CITY OF CASHMERE

Cashmere, Washington

SANITARY SEWER SYSTEM STANDARD DETAILS

SHEET INDEX

CONTACT INFORMATION

CITY OF CASHMERE
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PHONE: 509-782-3513
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CALL 48 HOURS BEFORE YOU DIG
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DEPT. OF ECOLOGY 1-800-258-5990

ABBREVIATIONS

CB	CATCH BASIN	GALV	GALVANIZED	PROP	PROPOSED
CONC	CONCRETE	HDPE	HIGH-DENSITY POLYETHYLENE	PSI	POUNDS PER SQUARE INCH
CL	CONSTRUCTION CENTERLINE	HMA	HOT MIXED ASPHALT	PVC	POLYVINYL CHLORIDE
CSBC	CRUSHED SURFACING BASE COURSE	ID	INSIDE DIAMETER	SPEC	SPECIFICATIONS
CSTC	CRUSHED SURFACING TOP COURSE	IE	INVERT ELEVATION	SS	SANITARY SEWER
DI	DUCTILE IRON	J-BOX	JUNCTION BOX	SSMH	SANITARY SEWER MANHOLE
DIAM	DIAMETER	LF	LINEAR FEET	SST	STAINLESS STEEL
DWG	DRAWING	MH	MANHOLE	STD	STANDARD
E	EASTING	MJ	MECHANICAL JOINT FITTING	STL	STEEL
EG	EXISTING GROUND	NO	NUMBER	TEL	TELEPHONE
ELEV	ELEVATION	OC	OFF CENTER	TEMP	TEMPORARY
EX	EXISTING	OD	OUTSIDE DIAMETER	TYP	TYPICAL
EW	EVEN WIDTH	P	POWER	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
FG	FINISHED GRADE	PE	PLAIN END		

DEVELOPED BY RH2 ENGINEERING, INC.

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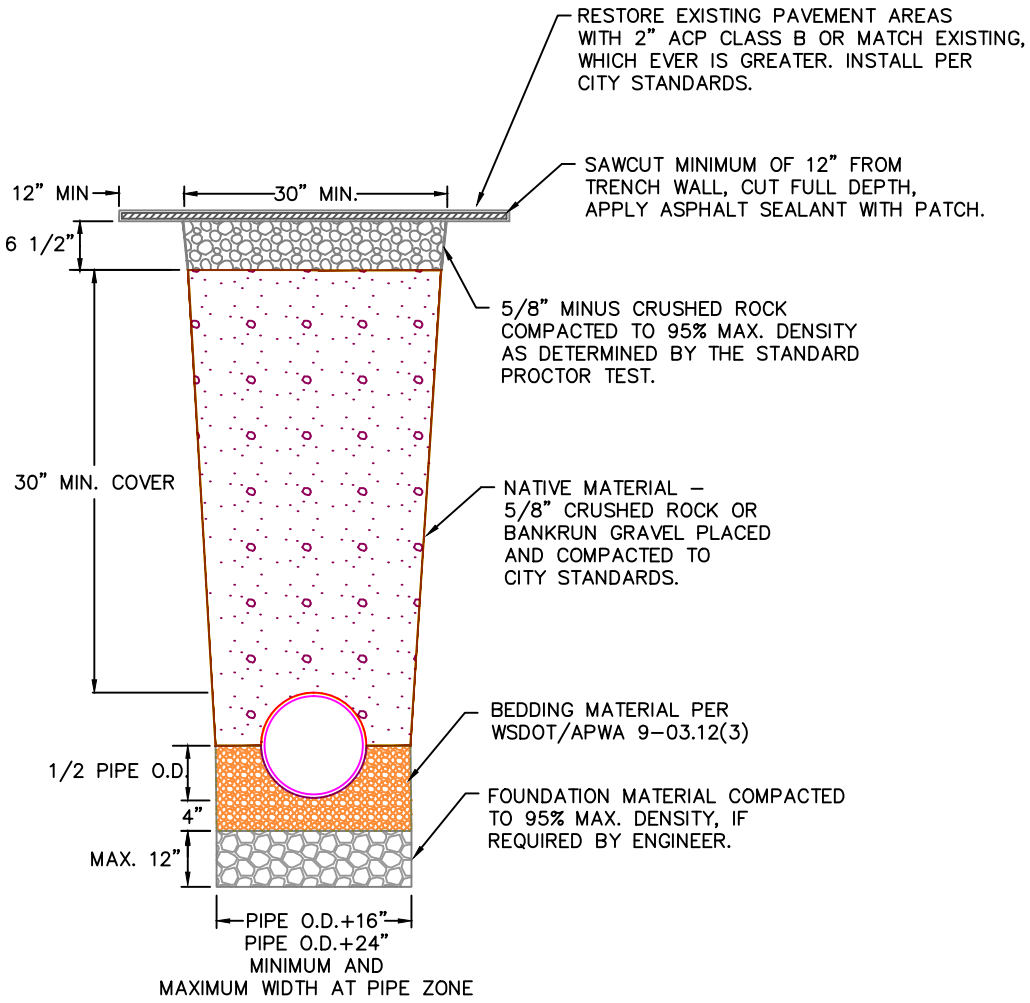
SEWER SYSTEM STANDARD DETAIL

COVER

FILE:CA-SSDT0.DWG	REVISED: 5/15/2015	DETAIL NO.: SS00



TYPICAL TRENCH - RIGID PIPE

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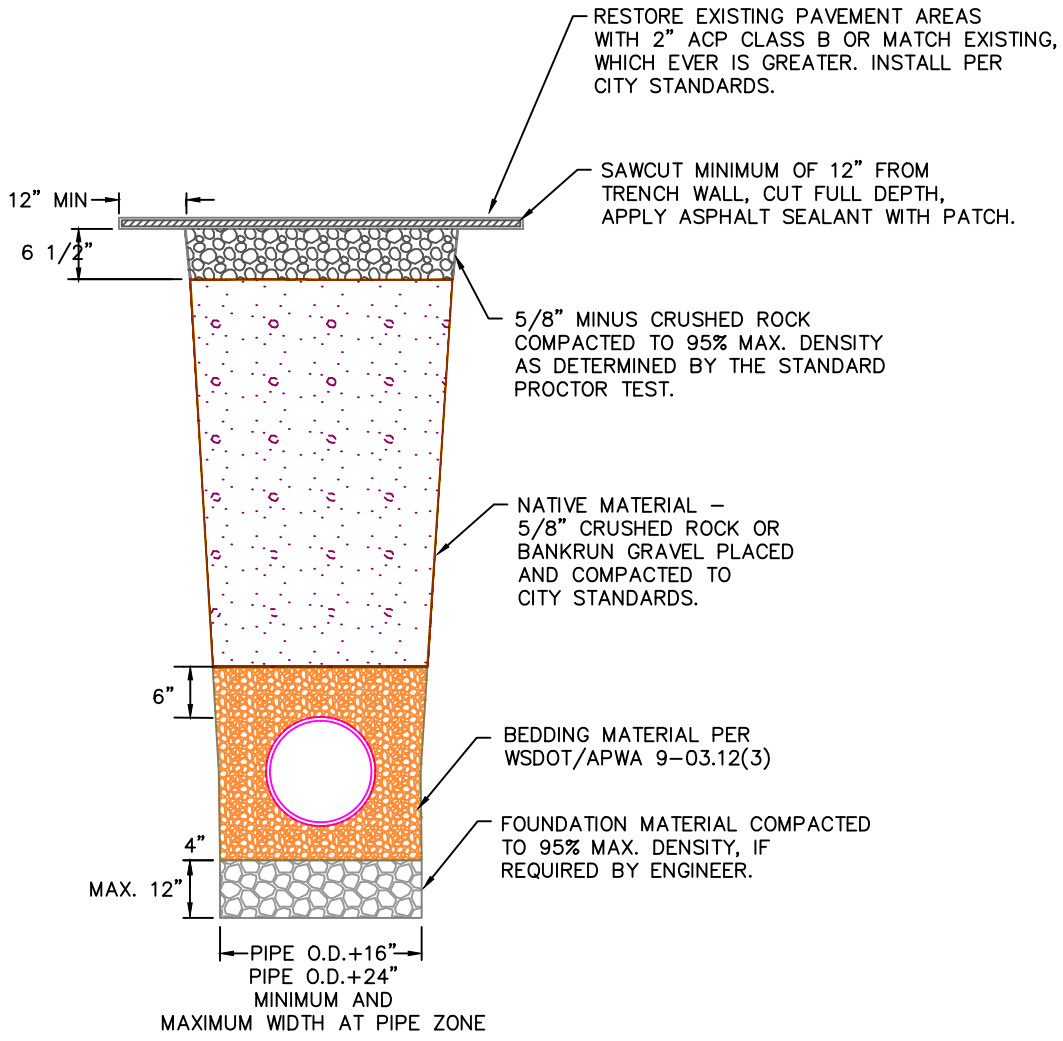
SEWER SYSTEM STANDARD DETAIL

TYPICAL TRENCH - RIGID PIPE

FILE:CA-SSDT1.DWG	REVISED: 5/15/2015	DETAIL NO.: SS01



TYPICAL TRENCH - FLEXIBLE PIPE

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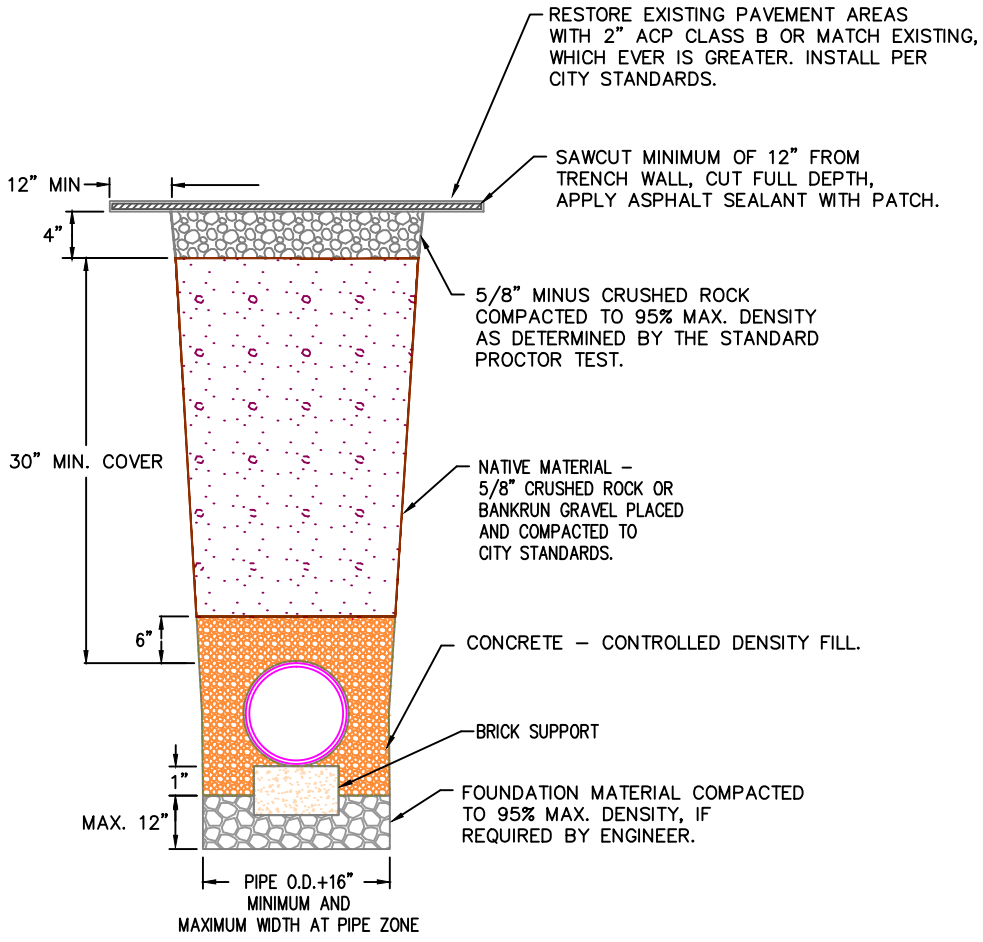
SEWER SYSTEM STANDARD DETAIL

TYPICAL TRENCH - FLEXIBLE PIPE

FILE:CA-SSDT2.DWG	REVISED: 5/15/2015	DETAIL NO.: SS02



TYPICAL TRENCH - CONCRETE ENCASED PIPE

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SEWER SYSTEM STANDARD DETAIL

