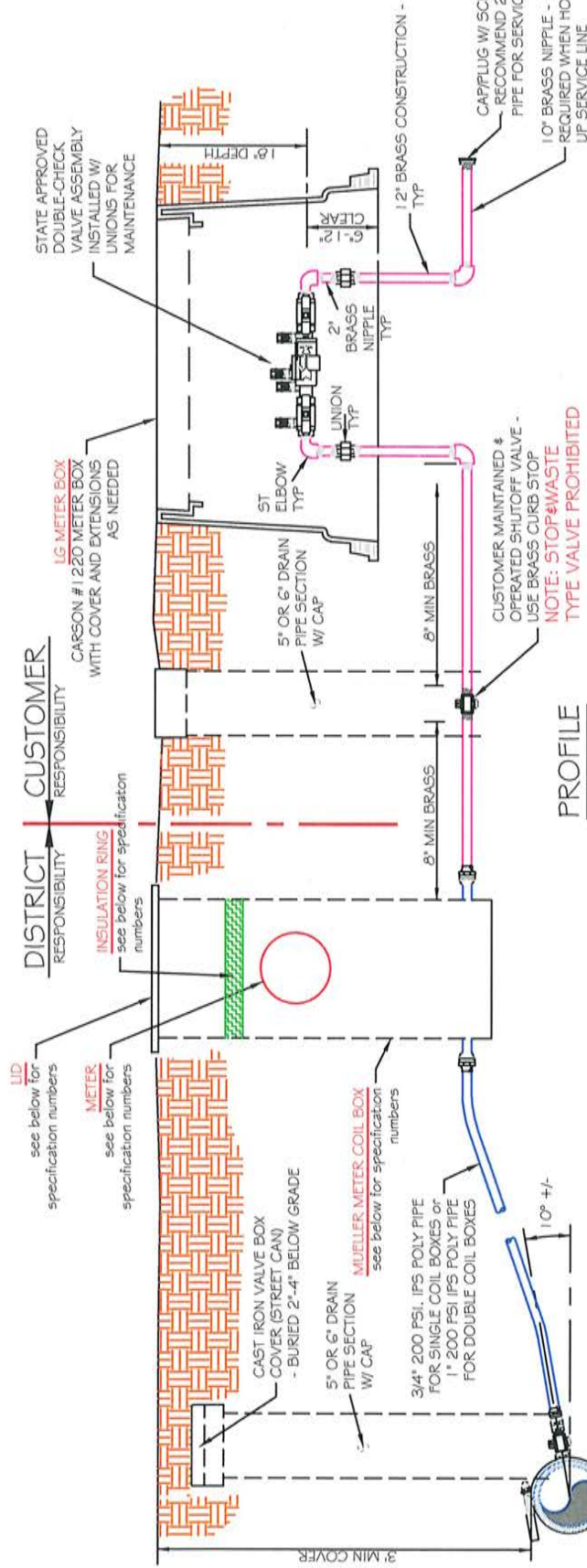


DEVELOPER/CONTRACTOR RESPONSIBILITY



PROFILE

(DO NOT COVER UNTIL DISTRICT INSPECTS)

COIL BOX METER SPECIFICATIONS:

SINGLE 3/4" METER INSTALLATION:

METER - 5/8" x 3/4" Badger Recordall Nutating Disc Flowmeter, LL Bronze External Thread Body, Noryl Chamber, Plastic Thrust Roller, Bronze Bottom, Meter Mounted Low Temp Register, No Connections, NSF 61, Cubic Feet Reader

COIL BOX - Mueller No. 250 CS 15 36 LSBSN

LID - Mueller No. 790007

INSULATION RING - Mueller No. 790022

DOUBLE 3/4" METER INSTALLATION:

(2) METERS - see single 3/4" meter installation above

COIL BOX - Mueller No. 250 CD 18 36 LSBSN

LID - Mueller No. 790018

INSULATION RING - Mueller No. 790153

SINGLE 1" METER INSTALLATION:

METER - 1" Badger Recordall Nutating Disc Flowmeter, LL Bronze External Thread Body, Noryl Chamber, Plastic Thrust Roller, Bronze Bottom, Meter Mounted Low Temp Register, No Connections, NSF 61, Cubic Feet Reader

COIL BOX - Mueller No. 330 CS 18 36 LSBSN

LID - Mueller No. 790018

INSULATION RING - Mueller No. 790153

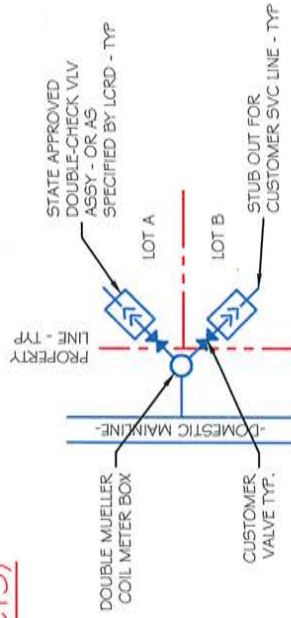
NOTES:

ALL DOMESTIC DEVICES AND FITTINGS MUST BE LEAD FREE.

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

SERVICE LINE TO BE 90° OFF MAIN LINE.

MAGNETIC TAPE TO BE BURIED OVER SERVICE LINE FOR LOCATION.



PLAN VIEW SKETCH

DOUBLE SERVICE COIL BOX

TITLE DOMESTIC WATER SERVICE W/ DCVA - CONTRACTOR VS STANDARD DOMESTIC DETAIL

SHEET 1 OF SET

DWG SCALE NO SCALE

12, 17, 20

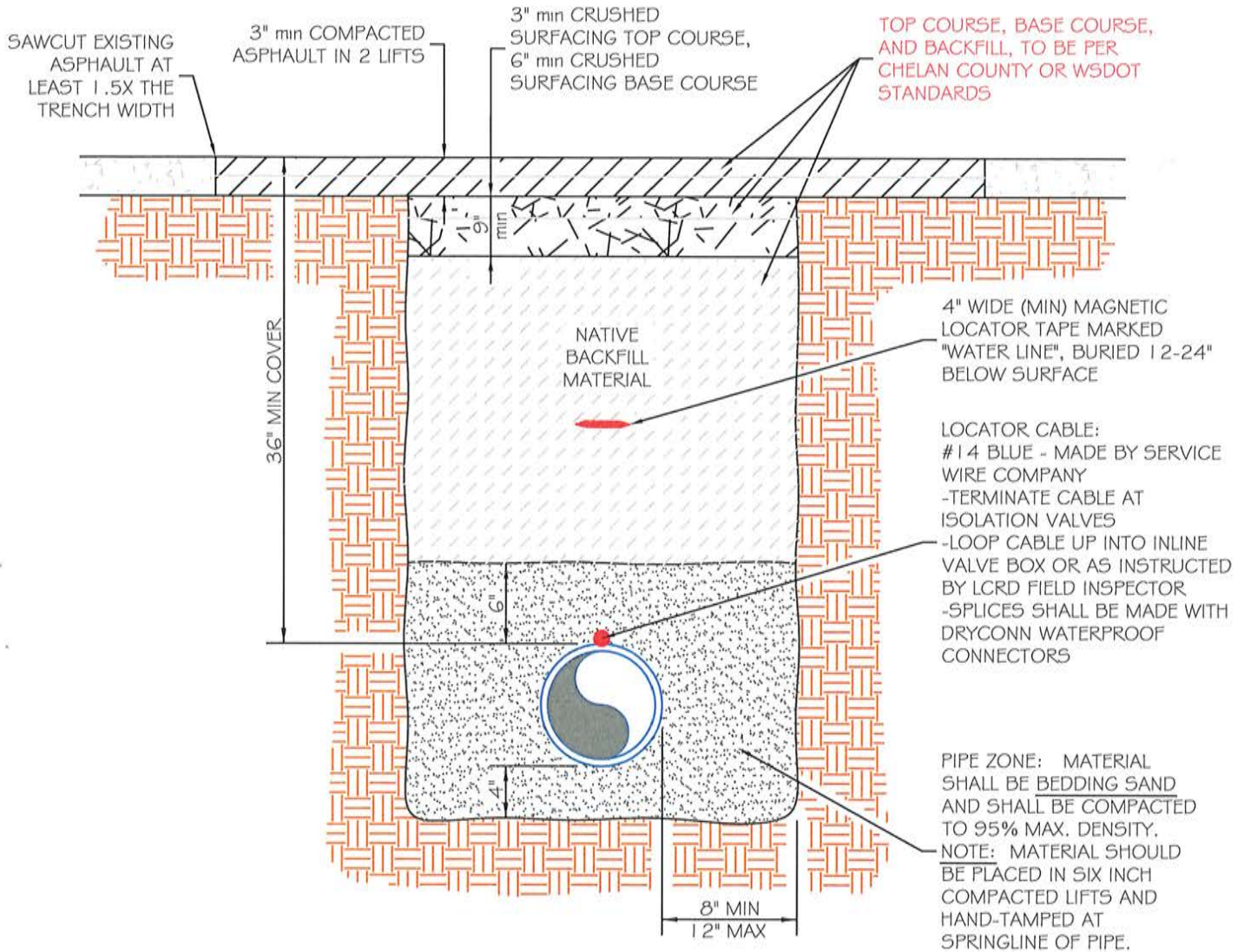
DomesticDetailsWater svc customer hookup w backflow - CONTRACTOR VERSION.dwg (REV H)

