

SECTION 500

WATER SYSTEM DETAILS

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CITY OF SOLVANG - STANDARD DETAILS

SECTION 500 - WATER SYSTEM DETAILS

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A.B.	AGGREGATE BASE
A/C	ASPHALTIC CONCRETE
A.C.P.	ASBESTOS-CEMENT PIPE
A.R.	AIR RELEASE VALVE
A.V.	AIR & VACUUM VALVE
B.	BELL
B & S	BELL & SPIGOT
BF.V.	BUTTERFLY VALVE
B.O.	BLOWOFF
C.I.	CAST IRON
CITY	CITY OF SOLVANG
CK.V.	CHECK VALVE
CL.	CLASS
C.O.	CLEAN OUT
COMB.	COMBINATION
CPLG.	COUPLING
C.S. or CORP.	CORPORATION STOP
CU.	COPPER
DET. CK.	DETECTOR CHECK
D.I.P.	DUCTILE IRON PIPE
F.H.	FIRE HYDRANT
F.L.	FIRE LINE
FLG.	FLANGE
GALV.	GALVANIZED
G.M.	GAS METER
G.V.	GATE VALVE
JT.	JOINT
JOINT END DESIGNATION: RUN X BRANCH (EXAMPLE: M.J. x M.J. x P.E.)	
L.E.	LARGE END
M.J.	MECHANICAL JOINT
P.E.	PLAIN END
P.R.V.	PRESSURE REDUCING VALVE
P.V.C.	POLYVINYL CHLORIDE
RED.	REDUCER
R.G.	RETAINING GLAND
R.T.	RING-TITE
S.E.	SMALL END
SER.	SERVICE
SEW.	SEWER
S.P.	STANDPIPE
U.G.	UNDERGROUND
VAC.	VACUUM
V.C.P.	VITRIFIED CLAY PIPE
W/L	WATERLINE
W.M.	WATER METER

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CITY OF SOLVANG - STANDARD DETAILS

STANDARD ABBREVIATIONS

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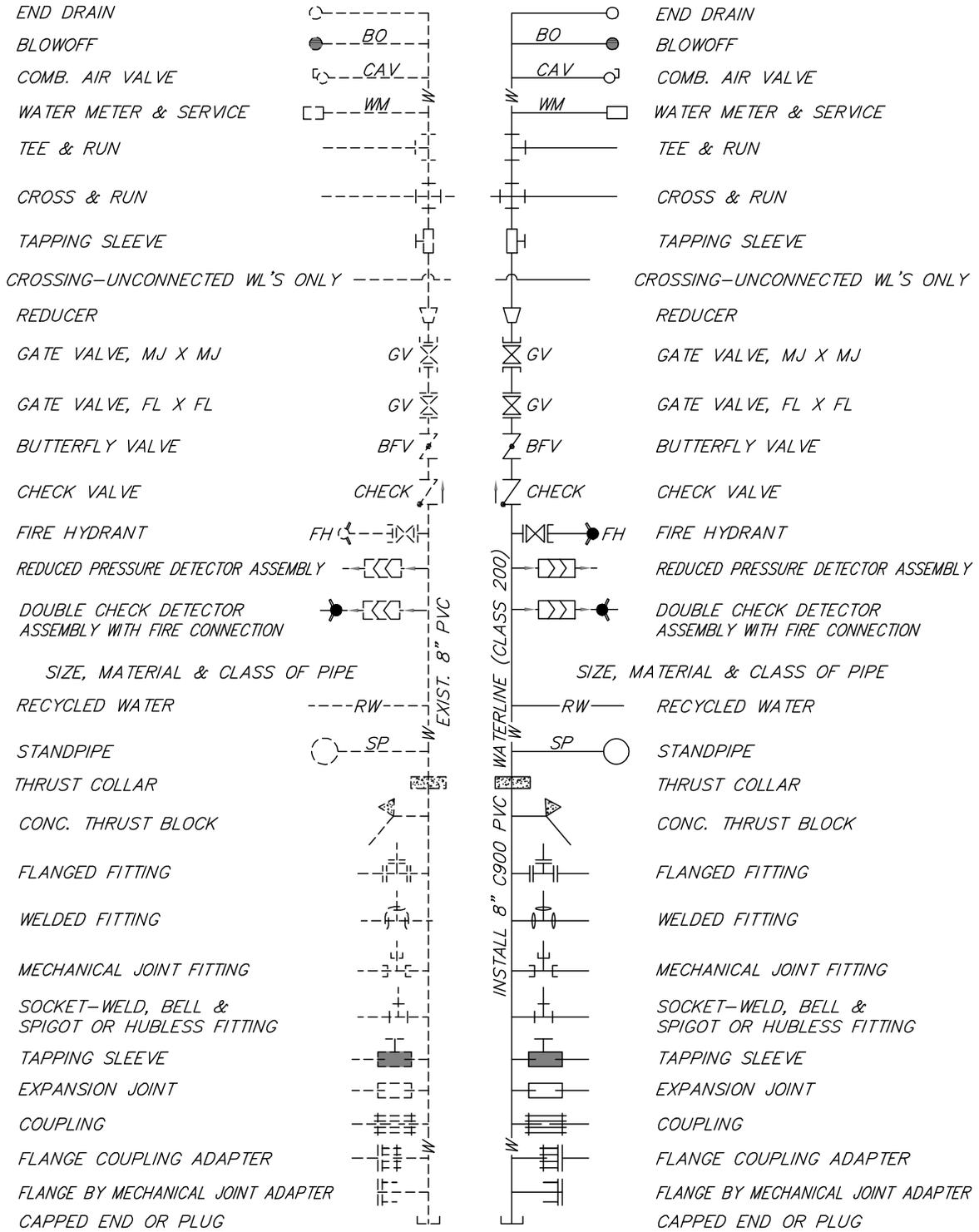
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EXISTING WATER FACILITIES