TYPICAL TRENCH - CONCRETE ENCASED PIPE

FILE:CA-SSDT3.DWG	REVISED: 5/15/2015	DETAIL NO.: SS03

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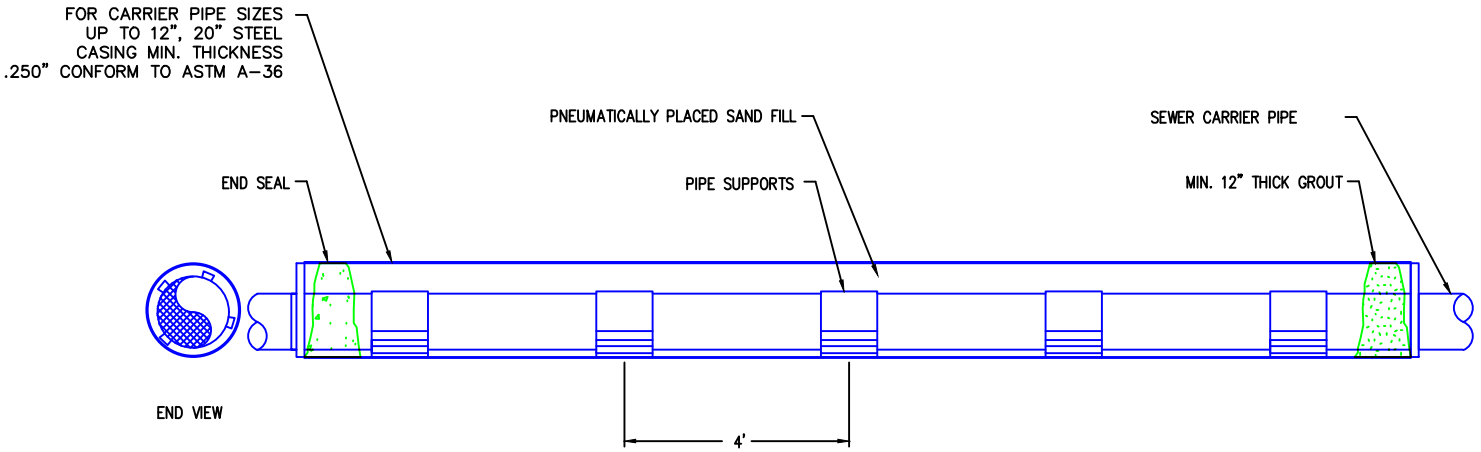
SEWER SYSTEM STANDARD DETAIL

TYPICAL BORING PROFILE

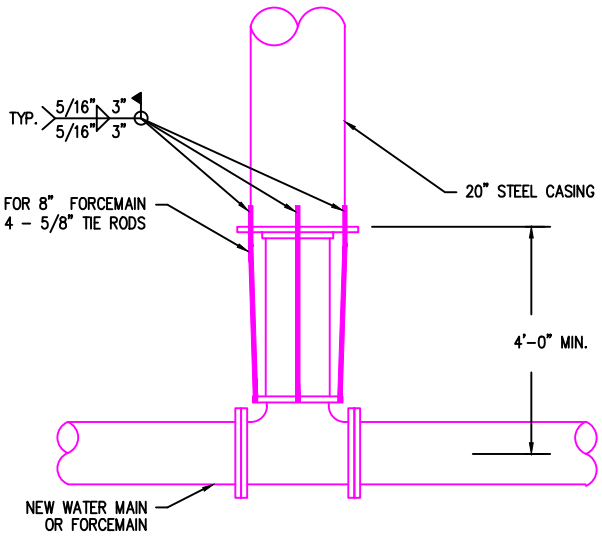
FILE:CA-SSDT4.DWG | REVISED: 5/15/2015 | DETAIL NO.: SS04



PIPE SUPPORTS FOR PVC AND DIP SEWER ARE CALPICO MODEL PX OR EQUIVALENT, SIZE SKID HEIGHT TO PREVENT PIPE BELL TO CASING HEIGHT.

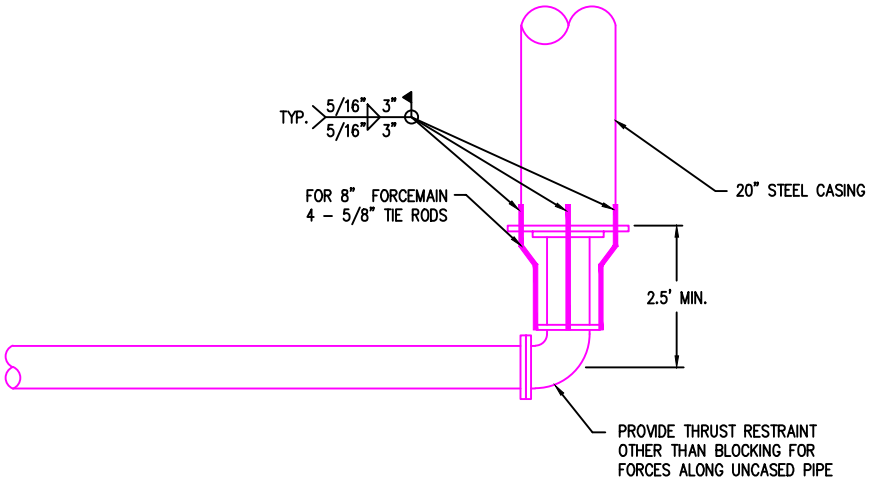
TYPICAL BORING PROFILE

NTS



BORE CASING
THRUST RESTRAINT-TEE

NTS



BORE CASING
THRUST RESTRAINT-90° BEND

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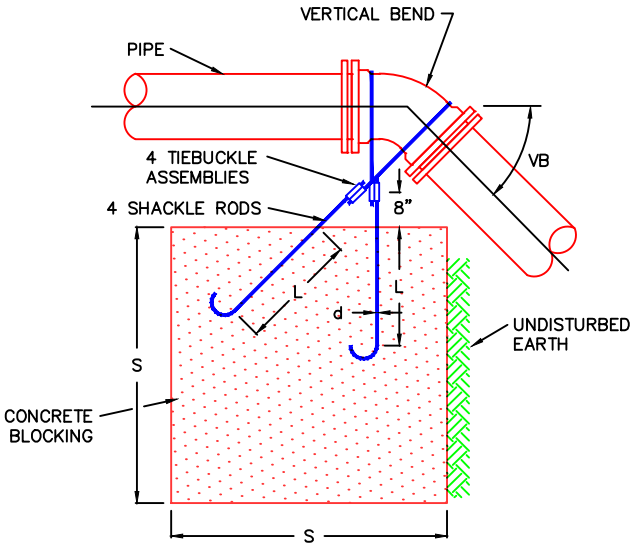
SEWER SYSTEM STANDARD DETAIL

BORE CASING FOR FORCEMAINS

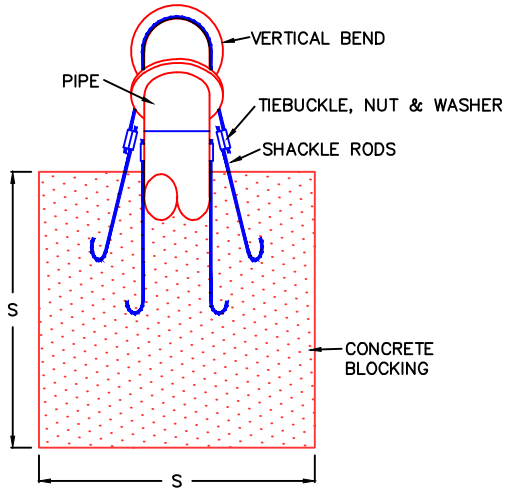
FILE:CA-SSDT5.DWG	REVISED: 5/15/2015	DETAIL NO.: SS05

VERTICAL THRUST BLOCKING FOR 11 1/4°, 22 1/2°, AND 45° BENDS							
		VB		S	d	L	
PIPE SIZE NOM. DIAMETER – INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	AMOUNT CONCRETE BLOCKING – CU FT	LENGTH OF SIDE FEET	SHAKLE ROD DIA. INCHES	DEPTH OF ROD IN CONCRETE INCHES	NUMBER OF TIE ROD SETS (2 EMBEDDED RODS PER SET)
3"	300	11 1/4	3.4	1.5	5/8	12"	2
		22 1/2	5.4	1.75	5/8	12"	2
		45	11.4	2.25	5/8	12"	2
4"	300	11 1/4	5.4	1.75	5/8	12"	2
		22 1/2	11.4	2.25	5/8	12"	2
		45	20.8	2.75	5/8	12"	2
6"	300	11 1/4	11.4	2.25	5/8	12"	2
		22 1/2	27.0	3.0	5/8	12"	2
		45	42.9	3.5	5/8	12"	2
8"	300	11 1/4	20.8	2.75	5/8	12"	2
		22 1/2	42.9	3.5	5/8	12"	2
		45	76.8	4.25	5/8	12"	2
10"	300	11 1/4	34.3	3.25	5/8	12"	2
		22 1/2	64.0	4.0	5/8	12"	2
		45	125	5.0	3/4	24"	2
12"	300	11 1/4	42.9	3.5	5/8	12"	2
		22 1/2	91.1	4.5	5/8	12"	2
		45	166	5.5	5/8	12"	4
14"	250	11 1/4	52.7	3.75	5/8	12"	2
		22 1/2	107	4.75	3/4	24"	2
		45	190	5.75	3/4	24"	4
16"	225	11 1/4	64.0	4.0	5/8	12"	2
		22 1/2	125	5.0	5/8	12"	4
		45	216	6.0	5/8	12"	6
18"	200	11 1/4	64.0	4.0	3/4	24"	2
		22 1/2	145	5.25	3/4	24"	4
		45	244	6.25	3/4	24"	6

NOTE: CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.



BLOCKING FOR VERTICAL BENDS



VERTICAL THRUST BLOCKING

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SEWER SYSTEM STANDARD DETAIL

VERTICAL THRUST BLOCKING FOR FORCEMAINS

FILE:CA-SSDT6.DWG	REVISED: 5/15/2015	DETAIL NO.: SS06

CONSTRAINTS

1. SOIL CONDITIONS AND BEARING CHARACTERISTICS ARE TO BE DETERMINED BY THE DISTRICT.
2. THIS STANDARD DETAIL IS FOR HORIZONTAL THRUST RESTRAINT ONLY.
3. CONCRETE BLOCKING SHALL BE PER APWA SPECIFICATION 7-11.3(13) 1984.
4. CONCRETE THRUST BLOCKING FOR FITTINGS LARGER THAN 16" SHALL BE AS SHOWN ON THE PROJECT PLANS.
5. MAINTAIN 18" MINIMUM GROUND COVER OVER THE TOP OF ALL CONCRETE BLOCKING.

PROCEDURE

1. DETERMINE BEARING FACTOR IN TABLE 1 CORRESPONDING TO APPROPRIATE PIPE SIZE AND TYPE OF FITTING.
2. MULTIPLY THE BEARING FACTOR DETERMINED IN TABLE 1 BY THE MULTIPLICATION FACTOR IN TABLE 2 FOR THE APPROPRIATE SOIL CLASSIFICATION.

