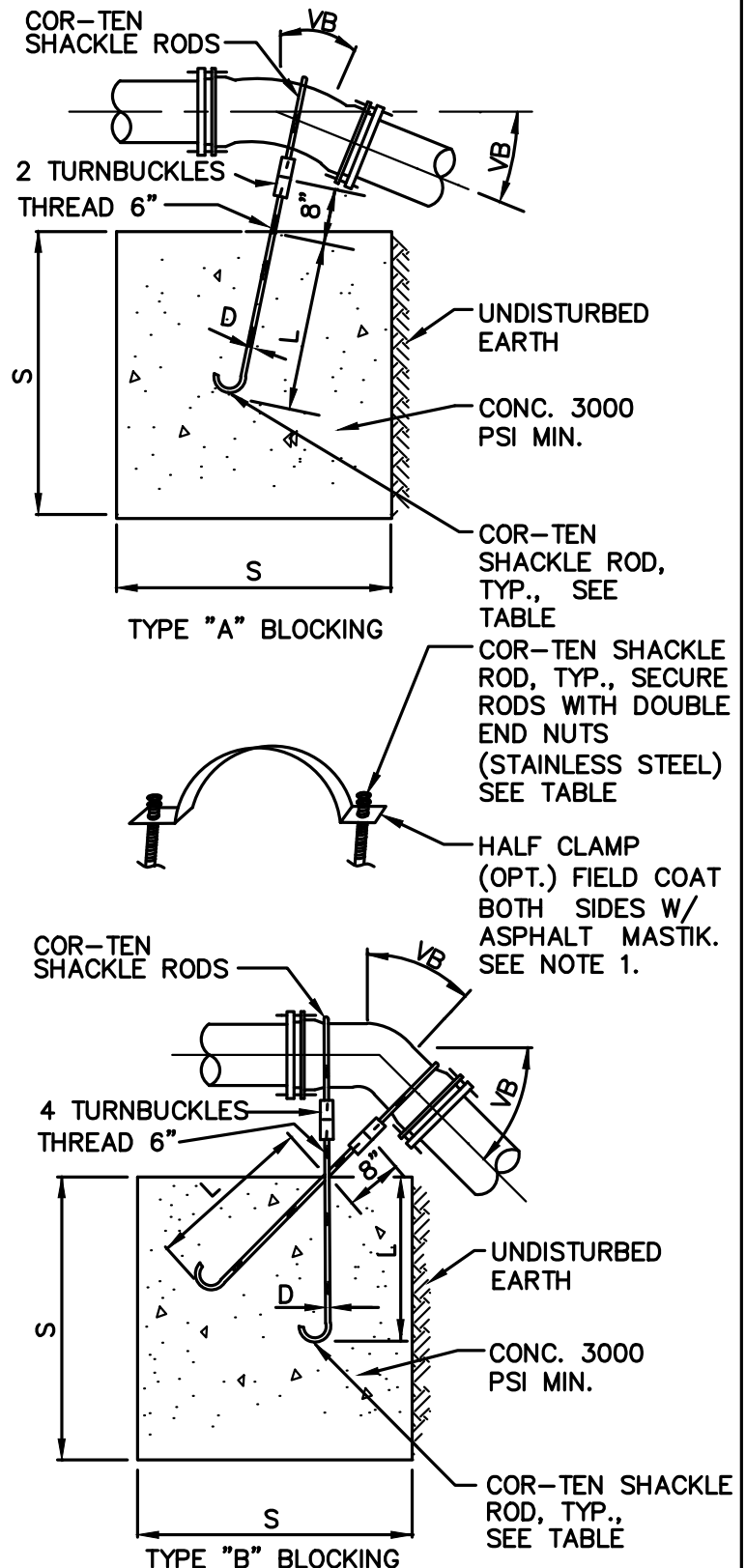


TYPE "A" BLOCKING						
FOR 11 1/4"-22 1/2"-30" VERTICAL BENDS						
PIPE SIZE NOMINAL DIAMETER— INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	No. OF CU. FT. OF CONC. BLOCKING	S SIDE OF CUBE LIN. FT.	D DIAM. OF SHACKLE RODS (2) INCHES	L DEPTH OF RODS IN CONCRETE LIN. FT.
4"	300	11 1/4	8	2	5/8"	1.5
		22 1/2	11	2.2		2.0
		30	17	2.6		
6"	300	11 1/4	11	2.2	5/8"	2.0
		22 1/2	25	2.9		
		30	41	3.5		
8"	300	11 1/4	16	2.5	5/8"	2.0
		22 1/2	47	3.6		
		30	70	4.1	3/4"	2.5
12"	250	11 1/4	32	3.2	5/8"	2.0
		22 1/2	88	4.5	7/8"	3.0
		30	132	5.1		
16"	225	11 1/4	70	4.1	7/8"	3.0
		22 1/2	184	5.7	1 1/8"	4.0
		30	275	6.5	1 1/4"	
20"	200	11 1/4	91	4.5	7/8"	3.0
		22 1/2	225	6.1	1 1/4"	4.0
		30	330	6.9	1 3/8"	4.5
24"	200	11 1/4	128	5.0	1"	3.5
		22 1/2	320	6.8	1 3/8"	4.5
		30	480	7.9	1 7/8"	5.5
TYPE "B" BLOCKING						
FOR — 45° VERTICAL BENDS						
		VB		S	D	L
4"	300	45	30	3.1	5/8"	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		232	6.1	3/4"	2.5
16"	225		478	7.8	1 1/8"	4.0
20"	200		560	8.2	1 1/4"	
24"			820	9.4	1 3/8"	4.5

NOTES:

1. HALF CLAMP, WASHERS AND NUTS MAY BE SUBSTITUTED FOR TURNBUCKLE ASSEMBLY. ALL OTHER SPECIFICATIONS THE SAME.



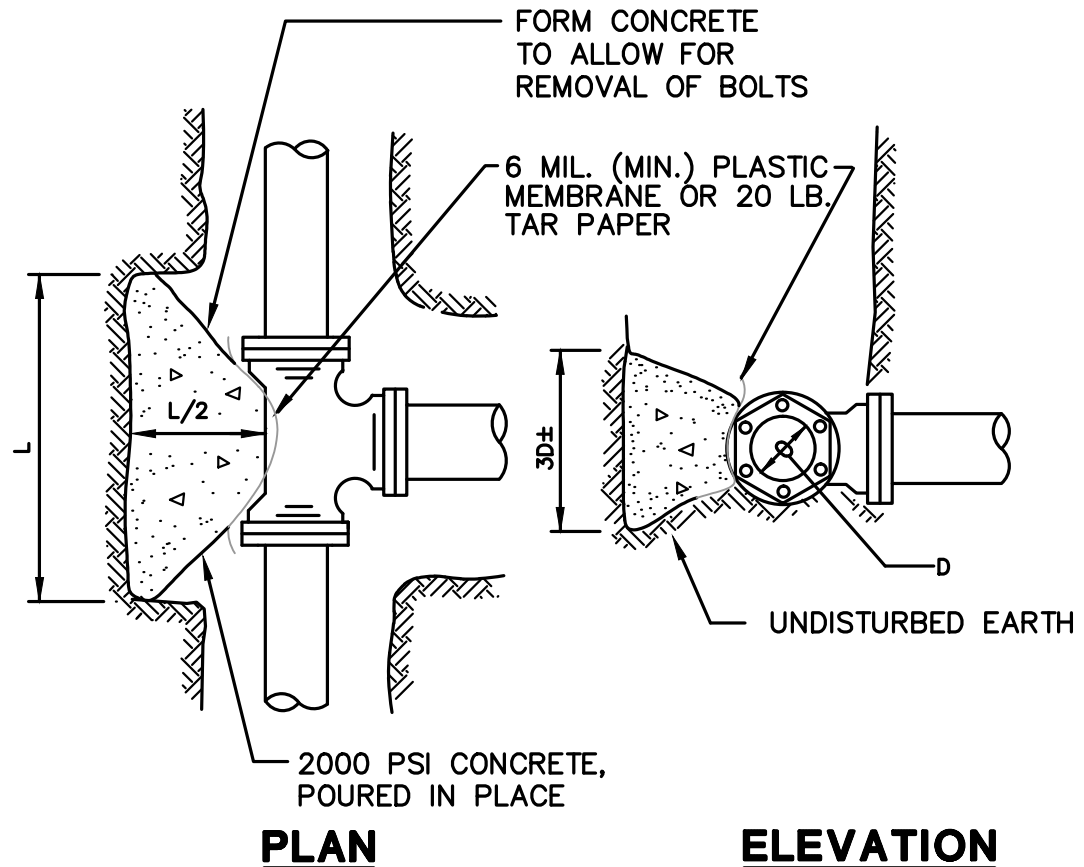
CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE G1
VERTICAL ANCHOR BLOCK

Gray & Osborne, Inc.
CONSULTING ENGINEERS

MINIMUM BEARING AREA TABLE

FITTING D	TEE	90°	45°	22 1/2°	11 1/4°
6"	4 SQ.FT.	6 SQ.FT.	3 SQ.FT.	2 SQ.FT.	2 SQ.FT.
8"	7 SQ.FT.	10 SQ.FT.	6 SQ.FT.	3 SQ.FT.	2 SQ.FT.
10"	10 SQ.FT.	15 SQ.FT.	9 SQ.FT.	5 SQ.FT.	3 SQ.FT.
12"	14 SQ.FT.	22 SQ.FT.	12 SQ.FT.	6 SQ.FT.	4 SQ.FT.
16"	25 SQ.FT.	38 SQ.FT.	21 SQ.FT.	11 SQ.FT.	7 SQ.FT.
18"	32 SQ.FT.	48 SQ.FT.	27 SQ.FT.	14 SQ.FT.	8 SQ.FT.



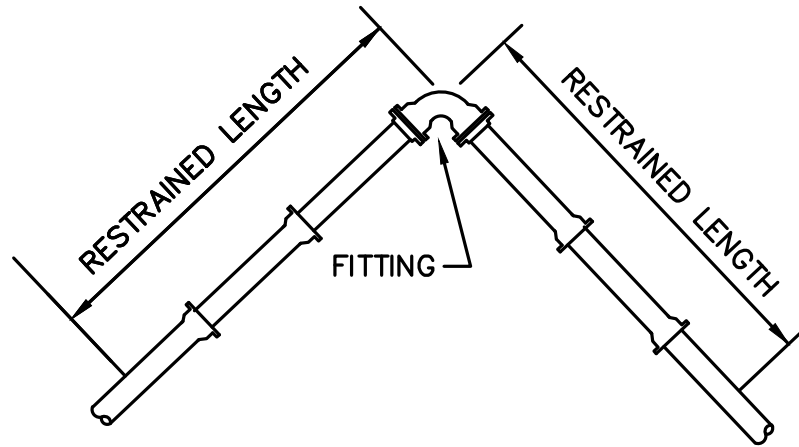
NOTES:

1. BEARING AREA TABLE BASED ON 250 PSI PRESSURE AND 2000 PSF SOIL BEARING. IF PRESSURE IS GREATER OR SOIL BEARING IS LESS, THE THRUST BLOCK SIZE SHALL BE INCREASED.
2. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE SIZE OF ALL THRUST BLOCKS BASED ON EXISTING AND LOCAL CONDITIONS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE G2
THRUST BLOCKS


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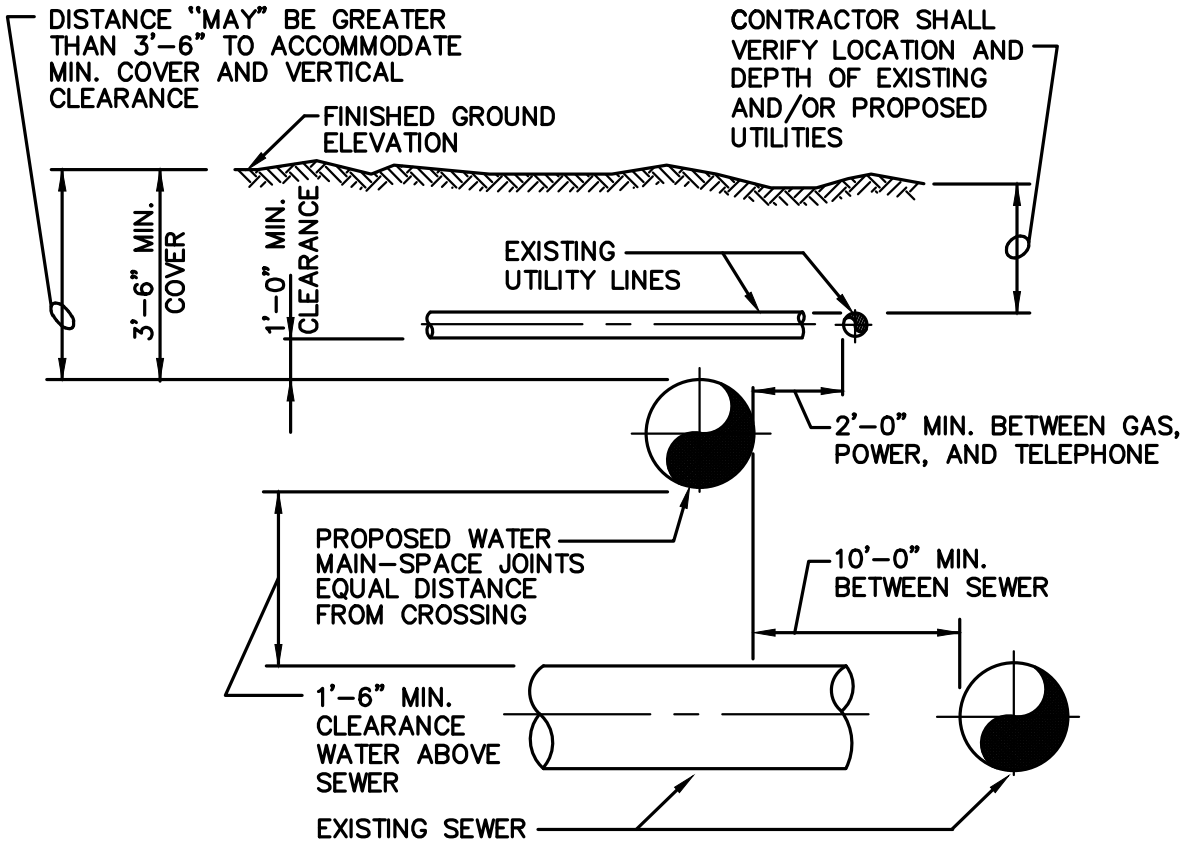
PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE OR DEAD END CAP
	RESTRAINED LENGTH IN FEET				
4"	40	17	8	4	30
6"	55	23	11	6	39
8"	73	31	15	8	53
10"	88	37	18	9	67
12"	103	43	21	10	82
16"	133	55	27	13	110
18"	145	60	29	15	124

NOTES:

1. RESTRAINED LENGTHS SHOWN ARE MINIMUM AND FOR LINEAL FEET REQUIRED ON EACH SIDE OF FITTING INDICATED.
2. FOOTAGES ARE BASED ON 250 PSI PRESSURE AND 42 INCHES COVER. IF PRESSURE IS GREATER OR COVER IS LESS, THE RESTRAINED LENGTH SHALL BE INCREASED.
3. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE RESTRAINED LENGTHS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE G3
THRUST RESTRAINT FOR DUCTILE IRON PIPE





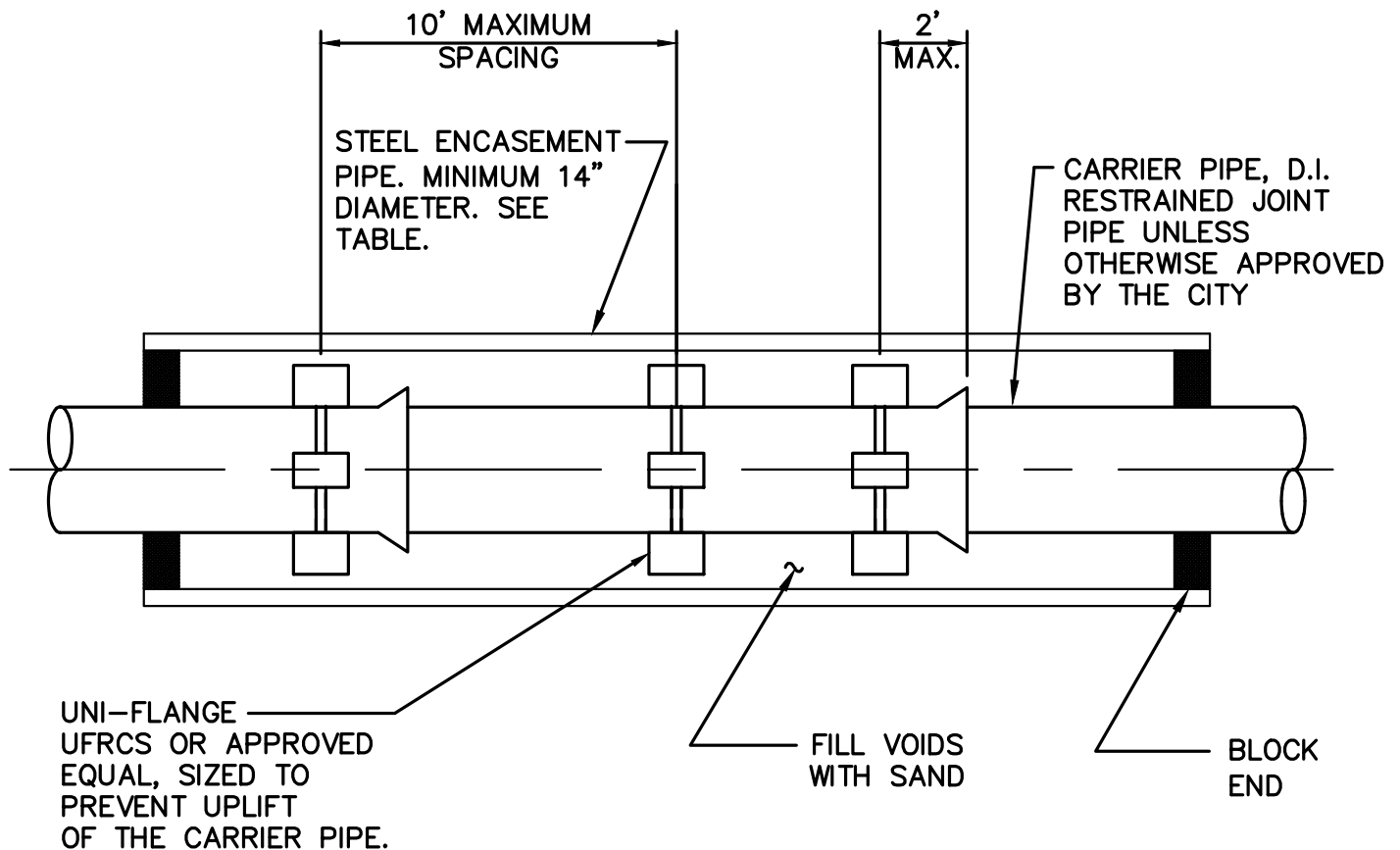
NOTES:

1. REGULATORY AGENCY REQUIREMENTS SHALL SUPERSEDE CITY STANDARDS IF MORE STRINGENT.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE G4
TYPICAL UTILITY CROSSING


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CONSULTING ENGINEERS



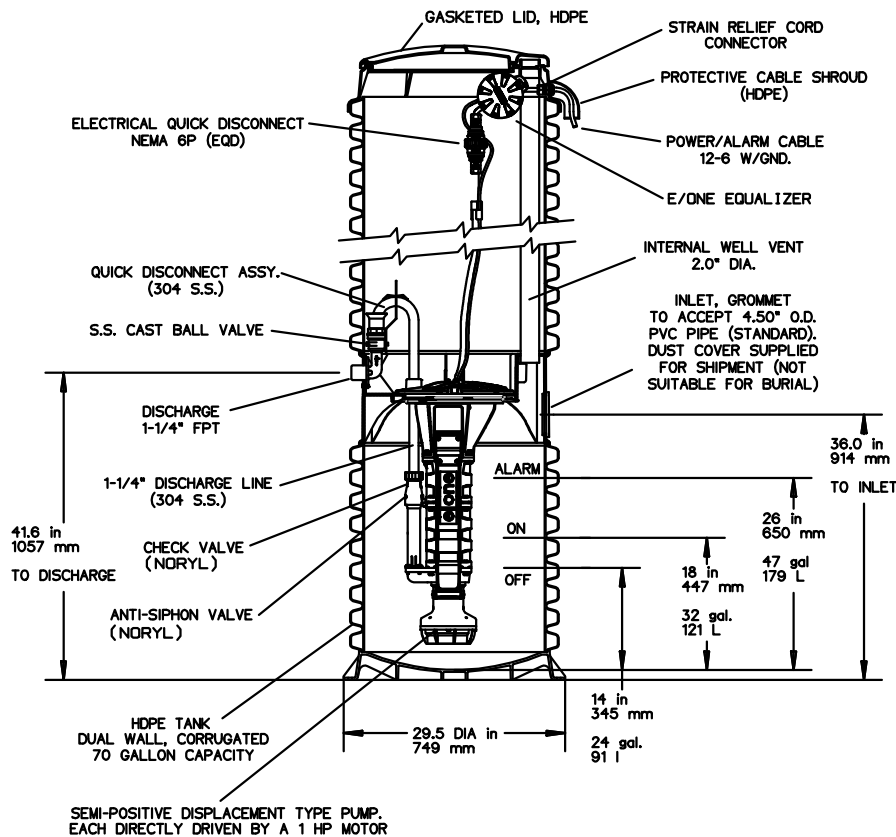
MINIMUM ENCASEMENT DIAMETER	
CARRIER DIA.(IN.)	ENCASEMENT DIA.(IN.)
6	14
8	18
10	21.5
12	23
16	30

NOTES:

1. CONTRACTOR TO VERIFY LINE AND GRADE PRIOR TO FILLING VOIDS WITH SAND.
2. CARRIER PIPE WITHIN THE LENGTH OF THE ENCASEMENT PIPE SHALL HAVE RESTRAINED JOINTS.
3. REGULATORY AGENCY REQUIREMENTS SHALL SUPERSEDE CITY STANDARDS IF MORE STRINGENT.
4. CASING PIPE SHALL BE SCHEDULE 40 STEEL PIPE, WELDED JOINT, AND MINIMUM YIELD STRENGTH (F_y) OF 35 KSI.

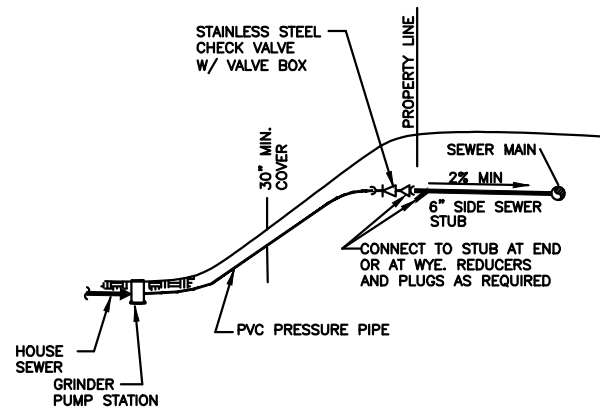
CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE G5
ENCASEMENT/CARRIER PIPES


Gray & Osborne, Inc.
CONSULTING ENGINEERS



GRINDER PUMP

NOT TO SCALE



TYPICAL DISCHARGE PIPING

NOT TO SCALE

GENERAL NOTES:

- THE MINIMUM REQUIREMENTS FOR A RESIDENTIAL SEWAGE PUMPING SYSTEM CONNECTING A SINGLE RESIDENCE TO THE CITY'S SYSTEM ARE SPECIFIED AS FOLLOWS. THE CITY ACCEPTS NO RESPONSIBILITY FOR THE DESIGN, OPERATION AND MAINTENANCE OF SUCH PRIVATELY OWNED AND OPERATED SYSTEMS.
- ALL EQUIPMENT AND ACCESSORIES SHALL BE STANDARD MANUFACTURED ITEMS AND THOSE COMING IN DIRECT CONTACT WITH SEWAGE SHALL BE SPECIFICALLY MANUFACTURED FOR SEWAGE USE.
- LIFT STATION MUST BE LOCATED OUTSIDE THE BUILDING. IF THE STATION IS COMPLETELY BURIED, INSTALL A 48" DIAMETER MANHOLE WITH GRATE AND COVER OVER STATION FOR ACCESS.
- THE PUMP SHALL BE A SUBMERSIBLE GRINDER TYPE, AS SPECIFIED HEREIN. A 12 GAUGE TRACER WIRE, COATED AND CONTINUOUS SHALL BE WRAPPED AROUND THE FORCE MAIN IT'S ENTIRE COURSE AND BROUGHT TO THE SURFACE AT THE STATION.
- FORCE MAIN TO BE 1 1/4" MIN. SCH. 80 PIPE OR CITY APPROVED EQUAL.
- DETECTOR TAPE REQUIRED 1'-0" ABOVE PIPE IN FORCE MAIN CROSSES OTHER PROPERTIES OR IS LOCATED ALONG COMMON ACCESS ROADS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE GPS-1
GRINDER PUMP STATION
SINGLE FAMILY RESIDENCE


Gray & Osborne, Inc.
CONSULTING ENGINEERS

GENERAL NOTES:

COMPLETE E/ONE MODEL DH071 PACKAGED SEWER GRINDER LIFT STATION TO INCLUDE THE FOLLOWING:

GRINDER PUMP WITH 1 HP SUBMERSIBLE SINGLE PHASE MOTOR

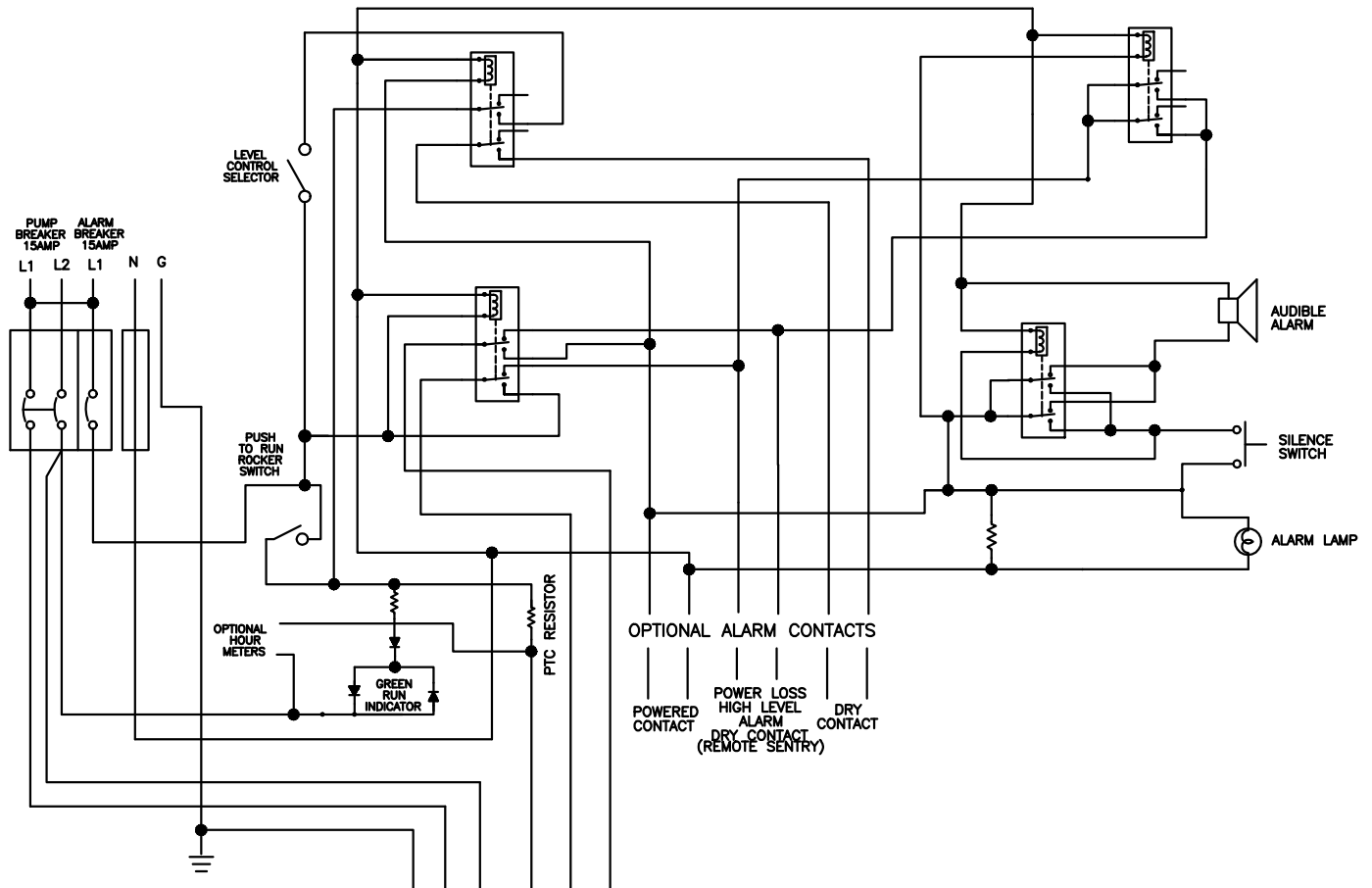
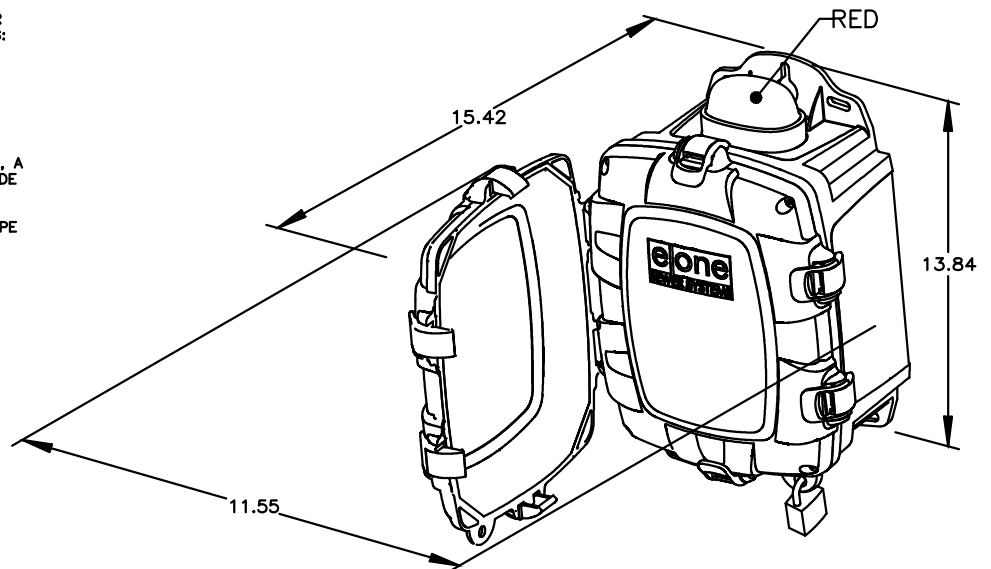
NON-FOULING WASTEWATER PRESSURE SWITCHES
LEVEL CONTROLLERS

DISCHARGE PIPING SHALL INCLUDE A CHECK VALVE, A GATE VALVE AND NPT FEMALE CONNECTION OUTSIDE OF SUMP

INFLUENT PIPING SHALL PROVIDE HUB FOR PVC PIPE OUTSIDE OF SUMP

NEMA 6P ELECTRICAL QUICK DISCONNECT

NEMA 4X, UL-LISTED ALARM PANEL, LABEL COVER, EQUIPPED WITH AUDIBLE AND VISUAL ALARM.



PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

CONTROL CABLE:

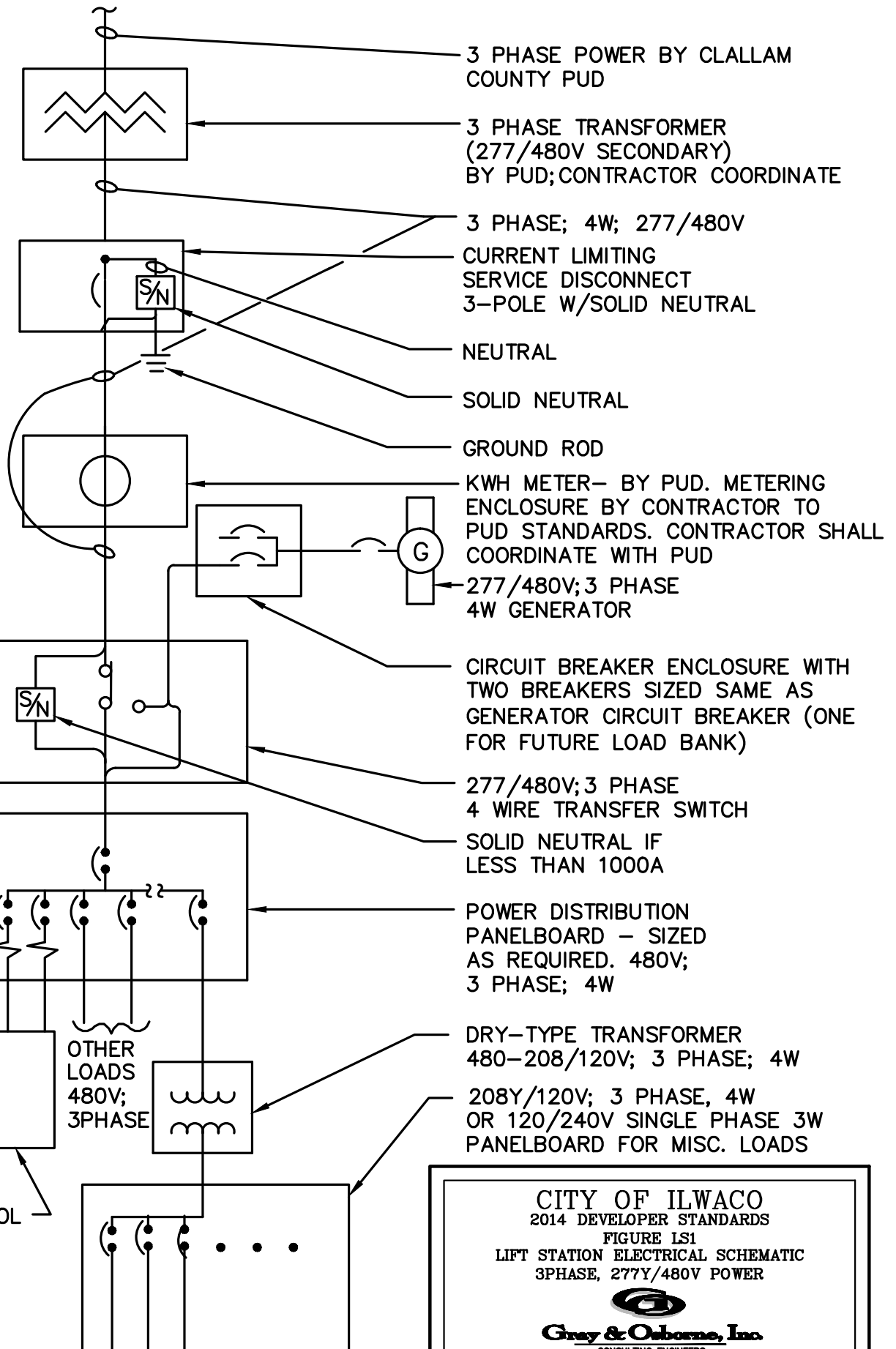
TYPE TC: DIRECT BURIAL, 12AWG, SIX CONDUCTOR

TO PUMP
GND 1 2
PUMP POWER
MANUAL RUN
FEED
RETURN
ALARM

CITY OF ILWACO
2014 DEVELOPER STANDARDS

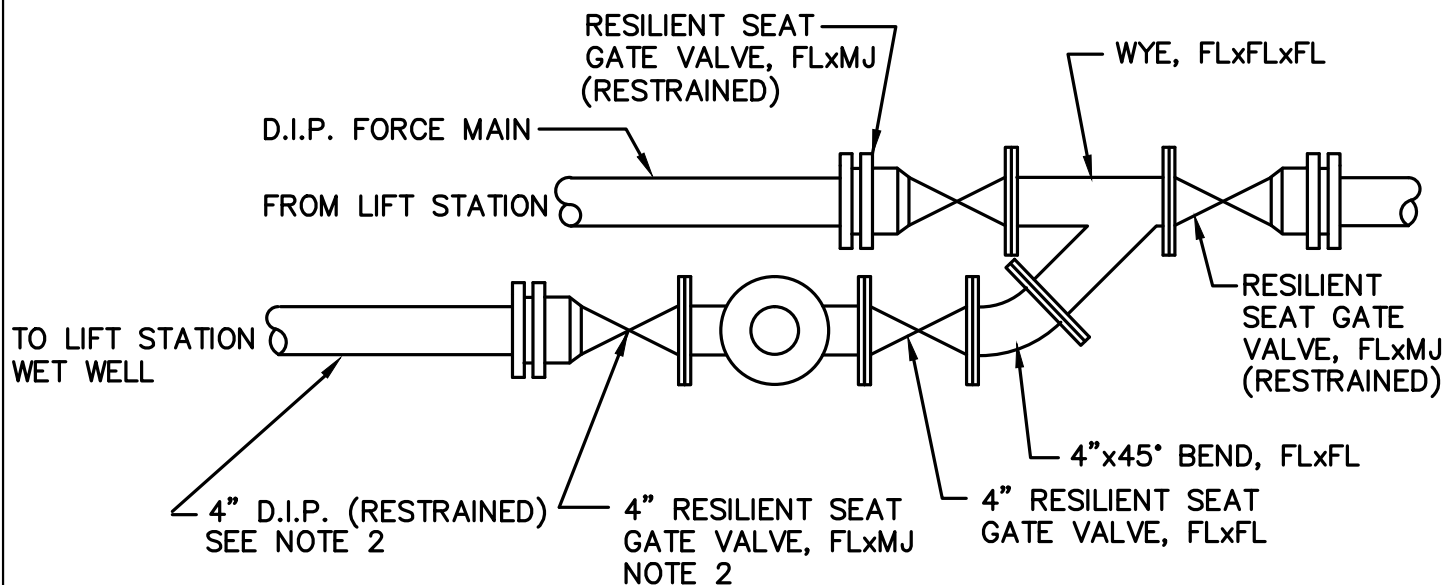
FIGURE GPS-2
GRINDER PUMP STATION
PUMP CONTROL PANEL

Gray & Osborne, Inc.
CONSULTING ENGINEERS

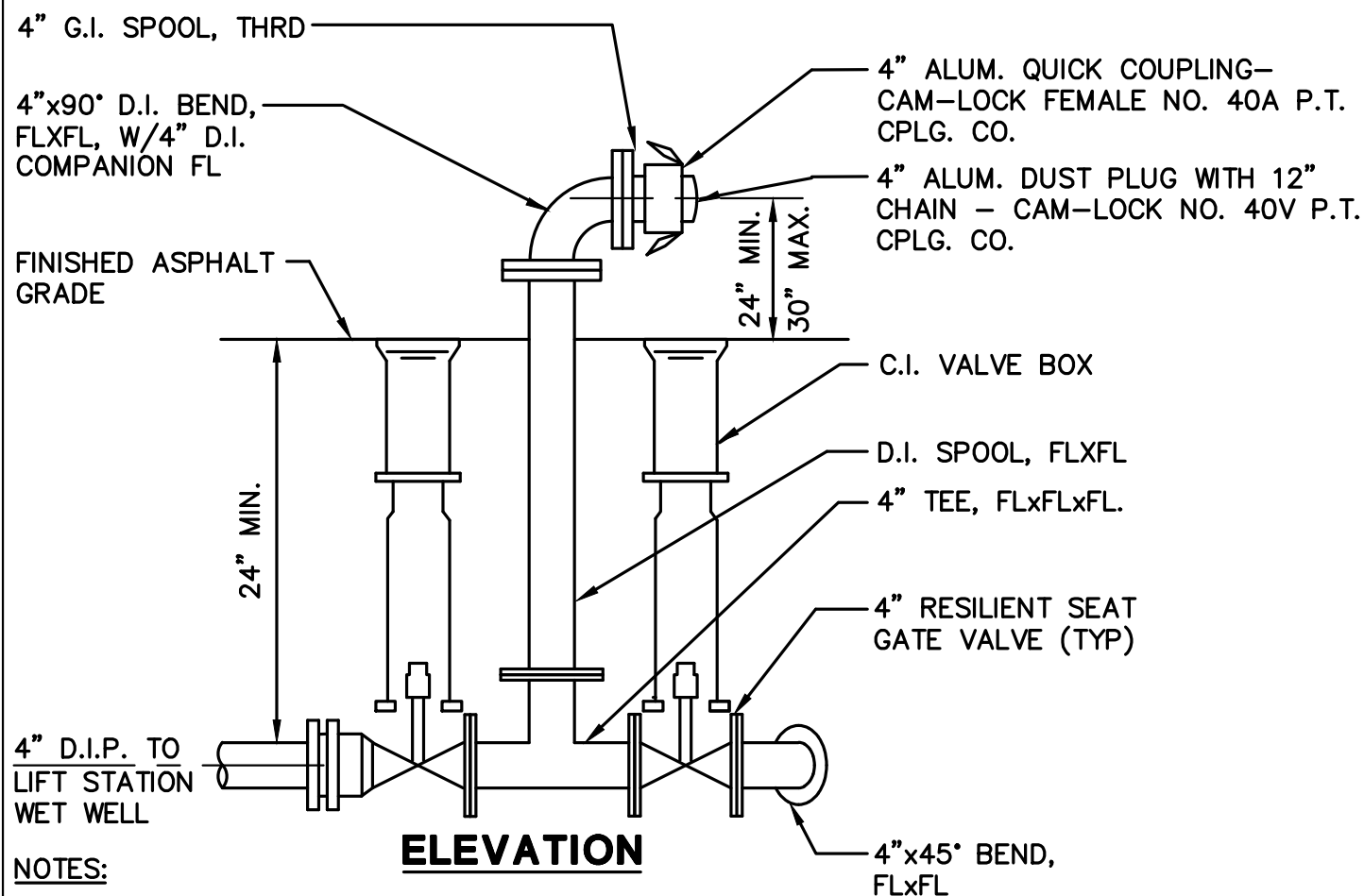


CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE LS1
LIFT STATION ELECTRICAL SCHEMATIC
3PHASE, 277Y/480V POWER





PLAN

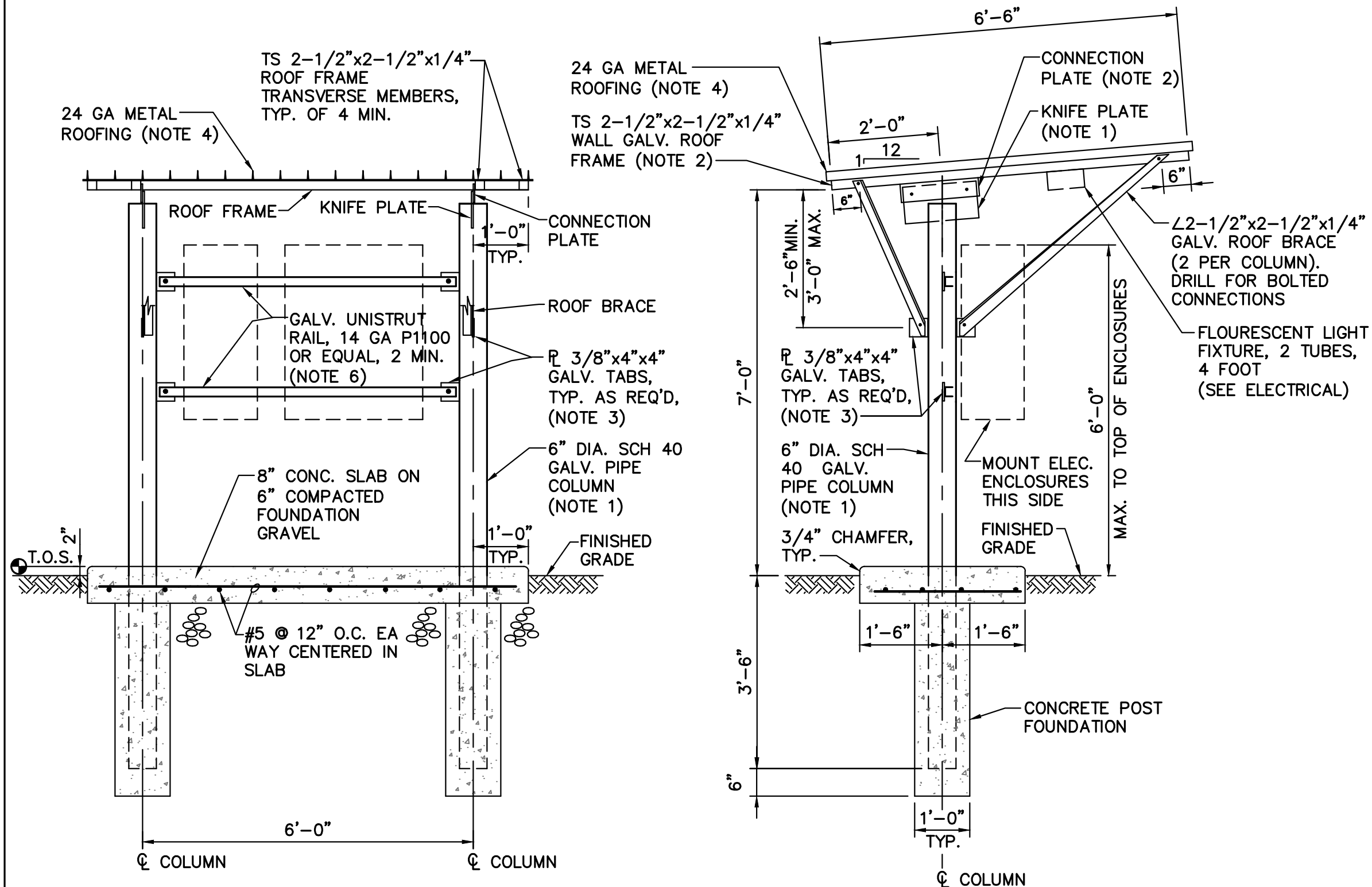


NOTES:

1. LOCATE AND ORIENT PUMP CONNECTION AS DIRECTED BY CITY.
2. PIPE AND FITTINGS TO BE ADJUSTED BASED ON DISTANCE TO WET WELL (FLxPE, OR FLxMJ RESTRAINED)
3. 4" SIZE SHOWN, LARGER SIZE MAY BE REQUIRED TO MEET STATION CAPACITIES.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE LS2
EMERGENCY PUMP CONNECTION


Gray & Osborne, Inc.
CONSULTING ENGINEERS



SECTION

ELEVATION

ELECTRICAL RACK DETAIL

SCALE: 1/2"=1'-0"

3

G-2

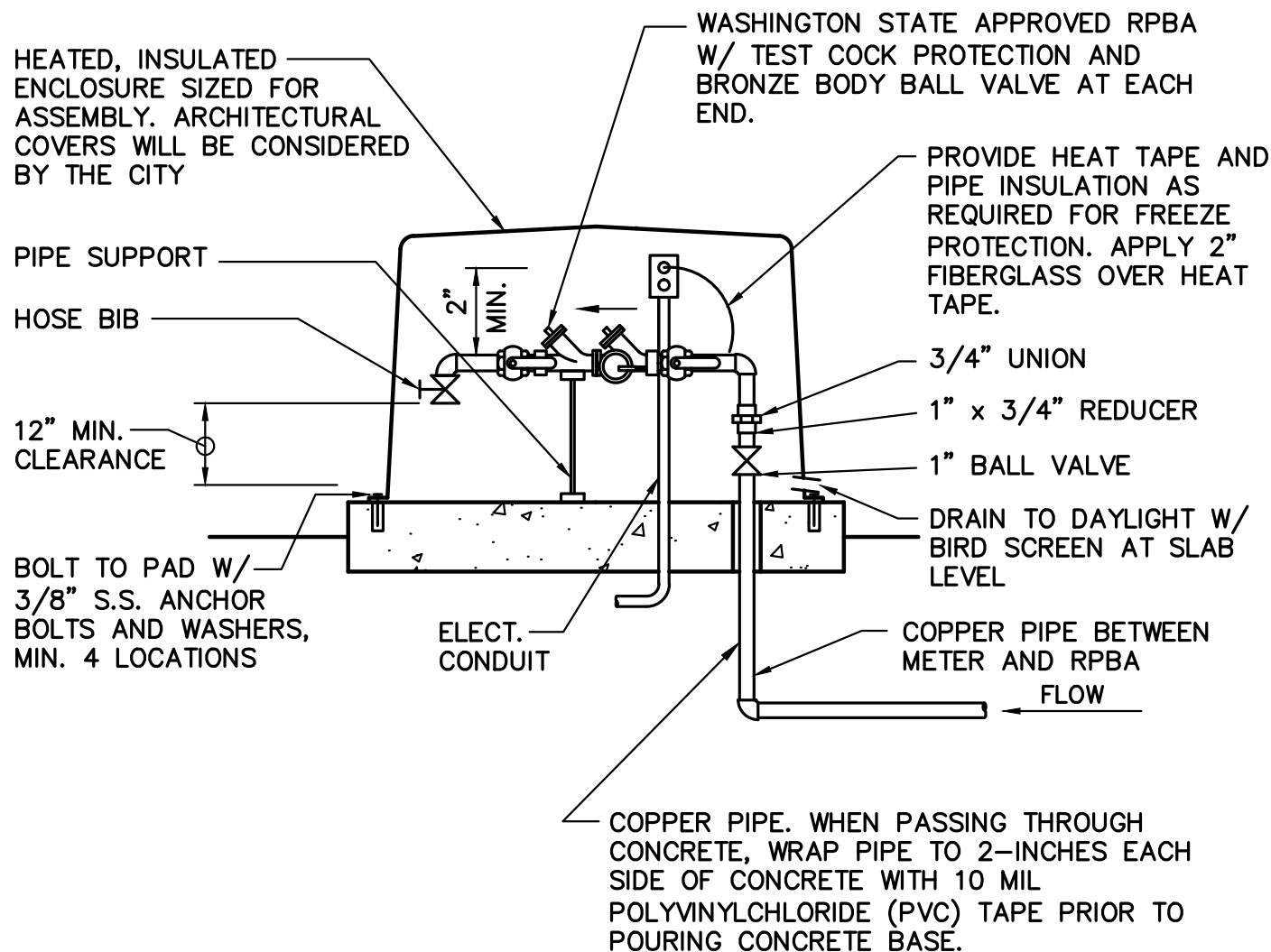
ELECTRICAL RACK NOTES:

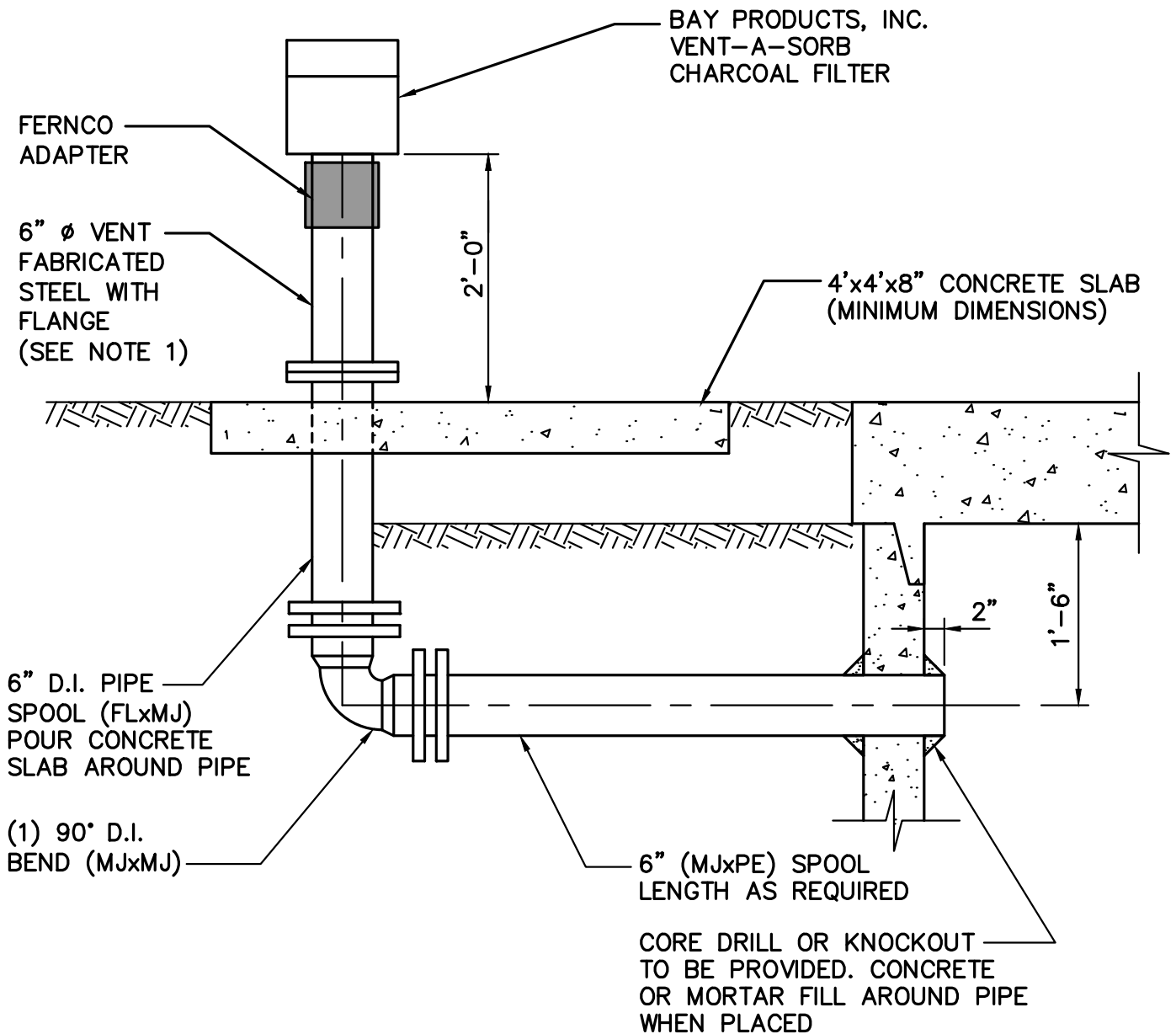
1. NOTCH TOP OF PIPE AND ATTACH 3/8"x8"x16" GALV KNIFE PLATE FOR BOLTED ROOF FRAME CONNECTION. CLOSE TOP OF PIPE W/ 1/4" GALV. PLATE. ATTACH TABS (NOTE 3) AS REQUIRED. SHOP WELD.
2. CONSTRUCT ROOF FRAME W/3 LONGITUDINAL MEMBERS AND 4 TRANSVERSE MEMBERS, MINIMUM. ATTACH GALV 3/8" PLATE EACH END FOR BOLTED CONNECTION TO COLUMN KNIFE PLATE (NOTE 6). SHOP WELD.
3. DRILL TABS FOR BOLTED CONNECTION OF ROOF FRAME BRACES AND EQUIPMENT RAILS. SHOP WELD TO 6" COLUMN. RADIUS EXPOSED CORNERS.
4. METAL ROOFING 24 GAUGE, KLIP-R1B BY AEP SPAN OR EQUAL. FOREST GREEN COLOR. ATTACH TO ROOF FRAME PER MFR RECOMMENDATIONS.
5. ALL BOLTED CONNECTIONS TO BE 3/4"Ø STAINLESS STEEL. SHOP DRILL ALL HOLES. TOUCH UP ALL WELDS AND HOLES W/COLD GALVANIZING COMPOUND.
6. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PER SPECIFICATIONS.
7. ALL CONNECTIONS SHALL BE WELDED AROUND THE FULL PERIMETER OF THE JOINT, EXCEPT WHERE BOLTED CONNECTIONS ARE INDICATED.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE LS3
ROOF STRUCTURE FOR ELECTRICAL ENCLOSURE







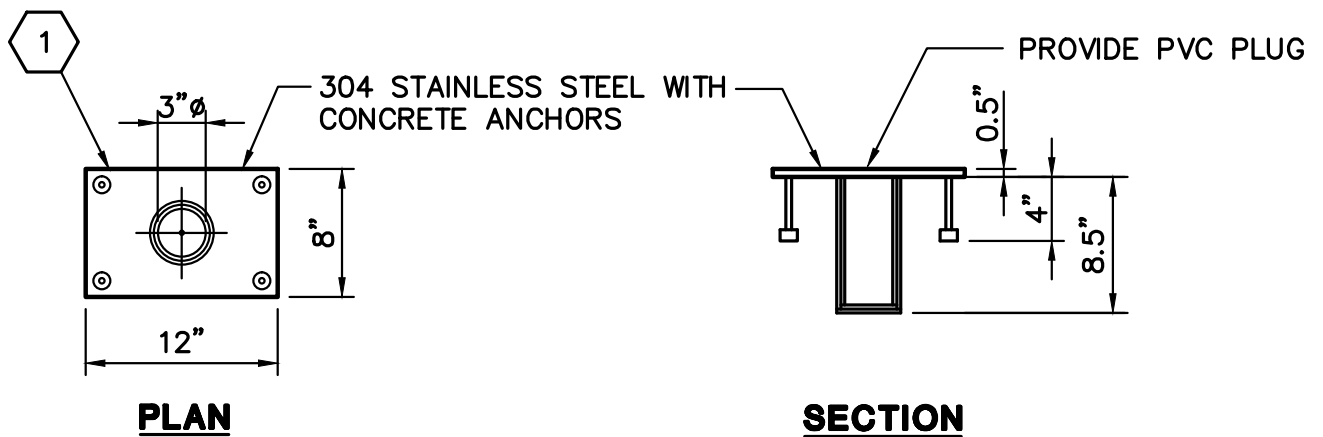
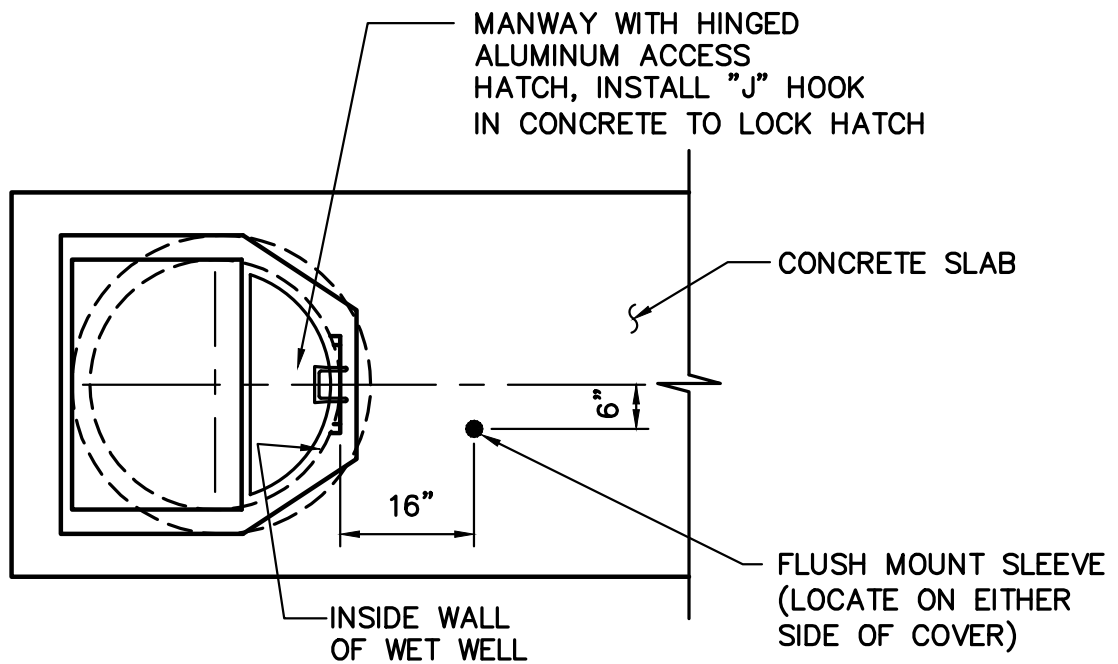
NOTES:

1. HOT DIP GALVANIZE VENT "CANE" AND FLANGE AFTER FABRICATION. AFTER GALVANIZING VENT, PAINT WITH TWO COATS OF KELLY MOORE 6100-855, MACHINE GREEN, OR AS DIRECTED BY THE CITY.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE LS5
VENT DETAIL


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CONSULTING ENGINEERS



FLUSH MOUNT SLEEVE

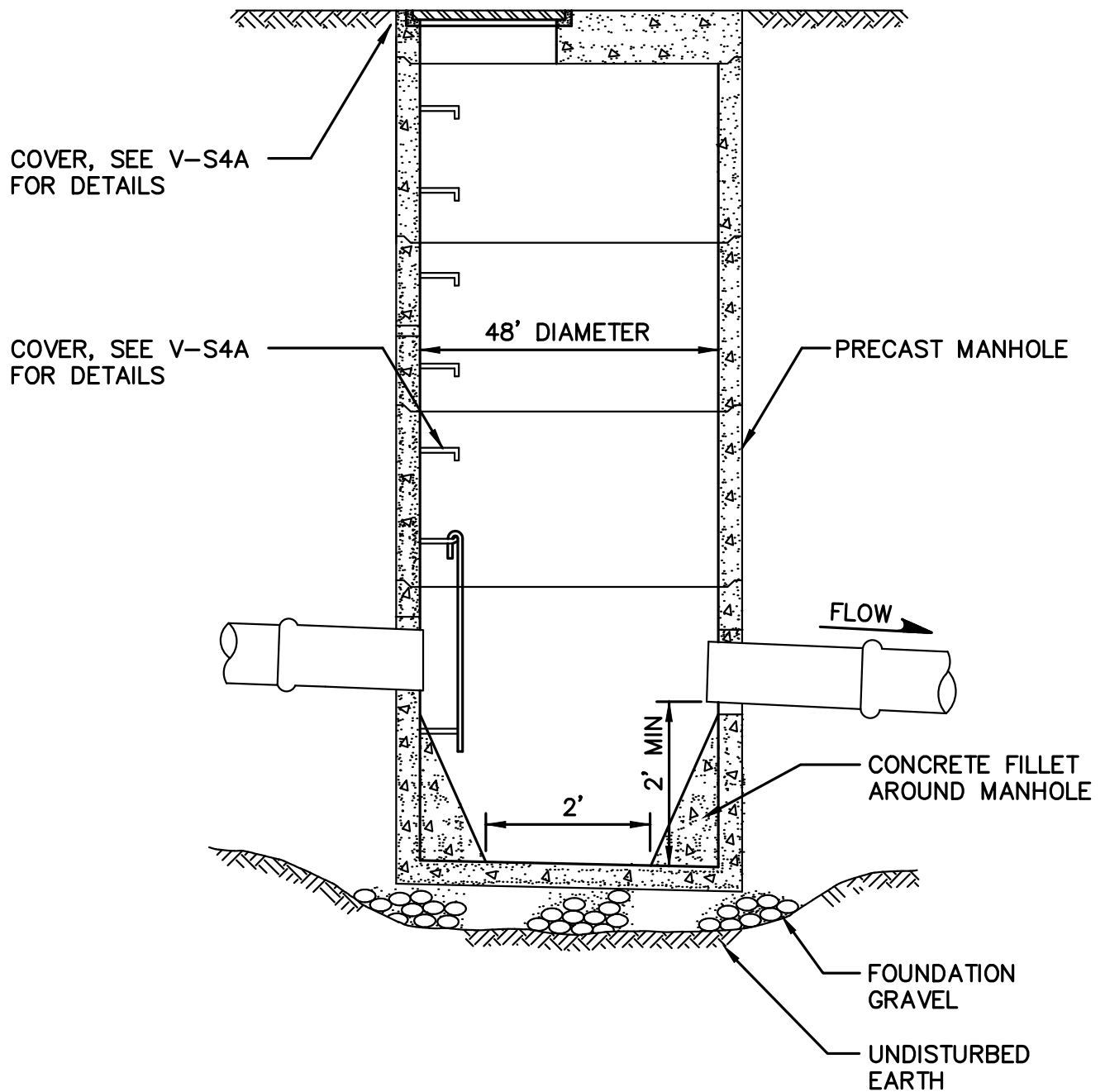
NOT TO SCALE

- 1 FLUSH MOUNT SLEEVE MODEL 128 BY UNIQUE CONCEPTS LTD.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE LS6
FLUSH MOUNT SLEEVE


Gray & Osborne, Inc.
CONSULTING ENGINEERS



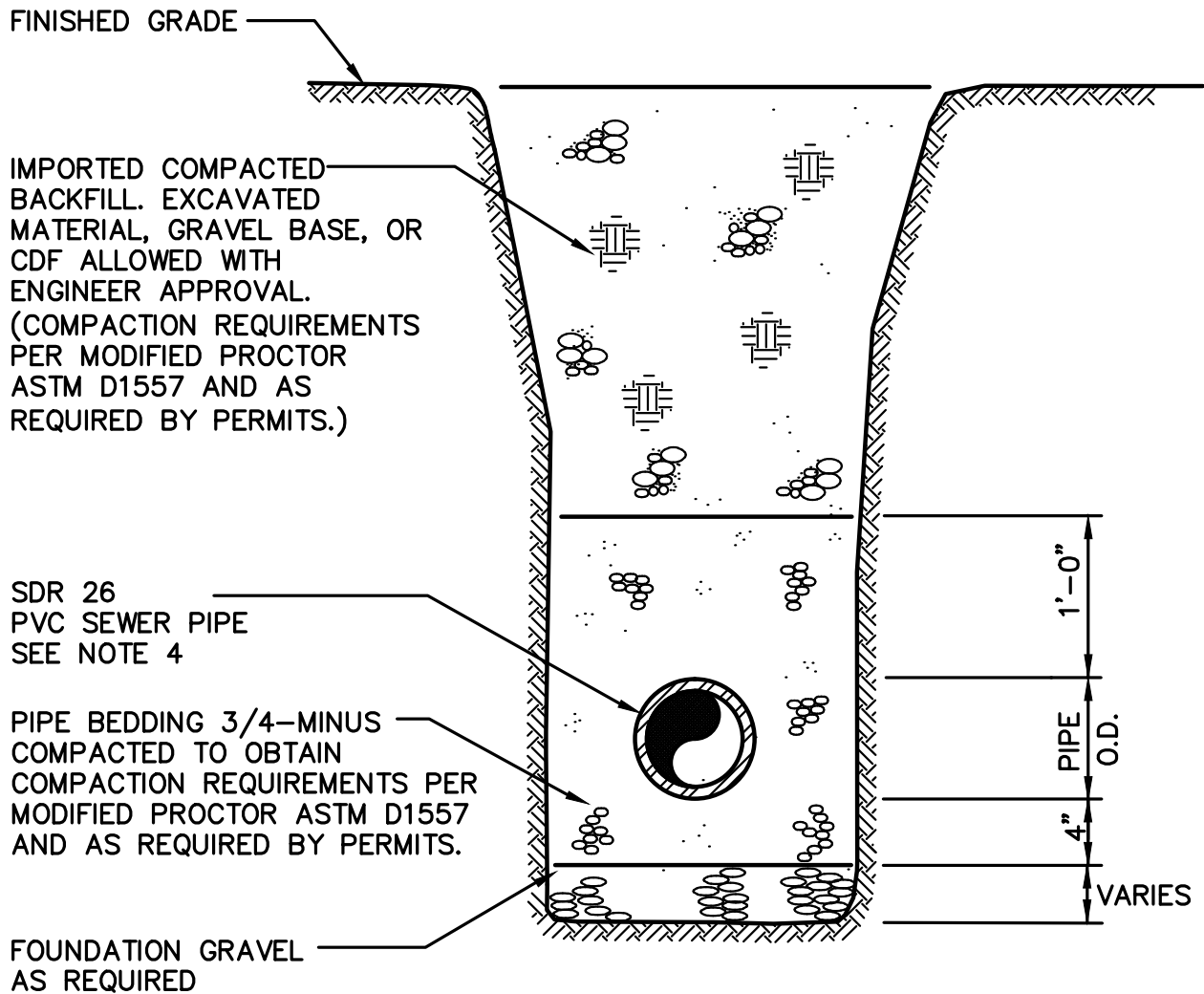
NOTES:

1. SEE STANDARD MANHOLE FOR ADDITIONAL CALLOUTS ON V-S4A AND V-S5.
2. ACCESS HATCH AND MANHOLE STEPS LOCATED AT 45° TO THROUGH FLOW