PROPOSED WATER FACILITIES



NOTE: STATION, SIZE, TYPE, & OTHER DATA TO BE NOTED ON ITEMS TO BE INSTALLED.

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CITY OF SOLVANG - STANDARD DETAILS

STANDARD SYMBOLS

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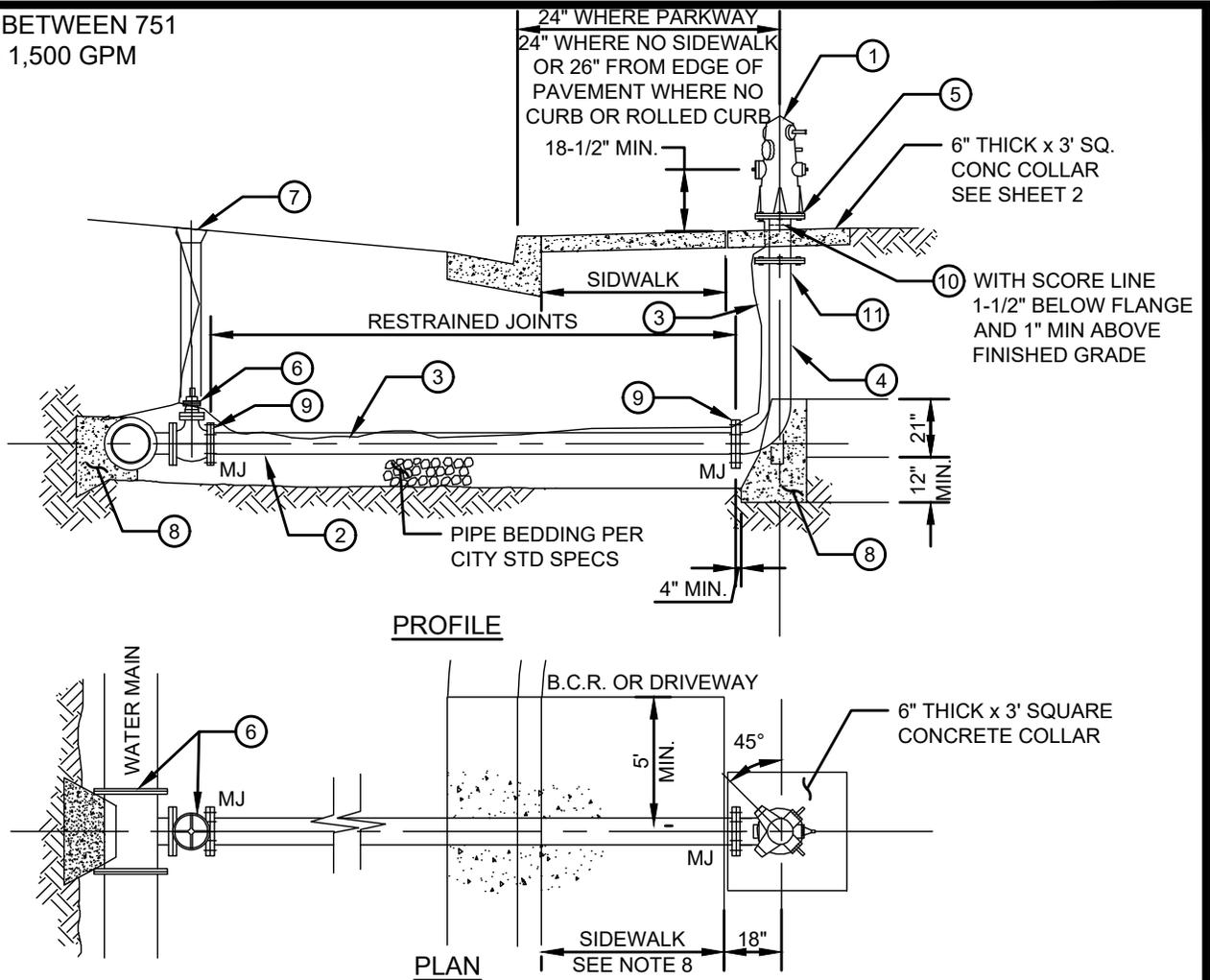
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FOR FLOWS BETWEEN 751
GPM AND 1,500 GPM



