



City of Mercer Island Fire Marshals Office



STANDARDS FOR UNDERGROUND PIPING FOR PRIVATE FIRE SERVICE MAINS AND HYDRANTS

The following “STANDARD NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS” shall be placed, verbatim, on all underground plans.

1. INSPECTION REQUIREMENTS

- 1.1. The following inspections are required for underground piping serving fire sprinkler systems and/or private hydrants: 1) Pre-pour inspection; 2) Hydrostatic testing; 3) Flush inspection. Please schedule all inspections at least 72 hours in advance. Have a copy of the approved underground plan on site for the inspector. Failure to cancel a scheduled inspection or not having approved plans will result in a failed inspection and a reinspection fee charged before the inspection can occur. Only CoMI personnel may operate valves controlling the City's Water distribution system. To schedule an inspection call (206) 275-7979, Monday-Friday, 8:00 a.m. – 5:00 p.m.
- 1.2. **Pre-pour inspection:** Thrust block excavation shall be completed; but thrust blocks shall not be poured. All pipe shall be in place and exposed for visual inspection. Pipe shall be laid on a minimum six-inch bed of clean sand, pea gravel or quarry fines. Trench shall be of a sufficient depth to allow the required cover above the pipe. Ferrous pipe and fittings shall be wrapped and tightly taped to inhibit water infiltration. Bolts and ferrous joints, pipe, and fittings shall be coated with asphaltic sealant or other corrosion retarding material.
- 1.3. **Hydro Testing:** Thrust blocks shall be in place and cured. Pipe shall be center-loaded with clean sand to prevent uplift, but all joints shall remain exposed. The system shall be hydrostatically tested at 200 psi (or 50 psi over maximum static pressure, whichever is greater) for a duration of at least two hours prior to the arrival of the inspector.
- 1.4. **Flush Inspection:** All portions of the underground system shall be flushed to remove debris prior to connection to overhead piping. Flow shall be through a minimum of two 2 ½ -inch hoses, one 4-inch hose or a 4-inch pipe, unless otherwise approved by the inspector prior to scheduling the flush. Hose or pipes shall be restrained to prevent injury or damage. The public works department or other applicable agency shall be notified of the scheduled flush as required. De-chlorination, water containment and/or discharge shall be the responsibility of the contractor. *Note: The flush and hydro inspections may be scheduled concurrently.*
- 1.5. Prior to fire final project approval, all detector check assemblies, control valves, and fire department connections (FDC) shall be clearly labeled with the address(es) served by the device. Address signs shall be securely attached to the device and be of a durable, fade-resistant material which is clearly visible and legible. FDC and Storz hydrant outlets shall be unobstructed and oriented toward the fire access. Valves shall be locked in the open position. All valves, backflow assemblies, and private hydrants shall be painted. Hydrant and FDC caps shall be in place and secured. **A Contractor's Material and Test Certificate for Underground Piping form shall be signed by the installing contractor and owners' representative.** A copy of this form shall be provided to the Fire Marshals Office prior to final acceptance of the underground work.

2. GENERAL REQUIREMENTS

- 2.1. Installation, inspection, and testing shall conform to 2016 NFPA 13 and 2016 NFPA 24. Mercer Island Fire Department jurisdiction starts at the downstream side of the last valve on the detector check assembly. The portion of the system preceding this point requires a Site Development permit from the Community Planning Development Department.
- 2.2. Vegetation shall be selected and maintained in such a manner as to allow immediate location of and unobstructed access to; all hydrants, control valves, fire department connections, and other devices or areas used for firefighting purposes.
- 2.3. A minimum three-foot clearance shall be provided around all hydrants. A minimum of three-foot clearance shall be provided on at least one side of a detector check assembly to allow proper operation of the device. The front of the FDC shall be free of any obstructions.
- 2.4. Any future modification to the approved private underground piping system is subject to review, inspection and approval by Mercer Island Fire Marshals Office.
- 2.5. Approval of this plan shall not be interpreted as approval of any information or project conditions other than those items on this plan and applicable sections of 2016 NFPA 13 and 2016 NFPA 24. This project may be subject to additional requirements not stated herein upon examination of actual site and project conditions or disclosure of additional information.