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE LS7
ROCK CATCH MANHOLE


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CONSULTING ENGINEERS

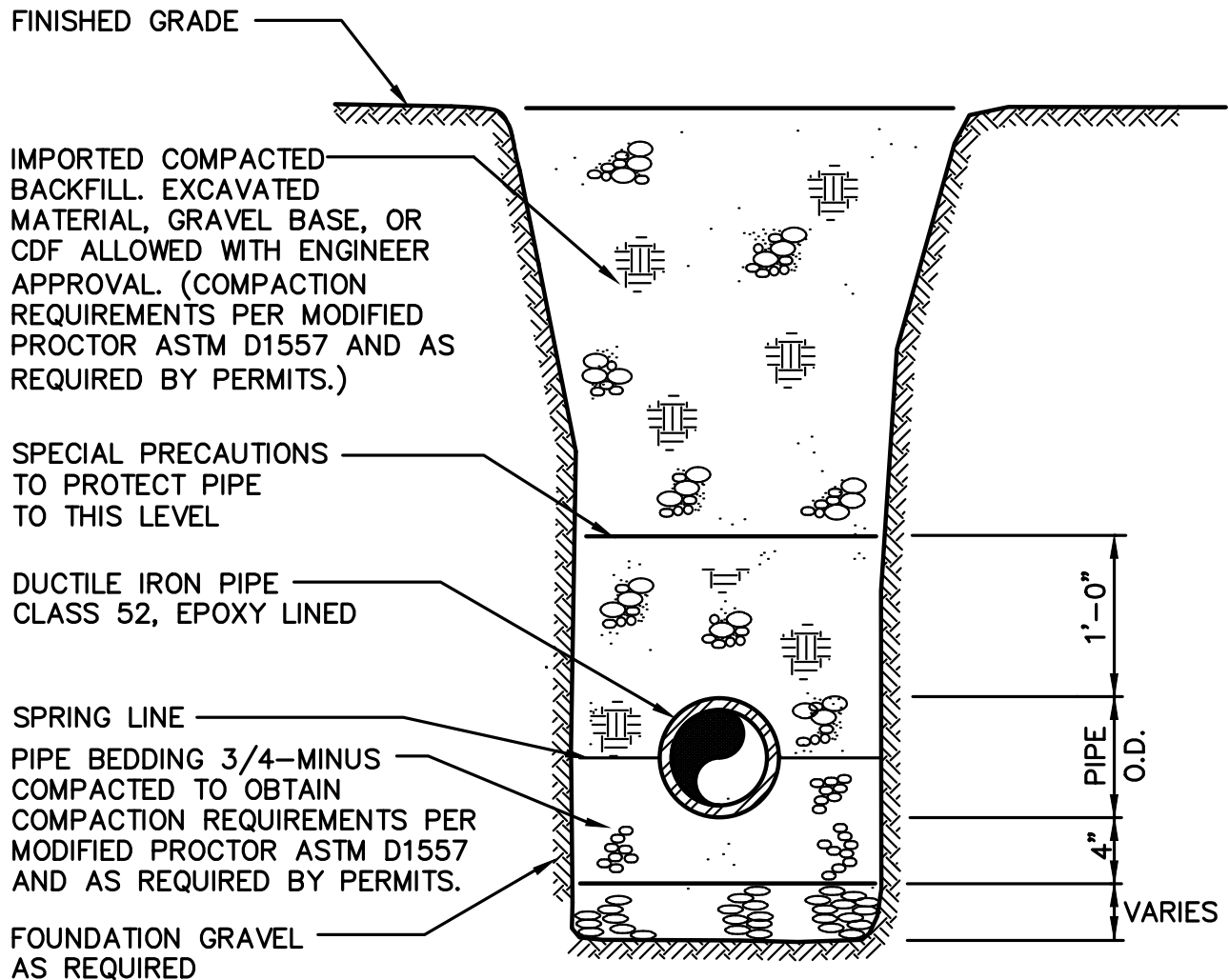


NOTES:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE ON BOTTOM, SIDES AND TOP OF PIPE AND SHALL BE IN CONFORMANCE WITH CITY OF SEQUIM STANDARDS AND/OR COUNTY, CITY, STATE PERMIT REQUIREMENTS.
2. PIPES SHALL BE RESTRAINED IN FILL OR PREVIOUSLY DISTURBED MATERIAL.
3. CLAY OR BENTONITE DAMS SHALL BE INSTALLED ACROSS THE TRENCH AND TO THE FULL DEPTH OF THE GRANULAR MATERIAL IN ALL AREAS OF STEEP SLOPES, STREAM CROSSINGS AND WETLAND TO PREVENT MIGRATION OF WATER ALONG THE PIPELINE.
4. PIPE SHALL BE C900 FOR BURIAL DEPTHS OF 16 FEET AND DEEPER.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S1
SANITARY SEWER TRENCH SECTION
(PLASTIC/GRAVITY)


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CONSULTING ENGINEERS

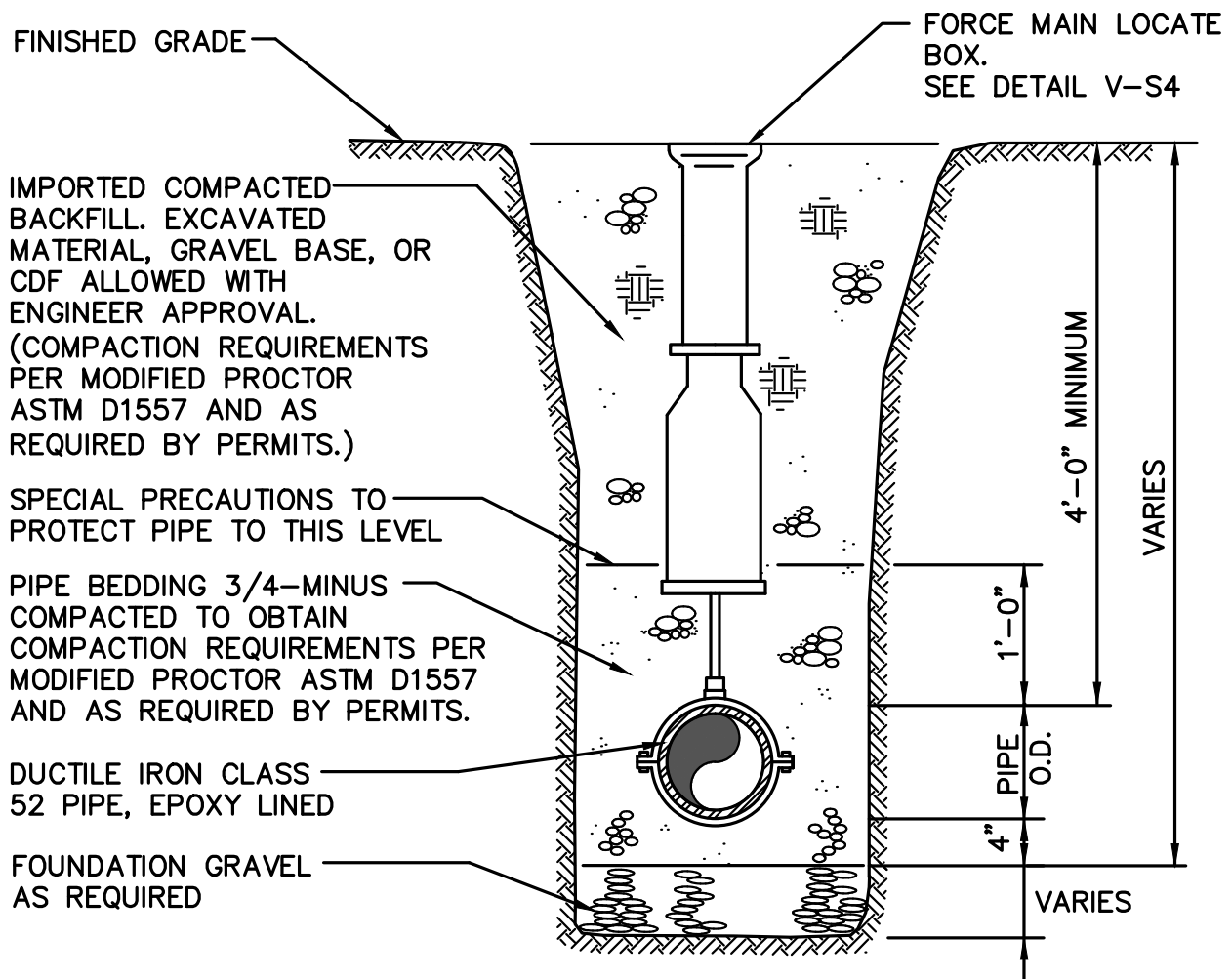


NOTES:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE ON BOTTOM, SIDES AND TOP OF PIPE AND SHALL BE IN CONFORMANCE WITH CITY OF SEQUIM STANDARDS AND/OR COUNTY, CITY, STATE PERMIT REQUIREMENTS.
2. PIPES SHALL BE RESTRAINED IN FILL OR PREVIOUSLY DISTURBED MATERIAL.
3. CLAY OR BENTONITE DAMS SHALL BE INSTALLED ACROSS THE TRENCH AND TO THE FULL DEPTH OF THE GRANULAR MATERIAL IN ALL AREAS OF STEEP SLOPES, STREAM CROSSINGS AND WETLAND TO PREVENT MIGRATION OF WATER ALONG THE PIPELINE.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S2
SANITARY SEWER TRENCH SECTION
(D.I./GRAVITY)


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CONSULTING ENGINEERS

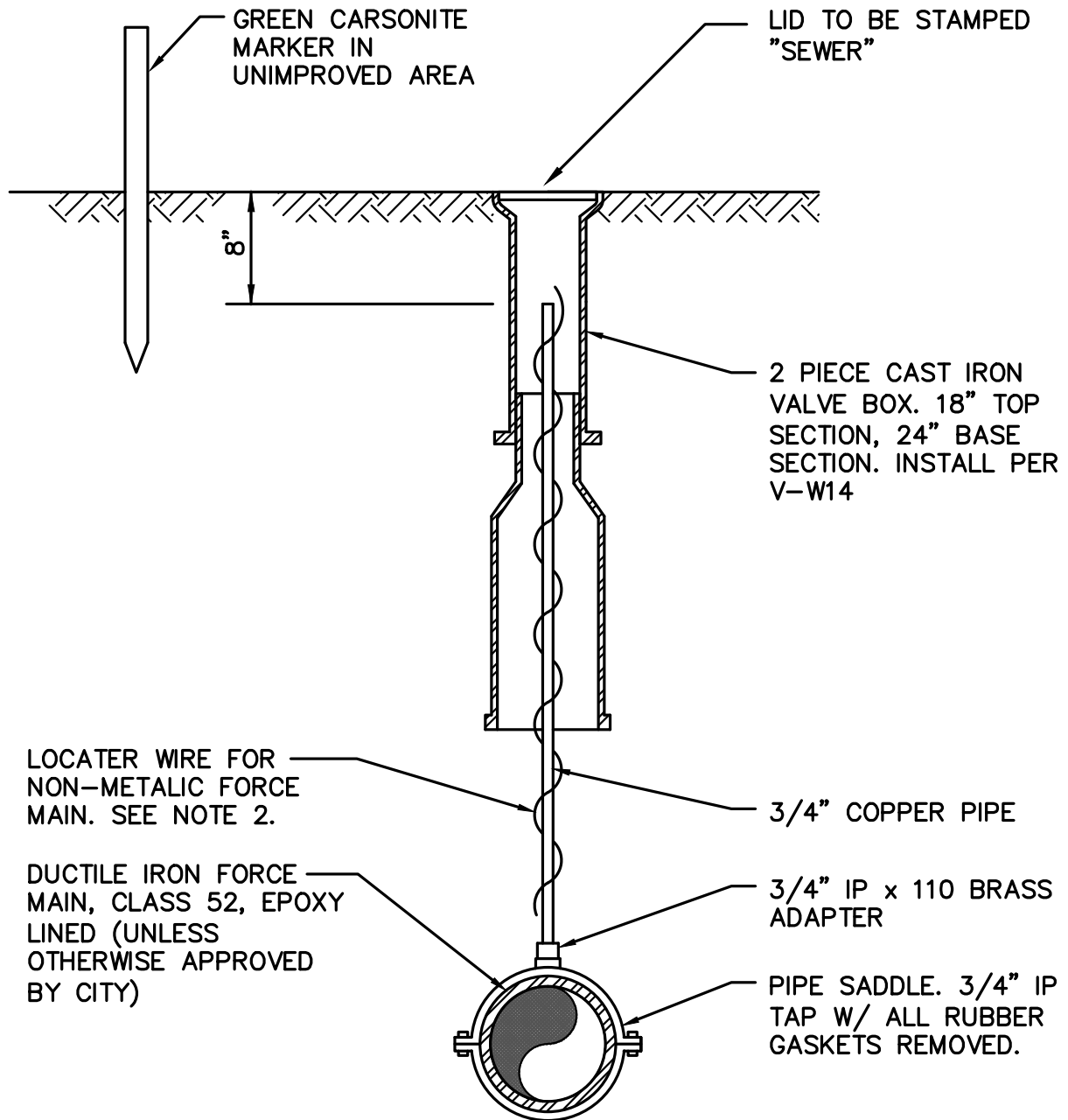


NOTES:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE ON BOTTOM, SIDES AND TOP OF PIPE AND SHALL BE IN CONFORMANCE WITH CITY OF SEQUIM STANDARDS AND/OR THE CLALLAM COUNTY, CITY AND/OR STATE PERMIT REQUIREMENTS.
2. ONLY DUCTILE IRON PIPE SHALL BE USED UNLESS APPROVED BY THE CITY.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S3A
SANITARY SEWER TRENCH SECTION
(FORCE MAIN)


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NOTES:

1. LOCATE AT ENDS OF FORCE MAINS, ALL HORIZONTAL BENDS AND AT 300 FT. MAX SPACING, OR AS REQUIRED BY CITY
2. ON NON-METALIC FORCE MAINS, PROVIDE 12 GAUGE COATED COPPER WIRE BETWEEN LOCATION BOXES. WRAP ALONG FORCE MAIN PIPE AND UP COPPER PIPE AT EACH END.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S3B
FORCE MAIN LOCATION BOX


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CONSULTING ENGINEERS

MANHOLE FRAME & COVER WITH "SEWER" CAST ON COVER IN 3" RAISED LETTERS (NON-SKID PATTERN) GMI COMPOSITE MATERIAL LID & FRAME EQUAL IN PERFORMANCE TO DUCTILE IRON. 3 HOLE LOCKING FRAME AND COVER. ONE (1) BOLT HOLE TO BE CENTERED OVER LADDER. SEE V-S5 FOR OPENING LOCATION.

FIRST STEP 14" MIN. 18" MAX.

GROUT BETWEEN RINGS

POLYPROPYLENE MANHOLE STEPS AT 12" O.C.

GROUT LIFT HOLES INSIDE AND OUTSIDE

MANHOLE DIAMETER
48": STANDARD
54": DEPTH \geq 20FT
60": PIPE DIA.=15"
72": PIPE DIA.=24"

SEE NOTE 1 FOR PIPE CONNECTION

REINFORCED CONC. COLLAR. SEE V-S4B.

FINISHED GRADE

4" X 24" PRECAST CONC. ADJUSTMENT RINGS 2 RINGS REQUIRED 5 RINGS MAXIMUM PLASTER INSIDE AND OUTSIDE FACE WITH 1/2" THICK GROUT

OFFSET CONE

48" MIN. INSIDE DIAMETER PRECAST MANHOLE

RUBBER GASKET TO SEAL. GROUT IF NECESSARY

POLYPROPYLENE LADDER

10' MIN.

SLOPE 3/8"/FT

3/4 PIPE DIA

GROUT FILL

FLOW

FOUNDATION GRAVEL

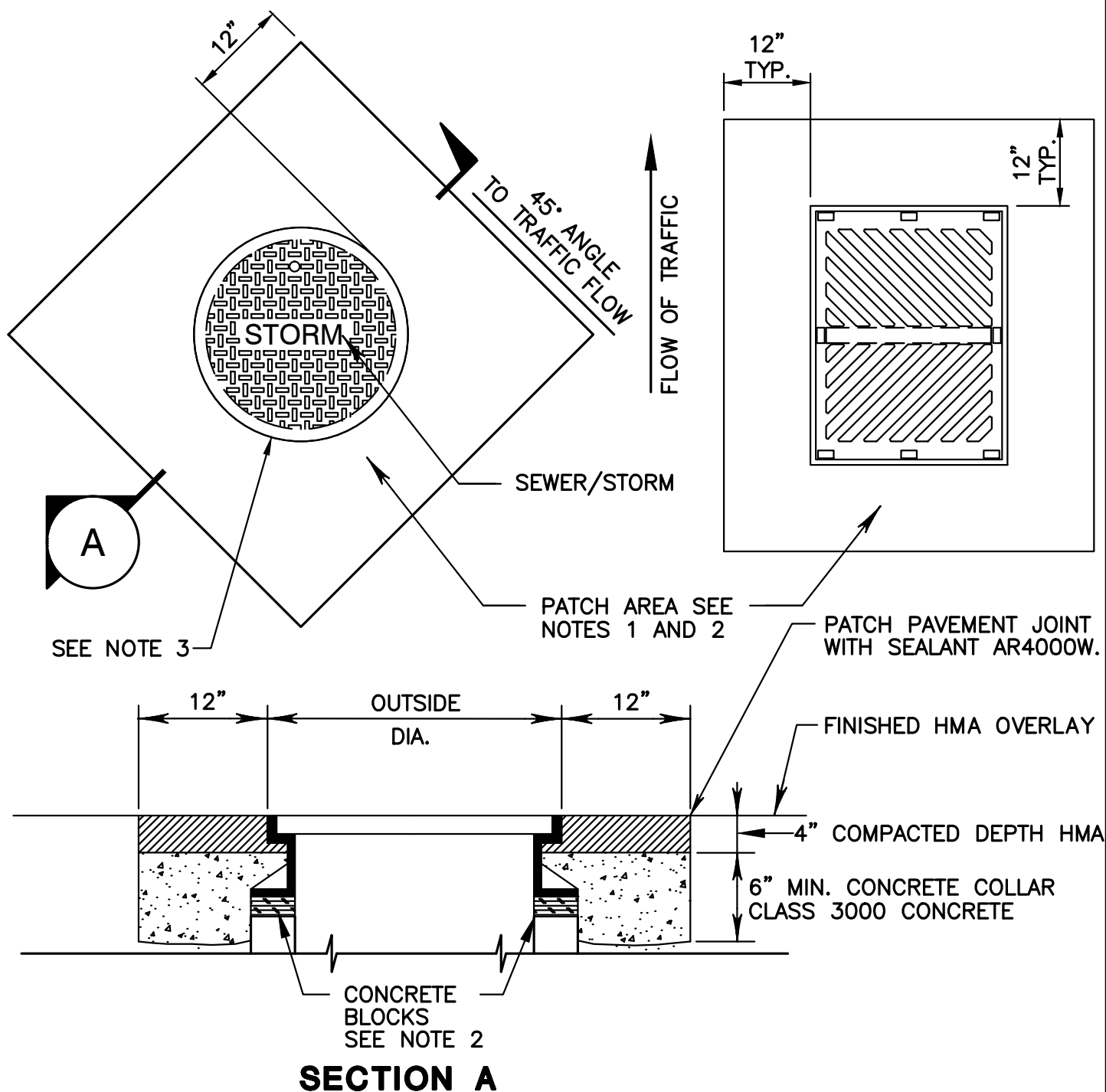
UNDISTURBED EARTH

NOTES:

1. PIPE CONNECTIONS TO MANHOLES SHALL BE AS FOLLOWS:
PVC PIPE: CAST OR GROUT A SAND COLLAR INTO WALL.
D.I. OR PVC PIPE: CORE THE MANHOLE AND CONNECT SEWER PIPE WITH EPDM MODEL "C" OR "L" LINK SEAL.
2. DROP OF GRADE THRU MANHOLE SHALL BE 0.10', UNLESS OTHERWISE NOTED.
3. MINIMUM DEPTH OF MANHOLE SHALL BE 8' UNLESS APPROVED BY THE CITY.
4. INSTALL GREEN CARSONITE FIBERGLASS MANHOLE MARKERS IN EASEMENTS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S4A
SANITARY SEWER MANHOLE SECTION

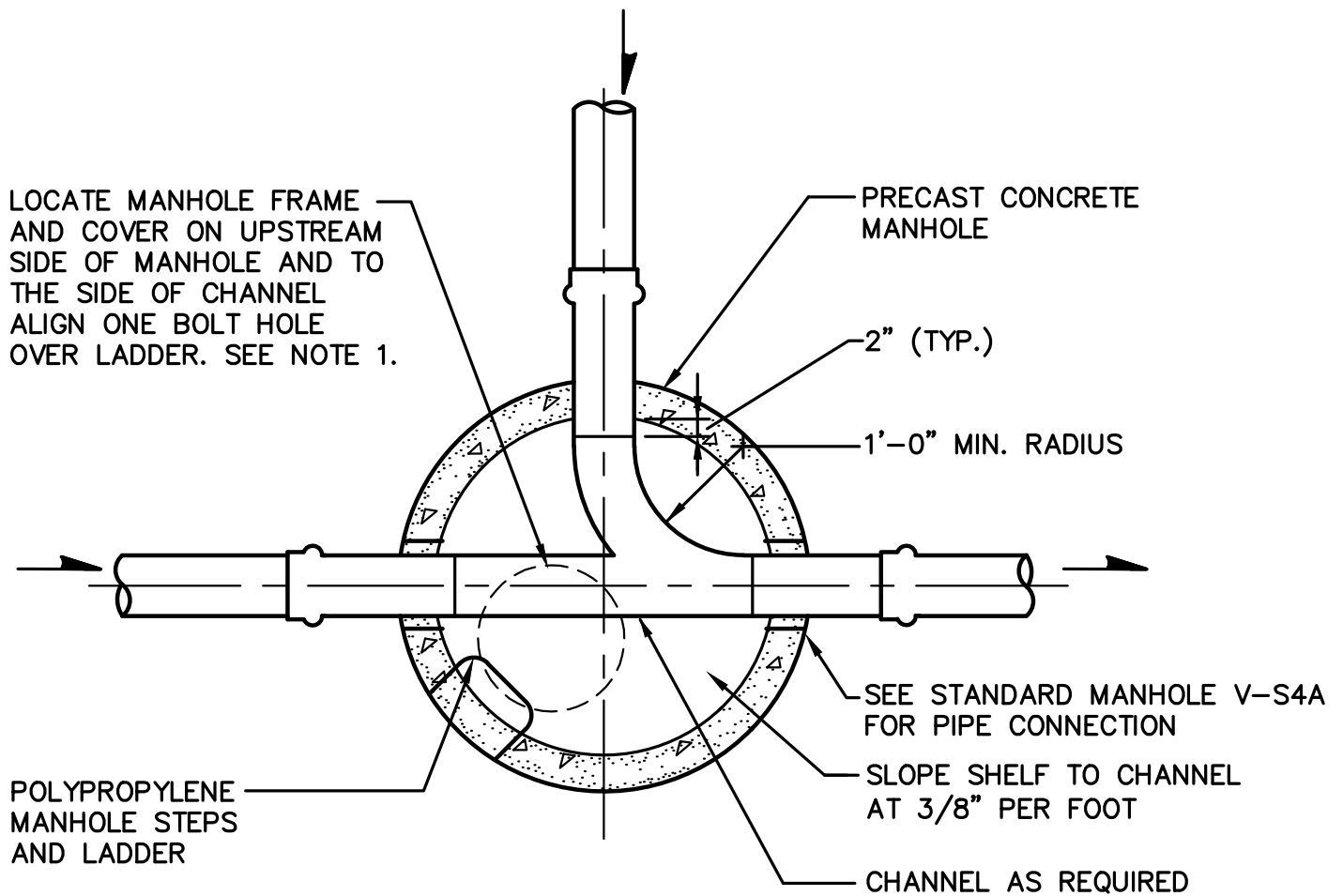

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CONSULTING ENGINEERS



SECTION A

1. REMOVE PAVEMENT AND BASE MATERIALS WITHIN THE PATCH AREA AS DETAILED. ADJUST CASTING FRAME TO NEW PAVEMENT SURFACE USING CONCRETE BLOCKS & CONCRETE GROUT.
2. 2"x4"x8" SOLID BRICK USED FOR FINAL ADJUSTMENT TO GRADE. 6" HIGH MAX.
3. CONTRACTOR SHALL FURNISH AND INSTALL COMPOSITE MANHOLE COVERS (GMI COMPOSITE OR CONTRACTING AGENCY APPROVED EQUAL) ON ALL EXISTING SEWER/STORM MANHOLES. BOLT TO EXISTING COLLAR. PROVIDE EXISTING LID TO CONTRACTING AGENCY.



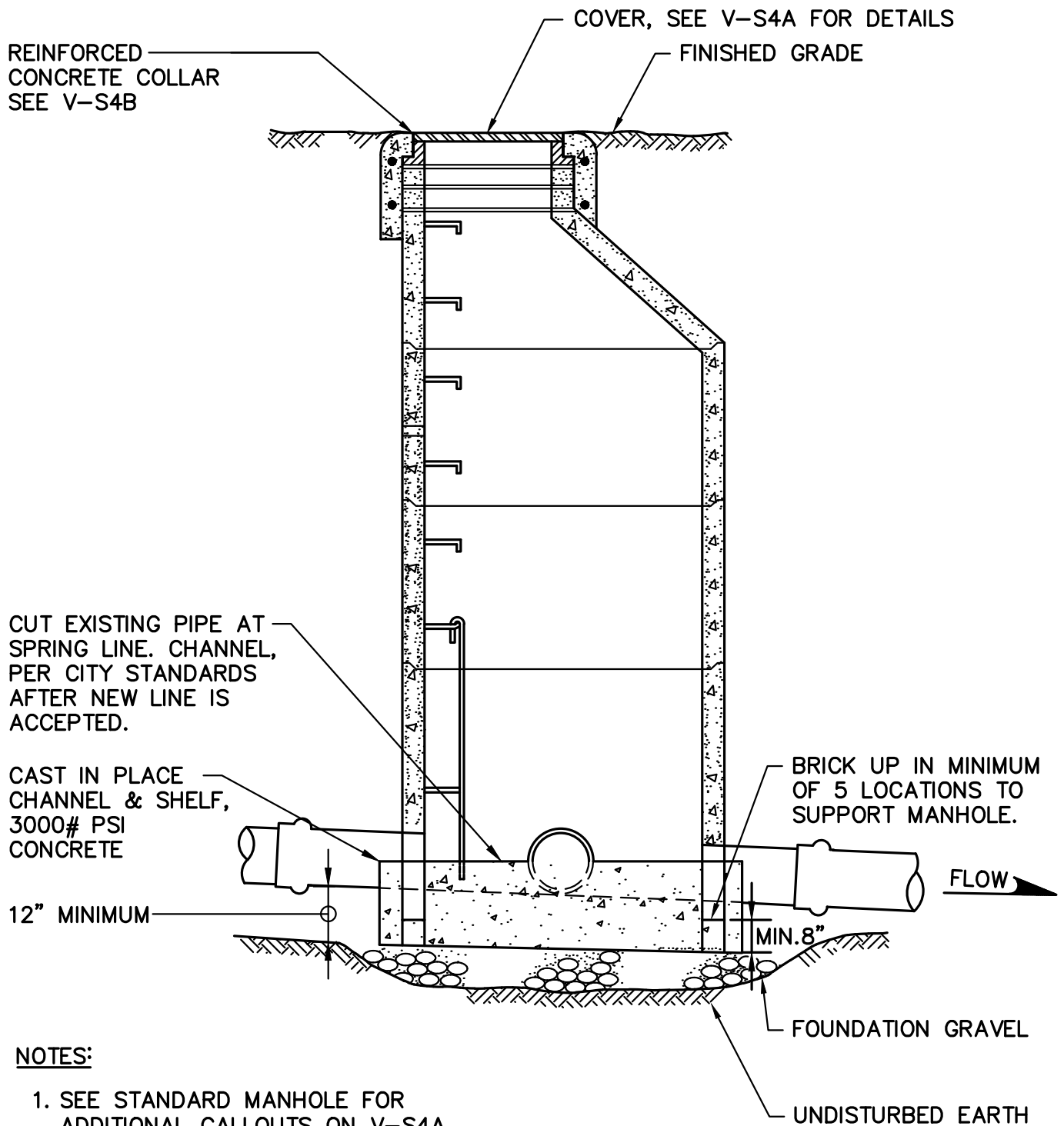


NOTES:

1. CONFIRM FRAME AND COVER LOCATION WITH CITY.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S5
SANITARY SEWER MANHOLE PLAN



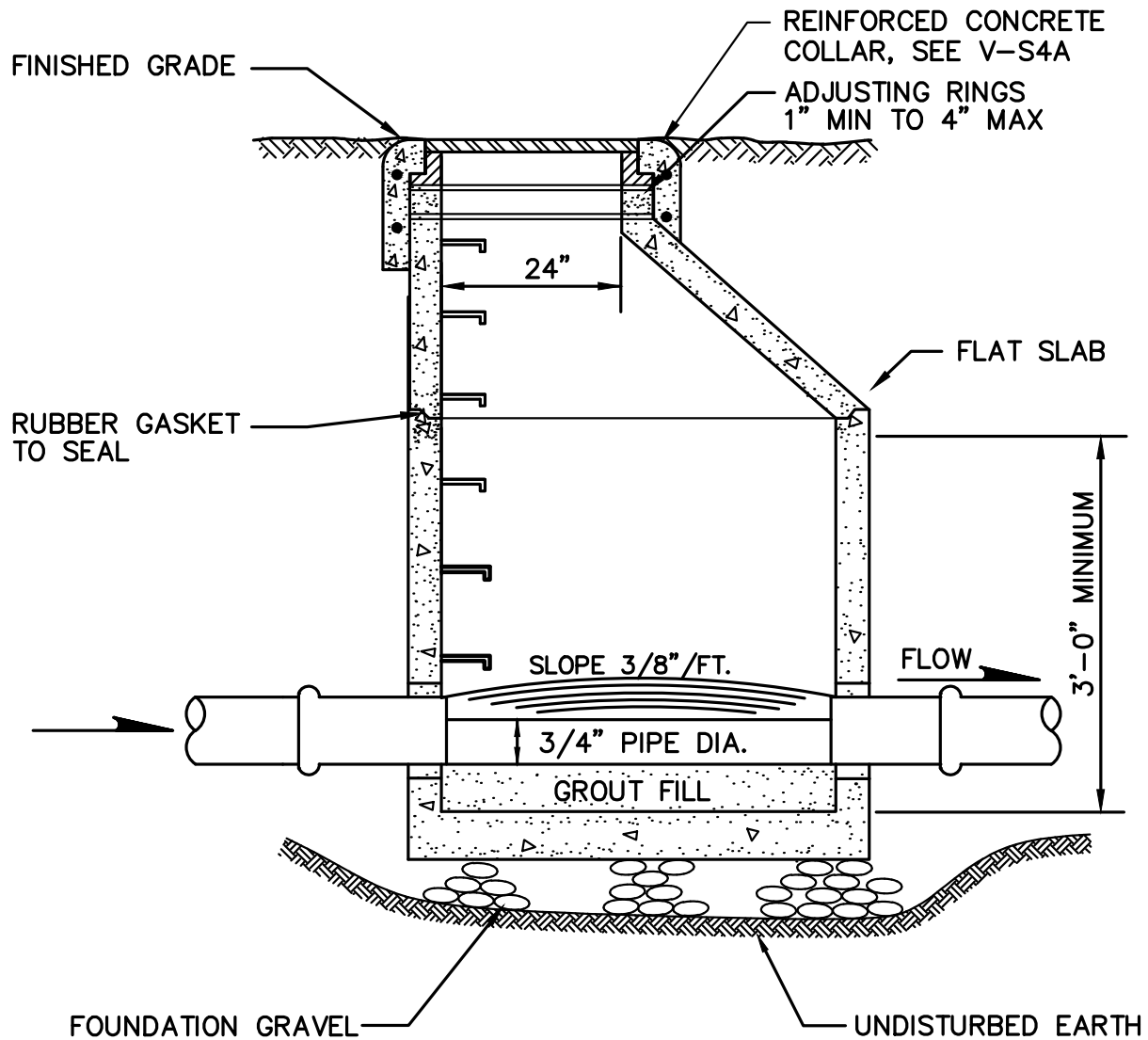


NOTES:

1. SEE STANDARD MANHOLE FOR
ADDITIONAL CALLOUTS ON V-S4A

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S6
SANITARY SEWER SADDLE MANHOLE


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CONSULTING ENGINEERS

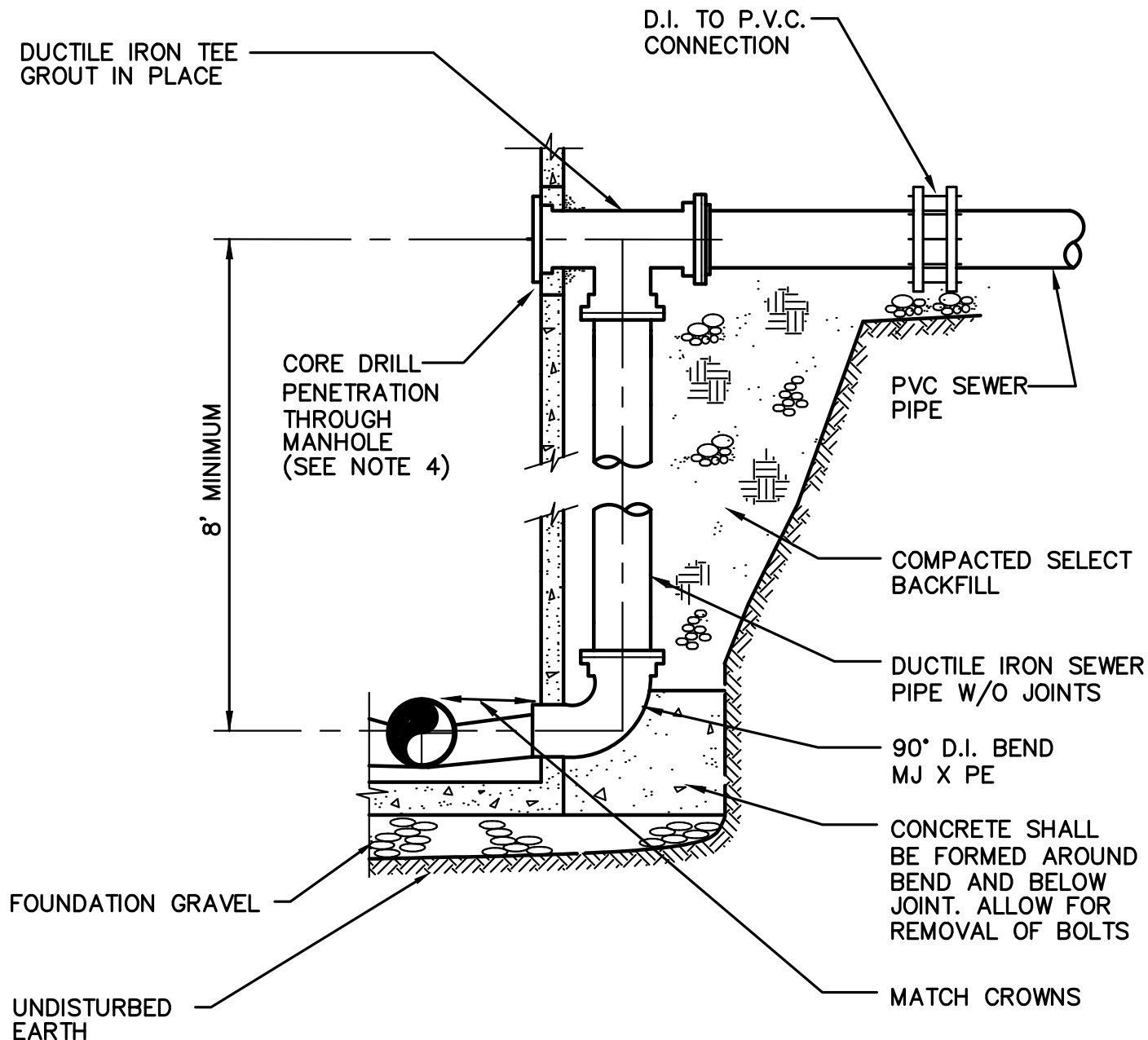


NOTES:

1. SEE STANDARD MANHOLE CALLOUTS ON V-S4A AND V-S5.
2. FRAME AND COVER SHALL MEET REQUIREMENTS FOR 24" MANHOLE.
3. USE OF SHALLOW MANHOLE REQUIRES CITY APPROVAL PRIOR TO INSTALLATION.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S7
SANITARY SEWER SHALLOW MANHOLE



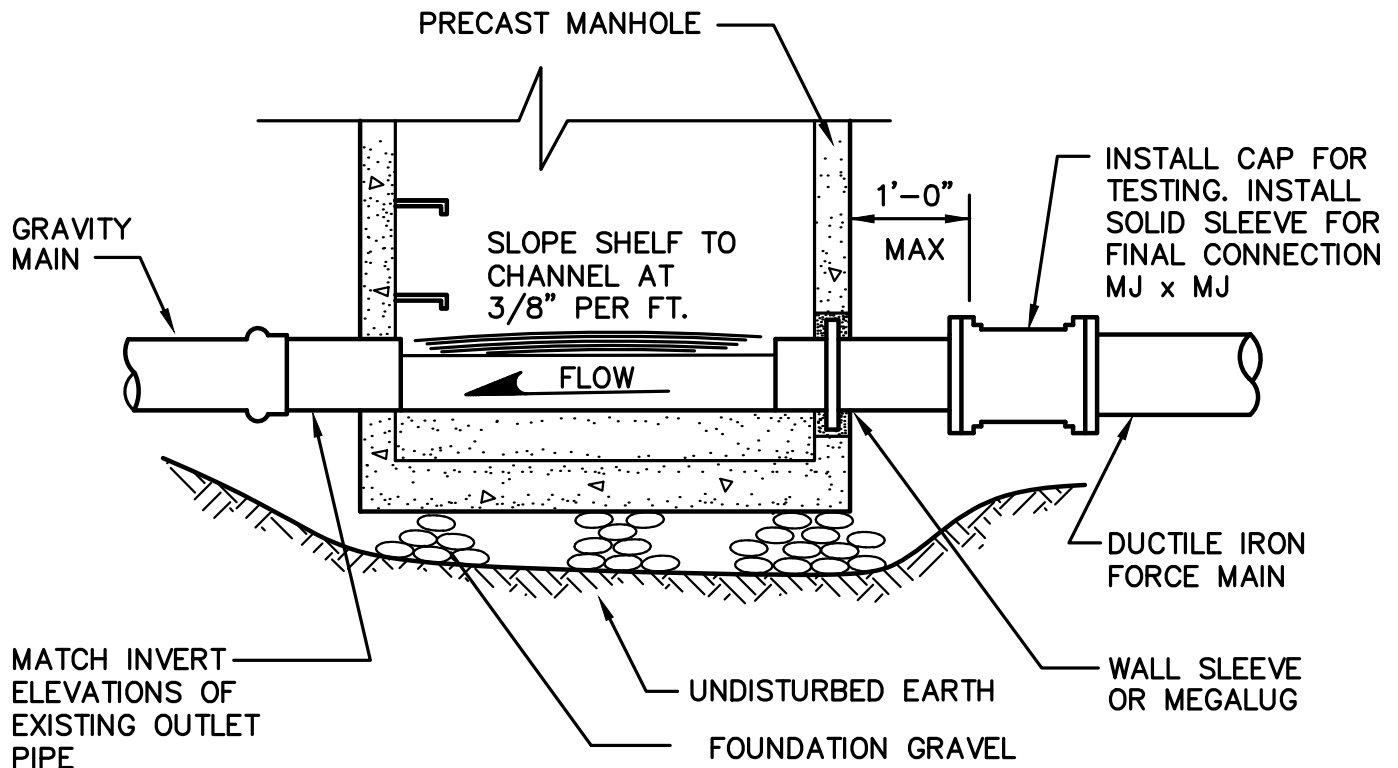


NOTES:

1. USE OF DROP MANHOLE REQUIRES CITY APPROVAL PRIOR TO INSTALLATION.
2. DROP HEIGHT MUST BE GREATER THAN 8 FEET FOR CONSIDERATION.
3. DROP CONNECTIONS WILL ONLY BE CONSIDERED AT JUNCTIONS WITH AN EXISTING DEEP MAIN FOR LATERAL SEWERS TO BE BUILT IN THE FUTURE.
4. EPDM MODEL "C" OR "L" LINK SEAL.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S8
OUTSIDE DROP MANHOLE


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CONSULTING ENGINEERS



NOTES:

1. PIPE CONNECTIONS TO MANHOLES SHALL BE AS FOLLOWS: PVC PIPE: CAST OR GROUT A SAND COLLAR INTO WALL. D.I. OR PVC PIPE: CORE THE MANHOLE AND CONNECT SEWER PIPE WITH EPDM MODEL "C" OR "L" LINK SEAL EXCEPT FOR FORCE MAIN CONNECTION.
2. DROP OF GRADE THROUGH MANHOLE SHALL BE 0.10', UNLESS OTHERWISE NOTED.
3. ALIGN FORCE MAIN DISCHARGE AXIS WITH OUTLET PIPE.
4. RESTRAIN FORCE MAIN JOINTS AND FITTINGS IN ACCORDANCE WITH V-G3.
5. SEE STANDARD MANHOLE CALLOUTS ON V-S4A AND V-S5.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S9
FORCE MAIN DISCHARGE MANHOLE


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MANHOLE LOCATION

AIR RELIEF
ASSEMBLY

TEE

PLAN

REINFORCED CONC COLLAR
SEE V-S4B

24" DIA.

FINISHED GRADE

48" DIA. X 8" THICK
(MIN.) PRECAST
CONCRETE SLAB.

1" HIGH PRESSURE HOSE
WITH CHICAGO COUPLING
ON EACH END. LENGTH OF
HOSE TO EXTEND JUST
BELOW LID.

48" MIN. INSIDE DIAMETER
PRECAST MANHOLE.

COMBINATION SEWAGE
AIR AND VACUUM
VALVE. TAG VALVE NON
POTABLE TRANSMISSION
LINE. SEE NOTE 2.

2" 90° BASE ELL
WITH 2" PIPE SUPPORT

6" BLIND FLANGE, TAP
FOR 2" AIR & VACUUM UNIT

MJ TEE, SIZE AS REQ'D
WITH 6" FLANGE ON BRANCH

2" PLUG VALVE
THD X THD

4" DRAINAGE OUTLET
PIPE TO SEWER
MANHOLE DRAIN MIN.
1% SLOPE

FOUNDATION GRAVEL
UNDISTURBED EARTH

PRECAST CONC. BASE
WITH CONC. FILL, OR
CAST IN PLACE CONC.
BASE

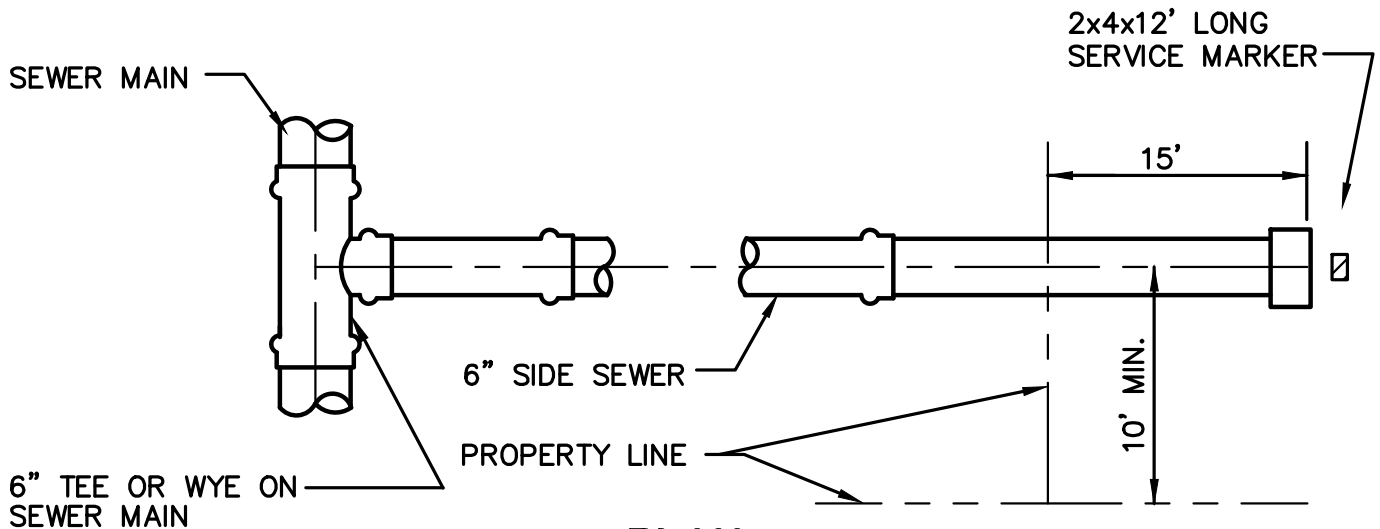
NOTES:

1. SEE STANDARD MANHOLE CALLOUTS ON V-S4A AND V-S5.
2. APCO, CRISPIN OR VALMATIC HEAVY-DUTY COMBINATION AIR AND VACUUM VALVE (SHORT BODY) W/STAINLESS STEEL INTERNALS, EPOXY COATING AND FLUSHING ATTACHMENTS. SEATS SHALL BE SUPPLIED FOR THE FOLLOWING WORKING PRESSURES: 20 PSI, 20-150 PSI.
3. 2" PIPING AND FITTINGS SHALL BE BRASS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE 10
SANITARY SEWER AIR AND
VACUUM RELEASE ASSEMBLY

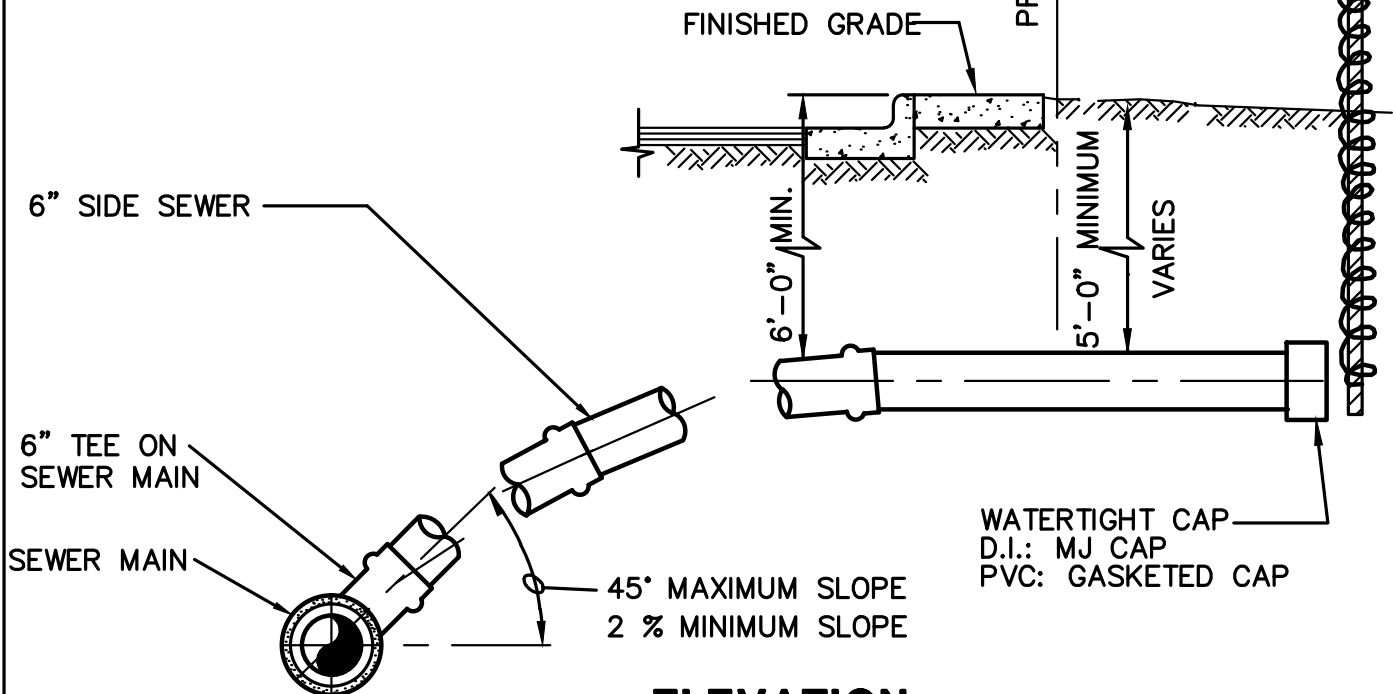

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PLAN

NOTE:

PAINT EXPOSED PORTION OF SERVICE MARKER WITH WHITE PAINT. STENCIL "SEWER" AND TOTAL LENGTH OF 2x4 USING 2" HIGH BLACK LETTERS. LOCATE SERVICE MARKER AT END OF EACH SERVICE.



ELEVATION

NOTES:

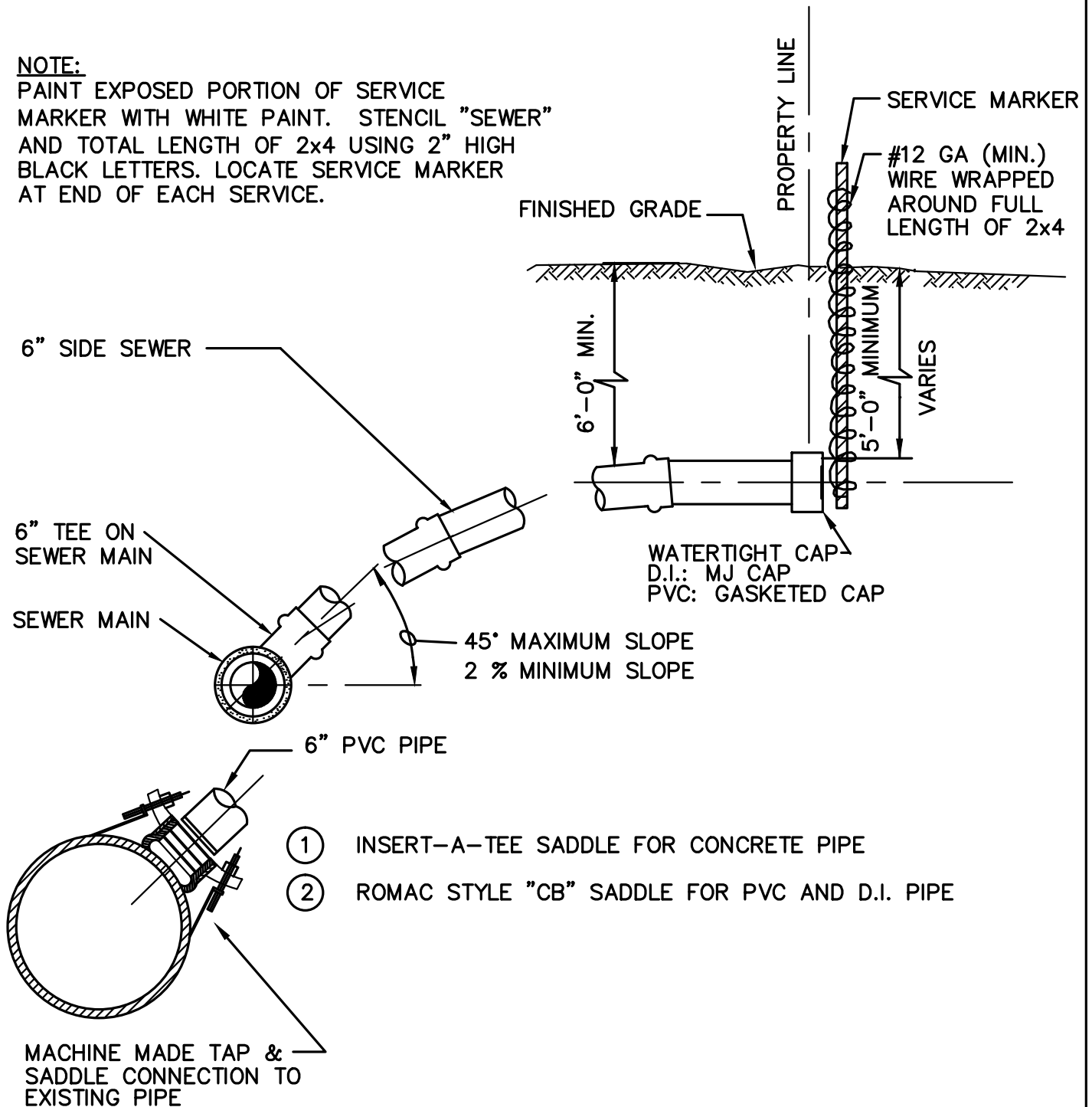
1. MAXIMUM DEFLECTION NOT TO EXCEED PIPE MANUFACTURER RECOMMENDATIONS.
2. SIDE SEWER LATERAL SHALL BE THE SAME MATERIAL AS THE MAIN LINE SEWER AND BEDDED USING 3/4"-MINUS CRUSHED GRAVEL, COMPACTED BELOW, ON SIDES AND ON TOP OF PIPE.
3. SEPARATE LATERAL REQUIRED FOR EACH LOT.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S11
STANDARD SIDE SEWER CONNECTION


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NOTE:

PAINT EXPOSED PORTION OF SERVICE MARKER WITH WHITE PAINT. STENCIL "SEWER" AND TOTAL LENGTH OF 2x4 USING 2" HIGH BLACK LETTERS. LOCATE SERVICE MARKER AT END OF EACH SERVICE.

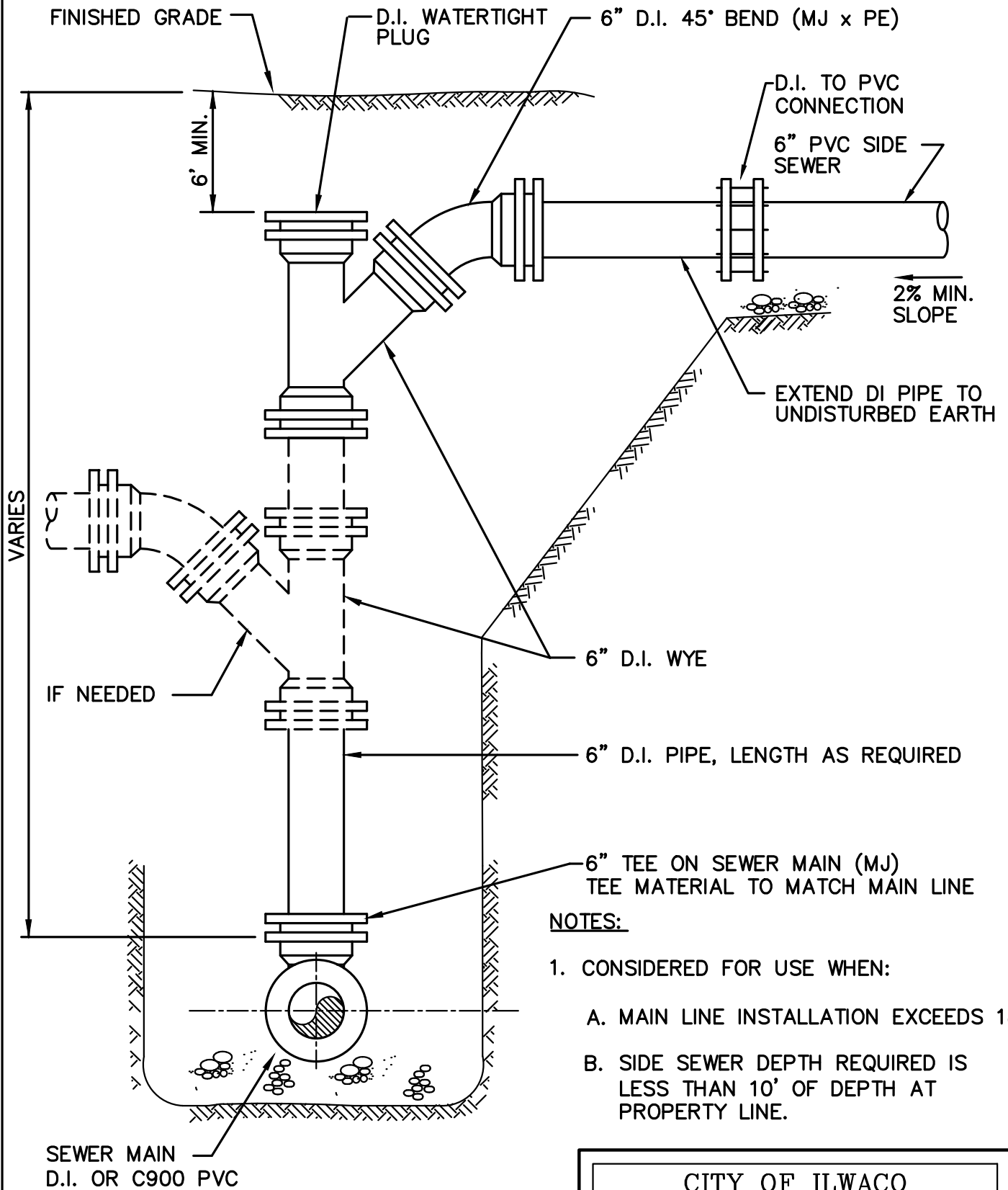


NOTES:

1. SEE STANDARD SIDE SEWER DETAIL V-S11 FOR NEW CONSTRUCTION.
2. DEVELOPER TO PROVIDE ALL MATERIALS, TRAFFIC CONTROL, PERMITS, SHORING AND MISC. WORK AS REQUIRED TO TAP THE MAIN AND INSTALL THE SIDE SEWER.
3. CUT-IN TEES ARE PERMITTED WITH CITY APPROVAL.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S12
SIDE SEWER CONNECTION
TO EXISTING MAIN


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NOTES:

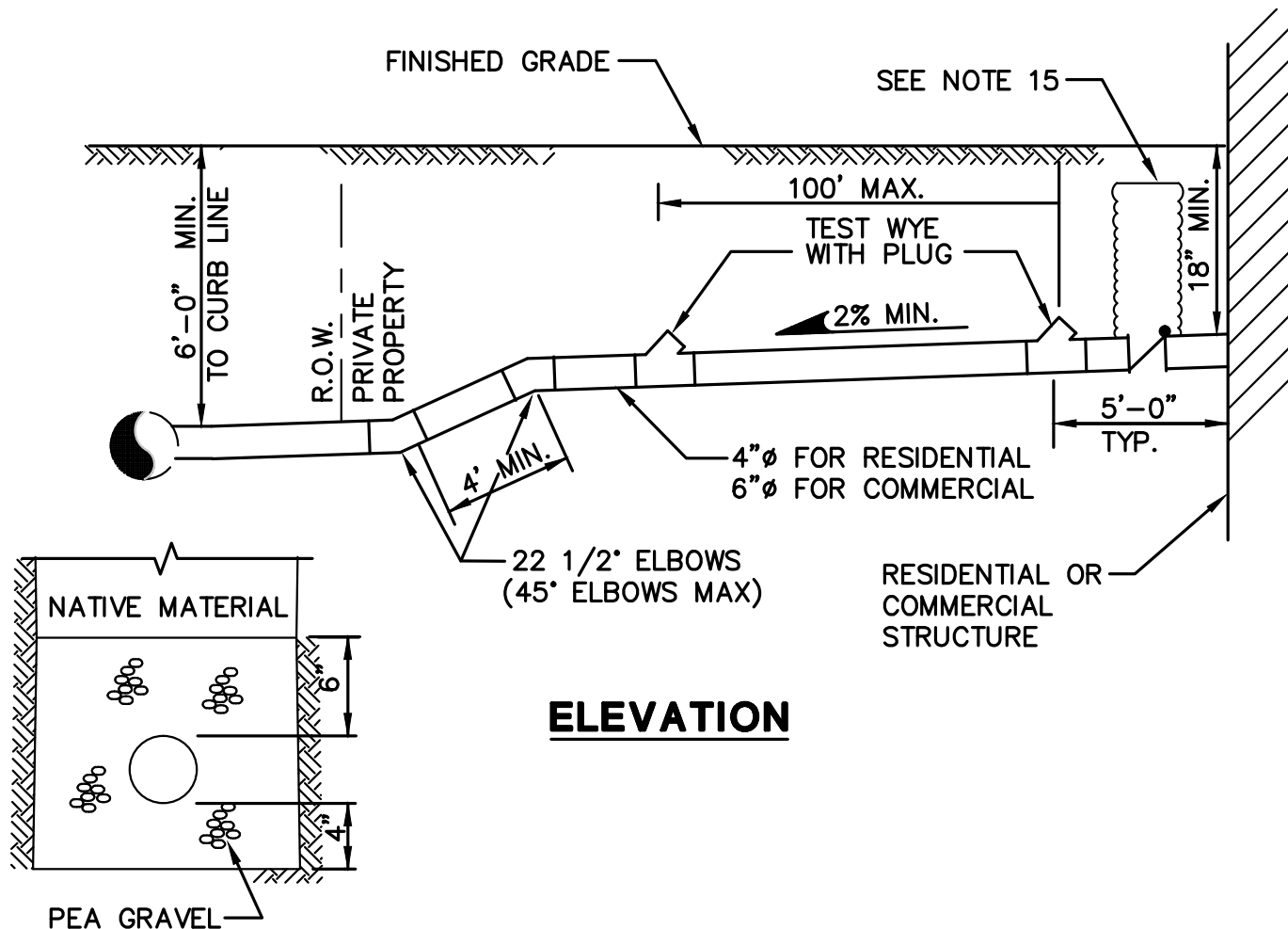
1. CONSIDERED FOR USE WHEN:

- A. MAIN LINE INSTALLATION EXCEEDS 18'.
- B. SIDE SEWER DEPTH REQUIRED IS LESS THAN 10' OF DEPTH AT PROPERTY LINE.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE S13
STANDING SIDE SEWER


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ELEVATION

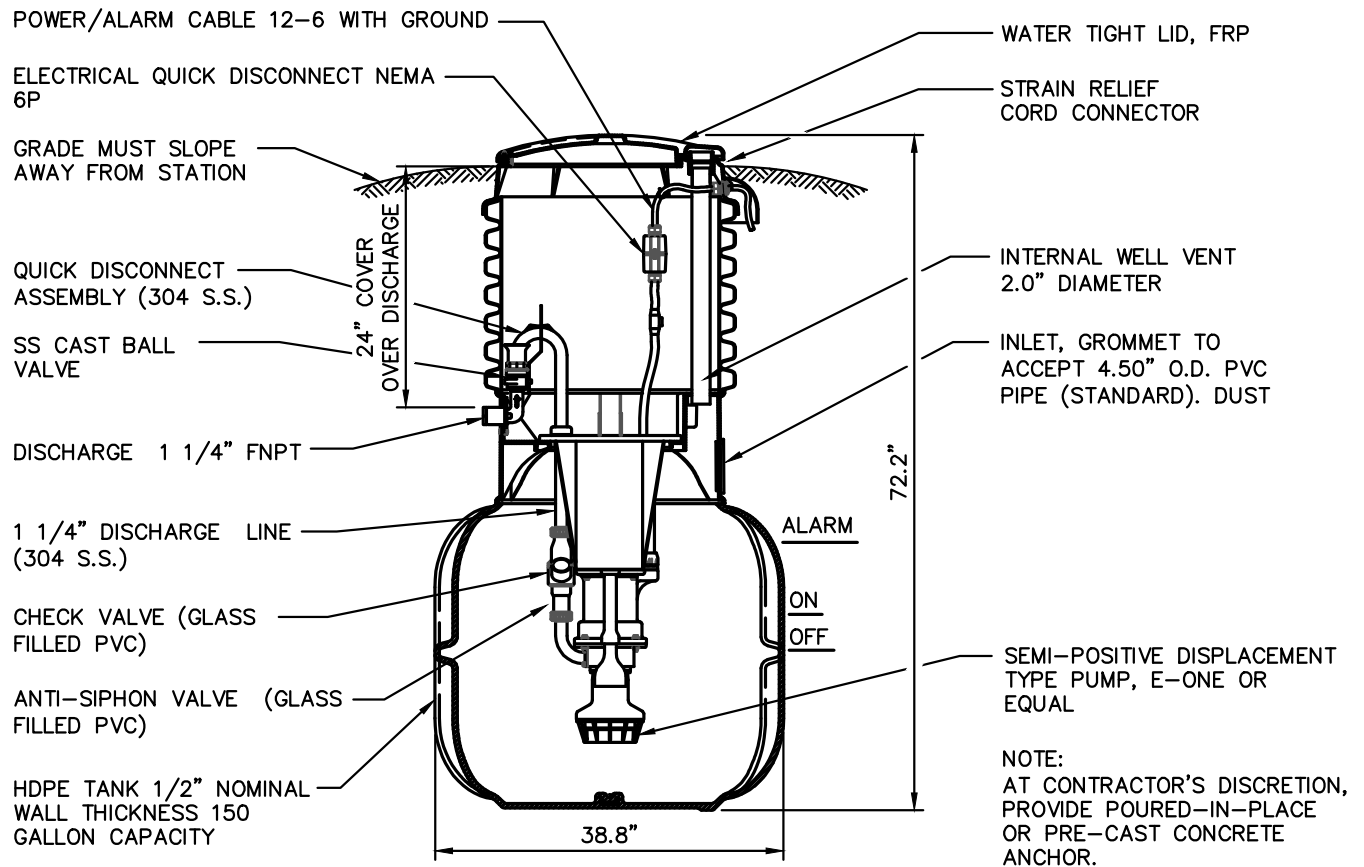
TRENCH SECTION

NOTES:

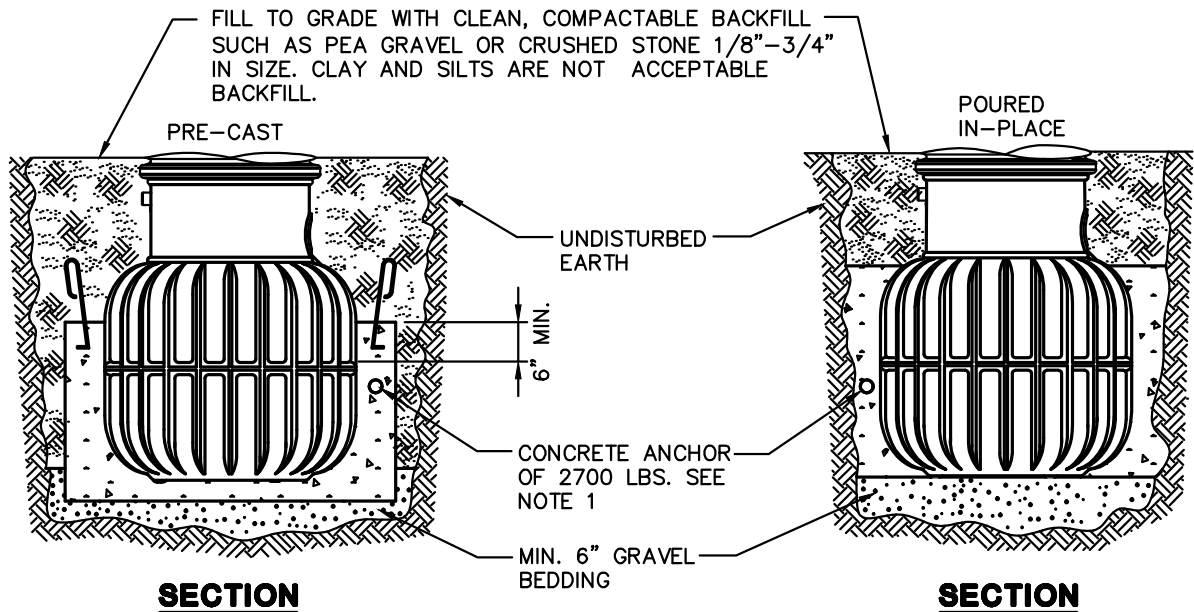
- ELBOWS SHALL NOT BE GREATER THAN 45°. MINIMUM DISTANCE BETWEEN BENDS SHALL BE 4'.
- CLEAN OUT IS REQUIRED FOR EACH PIPE LENGTH GREATER THAN 100' AND FOR EACH 90° ACCUMULATED ELBOW/100'
- BACKFILL FOR PAVED AREA SHALL BE 5/8" MINUS CRUSHED SURFACING TOP COURSE, COMPACTED IN 12" LIFTS
- ALL PLUMBING OUTLETS SHALL BE CONNECTED TO THE SEWER. NO DOWNSPOUTS OR STORM DRAINAGE MAY BE CONNECTED TO THE SEWER SYSTEM.
- 18" MINIMUM COVERAGE OVER PRIVATE SIDE SEWER.
- LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH AN ELBOW OR WYE. 90° CHANGE SHALL BE ELBOW AND WYE.
- 4" SEWER PIPE MINIMUM SIZE ON PRIVATE RESIDENTIAL PROPERTY. 6" SEWER PIPE MIN. SIZE ON COMMERCIAL PROPERTIES. 2% MINIMUM GRADE, 100% MAXIMUM (45°).
- ALL CONSTRUCTION REQUIRES A PERMIT AND PAYMENT OF FEE, COMPLETE LEGAL DESCRIPTION OF PROPERTY AND DIMENSIONS.
- AS-BUILT DRAWING SHOWING LOCATION OF SIDE SEWER IN RELATION TO THE HOUSE IS REQUIRED AFTER INSTALLATION.
- SEE V-S11, V-S12, AND V-S13 FOR SIDE SEWER LATERAL REQUIREMENTS.
- CONSTRUCTION IN RIGHT-OF-WAY SHALL BE PERFORMED BY A REGISTERED LICENSED CONTRACTOR.
- RIGHT-OF-WAY RESTORATION SHALL MATCH OR EXCEED THE ORIGINAL CONDITION.
- PRE-TREATMENT SYSTEMS REQUIRE DESIGN SUBMITTAL STAMPED BY LICENSED ENGINEER.
- PIPE TO BE BEDDED WITH 3/4" MINUS CRUSHED GRAVEL TO LIMITS SHOWN. COMPACT BEDDING BELOW, ON SIDES AND ON TOP OF PIPE.
- INSTALL SURFACE ACCESSIBLE BACKWATER VALVE ON ALL SIDE SEWERS WHERE POTENTIAL OCCURS FOR FLOW TO BACK INTO THE PRIVATE SERVICE.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S14PRIVATE SIDE SEWER
INSTALLATION