   THE RESULT IS THE REQUIRED AREA OF CONCRETE (IN SQ. FT.) WHICH MUST BEAR AGAINST UNDISTURBED SOIL.
3. USING TABLE 3 LOCATE THE MINIMUM DEPTH OF CONCRETE (Dmin) CORRESPONDING TO THE REQUIRED BEARING AREA.
4. USING Dmin, THE HEIGHT AND LENGTH OF THE THRUST BLOCKING CAN BE DETERMINED FROM THE DIMENSION RELATIONSHIPS ILLUSTRATED IN FIGURE 1 AND DESCRIBED BELOW:

   A. "H" EQUALS "D"
   B. MAX. "L" EQUALS 2 X "H"
   C. MIN. "L" EQUALS "H"

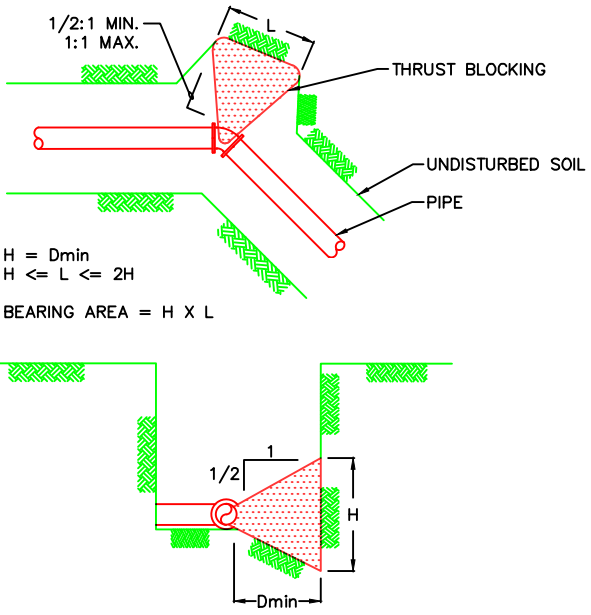
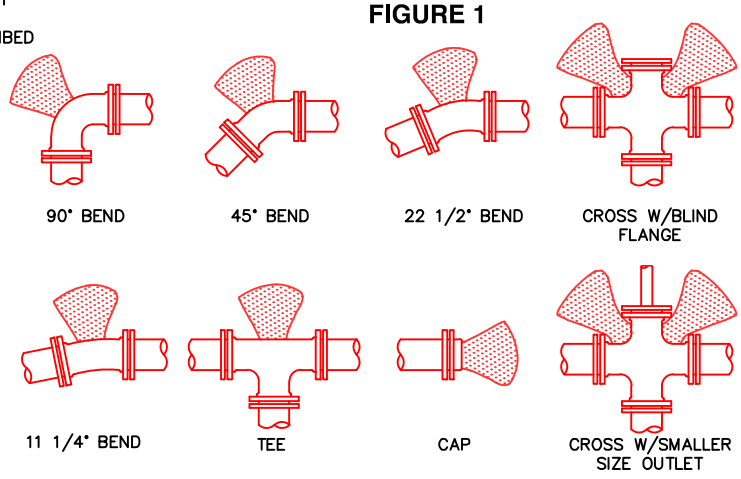


FIGURE 1

SIZE	TEST PRESSURE	TEES DEAD ENDS	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
3	300	2.25	2.25	2.25	2.25	2.25
4	300	2.25	2.25	2.25	2.25	2.25
6	300	2.83	4.00	2.25	2.25	2.25
8	300	5.00	7.11	3.85	2.25	2.25
10	300	7.86	11.11	6.00	3.06	2.25
12	300	11.31	16.00	8.66	4.41	2.25
14	250	12.83	18.14	9.82	5.00	2.51
16	225	15.08	21.33	11.54	5.88	2.96

* 2.25 BASED ON GEOMETRIC FACTORS

BEARING FACTOR
TABLE 1



SOIL CONDITION	MULTIPLICATION FACTOR
*MUCK, PEAT, etc.	–
SOFT CLAY	3.0
SAND	1.5
SAND AND GRAVEL	1.0
SAND AND GRAVEL CEMENTED W/ CLAY	0.75
HARD SHALE	0.30

* THRUST BLOCKING SHALL BE DESIGNED BY ENGINEER

MULTIPLICATION FACTOR
TABLE 2

REQ'D BEARING AREA (SQ. FT.)	MINIMUM DEPTH D_{MIN}
2.25 MIN.– 5.0	1.5'
5.01 – 10.0	2.25'
10.01 – 15.0	3.0'
15.01 – 30.0	4.0'
30.01 – 40.0	4.5'
40.01 – 50.0	5.0'
50.01 – 70.0	6.0'

BLOCK SHAPE
TABLE 3

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SEWER SYSTEM STANDARD DETAIL

HORIZONTAL THRUST BLOCKING FOR FORCEMAINS

FILE:CA-SSDT7.DWG	REVISED: 5/15/2015	DETAIL NO.: SS07

TIE ROD SELECTION TABLES

ASTM A242 (COR-TEN® OR EQUAL) STEEL

ROD DIAMETER: 5/8" OR (3/4")

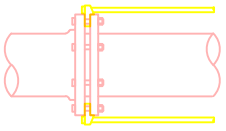
PIPE DIAMETER	NUMBER OF TIE RODS PER JOINT								MAXIMUM TIE ROD LENGTH, FEET							
	TEE DEAD END 90° BEND VALVE		45° BEND		22.5° BEND		11.25° BEND		TEE DEAD END 90° BEND VALVE		45° BEND		22.5° BEND		11.25° BEND	
3	2	–	2	–	2	–	2	–	100	--	100	--	100	--	100	--
4	2	(2)	2	(2)	2	(2)	2	(2)	100	(100)	100	(100)	100	(100)	100	(100)
6	2	(2)	2	(2)	2	(2)	2	(2)	60	(90)	80	(100)	100	(100)	100	(100)
8	3	(2)	2	(2)	2	(2)	2	(2)	50	(50)	50	(70)	90	(100)	100	(100)
10	4	(4)	4	(2)	2	(2)	2	(2)	40	(60)	60	(50)	60	(80)	100	(100)
12	6	(4)	4	(4)	2	(2)	2	(2)	60	(60)	60	(80)	50	(80)	100	(100)
14	8	(6)	6	(4)	4	(2)	2	(2)	60	(70)	60	(60)	80	(60)	80	(100)
16	10	(6)	8	(6)	4	(3)	2	(2)	60	(50)	60	(70)	60	(70)	60	(90)
18	12	(8)	8	(6)	6	(3)	3	(2)	50	(50)	50	(60)	70	(50)	70	(70)

ASTM A36 STEEL

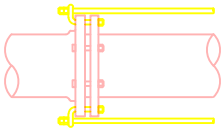
ROD DIAMETER: 5/8" OR (3/4")

3	2	–	2	–	2	–	2	–	100	--	100	--	100	--	100	--
4	2	(2)	2	(2)	2	(2)	2	(2)	100	(100)	100	(100)	100	(100)	100	(100)
6	2	(2)	2	(2)	2	(2)	2	(2)	60	(90)	80	(100)	100	(100)	100	(100)
8	3	(2)	3	(2)	2	(2)	2	(2)	50	(50)	70	(70)	90	(100)	100	(100)
10	6	(4)	4	(4)	2	(2)	2	(2)	70	(60)	60	(90)	60	(80)	100	(100)
12	8	(6)	6	(4)	4	(2)	2	(2)	80	(90)	80	(80)	100	(80)	100	(100)
14	10	(8)	8	(6)	4	(4)	2	(2)	70	(90)	80	(90)	80	(100)	80	(100)
16	12	(10)	10	(6)	4	(4)	3	(2)	70	(80)	80	(70)	90	(90)	90	(90)
18	–	(12)	12	(8)	6	(4)	3	(2)	--	(80)	80	(80)	70	(70)	70	(70)

APPROVED ATTACHMENTS



"DUC–LUG"
STELLAR CORPORATION OR EQUAL

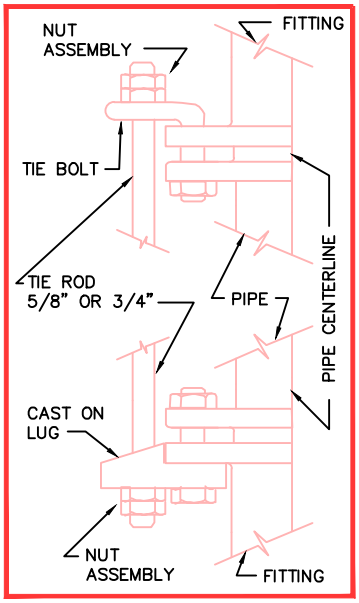


TIE BOLT
STAR SUPPLY CORPORATION OR EQUAL

GENERAL NOTES

1) TIE RODS SHALL BE GALVANIZED "ALL THREAD" ROD OF EITHER ASTM A242 OR A36 STEEL.
2) TIE RODS SHALL HAVE "NATIONAL–COARSE" THREAD WITH EITHER TWO NUTS OR ONE SELF–LOCKING NUT AT EACH END. (ALL NUTS SHALL BE GALVANIZED)
3) NUMBER OF TIE RODS PER JOINT SHALL BE IN ACCORDANCE WITH TIE ROD SELECTION TABLES ABOVE UNLESS OTHERWISE SHOWN ON APPROVED DESIGN PLANS.
4) TIE ROD ASSEMBLY SHALL BE COATED WITH 2 COATS OF COAL TAR EPOXY (16 MIL MINIMUM DRY FILM THICKNESS).
5) TIE RODS SHALL BE ASSEMBLED SYMETRICALLY ABOUT EACH JOINT (IF AN EVEN NUMBER OF RODS ARE USED THEN EACH ROD SHALL HAVE A ROD LOCATED ON THE DIRECT OPPOSITE SIDE OF JOINT. IF 3 OR 6 RODS ARE USED THEN AN EQUAL NUMBER OF UNSHAKLED BOLT HOLES SHALL BE LEFT BETWEEN ANY TWO TIE RODS.)
6) TIE ROD NUTS SHALL BE TIGHTENED UNIFORMLY AT EACH JOINT PRIOR TO COATING.
7) TIE ROD LENGTHS SHALL NOT EXCEED THOSE LISTED IN ABOVE TABLES, UNLESS SPECIFICALLY SHOWN ON APPROVED PLANS.
8) TIE ROD COUPLINGS SHALL BE GALVANIVED "STAR NATIONAL PRODUCTS TIECOUPLING" OR EQUAL.
9) TIE RODS SHALL BE ATTACHED TO JOINTS WITH TIE BOLTS, EXCEPT FOR FIRE HYDRANT INSTALLATIONS WHICH SHALL USE EITHER TIE BOLTS OR GALVANIZED CAST ON LUGS. TIE BOLTS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIEBOLT" OR EQUAL.
10) 20" FITTINGS AND LARGER SHALL HAVE TIE ROD DESIGN INCLUDED ON DESIGN PLANS.

ATTACHMENT DETAIL



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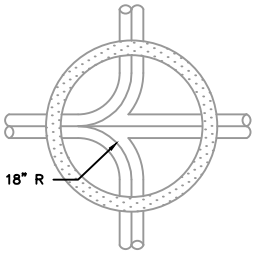
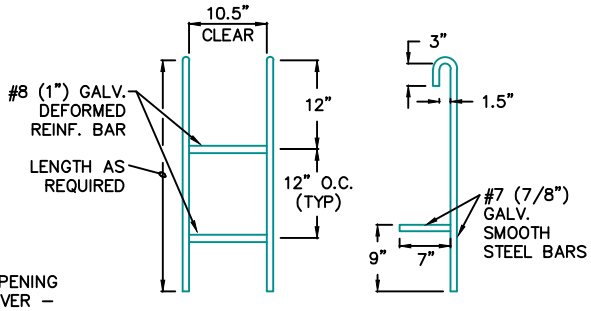
SEWER SYSTEM STANDARD DETAIL

TIE ROD DETAILS FOR FORCEMAINS

FILE:CA–SSDT8.DWG	REVISED: 5/15/2015	DETAIL NO.: SS08



PLAN



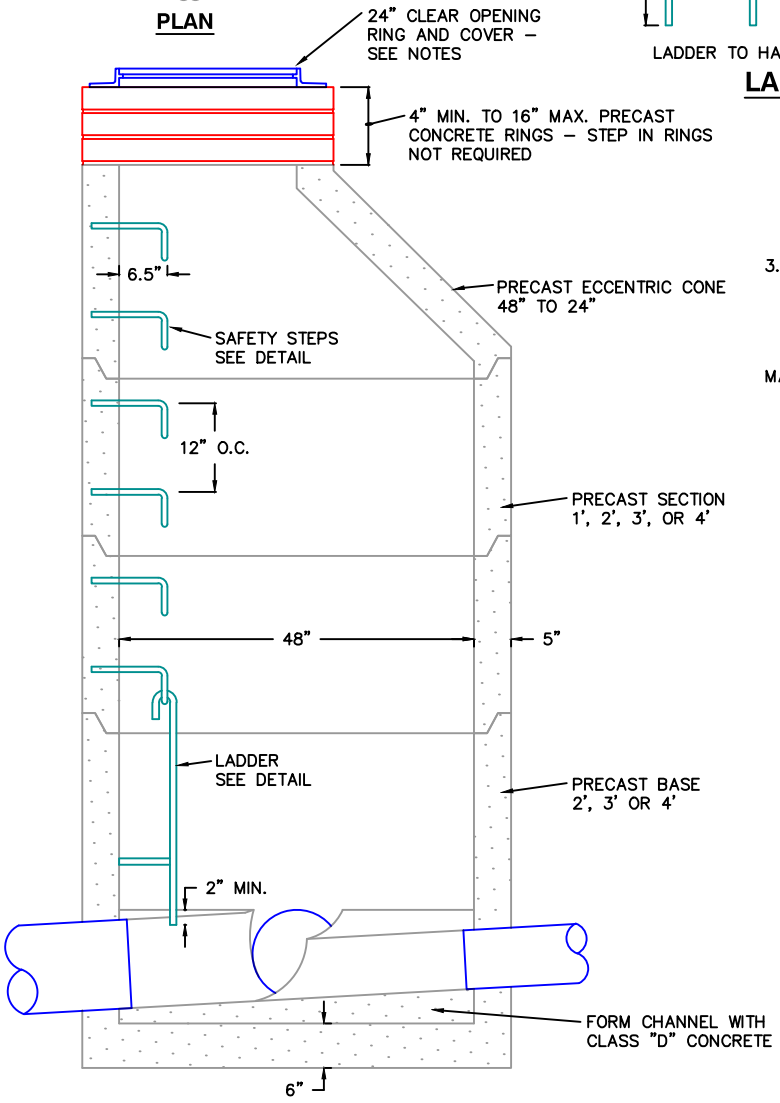
LADDER TO HANG FROM A STEP

LADDER

NOTE: DEFORMED BAR SHALL CONFORM TO ASTM A15. GALVANIZING SHALL CONFORM TO ASTM A123.