3. PIPE AND TRENCH REQUIREMENTS

- 3.1. A six-inch (6") bed of clean fill sand, pea gravel or quarry fines shall be provided below the pipe and twelve-inches (12") shall be provided above the pipe.
- 3.2. Pipe shall be buried at least 36" where subject to loading (e.g., driveways, parking lots) and at least 30" elsewhere.
- 3.3. All pipe shall be approved for use in fire service systems. Ductile Iron (DI) Class 52 will be used at a minimum, or as otherwise approved by adopted by the Fire Marshal. The use of galvanized pipe is prohibited when a portion of the pipe is buried.
- 3.4. All ferrous pipe and fittings shall be protected by wrapping in polyethylene sheeting.
- 3.5. All bolts and ferrous fittings used for underground connections shall be cleaned and thoroughly coated with asphalt or other corrosion retarding material after assembly and prior to wrapping.
- 3.6. Thrust blocks, or another approved method of thrust restraint, shall be provided wherever pipe changes direction.
- 3.7. A minimum two-inch clearance shall be provided where the pipe passes through slabs or walls. Underground system shall terminate at the riser flange and placed a minimum of 18- inches and a maximum of 24-inches from an exterior wall and 6-inches above the slab.
- 3.8. Pipe running under a building or building foundation shall be stainless steel and shall not contain mechanical joints.
- 3.9. The FDC shall contain a minimum of two-2 ½ inch inlets and one 4" Storz fitting per Mercer Island FDC Standards. This may be modified if the hose steam demand is higher.

4. HYDRANT REQUIREMENTS (Permit Required)

- 4.1. Private fire hydrants shall be listed with two-2 ½ inch outlets and one - 4" Storz Fitting. The 4" Storz fitting shall face the fire department access road. All outlets shall be provided with N.T.S threads. Hydrants shall be painted with two coats of #250 FARWEST High Glow White Paint.
- 4.2. Fire hydrant supply piping shall be a minimum of six inches in diameter. The lowest outlet cap nut shall be a minimum height of 18-inches above finished grade.
- 4.3. A keyed gate valve shall be provided for each hydrant in an accessible and clearly visible location. Valves shall not be located in parking stalls.
- 4.4 All fire hydrants shall have a "Blue Reflective Pavement Marker" indicating their location. Private hydrants and markers are to be maintained in good condition by the property owner.

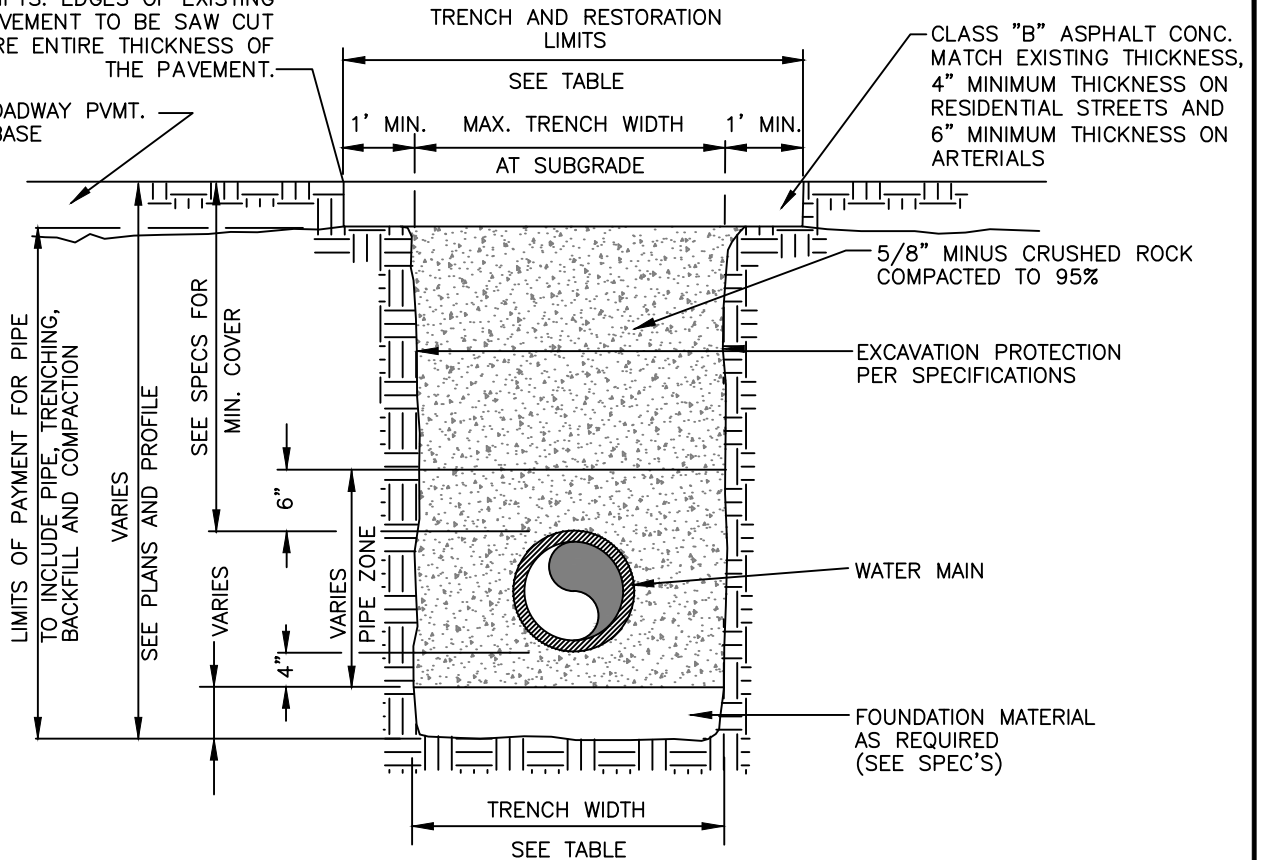
The following "STANDARD DETAILS FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS" shall be placed on all underground plans.