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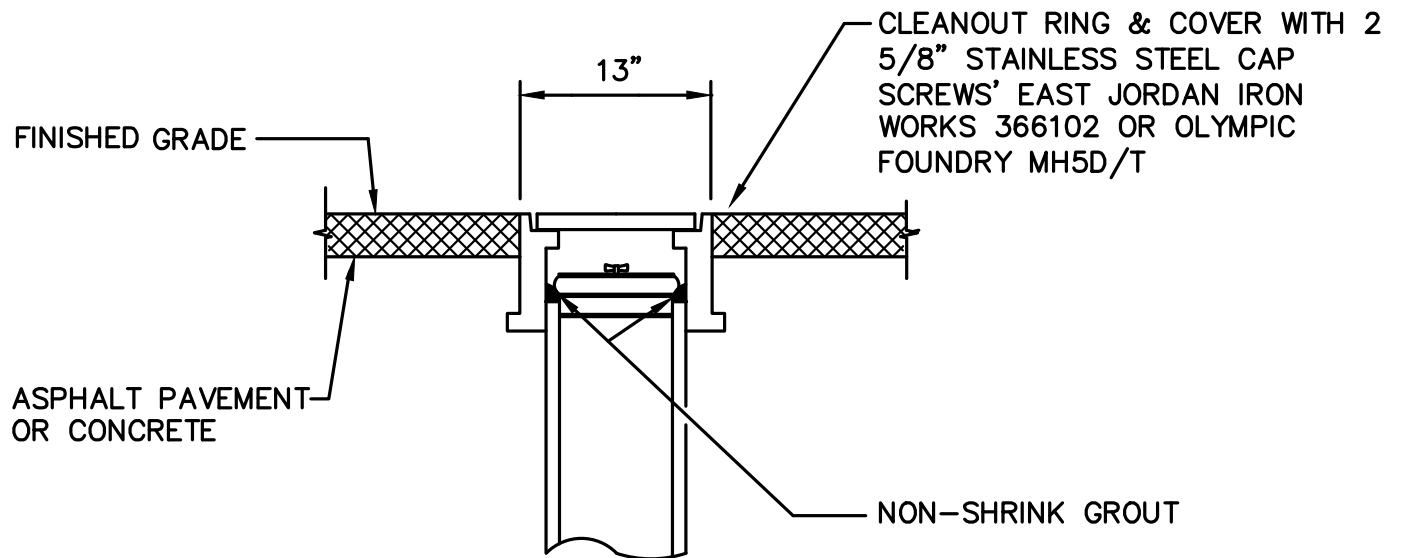


INTERIOR SECTION

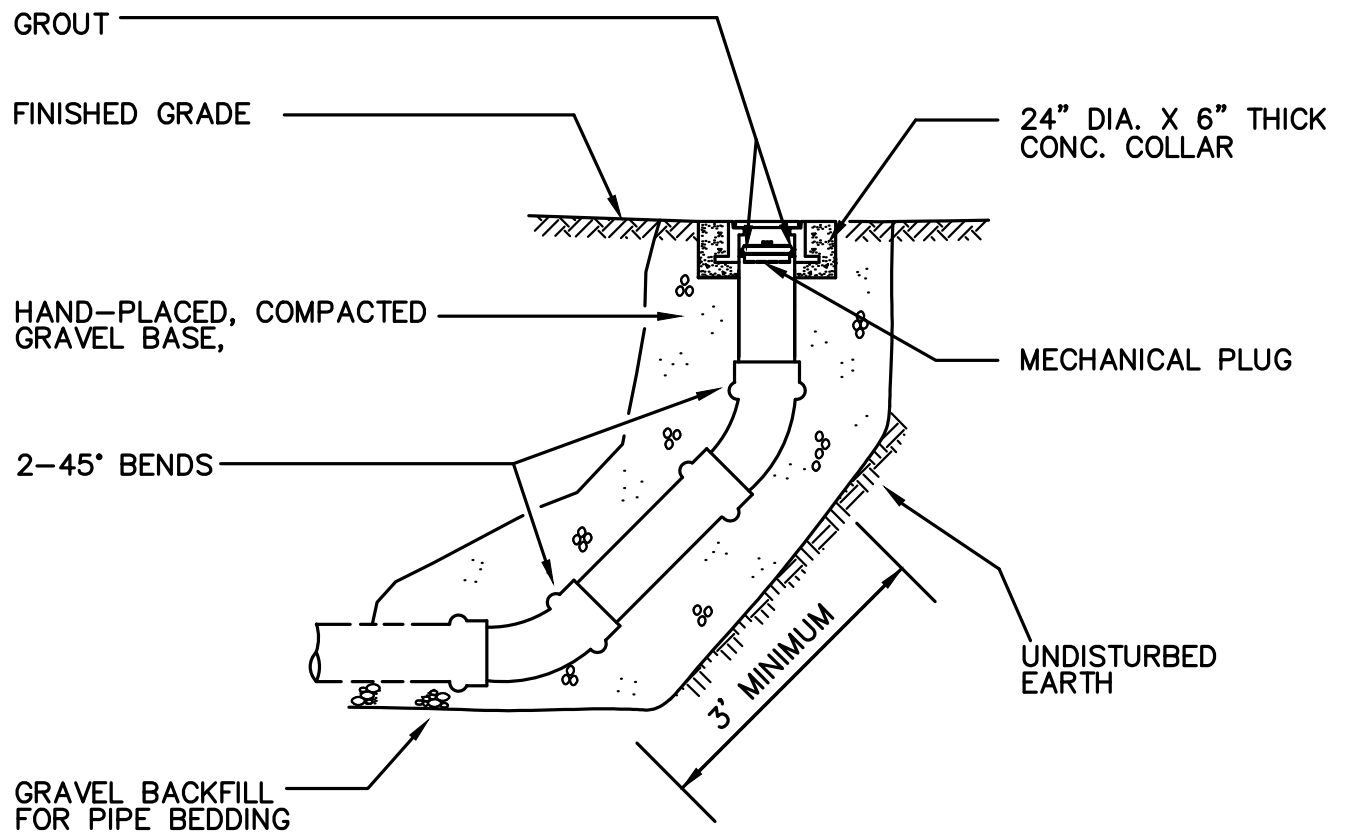


CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE S15
PRIVATE GRINDER PUMP INSTALLATION


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PAVED



NON-PAVED

NOTES:

1. TO BE USED ON CLEANOUT ACCESS AT STRUCTURE

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE S16
SIDE SEWER CLEANOUT


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FINISHED GRADE

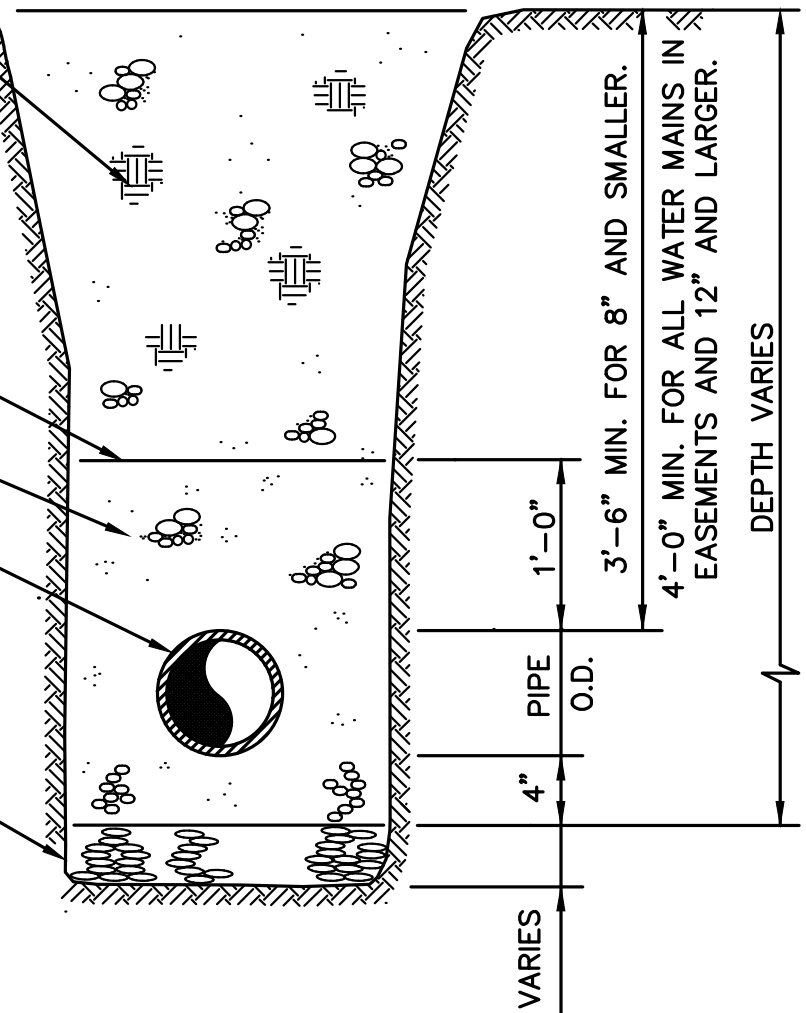
IMPORTED COMPACTED BACKFILL.
EXCAVATED MATERIAL, GRAVEL
BASE, OR CDF ALLOWED WITH
ENGINEER'S APPROVAL.
COMPACTION REQUIREMENTS PER
MODIFIED PROCTOR ASTM D1557
AS REQUIRED BY PERMITS

SPECIAL PRECAUTIONS TO
PROTECT PIPE TO THIS LEVEL

COMPACTED SELECT BACKFILL

DUCTILE IRON PIPE CLASS 52
OR PVC PIPE CLASS C900

FOUNDATION GRAVEL
AS REQUIRED



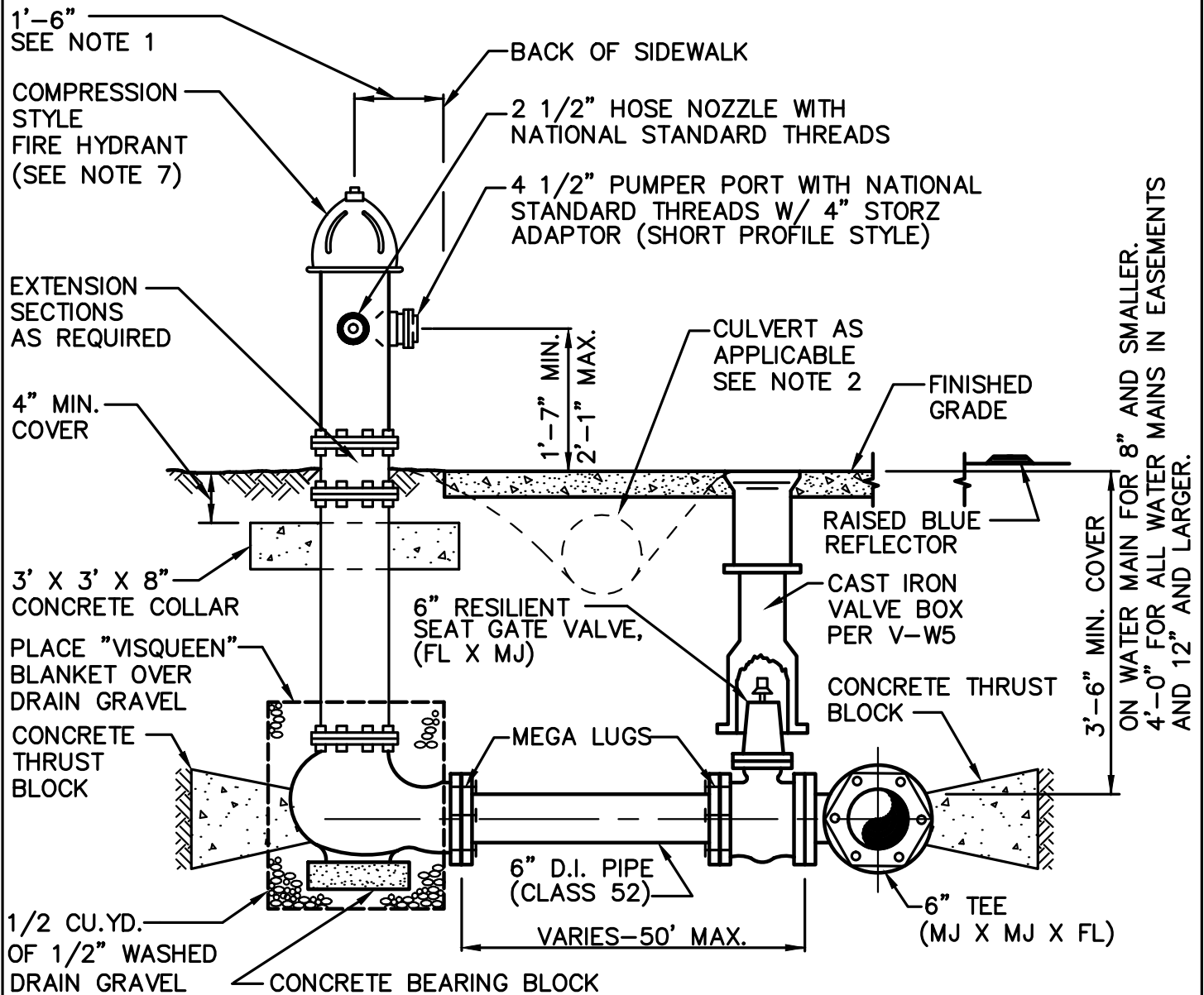
NOTE:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE IN CONFORMANCE WITH WSDOT STANDARDS AND/OR COUNTY, CITY, STATE PERMIT REQUIREMENTS.
2. DEPTH OF COVER IN EXCESS OF 7- FEET REQUIRES CITY APPROVAL.
3. PIPES SHALL BE RESTRAINED IN FILL OR PREVIOUSLY DISTURBED MATERIAL.
4. CLAY OR BENTONITE DAMS SHALL BE INSTALLED ACROSS THE TRENCH AND TO THE FULL DEPTH OF THE GRANULAR MATERIAL IN ALL AREAS OF STEEP SLOPES, STREAM CROSSINGS AND WETLAND TO PREVENT MIGRATION OF WATER ALONG THE PIPELINE.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W1
WATER MAIN TRENCH SECTION


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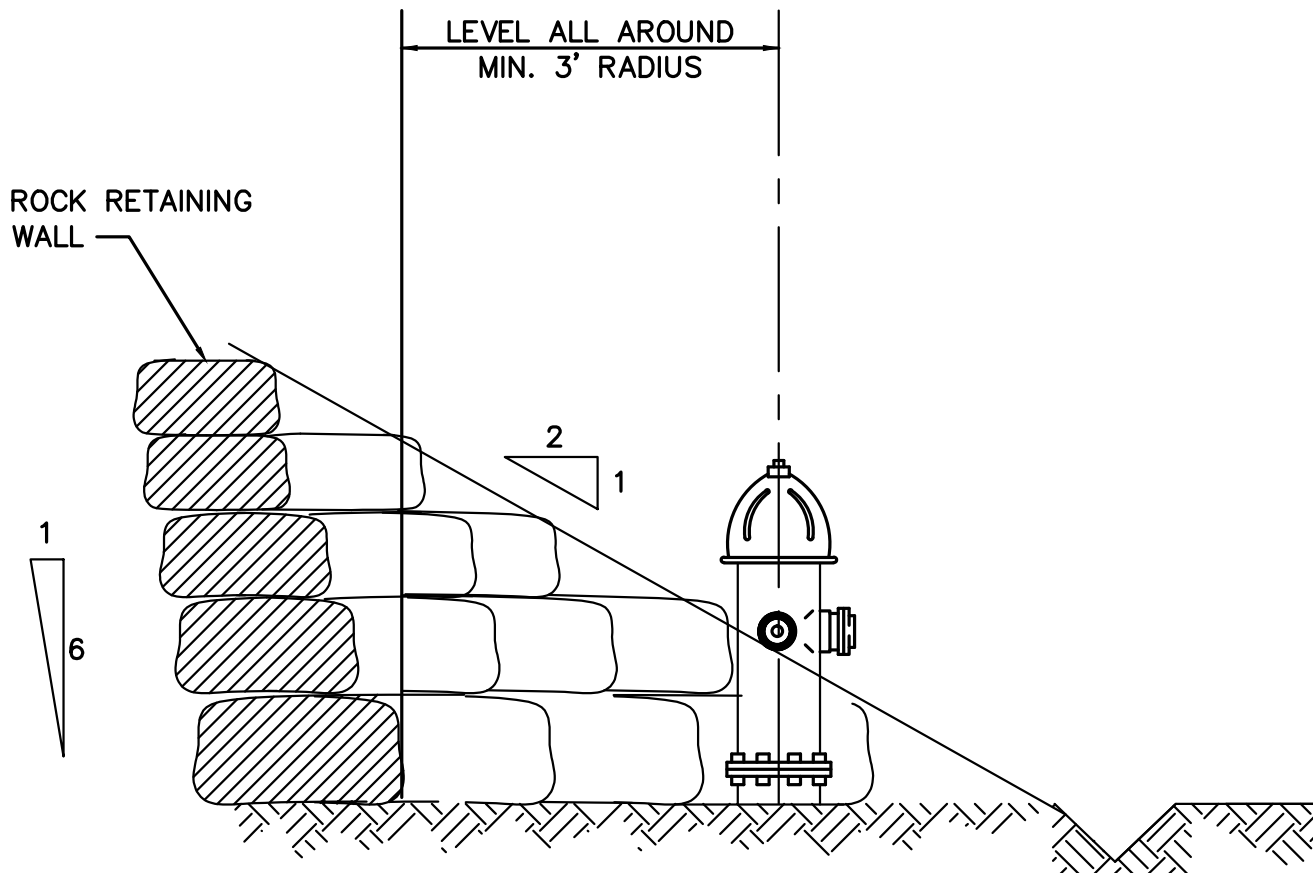
NOTES:

1. OR 3' FROM BACK OF CURB
2. PROVIDE 8' OF CULVERT AND COVER, 12" MIN. DIA. OR EQUAL IN SIZE TO ADJACENT DITCH CROSSINGS. PIPE TO COUNTY, STATE OR CITY STANDARDS AS APPLICABLE.
3. PROVIDE MIN. 3'-0" CLEARANCE AND LEVEL AREA AROUND HYDRANT
4. PAINT FIRE HYDRANT WITH TWO COATS KELLY MOORE 6100-516 YELLOW AND TOP OF HYDRANT COLOR DETERMINED BY SERVICE LEVEL GPM.
 # 213 SAFETY BLUE-SERVICE LEVEL 1500 GPM OR GREATER
 # 815 SAFETY GREEN-SERVICE LEVEL 1000 TO 1499 GPM
5. STENCIL FOOTAGE TO VALVE ON HYDRANT UNDER PORT FACING GV
6. REMOVE ALL CHAINS FOR FIRE HYDRANT CAPS
7. ACCEPTABLE HYDRANTS: CLOW MEDALLION OR MUELLER CENTURION.
8. INSTALL BLUE FIRE HYDRANT REFLECTOR. OFFSET 1 FOOT FROM ROAD CENTERLINE

CITY OF ILWACO
2014 DEVELOPER STANDARDS

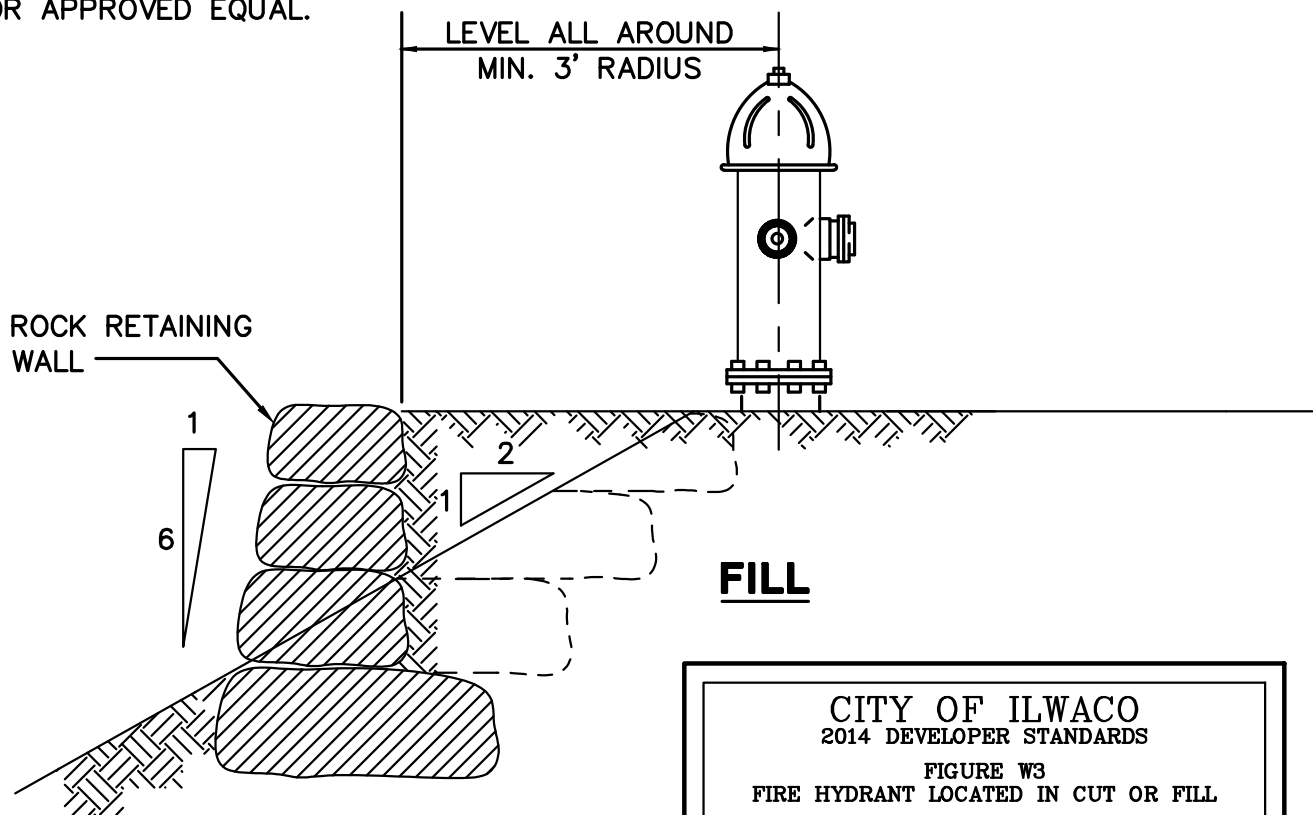
FIGURE W2
FIRE HYDRANT ASSEMBLY


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NOTE: IN CUT BANK FIBERGLASS HILLSIDE BARRIERS CAN BE CONSIDERED. PROGLASS, INC. OR APPROVED EQUAL.

CUT

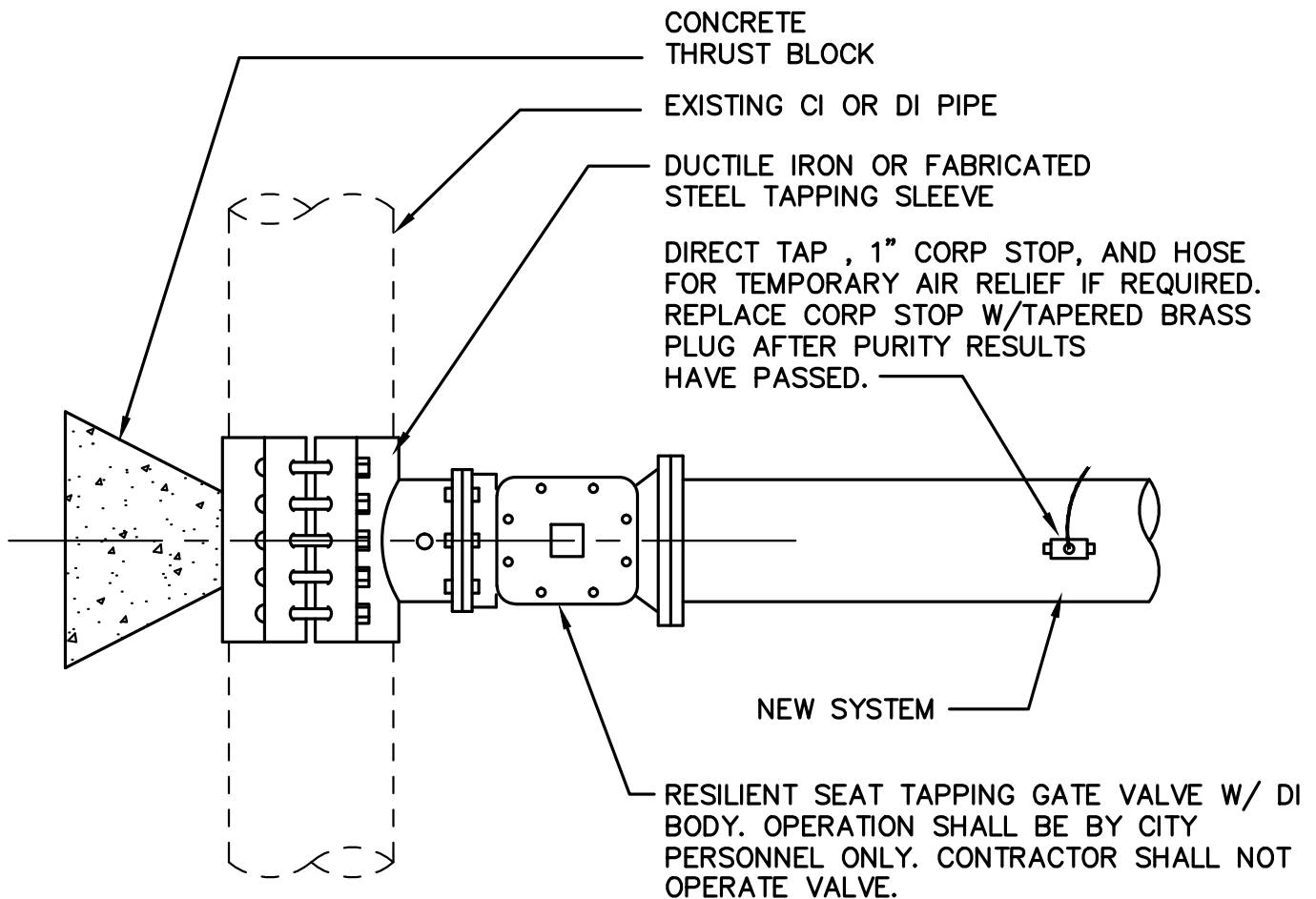


FILL

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W3
FIRE HYDRANT LOCATED IN CUT OR FILL


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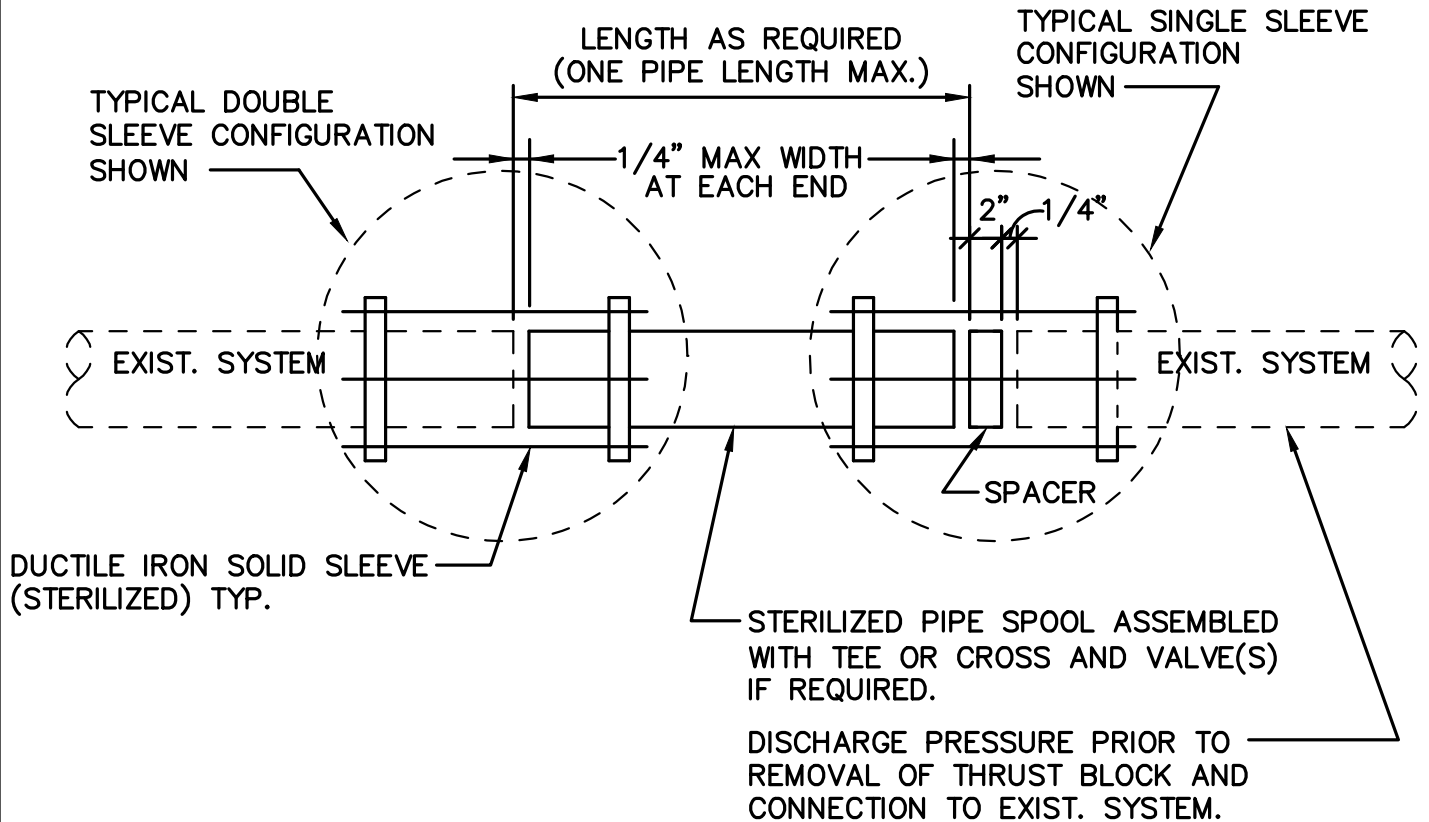
NOTES:

1. TAP TO BE INSTALLED AT DEVELOPERS EXPENSE UNDER CITY OBSERVATION.
2. SIZE-ON-SIZE TAPPING TEES SHALL BE DUCTILE IRON MECHANICAL SLEEVE.
3. STEEL TAPPING TEES SHALL BE AT LEAST 2" SMALLER IN DIAMETER THAN THE EXISTING WATER MAIN AND SHALL BE EPOXY COATED.
4. TAPPING TEES SHALL BE AIR PRESSURE TESTED TO 100 PSI PRIOR TO TAPPING MAIN.
5. CONNECTIONS NOT ALLOWED ON FRIDAYS, SATURDAYS, SUNDAYS, HOLIDAYS, OR DAYS BEFORE HOLIDAYS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W5
WET TAP COPNNECTION


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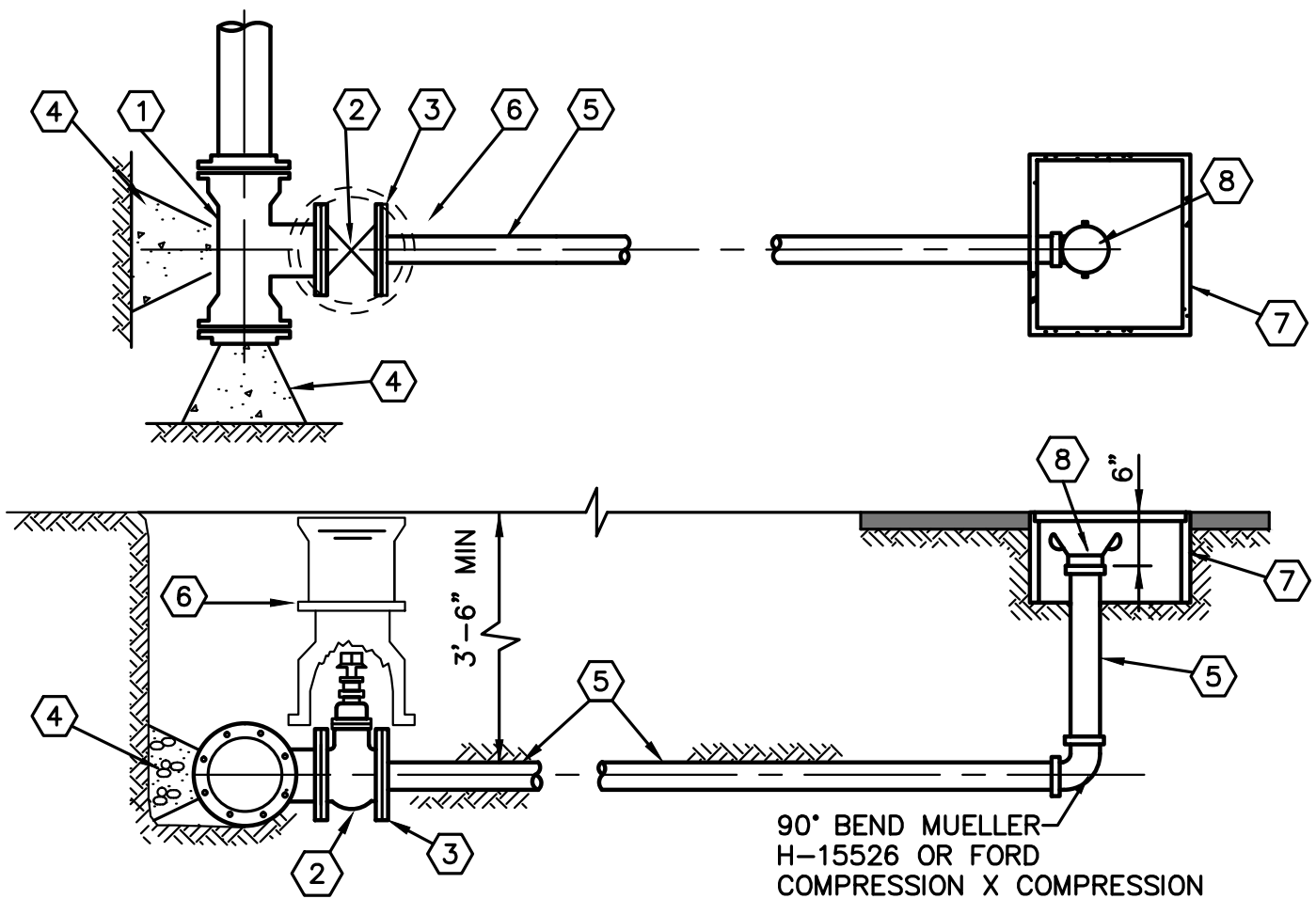
NOTES:

1. IN-LINE VALVE(S) IN EXISTING SYSTEM MAY BE REQUIRED BY THE CITY AT NEW INTERTIE LOCATIONS. VALVE(S) ARE NOT SHOWN ABOVE FOR CLARITY.
2. MAXIMUM SPACES BETWEEN PIPES SHALL BE 1/4-INCH. IF A SINGLE SLEEVE IS USED, THE MAXIMUM SPACER WIDTH IS 2-INCHES.
3. CONNECTIONS NOT ALLOWED ON FRIDAYS, SATURDAYS, SUNDAYS, HOLIDAYS, OR DAYS BEFORE HOLIDAYS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W6
CUT IN CONNECTION


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- ① MJ X MJ X 4" FL D.I. TEE.
- ② 4" AWWA RESILIENT SEAT GATE VALVE, FL X FL, WITH OPERATING NUT.
- ③ 4" BLIND FLANGE, TAPPED FOR 2" FOR 6" AND 8" MAINS. MAINS LARGER THAN 8" SHALL END IN A FIRE HYDRANT.
- ④ CONCRETE THRUST BLOCK.
- ⑤ 2" TYPE K COPPER PIPE.
- ⑥ CAST IRON VALVE BOX PER V-W14.
- ⑦ METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE OR MID STATES PLASTICS MSBCF 1324-12Z COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED. (FIELD LOCATION TO BE IN PAVED SURFACE UNLESS CITY APPROVES ALTERNATE LOCATION.)
- ⑧ ALUMINUM CAM-LOCK AND CAP. DRILL 1/8" HOLE IN CAP. (PLASTIC CAM LOCK FITTING NOT ALLOWED)

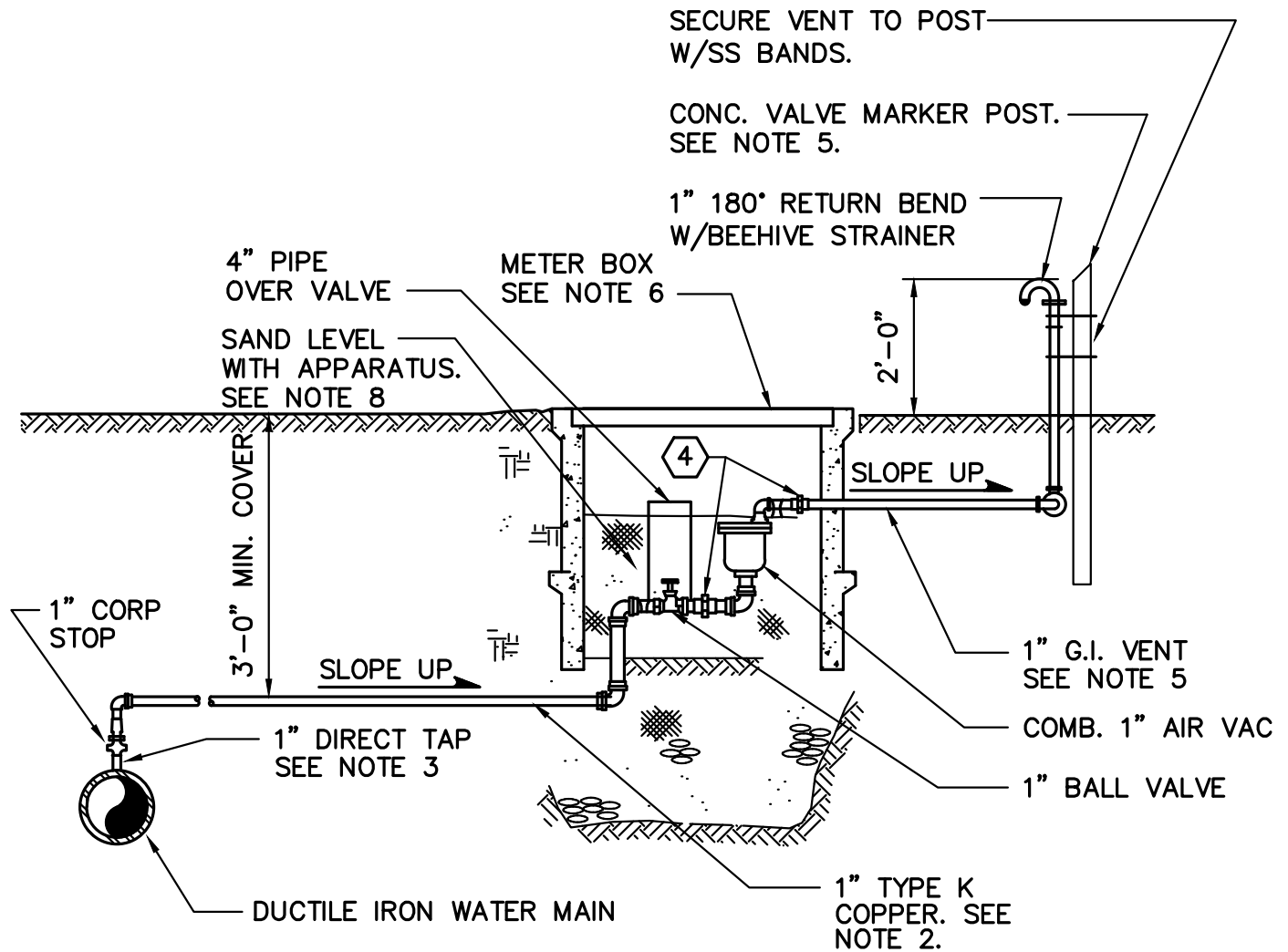
NOTES

- 1. INSTALL DIELECTRIC COMPOUNDS FOR SEPARATION AT DISSIMILAR METALS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W7
BLOW OFF ASSEMBLY


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NOTES:

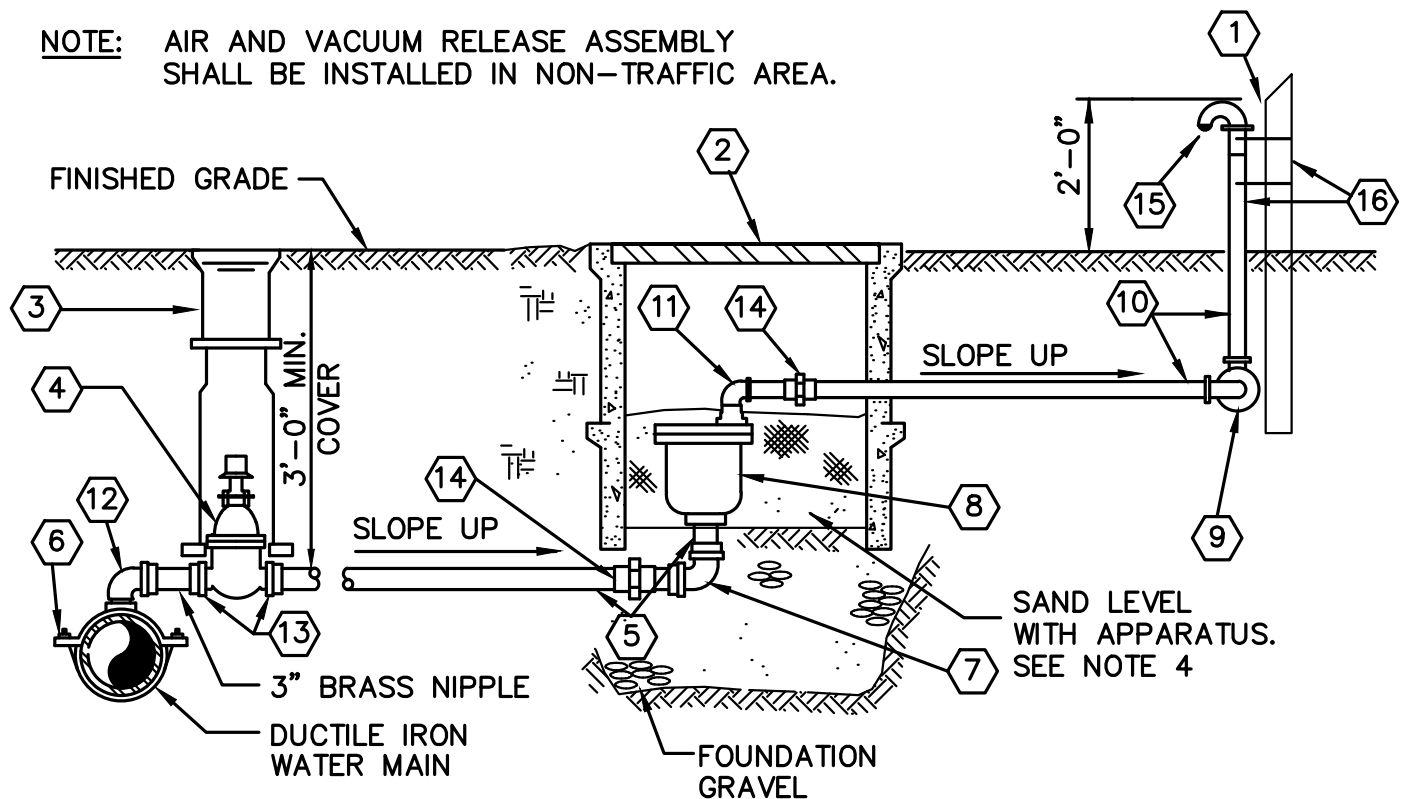
1. USE OF 1" AIR VAC REQUIRES CITY APPROVAL, 2" AIR VAC STANDARD.
2. ALL PIPING AND FITTINGS BETWEEN CORP AND INLET SIDE OF COMBINATION AIR AND VACUUM ASSEMBLY SHALL BE COPPER OR BRASS.
3. TAP WATER MAIN AT HIGH POINT AT LOCATION DESIGNATED BY THE CITY.
4. AIR VAC ASSEMBLY TO BE CONNECTED USING HORIZONTALLY PLACED UNIONS AT EACH END OF AIR VAC ASSEMBLY (MATCH PIPE MATERIAL).
5. PAINT EXPOSED PORTION OF VENT PIPE AND MARKER POST WITH 2 COATS KELLY-MOORE 6100-516 YELLOW.
6. METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
7. FIELD LOCATION TO BE CONFIRMED WITH CITY.
8. SAND SHALL BE WASHED SAND AS SPECIFIED IN CITY SPECIFICATIONS SECTION 11.4 - AGGREGATE MATERIALS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W8
1" AIR AND VACUUM RELEASE ASSEMBLY


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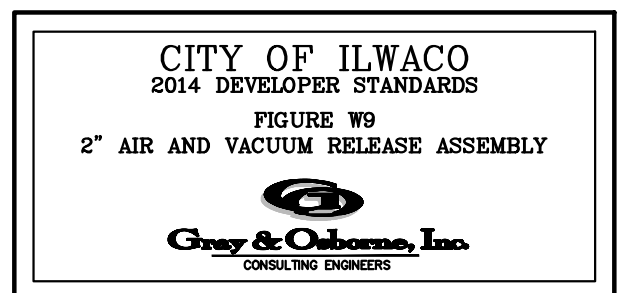
NOTE: AIR AND VACUUM RELEASE ASSEMBLY SHALL BE INSTALLED IN NON-TRAFFIC AREA.

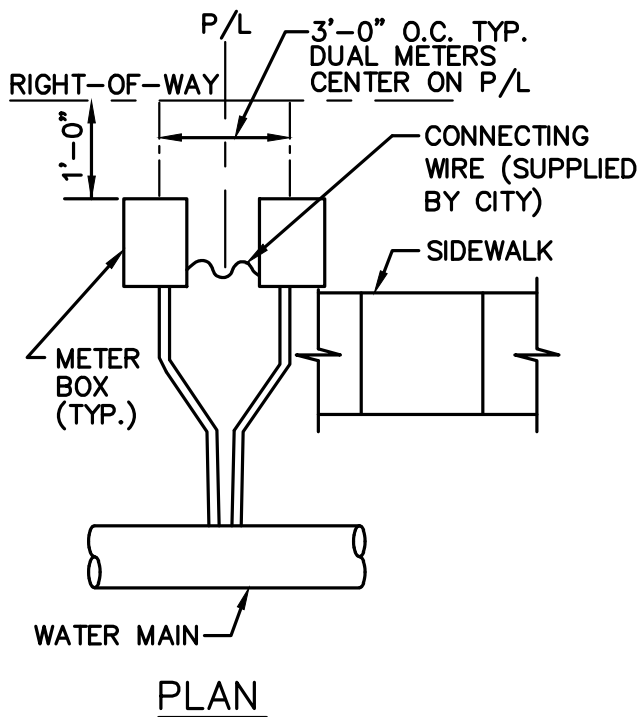
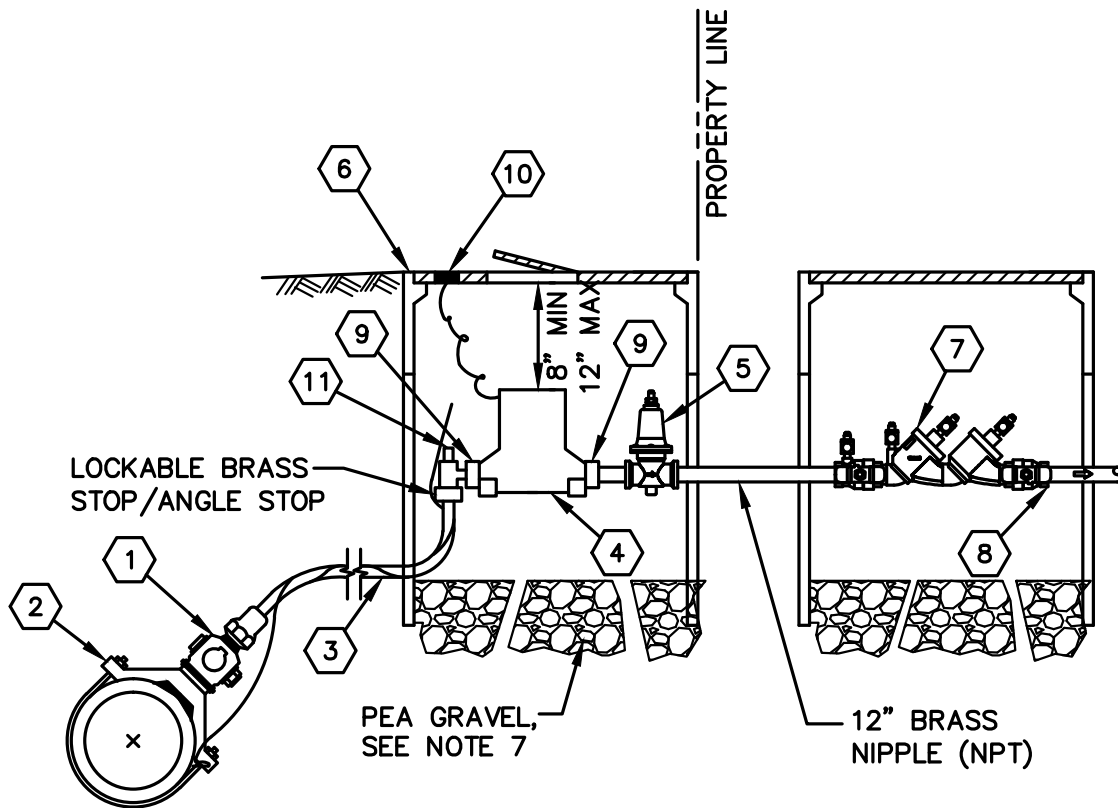


- | | |
|--|---|
| <p>1 CONC. VALVE MARKER POST</p> <p>2 METER BOX. BERG VAULT CO. OF WASH NO.2 CONCRETE OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.</p> <p>3 CAST IRON VALVE BOX PER V-W5</p> <p>4 2" AWWA RESILIENT SEAT GATE VALVE THD X THD, WITH OPERATING NUT</p> <p>5 2" TYPE "K" COPPER TUBING</p> <p>6 DOUBLE STRAP SERVICE CLAMP</p> <p>7 90° BEND MUELLER No. H-15526 COMPRESSION X COMPRESSION</p> <p>8 2" COMBINATION AIR & VACUUM RELEASE ASSEMBLY; A. APCO MODEL 145C.
B. CRISPIN MODEL UL 20 SERIES.
C. VALMATIC</p> | <p>9 2, 2"X90° ELL, GALV.</p> <p>10 2" GALV. IRON PIPE (FIELD LOCATE NEXT TO EXISTING PROPERTY LINE).</p> <p>11 2"X90° ELL, GALV.</p> <p>12 90° BEND MUELLER No. H-10096 FEMALE X M.I.P.</p> <p>13 STRAIGHT COUPLING, MUELLER No. H-15428 COMPRESSION TO M.I.P.</p> <p>14 UNIONS</p> <p>15 2" OPEN PATTERN RETURN BEND WITH 2" BEEHIVE STRAINER</p> <p>16 PAINT EXPOSED PORTION OF VENT PIPE AND MARKER POST WITH TWO COATS OF KELLY MOORE 6100-516 YELLOW. SECURE VENT TO POST WITH SS BANDS</p> |
|--|---|

NOTES:

- ALL PIPING AND FITTINGS BETWEEN DOUBLE STRAP SADDLE AND INLET SIDE OF COMBINATION AIR AND VACUUM ASSEMBLY SHALL BE COPPER OR BRASS.
- TAP WATER MAIN AT HIGH POINT AT LOCATION TO BE DETERMINED BY THE CITY.
- AIR VAC ASSEMBLY TO BE CONNECTED USING HORIZONTALLY PLACED UNIONS AT EACH END OF AIR VAC ASSEMBLY (MATCH PIPE MATERIAL)
- SAND SHALL BE WASHED SAND AS SPECIFIED IN CITY SPECIFICATIONS SECTION 11.4 - AGGREGATE MATERIALS.





SEE FIGURE W10B FOR CALLOUTS AND NOTES

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W10A
3/4" & 1" WATER SERVICE


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- ① 1" CORP STOP INLET IRON PIPE THREAD OUTLET FOR 110 COMPRESSION CONNECTION, MUELLER #H-15028 OR EQUAL.
- ② SERVICE SADDLE 1" WITH SST BAND. TAP SIZE AS REQUIRED (ROMAC #101S OR EQUAL).
- ③ SERVICE PIPE EQUAL TO CL-200-IPS POLY PIPE 200 PSI, COLD FLARE TYPE. SHOULD INCLUDE AWG-#10 COPPER TRACE WIRE ALONG ITS ENTIRE LENGTH. ONE WRAP PER FOOT.
- ④ 5/8"x3/4"(OR 1") METER SENSUS SR11 AND MEASURING IN CUBIC FEET (BY CITY)
- ⑤ PRV.
- ⑥ REINFORCED PLASTIC METER BOX AND EXTENSION WITH 12"x17" READER TYPE LID, EQUAL TO CARSON INDUSTRIES #1419 FOR NON TRAFFIC LOCATION. PROVIDE H20 RATED BOX AND COVER FOR TRAFFIC LOADING AT A LOCATION PRE-APPROVED BY THE CITY.
- ⑦ LEAD FREE NPT RPBA. WATTS LF719QT OR EQUAL.
- ⑧ 3/4" MPT X 1" IPS CLASS 200 IPS POLY PIPE COMPRESSION FITTING.
- ⑨ RUBBER METER WASHERS – MUST BE INSTALLED IN METER FLANGES WITH METER (TYP).
- ⑩ TOUCH READ PIT SET MOUNTING.
- ⑪ SHUT OFF WITH LOCK WING GROUND KEY ANGLE 110 COMPRESSION MUELLER MODEL #B-25170 OR EQUAL.

NOTES:

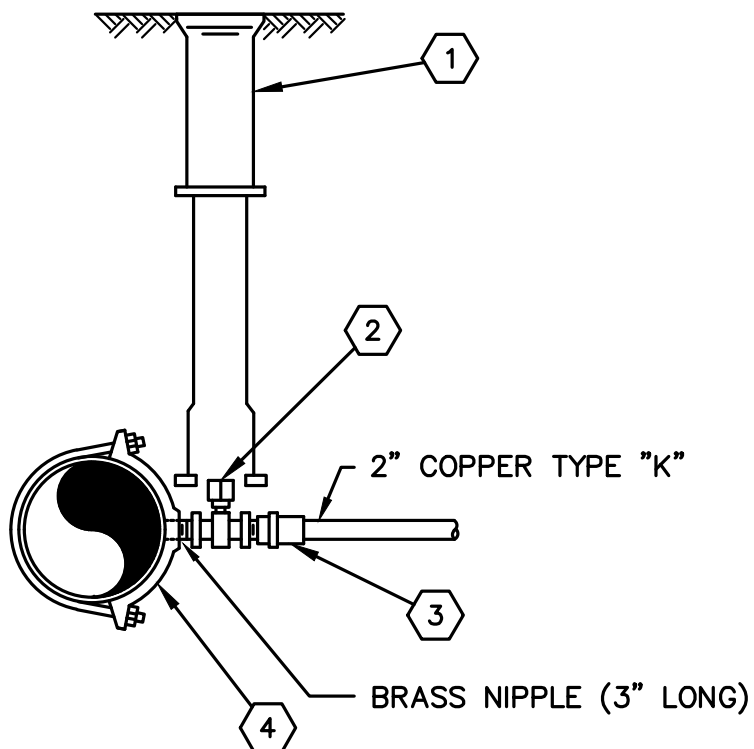
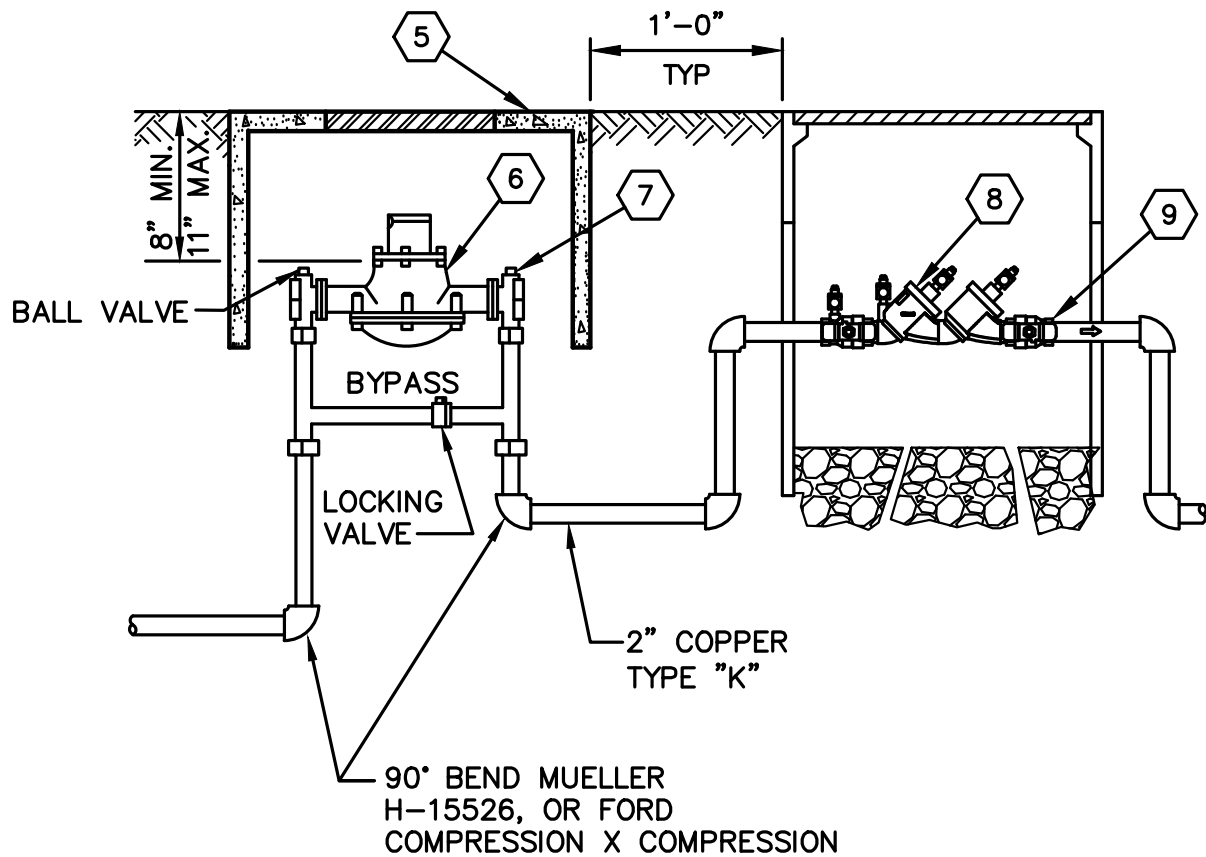
1. NO SPLICES IN 1" COPPER TUBING ALLOWED.
2. SERVICE FROM METER BOX TO HOUSE BY PROPERTY OWNER.
3. INDIVIDUAL SERVICE REQUIRED FOR EACH STRUCTURE OR LOT.
4. METER AND BACKFLOW PREVENTER TO BE INSTALLED BY THE CITY AT OWNER'S EXPENSE.
5. BACKFLOW PREVENTER SHALL BE MAINTAINED AT OWNER'S EXPENSE
6. EASEMENT PROVIDED TO CITY AROUND METERS LOCATED OUTSIDE RIGHT OF WAY.
7. ALL SERVICES EXCEPT SINGLE FAMILY RESIDENTIAL TO HAVE STSE APPROVED BACKFLOW PREVENTION DEVICE. CONFIRM INSTALLATION WITH CITY. INITIAL AND ANNUAL TESTING REQUIRED.
8. PEA GRAVEL SHALL BE DEEP ENOUGH TO PROVIDE POSITIVE DRAINAGE OUT OF THE BOX.

SEE FIGURE W10A FOR PLAN AND SECTION

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W10B
3/4" & 1" WATER SERVICE


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SEE FIGURE W11B FOR CALLOUTS AND NOTES

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W11A
1 1/2" & 2" WATER SERVICE


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- ① CAST IRON VALVE BOX PER V-W5.
- ② 2" MUELLER B-20283, OR FORD B11-777 BALL VALVE WITH FORD OPERATING NUT ADAPTOR QT-67.
- ③ STRAIGHT COUPLING MUELLER H-15428 OR FORD COMPRESSION X M.I.P.
- ④ 2" ROMAC, ROCKWELL, OR MUELLER DOUBLE STRAP NYLON COATED SADDLE SERVICE CLAMPS.
- ⑤ BERG VAULT CO. OF WASH NO. 2 CONCRETE METER BOX OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE METER BOX. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
- ⑥ 2-INCH METER SETTER (WITH ADAPTERS IF 1 1/2-INCH METER USED), NEPTUNE OR RADIO READ SENSUS METER WITH SENSUS AMR MXU UNIT READING 100 CUBIC FEET SHALL BE FURNISHED BY THE DEVELOPER. SETTER - A.Y. McDONALD 30B7-WWFF 775 OR MUELLER B-2427. DRILL 2" DIAMETER HOLE IN LID FOR MXU DEVICE.
- ⑦ BALL VALVE.
- ⑧ LEAD FREE NPT RPBA, WATTS LF719QT OR EQUAL.
- ⑨ 1 1/2" OR 2" X 2" IPS COPPER PIPE FITTING (WDxMPT).

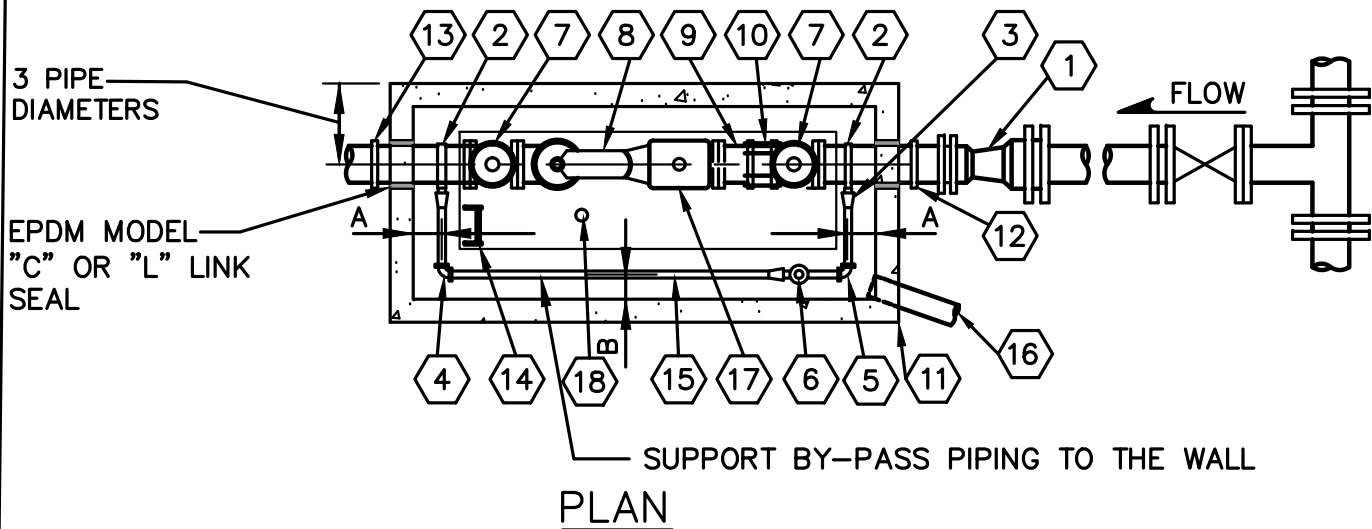
NOTES:

1. NO SPLICES IN 2" COPPER PIPE ALLOWED.
2. SERVICE FROM METER BOX TO STRUCTURE BY PROPERTY OWNER.
3. INDIVIDUAL SERVICES REQUIRED FOR EACH STRUCTURE.
4. EASEMENT PROVIDED TO CITY AROUND METERS LOCATED OUTSIDE RIGHT OF WAY.
5. ALL SERVICES SHALL HAVE WASHINGTON STATE APPROVED RPBA FOR BACKFLOW PREVENTION LOCATED IMMEDIATELY BEHIND METER. CONFIRM LOCATION OF ASSEMBLY WITH CITY. INITIAL AND ANNUAL TESTING REQUIRED AND SUBMITTAL OF TEST RESULTS TO CITY FOR CONFIRMATION. MULTIFAMILY ALLOWED TO USE DCVA IN LIEU OF RPBA.
6. LEAD FREE NPT RPBA WATTS LF719QTS OR EQUAL.
7. 1 1/2" OR 2" IPS COPPER PIPE FITTING (WDxMPT).