ITEM	QUANTITY	DESCRIPTION
1	1	WET BARREL BRONZE FIRE HYDRANT WITH BRONZE CAPS
2	VARIES	6" DIAMETER CLASS 200 PVC PIPE PER AWWA STD. C900
3	VARIES	COPPER TRACER WIRE, #12 AWG, ATTACH ALONG TOP OF PIPE WITH BLACK 10 MIL PIPE WRAP TAPE
4	1	6" DUCTILE IRON BURY WITH 90° BEND MJ X FL, LENGTH AS REQUIRED (18" TYP.)
5	6	HOLLOW BOLTS ON TOP FLANGE (TIPS UP WITH SILICONE IN HOLLOW BOLT)
6	1	TEE OR TAPPING SLEEVE WITH 6" FL X MJ GATE VALVE
7	1	ADJUSTABLE VALVE PER STD. DETAIL 510
8	2	CONCRETE THRUST BLOCKS CONSTRUCTED WITH A MINIMUM 18 SF OF BEARING AREA
9	2	MECHANICAL JOINT WITH RETAINER GLAND
10	1	6" DUCTILE IRON FLANGED BREAK-OFF SPOOL WITH SCORE LINE, AND 6-HOLE BOLT PATTERN FOR TOP FLANGE, LENGTH AS REQUIRED (12" MIN)