1. **A copy of the applicable Public Works Standard Installation Detail (W-3, W-5a, W-5b, W-24, W24a) are included in this document and are available on the City of Mercer Island Public Works Website: <https://mercergov.org/Page.asp?NavID=2975>**

- a. **Trench Section Details W-3**
- b. **Thrust Blocking- Horizontal Detail W-5A**
- c. **Thrust Blocking- Vertical Detail W-5B**
- d. **Fire Hydrant Standard W-24**
- e. **Fire Hydrant Connection Detail W-24A**
- f. **Fire Stand Pipe Detail**

ASPHALT TO BE PLACED IN 3" MAXIMUM LIFTS. EDGES OF EXISTING PAVEMENT TO BE SAW CUT SQUARE ENTIRE THICKNESS OF THE PAVEMENT.

EXIST. ROADWAY PVMT. GRAVEL BASE



TRENCH WIDTH			
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 TWO BUSINESS DAYS BEFORE YOU DIG. (1-800-424-5555)
2. IN RIGHT OF WAY USE 100% 5/8 MINUS CRUSHED ROCK BACKFILL.
 - A. FULL DEPTH OF TRENCH WHERE MAIN CROSSES THE TRAVELED ROADWAY.
 - B. TOP FOUR FEET WHERE MAIN RUNS PARALLEL TO THE TRAVELED LANE, UNLESS EXISTING MATERIAL IS DETERMINED BY THE CITY ENGINEER TO BE SUITABLE BACKFILL.



**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

TRENCH SECTION

11-3-2017

NO SCALE

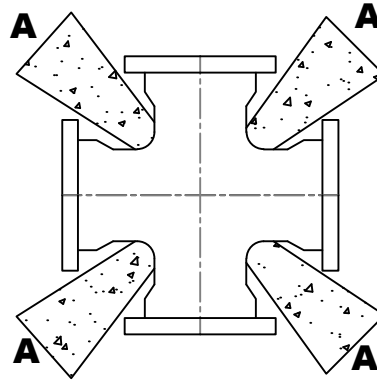
W-3

REV DATE

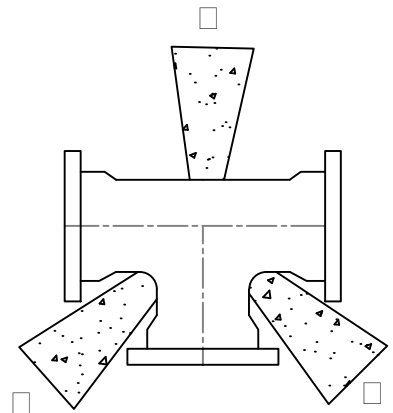
APPROVED

THRUST BLOCKING TABLE

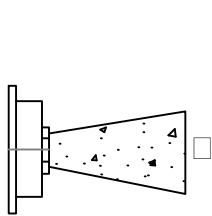
PIPE SIZE	MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL IN SQUARE FEET				
	A	B	C	D	E
4	2	2	2	2	2
6	4	3	2	2	2
8	7	5	4	2	2
10	11	8	6	3	2
12	16	12	9	5	3
14	22	16	12	6	3
16	29	20	16	8	4