SEE FIGURE W11A FOR SECTIONS

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W11B
1 1/2" & 2" WATER SERVICE





- | | |
|---|---|
| <p>1 4"x3" REDUCER, M.J. FOR 3" METER</p> <p>2 SINGLE STRAP SERVICE CLAMP, ROMAC 101 WITH IPS TAP, OR APPROVED EQUAL (1 1/2" OR 2" BYPASS, 4-INCH BYPASS REQUIRES D.I. TEE).</p> <p>3 FITTINGS AS REQUIRED.</p> <p>4 BEND CPLG COPPER TO COPPER MUELLER H-15525.</p> <p>5 BEND CPLG, COPPER TO OUTSIDE I.P. THREAD MUELLER H-15530, OR APPROVED EQUAL.</p> <p>6 BALL VALVE WITH PADLOCK WING OR LOCK CAP, FORD B21-444W OR B21-666 WITH LOCK CAP OR B21-777 WITH LOCK CAP. SIZED TO LINE.</p> <p>7 RESILIENT SEAT GATE VALVE, FL X FL SIZED TO METER.</p> <p>8 3" TO 10" SENSUS METER FOR IRRIGATION SERVICES AND 3" TO 10" COMPOUND METER IF FOR DOMESTIC SERVICE. READ IN CUBIC FEET WITH MXU RADIO UNIT AS SPECIFIED BY CITY SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.</p> | <p>9 D.I. PIPE SPOOL FL X PE LENGTH TO FIT.</p> <p>10 FL CPLG. ADAPT.</p> <p>11 PRECAST CONCRETE VAULT, UTILITY VAULT OR APPROVED EQUAL, SEE DETAIL V-W12B FOR SIZING AND REQUIREMENTS.</p> <p>12 MEGA-LUG FOLLOWER INSTALLED ON INFLOW SIDE OF VAULT WITH CONCRETE THRUST BLOCK OR SHACKLE TO THRUST BLOCK TO PREVENT MOVEMENT IF METER IS REMOVED. (BLOCK NOT SHOWN)</p> <p>13 DIELECTRIC CPLG. TO BUILDING SERVICE. SIZE AS REQUIRED.</p> <p>14 GALV. STEEL OR ALUMINUM LADDER. SECURE TO VAULT LID AND FLOOR. COORDINATE LOCATION FOR ACCESS.</p> <p>15 BY-PASS (SIZE BY TABLE BELOW).</p> <p>16 6" PVC TO CATCH BASIN OR DAYLIGHT. WHERE GRAVITY DRAIN IS NOT FEASIBLE, PROVIDE SUMP, ELECTRICAL SERVICE AND PUMP WITH DISCHARGE TO SURFACE DRAIN. PUMP SHALL BE 1/2 HP ZOELLER M-53, WITH CHECK VALVE ON DISCHARGE LINE.</p> <p>17 WATER METER STRAINER (FL) SENSUS OR EQUAL.</p> <p>18 2" DIAM. HOLE DRILLED IN LID, STREET SIDE FOR MXU HOLE.</p> |
|---|---|


METER SIZE	MAIN-LINE	BYPASS	A	B
3"	4" DI.	1 1/2" COPPER	9"	4"
4"	4" DI.	1 1/2" COPPER	9"	4"
6"	6" DI.	2" COPPER	9"	4"
8"	8" DI.	4" DI.	14"	6"
10"	10" DI.	4" DI.	16"	6"

NOTES:

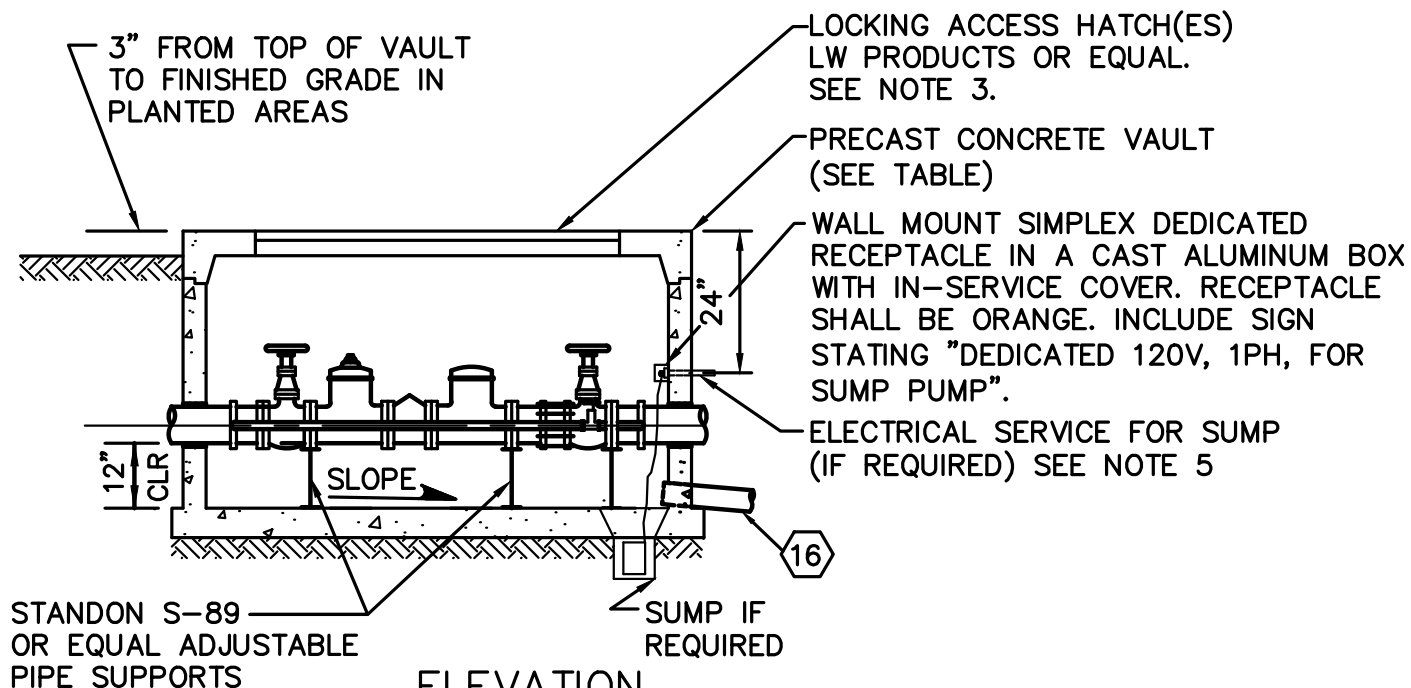
1. SEE W12B FOR ELEVATION AND NOTES.

CITY OF ILWACO
 2014 DEVELOPER STANDARDS

FIGURE W12A
 METER VAULT ASSEMBLY - 3" THROUGH 10"



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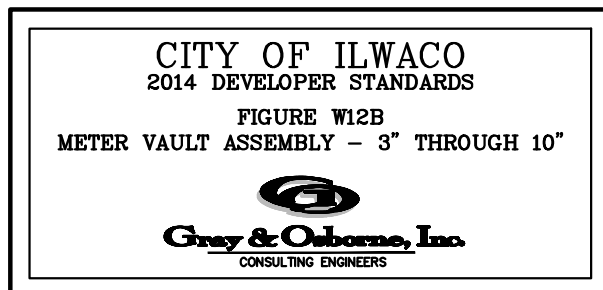
ELEVATION

SEE DETAIL V-W12A FOR CALLOUTS

METER SIZE	MAIN-LINE	MINIMUM I/S VAULT DIM. L x W x H			UTILITY VAULT CO APPROVED MODEL	MIN. HATCH OPENING
3"	4" DI.	8'-4"	4'-4"	3'-4"	4484-LA	3' x 6'
4"	4" DI.	8'-4"	4'-4"	3'-4"	4484-LA	3' x 6'
6"	6" DI.	10'-6"	5'-0"	6'-2"	5106-LA	3' x 6'
8"	8" DI.	12'-0"	6'-0"	6'-6"	612-LA	3' x 6'
10"	10" DI.	14'-0"	8'-0"	6'-6"	814-LA	3' x 6'

NOTES:

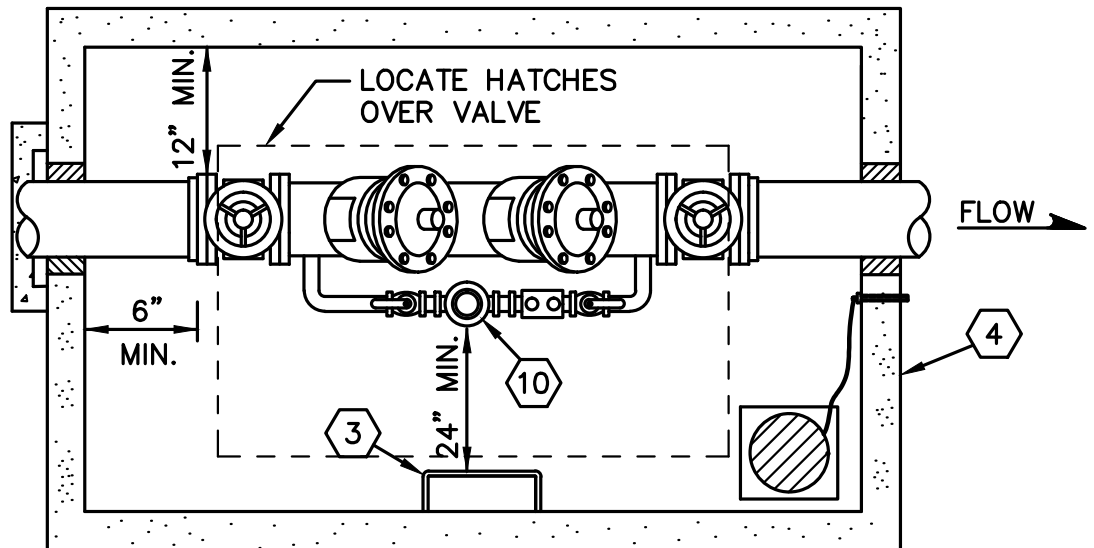
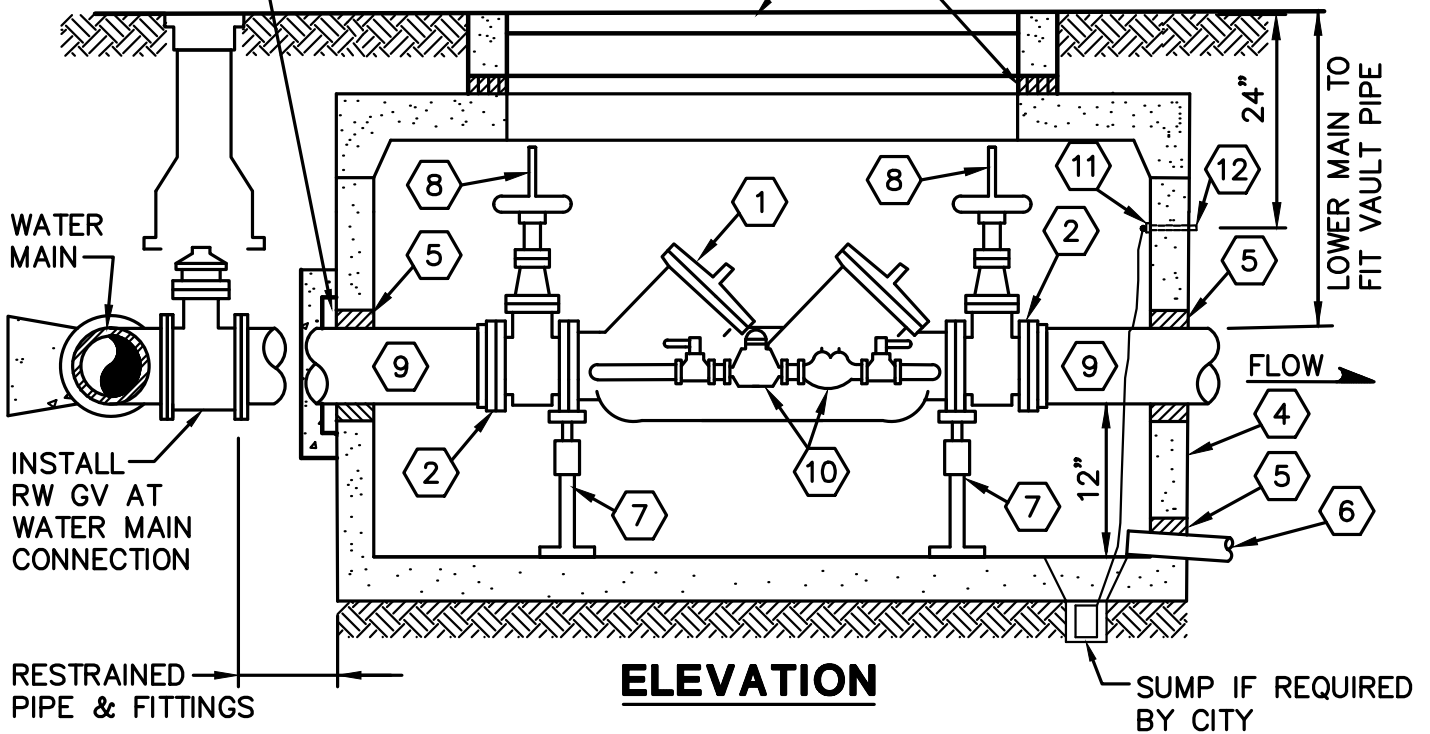
- WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW PREVENTOR REQUIRED. SEE V-W20. CONFIRM INSTALLATION WITH CITY. INITIAL AND ANNUAL TEST REQUIRED.
- METER SHALL BE INSTALLED SUCH THAT IT CAN BE READ WITHOUT ENTERING VAULT WITH ACCESS HATCH OPEN.
- COORDINATE ORIENTATION OF HATCH(ES) TO PROVIDE CLEAR VERTICAL ACCESS TO METER ASSEMBLY, AND WITH LADDER LOCATION. VERIFY WITH CITY.
- DRAIN DRAIN HATCH(ES) TO VAULT FLOOR WITH PVC PIPE AND FITTINGS.
- 3/4" (MINIMUM) PVC SCH-40 CONDUIT. WIRING SHALL BE COMPLETELY SEALED 120V, UNDER GROUND. CONTRACTOR TO SEAL CONDUIT PENETRATION WITH NON-SHRINK GROUT. (NOT REQUIRED IF GRAVITY VAULT DRAIN PROVIDED).
- EASEMENT TO BE PROVIDED TO CITY AROUND METERS LOCATED OUTSIDE RIGHT OF WAY.
- SEE V-W12A FOR PLAN AND NOTES.



MEGALUG FOLLOWER INSTALLED ON
INFLOW SIDE OF VAULT WITH CONCRETE
THRUST BLOCK

2 HATCHES IN 3'x 6' OPENING

4" BRICK, GROUTED



PLAN

NOTES:

1. SEE V-W13B FOR NOTES AND CALLOUTS

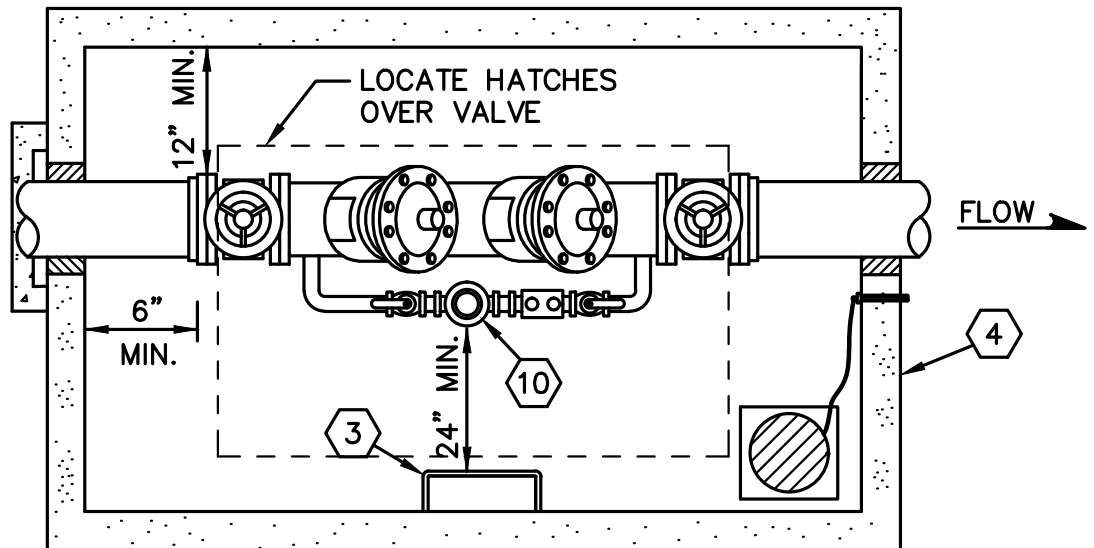
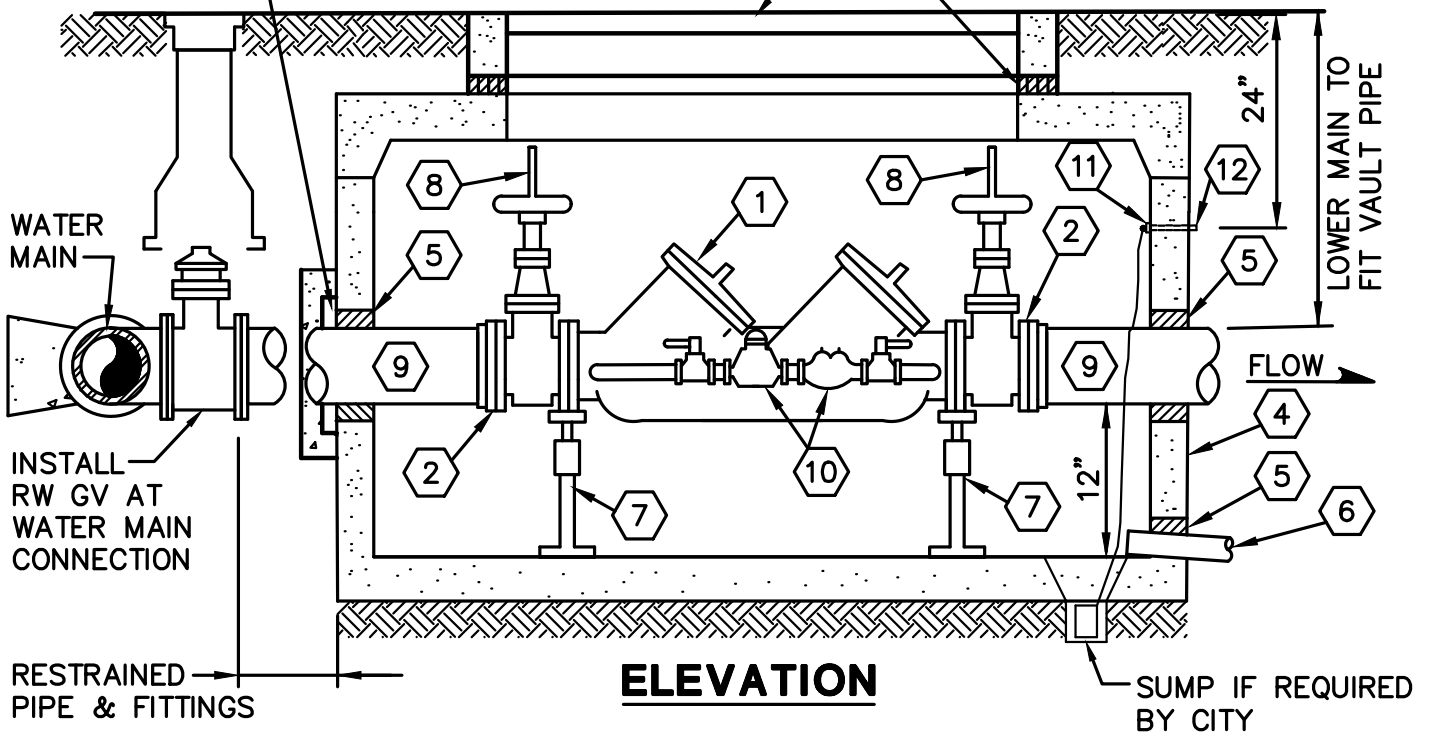
CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W13A
DOUBLE-CHECK DETECTOR ASSEMBLY,
4" AND LARGER

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CONSULTING ENGINEERS

MEGALUG FOLLOWER INSTALLED ON
INFLOW SIDE OF VAULT WITH CONCRETE
THRUST BLOCK

2 HATCHES IN 3'x 6' OPENING

4" BRICK, GROUTED



NOTES:

1. SEE V-W13B FOR NOTES AND CALLOUTS

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W13A
DOUBLE-CHECK DETECTOR ASSEMBLY,
4" AND LARGER

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LEGEND - SEE V-W13A FOR ELEVATION AND PLAN

① WASHINGTON STATE APPROVED DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) WITH OS&Y RESILIENT SEAT GATE VALVE EA. END AND LOW FLOW BYPASS METER ASSEMBLY.

② UNI-FLANGE WITH SET SCREWS.

③ GALVANIZED STEEL OR ALUMINUM LADDER, SECURED TO VAULT, SAME SIDE AS BYPASS METER.

④ **VAULT:**

UTILITY VAULT CO, OR APPROVED EQUAL WITH 4" BRICK AND ADJUSTABLE COVER.

ACCESS HATCHES:

3'x3', LW PRODUCTS, H-20 LOAD RATED. PROVIDE DRAINS FROM HATCHES TO VAULT FLOOR.

DCDA SIZE	UTILITY VAULT CO APPROVED MODEL	MINIMUM I/S VAULT DIM. L X W X H			MIN. HATCH OPENING
4"	4484-LA	8'-4"	4'-4"	6'-2"	3' X 6'
6"	4484-LA	8'-4"	4'-4"	6'-2"	3' X 6'
8"	5106-LA	10'-6"	5'-0"	6'-2"	3' X 6'
10"	612-LA	12'-0"	6'-0"	6'-6"	3' X 6'

⑤ EPDM MODEL "C" OR "L" LINK SEAL.

⑥ DRAIN TO NEAREST CATCH BASIN. MINIMUM SLOPE 1% UNLESS OTHERWISE APPROVED. WHERE GRAVITY DRAIN IS NOT FEASIBLE, PROVIDE SUMP AND ELECTRIC PUMP WITH DISCHARGE TO SURFACE DRAIN. PUMP SHALL BE 1/2 HP ZOELLER M-53, WITH CHECK VALVE ON DISCHARGE LINE. POWER FROM SERVED FACILITY WITH GFI OUTLET IN VAULT, LOCATED ABOVE METER.

⑦ STANDON S-89 OR EQUAL ADJUSTABLE PIPE SUPPORTS, BOLT TO VALVE FLANGE.

⑧ VALVE ASSEMBLY TO BE POSITIONED IN VAULT TO ALLOW STEMS TO EXTEND INTO ACCESS OPENING.

⑨ CL. 52 D.I., MJ WITH MEGALUGS.

⑩ LOW FLOW BYPASS METER, INCLUDING 5/8" x 3/4" SENSUS RADIO READ WATER METER W/ SENSUS AMR AND MXU RADIO UNIT, WASHINGTON STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA) AND 2 BRONZE BODY ISOLATION BALL VALVES, BRASS OR TYPE K COPPER PIPING.

⑪ SIMPLEX DEDICATED RECEPTACLE IN A CAST ALUMINUM BOX WITH IN SERVICE COVER. RECEPTACLE SHALL BE ORANGE. INCLUDE SIGN STATING "DEDICATED 120V, 1PH, FOR SUMP PUMP."

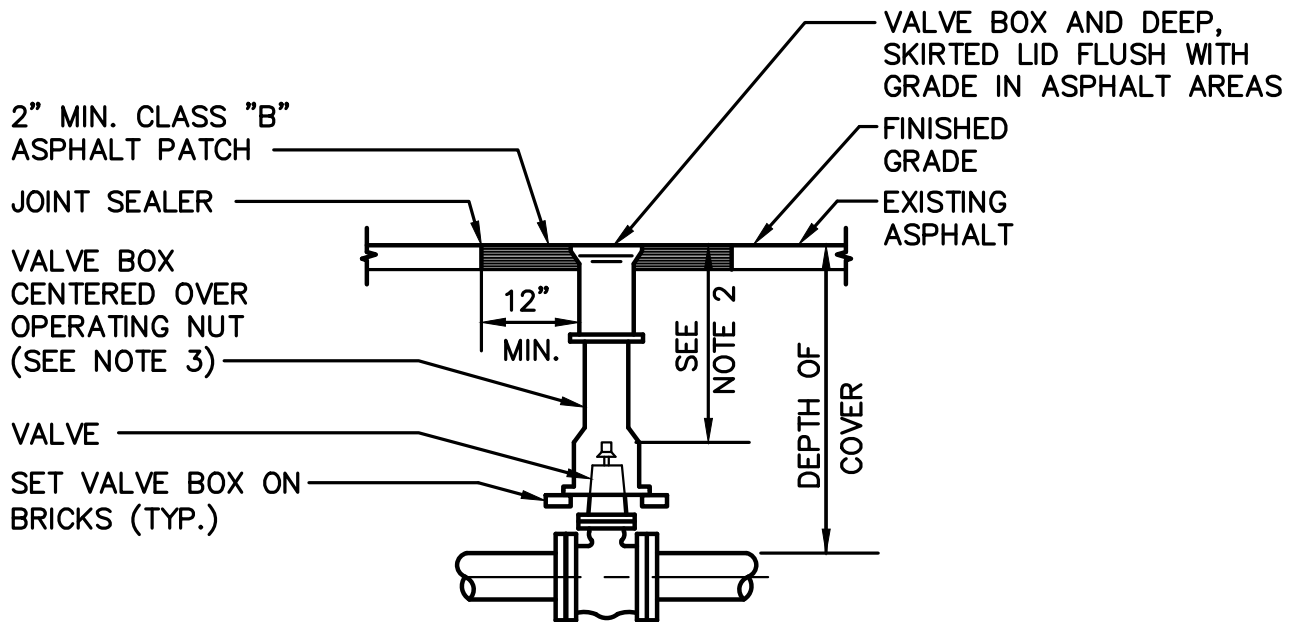
⑫ 3/4" PVC SCH-40, CONDUIT SHALL BE COMPLETELY SEALED 120V, UNDER GROUND. CONTRACTOR TO SEAL CONDUIT PENETRATION WITH NON-SHRINK GROUT.

NOTES:

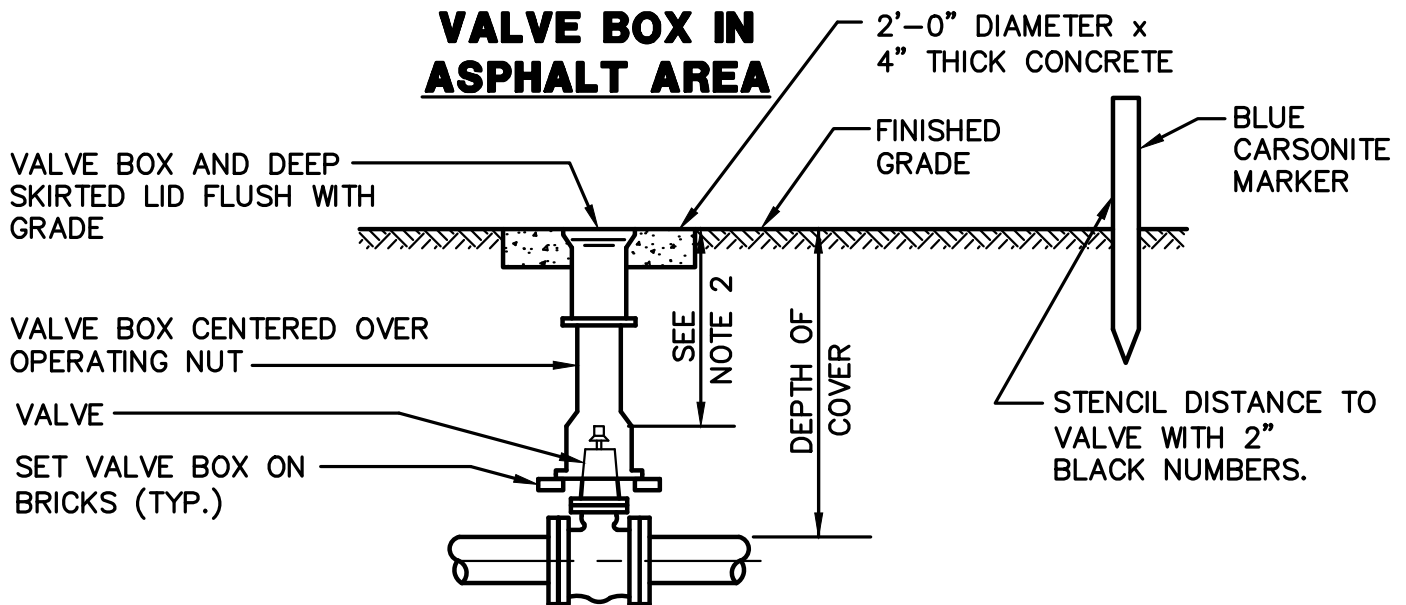
1. VAULT SHALL BE LOCATED OUTDOORS AND ACCESSIBLE TO DISTRICT. ALTERNATE TO VAULT INSTALLATION REQUIRES CITY APPROVAL.
2. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL DCDA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
3. DCDA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
4. PRESSURE TEST AND DISINFECT PER A.W.W.A. STANDARDS.
5. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND DCDA.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W13B
DOUBLE-CHECK DETECTOR ASSEMBLY,
4" AND LARGER


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CONSULTING ENGINEERS



VALVE BOX IN ASPHALT AREA



VALVE BOX IN UNIMPROVED AREA (VALVE MARKER REQUIRED)

NOTES:

1. EACH VALVE SHALL BE PROVIDED WITH AN ADJUSTABLE CAST IRON VALVE BOX OF 5 INCHES (5") INSIDE DIAMETER. VALVE BOXES SHALL HAVE A TOP SECTION WITH AN EIGHTEEN INCH (18") MIN. LENGTH. THE VALVE BOX SHALL BE OLYMPIC FOUNDARY No. 940 OR APPROVED EQUAL.
2. 18" MINIMUM, 24" MAXIMUM FOR OPERATOR NUT IF EXTENSION IS REQUIRED.
3. VALVE BOX EARS SHALL BE PLACED IN LINE WITH THE PIPE IT SERVES.

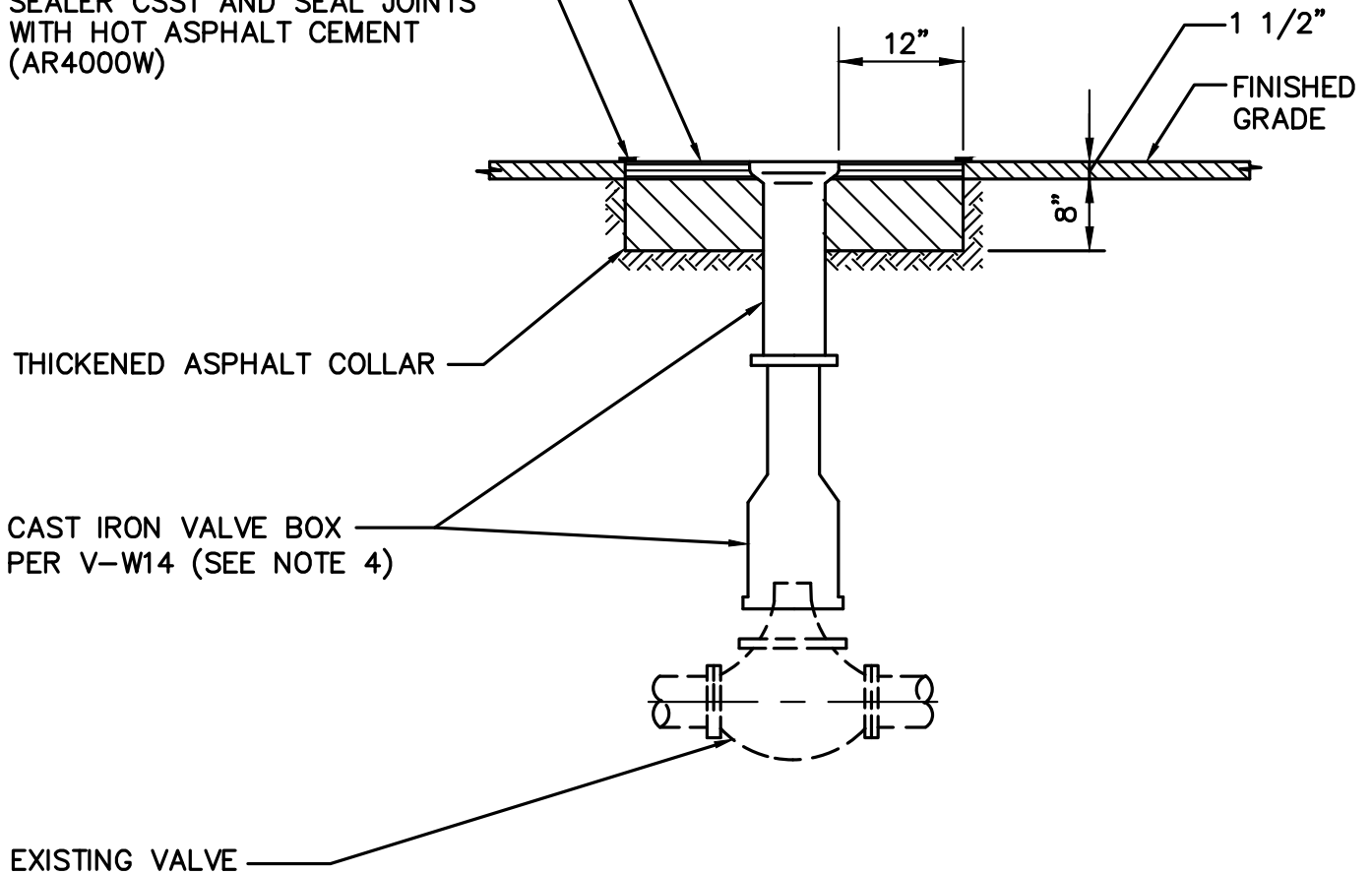
CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W14
VALVE BOX


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1 1/2" COMPACTED THICKNESS
PG 58-22 HMA.

CLEAN AND TACK EDGES WITH
SEALER CSS1 AND SEAL JOINTS
WITH HOT ASPHALT CEMENT
(AR4000W)



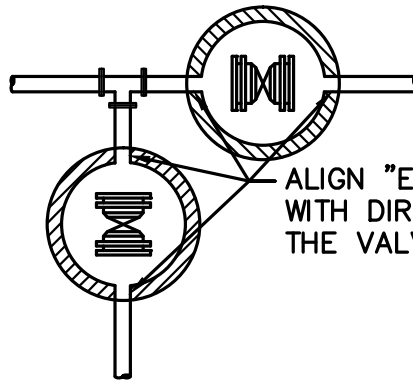
NOTES:

1. ALL EXISTING CONCRETE VALVE BOXES SHALL BE REPLACED WITH CAST IRON BOXES AND ADJUSTED WITH SOIL PIPE TO GRADE AS NEEDED.
2. ALL EXISTING CAST IRON VALVE BOXES SHALL BE ADJUSTED TO GRADE OR NEW CAST IRON BOXES INSTALLED.
3. ALIGNMENT OF THE VALVE BOX SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND CARE SHALL BE TAKEN TO ENSURE THAT THE VALVE IS OPERABLE.
4. VALVE BOX EARS SHALL BE PLACED IN LINE WITH THE PIPE IT SERVES.