DRAWN BY SLA



CALL 48 HOURS
BEFORE YOU DIG:

Northwest Utility Notification Center
1-800-553-4344



PROFILE

NOTES:

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

BACKFILL, SURFACE RESTORATION, AND MINIMUM PIPE DEPTH SHALL CONFORM TO THE REQUIREMENTS OF THE AGENCY HAVING JURISDICTION OVER THE ROAD RIGHT-OF-WAY.

TITLE

TYPICAL TRENCH SECTION

STANDARD DOMESTIC DETAIL

SHEET

2 OF SET

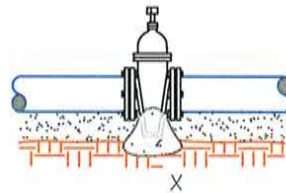
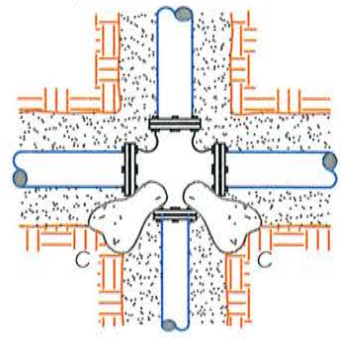
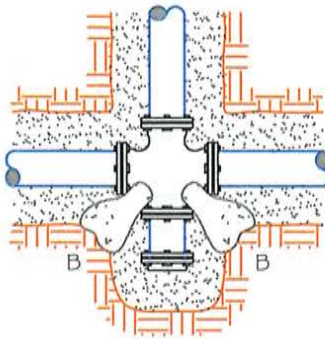
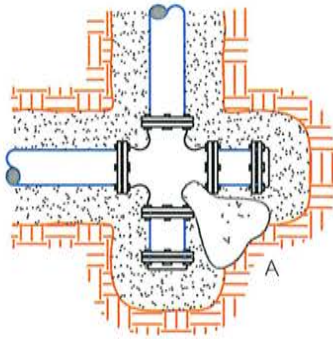
DWG SCALE

NO SCALE



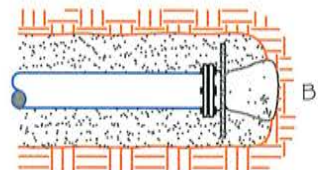
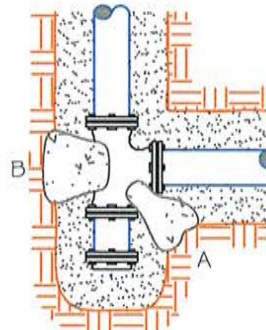
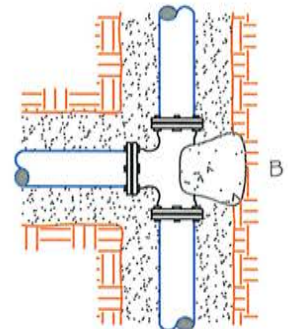
DRAWN BY RIA

09.17.20 \DomesticDetail\typical trench section.dwg (REV D)



THRUST BLOCK TABLE
MIN. BEARING AREA AGAINST UNDISTURBED SOIL
(FT²)

PIPE SIZE	A	B	C	D	E	X
4"	3	1	1	1	1	NONE
6"	4	4	2	1	1	NONE
8"	7	6	4	2	1	4
10"	11	10	6	3	2	6
12"	16	14	9	5	3	9
14"	22	19	12	6	3	12
16"	29	25	16	8	4	16
18"	36	31	20	10	5	20
20"	45	39	24	13	6	24
22"	54	47	29	15	8	29
24"	64	56	35	18	9	35
28"	87	76	48	24	12	48
30"	101	87	55	28	14	55
36"	145	125	78	40	20	78
42"	197	171	107	55	27	107
48"	257	223	140	71	36	140



NOTES:

BEARING AREA OF CONCRETE THRUST-BLOCK BASED ON 200 PSI PRESSURE AND SAFE SOIL BEARING LOAD OF 2,000 POUNDS PER SQUARE FOOT.

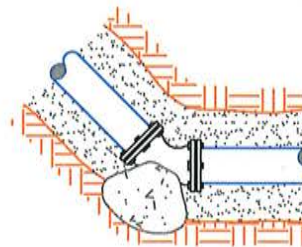
AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.

CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.

BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING OF JOINT.

CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATION PRESSURE UNDER ALL CONDITIONS OF SERVICE.

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.



A FOR 90° BEND
C FOR 45° BEND
D FOR 22-1/2° BEND
E FOR 11-1/4° BEND

TITLE

CONCRETE BLOCKING

STANDARD DOMESTIC DETAIL

SHEET

3 OF SET

DWG SCALE

NO SCALE



DRAWN BY R1A

09.17.20 DomesticDetails\concrete_blocking.dwg (REV B)

VERTICAL BLOCKING FOR 11-1/4°, 22-1/2°, 45° BENDS					
PIPE SIZE	VB	CU FT	S	d	L
4"	11-1/4°	8	2.0'	3/4"	1.5'
	22-1/2°	11	2.2'	3/4"	2.0'
	45°	30	3.1'	3/4"	2.0'
6"	11-1/4°	11	2.2'	3/4"	2.0'
	22-1/2°	25	2.9'	3/4"	2.0'
	45°	68	4.1'	3/4"	2.5'
8"	11-1/4°	16	2.5'	3/4"	2.0'
	22-1/2°	47	3.6'	3/4"	2.0'
	45°	123	5.0'	3/4"	2.0'
12"	11-1/4°	32	3.2'	3/4"	3.0'
	22-1/2°	88	4.5'	7/8"	3.0'
	45°	232	6.1'	3/4"	2.5'
16"	11-1/4°	70	4.1'	7/8"	3.0'
	22-1/2°	184	5.7'	1-1/8"	4.0'
	45°	478	7.8'	1-1/8"	4.0'
20"	11-1/4°	91	4.5'	7/8"	3.0'
	22-1/2°	225	6.1'	1-1/4"	4.0'
	45°	560	8.2'	1-1/4"	4.0'
24"	11-1/4°	128	5.0'	1"	3.5'
	22-1/2°	320	6.8'	1-3/8"	5.5'
	45°	820	9.4'	1-3/8"	4.5'