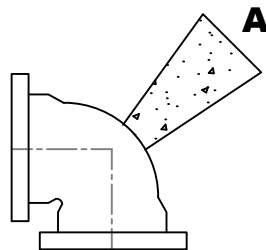
□ ROSS



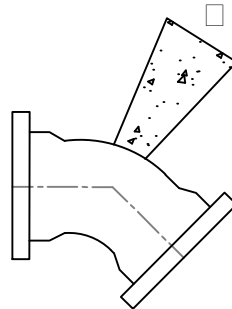
TEE



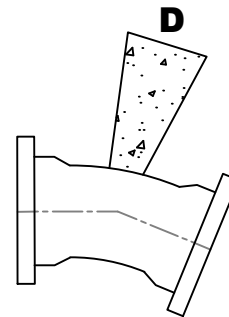
□ A □



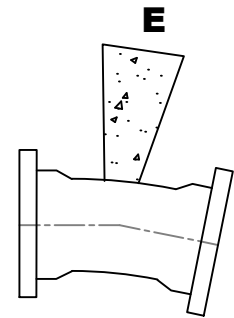
90° BEND



45° BEND



22-1/2° BEND



11-1/4° BEND

NOTES

1. AFTER INSTALLATION, WIRE BRUSH CLEAN RODS. PAINT WITH TWO COATS ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM OR APPROVED EQUAL.
2. SHACKLE RODS SHALL BE ROUND MILD STEEL ASTM A-36, 6" MAX. BEND ON ENDS.
3. ROMAC MJ WEDGE ACTION RETAINER MAY BE SUBSTITUTED FOR VERTICAL BLOCKING UPON PRIOR APPROVAL OF THE CITY ENGINEER.
4. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
5. THRUST BLOCKS SHALL BE CONSTRUCTED WITH CLASS 3000 OR COMMERCIAL CONCRETE. IF THREE OR MORE BLOCKS ARE REQUIRED ON A GIVEN JOB, PREMIXED CONCRETE MUST BE USED.
6. 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.
7. BEARING AREA MUST BE ADJUSTED FOR HIGHER INTERNAL PRESSURES AND LOWER SOIL BEARING VALUES.
8. CONCRETE BLOCKING SHALL BE CAST-IN-PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
9. 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

3-20-2006

NO SCALE

W-5A

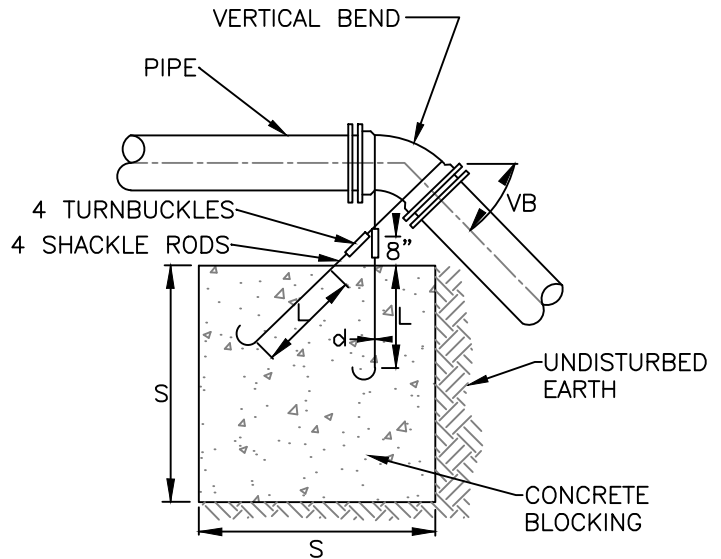
Updated 07/2022

Mercer Island Office of the Fire Marshal 206-275-7966

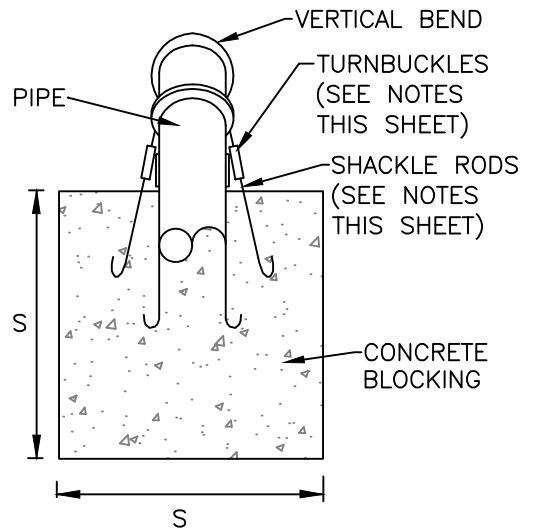
REV DATE

APPROVED

VERTICAL THRUST BLOCKING FOR 11 1/4" - 22 1/2" - 45"							NUMBER OF TIE RODS SETS (2 EMBEDDED RODS PER SET)
PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE P.S.I.	VB VERTICAL BEND DEGREES	AMOUNT CONCRET BLOCKING - CU. FT.	S LENGTH OF SIDE FEET	d SHACKLE ROD DIA. - INCHES	L DEPTH OF ROD IN CONCRETE INCHES	
3"	300	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"	300	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"	300	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"	300	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"	300	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	3/4	24"	2
12"	300	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	5/8	12"	2
		22-1/2	107	4.75	3/4	24"	2
		45	190	5.75	3/4	24"	4
16"	225	11-1/4	64.0	4.0	5/8	12"	2
		22-1/2	125	5.0	5/8	12"	4
		45	216	6.0	5/8	12"	6
18"	200	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"	6



