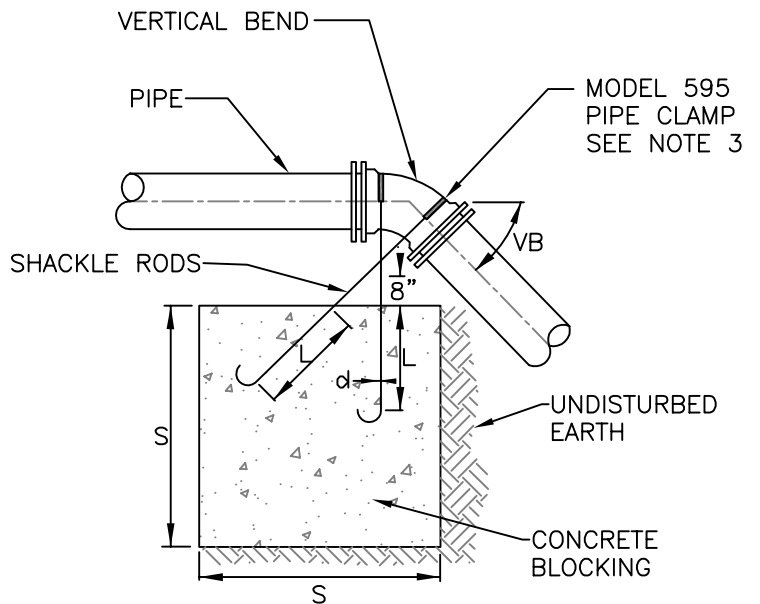
3-30-2021

NO SCALE

W-5A

VERTICAL THRUST BLOCKING
FOR 11 1/4° - 22 1/2° - 45°

PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE P.S.I.	VB VERTICAL BEND DEGREES	AMOUNT CONCERT BLOCKING - CU. FT.	S LENGTH OF SIDE FEET	d SHACKLE ROD DIA. - INCHES	L DEPTH OF ROD IN CONCRETE INCHES	NUMBER OF TIE RODS SETS (2 EMBEDDED RODS PER SET)
3"	250	11-1/4	3.4	1.5	5/8"	12"	2
		22-1/2	5.4	1.75	5/8"	12"	2
		45	11.4	2.25	5/8"	12"	2
4"	250	11-1/4	5.4	1.75	5/8"	12"	2
		22-1/2	11.4	2.25	5/8"	12"	2
		45	20.8	2.75	5/8"	12"	2
6"	250	11-1/4	11.4	2.25	5/8"	12"	2
		22-1/2	27.0	3.0	5/8"	12"	2
		45	42.9	3.5	5/8"	12"	2
8"	250	11-1/4	20.8	2.75	5/8"	12"	2
		22-1/2	42.9	3.5	5/8"	12"	2
		45	76.8	4.25	5/8"	12"	2
10"	250	11-1/4	34.3	3.25	5/8"	12"	2
		22-1/2	64.0	4.0	5/8"	12"	2
		45	125	5.0	5/8"	12"	2
12"	250	11-1/4	42.9	3.5	5/8"	12"	2
		22-1/2	91.1	4.5	5/8"	12"	2
		45	166	5.5	5/8"	12"	4
14"	250	11-1/4	52.7	3.75	3/4"	12"	2
		22-1/2	107	4.75	3/4"	24"	2
		45	190	5.75	3/4"	24"	4
16"	250	11-1/4	64.0	4.0	3/4"	24"	2
		22-1/2	125	5.0	3/4"	24"	4
		45	216	6.0	3/4"	24"	4
18"	250	11-1/4	64.0	4.0	3/4"	24"	2
		22-1/2	145	5.25	3/4"	24"	4
		45	244	6.25	3/4"	24"	4



BLOCKING FOR VERTICAL BENDS

NOTES

1. CONCRETE SHALL BE 3000 PSI CONCRETE
2. SHACKLE RODS/ALL THREAD SHALL BE ZINC PLATED. REFER TO CHART FOR SIZE AND NUMBER OF SHACKLE RODS. REFER TO PIPE CLAMP FOR INSTALLATION OF SHACKLE ROD. AFTER CONCRETE IS PLACED. 24 HOURS LATER INSTALL NUT AND WASHER AND TIGHTEN SHACKLE RODS NUTS ON PIPE CLAMP.
3. ANVIL PIPE CLAMP 595 FITS 4"-24" DIA.



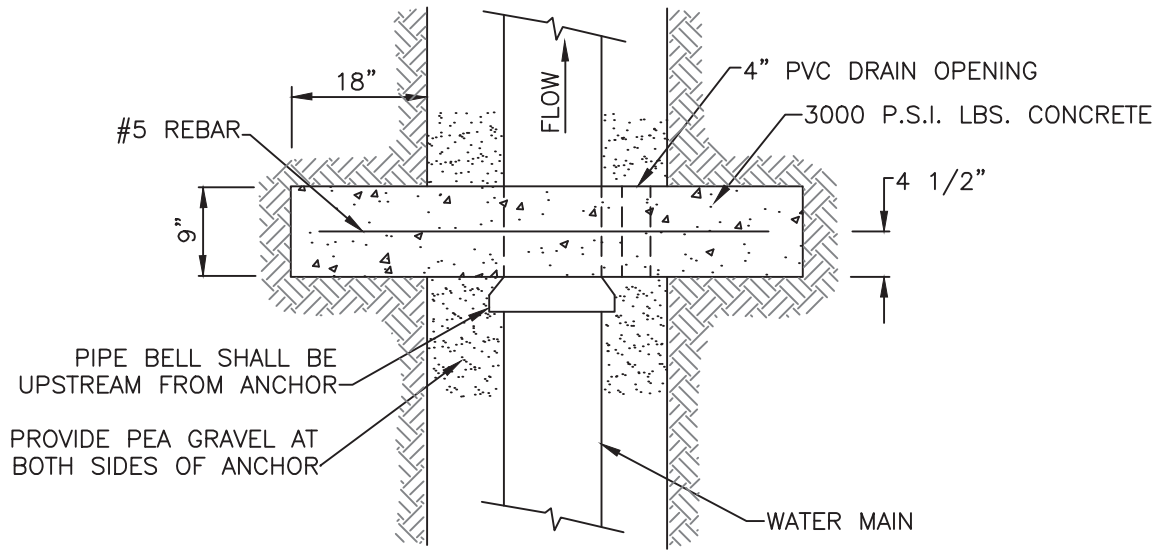
**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

VERTICAL CONCRETE BLOCKING

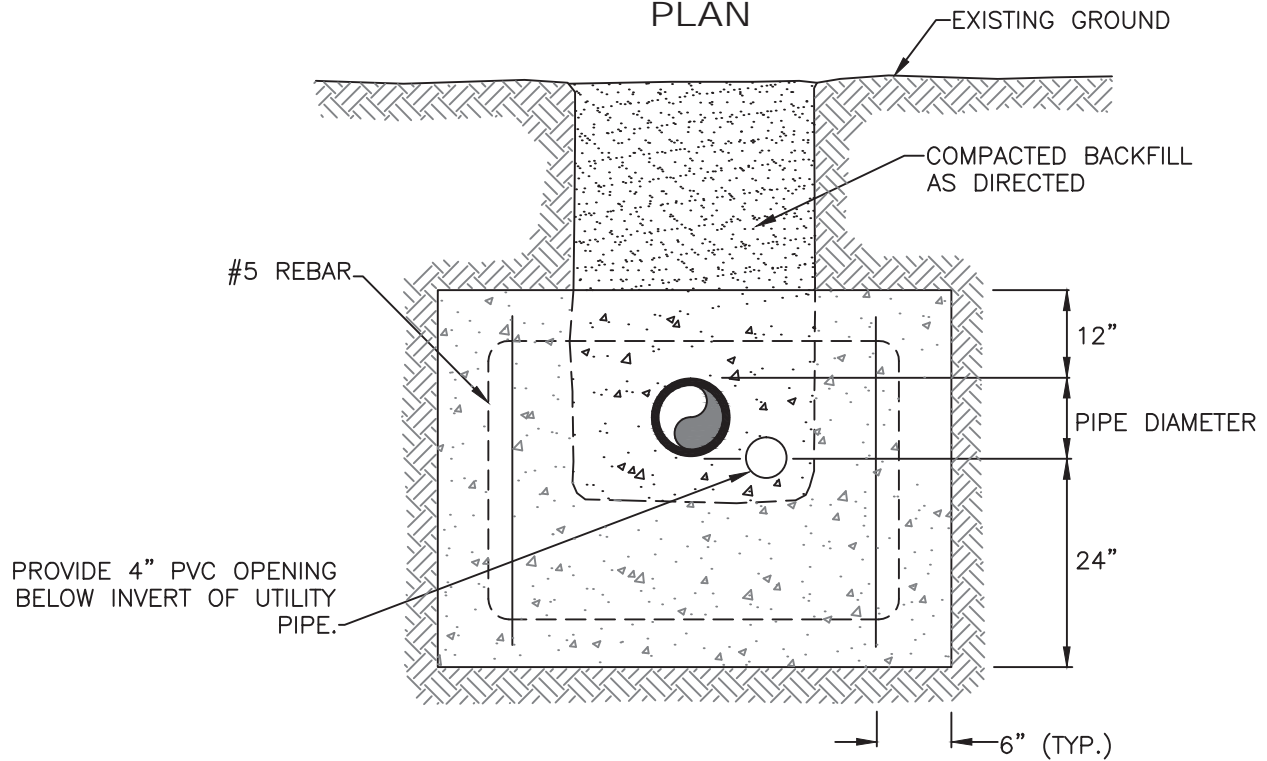
3-30-2021

NO SCALE

W-5B




PLAN

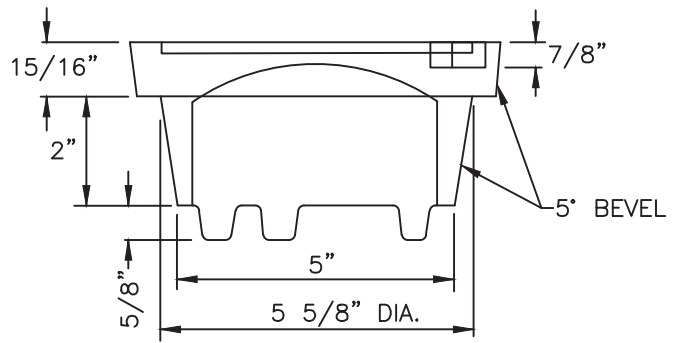
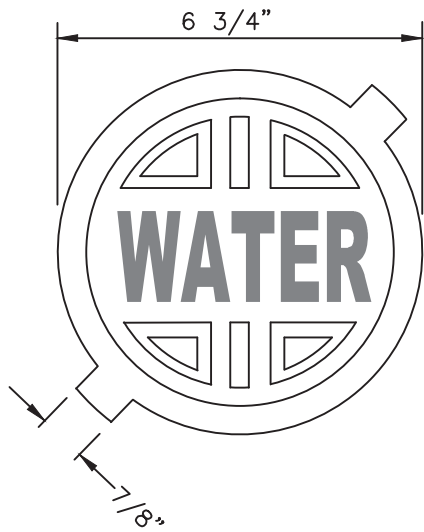


ELEVATION

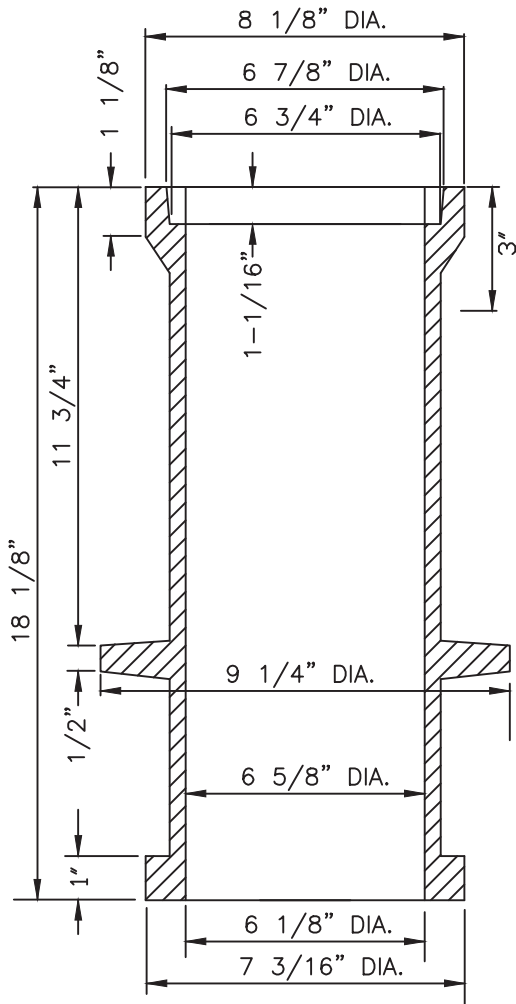
NOTES

1. PIPE ANCHORS ARE TO BE INSTALLED ON ALL SLOPES GREATER THAN 20% AS FOLLOWS.
 - A. NOT OVER 36 FEET CENTER TO CENTER ON GRADES 20% UP TO 35%.
 - B. NOT OVER 24 FEET CENTER TO CENTER ON GRADES 35% UP TO 50%.
 - C. NOT OVER 16 FEET CENTER TO CENTER ON GRADES 50% AND OVER.
2. RESTRAINED JOINT PIPE, ROMAC PIPE RESTRAINERS OR OTHER METHODS OF RESTRAINT MAY BE USED WITH PRIOR APPROVAL OF THE CITY ENGINEER.

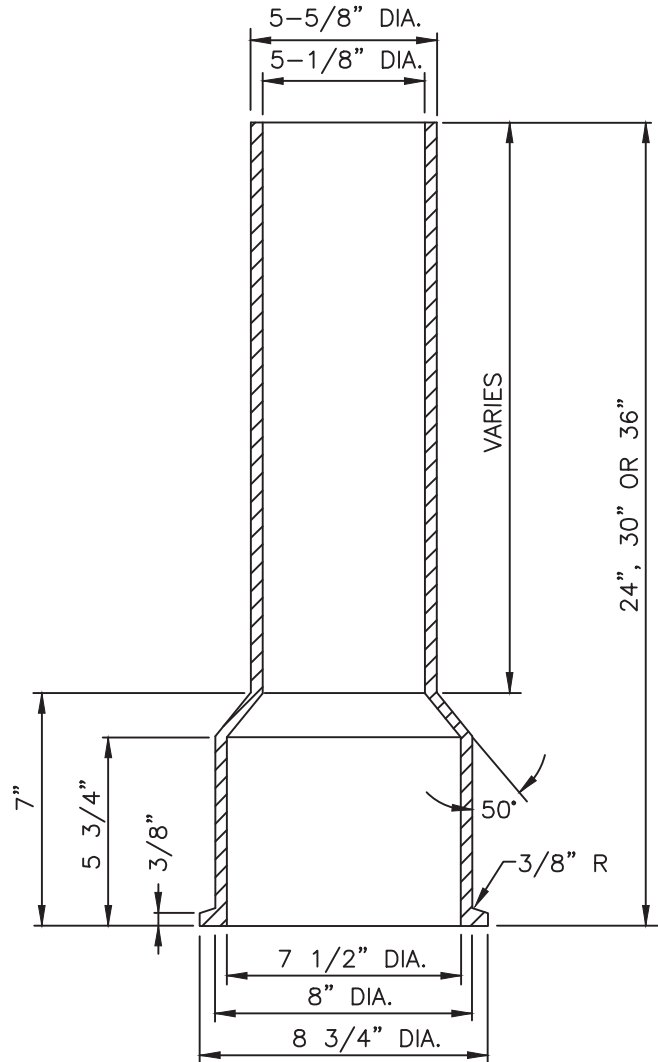
	<p>CITY OF MERCER ISLAND</p> <p>STANDARD DETAILS</p> <p>WATER</p>	
<p>ALTERNATE "B"</p> <p>PIPE ANCHOR</p>		
3-20-2006	NO SCALE	W-6B
REV DATE		APPROVED



VALVE BOX LID



VALVE BOX TOP



VALVE BOX BOTTOM

NOTES

1. VALVE BOX SHALL BE OLYMPIC FOUNDRY PART NO. VB940 OR EQUAL.
2. THE TOP AND LID SHALL HAVE A MACHINED FIT.
3. LOCKING LID, WHEN REQUIRED, SHALL BE OLYMPIC FOUNDRY PART NO. 13-5200 OR EQUAL.



