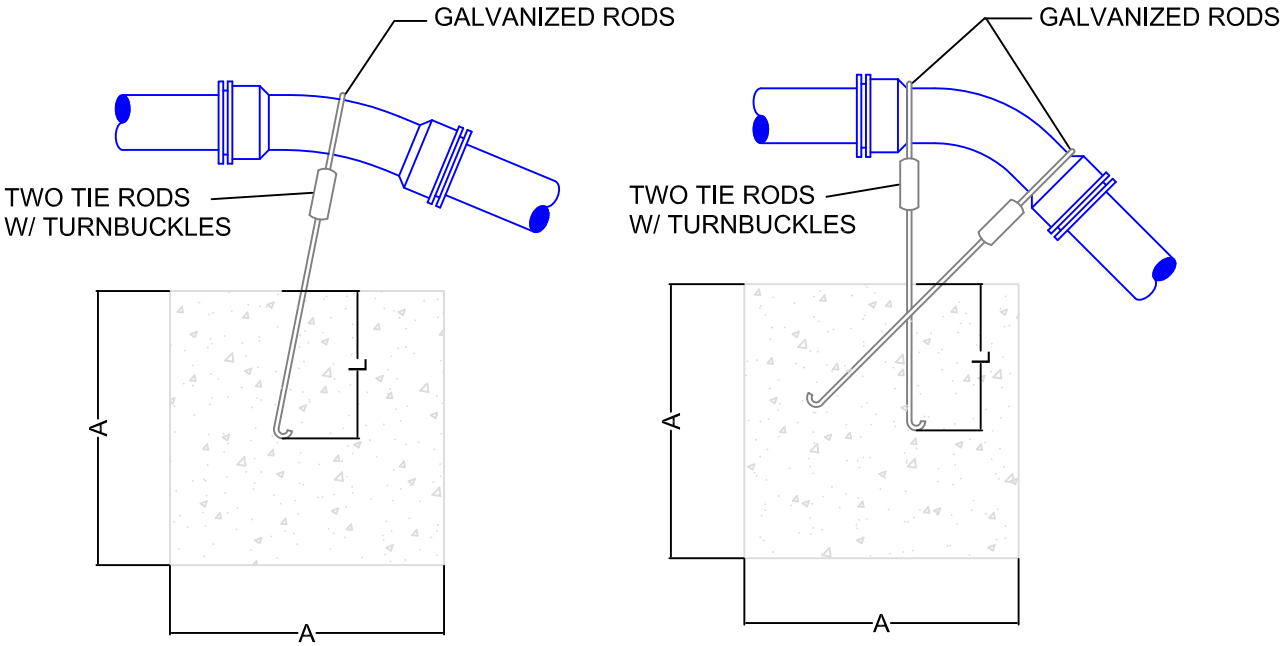


			^{3}			
4"	250	11.25°	6	1.8	5/8"	17"
		22.5°	12	2.3		
		45°	22	2.8		
6"	250	11.25°	14	2.4	5/8"	17"
		22.5°	27	3.0		
		45°	50	3.7		
8"	250	11.25°	25	2.9	5/8"	17"
		22.5°	48	3.6		
		45°	89	4.5		
10"	250	11.25°	38	3.4	5/8"	17"
		22.5°	75	4.2		
		45°	139	5.2		
12"	250	11.25°	55	3.8	5/8"	17"
		22.5°	108	4.8		
		45°	200	5.8	7/8"	24"
14"	250	11.25°	75	4.2	5/8"	17"
		22.5°	147	5.3	3/4"	20"
		45°	272	6.5	1"	27"
16"	250	11.25°	98	4.6	5/8"	17"
		22.5°	192	5.8	7/8"	24"
		45°	355	7.1	1 1/8"	30"

* "A"= LENGTH, WIDTH, & DEPTH

NOTES:
1. CONCRETE BLOCKING IS BASED ON 250 PSI PRESSURE AND 3000 PSI CONCRETE
2. STEEL RODS SHALL BE HEAVILY COATED WITH ASPHALT EMULSION COATING

CITY OF POULSBO
DEPARTMENT OF PUBLIC WORKS

VERTICAL / HORIZONTAL
CONCRETE BLOCKING
TIE BACK BLOCKS (NTS)

Detail 4-01

Approval Date:
02-13-07

SIZE	TEST PRESSURE (PSI)	THRUST AT FITTINGS IN POUNDS				
		A	B	C	D	E
		TEE AND DEAD ENDS	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4"	250	3,140	4,440	2,405	1,225	615
6"	250	7,070	9,995	5,410	2,760	1,385
8"	250	12,565	17,770	9,620	4,905	2,465
10"	250	19,635	27,770	15,030	7,660	3,850
12"	250	28,275	39,985	21,640	11,030	5,545
14"	250	38,485	54,425	29,455	15,015	7,545
16"	250	50,265	71,085	38,470	19,615	9,855

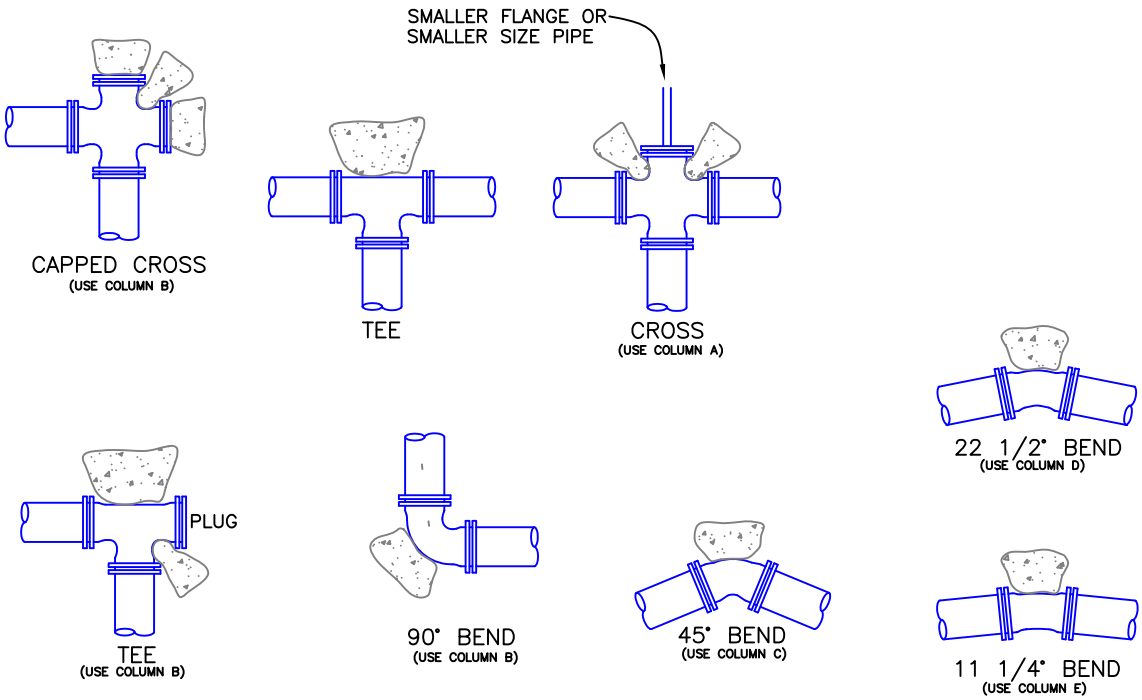
SAFE BEARING LOADS IN LB./SQ. FT. THE SAFE BEARING LOADS GIVEN IN THE FOLLOWING TABLE ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE BEARING LOAD LB. PER SQ. FT.
*MUCK, PEAT, ETC.	0
SOFT CLAY	1000
SAND	2000
SAND & GRAVEL	3000
CEMENTED W/ CLAY	4000
HARD SHALE	10000

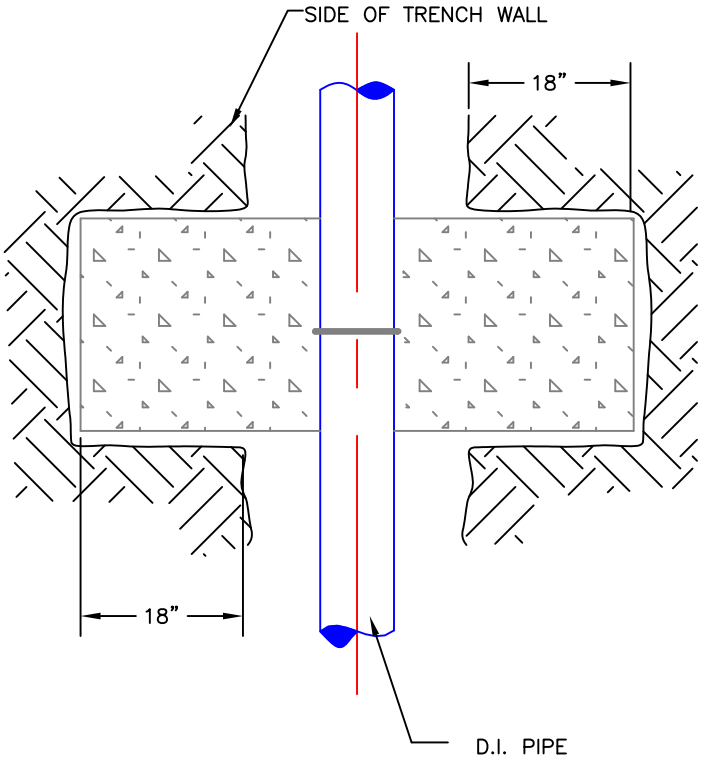
*IN MUCK OR PEAT, ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY.

NOTES

1. DIVIDE THRUST BY SAFE BEARING LOAD TO DETERMINE REQUIRED AREA (IN SQUARE FEET) OF CONCRETE TO DISTRIBUTE LOAD.
2. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. THE BLOCK SHALL BEAR AGAINST THE FITTING ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING OF FITTING.
5. THE CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATION PRESSURE UNDER ALL CONDITIONS OF SERVICE.
6. WRAP PIPE IN PLASTIC
7. PROVIDE TWO 1" MINIMUM DIAMETER RODS ON VALVES UP THROUGH 10" DIAMETER. VALVES LARGER THAN 10" REQUIRE SPECIAL TIE ROD DESIGN.
8. COAT BARE RODS WITH ASPHALT EMULSION COATING

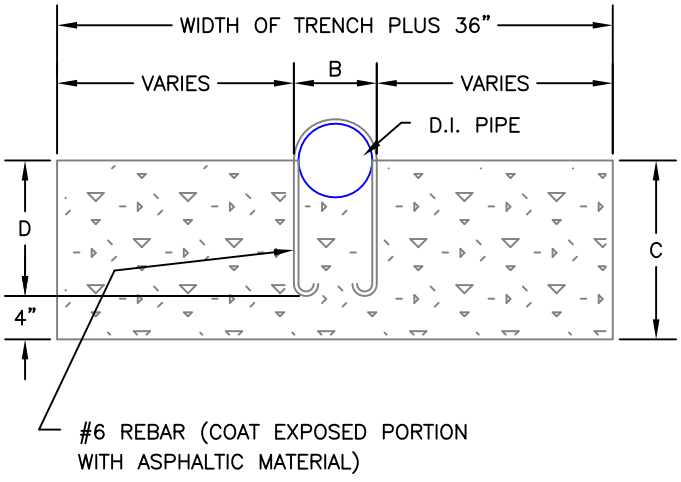


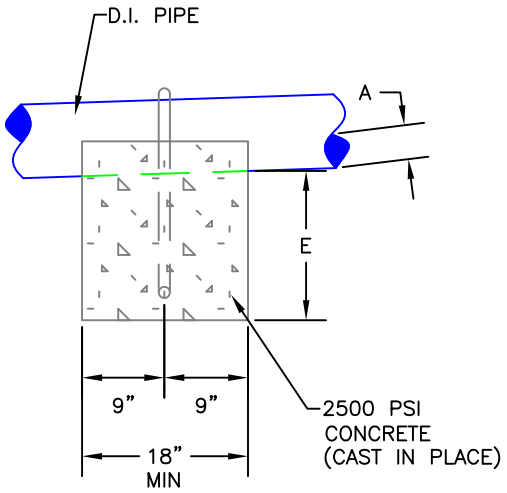
CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	HORIZONTAL THRUST BLOCKING (NTS)	Detail 4-02 Approval Date: 02-13-07



PIPE SIZE	DIMENSIONS (INCHES) A	B	C	D	E
4"	2.4	4.8	17	13	14.6
6"	3.5	6.9	18	14	14.5
8"	4.5	9.1	19	15	14.5
10"	5.6	11.1	20	16	14.4
12"	6.6	13.2	21	17	14.4
14"	7.7	15.3	22	18	14.3
16"	8.7	17.4	23	19	14.3
18"	9.8	19.5	24	20	14.2

NOTES:
SLOPES > 20% – PROVIDE CONCRETE
SLOPE ANCHORS (20' TO 25' ON CENTERS)
OR AS RECOMMENDED BY GEO–TECHNICAL ENGINEER
OR USE FIELD LOCK GASKETS, WITH ENGR. APPROVAL.