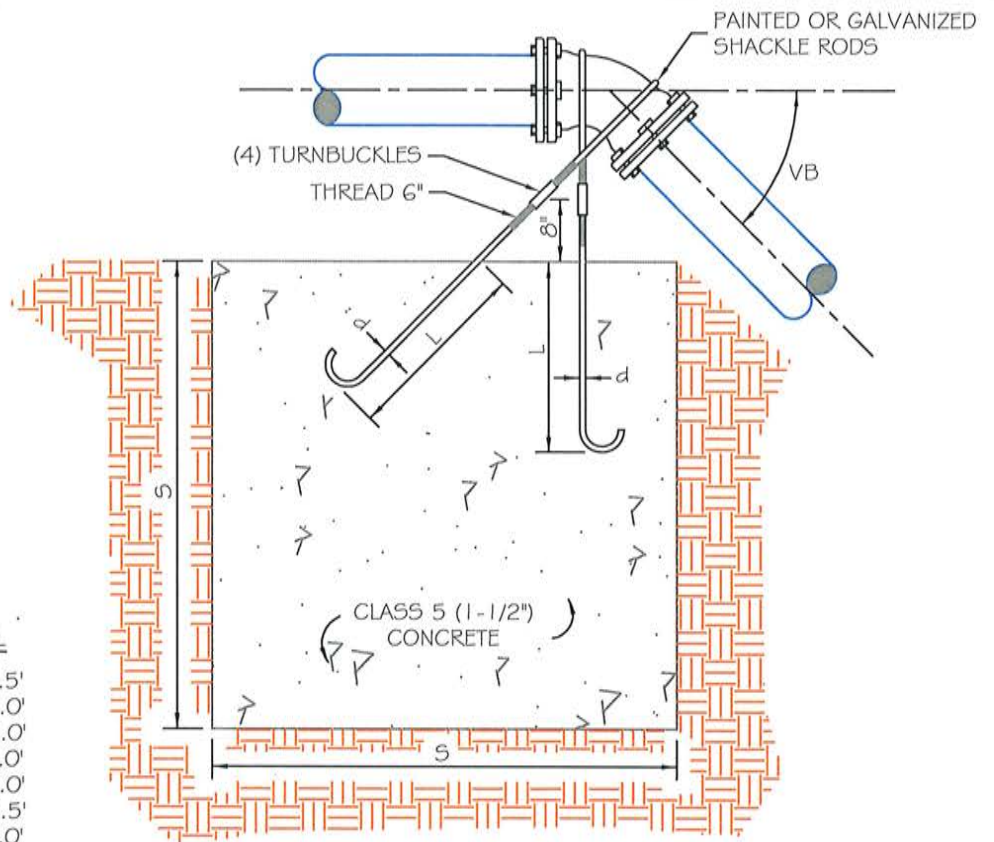
NOTES:

BEARING AREA OF CONCRETE THRUST-BLOCK BASED ON 200 PSI MAINLINE PRESSURE AND SAFE SOIL BEARING LOAD OF 2,500 POUNDS PER SQUARE FOOT.

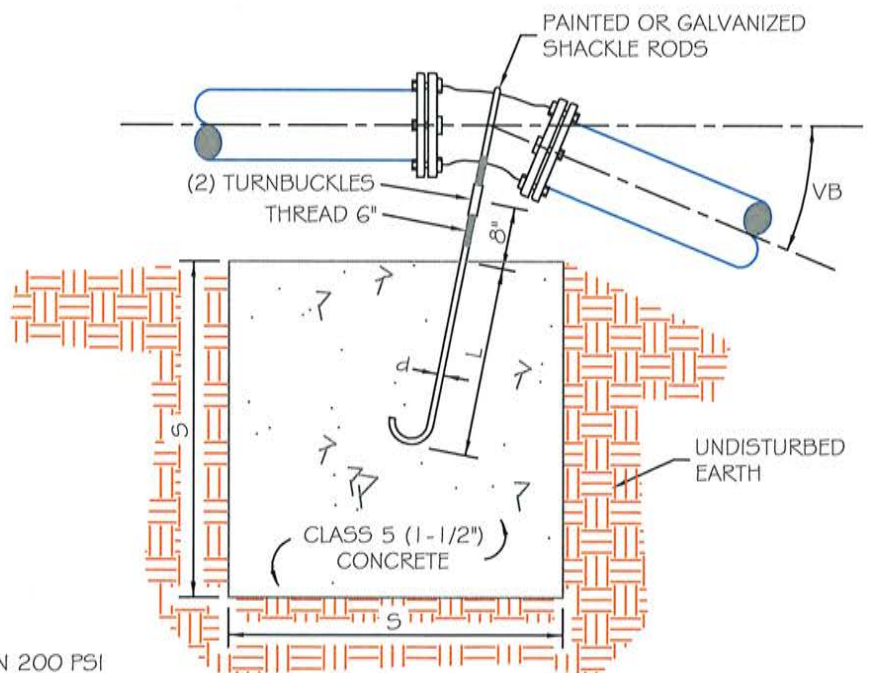
AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.

CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATION PRESSURE UNDER ALL CONDITIONS OF SERVICE.

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.