SAFETY STEP

#8 GALVANIZED DEFORMED REINFORCING BAR



48" STANDARD MANHOLE

MANHOLE GENERAL NOTES:

1. IN UNIMPROVED AREAS AND EASEMENTS, MANHOLE SHALL EXTEND A MINIMUM OF 6" AND A MAX. OF 18" ABOVE FINISHED GRADE. RING AND COVER SHALL BE AS SPECIFIED BELOW AND SHALL HAVE 3 RECESSED 5/8" IINC X 1–1/4" STAINLESS STEEL SOCKET HEAD CAP SCREWS FOR LOCKING.
2. MANHOLE RING AND COVER SHALL HAVE 24" CLEAR OPENING AND BE EQUAL TO OLYMPIC FOUNDRY CO. NO. MH30, WITH A CAST IN HAND HOLE COVER. WORDING ON COVER SHALL BE "SEWER" FOR SANITARY SEWER, AND "DRAIN" FOR STORM DRAIN.
3. MANHOLE SHOWN IS 48" INSIDE DIAMETER, 5" WALL THICKNESS. MAX. PIPE SIZE FOR THE 48" MANHOLE IS 21".

   54" INSIDE DIAMETER MANHOLE SHALL BE THE SAME AS THE 48" I.D. MANHOLE SHOWN EXCEPT THAT THE WALL THICKNESS SHALL BE 5 1/2" AND THE MANHOLE WALL SHALL HAVE NOT LESS THAN 0.12 SQ. IN. PER LINEAL FT. CIRCUMFERENTIAL DEFORMED REINFORCING STEEL. MAX. PIPE SIZE FOR THE 54" MANHOLE IS 36". ALL PRECAST SECTIONS SHALL CONFORM TO ASTM C–478.
4. ALL HOLES FOR INLET AND OUTLET PIPE SHALL BE BLOCKED OUT WHEN SECTIONS ARE CAST.
5. ALL MANHOLE JOINTS SHALL USE A CONFINED ROUND RUBBER GASKET MEETING ASTM C–443 SPECIFICATIONS.
6. ALL PVC PIPE THROUGH MANHOLE WALL SHALL HAVE A PVC MANHOLE ADAPTER EQUAL TO A GPK MANHOLE ADAPTER OR ROMAC STYLE LCT MEETING ASTA D 2000 3 BA 715 SPECIFICATIONS AT CENTER OF WALL THICKNESS. PIPE SHALL BE GROUTED INTO PLACE FROM EACH SIDE.

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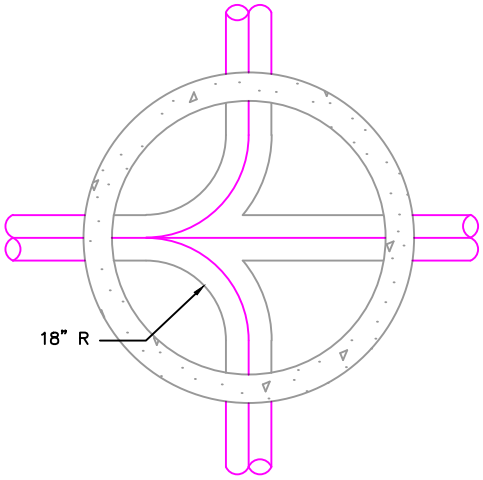
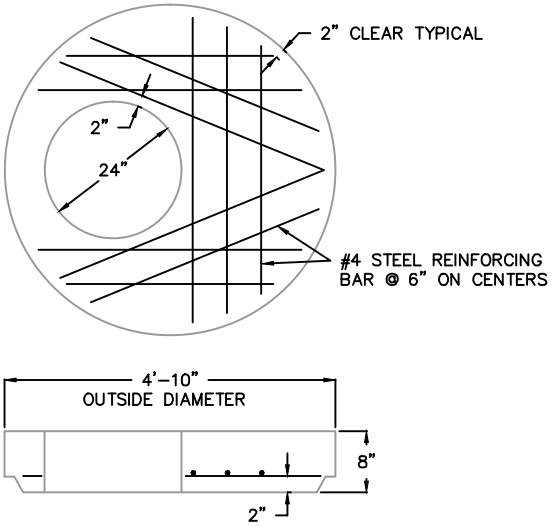
SEWER SYSTEM STANDARD DETAIL

48" STANDARD MANHOLE

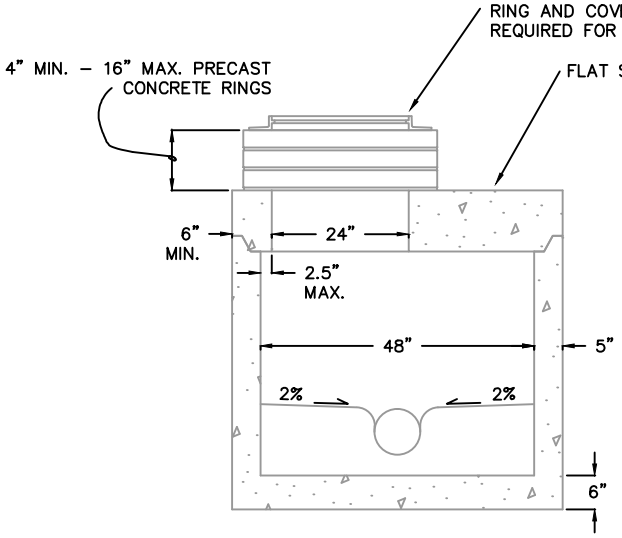
FILE:CA–SSDT9.DWG	REVISED: 5/15/2015	DETAIL NO.: SS09



PLAN

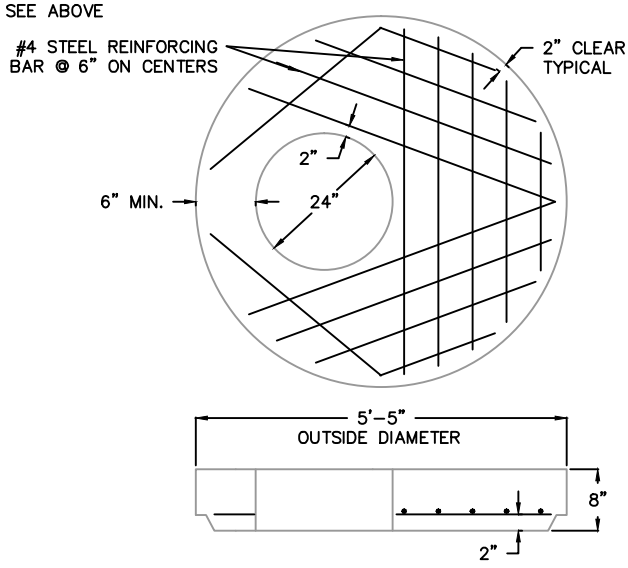


FLAT SLAB FOR 48" MANHOLE



SHORT MANHOLE

LESS THAN 6'-0" DEEP



FLAT SLAB FOR 54" MANHOLE

NOTE: SEE "MANHOLE GENERAL NOTES" FROM STANDARD MANHOLE DETAIL

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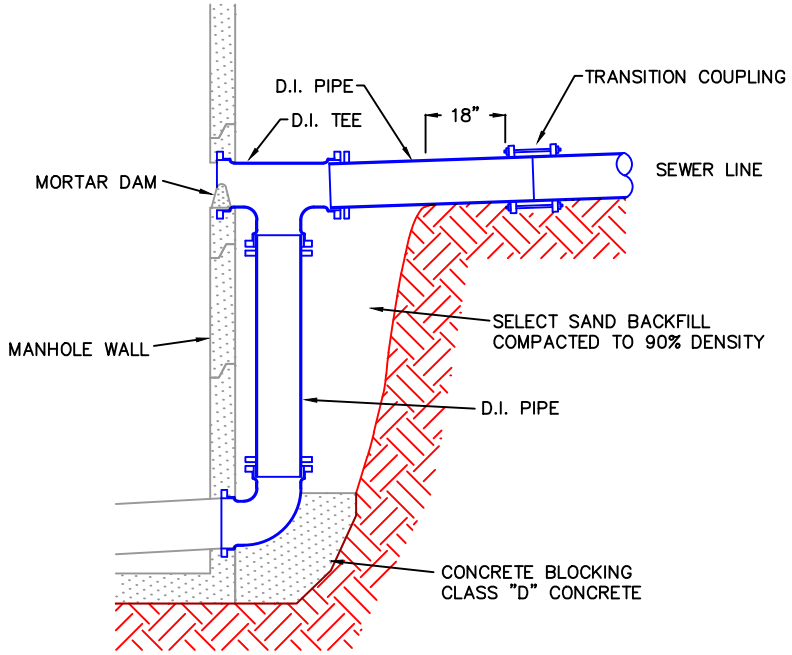
509 782-3513
Fax 509 782-2840

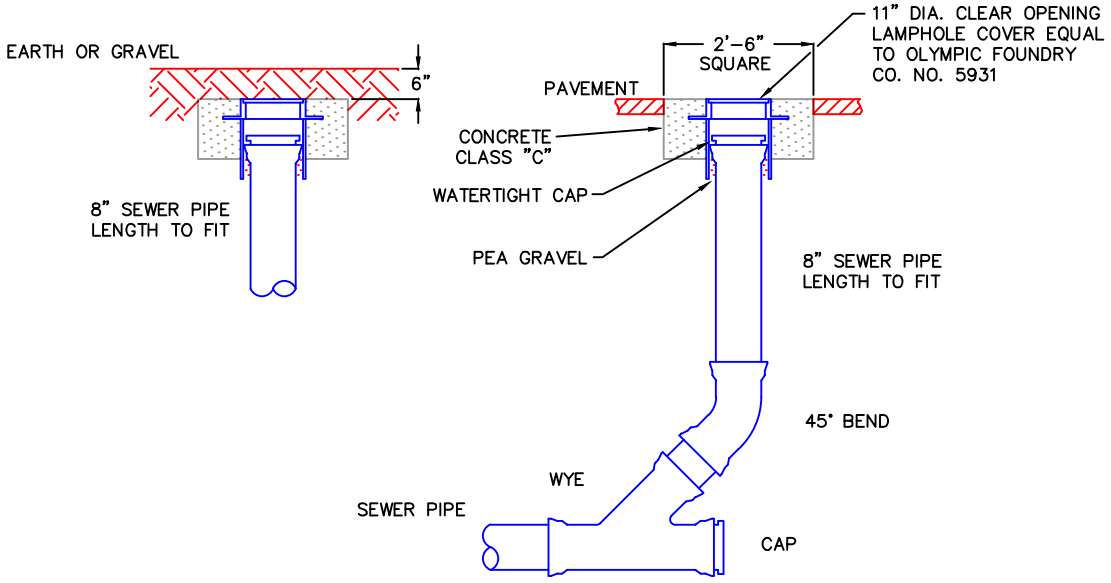
SEWER SYSTEM STANDARD DETAIL

SHORT MANHOLE

FILE:CA-SSDT10.DWG	REVISED: 5/15/2015	DETAIL NO.: SS10



DROP STRUCTURE



CLEANOUT

City of Cashmere
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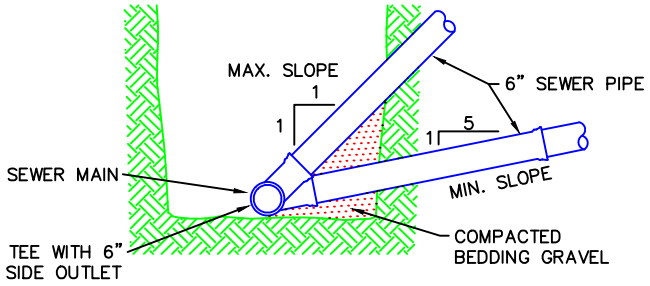
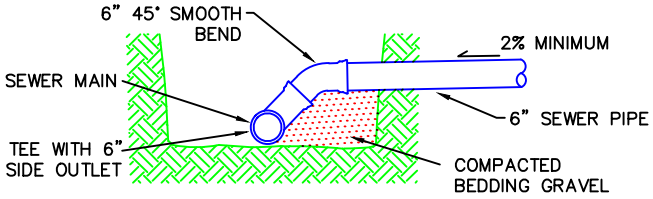
509 782-3513
Fax 509 782-2840