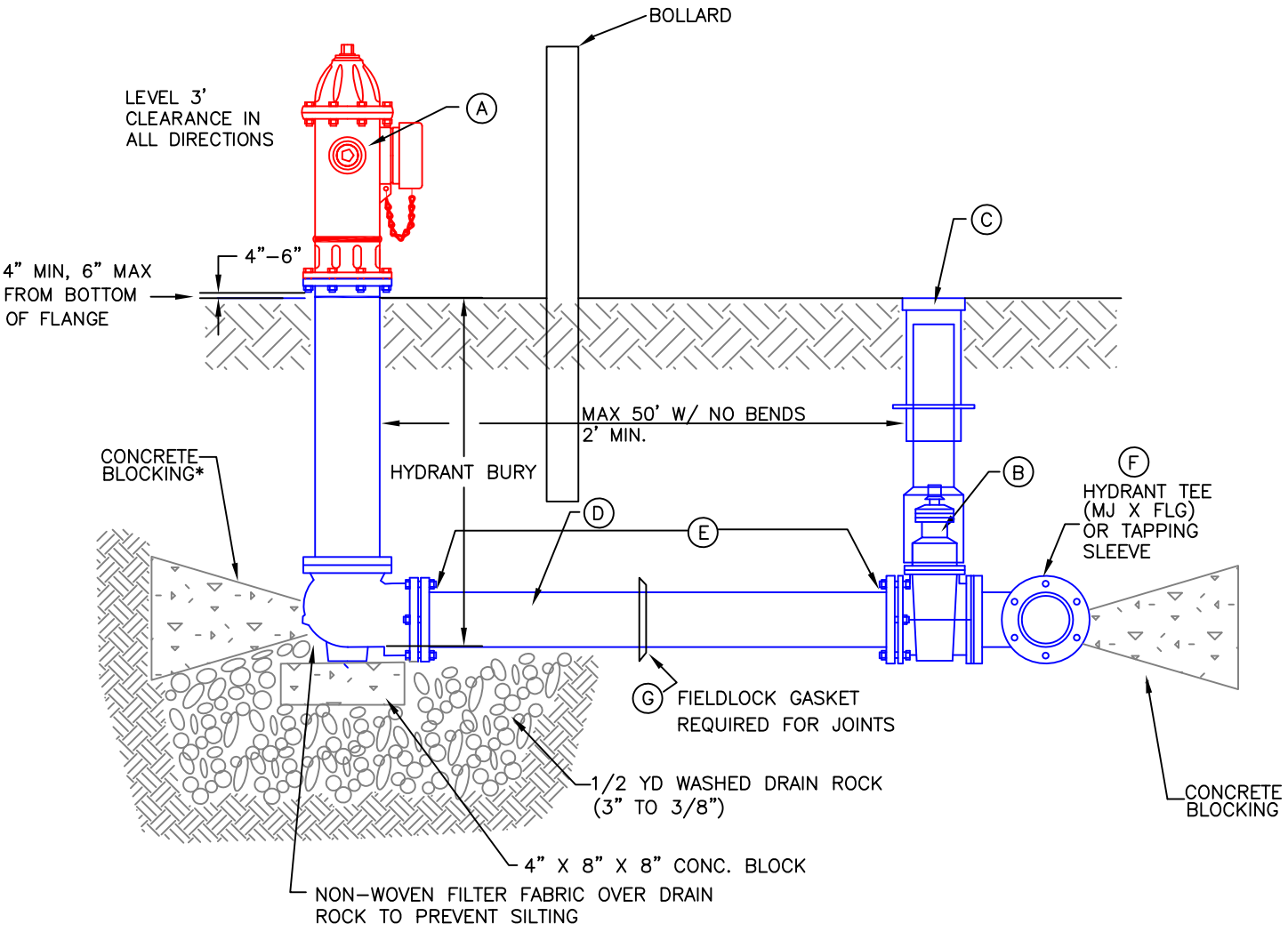


CITY OF POULSBO
DEPARTMENT OF PUBLIC WORKS

CONCRETE SLOPE ANCHOR (NTS)

Detail 4–03

Approval Date: 02–13–07



A 1–5 1/4" M.V.O. HYDRANT WITH 2–2 1/2" HOSE PORTS WITH NATIONAL STANDARD THREADS AND 5" PUMPER PORTS, WITH CITY OF SEATTLE THREADS AND 5"– 1/4 TURN STORZ ADAPTER

HYDRANT BRAND	MODEL	STORZ BRAND
MUELLER	CENTURION	RED HEAD
M&H	929	AWG
CLOW	F–2500, MEDALLION	(NO LOCKS)
WATEROUS	PACER	
AVK	SERIES 2780	

B 1 6" GATE VALVE, AWWA C–500, R/S, PARALLEL SEAT "O" RING STEM SEAL, MJ X FLG WITH LUGS

C 1 TWO PIECE CAST IRON VALVE BOX SIMILAR TO RICH MANUFACTURING TYPE 940 OR 5" C.I. SOILS PIPE VALVE BOX EXTENSION

D 6" DUCTILE IRON PIPE, CLASS 52, CUT TO FIT.

E MEGA LUG FOLLOWERS

F FULL BODY TAPPING SLEEVE, C.I., D.I., OR STAINLESS STEEL HYDRANT TEE (F X MJ)

G FIELDLOCK GASKET

NOTES:
1. FIRE HYDRANT EXTENSION IF REQUIRED
2. FIRE HYDRANT SHALL BE PAINTED WITH ENAMEL SAFETY RED
3. BOLLARD SHALL BE PAINTED SAFETY YELLOW

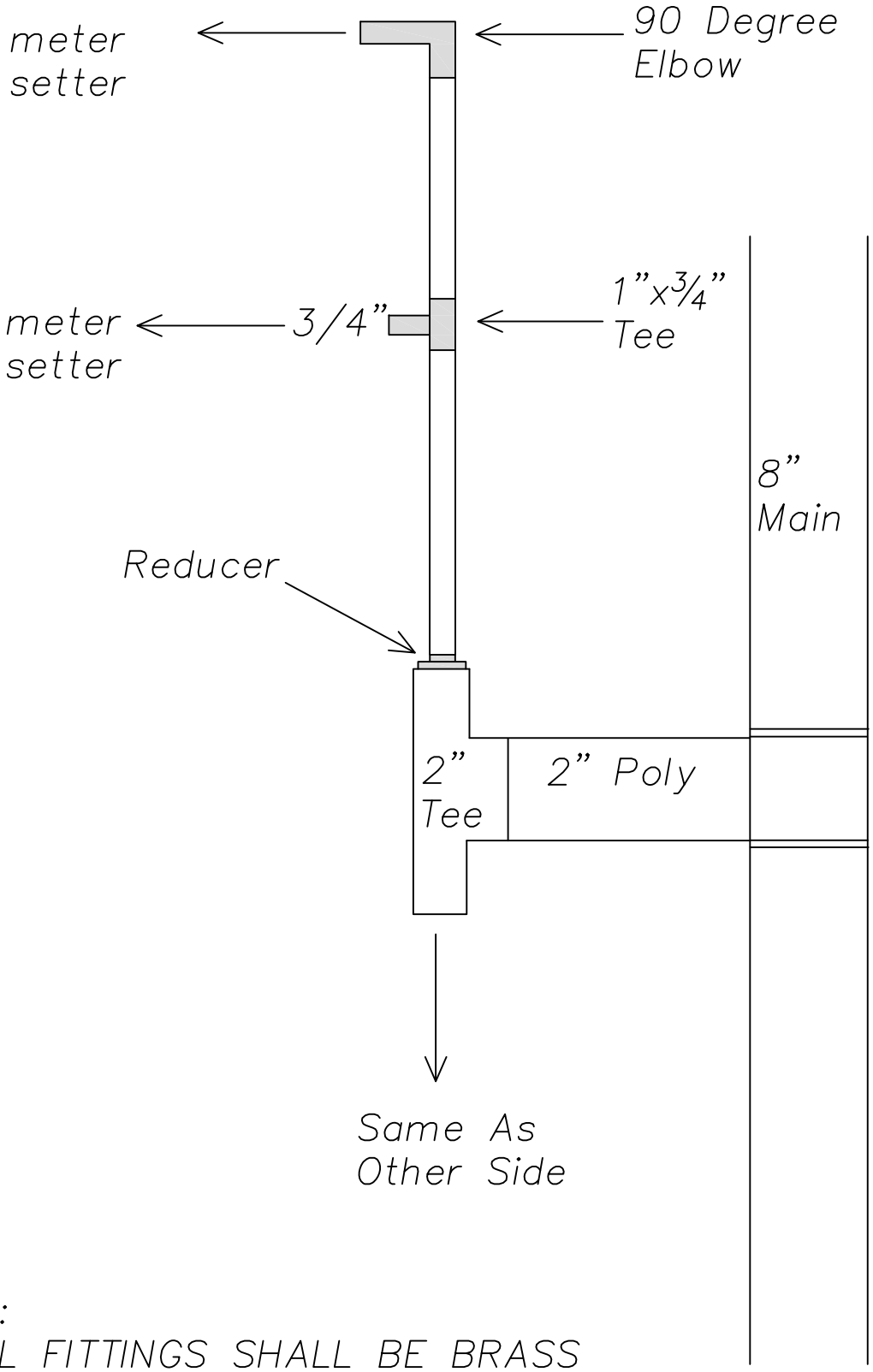
CITY OF POULSBO
DEPARTMENT OF PUBLIC WORKS

STANDARD FIRE HYDRANT INSTALLATION (NTS)

Detail 4–05

Approval Date: 02–13–07

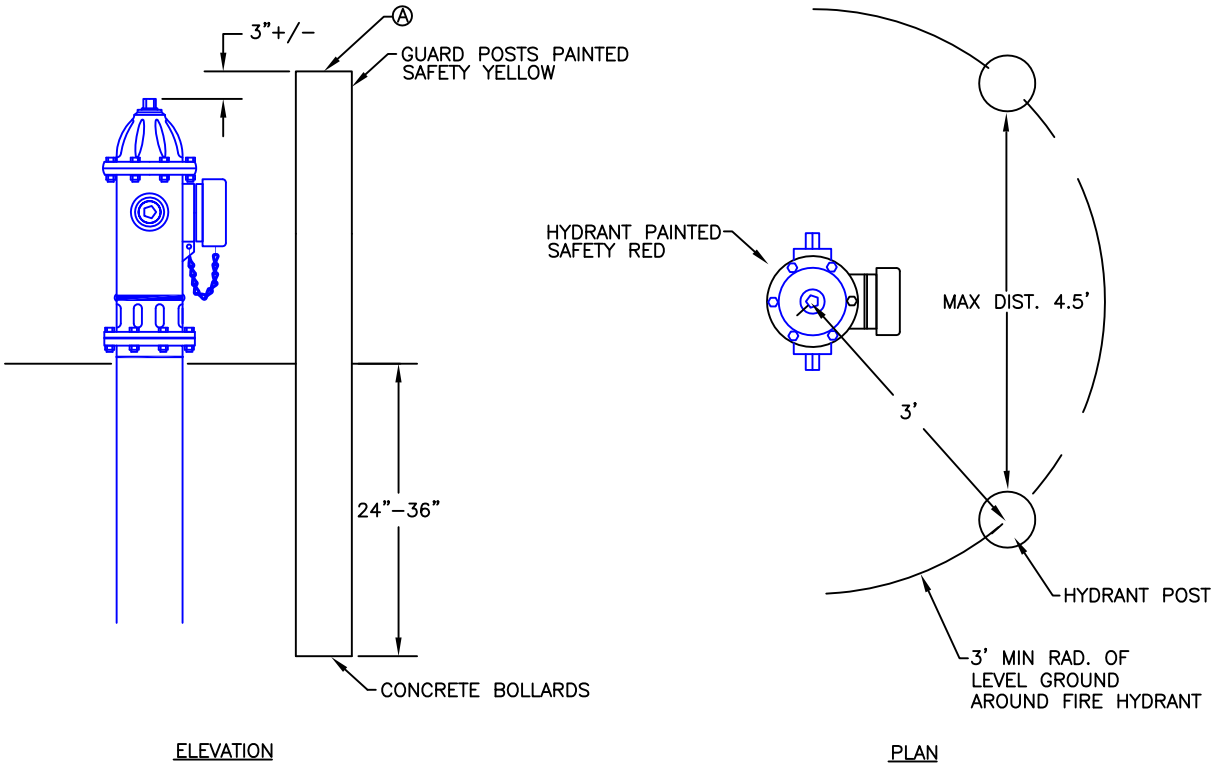
Revision approved: 2–1–13



NOTES:

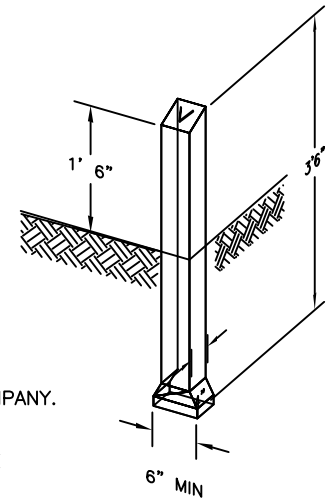
1. ALL FITTINGS SHALL BE BRASS

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	QUAD WATER SERVICE	Detail 4-06 Approval Date: 02-13-07



FIRE HYDRANT GUARD POST

VALVE MARKER POST



NOTES:

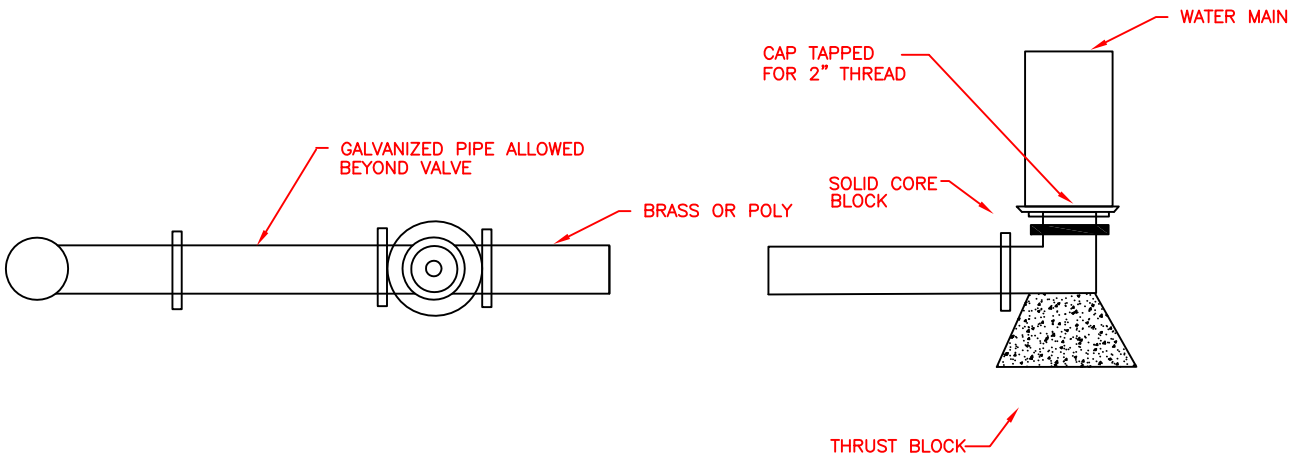
(A) 3" PLUS OR MINUS FROM TOP OF FIRE HYDRANT TO TOP OF HYDRANT GUARD POSTS.(POSTS PAINTED SAFETY YELLOW)