TYPE B BLOCKING - FOR
45° BENDS



TYPE A BLOCKING - FOR
11-1/4°, 22-1/2° BENDS

TITLE

CONCRETE BLOCKING
FOR VERTICAL BENDS

STANDARD DOMESTIC DETAIL

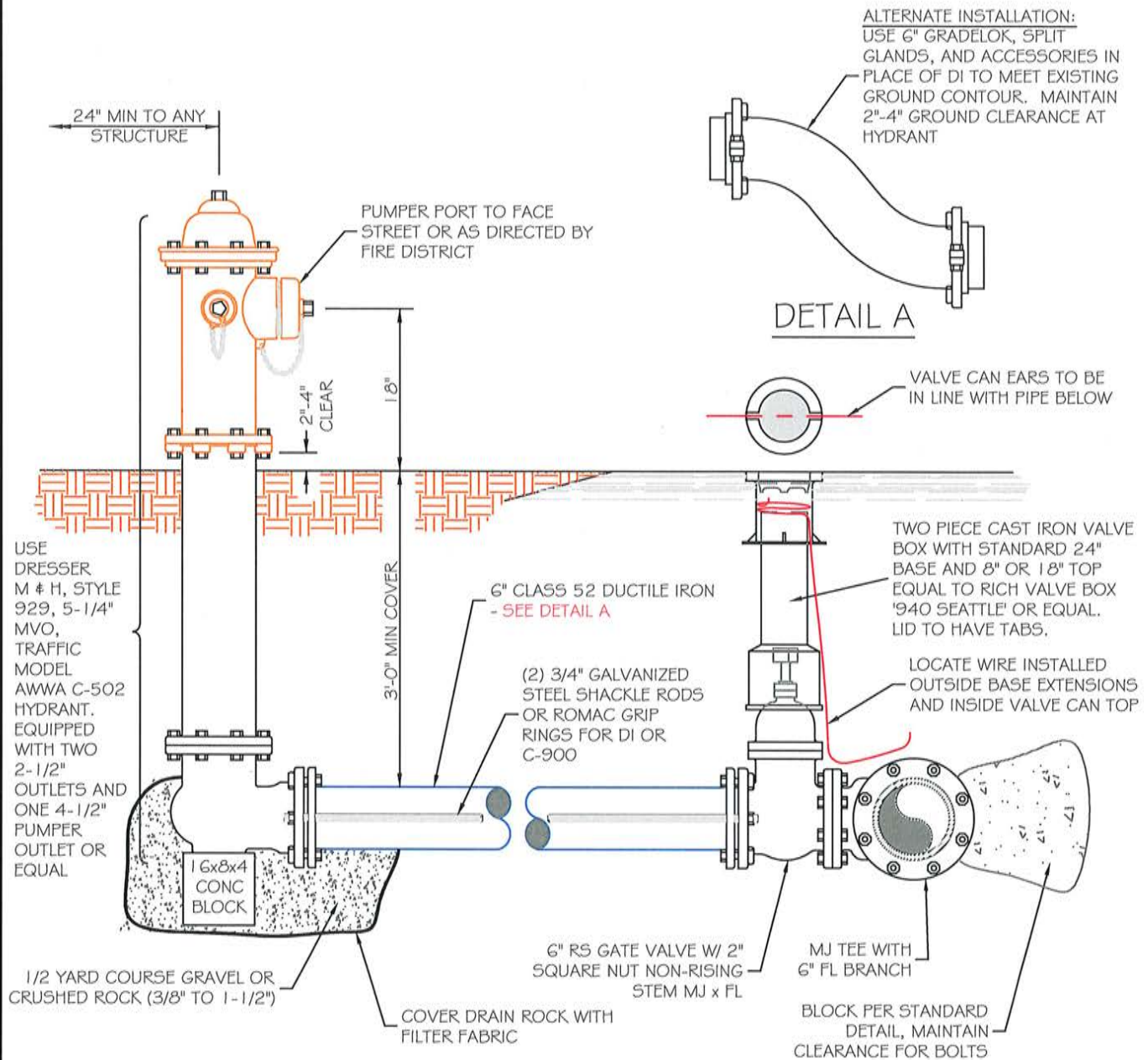
SHEET
4 OF SET

DWG SCALE
NO SCALE



DRAWN BY RIA

09.17.20 DomesticDetails\concrete blocking for vertical bends.dwg (REV B)



NOTES:

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

INSTALL HYDRANT GUARD POSTS PER STANDARD DETAIL.

TITLE

FIRE HYDRANT ASSEMBLY

STANDARD DOMESTIC DETAIL

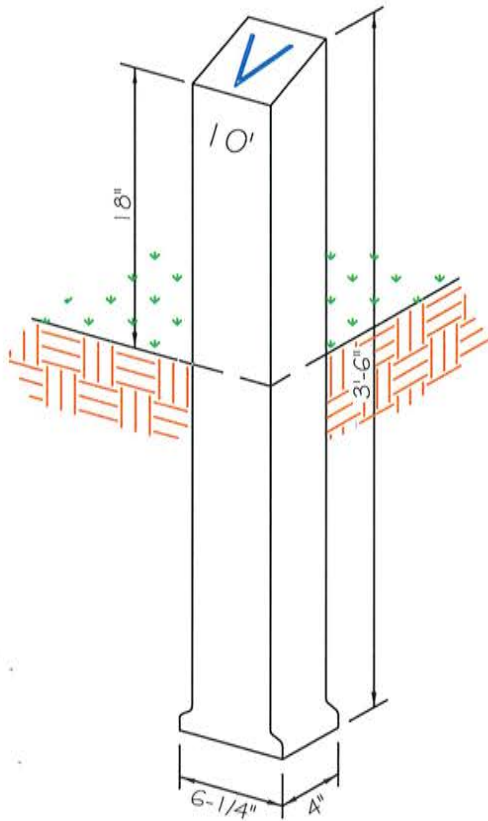
SHEET
5 OF SET

DWG SCALE
NO SCALE

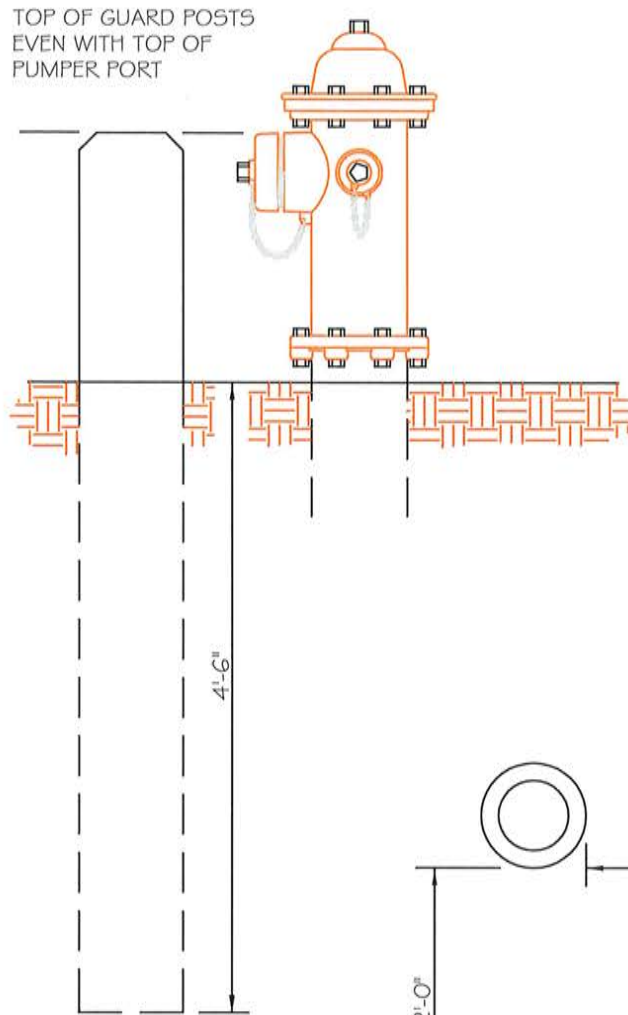


DRAWN BY RLA

12.17.20 DomesticDetailFireHydrant Assy.dwg (REV E)

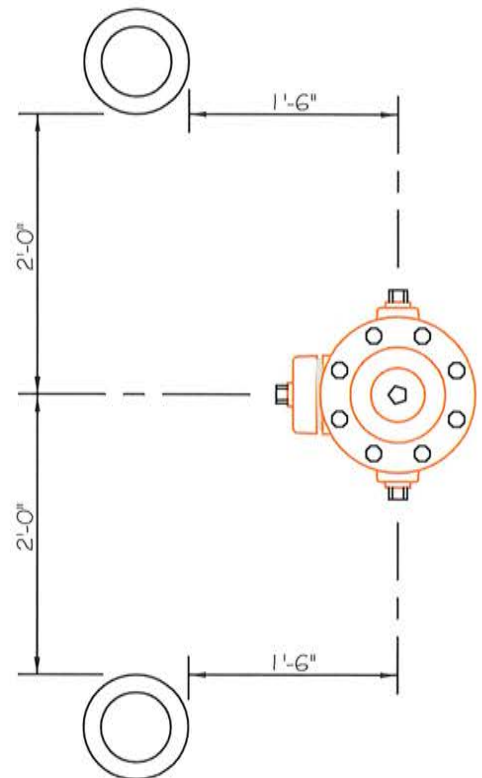


VALVE
MARKER
POST



ELEVATION

HYDRANT
GUARD
POSTS



PLAN

NOTES:

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

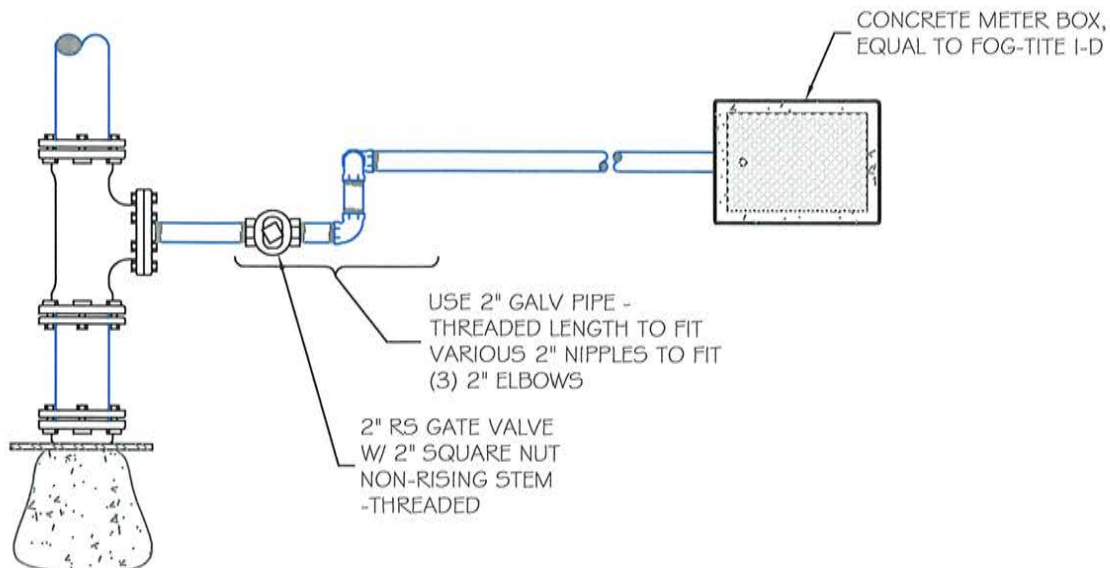
HYDRANT GUARD POST SHALL BE 6' LONG x 9" DIAMETER PRECAST CONCRETE POST OR 6' LONG x 6" DIAMETER FILLED DUCTILE IRON POSTS, PAINT WITH TWO COATS OF RUST-OLEUM NO. 2766-HI GLOSS WHITE PAINT.

VALVE MARKER POST SHALL BE EQUAL TO GREYSTONE PC 3.05 PAINT AS SPECIFIED FOR HYDRANT GUARD POST. PAINT DISTANCE FROM THE VALVE MARKER TO THE VALVE ON THE POST WITH BLACK ENAMEL PAINT.

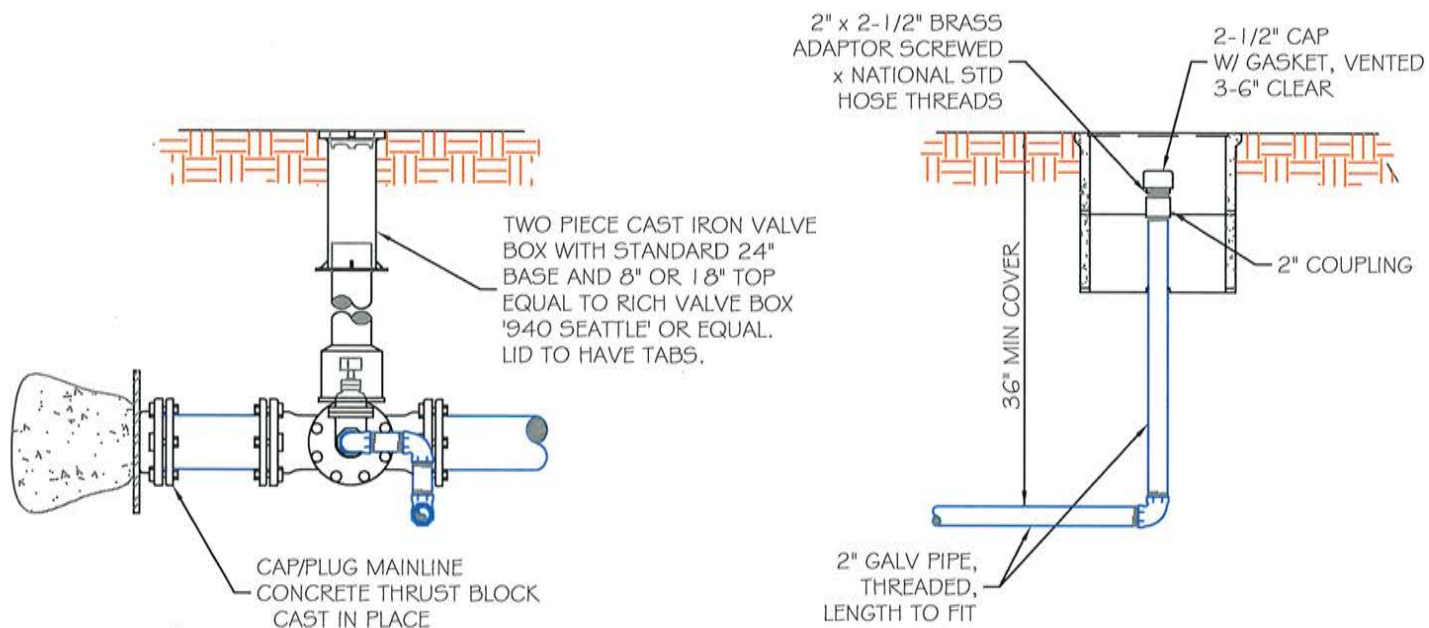
VALVE MARKER POST TO BE USED FOR ALL MAINLINE VALVES OUTSIDE PAVED AREAS.

TITLE	
FIRE HYDRANT GUARD POSTS & VALVE MARKER	
STANDARD DOMESTIC DETAIL	
SHEET	DWG SCALE
6 OF SET	NO SCALE





PLAN



PROFILE

NOTES:

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

PLASTIC METER BOXES CAN BE USED IN NON-TRAFFIC AREAS IN PLACE OF FOG-TITE I-D, USE BROOKS SERIES 1419.

INSTALL VALVE MARKER POST PER STANDARD DETAIL AND FIELD LOCATED ADJACENT TO METER BOX PAINTED TWO COATS OF RUSTOLEUM NO. 2766 WHITE.

ALL 2" PIPE AND FITTINGS SHALL BE GALVANIZED IRON.