BLOCKING FOR VERTICAL BENDS



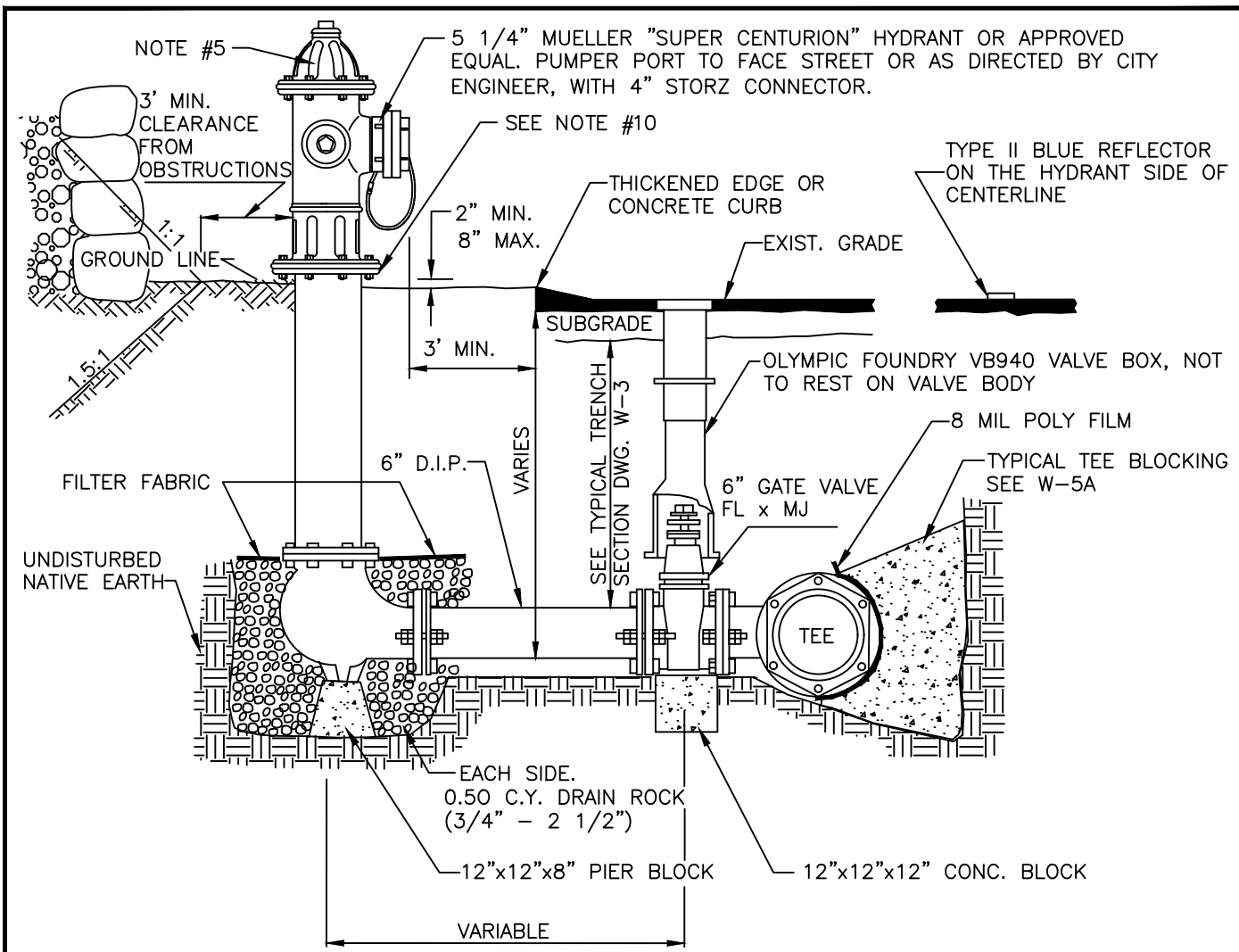
NOTES

1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.
2. TIE ROD ASSEMBLIES SHALL BE COATED WITH ROYSTON RESCOAT #612SM OR APPROVED EQUAL.
3. BOTH RIGHT-HAND THREAD AND LEFT-HAND THREAD TIE RODS SHALL BE PROVIDED AND TURN-BUCKLES SHALL HAVE ONE END RIGHT-HAND THREAD AND ONE END LEFT-HAND THREAD TO ENABLE TIGHTENING OF TIE RODS.