(B) VALVE MARKER POST SHALL BE EQUAL TO FOG TITE METER SEAL COMPANY. PAINT SAFETY BLUE

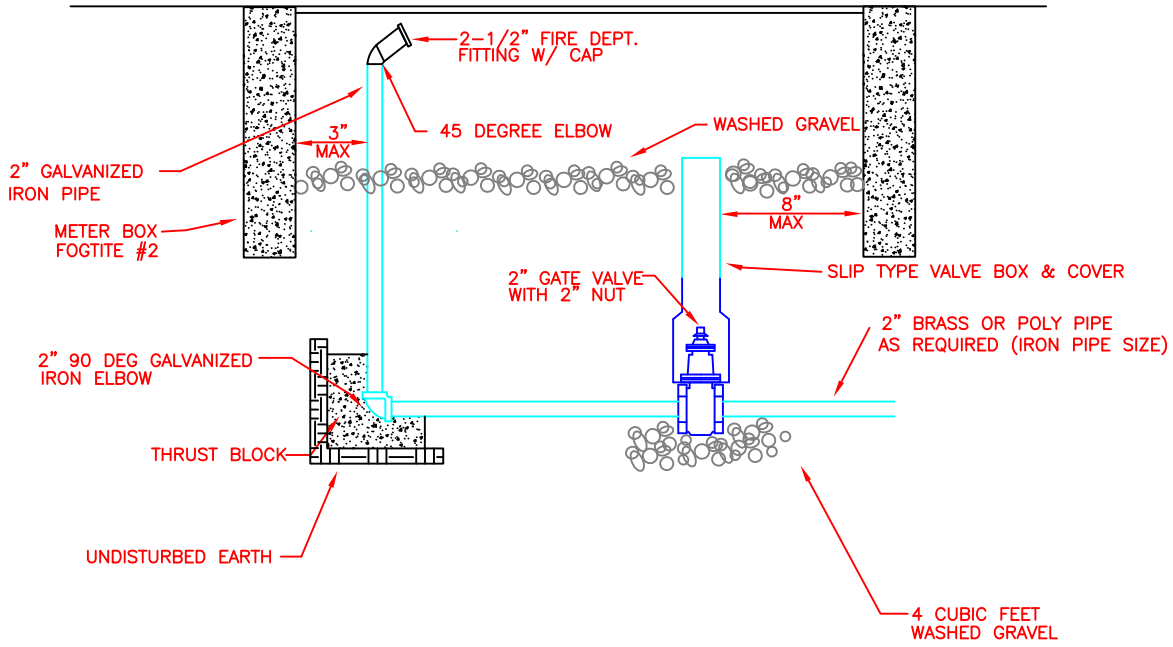
(C) VALVE MARKER POST TO BE USED FOR ALL MAINLINE VALVES OUTSIDE PAVED AREAS.

(D) POSTS REQUIRED WHEN HYDRANT IS LOCATED IN PAVED AREA POSTS FACING TRAFFIC.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	FIRE HYDRANT POST AND VALVE MARKER POST (NTS)	Detail 4-07 Approval Date: 02-13-07



PLAN @ END OF LINE



SECTION

NOTE
PLACE CONCRETE VALVE MARKER NEAR METER BOX
IN UNPAVED AREA

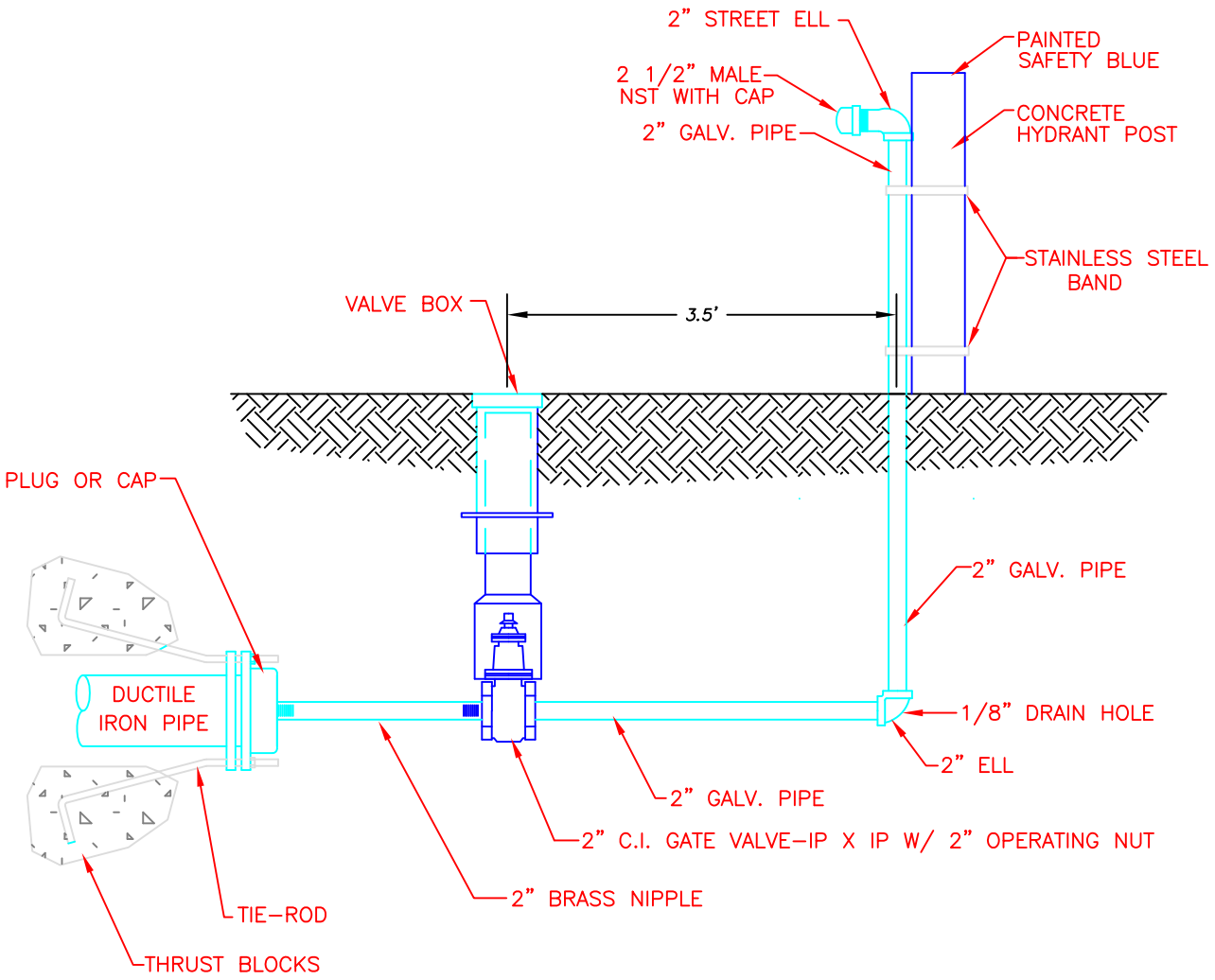
NOTES:

① PLUG OR CAP SHALL BE SECURED WITH MEGA-LUG FITTING AS IN ADDITION TO THRUST BLOCK & TIE ROD.

② VALVE MARKER SHALL BE INSTALLED FOR BLOW-OFFS INSTALLED IN UNPAVED AREAS. SEE VALVE MARKER DETAIL

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	STANDARD BLOW-OFF ASSEMBLY DETAIL BELOW GROUND (NTS)	Detail 4-08-A Approval Date: 02-13-07

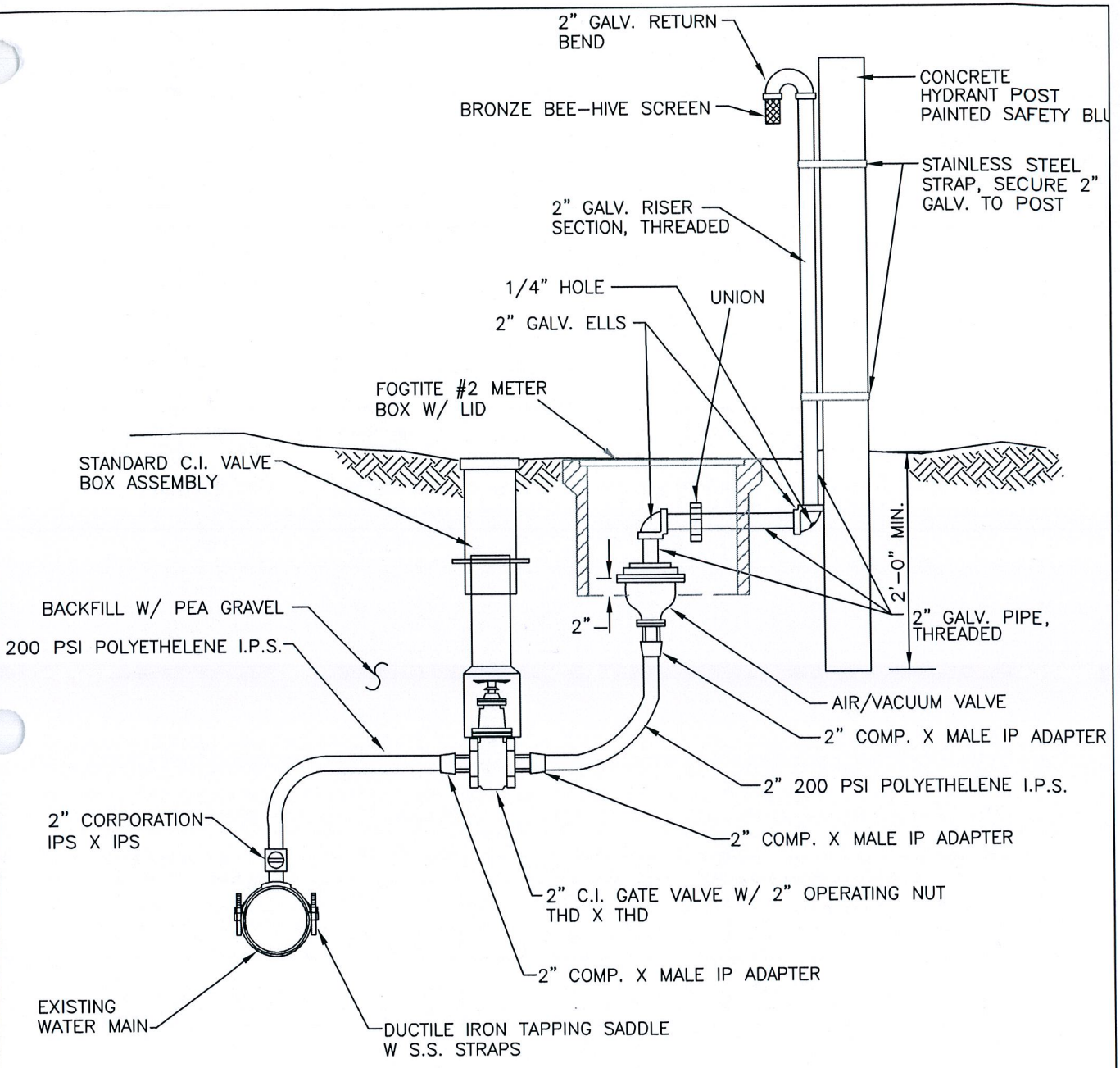
INSTALLATION



NOTES:

① PLUG OR CAP WILL BE SECURED WITH MEGA-LUG FITTING AS AN ADDITION TO THRUST BLOCK & TIE ROD.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	STANDARD BLOW-OFF ASSEMBLY ABOVE GROUND (NTS)	Detail 4-08-B Approval Date: 02-13-07