TITLE

(2") BLOW-OFF
ASSEMBLY

STANDARD DOMESTIC DETAIL

SHEET

7 OF SET

DWG SCALE

NO SCALE

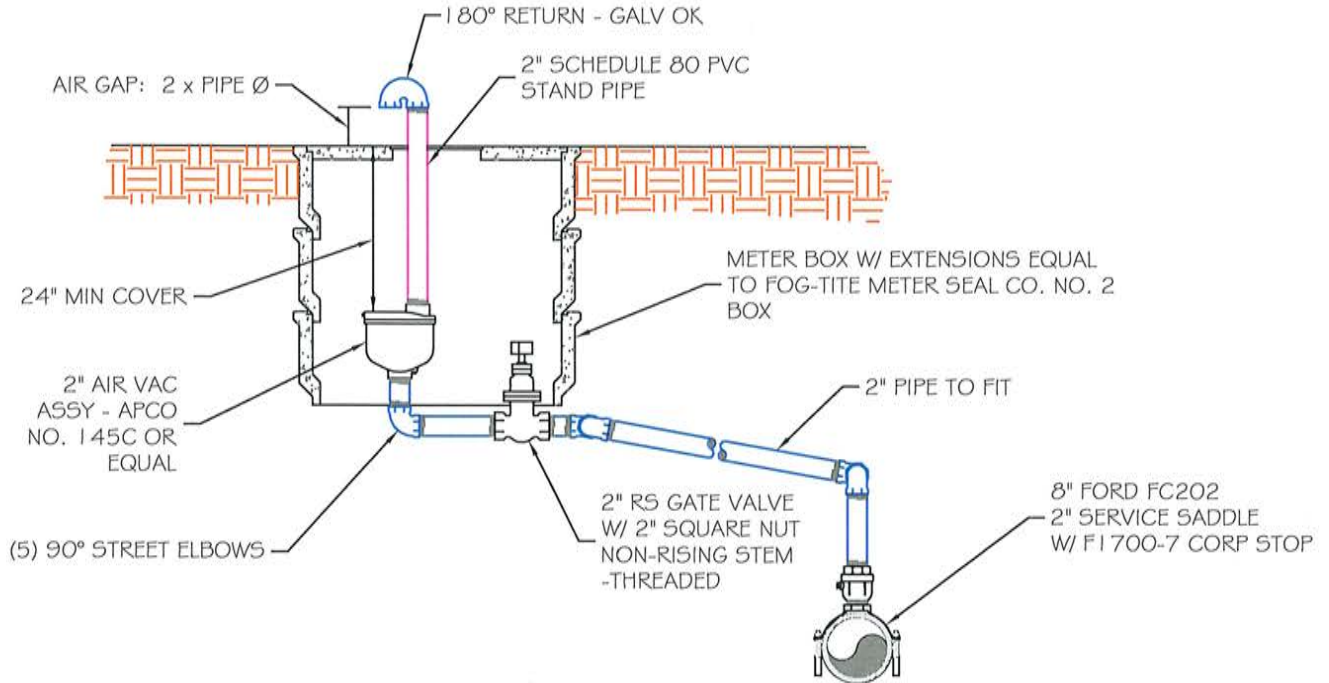


DRAWN BY RIA

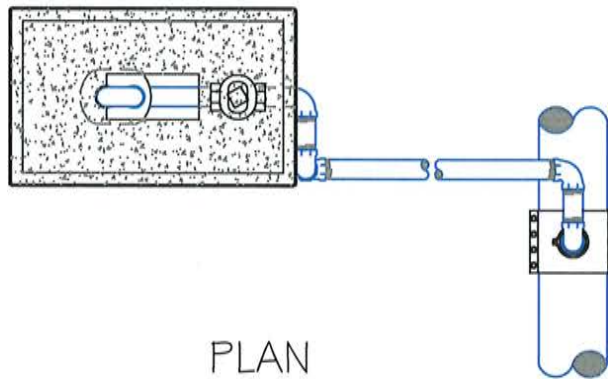
09.17.20 DomesticDetails\blow-off assembly.dwg (REV B)

NOTE:

AIR & VACUUM VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT OF LINE. IF HIGH POINT FALLS IN A LOCATION WHERE ASSEMBLY CANNOT BE INSTALLED, PROVIDE ADDITIONAL DEPTH OF LINE TO CREATE HIGH POINT AT A LOCATION WHERE ASSEMBLY CAN BE INSTALLED.



PROFILE



PLAN

NOTES:

MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

ALTERNATE OF A TAPPED CAST IRON COUPLING MAY BE INSTALLED IN THE MAIN.

VACUUM VALVE ASSEMBLY LOCATED IN STREET REQUIRES SPECIAL VAULT.

ALL 2" PIPE AND FITTINGS TO BE GALVANIZED IRON UNLESS OTHERWISE SHOWN.

TITLE

(2") AIR VACUUM
VALVE ASSEMBLY

STANDARD DOMESTIC DETAIL

SHEET
8 OF SET

DWG SCALE
NO SCALE



DRAWN BY RIA

09.17.20 10DomesticDetailair vacuum vlv assy.dwg (REV C)

REDUCED PRESSURE DEVICE - WATTS
SERIES 909, FEBCO 825Y, OR EQUAL

LOCATED IN AN ABOVE GROUND AND
APPROVED ENCLOSURE ACCESSABLE
FOR YEARLY TESTING BY A LICENCED
BACKFLOW DEVICE PROFESSIONAL -
SHALL NOT BE INSTALLED BELOW
GRADE



DOMESTIC SERVICE
BOOSTER PUMP

CUSTOMER
SERVICE LINE

RPD

MINIMUM 30psi
AT THE METER

LAKE CHELAN
RECLAMATION DISTRICT
DOMESTIC MAINLINE

DOMESTIC SERVICE
BOOSTER PUMP

RESIDENCE

RPD

REDUCED PRESSURE DEVICE
- WATTS SERIES 909, FEBCO
825Y, OR EQUAL

LOCATED IN AN ACCESSABLE
PLACE FOR YEARLY TESTING
BY A LICENCED BACKFLOW
DEVICE PROFESSIONAL

MINIMUM 30psi
AT THE METER

CUSTOMER
SERVICE LINE

LAKE CHELAN
RECLAMATION DISTRICT
DOMESTIC MAINLINE

NOTES:

1. MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.
2. MAY BE INSTALLED IN A SEMI-BURIED PIT OR VAULT IF:
 - A. RELIEF VALVE IS INSTALLED ABOVE GROUND OR MAXIMUM FLOOD LEVEL
 - B. INSTALLED WITH APPROVED AIRGAP BETWEEN RELIEF VALVE VENT & TOP OF DAYLIGHT DRAIN
 - C. DRAIN MUST BE BORE SIGHTED TO THE DISCHARGE POINT ABOVE GROUND OR MAX FLOOD LEVEL - WHICHEVER IS HIGHER
 - D. DRAIN MUST BE ABLE TO HANDLE ALL WATER THAT COULD BE DISCHARGED FROM RELIEF VALVE
 - E. RPBA SHOULD NOT BE INSTALLED WHERE WATER DISCHARGED FROM ASSEMBLY WOULD BE OBJECTIONABLE