SEWER SYSTEM STANDARD DETAIL

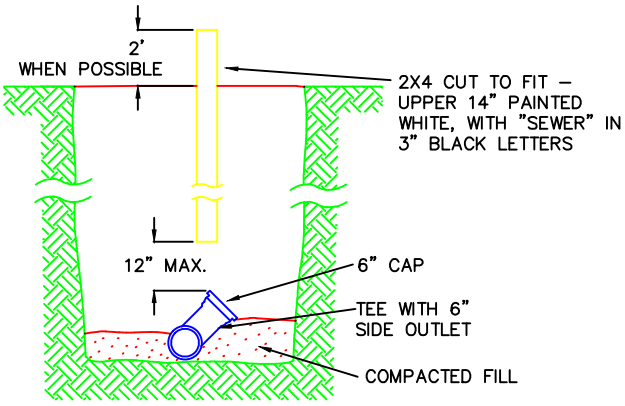
DROP STRUCTURE AND CLEANOUT

FILE:CA-SSDT11.DWG	REVISED: 5/15/2015	DETAIL NO.: SS11

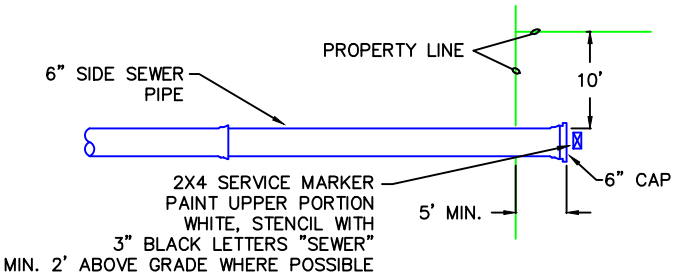




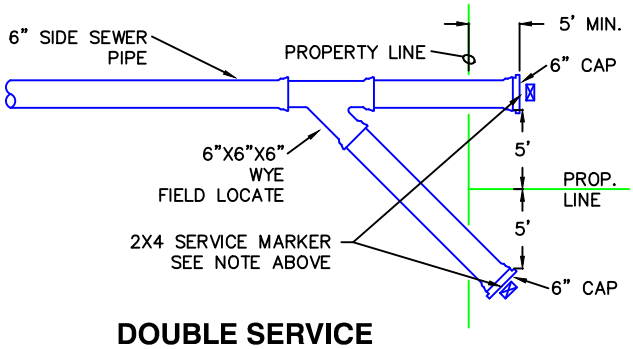
CONNECTION AT SEWER MAIN



CAPPED TEE AT SEWER MAIN



SINGLE SERVICE



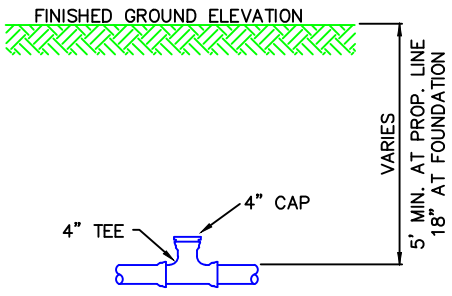
DOUBLE SERVICE

NOTES:

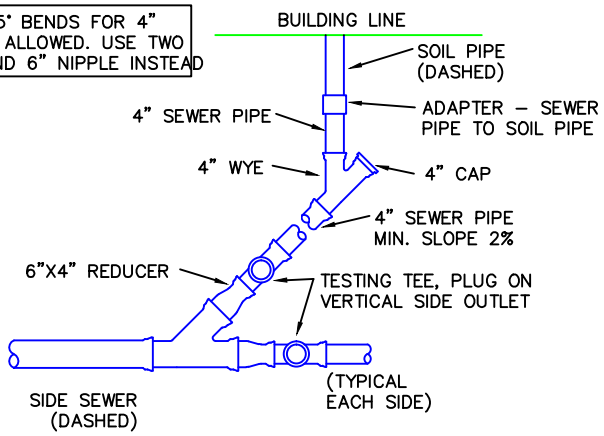
1. WHERE SIDE SEWER CONNECTS TO MANHOLE, INVERT OF SIDE SEWER SHALL BE EQUAL TO OR ABOVE MAIN SEWER CROWN, BUT SHALL NOT EXCEED 18" ABOVE INVERT OF SEWER MAIN.
2. UNLESS OTHERWISE INDICATED ON THE PLANS, SIDE SEWER SHALL BE A MINIMUM OF FIVE (5) FEET DEEP AT THE PROPERTY LINE, OR A MINIMUM OF 4.5 FEET LOWER THAN THE LOWEST HOUSE ELEVATION, WHICHEVER IS LOWER.

SIDE SEWER

NOTE: USE OF 45° BENDS FOR 4" SIDE SEWERS NOT ALLOWED. USE TWO 22 1/2° BENDS AND 6" NIPPLE INSTEAD



TESTING TEE - ELEVATION



BUILDING CONNECTION PLAN

HOUSE SEWER

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101 Woodring St
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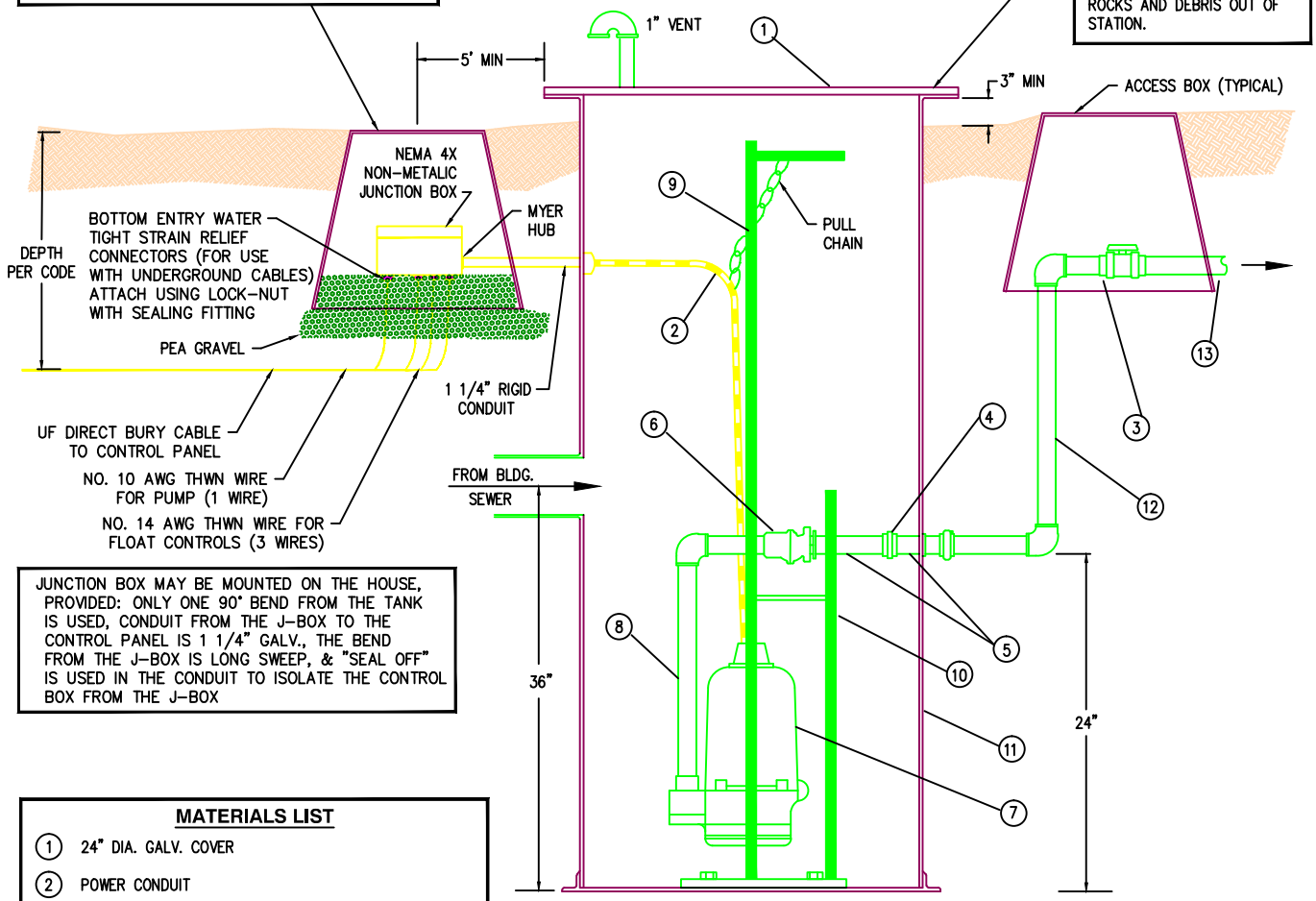
SEWER SYSTEM STANDARD DETAIL

SIDE SEWER AND HOUSE SEWER

FILE:CA-SSDT12.DWG	REVISED: 5/15/2015	DETAIL NO.: SS12

ACCESS BOX:
NON-TRAFFIC AREAS - EQUAL TO CARSON MODEL 1419-14B, WITH 1419-2B COVER
TRAFFIC AREAS - H-20 RATED CONCRETE BOX EQUAL TO FOGTITE B9 1/2 METER BOX
LIDS SHALL BE MARKED ELECTRICAL OR SEWER RESPECTIVELY OR HAVE NO MARKINGS AT ALL

NOTE:
TOP CAN BE SET FLUSH WITH GROUND, IF A CONCRETE PAD IS POURED AROUND THE LIFT STATION AND SLOPE AWAY FROM THE STATION. KEEP ROCKS AND DEBRIS OUT OF STATION.



JUNCTION BOX MAY BE MOUNTED ON THE HOUSE, PROVIDED: ONLY ONE 90° BEND FROM THE TANK IS USED, CONDUIT FROM THE J-BOX TO THE CONTROL PANEL IS 1 1/4" GALV., THE BEND FROM THE J-BOX IS LONG SWEEP, & "SEAL OFF" IS USED IN THE CONDUIT TO ISOLATE THE CONTROL BOX FROM THE J-BOX

MATERIALS LIST

1. 24" DIA. GALV. COVER
2. POWER CONDUIT
3. 1 1/4" PVC TRUE UNION BALL VALVE (SS) HAYWARD OR EQUAL
4. 1 1/4" GALV. UNION
5. 1 1/4" GALV. NIPPLES
6. CHECK VALVE & PUMP DISCONNECT HYDROMATIC OR EQUAL
7. 2 HP GRINDER PUMP - SEE NOTES
8. 1 1/4 GALVENIZED PIPING, APPROX. 1.2' LENGTH
9. HOT DIPPED GALVENIZED STEEL RAIL GUIDE SYSTEM
10. HOT DIPPED GALVANIZED PUMP TECH SHORT RAIL
11. 24" x 60" FIBERGLASS TANK
12. 1 1/4" PVC OR PE
13. 1 1/4" PE DISCHARGE PIPE TO SERVICE CONNECTION

NOT SHOWN FOR CLARITY: CONTROL FLOATS, SEE NOTES

1. PKG. GRINDER LIFT STA. SHALL BE E/ONE
2. PACKAGE STATION TO INCLUDE THE FOLLOWING ITEMS:
   - SEWAGE GRINDER PUMP
   - PACKAGE CONTROL SYSTEM FOR CONSISTING OF: CONTROL PANEL AND 3 MERCURY LEVEL FLOAT SWITCHES. ALL ELECTRICAL WORK SHALL BE COMPLETED AND READY FOR HOOKUP TO OWNER SUPPLIED POWER. ALL J BOXES, AND CONTROL ENCLOSURES SHALL BE NEMA 4X.
   - FILAMENT WOUND 24"x 60" FIBERGLASS BASIN WITH #11 GAUGE GALV. STEEL COVER, VENT AND SUPPLIED WITH STAINLESS STEEL HOLD-DOWN BOLTS.
   - PUMP GUIDE RAIL SYSTEM FOR REMOVAL OF PUMP UNIT. ALL EXPOSED SURFACES ON GUIDE RAIL SYSTEM SHALL BE HOT DIPPED GALV. STEEL COATED INCLUDING LIFTING CHAIN.
   - VALVES AND PIPING CONSISTING OF 1 1/4" HYDROMATIC BALL CHECK VALVE W/HYDRAULICALLY SEALED DISCHARGE FLANGE.
3. THE SYSTEM SHALL OPERATE BY THREE CONTROL FLOATS. ON SUMP LEVEL RISE, THE FIRST FLOAT SHALL BE ACTIVATED BUT WILL NOT TURN ON THE PUMP. AS THE LEVEL CONTINUES TO RISE, THE SECOND FLOAT WILL BE ACTIVATED AND WILL START THE PUMP SEQUENCE. WHEN THE LEVEL FALLS TO THE FIRST FLOAT, THE PUMP WILL TURN OFF. IF THE LEVEL CONTINUES TO RISE ABOVE THE SECOND FLOAT, THE THIRD FLOAT SHALL BE ACTIVATED, ENERGIZING THE AUDIO AND VISUAL ALARMS.
4. THE PACKAGE SYSTEM SHALL MEET THE REQUIREMENTS OF THE DEPT. OF L&I, ELECT. INSPECTION DIVISION FOR RESIDENTIAL, GRINDER PUMP SYSTEMS.
5. OWNER SUPPLIED ELECTRICAL SERVICE:
230 VOLT SINGLE PHASE POWER WITH A 30 AMP BREAKER FOR THE PUMP, AND 110 VOLT ELECTRICAL POWER WITH A 20 AMP BREAKER FOR THE ALARM SYSTEM. MOUNT 40" - 60" ABOVE GRADE, AND PROTECT AGAINST SPLASHING WATER FROM THE HOUSE GUTTER OR EAVE.