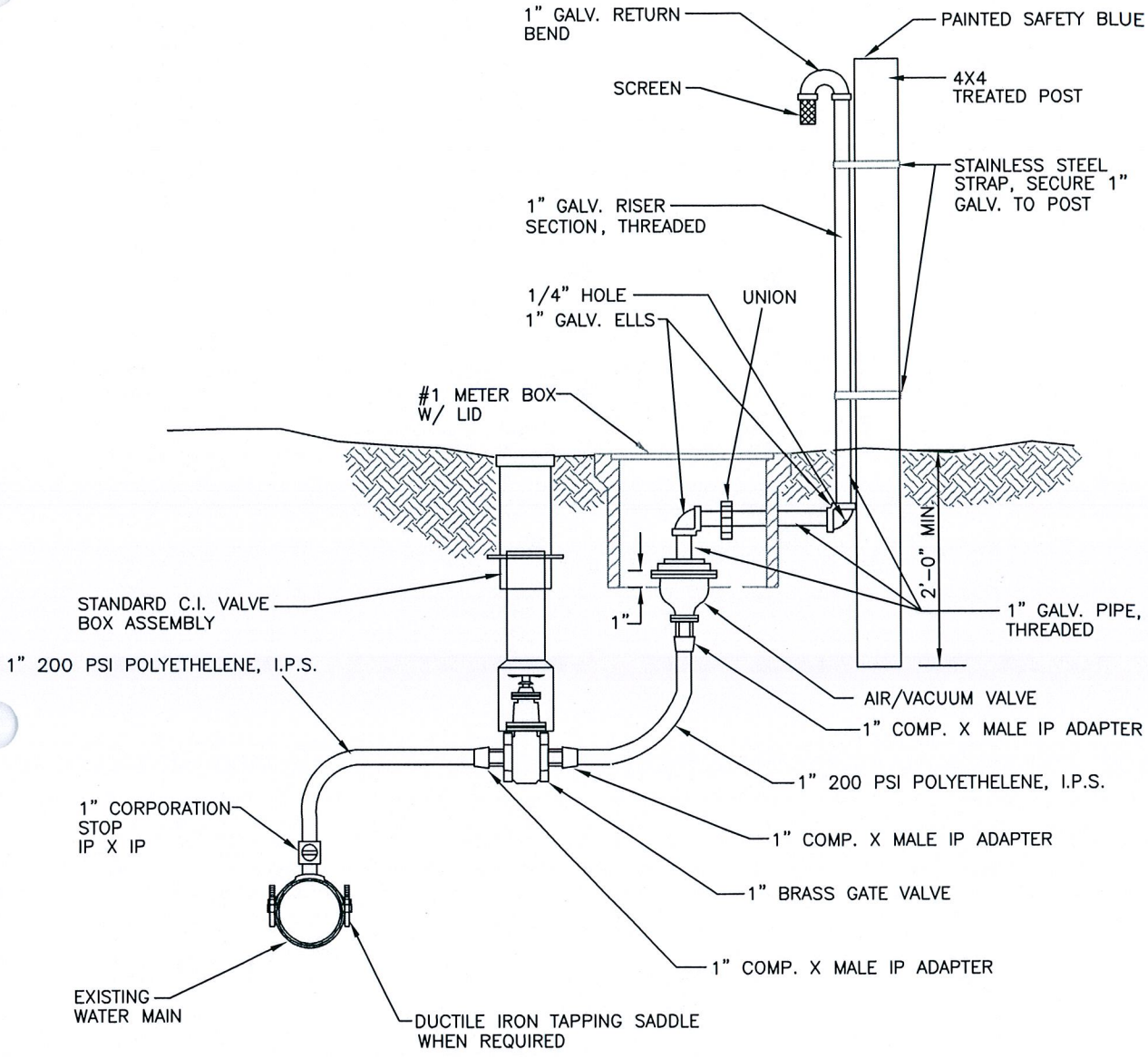


NOTE

1. USE APPROVED JOINT COMPOUND ON ALL THREADED CONNECTIONS.
2. PAINT 4X4 POST – SAFETY BLUE
3. AIR/VAC TO BE BURIED AS SHOWN FOR FREEZE PROTECTION.
4. LOCATION OF RISER SECTION TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION, AWAY FROM DRIVING SURFACE, ATTACHED TO 4X4 POST.
5. INSTALL UNION ON PIPING INSIDE BOX.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	2" AIR & VACUUM RELEASE VALVE ASSEMBLY 12" MAIN OR LARGER	Detail 4-09 Approval Date: 02-13-07

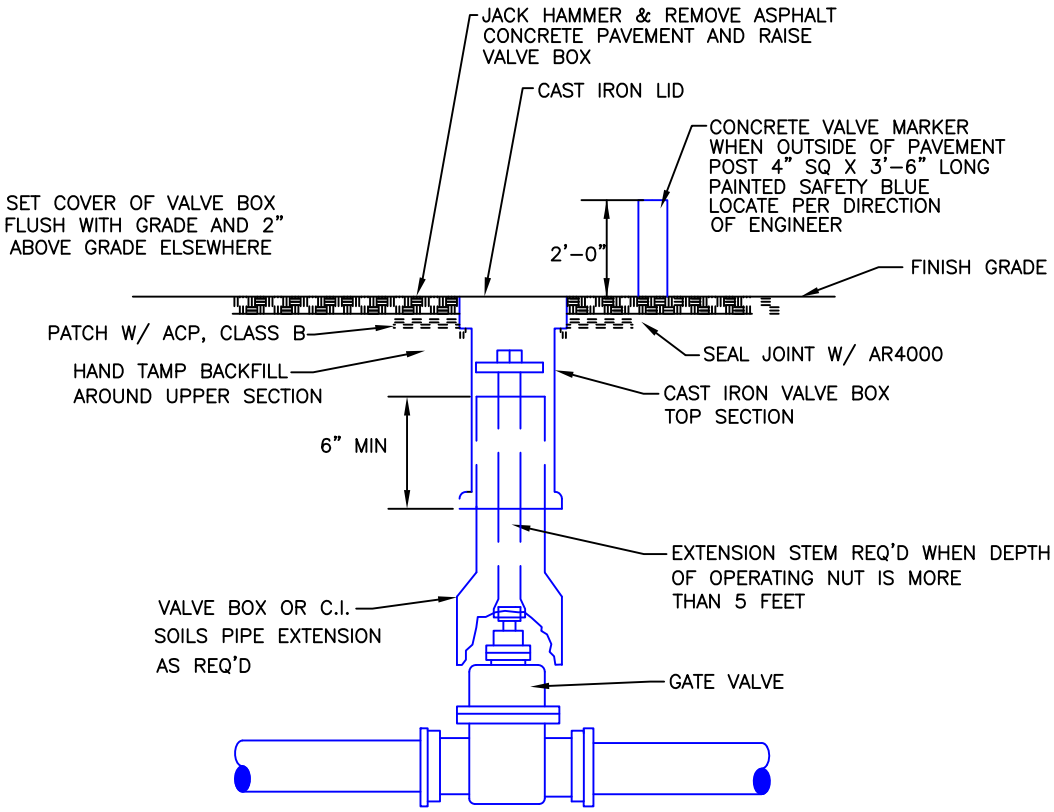
09 revised

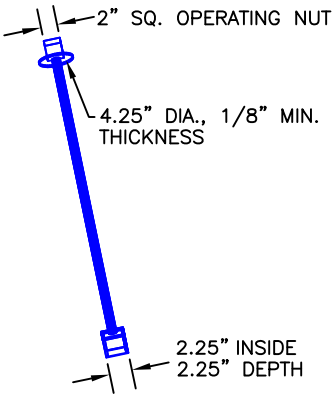


NOTE

1. USE APPROVED JOINT COMPOUND ON ALL THREADED CONNECTIONS.
2. PAINT 4X4 POST – SAFETY BLUE
3. AIR/VAC TO BE BURIED AS SHOWN FOR FREEZE PROTECTION.
4. LOCATION OF RISER SECTION TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION, AWAY FROM DRIVING SURFACE, ATTACHED TO 4X4 POST.
5. INSTALL UNION ON PIPING INSIDE BOX.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	1" AIR & VACUUM RELEASE VALVE ASSEMBLY 10" MAIN AND SMALLER	Detail 4-10 Approval Date: 02-13-07 09 revised





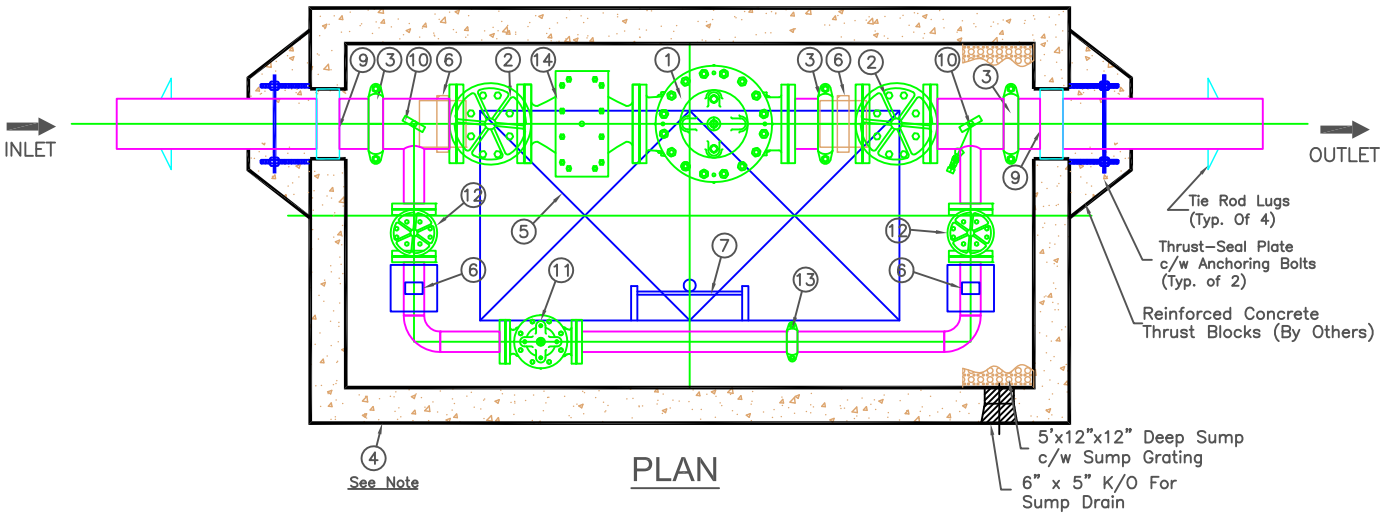
NOTES:

EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN FIVE (5) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION TO BE USED PER VALVE.

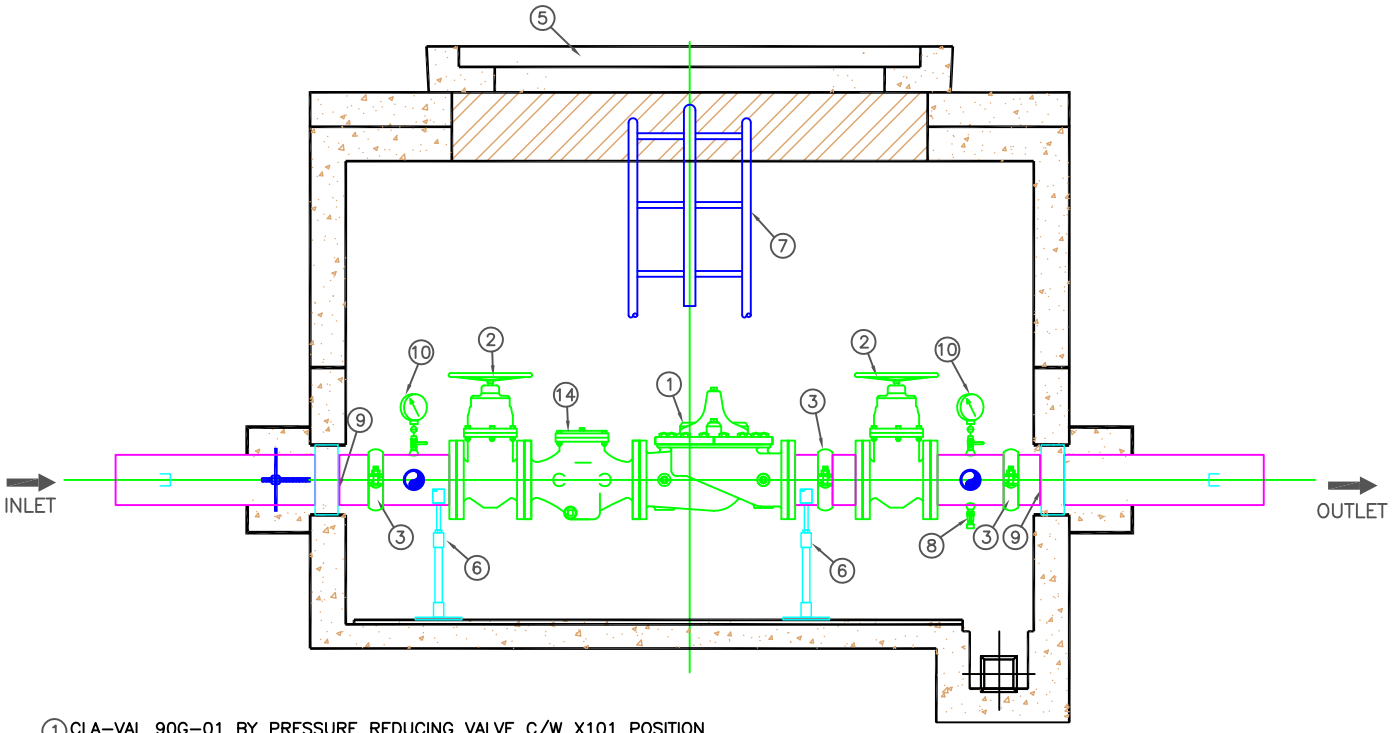
VALVE BOX EXTENSIONS SHALL BE 5" C.I. SOILS PIPE–TYLER TY SEAL

NOTES:
1. ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH 2 COATS OF METAL PAINT.
2. RAISE THE VALVE BOX TO FINISH GRADE AFTER ASPHALT CONCRETE WORK IS COMPLETED BUT IN NO CASE LATER THAN 48 HOURS.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	VALVE OPERATING EXTENSION AND DETAIL (NTS)	Detail 4–11 Approval Date: 02–13–07