TITLE

BOOSTER PUMP SERVICE CONNECTION

STANDARD DOMESTIC DETAIL

SHEET

9 OF SET

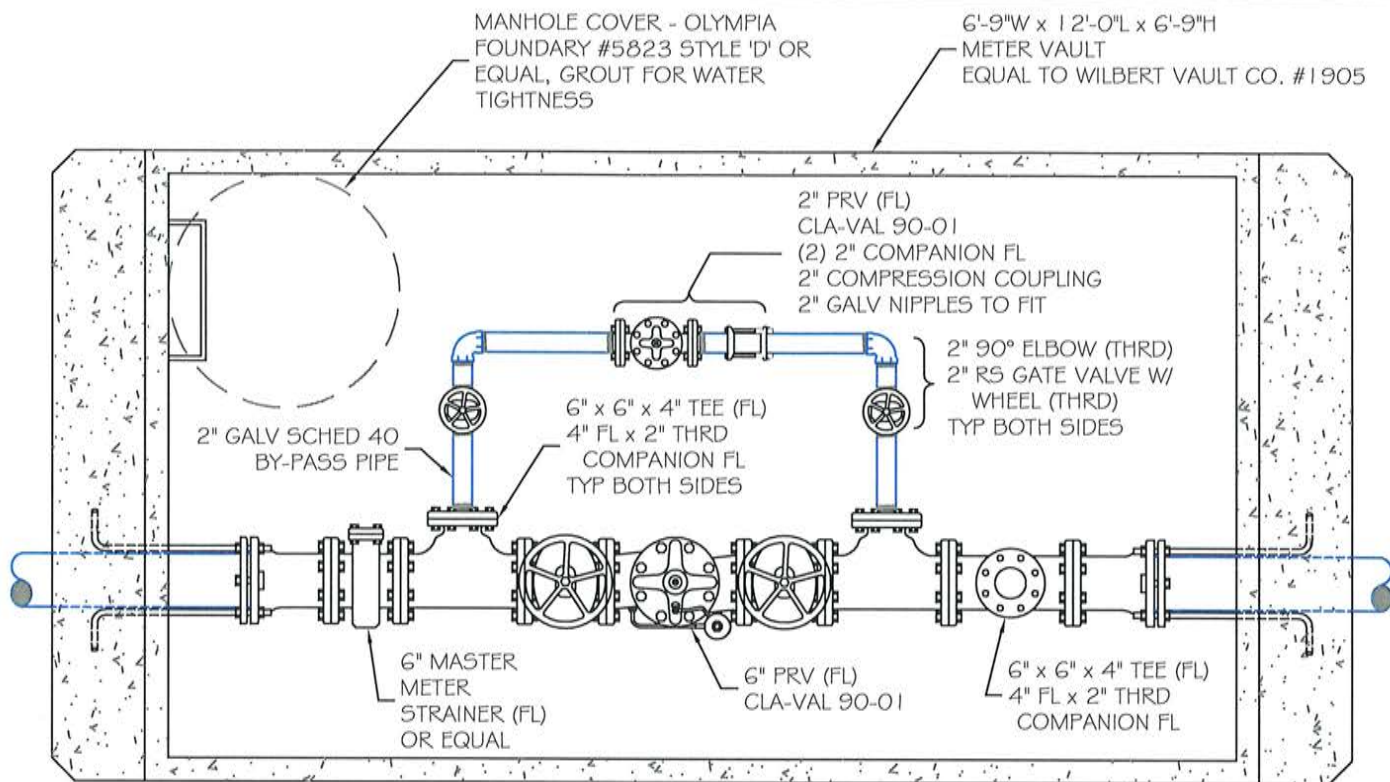
DWG SCALE

NO SCALE

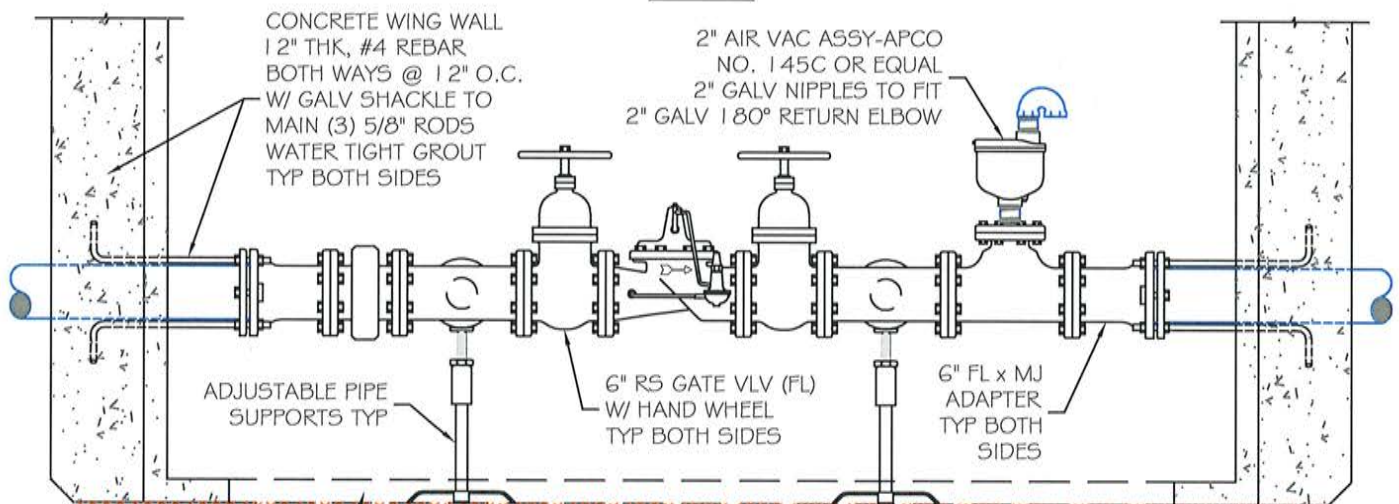


DRAWN BY RIA

09.17.20 DomesticDetails\booster pump service connection.dwg (REV B)



PLAN



PROFILE

NOTE: IF GROUNDWATER IS PRESENT, VAULT FLOOR WILL BE CAST IN PLACE.

6" MIN DEPTH OF WASH ROCK

NOTE:
MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

ALL 2" PIPE AND FITTINGS SHALL BE GALVANIZED IRON.

TITLE

(6") PRESSURE
REDUCING STATION

STANDARD DOMESTIC DETAIL

SHEET

10 OF SET

DWG SCALE

NO SCALE



DRAWN BY RIA

09.17.20 DomesticDetailpressure reducing station.dwg (REV B)

1. RESTRAINED JOINTS ARE PREFERRED IN MOST CASES, HOWEVER, THE DISTRICT WILL BE THE SOLE DETERMINER IF THE APPLICATION IS APPROPRIATE ON A GIVEN JOB. APPLICATIONS WHERE RESTRAINED JOINTS WOULD ALWAYS BE A REQUIREMENT WOULD INCLUDE:
 - 1.1. DEAD END MAINS THAT MAY BE EXTENDED IN THE FUTURE.
 - 1.2. SOILS NOT SUPPORTIVE OF THRUST BLOCKING OR INSUFFICIENT BEARING SOIL BEHIND FITTINGS (e.g. NEAR TOP OF A SLOPE).
2. MECHANICAL JOINT AND EXTERIOR BELL RESTRAINTS SHALL BE COATED WITH FUSION BONDED POLYESTER, OR ZINC & EPOXY COATING. EBAA MEGABOND, ROMAC ROMABOND, FORD ARMORGUARD E-COAT, OR APPROVED EQUAL.
3. TYLER TUFGRIP RESTRAINTS ARE NOT ALLOWED. SET-SCREW STYLE RESTRAINTS ARE NOT ALLOWED.
4. THE FOLLOWING TABLES ARE BASED ON EQUATIONS FROM THE DUCTILE IRON PIPE RESEARCH ASSOCIATIONS 2016 THRUST RESTRAINT DESIGN FOR DI AND PVC PIPE, WITH MODIFICATIONS OF SOIL PROPERTIES PER ASTM D2487. THE FOLLOWING CONDITIONS MUST BE MET FOR THESE RESULTS TO BE VALID. IF ANY OF THESE CONDITIONS CANNOT BE MET, PROJECT SPECIFIC CALCULATIONS MUST BE PROVIDED:
 - 4.1. PIPE LAYING CONDITION TYPE 4 or 5, DEFINED AS:
 - 4.1.1. SELECT GRANULAR BEDDING MATERIAL BELOW PIPE.
 - 4.1.2. PIPE ZONE MATERIAL EXTENDING TO TOP OF PIPE MECHANICALLY COMPACTED.
 - 4.2. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
 - 4.3. BEDDING MATERIAL IS SANDY SILT. IF USING CLEAN SAND OR 5/8" MINUS CRUSHED SURFACING, LENGTHS MAY BE REDUCED BY 25%.
 - 4.4. DEPTH OF COVER IS 3.0 FEET MINIMUM. IF DEPTH IS 2.5 FEET AT TIME OF TESTING, MULTIPLY LENGTHS BY 120%.
 - 4.5. 200_{psi} TEST PRESSURE MAXIMUM. FOR OTHER PRESSURE, TABLE LENGTHS ARE MULTIPLIED BY THE PROPORTIONAL DIFFERENCE.
5. VERTICAL BENDS WITH THE FORCE DIRECTION UPWARDS ARE NOT COVERED HERE. MUST BE DESIGNED BY ENGINEER FOR EACH CASE.

THE LENGTH "L" GIVEN BELOW IS THE DISTANCE THAT PIPE MUST BE RESTRAINED PAST THE FITTING JOINT. ALL JOINTS WITHIN THIS DISTANCE MUST BE RESTRAINED, INCLUDING THE FITTING.