CITY OF MERCER ISLAND
STANDARD DETAILS
WATER

WATER VALVE BOX

3-20-2006

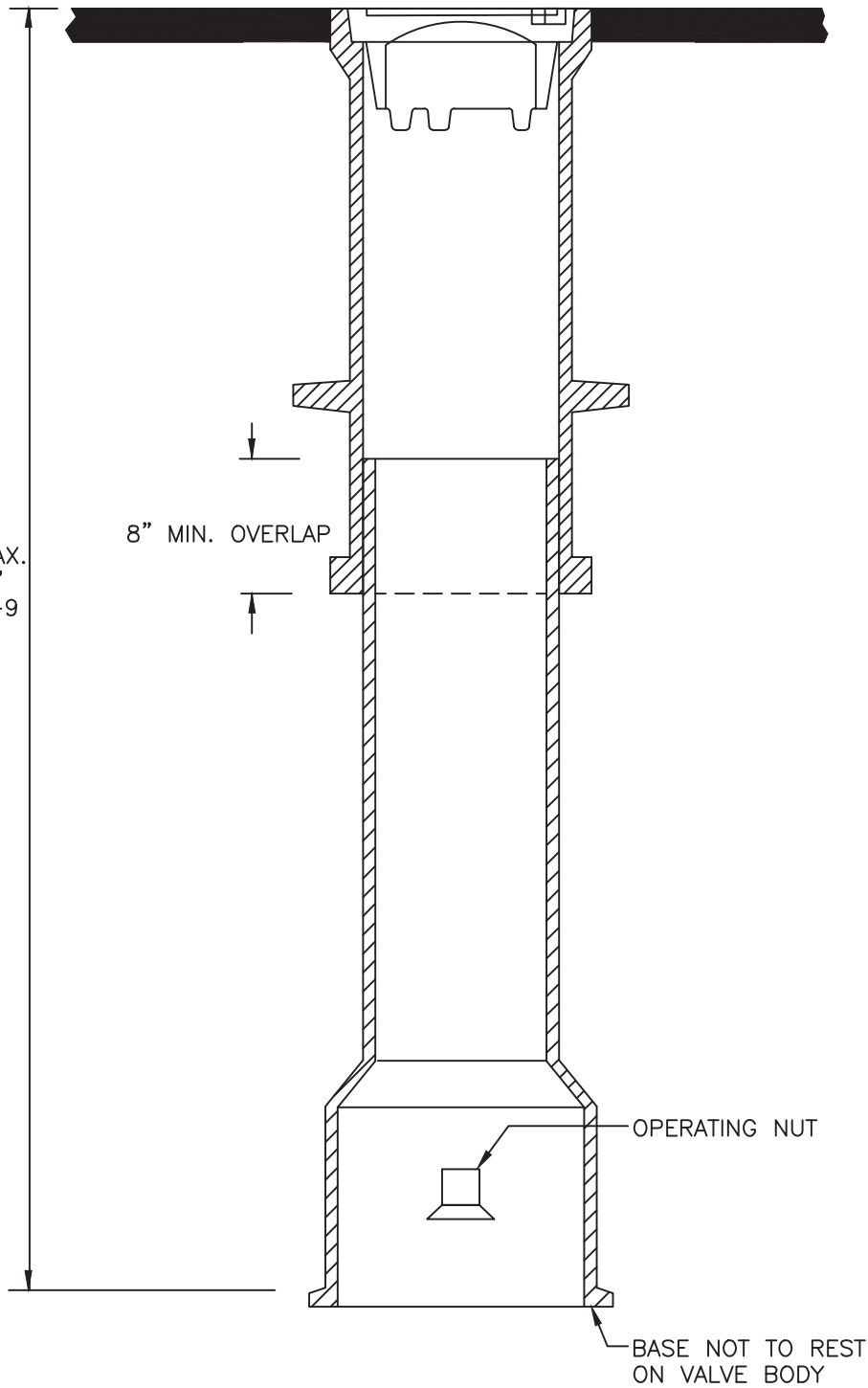
NO SCALE

W-7

REV DATE

APPROVED

4'-0" MAX.
IF OVER 4'
SEE DWG. NO. W-9



NOTES

1. VALVE BOX RISER WITH PAVING LUGS SHALL BE OLYMPIC NO. VB2 OR EQUAL.
2. MINIMUM VALVE BOX BOTTOM LENGTH OVERALL = 21 1/16". SHORT RISERS ARE NOT PERMITTED.
3. SEE DWG. NO. W-7 FOR DETAILS.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

WATER VALVE BOX

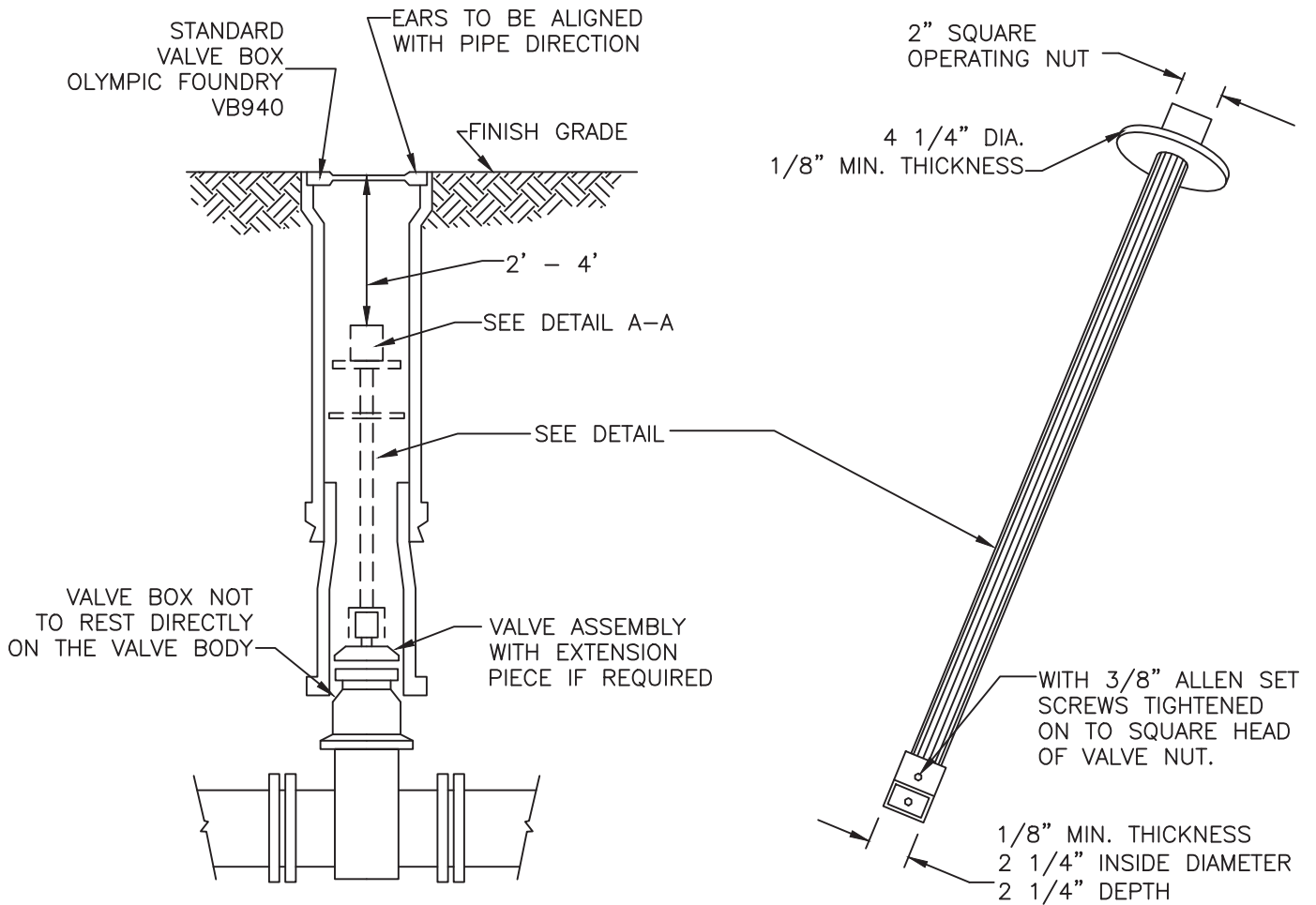
12-23-2013

NO SCALE

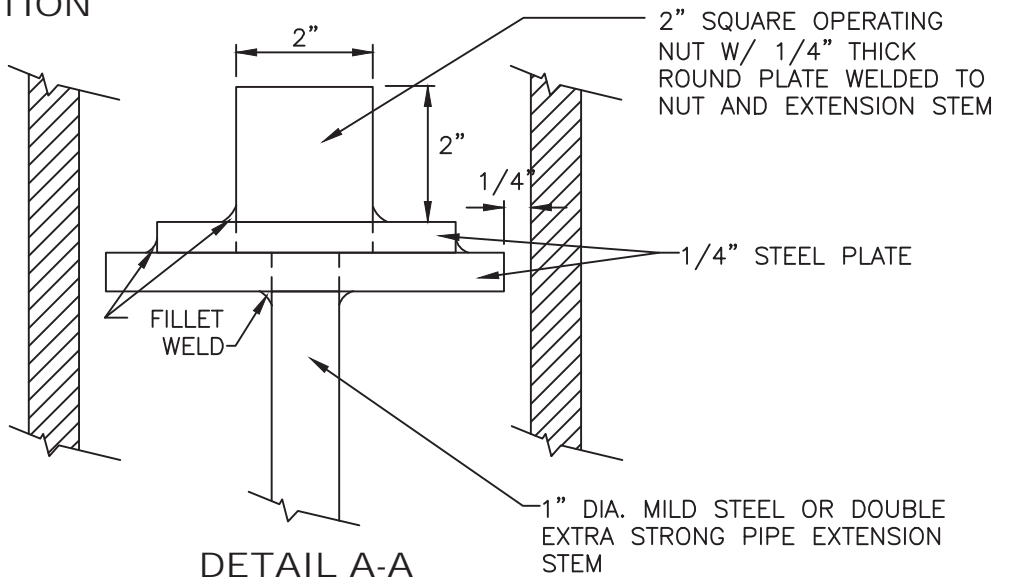
W-8

REV DATE

APPROVED




SECTION



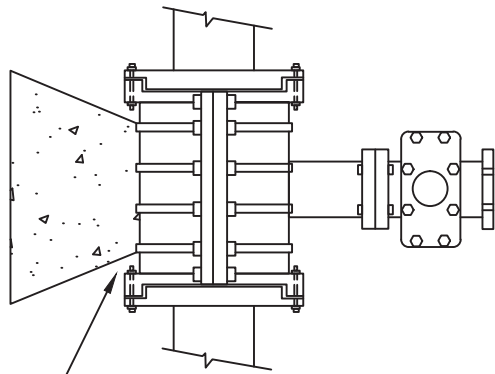
DETAIL A-A

NOTES

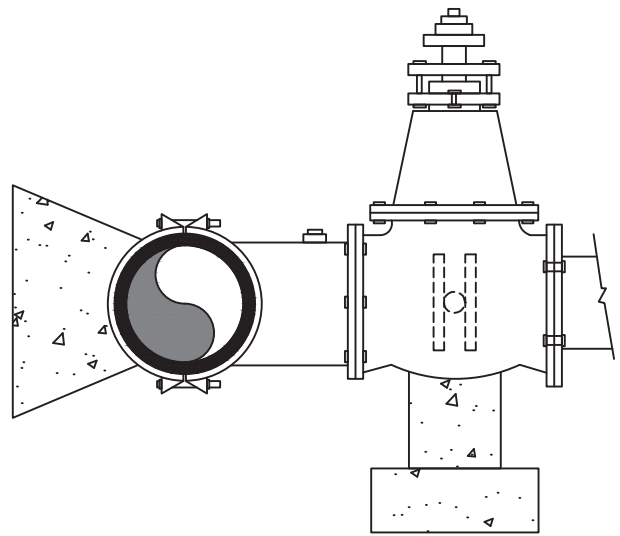
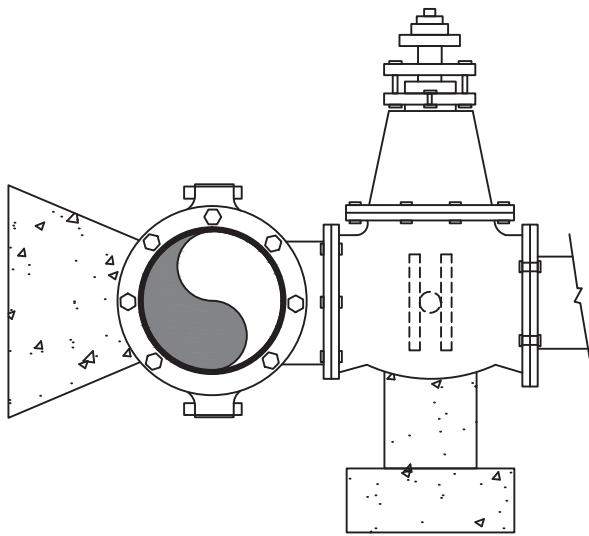
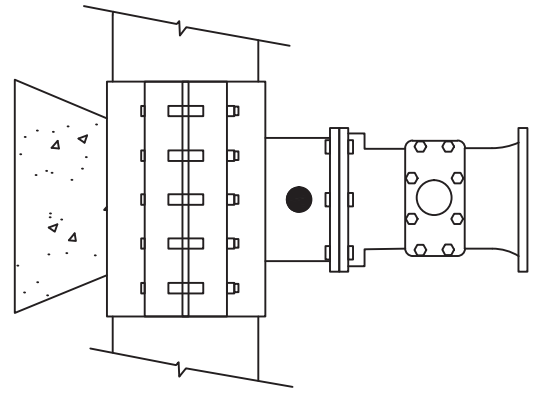
1. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN FOUR (4) FEET BELOW FINISHED GRADE.
2. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION PER VALVE WILL BE ALLOWED.
3. ALL EXTENSIONS ARE TO BE MADE OF CAST OR DUCTILE IRON, SIZED AS NOTED AND PAINTED WITH TWO COATS ASPHALTIC VARNISH.

	CITY OF MERCER ISLAND STANDARD DETAILS WATER	
	WATER VALVE EXTENSION	
12-23-2013	NO SCALE	W-9

REV DATE			APPROVED
----------	--	--	----------



SEE W-5 FOR 8 MIL THICK
POLYETHYLENE SHEETING
(TO MATCH W-5)



DUCTILE IRON TAPPING TEE MECHANICAL JOINT SLEEVE

INSTALLED ON ASBESTOS CEMENT PIPE,
CAST IRON PIPE AND DUCTILE IRON PIPE

STAINLESS STEEL TAPPING TEE

INSTALLED ON ASBESTOS CEMENT PIPE,
CAST IRON PIPE AND DUCTILE IRON PIPE

NOTES

1. STAINLESS STEEL TAPPING TEES SHALL HAVE FULL CIRCLE SEAL.
2. STEEL TAPPING TEES SHALL BE EPOXY COATED.
3. NO SIZE ON SIZE TAPS. TAP SHALL BE AT LEAST 2" SMALLER DIAMETER THAN THE EXISTING MAIN.
4. TAPPING TEES SHALL BE MULLER OR EQUAL.



CITY OF MERCER ISLAND STANDARD DETAILS WATER

TAPPING TEE

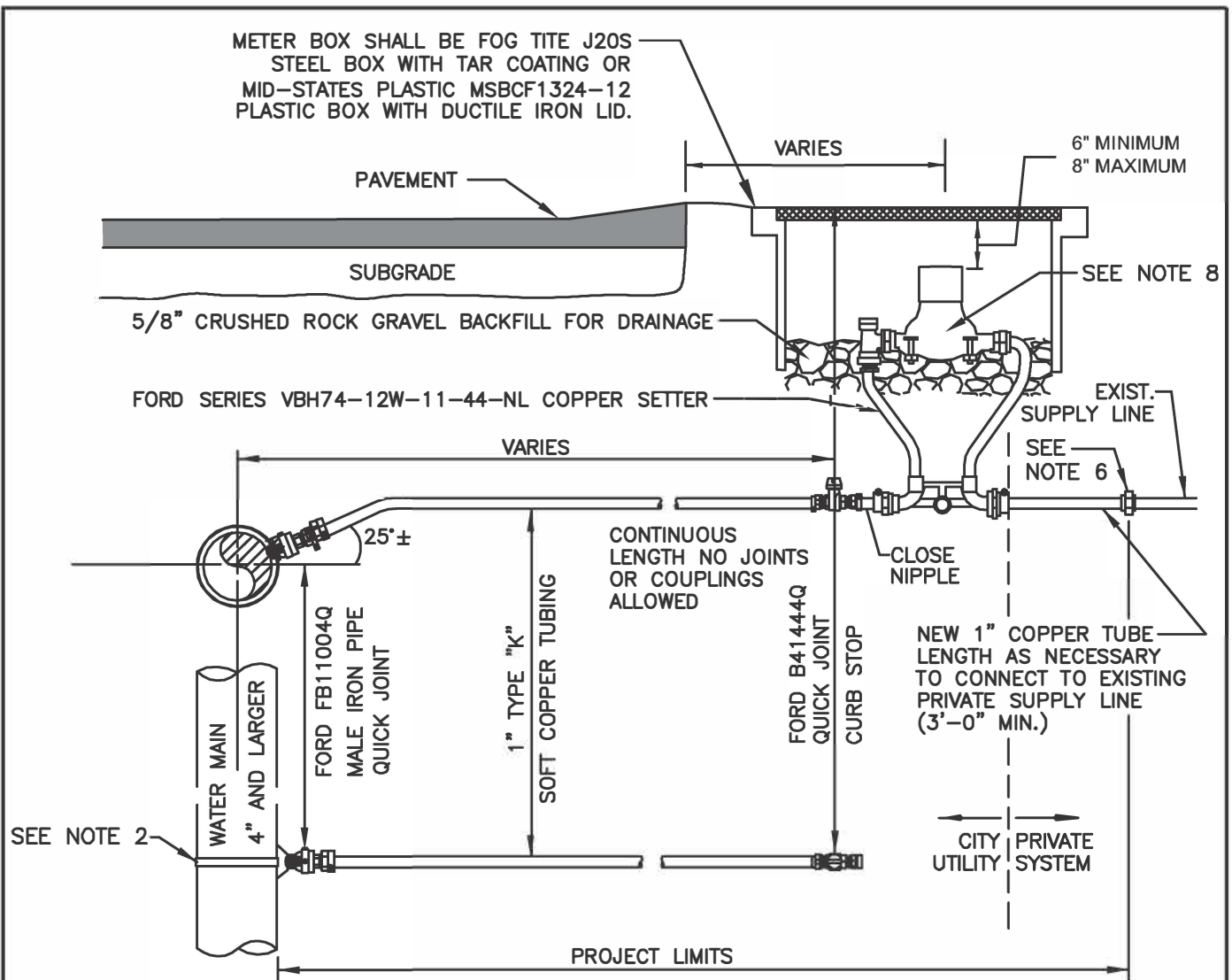
8-12-2009

NO SCALE

W-11

REV DATE

APPROVED



NOTES

1. WATER SERVICES SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT DATED 01/04/2014.
2. ON EXISTING WATER MAINS USE NYLON COATED D.I. SADDLE WITH STAINLESS STEEL DOUBLE STRAPS, ROMAC 202NS, OR APPROVED EQUAL.
3. MINIMUM DISTANCE BETWEEN CORP STOPS SHALL BE 18". MINIMUM DISTANCE BETWEEN TAPS, BETWEEN CORP STOP AND PIPE ENDS SHALL BE 24", ALL HORIZONTALLY STAGGERED.
4. PLASTIC METER BOXES SHALL NOT BE INSTALLED WITHIN ROADWAY, SIDEWALK, OR DRIVEWAYS.
5. UPON CITY ENGINEER'S APPROVAL, METER BOXES ARE ALLOWED TO BE INSTALLED IN PORTLAND CEMENT CONCRETE PAVEMENT OR SIDEWALK.
6. WHEN CONNECTING TO EXISTING PRIVATE SUPPLY LINE CONTAINING FERROUS METAL, PROVIDE INSULATING COUPLING (DB SERIES WITH C21 SERIES ADAPTERS) AND PROVIDE REDUCER AS NECESSARY TO MATCH EXISTING PRIVATE SUPPLY LINE DIAMETER.
7. SERVICE LINE SHALL BE PERPENDICULAR TO THE WATER MAIN AND STRAIGHT TO WATER METER, UNLESS OTHERWISE APPROVED BY CITY ENGINEER. PROVIDE WINDING SLACK IN THE SERVICE LINE BETWEEN THE MAIN AND WATER METER.
8. WATER METER SUPPLIED BY CITY.
9. ALL FITTINGS TO BE BRASS COMPRESSION TYPE, FORD QUICK JOINT OR EQUAL.
10. NO SERVICE CONNECTIONS BETWEEN BLOW-OFF AND END OF MAIN.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