PLAN



1. CLA–VAL 90G–01 BY PRESSURE REDUCING VALVE C/W X101 POSITION INDICATOR, DI BODY, BRONZE TRIM – #150 FLGD 30–300 PSI RANGE
2. CLOW WW25125 NRS RW GATE VALVE C/W HANDWHEEL – #150 FLGD
3. VICTAULIC #07 COUPLING
4. PRECAST CONCRETE CHAMBER C/W WHITE INTERIOR & BLACK EXTERIOR SEALANT
5. 36" X 72" ALUMIUM DOUBLE DOOR HATCH H20–44 CLASS B LOADING
6. ADJUSTABLE PIPE SUPPORTS
7. ALUMINUM LADDER WITH SAFETY POST
8. 3/4" HOSE BIB
9. PIPE SEAL ASSEMBLY
10. 4" (0–200PSI) PRESSURE GAUGE C/W ISOLATION VALVES
11. CLA–VAL 90G–01 ABS PRESSURE REDUCING VALVE C/W X101 POSITION INDICATOR, DI BODY, BRONZE TRIM – #150 FLGD 30–300PSI RANGE
12. CLOW WW2500 NRS RW GATE VALVE C/W HANDWHEEL – #130 FLGD
13. VICTAULIC #07 COUPLING
14. CLA VAL X43H STRAINER C/W BLOWDOWN

NOTES:

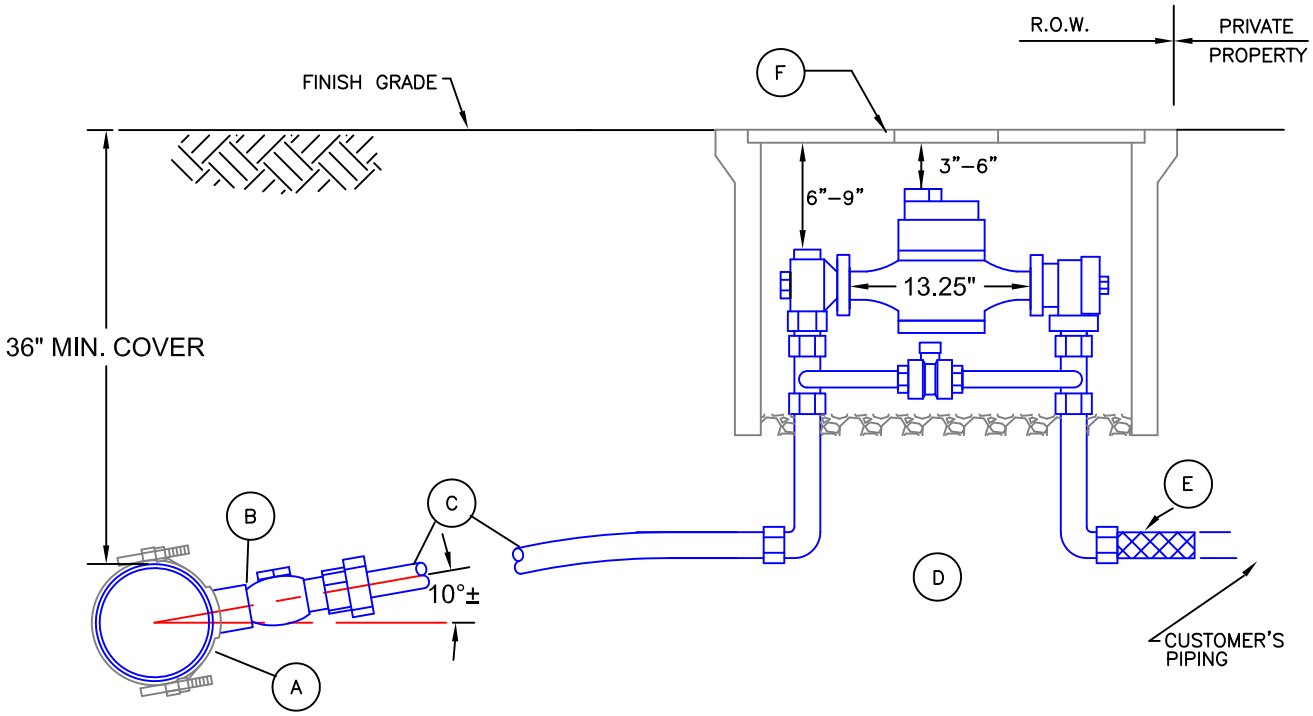
SIZING OF VAULT, PIPE & VALVES TO BE PROVIDED BY ENGINEER

STANDARD FABRICATION & FINISHING SPECIFICATIONS

FABRICATED STEEL PIPE & FITTINGS TO BE SCHEDULE NO. 40 STEEL PIPE FOR SIZES TO 10", AND 3/8" WALL FOR 12" AND LARGER.

ALL 2" AND SMALLER PIPE TO BE THREADED BRASS. ALL 3" AND LARGER PIPE, INSIDE WETTER SURFACES TO BE SANDBLASTED, EPOXY LINED AND COATED TO AWWA C–210 AND NSF–61 SPECIFICATION. FINISH COATING WILL BE BLUE ENAMEL.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	STANDARD PRESSURE REDUCING STATION DETAIL (NTS)	Detail 4–12 Approval Date: 02–13–07



HORIZONTAL METER SETTER INSTALLATION

(A) DUCTILE IRON SERVICE SADDLE WITH IP THREAD AND DOUBLE STAINLESS STRAPS

(B) CORPORATION STOP, IP X IP

(C) 200 PSI HIGH DENSITY POLYETHELENE I.P.S. WITH BRASS COMPRESSION COUPLINGS WITH STIFFENERS

(D) 1–1/2" OR 2" LOCKABLE METER SETTER WITH LOCKABLE HIGH BY–PASS OPTION & CHECK VALVE

(E) 12" X 1–1/2" OR 2" BRASS NIPPLE

(F) FOGTITE #2 CONCRETE METER BOX, STEEL TRAFFIC LID WITH 1 1/2" LID HOLE FOR TOUCH–READ PAD

NOTES

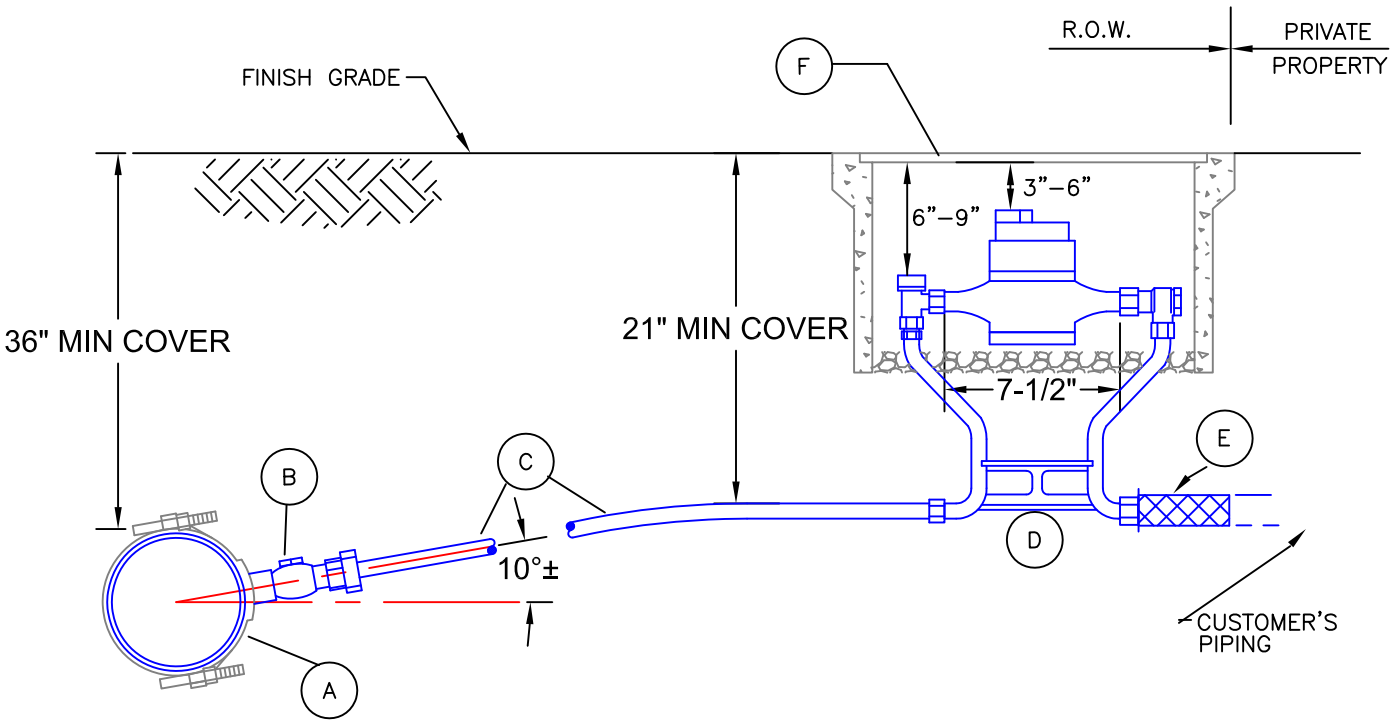
SERVICE LINES SHALL BE PERPENDICULAR TO THE WATERMAIN, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

AN APPROVED BACKFLOW ASSEMBLY MUST BE INSTALLED PER D.S.H.S. REQUIREMENTS. IRRIGATION SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL THE BACKFLOW ASSEMBLY INSTALLATION IS APPROVED BY A CITY OF POULSBO INSPECTOR.

METER WILL BE SUPPLIED AND INSTALLED BY THE CITY OF POULSBO UTILITY DEPARTMENT

LOCATE WIRE SHALL BE 14 GAUGE VINYL COATED COPPER WIRE PLACED WITH POLYETHYLENE SERVICE LINE. BARE LOCATE WIRE (STRIPPED) SHALL BE WRAPPED AROUND THE CORPORATION STOP A MINIMUM OF TWO TIMES. THE END IN THE METER BOX SHALL BE LOOPED WITHIN THE METER BOX.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	TYPICAL WATER SERVICE 1–1/2" OR 2" DOMESTIC OR IRRIGATION WATER SERVICE WITH HIGH BYPASS (NTS)	Detail 4–13 Approval Date: 02–13–07



HORIZONTAL METER INSTALLATION

(A) DUCTILE IRON SERVICE SADDLE W/ DOUBLE S.S. STRAPS & IP THREADS

(B) 1" CORPORATION STOP IP X IP

(C) 1" I.P.S., 200 PSI HIGH DENSITY POLYETHELENE W/ LOCATE WIRE.

(D) METER SETTER W/ ANGLE STOP & CHECK VALVE

(E) 12" BRASS NIPPLE

(F) FOR 3/4" METER: FOGTITE B9 CONCRETE METER BOX
FOR 1" METER: FOTGITE B9–1/2 CONCRETE METER BOX
ALL BOXES: STEEL TRAFFIC LID WITH A 1–1/2" LID HOLE FOR TOUCH–READ PAD

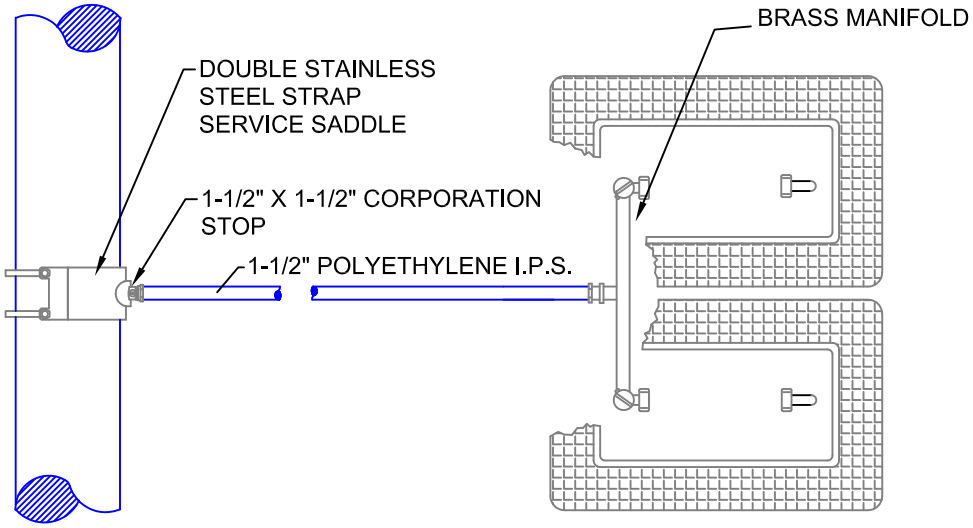
NOTES

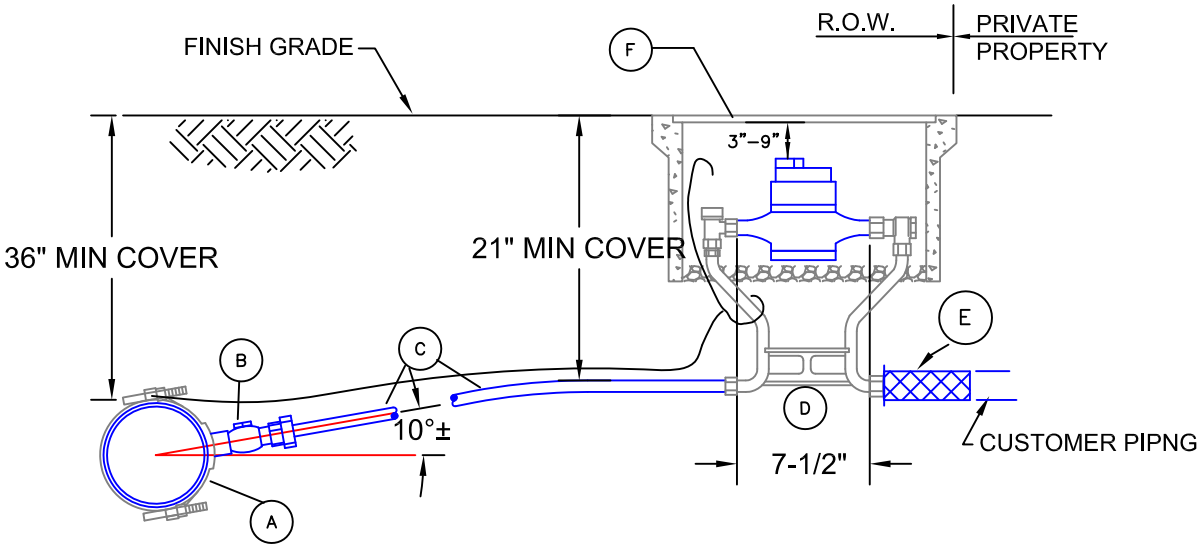
SERVICE LINES SHALL BE PERPENDICULAR TO THE WATERMAIN, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

FOR IRRIGATION AND COMMERCIAL SERVICES AN APPROVED BACKFLOW ASSEMBLY MUST BE INSTALLED WITHIN 18" OF METER PER CITY OF POULSBO REQUIREMENTS. IRRIGATION SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL THE BACKFLOW PREVENTION INSTALLATION IS APPROVED BY A CITY OF POULSBO INSPECTOR.