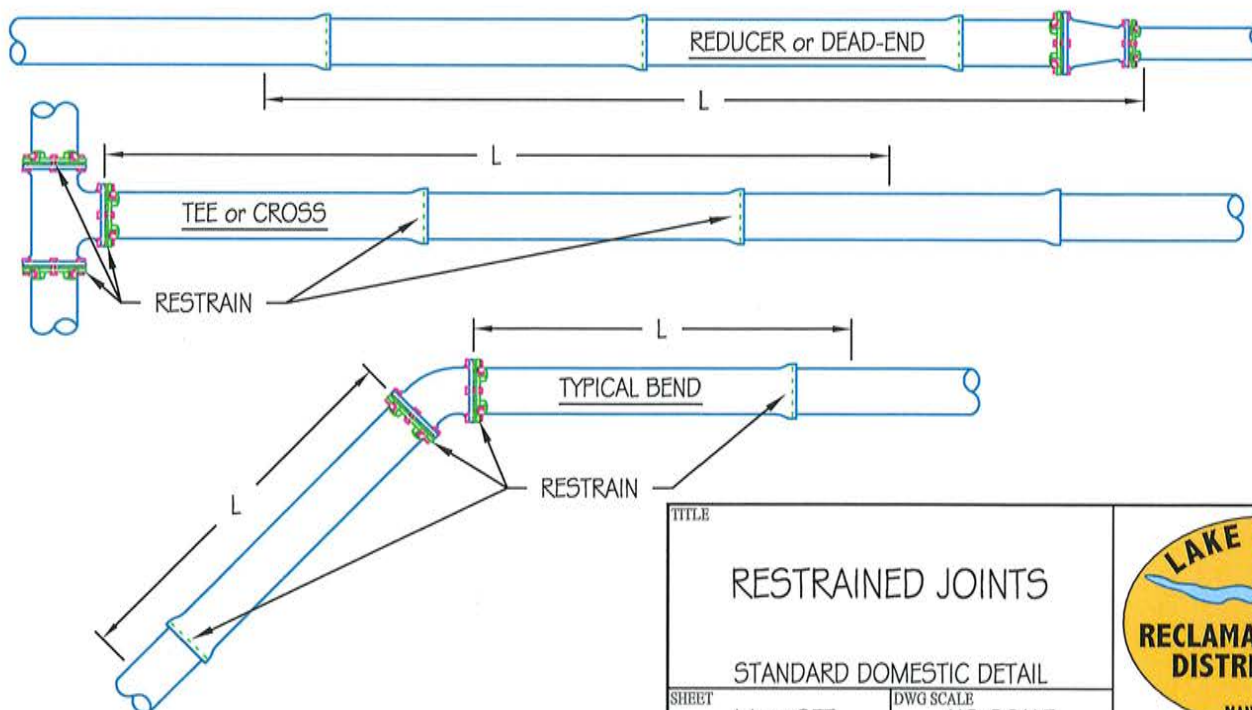
DIAMETER	1 1/4° BEND	22 1/2° BEND	45° BEND	90° BEND	DEAD END	REDUCER *
4"	3'	5'	10'	22'	65'	20'
6"	4'	7'	13'	32'	92'	62'
8"	5'	9'	17'	40'	119'	85'
10"	5'	10'	20'	48'	143'	88'
12"	6'	12'	23'	56'	168'	90'
16"	8'	14'	30'	70'	215'	92'
DI **	0.83x	0.83x	0.83x	0.83x	0.71x	0.71x

* Assumes reducer down 2 sizes. (example 12"x8"). Larger reductions shall be treated as a tee equal to the larger size.

** For Ductile Iron (DI) pipe, multiply the lengths by the value shown in the DI row.

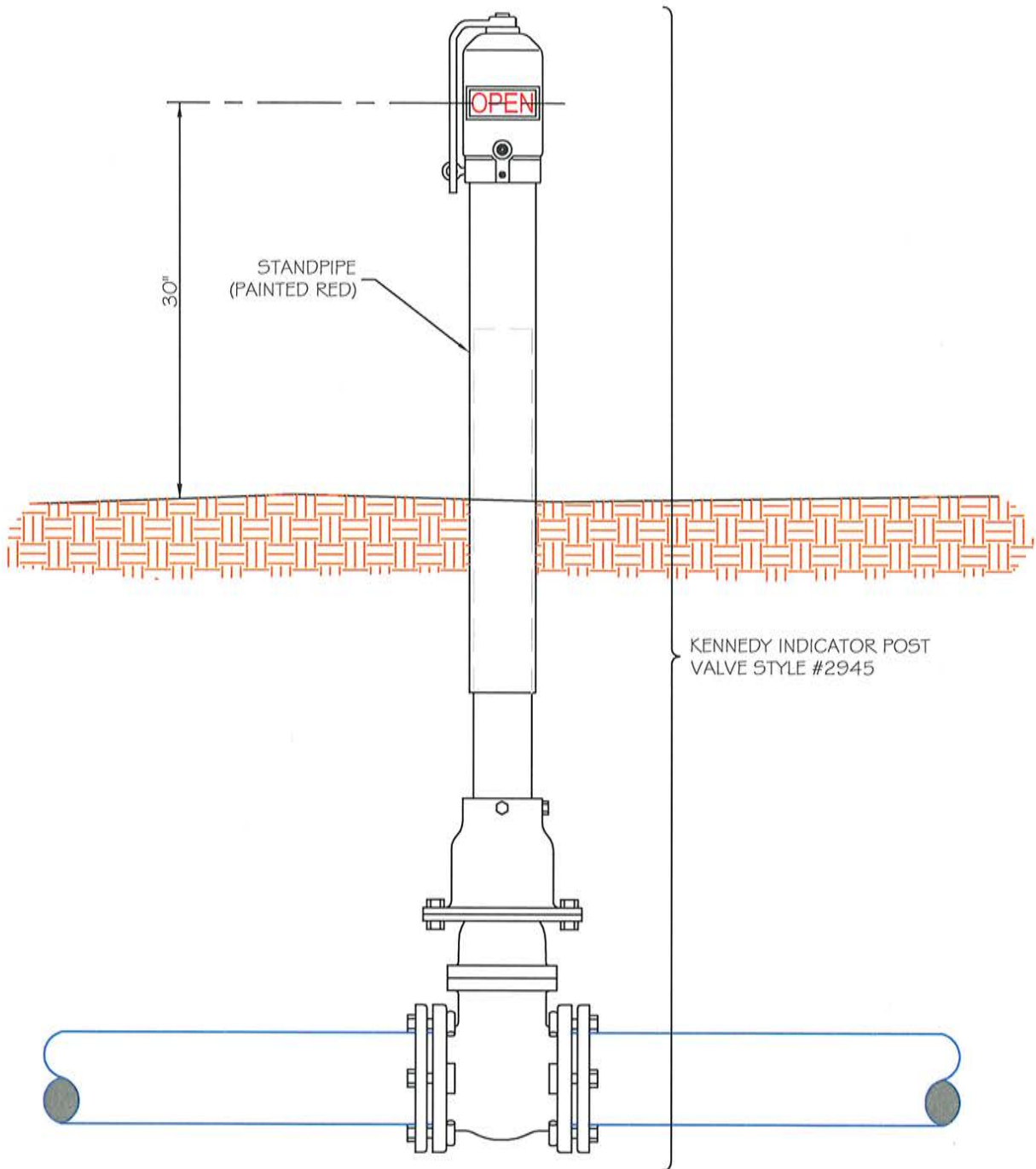
BRANCH REDUCING TEE TABLE (0.71x for DI)						
BRANCH DIAMETER	RUN DIAMETER					
	4"	6"	8"	10"	12"	16"
4"	48'	39'	31'	22'	13'	1'
6"	-	74'	68'	63'	56'	43'
8"	-	-	101'	96'	92'	82'
10"	-	-	-	125'	122'	118'
12"	-	-	-	-	150'	143'
16"	-	-	-	-	-	197'

Restrain all tee/cross legs with min 5' stick of pipe in each leg. "Bullhead" tees restrained per dead-end length for largest leg.



TITLE	
RESTRAINED JOINTS	
STANDARD DOMESTIC DETAIL	
SHEET	DWG SCALE
11 OF SET	NO SCALE





NOTES:
MATERIAL SUBSTITUTIONS OR DETERMINATION OF EQUAL ARE AT
THE SOLE DISCRETION OF LAKE CHELAN RECLAMATION DISTRICT.

TITLE

POST INDICATOR
VALVE

STANDARD DOMESTIC DETAIL

SHEET

12 OF SET

DWG SCALE

NO SCALE



DRAWN BY RIA

03.29.01 \DomesticDetails\post indicator vlv.dwg (REV A)