1" WATER METER INSTALLATION

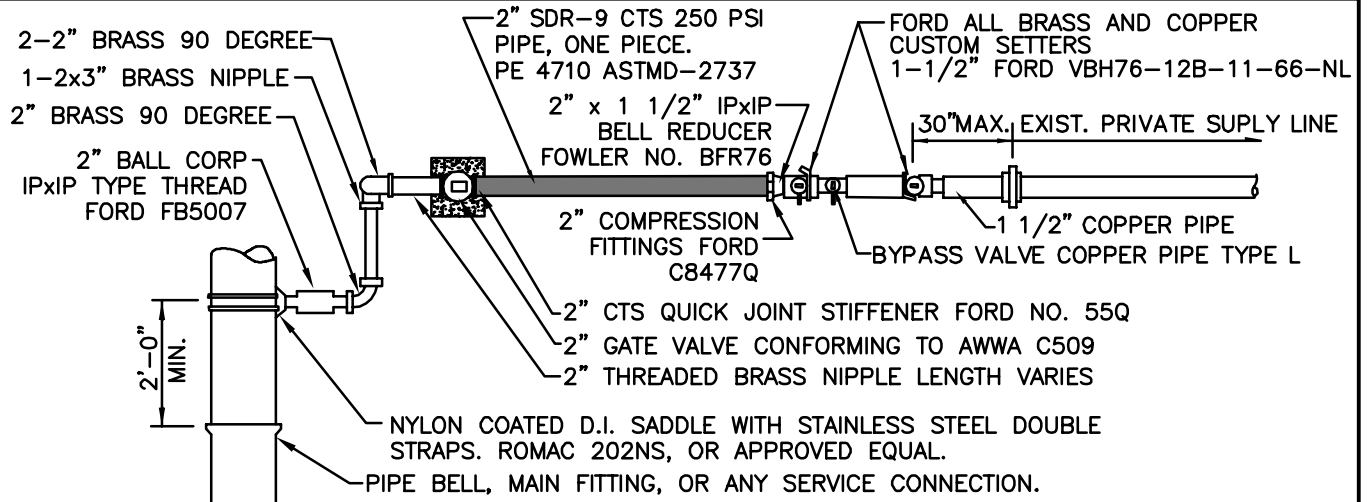
05-02-2023

NO SCALE

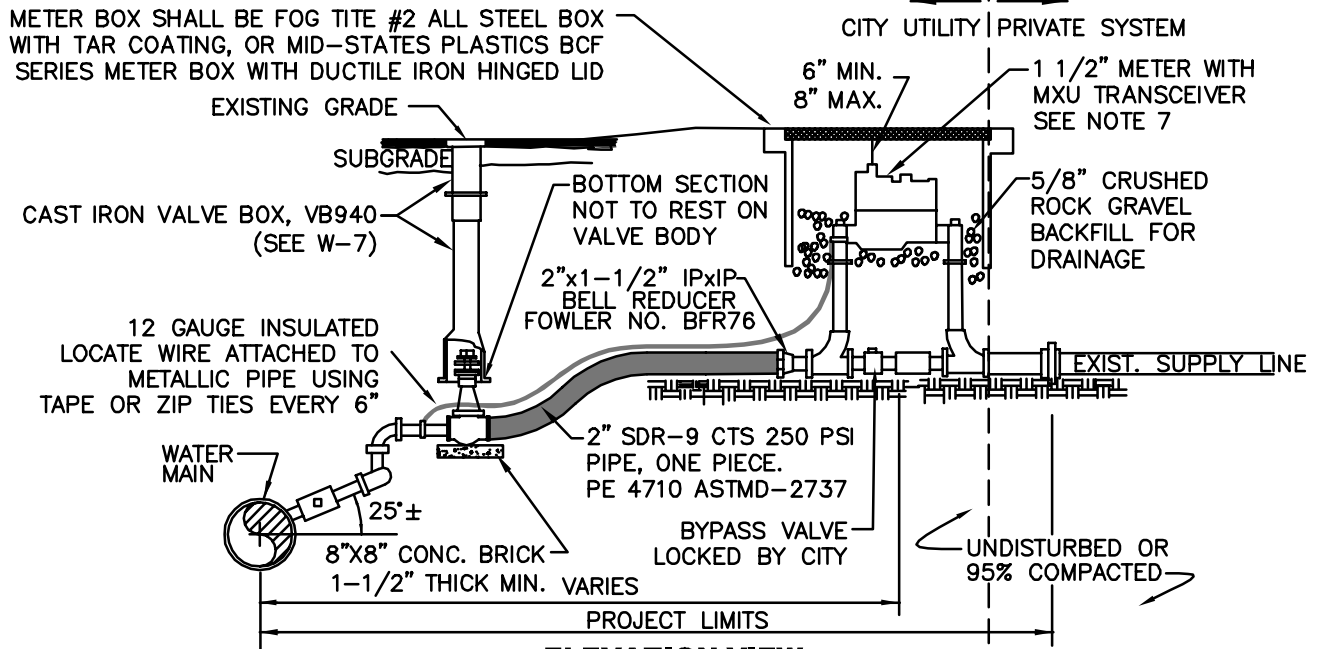
W-13

APPROVED

REV DATE




PLAN VIEW

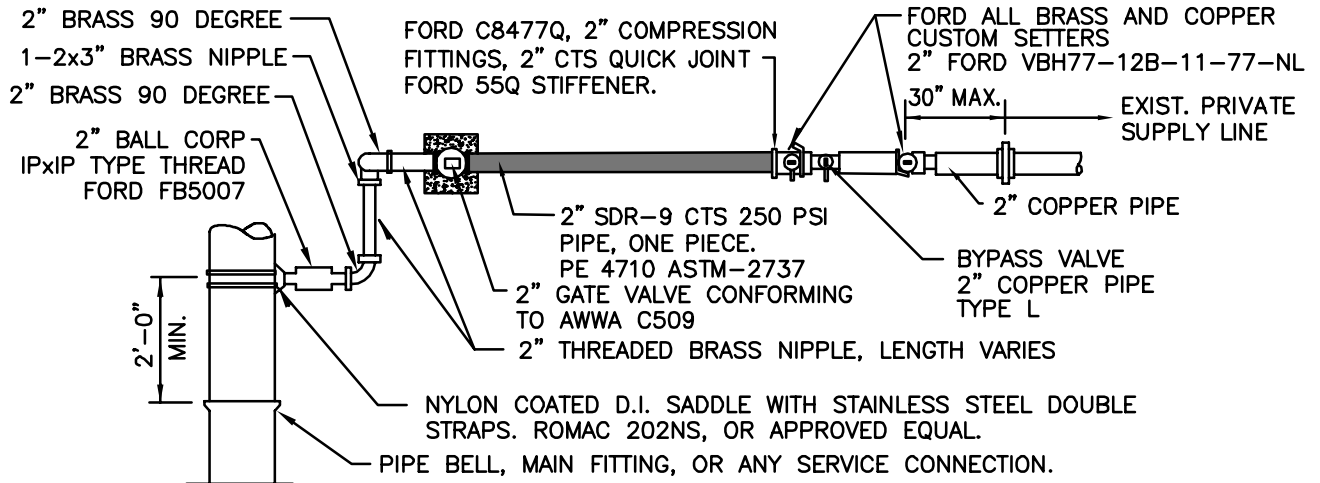


ELEVATION VIEW

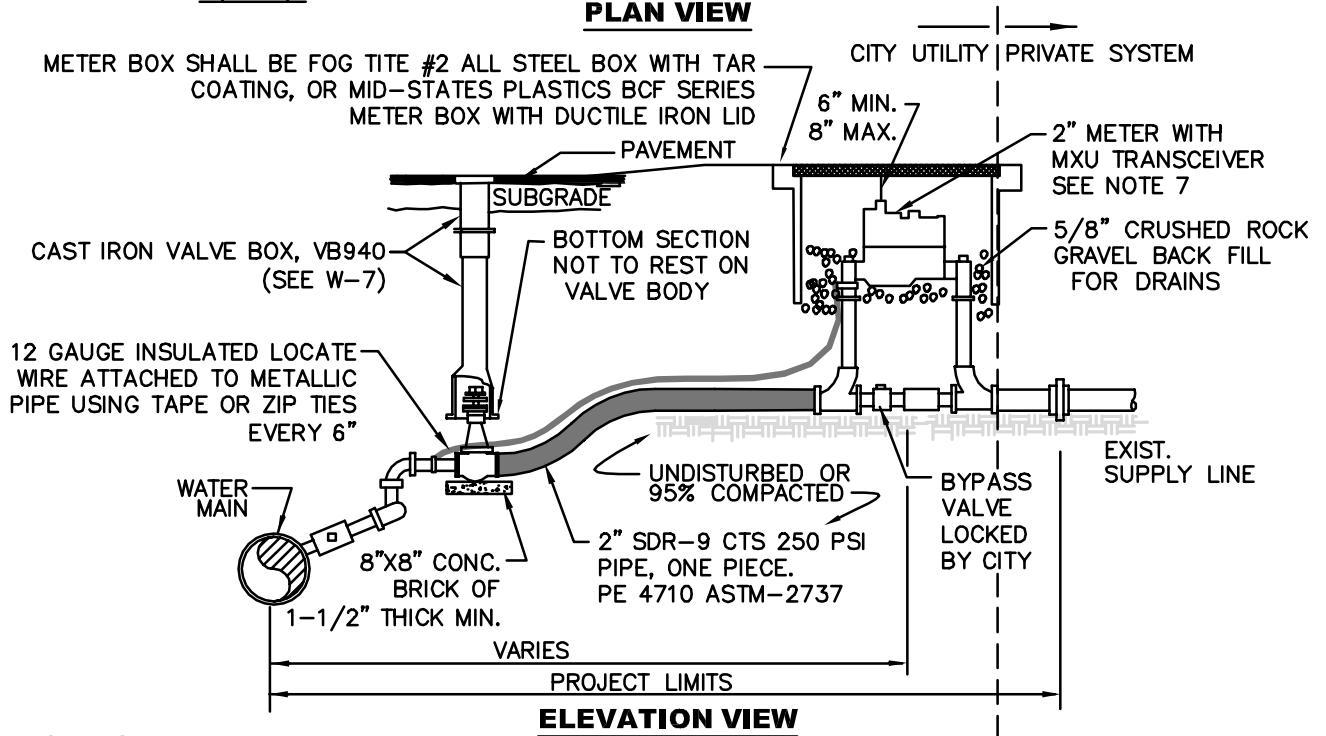
NOTES

1. WATER SERVICES SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT DATED 01/04/2014.
2. MINIMUM DISTANCE BETWEEN CORP STOPS SHALL BE 18". MINIMUM DISTANCE BETWEEN TAPS, BETWEEN CORP STOP AND PIPE ENDS SHALL BE 24", ALL HORIZONALLY STAGGERED.
3. PLASTIC METER BOXES SHALL NOT BE INSTALLED WITHIN ROADWAY, SIDEWALK, OR DRIVEWAYS.
4. UPON CITY ENGINEER'S APPROVAL, METER BOXES ARE ALLOWED TO BE INSTALLED IN PORTLAND CEMENT CONCRETE PAVEMENT OR SIDEWALK.
5. WHEN CONNECTING TO EXISTING PRIVATE SUPPLY LINE CONTAINING FERROUS METAL, PROVIDE INSULATING COUPLING (DB SERIES WITH C21 SERIES ADAPTERS) AND PROVIDE REDUCER AS NECESSARY TO MATCH EXISTING PRIVATE SUPPLY LINE DIAMETER.
6. SERVICE LINE SHALL BE PERPENDICULAR TO THE WATER MAIN AND STRAIGHT TO WATER METER, UNLESS OTHERWISE APPROVED BY CITY ENGINEER. PROVIDE WINDING SLACK IN THE SERVICE LINE BETWEEN THE MAIN AND WATER METER.
7. WATER METER SUPPLIED BY CITY.
8. ALL FITTINGS TO BE BRASS COMPRESSION TYPE, FORD QUICK JOINT OR EQUAL.
9. NO SERVICE CONNECTIONS BETWEEN BLOW-OFF AND END OF MAIN.

	CITY OF MERCER ISLAND	
	STANDARD DETAILS	
WATER		
1-1/2" WATER METER INSTALLATION		
02-05-2021	NO SCALE	W-14
REV DATE		APPROVED




PLAN VIEW

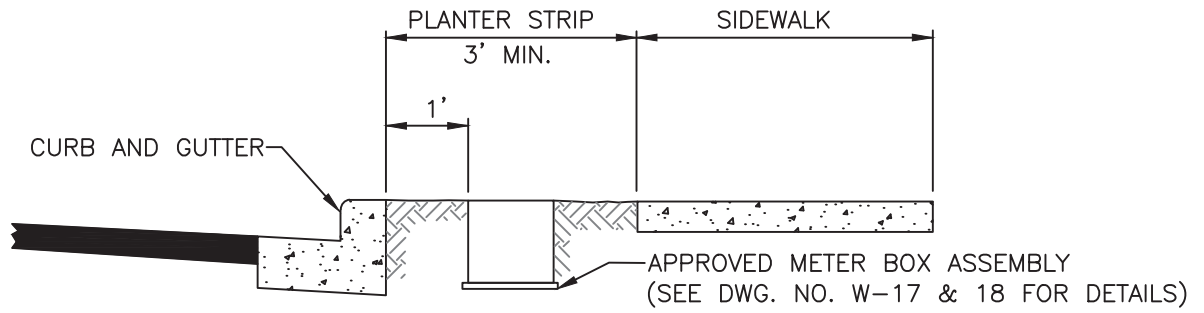


ELEVATION VIEW

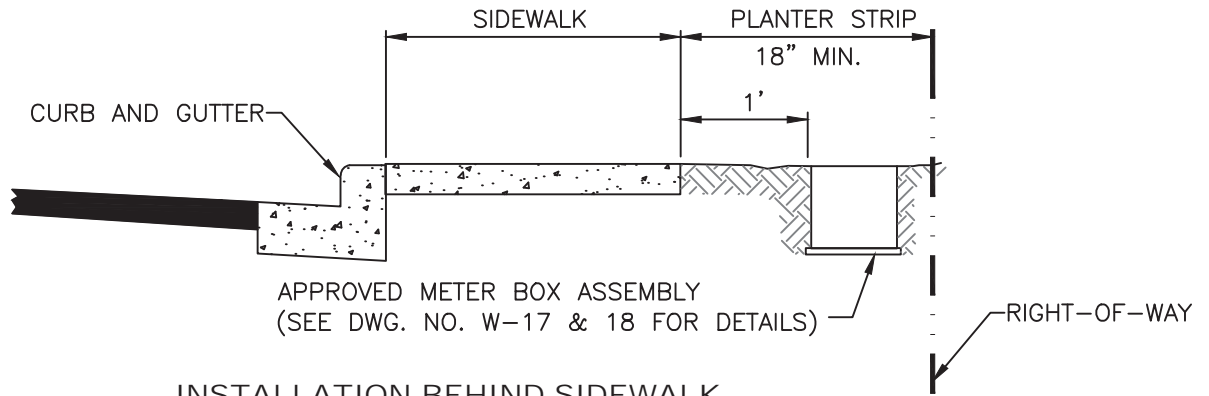
NOTES

1. WATER SERVICES SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT DATED 01/04/2014.
2. MINIMUM DISTANCE BETWEEN CORP STOPS SHALL BE 18". MINIMUM DISTANCE BETWEEN TAPS, BETWEEN CORP STOP AND PIPE ENDS SHALL BE 24", ALL HORIZONALLY STAGGERED.
3. PLASTIC METER BOXES SHALL NOT BE INSTALLED WITHIN ROADWAY, SIDEWALK, OR DRIVEWAYS.
4. UPON CITY ENGINEER'S APPROVAL, METER BOXES ARE ALLOWED TO BE INSTALLED IN PORTLAND CEMENT CONCRETE PAVEMENT OR SIDEWALK.
5. WHEN CONNECTING TO EXISTING PRIVATE SUPPLY LINE CONTAINING FERROUS METAL, PROVIDE INSULATING COUPLING (DB SERIES WITH C21 SERIES ADAPTERS) AND PROVIDE REDUCER AS NECESSARY TO MATCH EXISTING PRIVATE SUPPLY LINE DIAMETER.
6. SERVICE LINE SHALL BE PERPENDICULAR TO THE WATER MAIN AND STRAIGHT TO WATER METER, UNLESS OTHERWISE APPROVED BY CITY ENGINEER. PROVIDE WINDING SLACK IN THE SERVICE LINE BETWEEN THE MAIN AND WATER METER.
7. WATER METER SUPPLIED BY CITY.
8. ALL FITTINGS TO BE BRASS COMPRESSION TYPE, FORD QUICK JOINT OR EQUAL.
9. NO SERVICE CONNECTIONS BETWEEN BLOW-OFF AND END OF MAIN.