GRINDER PUMP LIFT STATION

City of Cashmere
101 Woodring St
509 782-3513
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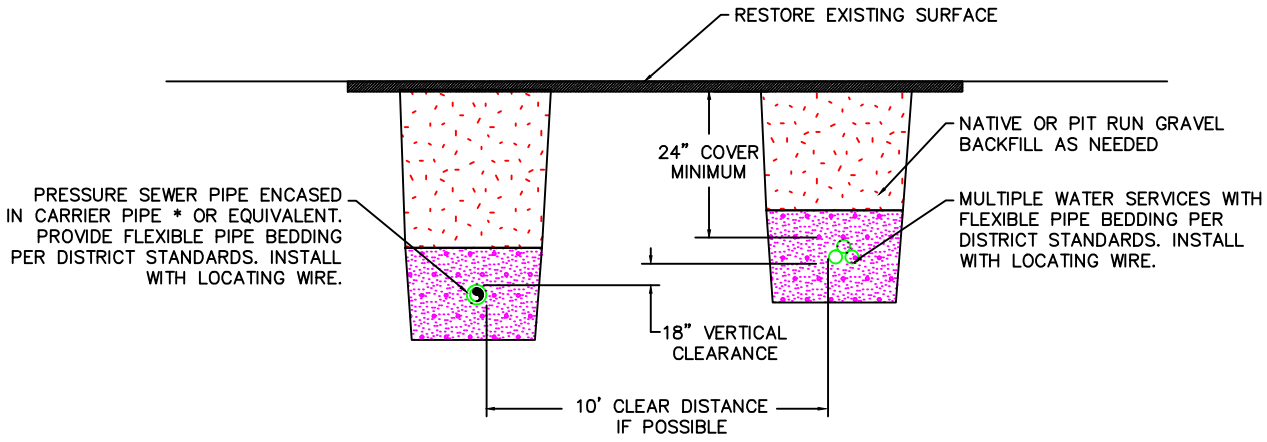
SEWER SYSTEM STANDARD DETAIL

GRINDER PUMP LIFT STATION

FILE:CA-SSDT13.DWG	REVISED: 5/15/2015	DETAIL NO.: SS13



*WHERE THIS DISTANCE EXCEEDS TEN FEET, THE PRESSURE SEWER MAY BE INSTALLED WITHOUT ENCASEMENT PROVIDED THAT THE PIPE BEDDING IS UPGRADED TO THAT FOR FLEXIBLE PIPE. HOWEVER, WHEREVER A SEWER OR WATER SERVICE CROSSING REDUCES THE CLEAR DISTANCE TO LESS THAN TEN FEET CONTINUOUS ENCASEMENT IN THE SERVICE PIPE WILL BE REQUIRED PER DEPARTMENT OF ECOLOGY REQUIREMENTS.

TYPICAL PRESSURE SEWER SERVICE TRENCH SECTION

City of Cashmere
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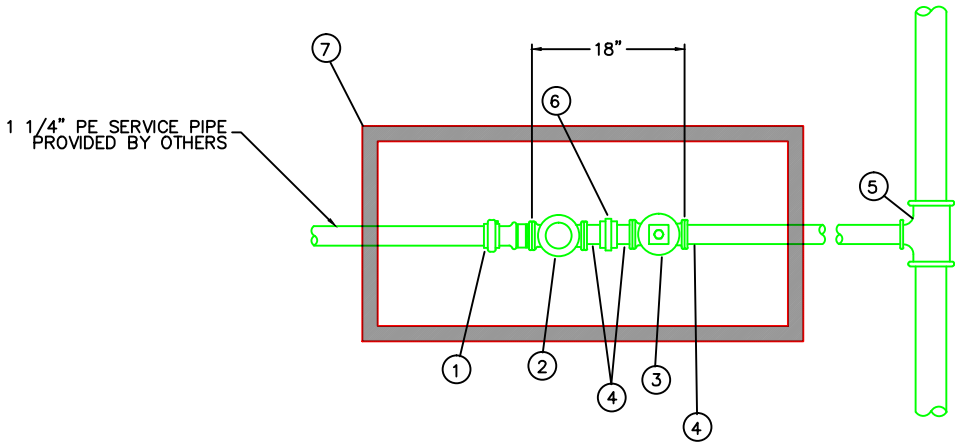
SEWER SYSTEM STANDARD DETAIL

TYPICAL PRESSURE SEWER SERVICE TRENCH SECTION

FILE:CA-SSDT14.DWG	REVISED: 5/15/2015	DETAIL NO.: SS14

MATERIALS LIST

1. 1 1/4" MIPT x PVC JOINT COUPLING
2. 1 1/4" BALL CHECK VALVE (SCREW)
3. 1 1/4" TRUE UNION BALL VALVE (SCREW) HAYWARD OR EQUAL
4. 1 1/4" PVC NIPPLES (3EA)
5. 2 x 1 1/4" PVC TEE
6. 1 1/4" PVC COUPLING
7. FOG TITE NO. 2 METER BOX OR EQUAL



PRESSURE SEWER SERVICE CONNECTION

NOTE: ENCASEMENT PIPE NOT SHOWN, PROVIDE AS REQUIRED BY D.O.E. GUIDELINES

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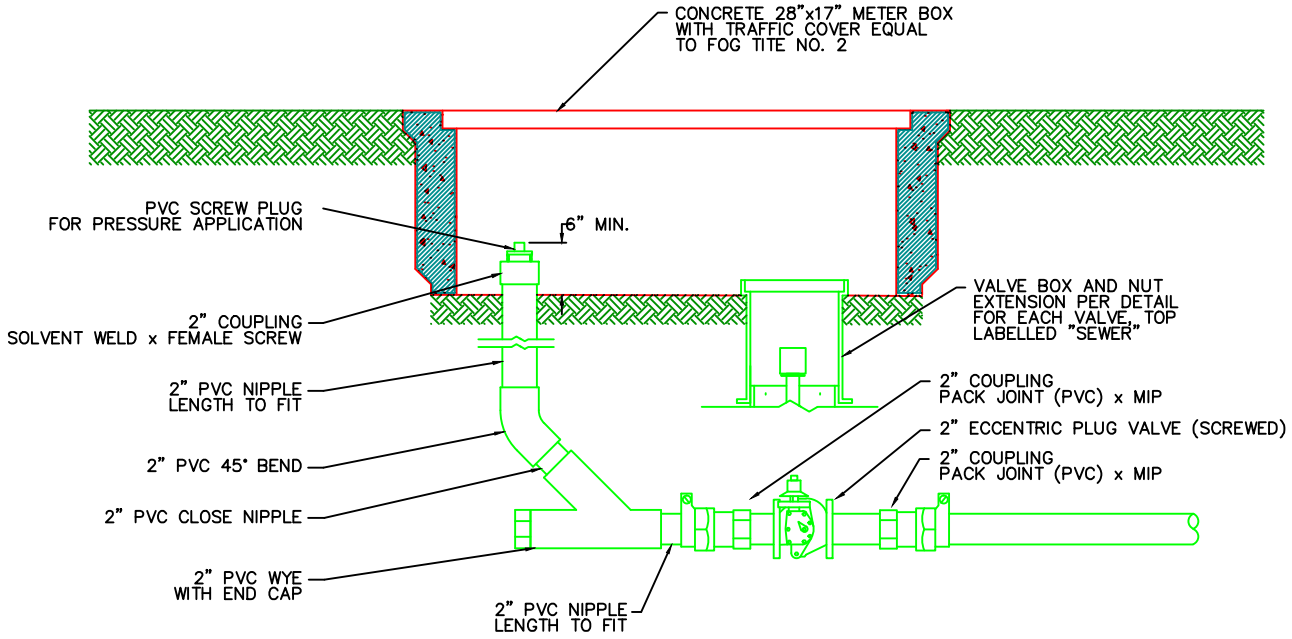
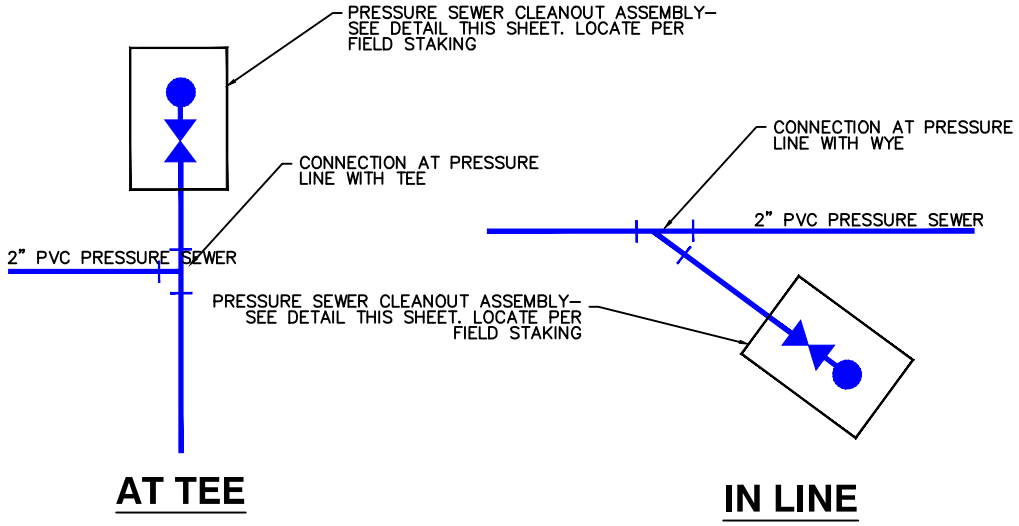
SEWER SYSTEM STANDARD DETAIL

PRESSURIZED SEWER SERVICE CONNECTION

FILE:CA-SSDT15.DWG	REVISED: 5/15/2015	DETAIL NO.: SS15



2" CLEANOUT AND VALVE ASSEMBLY ELEVATION



PRESSURE SEWER CLEANOUT-PLAN

City of Cashmere
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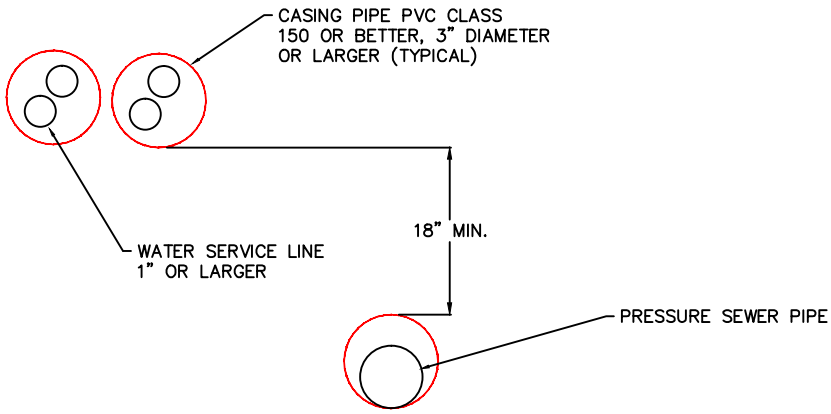
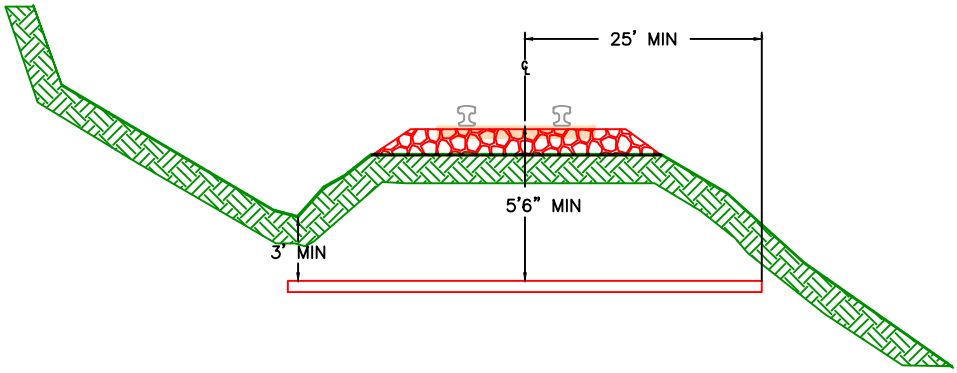
SEWER SYSTEM STANDARD DETAIL

2" PRESSURE CLEANOUT

FILE:CA-SSDT16.DWG	REVISED: 5/15/2015	DETAIL NO.: SS16



CROSS-SECTION OF CASING UNDER RAIL ROAD TRACKS



PIPE LINES SHALL BE INSTALLED UNDER TRACKS BY BORING OR JACKING IF PRACTICALBE. BORING EXCAVATION SHALL NOT EXCEED OUTSIDE DIAMETER OF PIPE.