LOCATE WIRE SHALL BE 14 GAUGE, VINYL COATED COPPER, PLACED WITH POLYETHELENE SERVICE LINE. BARE LOCATE WIRE (STRIPPED) SHALL BE WRAPPED AROUND THE CORPORATION STOP A MINIMUM OF TWO TIMES. THE END IN THE METER BOX SHALL BE LOOPED WITHIN THE METER BOX.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	TYPICAL WATER SERVICE 5/8" X 3/4" OR 1" DOMESTIC OR IRRIGATION WATER SERVICE (NTS)	Detail 4–14 Approval Date: 02–13–07





HORIZONTAL METER INSTALLATION

(A) D.I. & C.I.–DI SADDLE W/ S.S. STRAPS & IP THREADS

(B) 1 1/2" CORPORATION STOP IP X IP

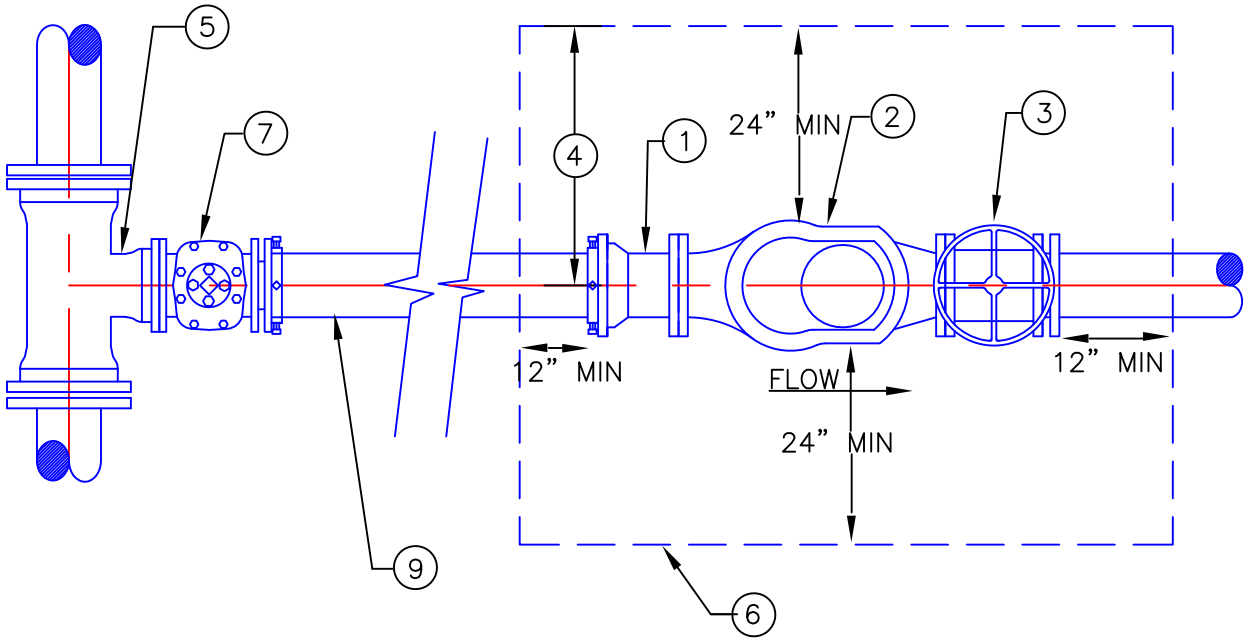
(C) 1 1/2" 200 PSI POLYETHELENE I.P.S. W/ LOCATE WIRE (14 GAUGE VINYL COATED COPPER) & BRASS COMPRESSION COUPLINGS WITH STIFFENERS.

(D) 12" METER SETTER W/ LOCKABLE ANGLE STOP & CHECK VALVE

(E) 12" BRASS NIPPLE

(F) CONCRETE METER BOX, FOGTITE #B9.5 OR HIGH DENSITY PLASTIC WITH TRAFFIC LID. TOUCH READ LID

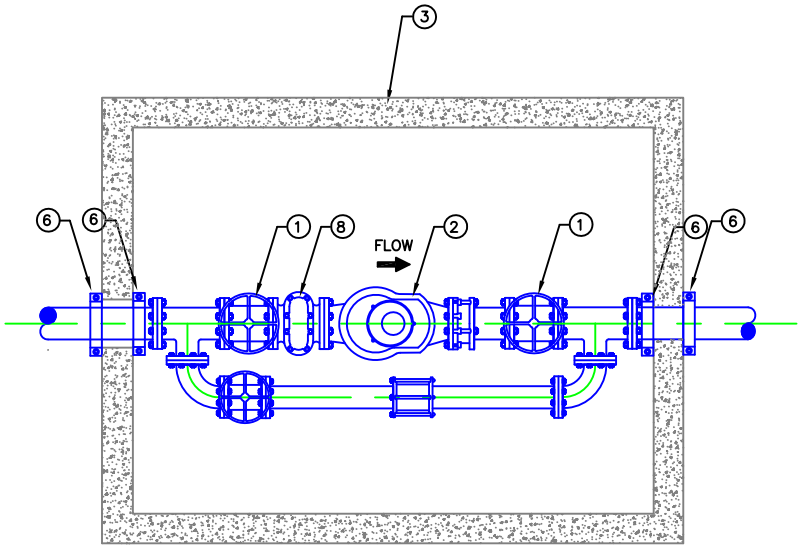
CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	DOUBLE SERVICE CONNECTION 3/4" & 1" DIAMETER	Detail 4–15 Approval Date: 02–13–07



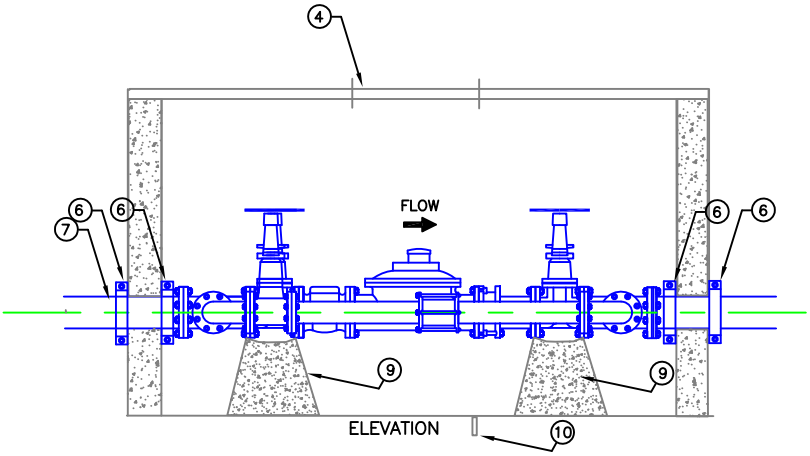
GENERAL NOTES

1. ADAPTER MJxFL DI W/MEGA-LUG
2. SENSUS COMPOUND METER
3. GATE VALVE- FL X MJ R/S WITH HAND WHEEL
4. CENTER INSTALLATION IN VAULT
5. MAINLINE TEE AND VALVE
6. CONCRETE VAULT WITH BOTTOM-SIZE AS REQUIRED
7. GATE VALVE
8. PLACE VALVE SUPPORTS UNDER VALVES INSTALLED IN VAULT
9. DUCTILE IRON PIPING
10. INSTALL 3'x3' SPRING-LOADED LID. CENTER OVER METER
11. MIN 12" BETWEEEN BOTTOM OF PIPE & FLOOR OF VAULT
12. WATER METER - (3" TO 10") TYPE AND SIZE AS REQUIRED (SUPPLIED BY THE CONTRACTOR) CUBIC FEET READING
13. MUST HAVE GRAVITY DRAIN TO DAYLIGHT

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	TYPICAL COMPOUND WATER METER INSTALLATION 3" TO 10" (NTS)	Detail 4-16 Approval Date: 02-13-07



PLAN

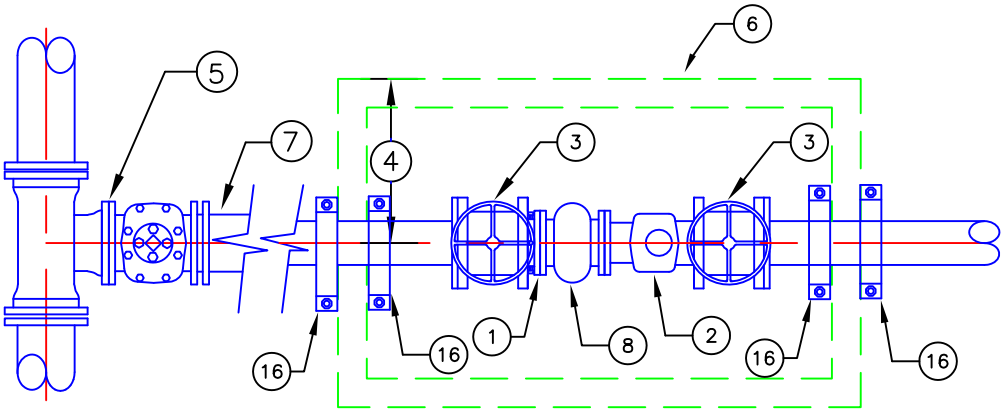


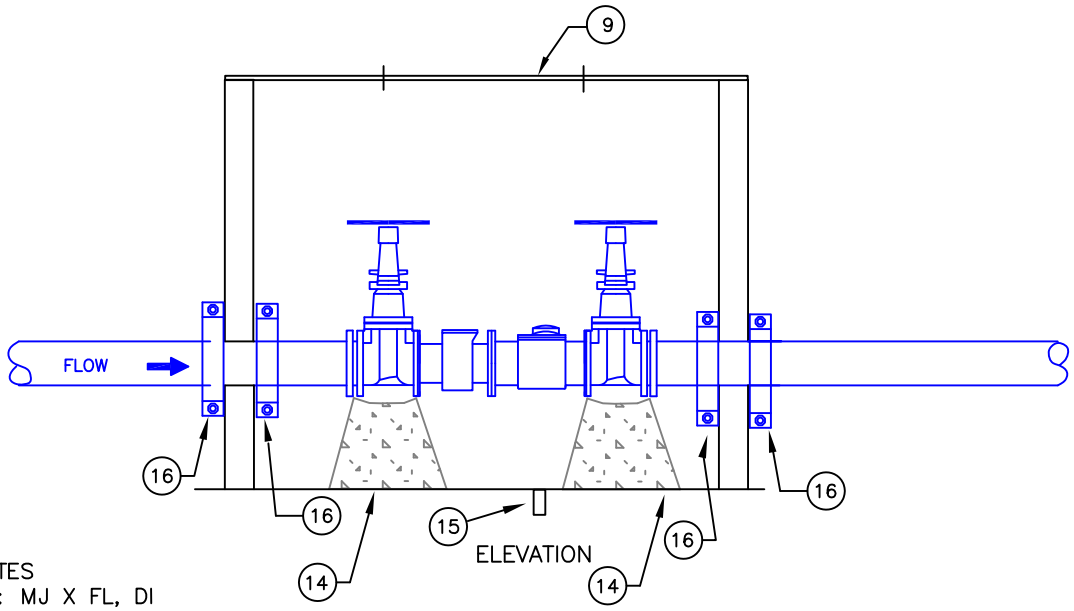
ELEVATION

NOTES

1. 2 GATE VALVES– MJ X FL
   (OS&Y VALVES FOR FIRELINE USAGE)
2. WATER METER–(3" TO 10") TYPE AND SIZE AS REQUIRED
   (SUPPLIED BY THE CONTRACTOR) CUBIC FEET
   READING
3. PRECAST CONCRETE VAULT (SIZE AS REQUIRED)
4. 3'X3' SPRING–LOADED LID (SUPPLIED BY THE CONTRACTOR)
   MARKED " WATER" ON LID
5. FOR BYPASS: 2 SERVICE SADDLES AND 1" CORPORATIONS (3" METER ONLY)
   OR 2" (OPTIONAL OR PERMANENT) BYPASS (OVER 3" METERS)
   CONSISTING OF
   2–2" TAPPING SADDLES
   2–2" GATE VALVES FL X FL
   2" GALV. PIPING (AS REQUIRED)
6. VALVES TO BE RESTRAINED WITH MEGA–LUGS AT INSIDE
   & OUTSIDE OF VAULT WALL AT BOTH ENDS.
7. PIPING–4" MIN. D.I. PIPE
   (FOR 3" METERS, REDUCE DOWN FROM 4")
8. STRAINER (REQUIRED)
9. PERMANENT SUPPORTS UNDER EACH VALVE WITH PIPE JACKS
   WITH SADDLE OR CRADLE
10. MUST HAVE GRAVITY DRAIN TO DAYLIGHT
11. ALL JOINTS WITHIN VAULT SHALL BE RESTRAINED WITH
    MEGA–LUGS OR FLANGED FITTING

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	TYPICAL COMPOUND WATER METER 3" TO 10" WITH BYPASS (NTS, ANNOTATED)	Detail 4–17 Approval Date: 02–13–07