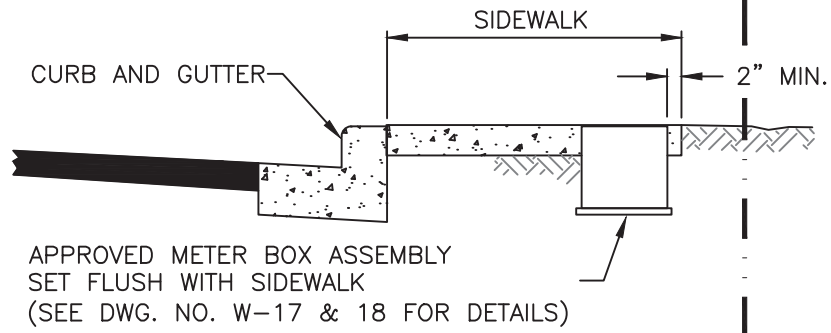
	CITY OF MERCER ISLAND	
	STANDARD DETAILS	
WATER		
2" WATER METER INSTALLATION		
02-05-2021	NO SCALE	W-14A
REV DATE	APPROVED	



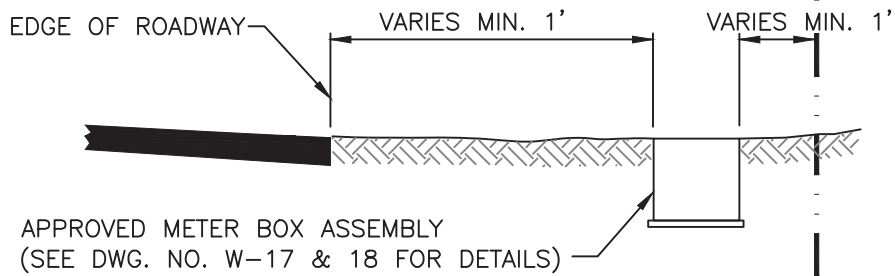
INSTALLATION IN PLANTER STRIP 3' OR WIDER



INSTALLATION BEHIND SIDEWALK



INSTALLATION IN SIDEWALK



INSTALLATION WITH NO SIDEWALK



CITY OF MERCER ISLAND
STANDARD DETAILS
WATER

WATER METER PLACEMENT

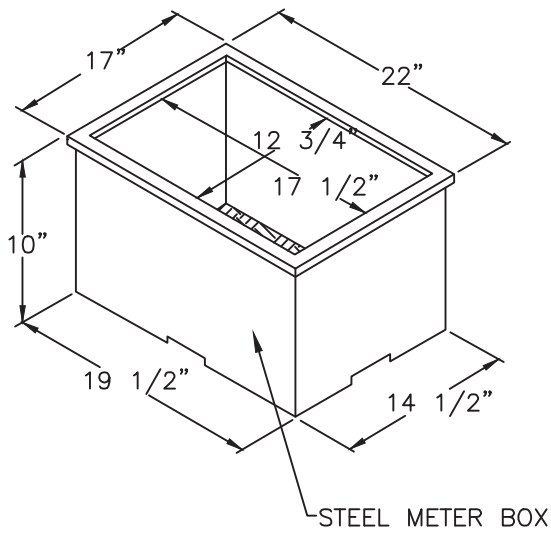
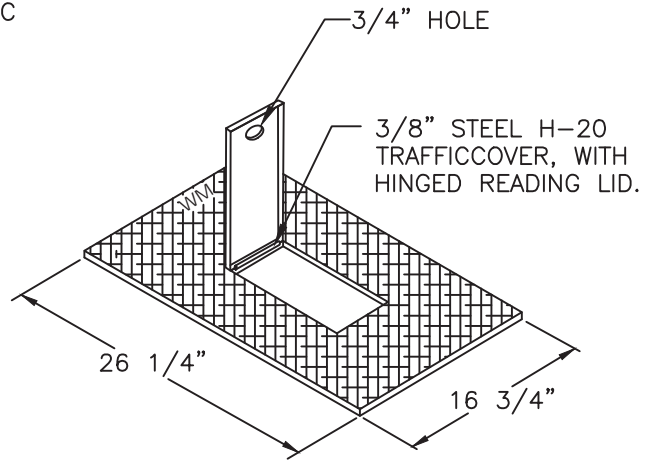
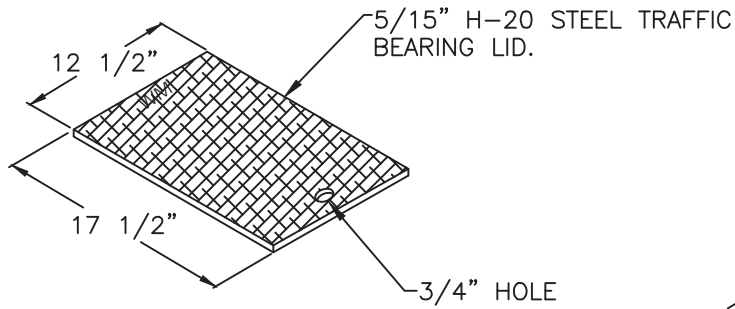
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NO SCALE

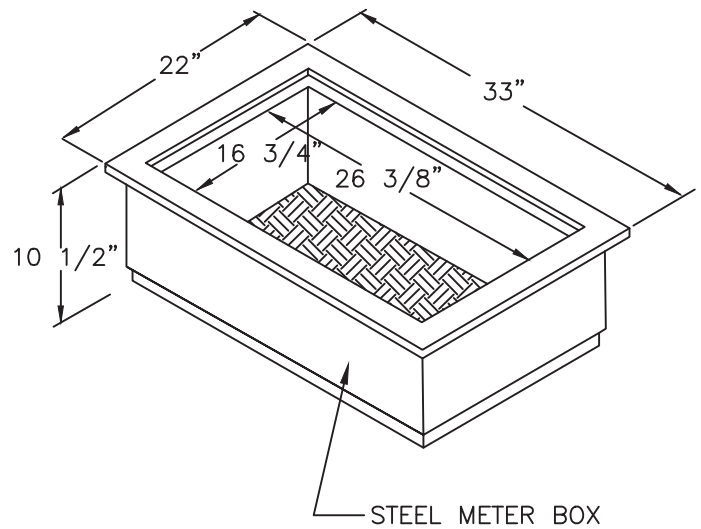
W-16

REV DATE

APPROVED



1" STEEL METER BOX



2" STEEL METER BOX

NOTES

1. FOR 1" STEEL BOX, USE FOG TITE J20S LID OR EQUAL, WITH A 3/4" ROUND HOLE.
2. 2" METER BOX SHALL BE FOG TITE #2J20S ALL STEEL BOX WITH TAR COATING. LID SHALL BE HINGED WITH 3/4" DIA. LIFTING HOLE.



CITY OF MERCER ISLAND
STANDARD DETAILS
WATER

1" AND 2" STEEL
WATER METER BOX

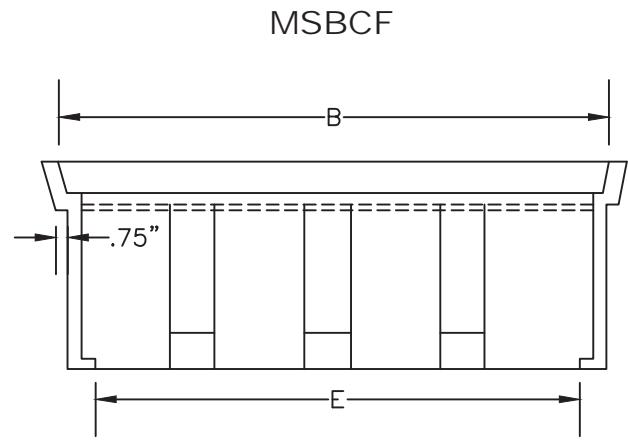
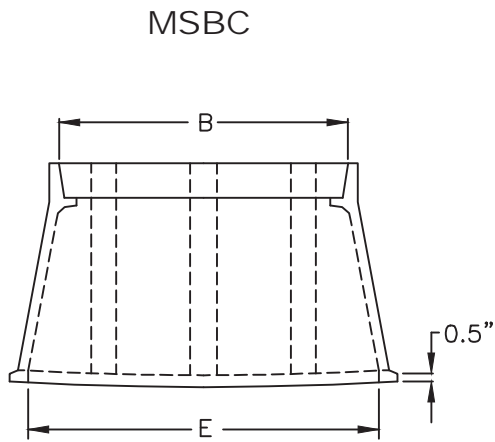
12-23-2013

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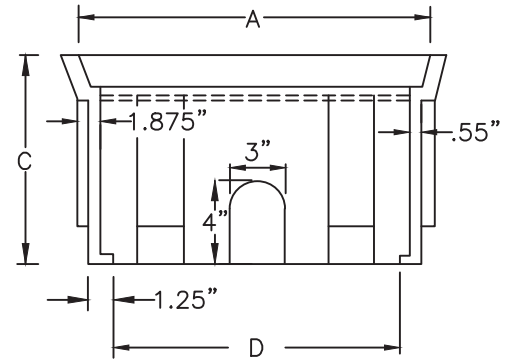
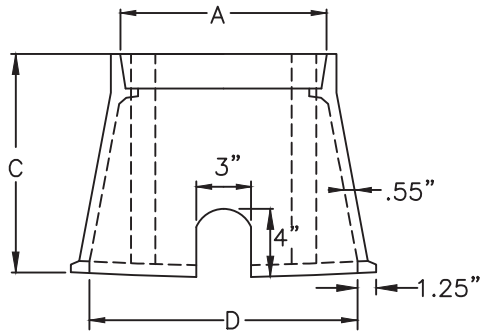
W-17

REV DATE

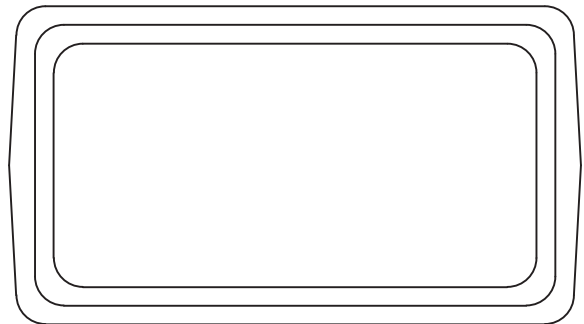
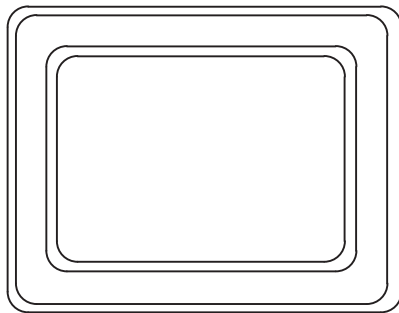
APPROVED



LONG SIDE VIEW



SHORT SIDE VIEW



TOP VIEW

WATER SERVICE SIZE	PART NO.	A	B	C	D	E
1"	MSBCF1324-12	13.75"	23.1875"	12"	12.125"	24.5"
2"	MSBC1730-18	17.625"	30.5"	18"	22.875"	35"

NOTES:

- METER BOX SHALL BE MID-STATES PLASTICS AS SHOWN, WITH A DUCTILE IRON LID WITH A FLIP OR HINGED INSPECTION LID TO INCLUDE A 3/4" PICK HOLE.
- PLASTIC WATER METER BOXES SHALL NOT BE INSTALLED WITHIN A DRIVING OR PARKING AREA.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

**1" & 2" PLASTIC
WATER METER BOX**

12-23-2013

NO SCALE

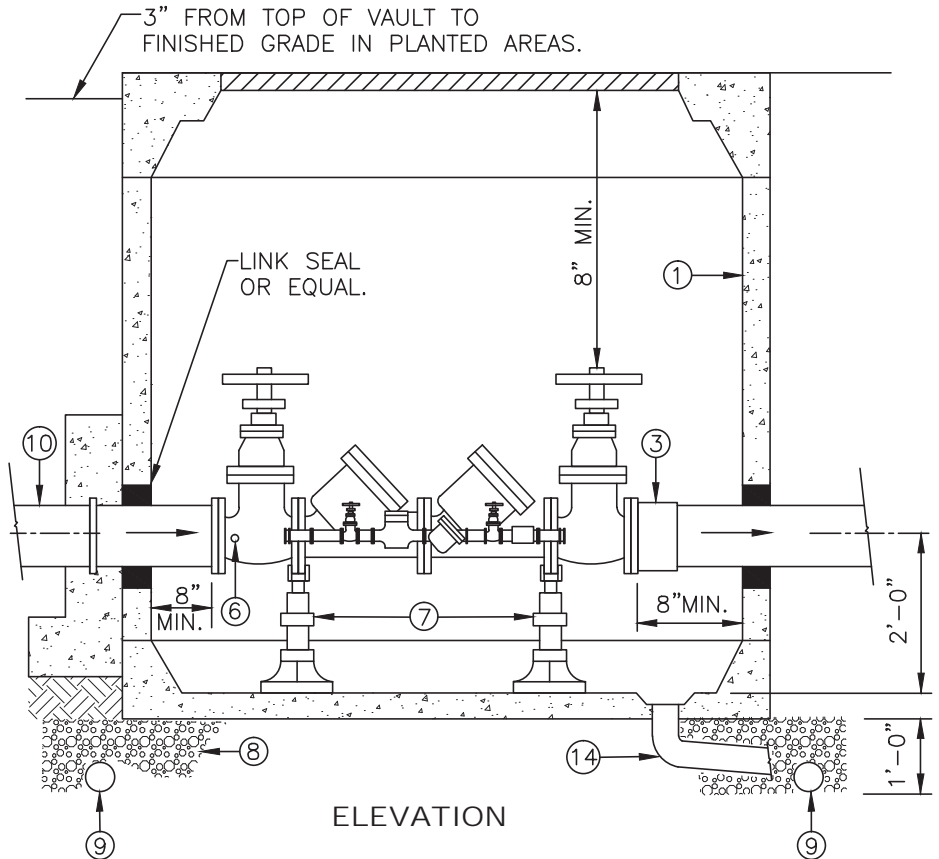
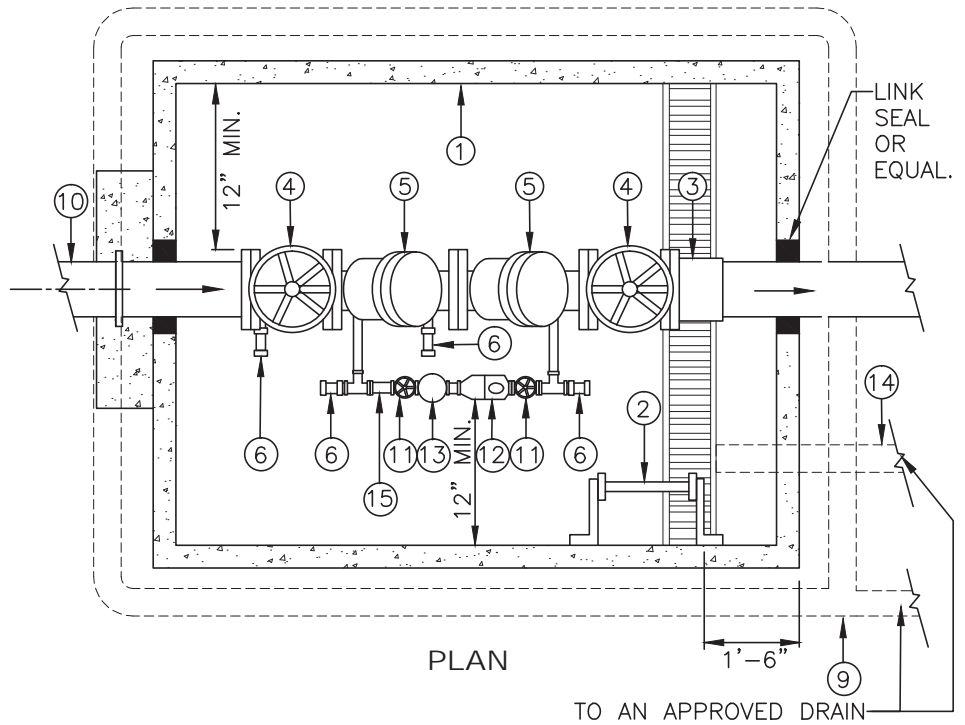
W-18A


REV DATE

APPROVED

GENERAL NOTES

- A. SEE W-19B FOR MATERIAL LIST.
- B. VALVE ASSEMBLY TO BE CENTERED IN VAULT.
- C. TEE AND GATE VALVE REQUIRED ON MAIN.
- D. WHEN DOUBLE CHECK VALVE ASSEMBLY IS USED IN SAME LINE WITH DOMESTIC BUILDING METER, METERED DETECTOR BYPASS SHALL BE OMITTED.
- E. ASSEMBLY TO BE MAINTAINED BY OWNER AND ANNUAL CERTIFICATION IS REQUIRED.
- F. THE CITY OF MERCER ISLAND MUST TEST AND CERTIFY THE FIRE LINE BEFORE CONNECTION TO THE CITY SYSTEM IS ALLOWED.
- G. FIRELINE SHALL NOT BE PUT INTO SERVICE UNTIL THE DOUBLE CHECK VALVE ASSEMBLY IS APPROVED BY THE CITY.
- H. VAULT PENETRATIONS SHALL BE CORE DRILLED.
- I. A THRUST RING OR APPROVED EQUAL SHALL BE INSTALLED ON INLET SIDE OF PIPE RESTRAINED JOINT.
- J. MATERIALS FOR BY PASS SHALL BE ALL BRASS AND COPPER WITH SWIVEL COUPLINGS BETWEEN SHUT-OFF VALVES FOR REPLACEMENT.