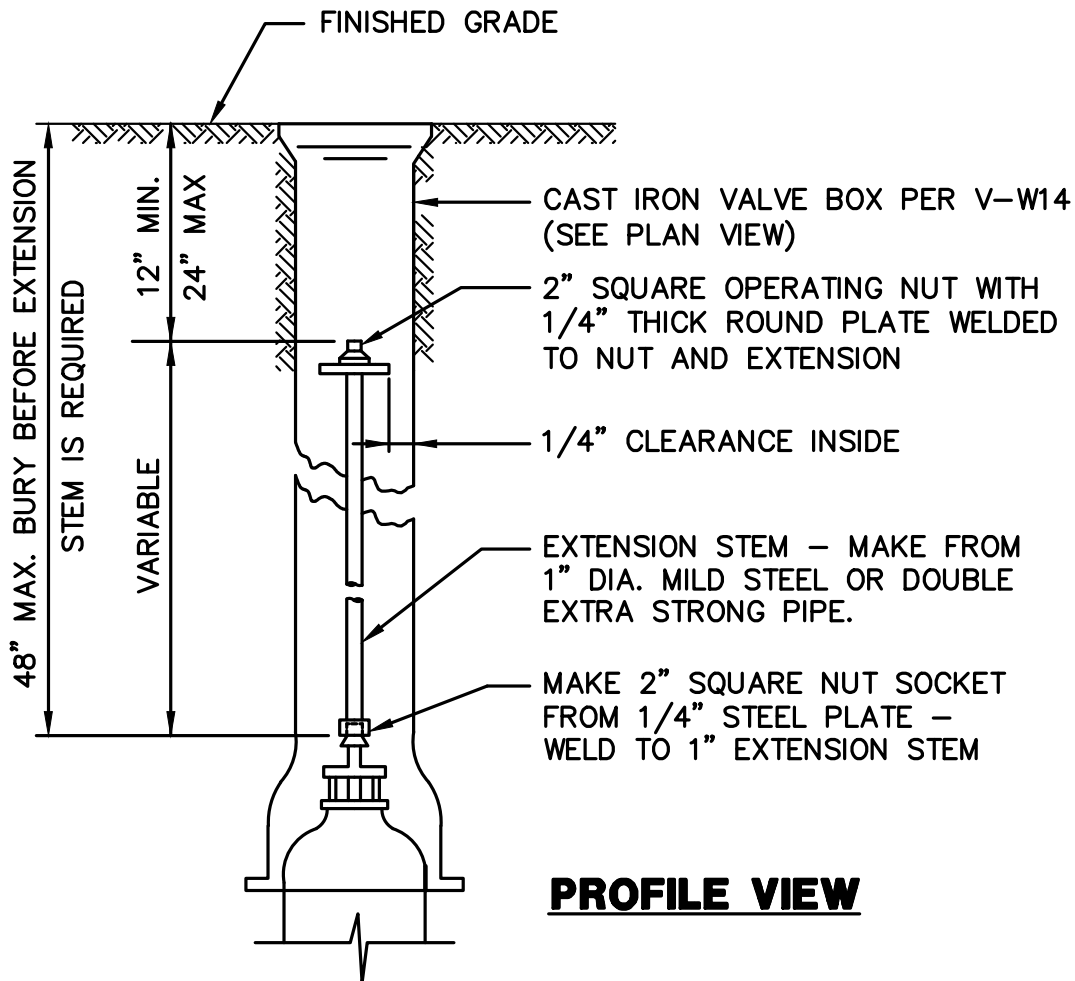
CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W15
VALVE BOX ADJUSTMENT


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PLAN VIEW

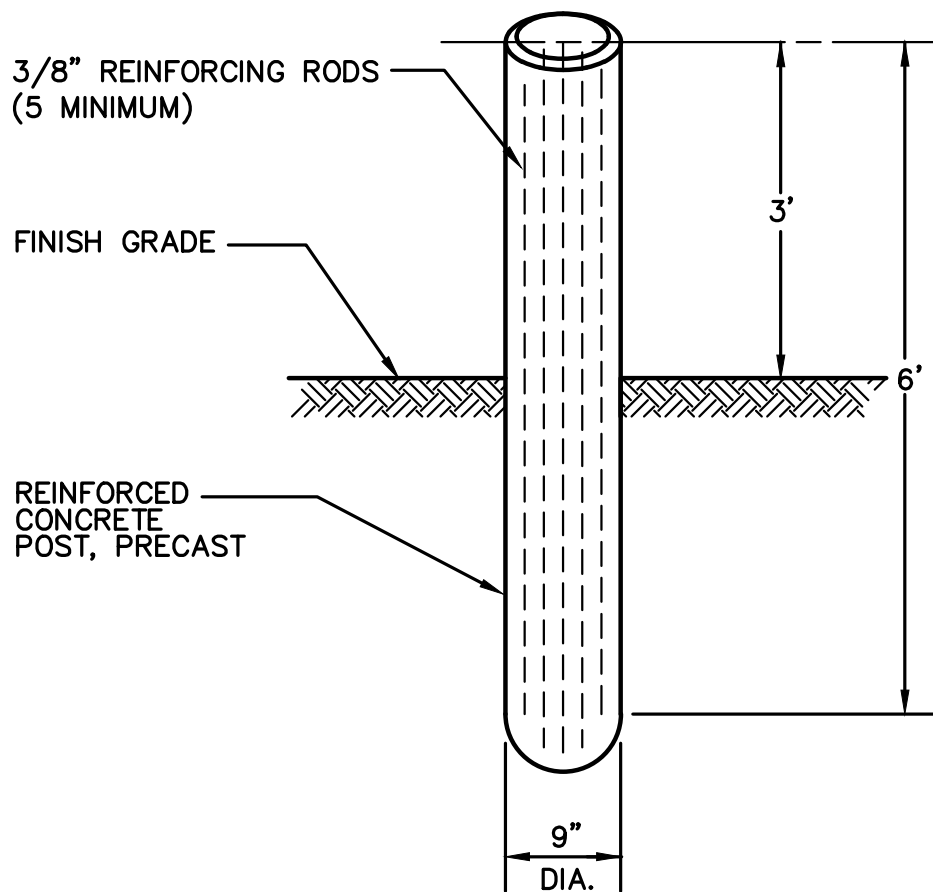


PROFILE VIEW

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W16
VALVE EXTENSION STEM


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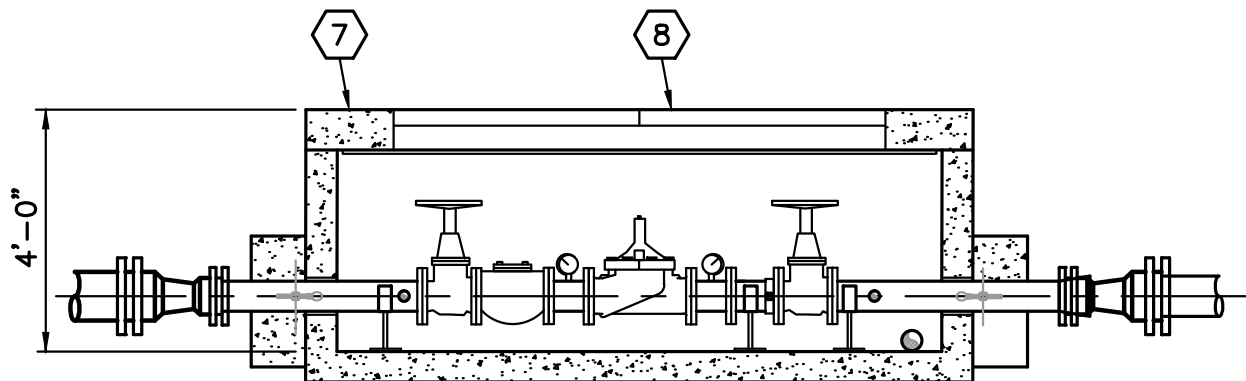
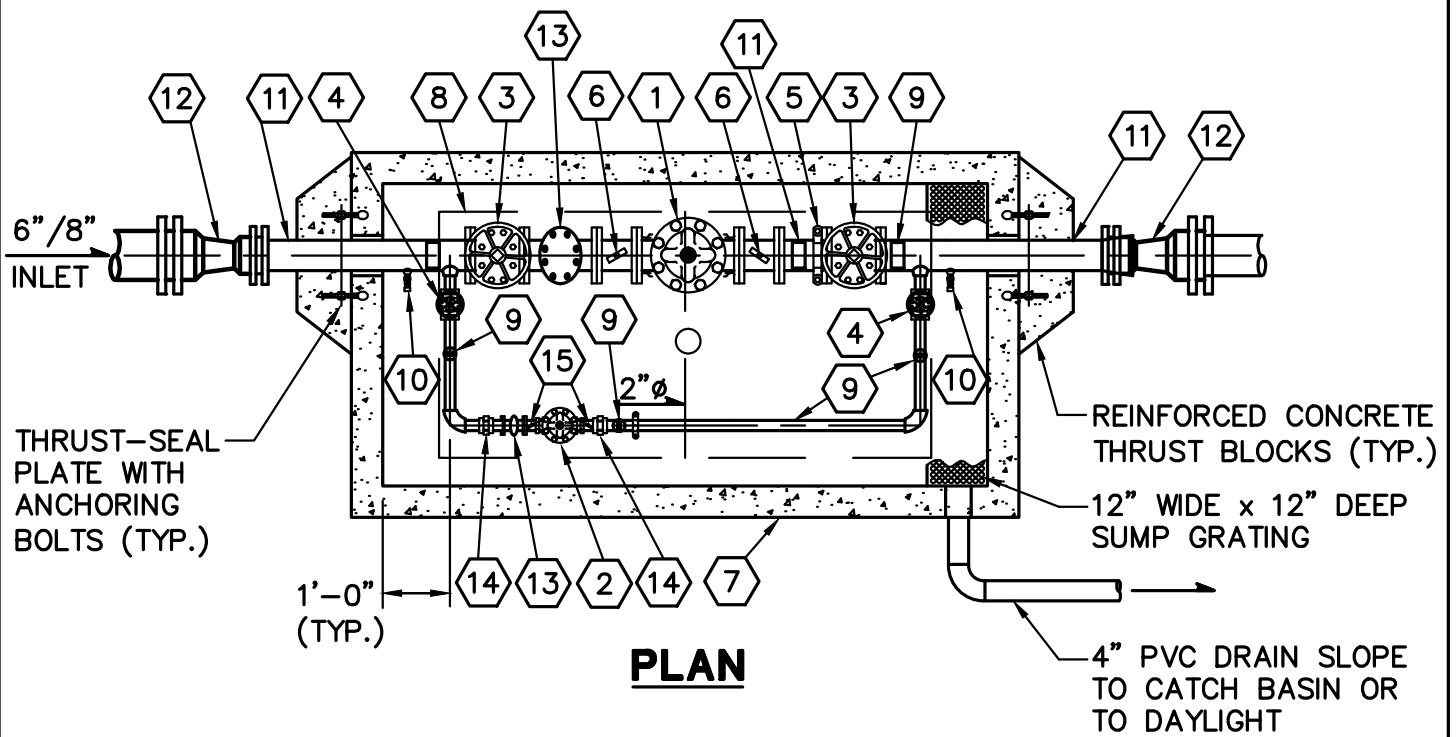
NOTES

1. THE NUMBER (2, 3, OR 4) AND CONFIGURATION OF THE GUARD POSTS SHALL BE DETERMINED BY THE CITY BASED ON FIELD CONDITIONS.
2. PAINT GUARD POSTS WITH TWO (2) COATS OF KELLY-MOORE 6100-516 YELLOW .

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W17
GUARD POST


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NOTE:

ALTERNATE TO FIELD ASSEMBLED PRV AND VAULT IS SYSTEM AS MANUFACTURED BY GC SYSTEMS.

(X) SEE V-W18B FOR CALLOUTS AND NOTES

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W18A
PRESSURE REDUCING VAULT


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LEGEND - SEE V-W18A FOR PLAN AND SECTION

- 1 6" CLA-VAL 92G-01BCSY PRESSURE REDUCING VALVE WITH X101 POSITION INDICATOR DI BODY, S.S. TRIM, #150 FL.
- 2 2" CLA-VAL 90G-01BC PRESSURE REDUCING VALVE WITH X101 POSITION INDICATOR DI BODY, BRONZE TRIM - THREADED.
- 3 6" D.I. RW NRS GATE VALVE WITH HANDWHEEL, #150 FL.
- 4 2" MUELLER A2360-6W41 W55 RW NRS GATE VALVE WITH HANDWHEEL, THD.
- 5 UNIFLANGE
- 6 4" 0-300 PSI PRESSURE GAUGE WITH SNUBBER AND GAUGE COCK. LOCATION SHALL BE AS SHOWN ON V-W18A ON THE TOP OF THE PIPE. GAUGE SHALL BE INSTALLED ON BOTH PRIMARY AND BYPASS PRV ASSEMBLIES (SEE ITEM 15 BELOW).
- 7 PRECAST CONCRETE VAULT 10'L x 5'W x 3'-7"H INSIDE, SOLID WALL WITH WHITE INTERIOR & BLACK EXTERIOR SEALANT
- 8 48" X 96" DOUBLE DOOR ALUMINUM HATCH, LW PRODUCTS OR APPROVED EQUAL. H-20 RATED. DRAIN HATCH TO VAULT FLOOR.
- 9 ADJUSTABLE PIPE SUPPORTS
- 10 3/4" HOSE BIB ASSEMBLY
- 11 PIPE SPOOL (FLxPE) LENGTH AS REQUIRED.
- 12 REDUCER (AS REQUIRED), MJ WITH MEGA-LUGS
- 13 WATER METER STRAINER, SENSUS OR APPROVED EQUAL.
- 14 UNIONS
- 15 2" 0-300 PSI PRESSURE GAUGE WITH SNUBBER.

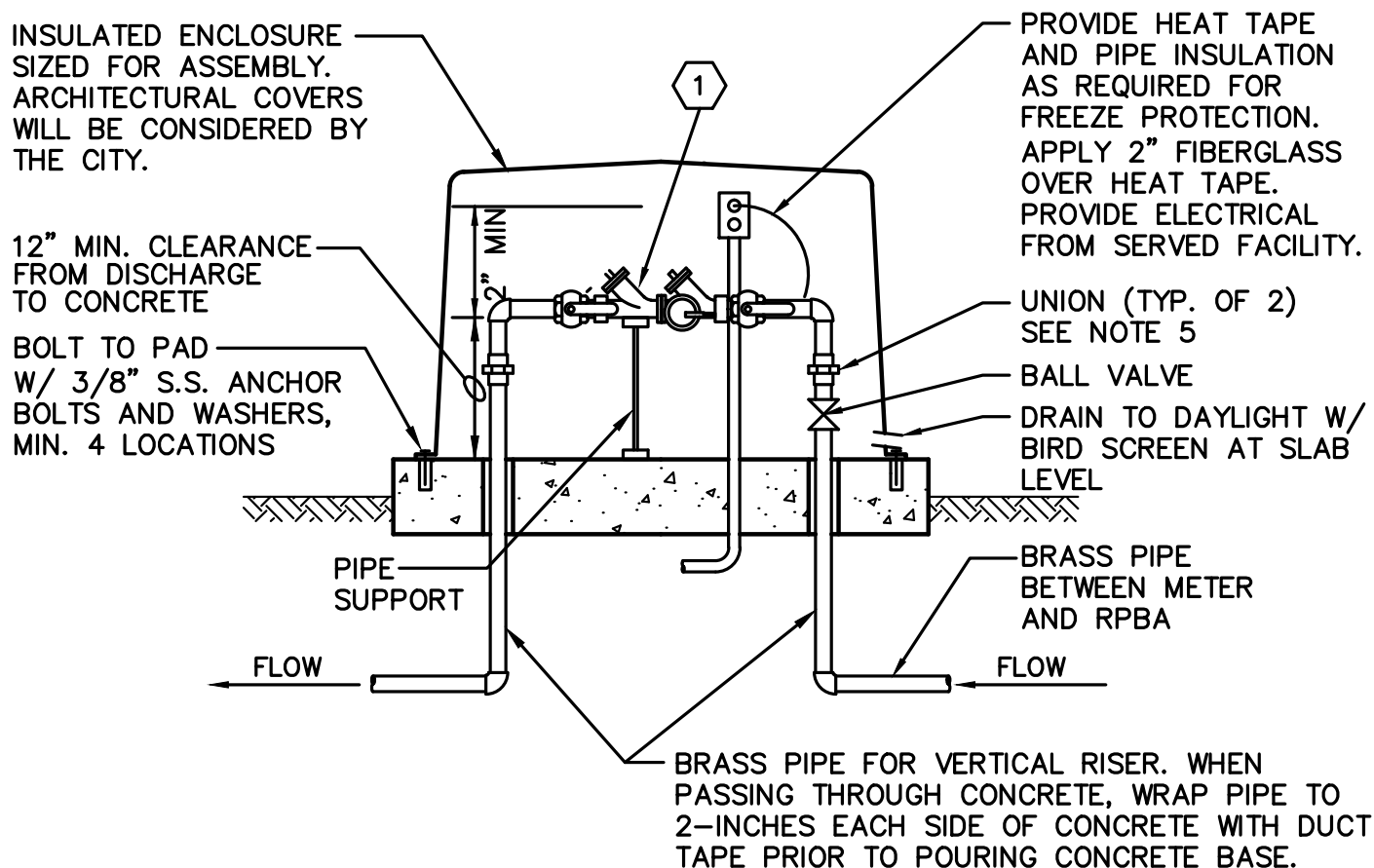
NOTES:

- 1. 6" x 2" PRV ASSEMBLY SHOWN. SIZES TO BE DETERMINED BY THE CITY BASED ON DOWNSTREAM DEMANDS.
- 2. ALL 3" AND LARGER PIPE INSIDE WETTED SURFACES TO BE SANDBLASTED, EPOXY LINED AND COATED TO AWWA C210 AND NSF-61 SPECIFICATION. EXTERIOR COATING SHALL BE BLUE ENAMEL.
- 3. ALL PIPE 2" AND SMALLER TO BE BRASS.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W18B
PRESSURE REDUCING VAULT


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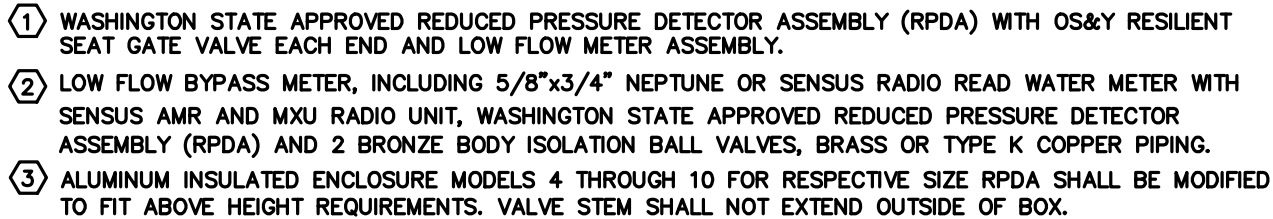
1 WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH TEST COCK PROTECTION AND BRONZE BODY BALL VALVE AT EACH END.

NOTES:

1. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
2. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
3. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
4. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
5. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
6. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W19
REDUCED PRESSURE BACKFLOW ASSEMBLY
3/4" TO 2"

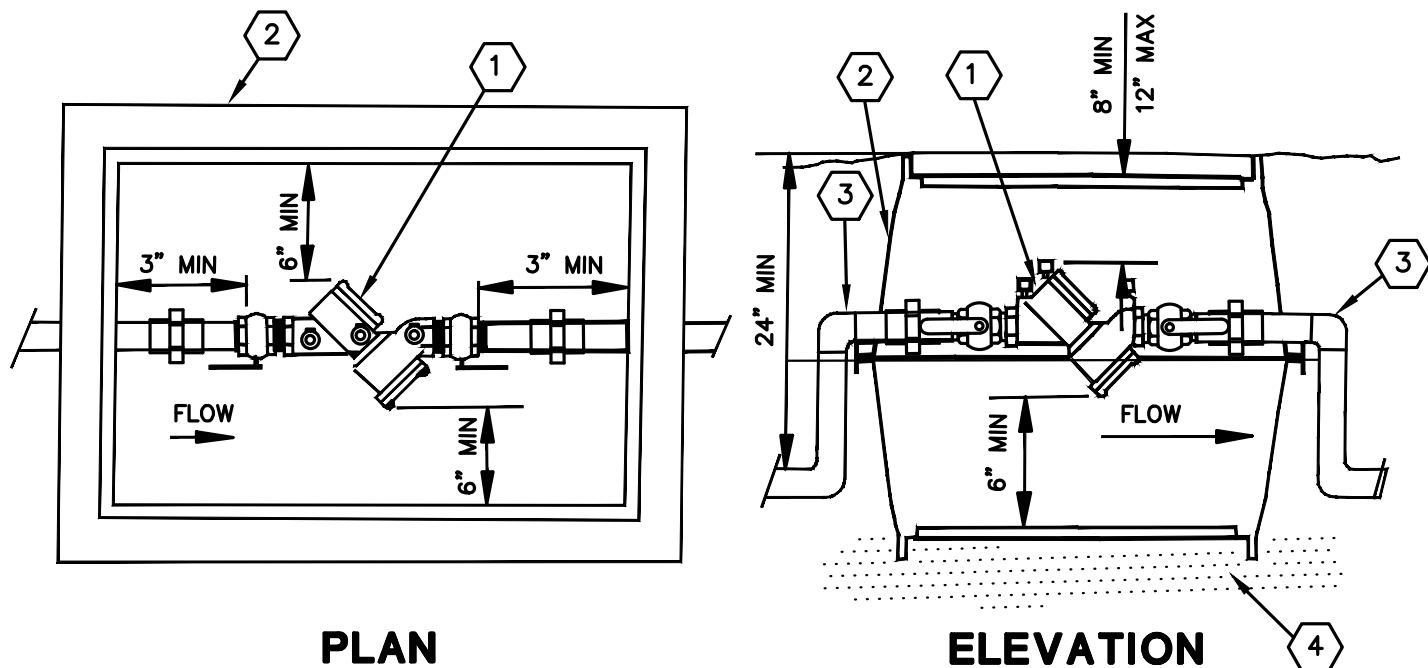
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1. INSULATED ENCLOSURE TO BE LOCATED OUTDOORS AND ACCESSIBLE TO CITY. ALTERNATE LOCATION REQUIRES CITY APPROVAL.
2. HEATERS AND WIRING SHALL BE RATED AT 2,000 WATT FOR 8" AND UNDER: 3,000 WATT FOR 10".
3. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
4. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
5. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPDA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
6. RPDA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
7. DRAIN TO DAYLIGHT WITH BIRD SCREEN LOCATED AT SLAB LEVEL (SIZED PER MANUFACTURERS RECOMMENDATION).
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPDA.



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- ① WASHINGTON STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA)
- ② METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE, OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
- ③ BENDS MAY BE LOCATED INSIDE OR OUTSIDE OF BOX SO LONG AS SUFFICIENT ROOM IS ALLOWED AT EACH END FOR VALVE OPERATION AND DCVA REPAIR OR MAINTENANCE.
- ④ PROVIDE FREE DRAINING BACKFILL BELOW BOX. (12\"/>

NOTES:

1. ALL TEST COCKS SHALL POINT UPWARDS AND HAVE BRASS PLUGS.
2. DCVA SHALL BE CENTERED IN BOX (PLAN).
3. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
4. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL DCVA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
5. DCVA IS CONSIDERED PART OF A PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
6. INSTALL DCVA USING UNIONS ON EACH END OF ASSEMBLY. UNIONS TO BE EXPOSED INSIDE OF BOX.
7. BOTTOM OF BOX TO BE OPEN TO DRAIN.
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND DCVA.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W21
DOUBLE CHECK VALVE ASSEMBLY
2\"/>


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DOUBLE CHECK VALVES (TO MATCH PIPE DIAMETER) APPROVED IN WASHINGTON STATE, AND TESTED WITHIN 90 DAYS WHENEVER INSTALLED OR MOVED. PROVIDE CERTIFICATION TO CITY.

GALVANIZED PIPE

TIE CONNECTION ASSEMBLY TO EXISTING WATER MAIN HYDRANT OR BLOW-OFF VALVE

DISTANCE VARIES

NEW WATER MAIN

MIN. 2" FOR 8" MAINS, AND 4" FOR MAINS LARGER THAN 8"

CONCRETE THRUST BLOCK (TEMPORARY)

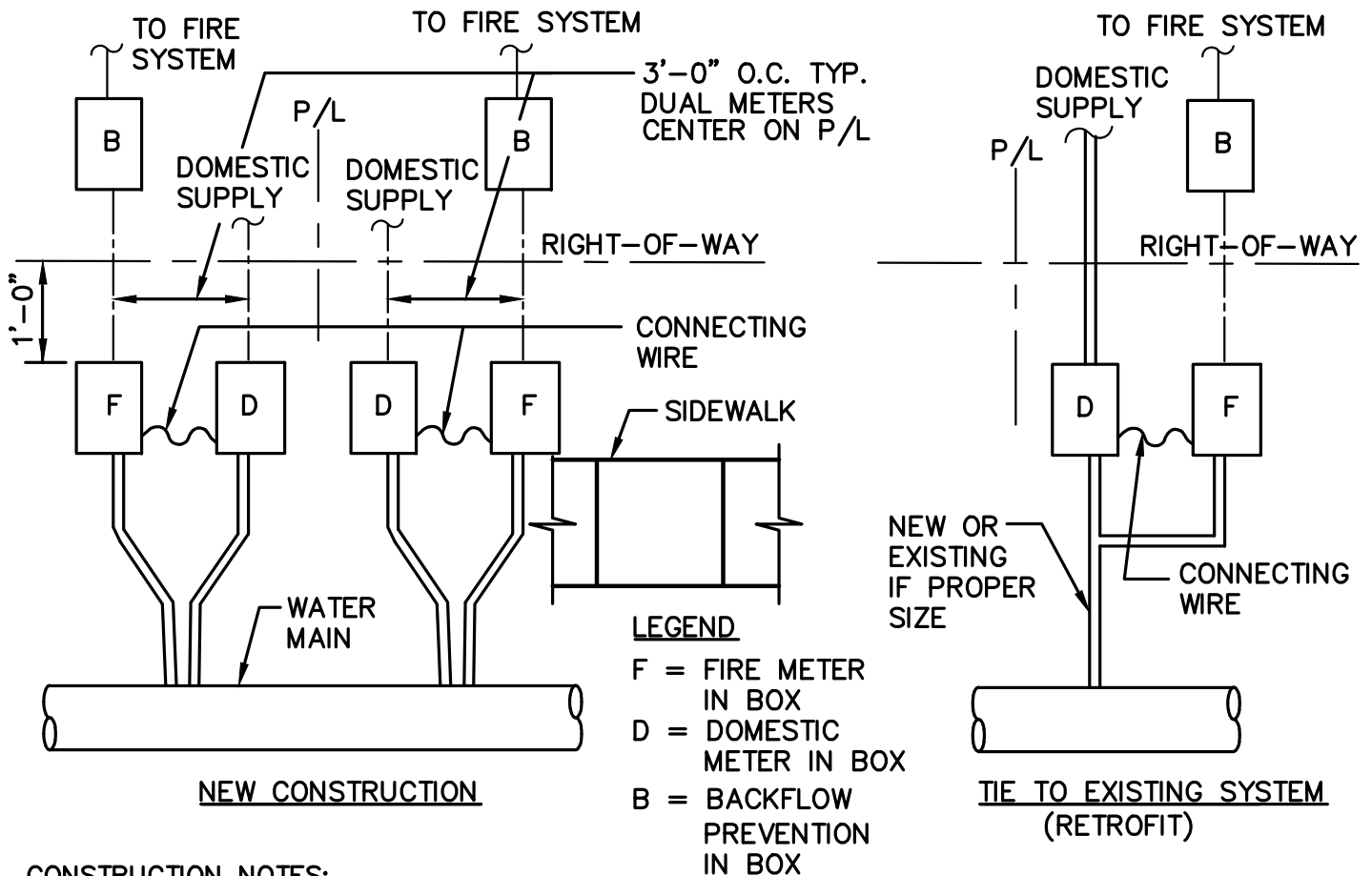
NOTES:

1. PROTECT INSTALLATION FROM DAMAGE AND FREEZING.
2. ALL WATER USED FOR FILLING AND FLUSHING SHALL BE METERED BY CITY. PROVIDE SPACE FOR INSTALLATION OF METER, OR INSTALL ON POINT OF DISCHARGE.
3. ALL NEW MAINS SHALL BE KEPT SEPARATE FROM THE CITY'S EXISTING SYSTEM UNTIL THE NEW MAINS ARE TESTED AND ACCEPTED. FINAL CONNECTION REQUIRES 100% INSPECTION BY THE CITY.

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W22
TESTING CONNECTION DETAIL


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CONSTRUCTION NOTES:

1. ALL TAPS SHALL CONFORM TO WATER SERVICE DETAIL FOR PIPE SIZE OF LATERAL.
2. BACKFLOW PREVENTION REQUIRED IMMEDIATELY FOLLOWING METER BOX OR AS PRACTICALLY CLOSE AS POSSIBLE.
3. WHERE METERS ARE BEING INSTALLED WITH NEW MAIN CONSTRUCTION, EACH CONNECTION SHALL BE SEPARATELY TAPPED TO MAIN LINE. IN RETROFIT CONSTRUCTION, AT THE CITY'S SOLE DISCRETION, BRANCH TIES OF FIRE AND DOMESTIC METERS TO A SINGLE CONNECTION LATERAL MAY BE ALLOWED.
4. ALL FIRE METERS SHALL BE INSTALLED IN A METER BOX PER 1" OR 2" WATER SERVICE STANDARD DETAIL AS APPROPRIATE.

PROBABLE USE CONDITIONS:

1. WHERE BUILDING CODE REQUIRES.
2. IN RESIDENTIAL LOCATIONS WHERE:
 - a. ACCESS ROADS EXCEEDS 150 FT AND DOES NOT END IN CUL-DE-SAC OF 40 FOOT RADIUS MINIMUM.
 - b. ACCESS ROAD IS LESS THAN 20 FEET WIDE.
 - c. WATER SUPPLY ISSUES EXIST.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W23
1" OR 2" DOMESTIC FIRE SERVICE CONNECTION


Gray & Osborne, Inc.
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ROTATING
HANDWHEEL
OPERATOR

VARIABLE x 3/4"
MALE NPT BUSHING

PIPE SUPPORTS,
EVENLY SPACED AT
10" O.C.

GALVANIZED
FREEZEPROOF UTILITY
YARD HYDRANT, SIZE
AS REQUIRED

SUPPORT CONCRETE
WALL (IF APPLICABLE)

3'-0"

MINIMUM 3'
BURIAL DEPTH

8-INCH DEPTH TO
BOTTOM OF PEA
GRAVEL

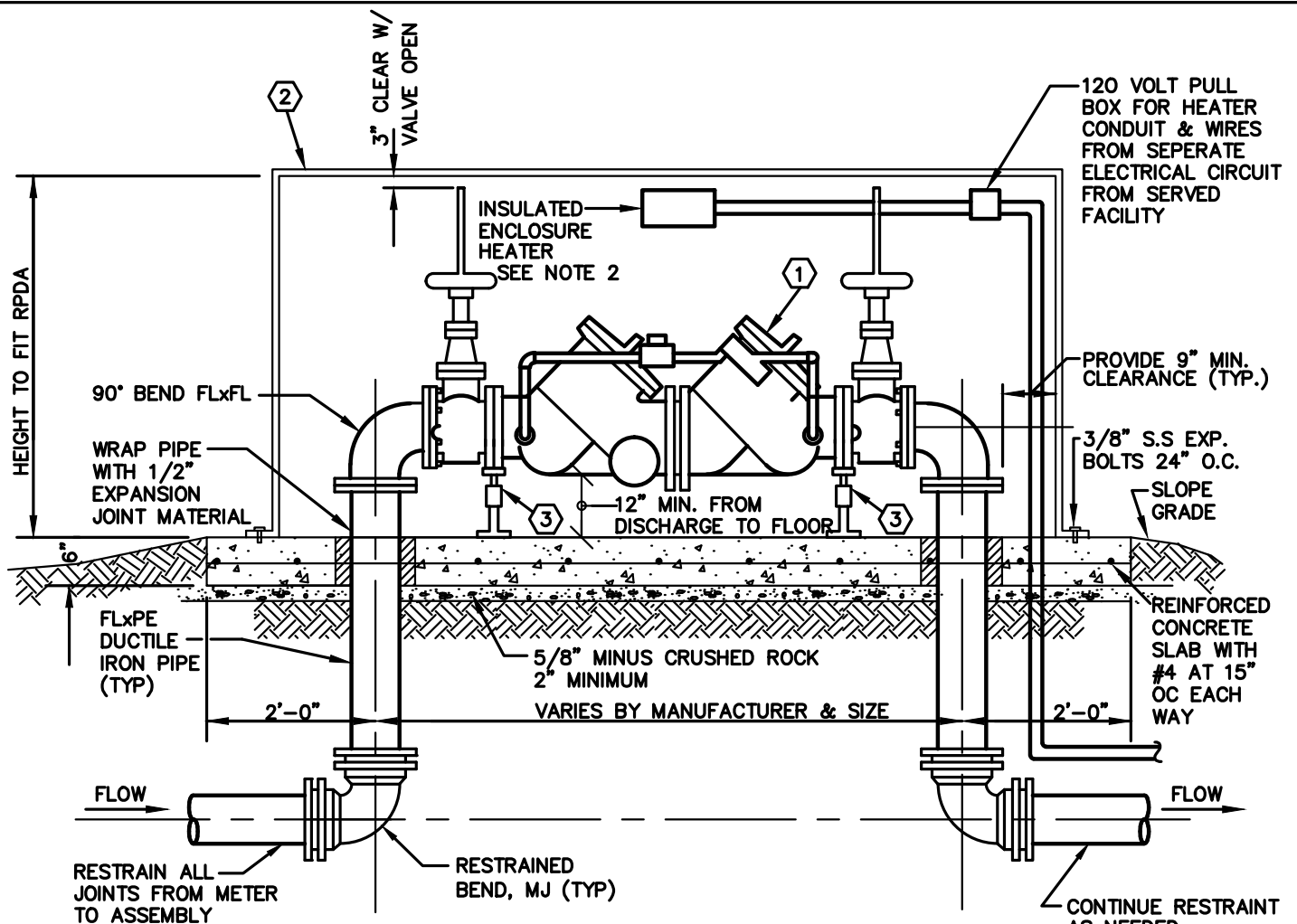
2 CU FEET
WASHED PEA
GRAVEL

FPT INLET, SIZE
AS REQUIRED

CITY OF ILWACO
2014 DEVELOPER STANDARDS

FIGURE W24
1" OR 2" NON-FREEZE YARD HYDRANT


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CONSULTING ENGINEERS



- ① WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH OS&Y RESILIENT SEAT GATE VALVE EACH END.
- ② ALUMINUM OR FIBERGLASS INSULATED ENCLOSURE MODELS 4 THROUGH 10 FOR RESPECTIVE SIZE RPBA SHALL BE MODIFIED TO FIT ABOVE HEIGHT REQUIREMENTS. VALVE STEM SHALL NOT EXTEND OUTSIDE OF BOX.
- ③ STANDON S-89 OR EQUAL ADJUSTABLE PIPE SUPPORTS, BOLT TO VALVE FLANGE.

NOTES:

1. INSULATED ENCLOSURE TO BE LOCATED OUTDOORS AND ACCESSIBLE TO CITY. ALTERNATE LOCATION REQUIRES CITY APPROVAL.
2. HEATERS AND WIRING SHALL BE RATED AT 2,000 WATT FOR 8" AND UNDER: 3,000 WATT FOR 10".
3. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
4. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
5. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPDA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
6. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
7. DRAIN TO DAYLIGHT WITH BIRD SCREEN LOCATED AT SLAB LEVEL (SIZED PER MANUFACTURERS RECOMMENDATION).
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.

CITY OF ILWACO
2014 DEVELOPER STANDARDS
FIGURE W25
REDUCED PRESSURE BACKFLOW ASSEMBLY
2 1/2" AND LARGER


Gray & Osborne, Inc.
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