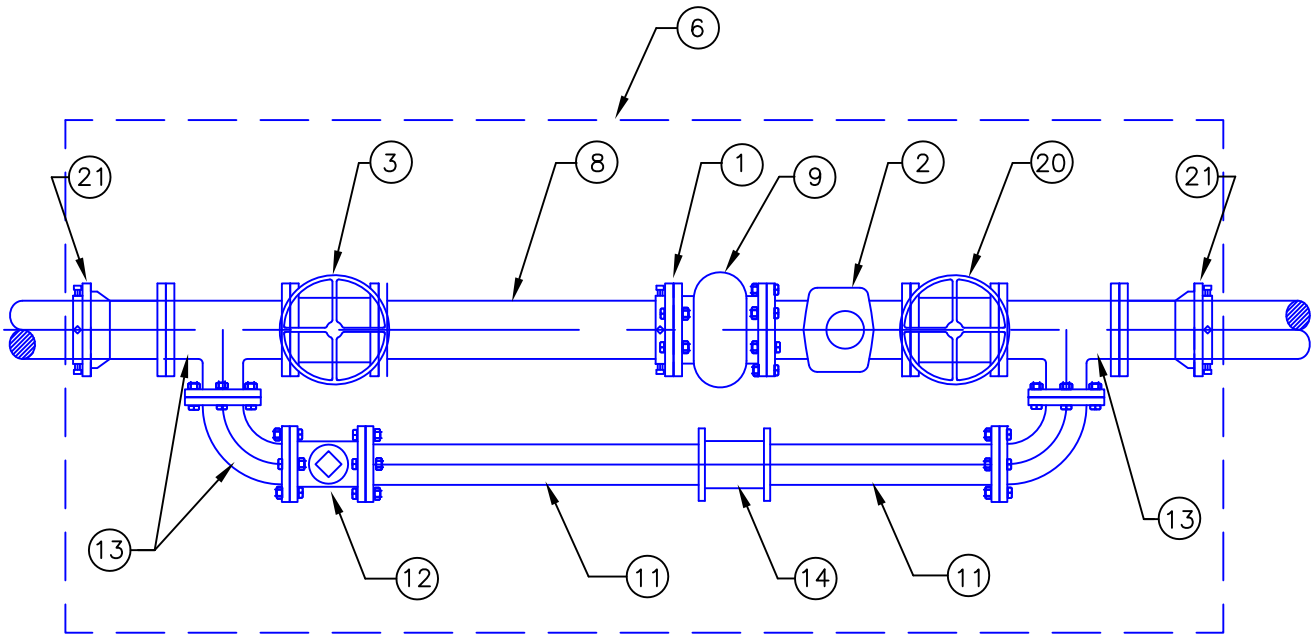




GENERAL NOTES

1. ADAPTER: MJ X FL, DI
2. SENSUS TURBINE METER WITH INTEGRATED STRAINER–SIZE AS REQUIRED.
   A MINIMUM OF 5 PIPE DIAMETERS OF STRAIGHT RUN OF PIPE IS REQUIRED UPSTREAM OF THE METER.
3. GATE VALVE– FL X MJ, R/S WITH HAND WHEEL.
4. CENTER METER INSTALLATION IN THE VAULT
5. MAINLINE TEE AND VALVE
6. CONCRETE VAULT–SIZE AS REQUIRED, INSTALLED WITH BOTTOM
7. DUCTILE IRON PIPING
8. STRAINER ATTACHED TO METER
9. INSTALL MH FRAME AND LID, CENTER OVER METER. IN TRAFFIC AREAS, C.I. LID LABELED "WATER".
   IN NON–TRAFFIC AREAS INSTALL 3X3 SPRING–LOADED LID.
10. DO NOT INSTALL CHECK VALVES AND PRESSURE REDUCING VALVES UPSTREAM OF THE METER.
11. EXTERNALLY WEIGHTED CHECK VALVES AND PRESSURE REDUCING DEVICES SHOULD NOT BE LOCATED CLOSER THAN 5 PIPE DIAMETERS DOWNSTREAM OF THE METER.
12. UNWEIGHTED CHECK VALVES SHOULD NOT BE LOCATED CLOSER THAN 3 PIPE DIAMETERS DOWNSTREAN OF THE METER.
13. VALVES IMMEDIATELY UPSTREAM OF THE METER SHOULD ONLY BE FULL–OPEN GATE VALVES.
14. PERMANENT SUPPORTS UNDER EACH VALVE WITH PIPE JACKS WITH SADDLE OR CRADLE
15. MUST HAVE GRAVITY DRAIN TO DAYLIGHT
16. VALVES TO BE RESTRAINED WITH MEGA–LUGS AT INSIDE & OUTSIDE OF VAULT WALL AT BOTH ENDS.
17. ALL JOINTS WITHIN VAULT SHALL BE RESTRAINED WITH MEGA–LUGS OR FLANGED FITTINGS.

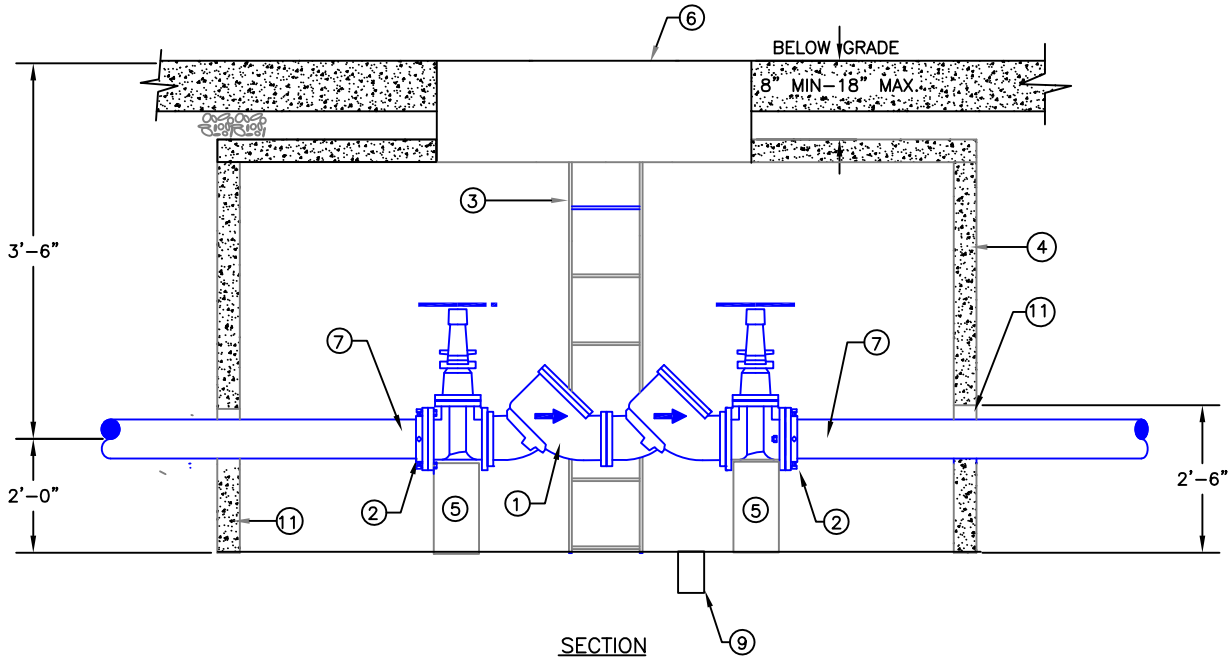
CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	TYPICAL TURBINE WATER METER INSTALLATION 3" TO 10"	Detail 4–18 Approval Date: 02–13–07



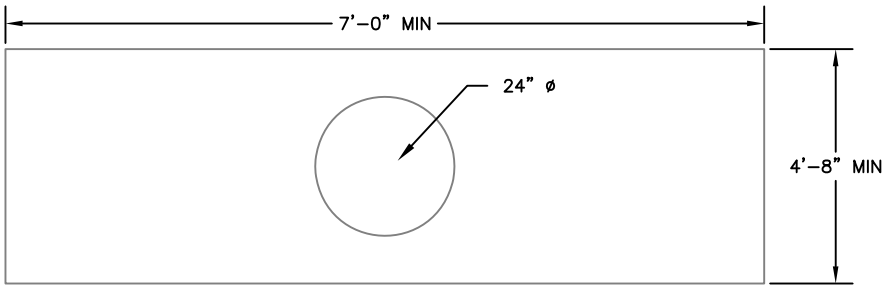
GENERAL NOTES

1. ADAPTER, SIZE AS REQUIRED, MJ X FL.
2. SENSUS TURBINE METER WITH INTEGRATED STRAINER–SIZE AS REQUIRED.
3. GATE VALVE–FL X MJ, MEGALUG W/ HANDWHEEL.
4. CENTER METER INSTALLATION IN THE VAULT.
5. MAINLINE TEE AND VALVE
6. CONCRETE VAULT–SIZE AS REQUIRED, INSTALLED WITH BOTTOM
7. PLACE PERMANENT SUPPORTS UNDER EACH VALVE WITH PIPE JACKS WITH SADDLE OR CRADLE
8. DUCTILE IRON PIPING
9. STRAINER FL X FL, OR ATTACHED TO METER.
10. INSTALL MH FRAME AND LID, CENTER OVER METER. IN TRAFFIC AREAS, C.I. LID LABELED "WATER". IN NON–TRAFFIC AREAS INSTALL 3X3 SPRING–LOADED LID.
11. BYPASS PIPING (SIZE PER SENSUS RECOMMENDATIONS)
12. BYPASS GATE VALVE
13. BYPASS 90° BENDS AND TEES (MAINLINE SIZE X BYPASS SIZE) FL X FL.
14. BYPASS COUPLING
15. A MINIMUM OF 5 PIPE DIAMETERS OF STRAIGHT RUN OF PIPE IS REQUIRED UPSTREAM OF THE METER.
16. DO NOT INSTALL CHECK VALVES AND PRESSURE REDUCING DEVICES UPSTREAM OF THE METER.
17. EXTERNALLY WEIGHTED CHECK VALVES AND PRESSURE REDUCING DEVICES SHOULD NOT BE LOCATED CLOSER THAN 5 PIPE DIAMETERS DOWNSTREAM OF THE METER.
18. UNWEIGHTED CHECK VALVES SHOULD NOT BE LOCATED CLOSER THAN 3 PIPE DIAMETERS DOWNSTREAM OF THE METER.
19. VALVES IMMEDIATELY UPSTREAM OF THE METER SHOULD ONLY BE FULL–OPEN GATE VALVES.
20. GATE VALVE, FL X FL W/ HANDWHEEL.
21. ADAPTER SIZE AS REQUIRED, MJ X FL W/ MEGALUG.
22. VALVES TO BE RESTRAINED WITH MEGA–LUGS AT INSIDE & OUTSIDE OF VAULT WALL AT BOTH ENDS.
23. ALL JOINTS WITHIN VAULT SHALL BE RESTRAINED WITH MEGA–LUGS OR FLANGED FITTINGS.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	TYPICAL TURBINE METER WITH BYPASS	Detail 4–19 Approval Date: 02–13–07



SECTION

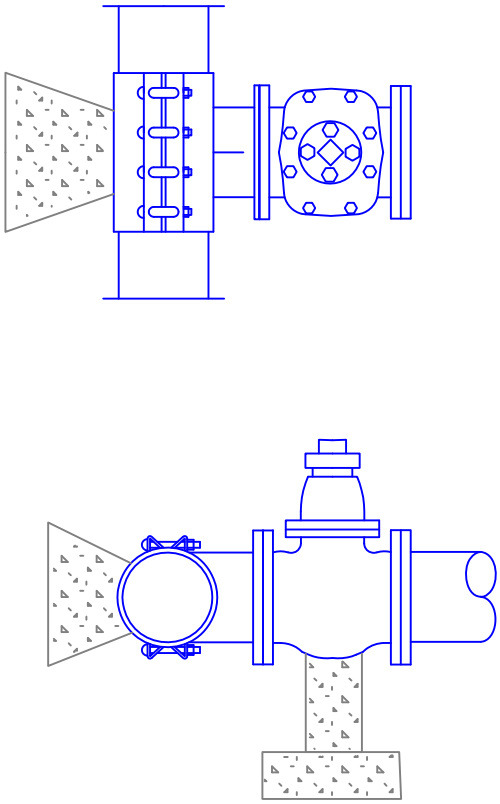


PLAN

GENERAL NOTES

1. DOUBLE CHECK VALVE ASSEMBLY, COMPLETE WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS AND BRASS OR COPPER DETECTOR BY–PASS.
2. UNIFLANGED ADAPTER (6X4 REDUCER WHERE NECESSARY, SEE PLAN).
3. ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
4. CONCRETE UTILITY VAULT SIMILIAR TO UTILITY VAULT CO. MODEL #575–LA.
5. CONCRETE VALVE SUPPORTS – PERMANENT SUPPORTS UNDER EACH VALVE WITH PIPE JACKS WITH SADDLE OR CRADLE
6. LID SHOULD BE FULL SIZE 3 X 3 DOUBLE DOOR ALUMINUM. IN SIDEWALKS, A FIBERGLASS "SLIP–NOT" LID IS REQUIRED
7. CL 52 D.I. PIPE
8. ALL JOINTS WITHIN VALULT SHALL BE RESTRAINED WITH MEGA–LUGS OR FLANGED FITTINGS.
9. MUST HAVE GRAVITY DRAIN TO DAYLIGHT
10. VALVES TO BE RESTRAINED WITH MEGA–LUGS AT INSIDE & OUTSIDE OF VAULT WALL AT BOTH ENDS
11. OPENING SAME AS PIPE SIZE W/FULL RADIUS. GROUT & SEAL AROUND PIPE ONCE VAULT IS SET.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	DOUBLE CHECK VALVE ASSEMBLY (FOR FIRELINES, NTS)	Detail 4–20 Approval Date: 02–13–07