**CITY OF MERCER ISLAND
STANDARD DETAILS
WATER**

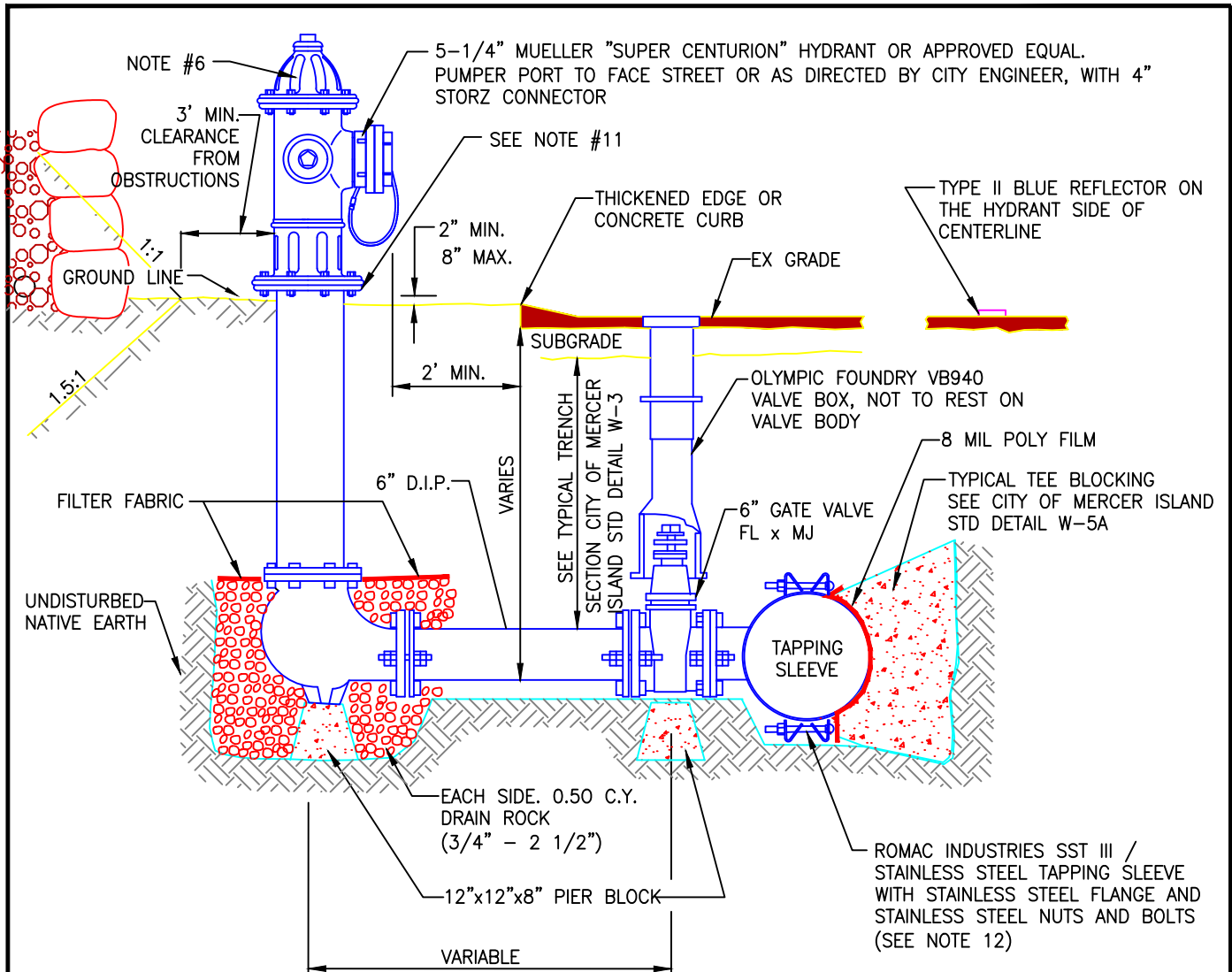
VERTICAL CONCRETE BLOCKING



NOTE:


1. NO DOMESTIC CONNECTIONS CAN BE MADE TO THE FIRE HYDRANT RUNS.
2. ANY FIRE HYDRANT RUN OVER 18 FEET IN LENGTH OF PIPE SHALL HAVE RESTRAINED JOINT GASKETS.
3. USE ROMA GRIP, OR APPROVED EQUAL, PIPE RESTRAINERS AT VALVE AND HYDRANT BASE.
4. 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.
5. 1-5 1/4" M.O.V. HYDRANT WITH 2-2 1/2" N.T.S. AND 1-4" PUMPER, SEATTLE STANDARD PIPE THREAD WITH 4" STORZ CONNECTOR HARRINGTON MODEL NO. HPHA40-40NH/CAP. M.J. INLET WITH LUGS, BRASS-TO-BRASS SUB-SEAT, MUELLER "SUPER CENTURION" OR APPROVED EQUAL.
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.