	CITY OF MERCER ISLAND STANDARD DETAILS WATER	
	DOUBLE DETECTOR CHECK VALVE ASSEMBLY	
7-01-2014	NO SCALE	W-19A
REV DATE	APPROVED	

KEY NO.	QUANTITY		MATERIAL
	4"	6" & 8"	
1	1	–	PRE CAST CONCRETE VAULT AS APPROVED BY THE CITY ENGINEER
1	–	1	PRE CAST CONCRETE VAULT AS APPROVED BY THE CITY ENGINEER
1	1	–	PRE CAST CONCRETE VAULT AS APPROVED BY THE CITY ENGINEER
1	–	1	PRE CAST CONCRETE VAULT AS APPROVED BY THE CITY ENGINEER
1	–	1	PRE CAST CONCRETE VAULT AS APPROVED BY THE CITY ENGINEER
1	1	1	LW PRODUCTS ALUMINUM, SINGLE DOOR, H-20 OR EQUAL.
2	1	1	FABRICATED BOLT-ON LADDER. USE THREE SETS OF MOUNTING BRACKETS ATTACHED TO VAULT WALL WITH 5/8" DIAMETER CORROSION RESISTANT ANCHOR BOLTS (HILTI KWIK BOLT, PHILIPS RED HEAD OR APPROVED EQUAL). ALL STEEL FOR LADDER SHALL BE A-36, OSHA APPROVED HOT DIPPED GALVANIZED AFTER FABRICATION. SEE DRAWING NO. W-27C.
3	1	–	4" DIAMETER FLEXIBLE FLANGED COUPLING ADAPTER ROCKWELL TYPE 912
3	–	1	8" OR 6" DIAMETER FLEXIBLE FLANGED COUPLING ADAPTER ROCKWELL TYPE 912
4	1	–	4" O.S. & Y. GATE VALVE U.L. APPROVED
4	–	1	8" OR 6" O.S. & Y. GATE VALVE U.L. APPROVED
5	1	–	4" D.S.H.S. APPROVED DOUBLE CHECK VALVE ASSEMBLY, INCLUDING 2 O.S. & Y. GATE VALVES, TEST COCK, 3/4" DOUBLE CHECK VALVE, SINGLE OR MULTI JET METER (TO READ IN CUBIC FEET) AND 3/4" BRASS OR COPPER BYPASS WITH IN LINE VALVE.
5	–	1	8" OR 6" D.S.H.S. APPROVED DOUBLE CHECK VALVE ASSEMBLY, INCLUDING 2 O.S. & Y. GATE VALVES, TEST COCK, 3/4" DOUBLE CHECK VALVE, SINGLE OR MULTI JET METER (TO READ IN CUBIC FEET) AND 3/4" BRASS OR COPPER BYPASS WITH IN LINE VALVES.
6	1	1	3/4" DIAMETER TEST COCKS
7	2	2	ADJUSTABLE PIPE SADDLE SUPPORT (ITT GRINNEL FIG 264 OR APPROVED EQUAL). ATTACH TO VAULT FLOOR WITH FOUR 1/2" DIAMETER CORROSION RESISTANT ANCHOR BOLTS (HILT KIWI BOLT, PHILIPS RED HEAD OR APPROVED EQUAL). SEE DRAWING NO. W-27C.
8	–	–	PEA GRAVEL BACKFILL FOR PIPE BEDDING UNDER PRECAST CONCRETE UTILITY VAULT.
9	–	–	4" DIAMETER UNDERDRAIN, CONNECT TO DRAINAGE SYSTEM, SCHEDULE 200 PERFORATED PVC WITH GALVANIZED SCREEN EACH END.
10	–	–	4" DIAMETER CL. 52 DUCTILE IRON PIPE
10	–	–	6" OR 8" DIAMETER CL. 52 DUCTILE IRON PIPE
11	1	1	3/4" GATE VALVE U.L. LISTED
12	1	1	5/8" x 3/4" ACCULINK MULTINET MASTER METER WITH SENSUS COMPATIBLE MXU READ IN CU. FT. MULTI-JET
13	1	1	3/4" DOUBLE CHECK VALVE
14	1	1	SOLID PVC PIPE SUMP DRAIN. SIZE PER MANUFACTURER'S RECOMMENDATION. CONNECT TO DRAINAGE STRUCTURE AS APPROVED
15	1	1	3/4" "Y" STRAINER

NOTES

- ALL VAULT, BASED AND TOPS TO BE COATED WITH DAMPPROOFING.
- SIZE DETERMINED ON BASIS OF ACTUAL FIRE DEMAND.
- SEE W-19A FOR ADDITIONAL DETAILED MATERIAL NOTES.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

**MATERIAL LIST
DOUBLE DETECTOR CHECK**

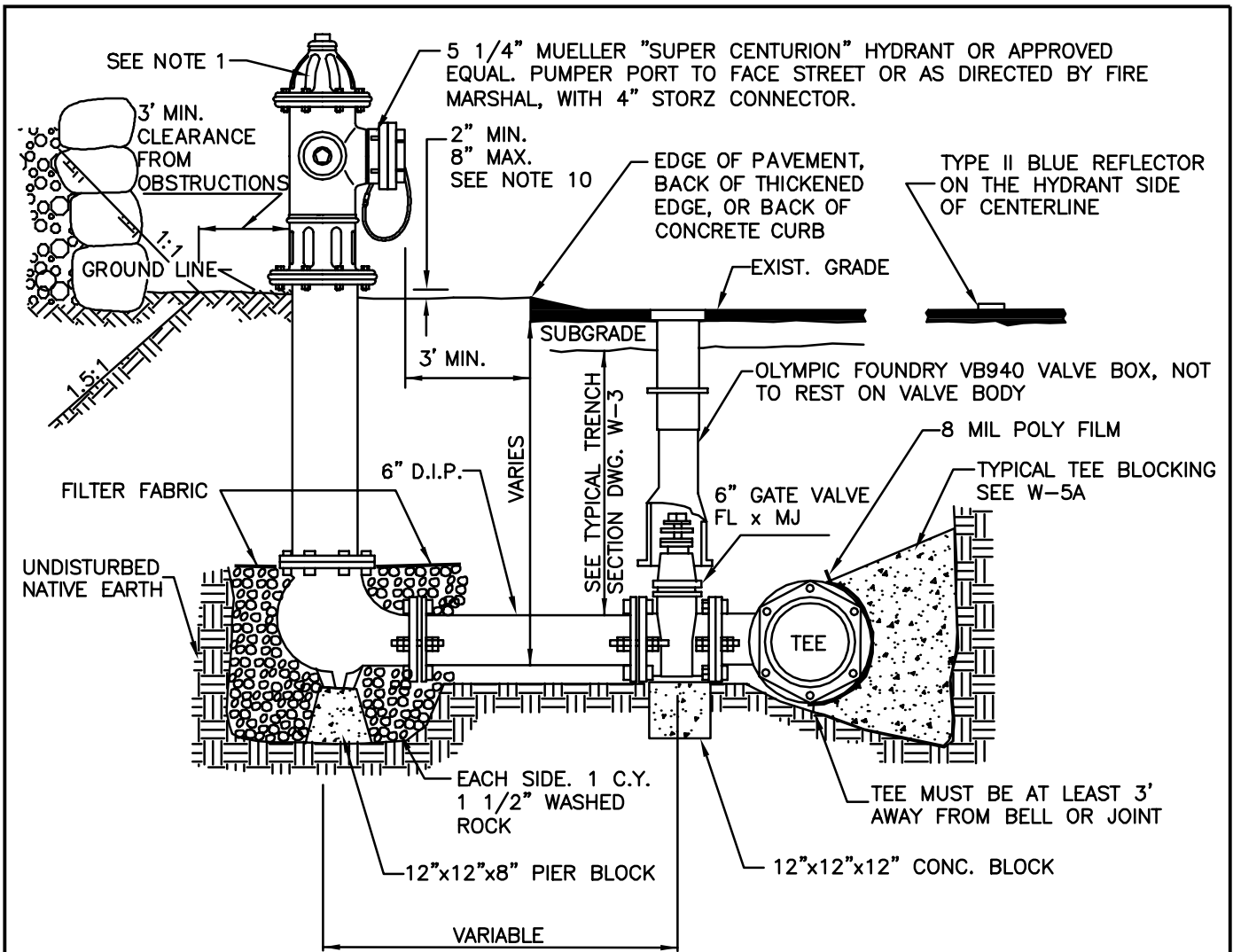
7-01-2014

NO SCALE

W-19B


REV DATE

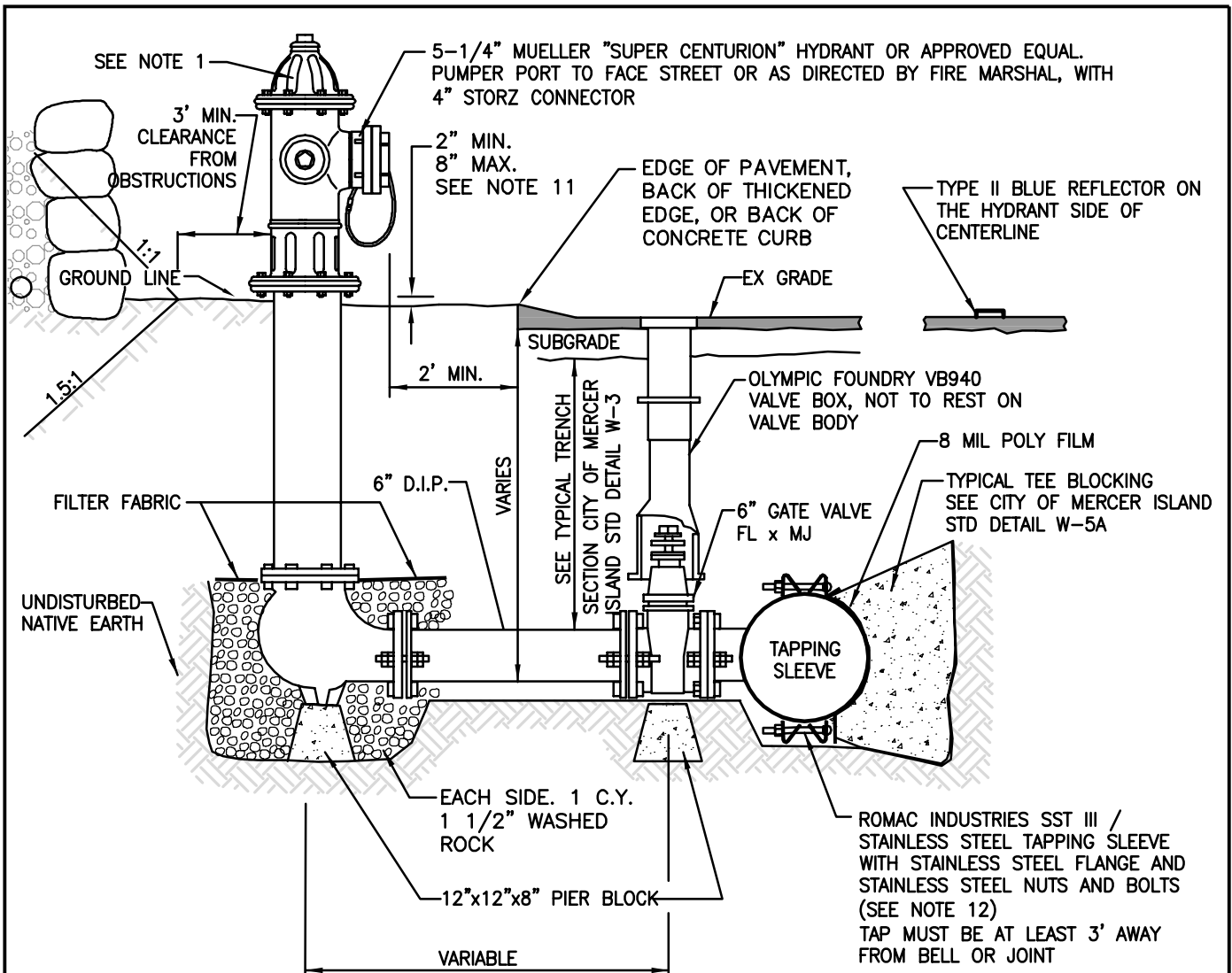
APPROVED



NOTE:


1. 1-5 1/4" M.V.O. HYDRANT WITH 2-2 1/2" N.T.S. M.J. INLET WITH LUGS, BRASS-TO-BRASS SUB-SEAT AND 1-4 1/2" PUMPER, SEATTLE STANDARD PIPE THREAD WITH 4" STORZ CONNECTOR HARRINGTON MODEL NO. HPHA40-40-004/CAP, SIZE 4.875-INCH BY 6-INCH.
2. NO DOMESTIC CONNECTIONS CAN BE MADE TO THE FIRE HYDRANT RUNS.
3. ANY FIRE HYDRANT RUN OVER 18 FEET IN LENGTH OF PIPE SHALL HAVE RESTRAINED JOINT GASKETS.
4. USE ROMA GRIP, OR APPROVED EQUAL, PIPE RESTRAINERS AT VALVE AND HYDRANT BASE.
5. HYDRANT SHALL BE PAINTED WITH 2 COATS OF FARWEST #250 HIGH GLOSS WHITE PAINT, OR APPROVED EQUAL, APPLIED WITH A PAINT BRUSH. DO NOT APPLY PAINT TO STORZ FITTING, BRASS PORT THREADS, OR BELOW SAFETY FLANGE.
6. BOLLARDS MAY BE USED TO PROTECT THE HYDRANT WHEN NO CURBS ARE PRESENT OR IN EXPOSED AREAS OF PARKING LOTS.
7. STRAIGHT PIPE TO HYDRANTS FROM MAIN, NO BENDS.
8. REMOVE CHAINS FROM HYDRANT CAPS.
9. VALVE AND HYDRANT MUST BE PLUMB.
10. THIS DISTANCE IS MEASURED FROM BOTTOM OF SAFETY FLANGE TO LEVEL OF FINISH GRADE BELOW HYDRANT.

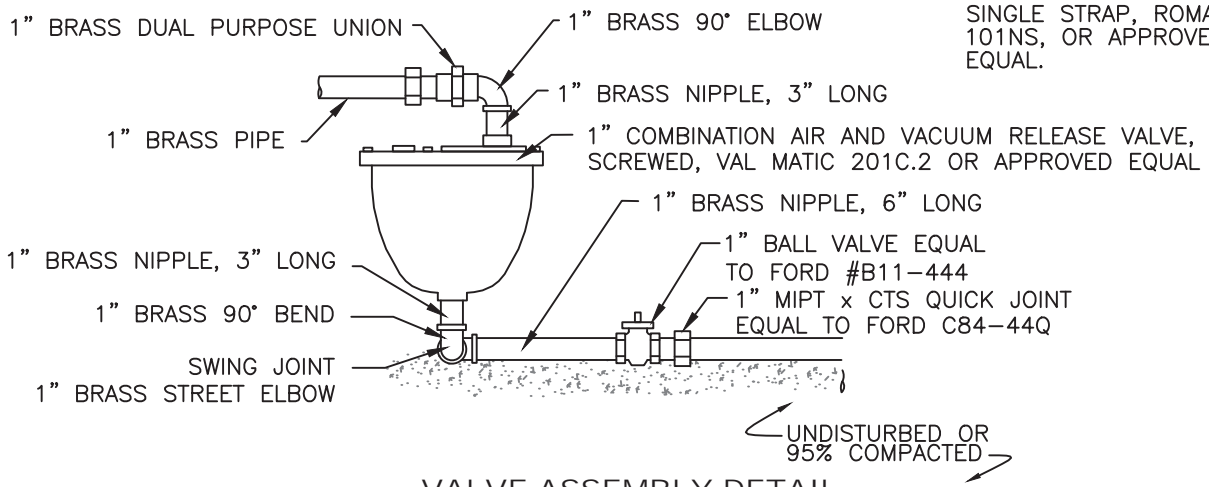
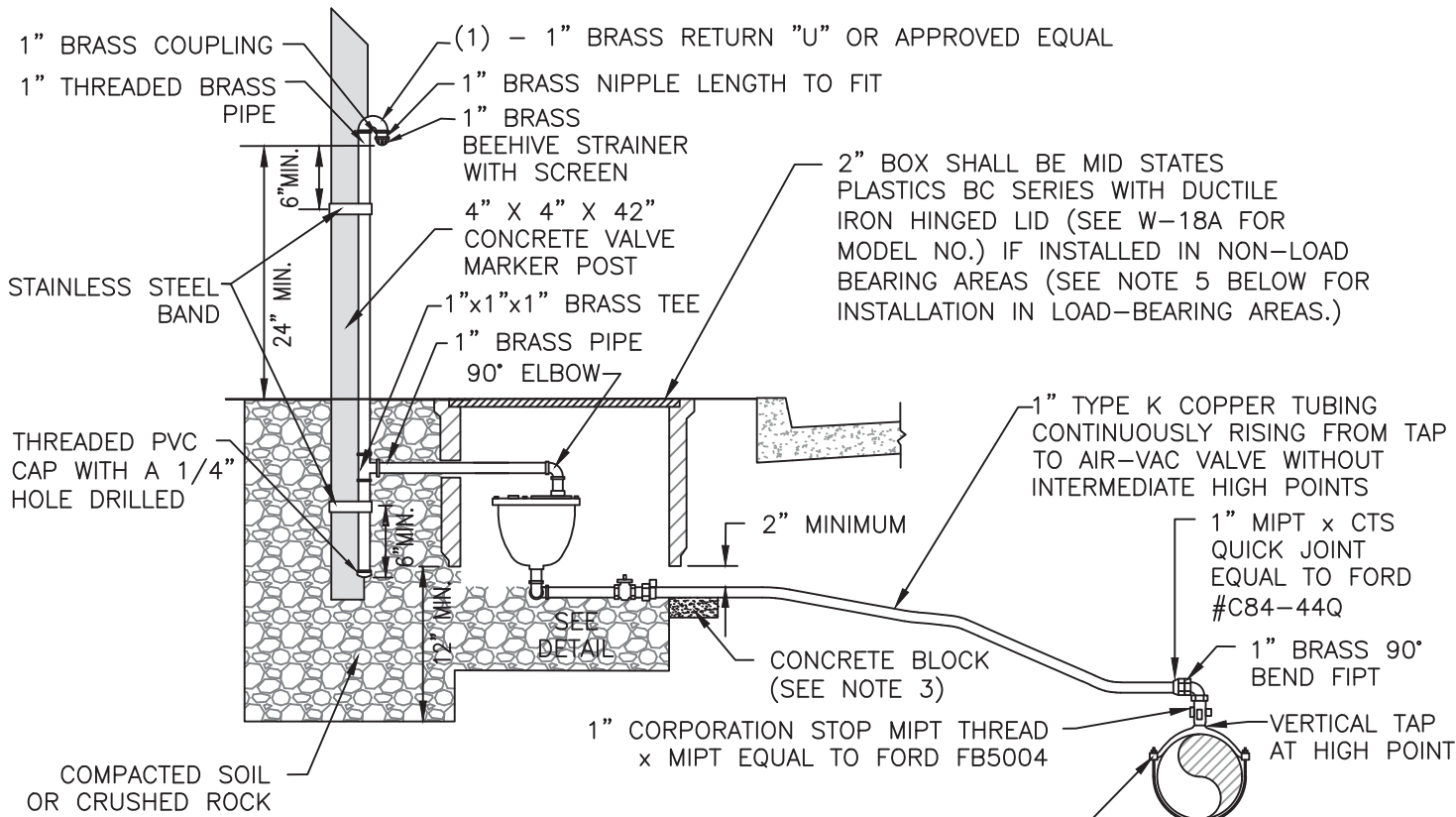
	CITY OF MERCER ISLAND	
	STANDARD DETAILS	
WATER		
FIRE HYDRANT CONNECTION		
02-23-2021	NO SCALE	W-24
REV DATE		APPROVED