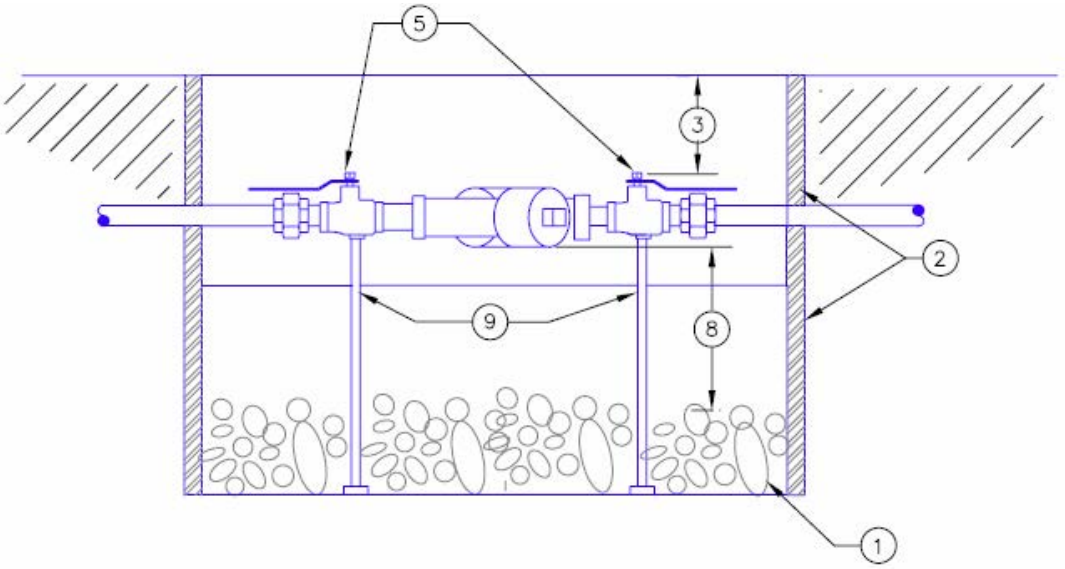


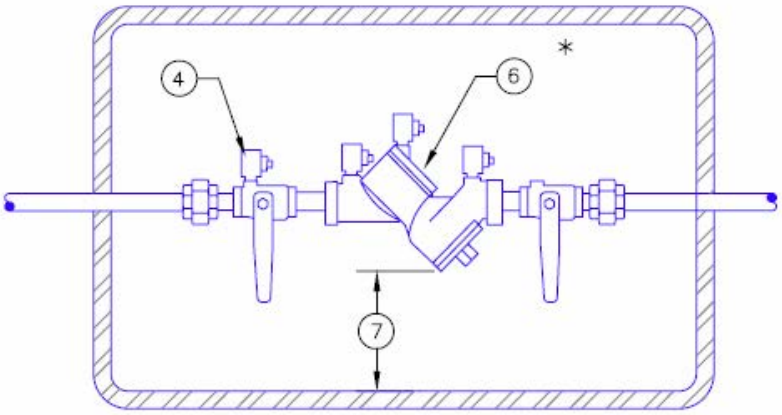
STAINLESS STEEL TAPPING TEE

NOTES

1. STAINLESS STEEL TAPPING SLEEVES SHALL HAVE FULL CIRCLE SEAL.
2. ALL TEES AND VALVES TO BE WATER TESTED BEFORE TAP.
3. SIZE ON SIZE TAPS REQUIRE 30" SLEEVE
4. TAPPING SLEEVE SHALL BE ROMAC SST, 20" MIN, OR EQUIVALENT

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	STAINLESS STEEL TAPPING TEE (NTS)	Detail 4–21 Approval Date: 02–13–07



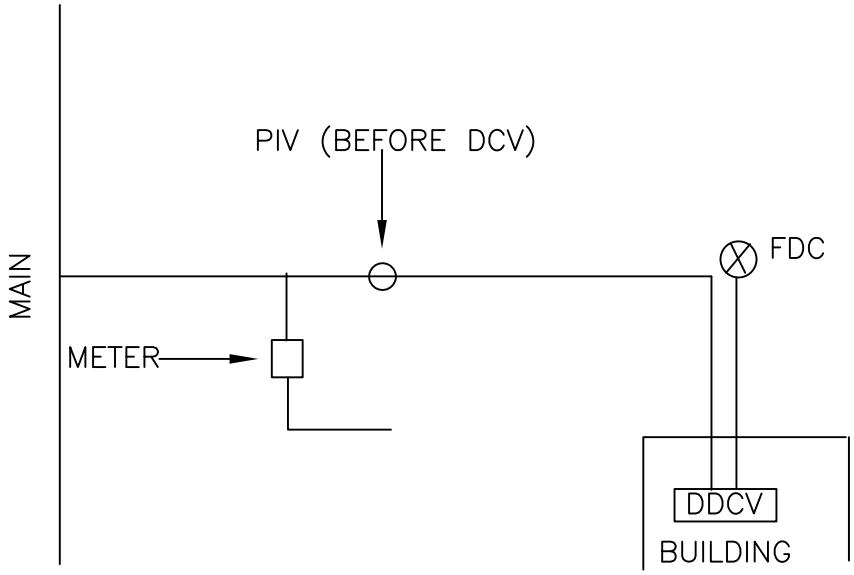


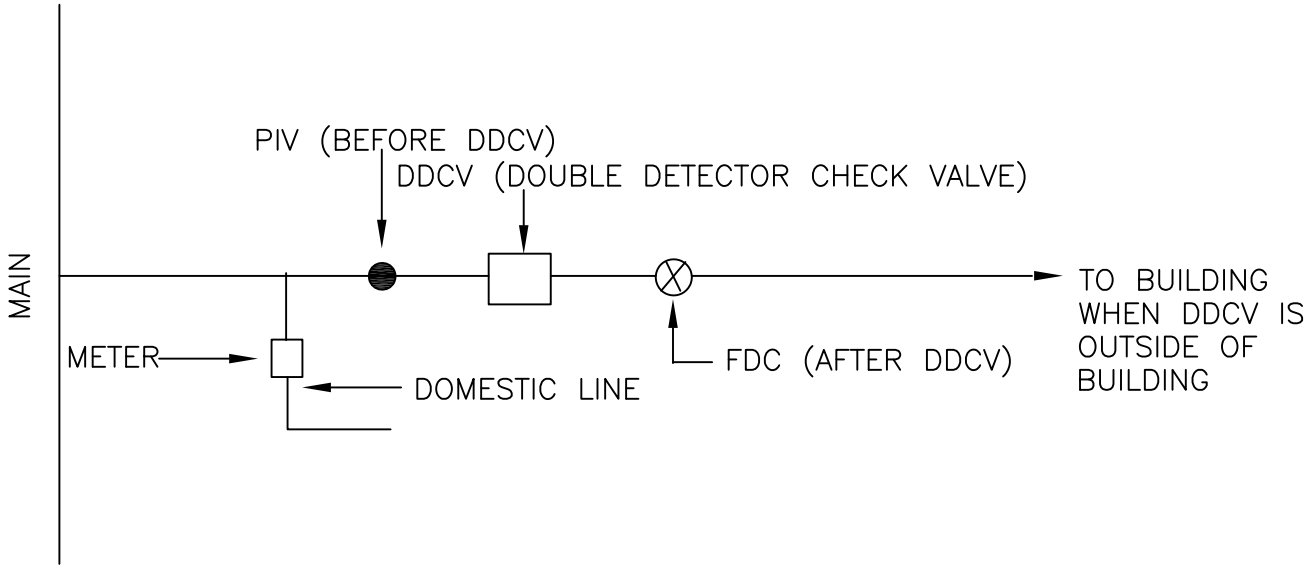
*INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS

NOTES

1 PEA GRAVEL 6" DEEP ON BOTTOM OF BOX.
2 ENCLOSE 2" & SMALLER D.C.V.A. IN 2 METER BOXES STACKED ON TOP OF EACH OTHER OR , OVERSIZED BOX WHEN NEEDED. MUST HAVE A REMOVABLE COVER.
3 MINIMUM OF 3" AND MAXIMUM 6" DISTANCE BETWEEN UNDERSIDE OF LID AND HIGHEST POINT OF DEVICE.
4 MUST INCLUDE (4) RESILIENT SEATED TEST–COCKS WITH PLUGS INSTALLED.
5 THE D.C.V.A. MUST INCLUDE (2) RESILIENT SEATED SHUT OFF VALVES.
6 Y–PATTERN D.C.V.A. SHOULD BE INSTALLED ON SIDE.
7 INSTALL TEST COCKS FACE UP WITH A MINIMUM 6" CLEARANCE BETWEEN THE TEST COCKS AND THE LID.
8 MINIMUM OF 3" BETWEEN LOWEST POINT OF DEVICE AND DRAIN ROCK.
9 PROVIDE SUPPORT FOR 2" DEVICES.
10 TEST BEFORE USE AND SEND REPORT TO POULSBO WATER UTILITY FOR APPROVAL.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	3/4"–2" OUTSIDE INSTALLED DOMESTIC, IRRIGATION OR FIRE SPRINKLER DOUBLE CHECK VALVE ASSEMBLY	Detail 4–22 Approval Date:





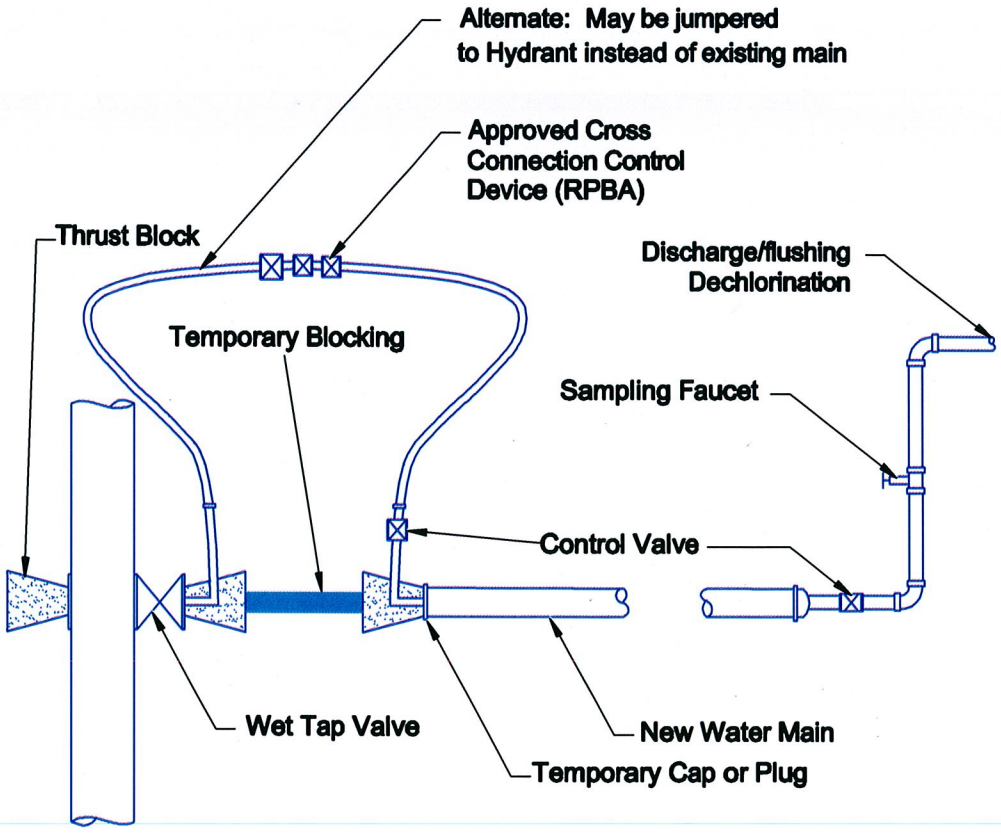
NOTES

1. FDC (FIRE DEPARTMENT CONNECTION) MUST BE <50' FROM HYDRANT. PREFERRED TO HAVE PIV (POST INDICATOR VALVE) IN SAME VICINITY.
2. CITY OWNS UP TO & INCLUDING PIV.
3. CITY OWNS UP TO & INCLUDING DOMESTIC METER.
4. THESE DRAWINGS ARE SCHEMATIC ONLY TO SHOW THE RELATIONSHIP OF THE PIV, DDCV, & FDC. THE PIV IS INSTALLED BETWEEN THE MAIN & DDCV. THE FDC IS INSTALLED "BEHIND" OR "AFTER" DDCV.

CITY OF POULSBO DEPARTMENT OF PUBLIC WORKS	SCHEMATIC LAYOUT FOR PIV & FDC	Detail 4–23 Approval Date: 02–13–07

NEW WATER MAIN SEPARATION

1. Staying in compliance with DOH's emphasis on cross connections, a physical separation between the existing water main and any new extensions shalll be maintained during the course course of construction. Initial filling and flushing will be done through a Reduced Pressure Backflow Assembly (RPBA).
2. Put a Blind Flange/Cap with a tap 2" with a Standpipe.
3. 5-8' from Tap Valve Lay First Pipe with a Blind Flange/Cap or Plug with a Tap 2" and Standpipe.
4. When construction of main is done, fill new main using hoses and Reduced Pressure Backflow Assembly (RPBA).
5. Flush Chlorinated Water using the Reduced Pressure Backflow Assembly (RPBA).
6. Bacti Samples
7. Hydrostatic Test
8. Make final connection, swabbing all parts and pipe with Chlorine Solution. (INSPECTOR MUST BE PRESENT)
9. After final connection, perform Debris Flush.



CITY OF POULSBO
DEPARTMENT OF PUBLIC WORKS

NEW WATER MAIN SEPARATION
STANDARD DETAIL XXX-XXX

REVISED BY: _____
DATE: _____

APPROVED BY: _____
DATE: _____

REVISED: 11/8/2010