	<p>CITY OF MERCER ISLAND</p> <p>STANDARD DETAILS</p> <p>WATER</p>	
	<p>FIRE HYDRANT ASSEMBLY DETAIL</p>	
04-02-20	NO SCALE	W-24
REV DATE		APPROVED



NOTE:

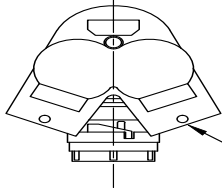
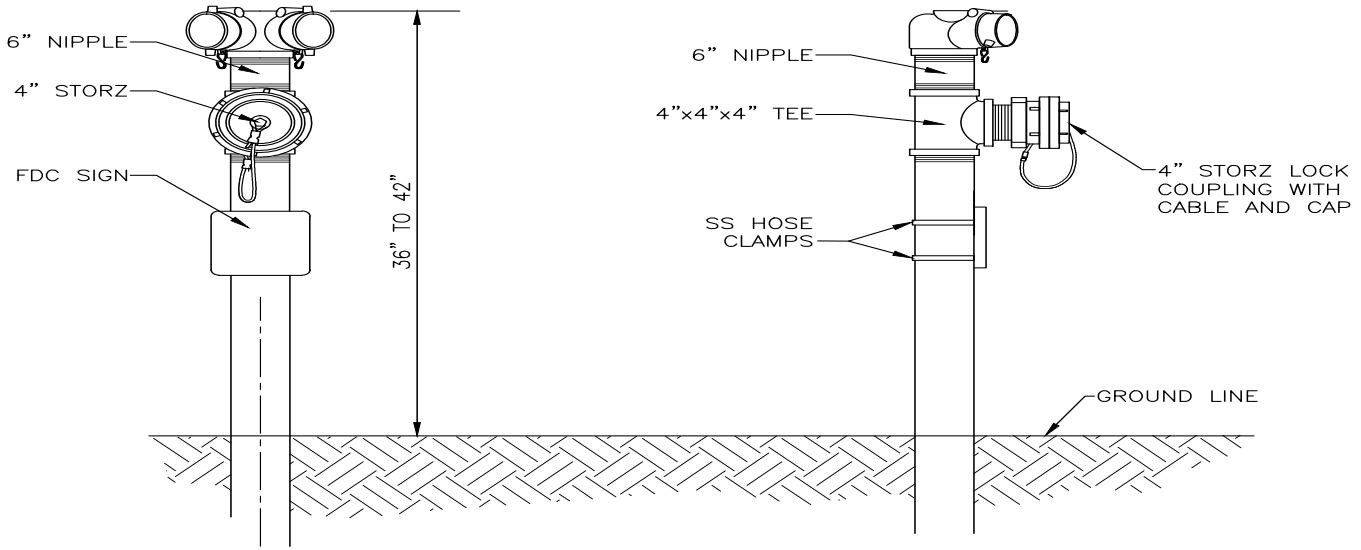
1. WET TAP IS ALLOWED ONLY UPON CITY'S APPROVAL. NO SIZE ON SIZE WET TAPS.
2. NO DOMESTIC CONNECTIONS CAN BE MADE TO THE FIRE HYDRANT RUNS.
3. ANY FIRE HYDRANT RUN OVER 18 FEET IN LENGTH OF PIPE SHALL HAVE RESTRAINED JOINT GASKETS.
4. USE ROMA GRIP, OR APPROVED EQUAL, PIPE RESTRAINERS AT VALVE AND HYDRANT 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. 1-5 1/4" M.V.O. HYDRANT WITH 2-2 1/2" N.T.S. AND 1-4" PUMPER, SEATTLE STANDARD PIPE THREAD WITH 4" STORZ CONNECTOR. M.J. INLET WITH LUGS, BRASS-TO-BRASS SUB-SEAT, M&H 929T.
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	
11-21-2017	NO SCALE	W-24A
REV DATE		APPROVED



Mercer Island Fire Marshal's Office
 3030 78th Avenue SE
 Mercer Island, WA 98040
 (206) 275-7966

Mercer Island Fire Standpipe Design



"CAP TYPE DOUBLE CLAPPERED DOUBLE FEMALE NST SIAMESE WITH CHAINS AND PLUGS."