NOTE:

1. 1-5 1/4" M.V.O. HYDRANT WITH 2-2 1/2" N.T.S. M.J. INLET WITH LUGS, BRASS-TO-BRASS SUB-SEAT AND 1-4 1/2" PUMPER, SEATTLE STANDARD PIPE THREAD WITH 4" STORZ CONNECTOR ITEM NUMBER HPHA40-40-004/CAP SIZE 4.875-INCH BY 6-INCH.
2. WET TAP IS ALLOWED ONLY UPON CITY'S APPROVAL. NO SIZE ON SIZE WET TAPS.
3. NO DOMESTIC CONNECTIONS CAN BE MADE TO THE FIRE HYDRANT RUNS.
4. ANY FIRE HYDRANT RUN OVER 18 FEET IN LENGTH OF PIPE SHALL HAVE RESTRAINED JOINT GASKETS.
5. USE ROMA GRIP, OR APPROVED EQUAL, PIPE RESTRAINERS AT VALVE AND HYDRANT BASE.
6. HYDRANT SHALL BE PAINTED WITH 2 COATS OF FARWEST #250 HIGH GLOSS WHITE PAINT, OR APPROVED EQUAL, APPLIED WITH A PAINT BRUSH. DO NOT APPLY PAINT TO STORZ FITTING, BRASS PORT THREADS, OR BELOW SAFETY FLANGE.
7. BOLLARDS MAY BE USED TO PROTECT THE HYDRANT ONLY IN PARKING LOTS WHEN NO CURBS ARE PRESENT OR IN EXPOSED AREAS OF PARKING LOTS.
8. STRAIGHT PIPE TO HYDRANTS FROM MAIN, NO BENDS.
9. REMOVE CHAINS FROM HYDRANT CAPS.
10. VALVE AND HYDRANT MUST BE PLUMB.
11. THIS DISTANCE IS MEASURED FROM BOTTOM OF SAFETY FLANGE TO LEVEL OF FINISH GRADE BELOW HYDRANT.
12. TAPPING SLEEVE O.D. (OUTSIDE DIAMETER) RANGE MUST BE COMMENSURATE WITH PIPE O.D.


	CITY OF MERCER ISLAND	
	STANDARD DETAILS	
WATER		
FIRE HYDRANT ASSEMBLY -		
WET TAP INSTALLATION		
02-23-2021	NO SCALE	W-24A
REV DATE	APPROVED	



NOTES

VALVE ASSEMBLY DETAIL

1. ALL FITTINGS SHALL BE BRASS, ALL PIPE SHALL BE COPPER, UNLESS OTHERWISE SHOWN.
2. TAP FOR COMBINATION AIR AND VACUUM VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT OF WATER MAIN. EXACT LOCATION OF ASSEMBLY TO BE DETERMINED BY CITY.
3. AT THE CITY INSPECTORS DISCRETION A CONCRETE BLOCK SHALL BE PLACED UNDER VALVE BOX TO KEEP BALL VALVE EXPOSED.
4. VALVE MARKER POST SHALL BE PAINTED WITH 2 COATS OF FARWEST #250 HIGH GLOSS WHITE PAINT, OR APPROVED EQUAL, APPLIED WITH A PAINT BRUSH.
5. IN LOAD BEARING LOCATIONS, OLYMPIC FOUNDRY SM-30, H-20 RATING, METAL METER BOX SHALL BE USED.



CITY OF MERCER ISLAND

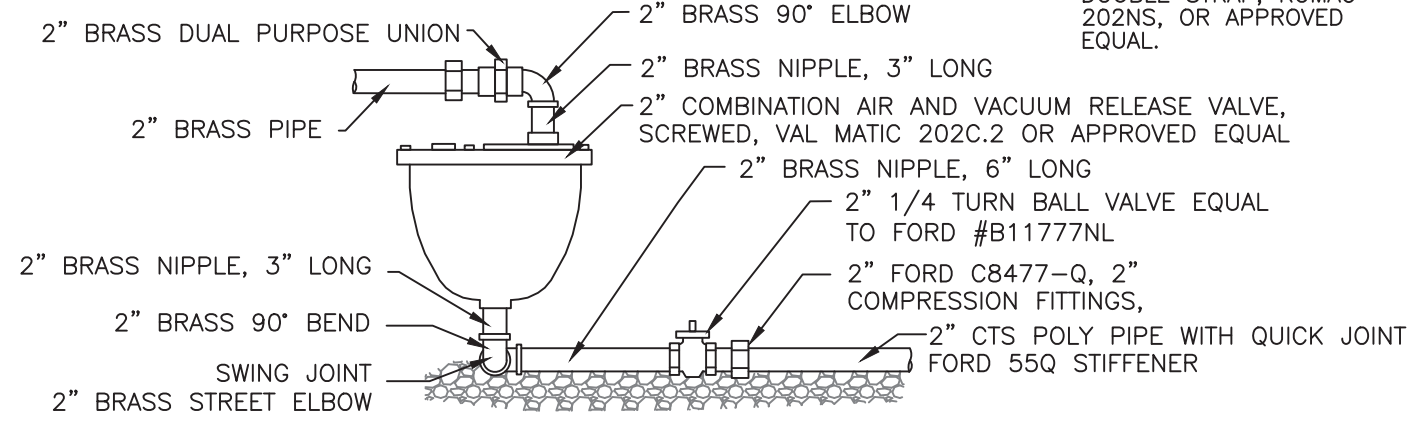
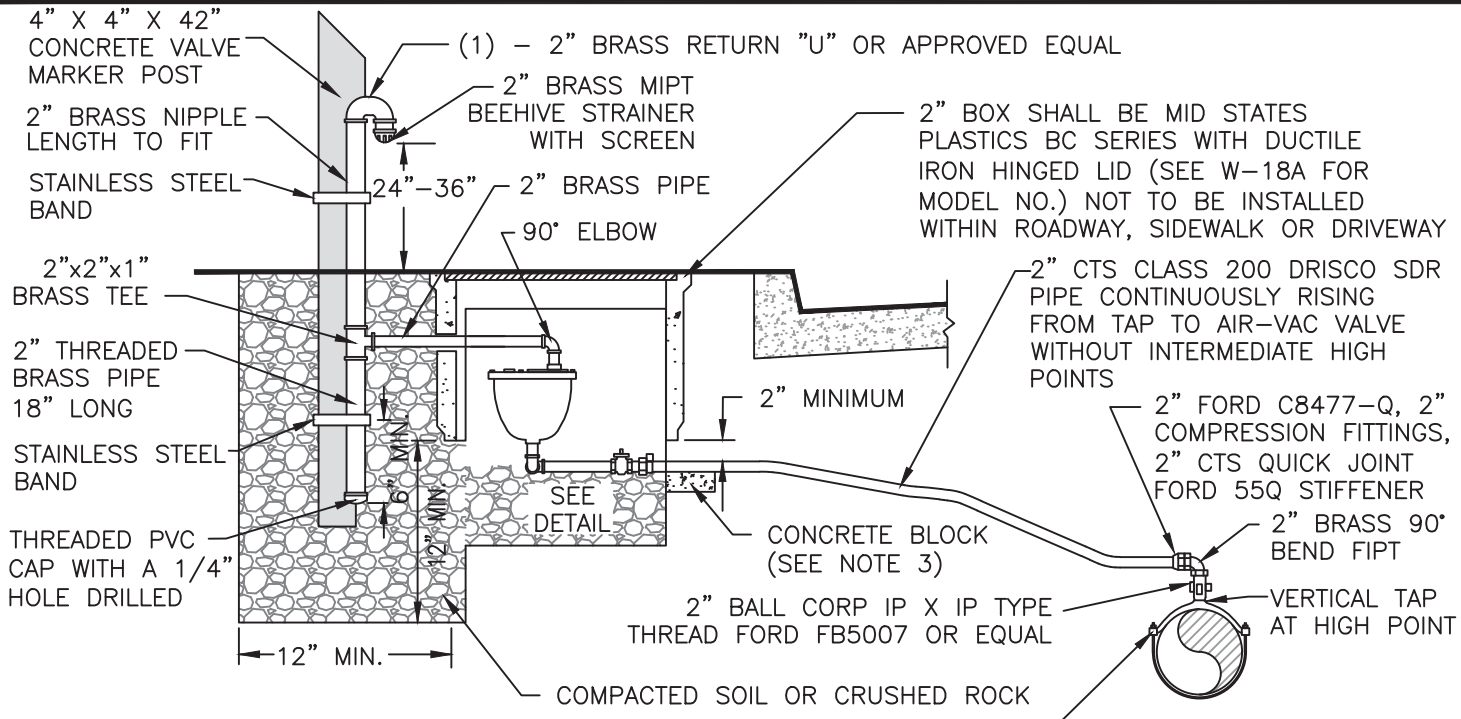
STANDARD DETAILS

WATER

1" AIR & VACUUM VALVE ASSEMBLY

11-21-2017	NO SCALE	W-25
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REV DATE							APPROVED
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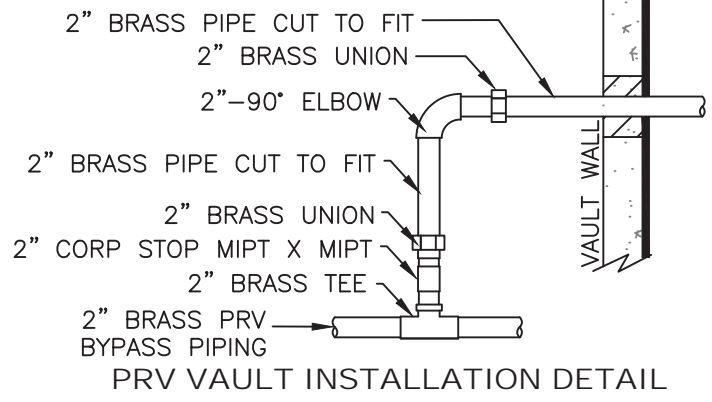


VALVE ASSEMBLY DETAIL


NOTES

1. ALL FITTINGS SHALL BE BRASS.
2. TAP FOR COMBINATION AIR AND VACUUM VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT OF WATER MAIN. EXACT LOCATION OF ASSEMBLY TO BE DETERMINED BY CITY.
3. AT THE CITY INSPECTORS DISCRETION A CONCRETE BLOCK SHALL BE PLACED UNDER VALVE BOX TO KEEP BALL VALVE EXPOSED.
4. VALVE MARKER POST SHALL BE PAINTED WITH 2 COATS OF FARWEST #250 HIGH GLOSS WHITE PAINT, OR APPROVED EQUAL, APPLIED WITH A PAINT BRUSH.
5. IN LOAD BEARING LOCATIONS, 2" STEEL METER BOX PER CITY'S STANDARD DETAILS W-17 SHALL BE USED. DEPENDING ON HEIGHT OF THE COMPLETE AIR VAC ASSEMBLY, STACKING METER BOXES MAY BE REQUIRED.

UNDISTURBED OR 95% COMPACTED



PRV VAULT INSTALLATION DETAIL



CITY OF MERCER ISLAND

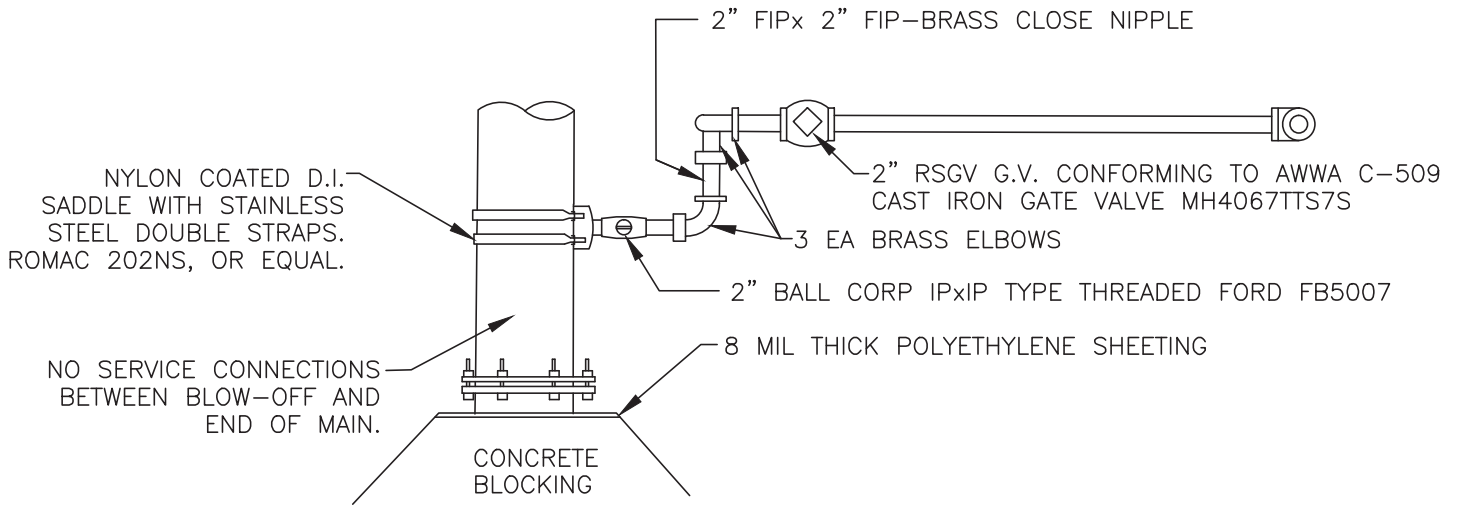
STANDARD DETAILS

WATER

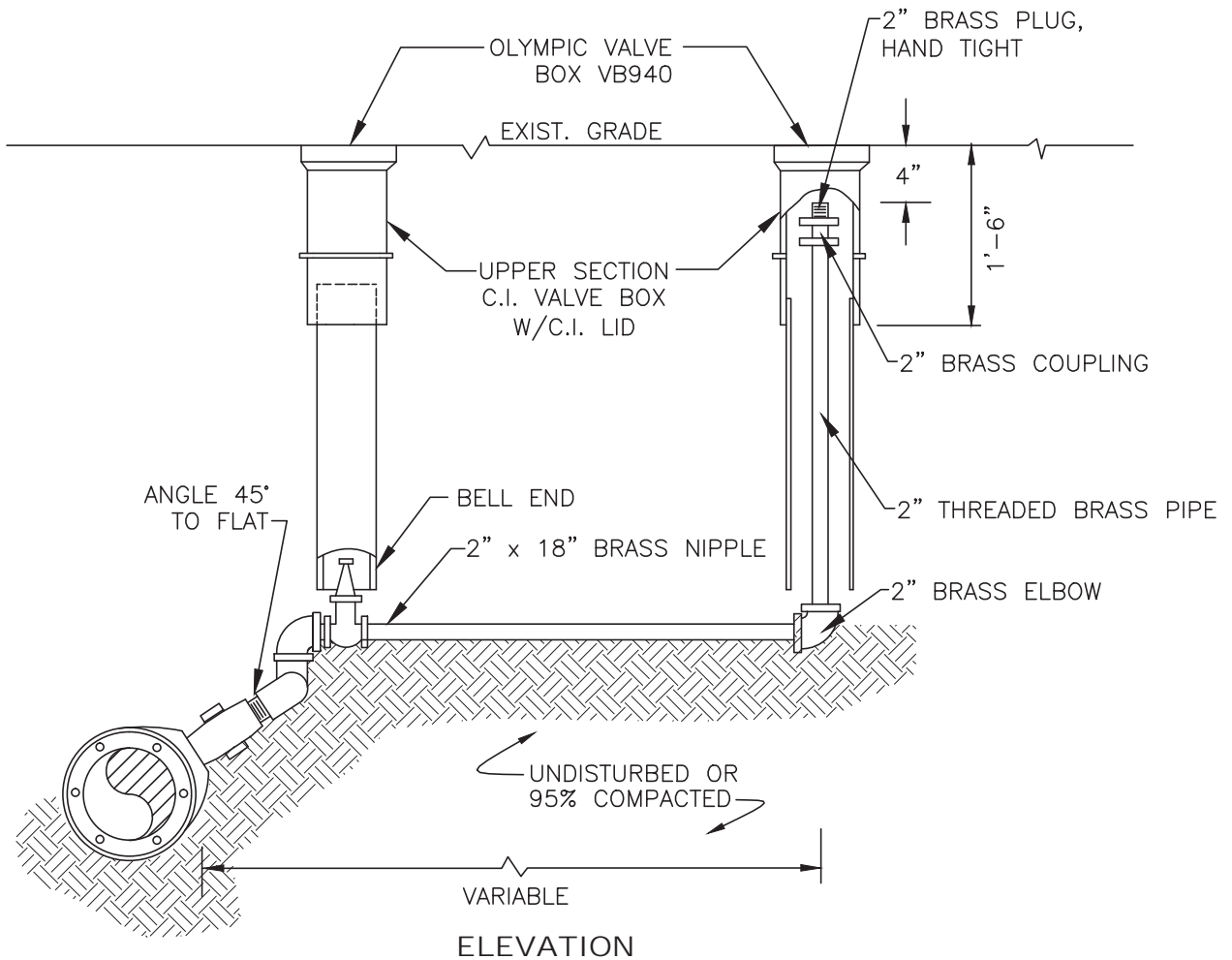
2" AIR & VACUUM VALVE ASSEMBLY

11-21-2017	NO SCALE	W-25A
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REV DATE			APPROVED
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PLAN VIEW



NOTES

- 1. ALL PIPING MATERIALS, FITTINGS, COUPLINGS SHALL BE BRASS.
- NO GALVANIZED MATERIALS WILL BE ALLOWED.