PIPE LINES SHALL BE LOCATED PREFERABLY AT RIGHT ANGLES TO THE TRACK, BUT NOT LESS THAN 45°. THE LINE(S) SHALL NOT BE PLACED WITHIN CULVERTS, UNDER RAILWAY BRIDGES OR CLOSER THAN 45' TO ANY PORTION OF A RAILWAY BRIDGE.

PIPE LINES LAID LONGITUDINALLY ON THE RAIL ROAD RIGHT OF WAY SHALL BE BURIED NOT LESS THAN 5' FROM THE GROUND SURFACE TO TOP OF PIPE.

PIPE LINES CARRYING NON-FLAMMABLE SUBSTANCES INCLUDES WATER OR ANY OTHER SUBSTANCE THAT MIGHT CAUSE DAMAGE IF ESCAPING ON OR IN THE VICINITY OF RAIL WAY PROPERTY. SEWERS AND DRAINS DO NOT REQUIRE CASING PIPE UNLESS CONDITIONS EXIST WHICH WILL ENDANGER SECURITY OF THE TRACK, BUT SHOULD BE OF SUFFICIENT STRENGTH TO HANDLE E-80 RAILWAY LOADING.

INSIDE DIAMTER OF CASING PIPE SHALL EXCEED OUTSIDE DIAMETER OF CARRIER PIPE JOINTS OR COUPLINGS BY 2" FOR CARRIER PIPE LESS THAN 6" IN DIAMETER, AND 4" FOR CARRIER PIPE OVER 6" IN DIAMETER.

MINIMUM WALL THICKNESS OF STEEL CARRIER PIPE LESS THAN 14" DIAMETER IS 0.188 INCHES, AND MUST HAVE A MINIMUM YIELD STRESS OF 35,000 PSI.

CONSTRUCTION OF PIPE LINES ON RAIL WAY RIGHT OF WAY

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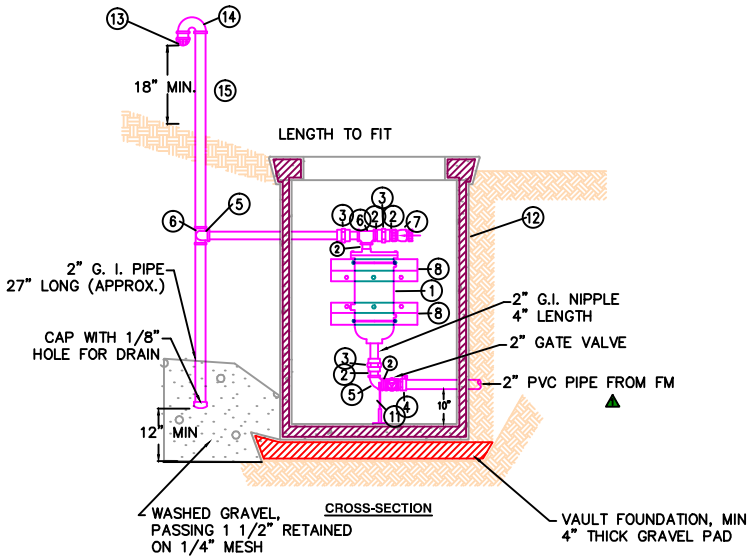
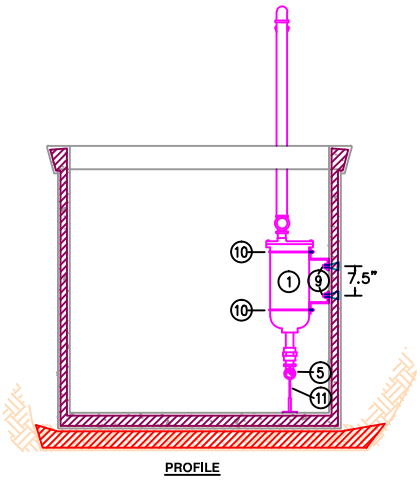
SEWER SYSTEM STANDARD DETAIL

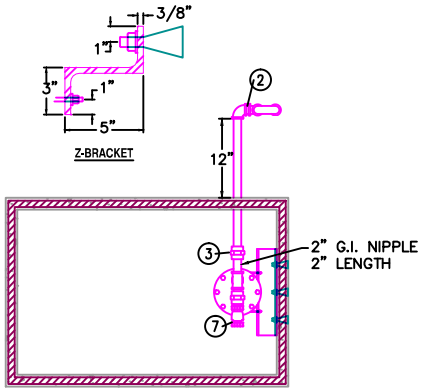
CONSTRUCTION OF PIPE LINES ON RAILWAY RIGHT-OF-WAY

FILE:CA-SSDT17.DWG	REVISED: 5/15/2015	DETAIL NO.: SS17





SEWAGE AIR-VACUUM ASSEMBLY



NOTE:
PIPING FROM FORCEMAIN NOT SHOWN THIS VIEW FOR CLARITY.

PAINTING SCHEDULE

CONCRETE EXTERIORS BELOW GRADE
SURFACE SHALL BE CLEAN AND DRY. PAINT WITH TWO COATS OF TNEMEC PRIMER SERIES 46-465 COAL TAR SOLUTION (OR EQUAL) 8.0 TO 10.0 MILS DFT.

CONCRETE INTERIORS
WALLS AND CEILINGS – TWO (2) COATS OF ICI DEVOE 4308-1000 WHITE
FLOORS – NONE.

METAL (EXCEPT FACTORY FINISH PAINTED EQUIPMENT)
ONE (1) SHOP COAT OF ICI DEVOE RUST BLOCK, 4100-7100 RED METAL PRIMER
TWO (2) COATS ICI DEVOE GROTTO BLUE D-104

MATERIAL LIST

ITEM	DESCRIPTION	QUANTITY
①	2" APCO MODEL No. 445 SEWAGE COMBINATION AIR RELEASE & AIR VACUUM VALVE ASSEMBLY (WITH SHUTOFF VALVE & BACKFLUSHING ATTACHMENTS)	1
②	2" G.I. CLOSE NIPPLES	6
③	2" UNIONS	3
④	PACK JOINT COUPLING (PExNPT) FORD MODEL No. C86-77(125) OR EQUAL	3
⑤	2" G.I. 90 BEND	2
⑥	2" G.I. TEE	2
⑦	2" SWING CHECK VALVE	1
⑧	Z-BRACKET (5" WEB, 3" FLANGE 3/8" THICKNESS x 1'-10" LENGTH)	2
⑨	1/4" EXPANSION BOLTS	6

ITEM	DESCRIPTION	QUANTITY
⑩	1/4" U-BOLT (4-7/8" RADIUS TO BOLT CTR. 14" MIN. LENGTH)	2
⑪	2" ADJUSTABLE PIPE SUPPORT EQUAL TO B-LINE FIG. No. B3096 (GALV. FINISH)	1
⑫	PRECAST UTILITY VAULT EQUAL TO UTILITY VAULT MODEL 660-L WITH LOCKING STEEL DIAMOND PLATE DOUBLE DOOR COVER FOR 8" FORCE MAIN. PROVIDE UTILITY VAULT EQUAL TO MODEL 444-LA WITH COVER # 44-332P FOR 2" FORCE MAIN.	1
⑬	2" BRONZE BEEHIVE STRAINER	1
⑭	2" OPEN PATTERN RETURN BEND PAINT: ICI DEVOE 4308-1000 WHITE	1
⑮	2" G.I. NIPPLE LENGTH TO FIT PAINT: ICI DEVOE 4308-1000 WHITE	1

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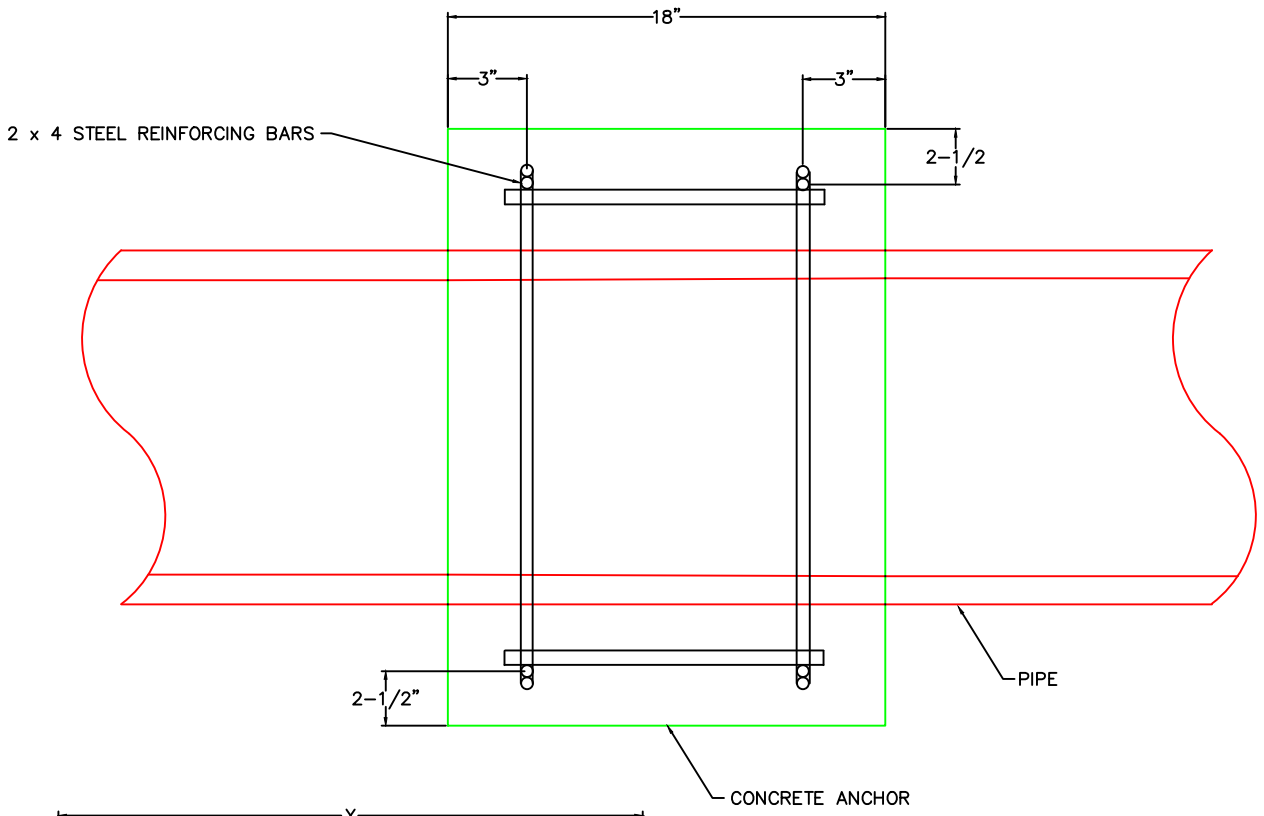
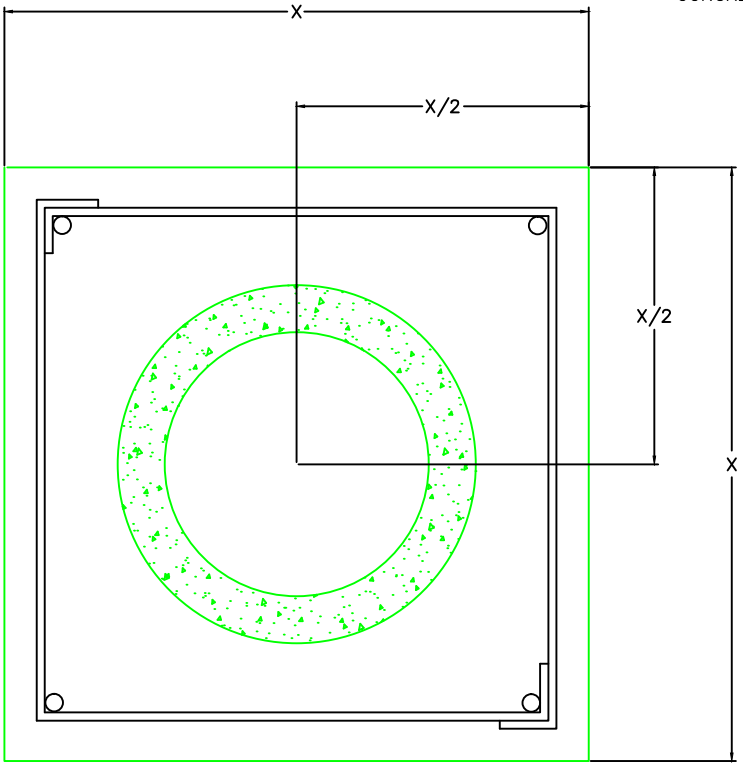
SEWER SYSTEM STANDARD DETAIL

SEWAGE AIR - VACUUM ASSEMBLY

FILE:CA-SSDT18.DWG	REVISED: 5/15/2015	DETAIL NO.: SS18





NOTE:
1. REINFORCING STEEL SHALL BE GRADE 40 OR GRADE 60.
2. CONCRETE SHALL BE PER DOT/APWA SPECIFICATION 6-02.3(2), CLASS B.