NOTE:

SIGN REQUIREMENTS

1. ALL MATERIALS SHALL BE NFPA 14 COMPLIANT.
2. SIGN AND LETTER COLORS
SIGN SHALL BE WHITE LETTERS ON A RED BACKGROUND.
3. SIZE AND MATERIAL
2" BLOCK LETTERS STENCIL PAINTED ON METAL OR
4. SIGN TERMINOLOGY
 - A. SPRINKLERS ONLY: "SPRINKLER" WITH JOB ADDRESS.
 - B. SPRINKLERS AND INTERIOR STANDPIPE: "SPRINKLER-STANDPIPE" WITH JOB ADDRESS.
 - C. STANDPIPE ONLY: "STANDPIPE" WITH JOB ADDRESS.
5. ADDRESS NUMERALS SHALL BE ABOVE SYSTEM TYPE.
6. NEED TO SHOW HOW TO/WHERE TO INSTALL BALL DRIP.

FDC SIGN

<p>ADDRESS</p> <p>FOR SIGN COLOR SIZE, MATERIAL, WORDING AND LETTER SIZE SEE NOTES.</p> <p>SYSTEM TYPE</p>
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* Permit Required

Mercer Island CPD
 9611 SE 36th Street
 Mercer Island, WA 98040

360-275-7605

Contractor's Material and Test Certificate for Underground Piping	
PROCEDURE	
Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.	
A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.	
Property name	Date
Property address	
Plans	Accepted by approving authorities (names)
	Address
	Installation conforms to accepted plans <input type="checkbox"/> Yes <input type="checkbox"/> No
	Equipment used is approved <input type="checkbox"/> Yes <input type="checkbox"/> No
	If no, state deviations
Instructions	Has person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this new equipment? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain
	Have copies of appropriate instructions and care and maintenance charts been left on premises? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain
Location	Supplies buildings
Underground pipes and joints	Pipe types and class Type joint
	Pipe conforms to _____ standard <input type="checkbox"/> Yes <input type="checkbox"/> No
	Fittings conform to _____ standard <input type="checkbox"/> Yes <input type="checkbox"/> No
	If no, explain
	Joints needing anchorage clamped, strapped, or blocked in accordance with _____ standard <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain
Test description	<p>Flushing: Flow the required rate until water is clear as indicated by no collection of foreign material in burlap bags at outlets such as hydrants and blow-offs. Flush at one of the flow rates as specified in 10.10.2.1.3.</p> <p>Hydrostatic: All piping and attached appurtenances subjected to system working pressure shall be hydrostatically tested at 200 psi (13.8 bar) or 50 psi (3.5 bar) in excess of the system working pressure, whichever is greater, and shall maintain that pressure ±5 psi (0.35 bar) for 2 hours.</p> <p>Hydrostatic Testing Allowance: Where additional water is added to the system to maintain the test pressures required by 10.10.2.2.1, the amount of water shall be measured and shall not exceed the limits of the following equation (for metric equation, see 10.10.2.2.6):</p> $L = \frac{SD\sqrt{P}}{148,000}$ <p style="margin-left: 100px;"> <i>L</i> = testing allowance (makeup water), in gallons per hour <i>S</i> = length of pipe tested, in feet <i>D</i> = nominal diameter of the pipe, in inches <i>P</i> = average test pressure during the hydrostatic test, in pounds per square inch (gauge) </p>
Flushing tests	New underground piping flushed according to standard by (company) <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain
	How flushing flow was obtained Through what type opening
	<input type="checkbox"/> Public water <input type="checkbox"/> Tank or reservoir <input type="checkbox"/> Fire pump <input type="checkbox"/> Hydrant butt <input type="checkbox"/> Open pipe
	Lead-ins flushed according to _____ standard by (company) <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain
	How flushing flow was obtained Through what type opening
<input type="checkbox"/> Public water <input type="checkbox"/> Tank or reservoir <input type="checkbox"/> Fire pump <input type="checkbox"/> Y connection to flange and spigot <input type="checkbox"/> Open pipe	

Hydrostatic test	All new underground piping hydrostatically tested at _____ psi for _____ hours		Joints covered <input type="checkbox"/> Yes <input type="checkbox"/> No
Leakage test	Total amount of leakage measured _____ gallons _____ hours		
	Allowable leakage _____ gallons _____ hours		
Forward flow test of backflow preventer	Forward flow test performed in accordance with 10.10.2.5.2:		<input type="checkbox"/> Yes <input type="checkbox"/> No
Hydrants	Number installed	Type and make	All operate satisfactorily <input type="checkbox"/> Yes <input type="checkbox"/> No
Control valves	Water control valves left wide open If no, state reason		<input type="checkbox"/> Yes <input type="checkbox"/> No
	Hose threads of fire department connections and hydrants interchangeable with those of fire department answering alarm		<input type="checkbox"/> Yes <input type="checkbox"/> No
Remarks	Date left in service		
Signatures	Name of installing contractor		
	Tests witnessed by		
	For property owner (signed)	Title	Date
	For installing contractor (signed)	Title	Date
Additional explanation and notes			