CITY OF MERCER ISLAND
STANDARD DETAILS
WATER

2" BLOW-OFF ASSEMBLY

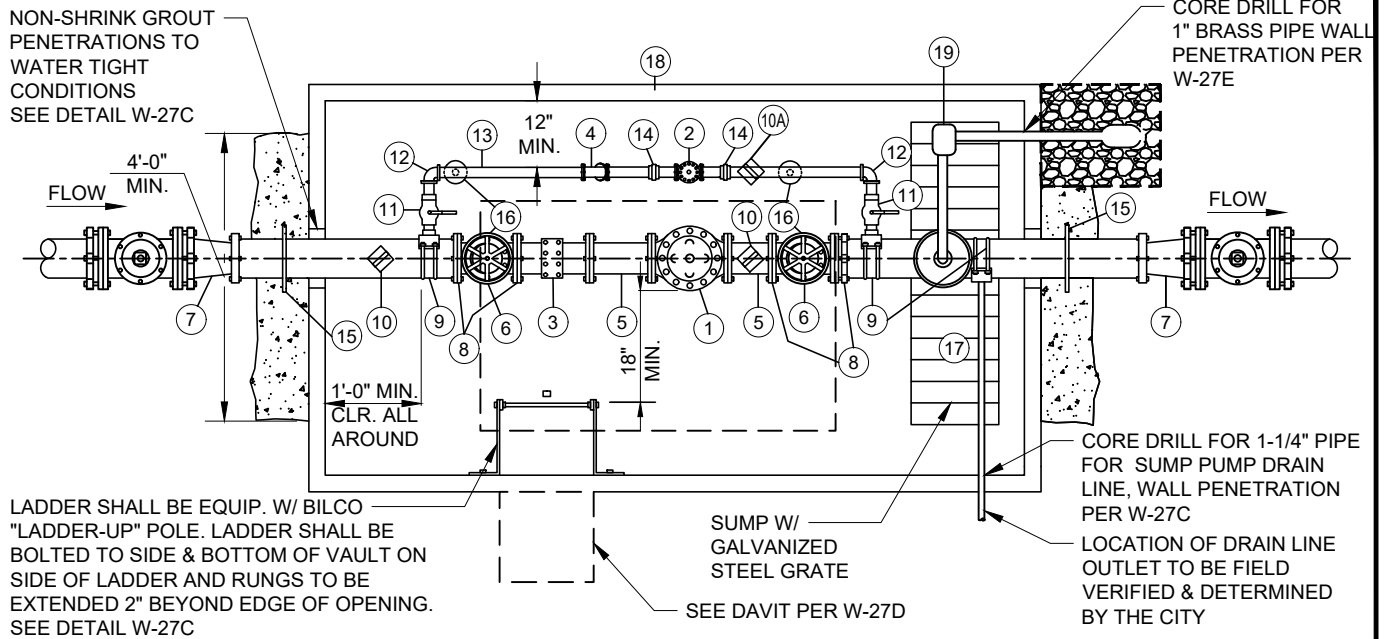
7-01-2014

NO SCALE

W-26

REV DATE

APPROVED



PRESSURE REDUCING VALVE (PRV) TOP VIEW

MATERIALS LIST

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>① PRESSURE REDUCING, EPOXY COATED CLA VAL -VALVE FLxFL. PILOT SYSTEM TO FACE TOWARD CENTER OF VAULT. CITY TO PROVIDE EXACT PRV MODEL & SPECS.</p> <p>② 2" PRESSURE REDUCING VALVE I.P. x I.P PILOT SYSTEM TO FACE TOWARDS CENTER OF VAULT. CITY TO PROVIDE EXACT PRV SPECIFICATIONS</p> <p>③ CLA-VAL H STYLE STRAINER X43H</p> <p>④ 2" WYE STRAINER, 3" AND LARGER USE CLA VAL STYLE H</p> <p>⑤ DI SPOOL (FL)</p> <p>⑥ GATE VALVE (FL) W/HANDWHEEL, KENNEDY OF MUELLER</p> <p>⑦ DI CONCENTRIC REDUCER (FL) INSTALLED TOP FLAT</p> <p>⑧ UNI-FLANGE ADAPTOR</p> <p>⑨ 2" SERVICE SADDLE W/DOUBLE STAINLESS STEEL STRAPS, ROMAC 202-NS</p> <p>⑩A 1/2" BRASS CORP. STOP W/PRESSURE GAUGE (0-100 OR 160 PSI), ROMAC STYLE 360 2" SADDLE W/DOUBLE STAINLESS STEEL STRAPS WITH 1/2" OUTLET</p> | <p>⑩ 1/2" BRASS CORP. STOP W/PRESSURE GAUGE (0-100 OR 160 PSI) 1" SADDLE W/DOUBLE STAINLESS STEEL STRAPS, ROMAC 202-NS</p> <p>⑪ 2" BALL LOCKING VALVE (IP)</p> <p>⑫ 2" 90° BEND (IP): SCH. 40 STAINLESS STEEL</p> <p>⑬ 2" PIPE: SCH. 40 STAINLESS STEEL</p> <p>⑭ 2" UNION: SCH. 40 STAINLESS STEEL</p> <p>⑮ DI PIPE/WALL FLANGE, PER W-27C</p> <p>⑯ ADJUSTABLE PIPE SUPPORT FOR BOTH MAINLINE & BYPASS LINE</p> <p>⑰ INSTALL SUMP PUMP (GCS AUTOMATIC SUMP DRAIN EJECTOR ASSEMBLY MODEL #996633, OR APPROVED EQUAL). TAP FOR SUMP DRAIN ASSEMBLY SHALL BE ON THE HALF SECTION, HORIZONTAL DIRECTION TO THE WATER LINE.</p> <p>⑱ UTILITY VAULT. OLD CASTLE 687-LA OR APPROVED EQUAL</p> <p>⑲ 1-INCH AIR VACUUM RELEASE VALVE ASSEMBLY PER W-27E</p> |
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NOTES:

1. THE DESIGN ENGINEER MUST SUBMIT A SPECIFIC DESIGN BASED ON THE TYPICAL LAYOUT FOR EACH INSTALLATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION AND SUBMITTALS FOR ALL MATERIALS.
2. THE REQUIRED PRESSURE REDUCING STATION CAPACITY AND SIZE SHALL BE DETERMINED BY CITY ENGINEER.
3. THE DESIGN ENGINEER TO NOTE FLOW DIRECTON AND PRESSURE SETTING ON THE PLANS.
4. INSIDE DIMENSIONS OF VAULT VARY DEPENDING ON PIPE SIZE. THE DESIGN ENGINEER MUST SPECIFY VAULT SIZE CONSISTENT WITH THE MINIMUM DIMENSIONS SHOWN IN THE DETAILS.
5. THE BYPASS PRV, PIPING, AND FITTINGS MAY BE LARGER THAN 2" AS APPROVED BY THE CITY ENGINEER.
6. LADDER SHALL BE 1'-6" WIDE. LENGTH TO FIT SIZE OF VAULT. SEE DETAILS W-27C.



CITY OF MERCER ISLAND STANDARD DETAILS WATER

PRESSURE REDUCING VALVE (PRV) TOP VIEW

07-01-2021

NO SCALE

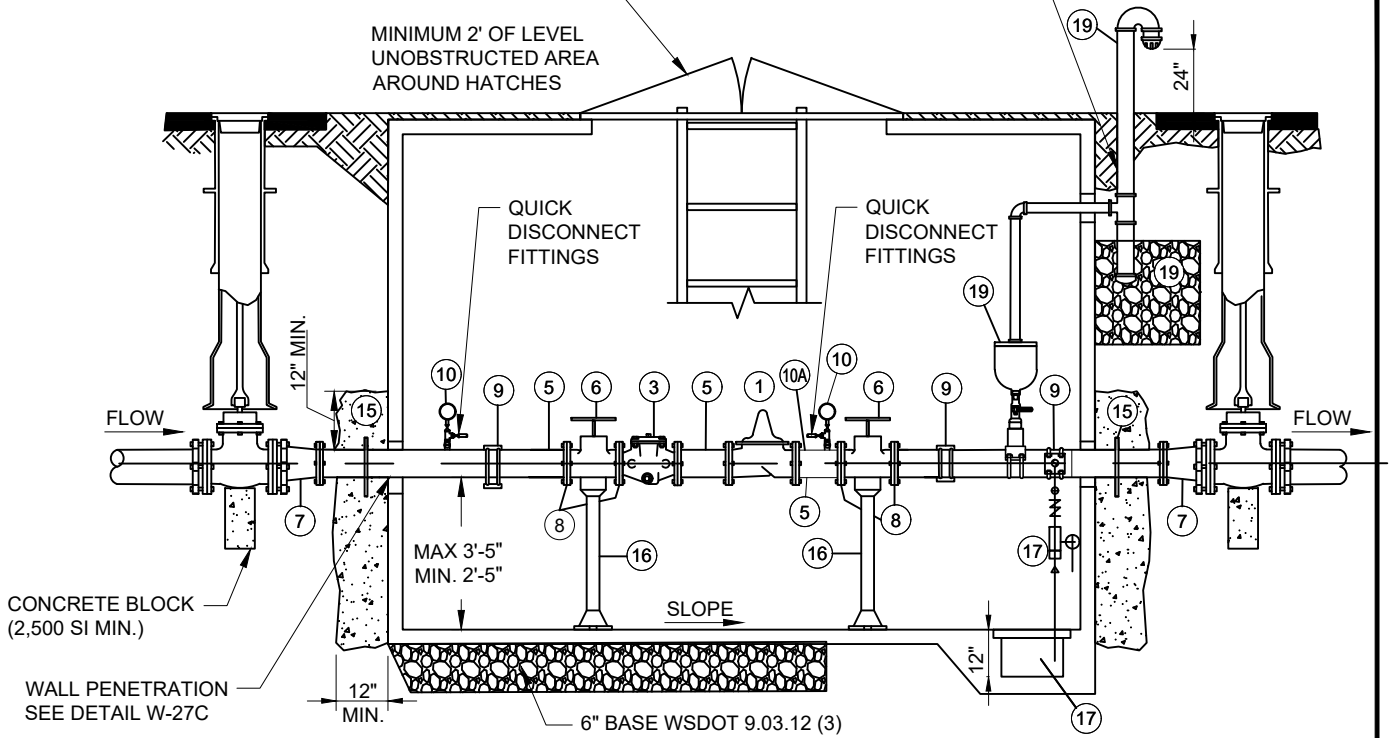
W-27A

APPROVED

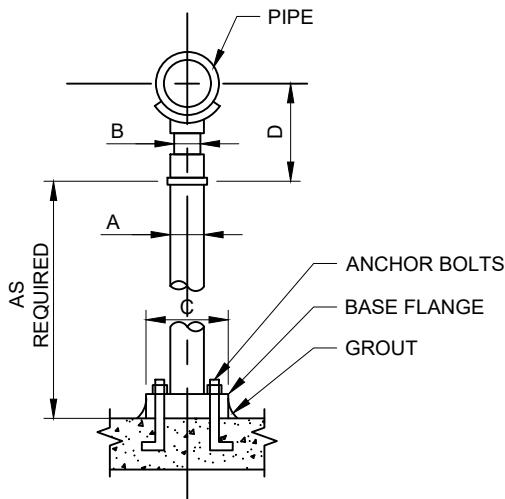
HYDRAULICALLY ASSISTED ALUMINUM DOUBLE DOORS, SELF DRAINING W/ H-20 LOAD & LOCKING HASP

DEPENDING ON SITE SPECIFICS, EXACT LOCATION OF VENT PIPE WILL BE FIELD VERIFIED AND DETERMINED BY CITY ENGINEER.

MINIMUM 2" OF LEVEL UNOBSTRUCTED AREA AROUND HATCHES



PRESSURE REDUCING VALVE (PRV) SIDE VIEW



ADJUSTABLE PIPE SUPPORT

PIPE SIZE	ADJUSTABLE PIPE SUPPORT SCHEDULE (IN INCHES)				
	A	B	C	D	
				MIN.	MAX.
2-1/2	2-1/2	2-1/2	9	8	13
3	2-1/2	1-1/2	9	8-1/4	13-1/4
3-1/2	2-1/2	1-1/2	9	8-1/2	13-1/2
4	3	2-1/2	9	9-1/4	14
5	3	2-1/2	9	10	14-3/4
6	3	2-1/2	9	10-1/2	15-1/4
8	3	2-1/2	9	11-3/4	16-1/2
10	3	2-1/2	9	13-1/2	18-1/4
12	3	2-1/2	9	15	19-3/4
16	6	3-1/2	13-1/2	19-1/2	24

NOTES:

- MATERIAL LIST AND DESCRIPTIONS PROVIDED ON W-27A

CITY OF MERCER ISLAND

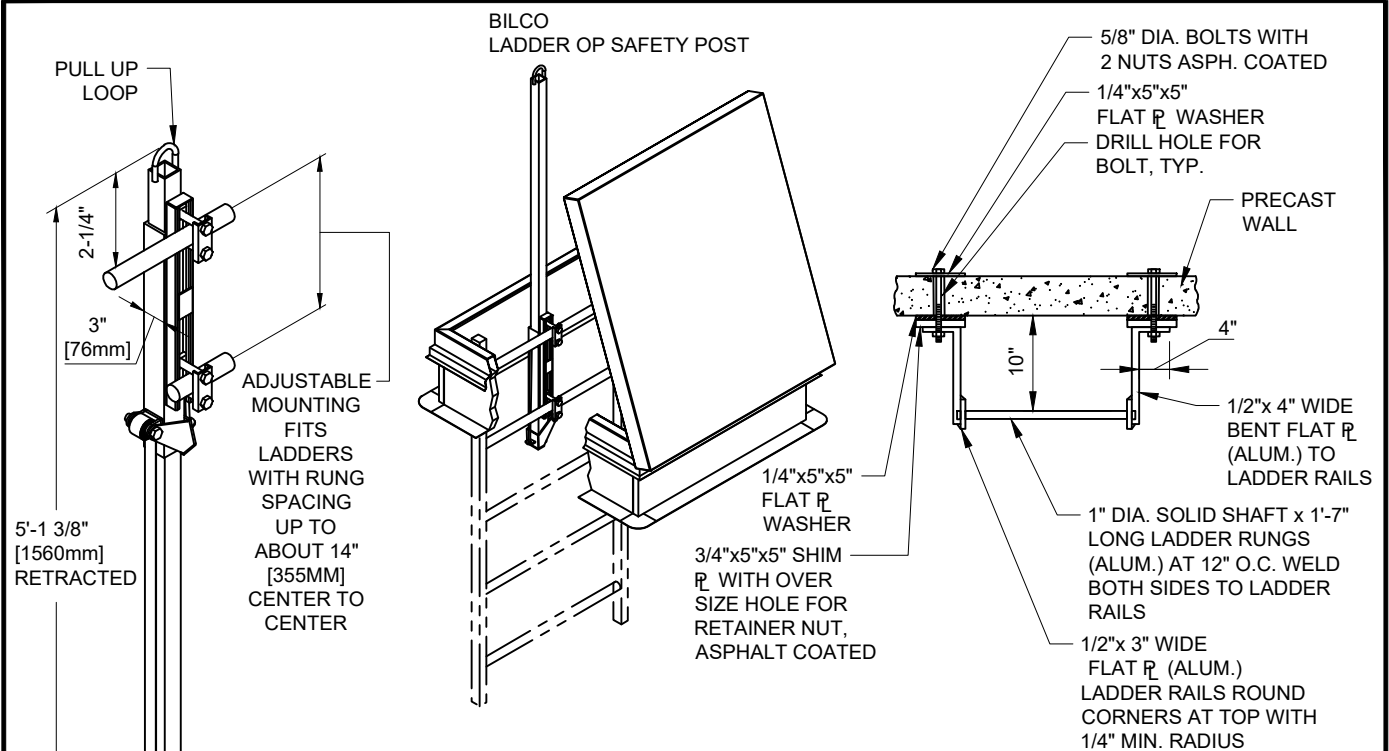
STANDARD DETAILS

WATER

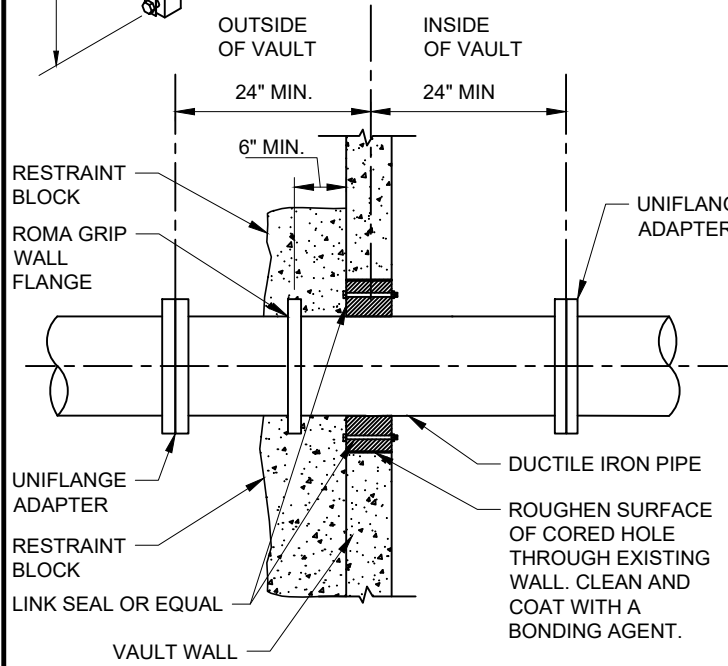
PRESSURE REDUCING VALVE (PRV)