PIPE DIAMETER	CONCRETE CLASS B APPROX CY	DIMENSION X
12"	0.3	2'-4"
18"	0.4	2'-11"
24"	0.5	3'-6"
30"	0.6	4'-1"
36"	0.7	4'-8"
42"	0.8	5'-3"
48"	0.9	5'-10"
54"	1.1	6'-5"
60"	1.3	7'-0"

PIPE ANCHOR

City of Cashmere
101 Woodring St
509 782-3513
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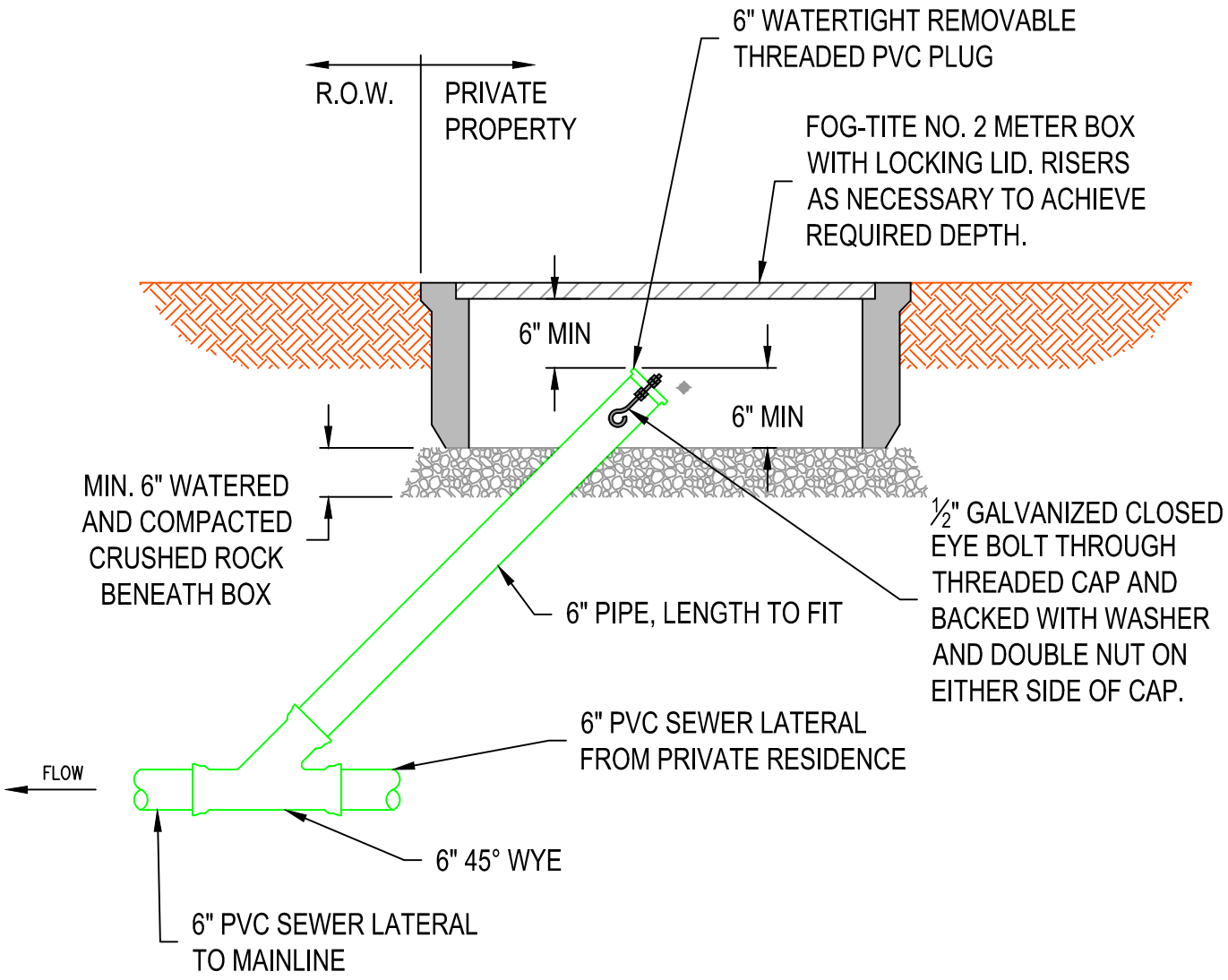
SEWER SYSTEM STANDARD DETAIL

PIPE ANCHOR

FILE:CA-SSDT19.DWG	REVISED: 5/15/2015	DETAIL NO.: SS19



SIDE SEWER CLEANOUT

NOTES:

1. CLEANOUT AT BACK OF R.O.W. REQUIRED FOR ALL PROPERTIES THAT ARE NOT SERVED BY CITY WATER BUT WILL BE CONNECTED TO THE CITY SEWER SYSTEM.

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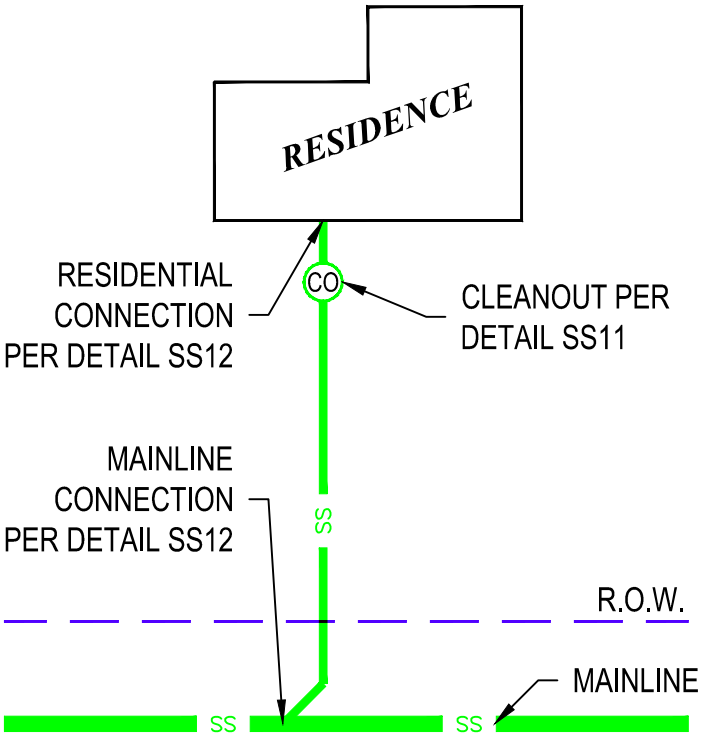
SEWER SYSTEM STANDARD DETAIL

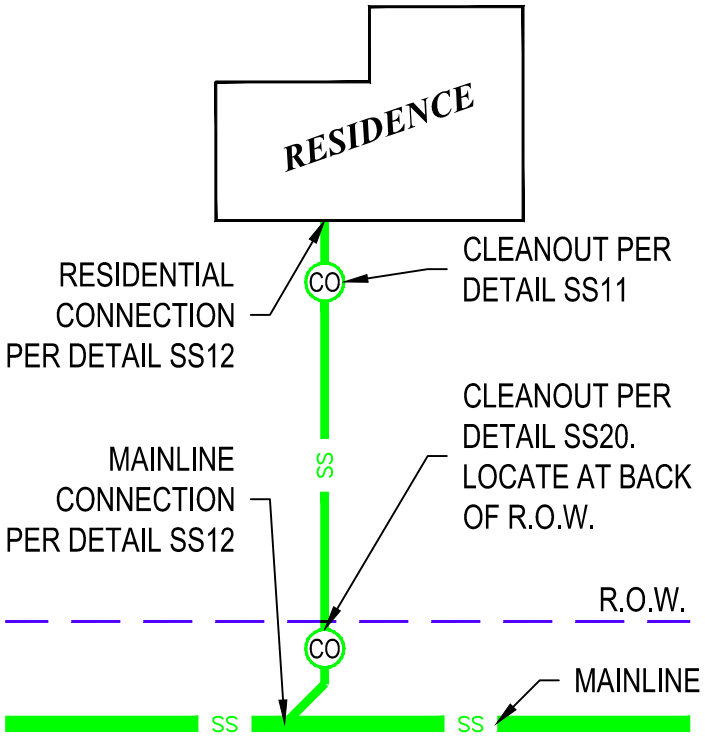
SIDE SEWER CLEANOUT FOR RESIDENCE WITH PRIVATE WATER SERVICE

FILE:CA-SSDT20.DWG	REVISED: 5/15/2015	DETAIL NO.: SS20



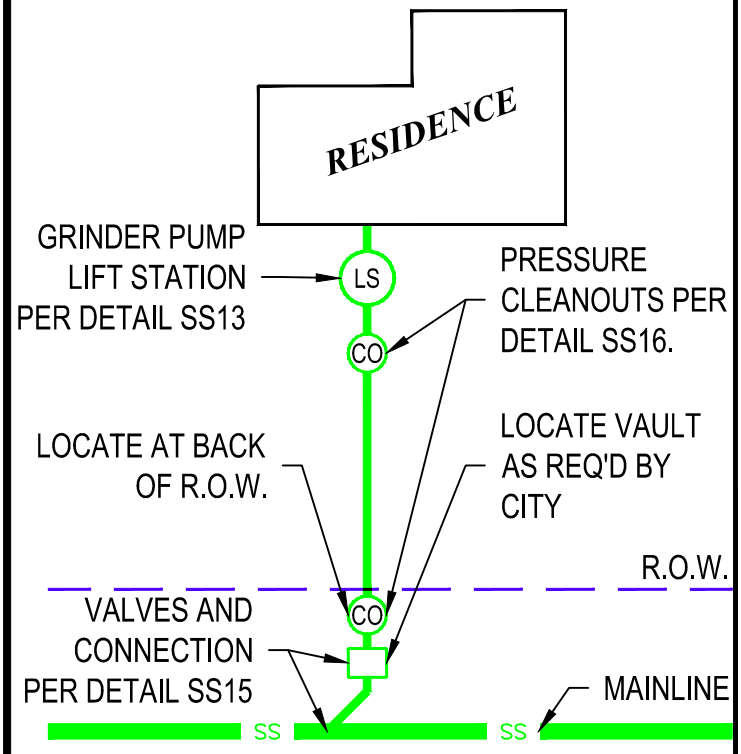
GRAVITY SEWER SIDE SERVICE

RESIDENCE WITH MUNICIPAL WATER SERVICE



GRAVITY SEWER SIDE SERVICE

RESIDENCE WITH PRIVATE WATER SERVICE



PRESSURIZED SEWER SIDE SERVICE

ALL RESIDENCES

City of Cashmere
101 Woodring St
509 782-3513
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SEWER SYSTEM STANDARD DETAIL

PRIVATE SEWER CONNECTION SCHEMATIC

FILE:CA-SSDT21.DWG	REVISED: 5/15/2015	DETAIL NO.: SS21

REVISION HISTORY

2/20/2015

UPDATED STANDARD DETAIL FORMATTING, MADE MINOR EDITS PER CITY COMMENTS; ADDED NEW COVER SHEET, REVISION SHEET AND FULL SIZE DRAWINGS WITH EIGHT (8) DETAILS ON EACH.

5/15/2015

ADDED SS 21 - PRIVATE SEWER CONNECTION SCHEMATIC DETAIL.
UPDATED MINOR ANNOTATIVE ITEMS ON OTHER DETAILS.

City of Cashmere
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SEWER SYSTEM STANDARD DETAIL

REVISION HISTORY

FILE:CA-SSDT-REVHIST.DWG	REVISED: 5/15/2015	DETAIL NO.: SSDT-REVHIST