SIDE VIEW

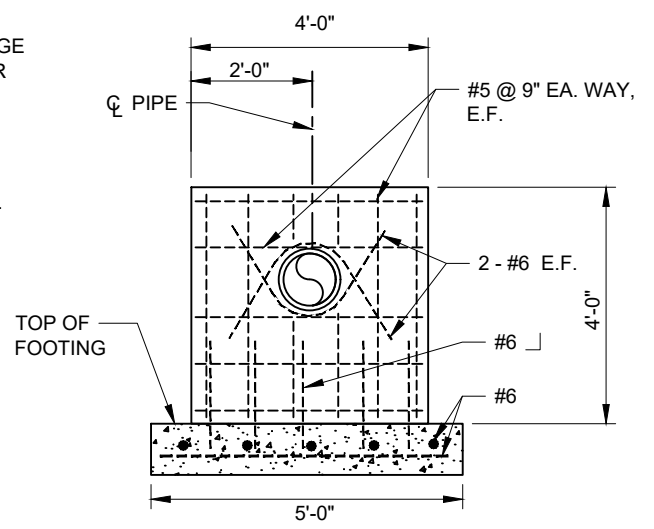
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REV DATE	APPROVED	




LADDER SECTION AND DETAILS

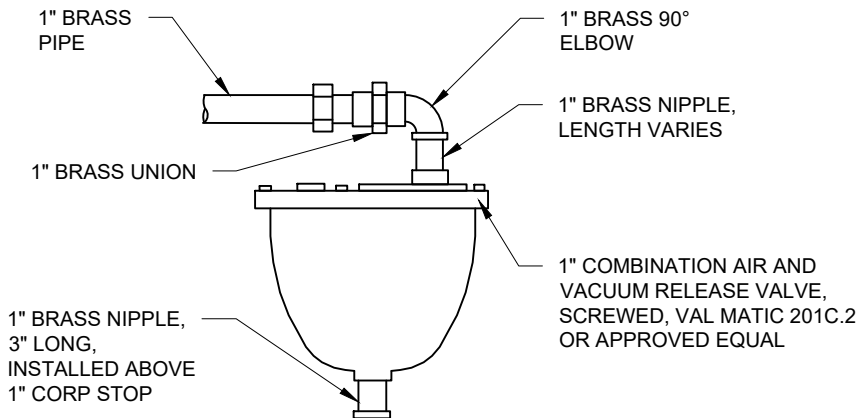
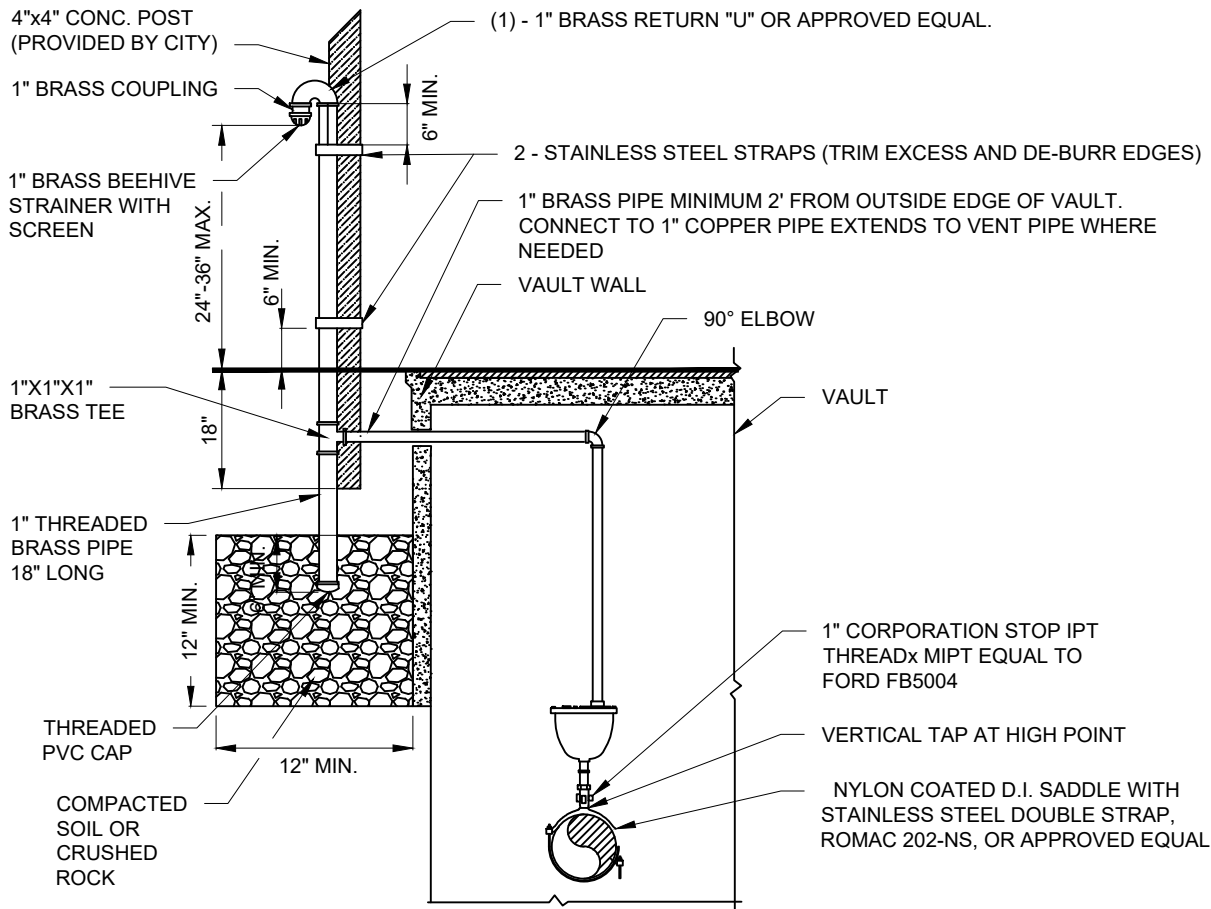


WALL PENETRATION DETAIL (FOR ALL PIPE PENETRATIONS)



WALL FLANGE DETAIL

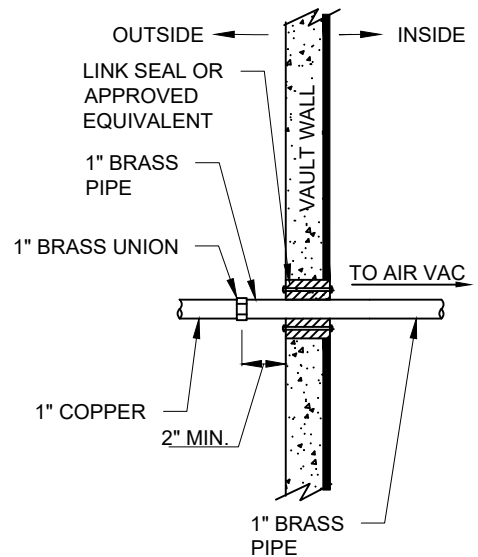
	CITY OF MERCER ISLAND STANDARD DETAILS WATER	
	PRESSURE REDUCING VALVE (PRV) LADDER, PIPE PENETRATION, & WALL FLANGE	
07-01-2021	NO SCALE	W-27C
REV DATE		APPROVED




VALVE ASSEMBLY DETAIL

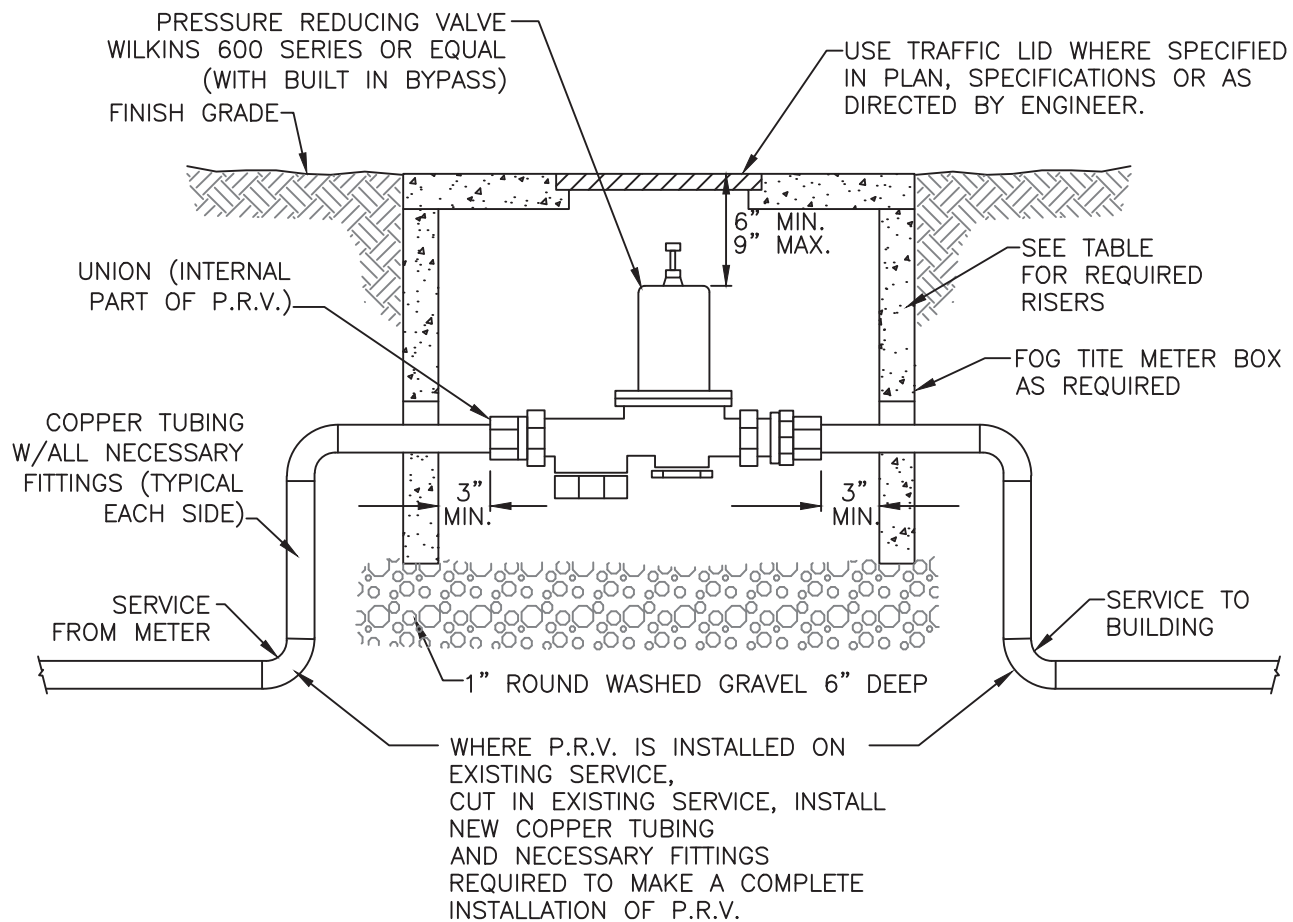
NOTES:

1. ALL FITTINGS SHALL BE BRASS, ALL PIPE SHALL BE BRASS OR COPPER, UNLESS OTHERWISE SHOWN.
2. TAP FOR COMBINATION AIR AND VACUUM VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT OF WATER MAIN. EXACT LOCATION OF ASSEMBLY TO BE DETERMINED BY CITY
3. COPPER LINE MUST MAINTAIN LEVEL GRADE - NO DIPS OR BELLIES.



PIPE PENETRATION AT VAULT WALL DETAIL

	CITY OF MERCER ISLAND STANDARD DETAILS WATER	
	PRESSURE REDUCING VALVE (PRV) 1" AIR VACUUM VALVE ASSEMBLY INSTALLATION	
07-01-2021	NO SCALE	W-27E
REV DATE		APPROVED



P.R.V. SIZE	FOG TITE METER BOX NO.	RISER REQUIRED
2"	2	12"
1-1/2"	2	12"
1-1/4"	1	6"
1"	1	6"
3/4"	1	4"
1/2"	1	4"

NOTES

1. P.R.V. SHALL HAVE AN INTEGRAL BYPASS.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

**RESIDENTIAL
PRESSURE REDUCING VALVE**

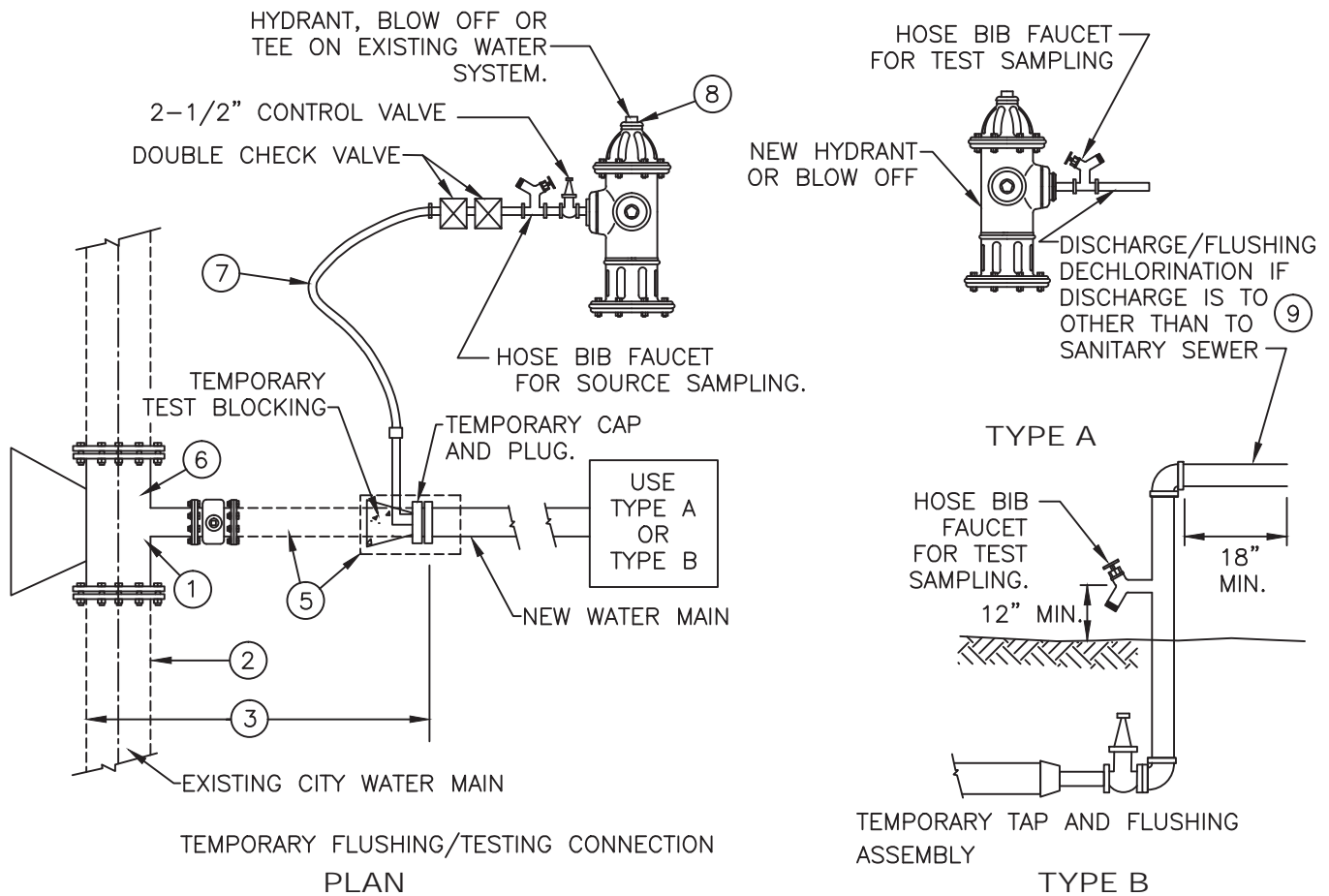
12-24-2013

NO SCALE

W-28

REV DATE


APPROVED



- ① CONTRACTOR TO DETERMINE ALIGNMENT, SIZE AND GRADE OF EXISTING FACILITIES PRIOR TO SHUTDOWN.
- ② ALL EXCAVATION, PIP, FITTINGS, MATERIALS, BACKFILL COMPACTION AND STREET RESTORATION ARE THE CONTRACTORS RESPONSIBILITY.
- ③ ALL MATERIALS TO BE ON SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.
- ④ ALL PRESSURE TESTING, DISINFECTION, BACTERIA TESTING, TASTE TESTING AND NOTIFICATION OF RESIDENTS EFFECTED BY THE SHUTDOWN SHALL BE COMPLETED IN ACCORDANCE WITH SECTION 7, 8 & 9 OF DIVISION 9, WATER ENGINEERING STANDARDS, PRIOR TO CONNECTION TO THE CITY SYSTEM OF THE NEW WATERMAIN.
- ⑤ LONG PATTERN MECHANICAL JOINT, SLEEVE, WITH PIPE CUT TO FIT GAP – FURNISH AND INSERTED AT TIME OF CONNECTION.
- ⑥ TEE OR TAPPING TEE AND MATERIALS NECESSARY TO MAKE THE FINAL CONNECTION TO THE CITY WATER SYSTEM SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
- ⑦ CLEAN POTABLE WATER HOSE, WATER METER AND DCVA PROVIDED BY CITY, A RENTAL FEE IS REQUIRED.
- ⑧ HYDRANT PERMIT REQUIRED.
- ⑨ CHECK WITH SEWER DEPARTMENT BEFORE DISCHARGING INTO THE SANITARY SEWER SYSTEM. ALL CHLORINATED WATER MUST BE DISCHARGED INTO THE SANITARY SEWER SYSTEM, UNLESS DECHLORINATED FIRST.

NOTES

1. ALL FITTINGS TO BE DUCTILE IRON.
2. ALL EXCAVATION SHALL PROVIDE A MINIMUM OF 1' CLEAR AROUND PIPE AND FITTINGS.

	<p>CITY OF MERCER ISLAND</p> <p>STANDARD DETAILS</p> <p>WATER</p>	
<p>WATER MAIN FLUSHING</p>		
8-12-2009	NO SCALE	W-32
REV DATE		APPROVED