SEE NOTES ON PAGE 3



CITY OF SOLVANG - STANDARD DETAILS

FIRE HYDRANT INSTALLATION

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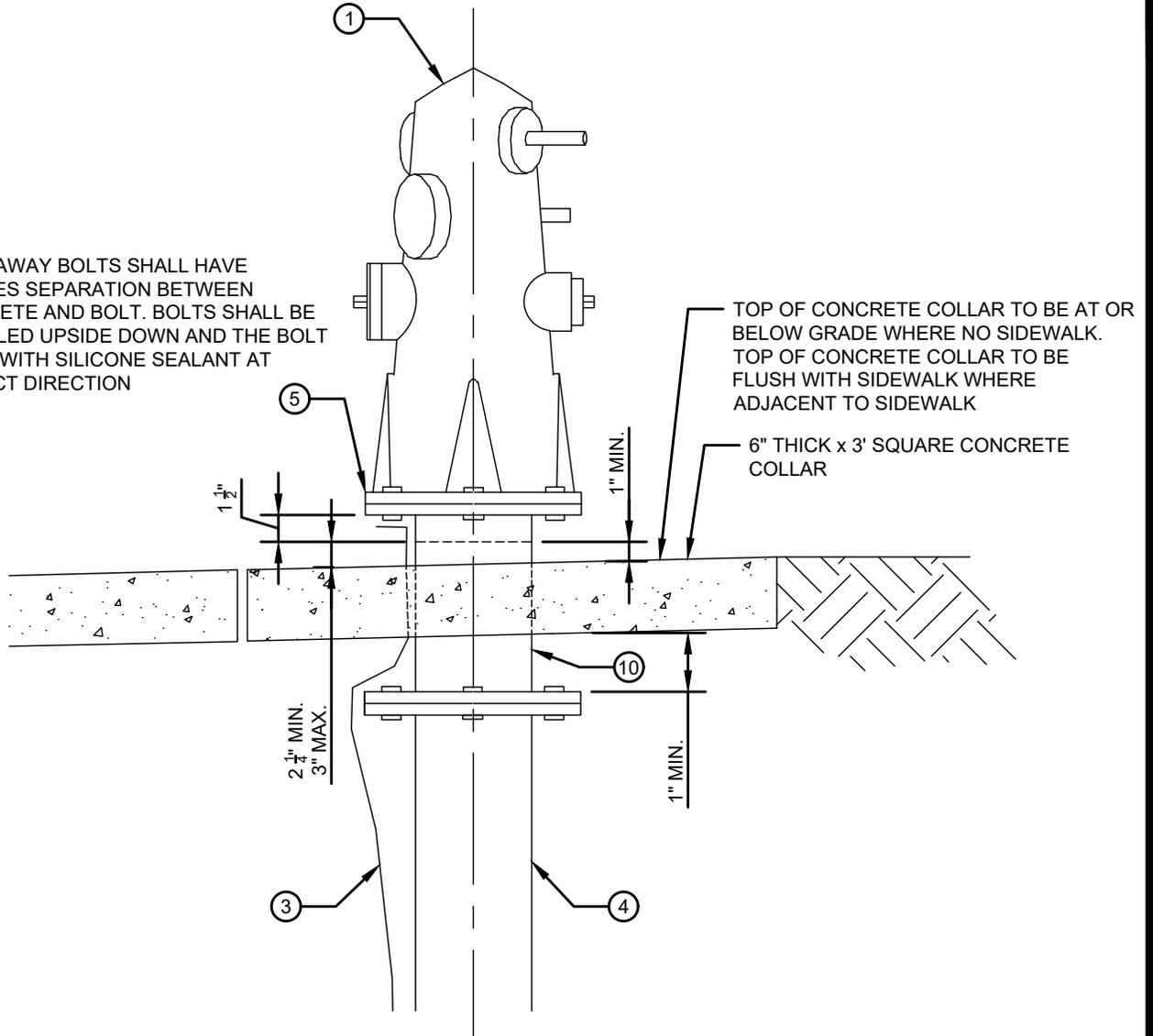
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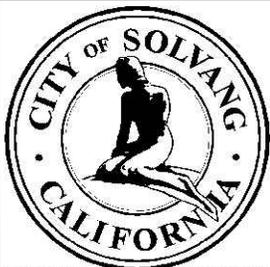
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BREAKAWAY BOLTS SHALL HAVE 3-INCHES SEPARATION BETWEEN CONCRETE AND BOLT. BOLTS SHALL BE INSTALLED UPSIDE DOWN AND THE BOLT FILLED WITH SILICONE SEALANT AT DISTRICT DIRECTION



BREAK OFF SPOOL/CONCRETE COLLAR DETAIL

SEE ITEMS TABLE ON PAGE 1
SEE NOTES ON PAGE 3



CITY OF SOLVANG - STANDARD DETAILS

FIRE HYDRANT INSTALLATION

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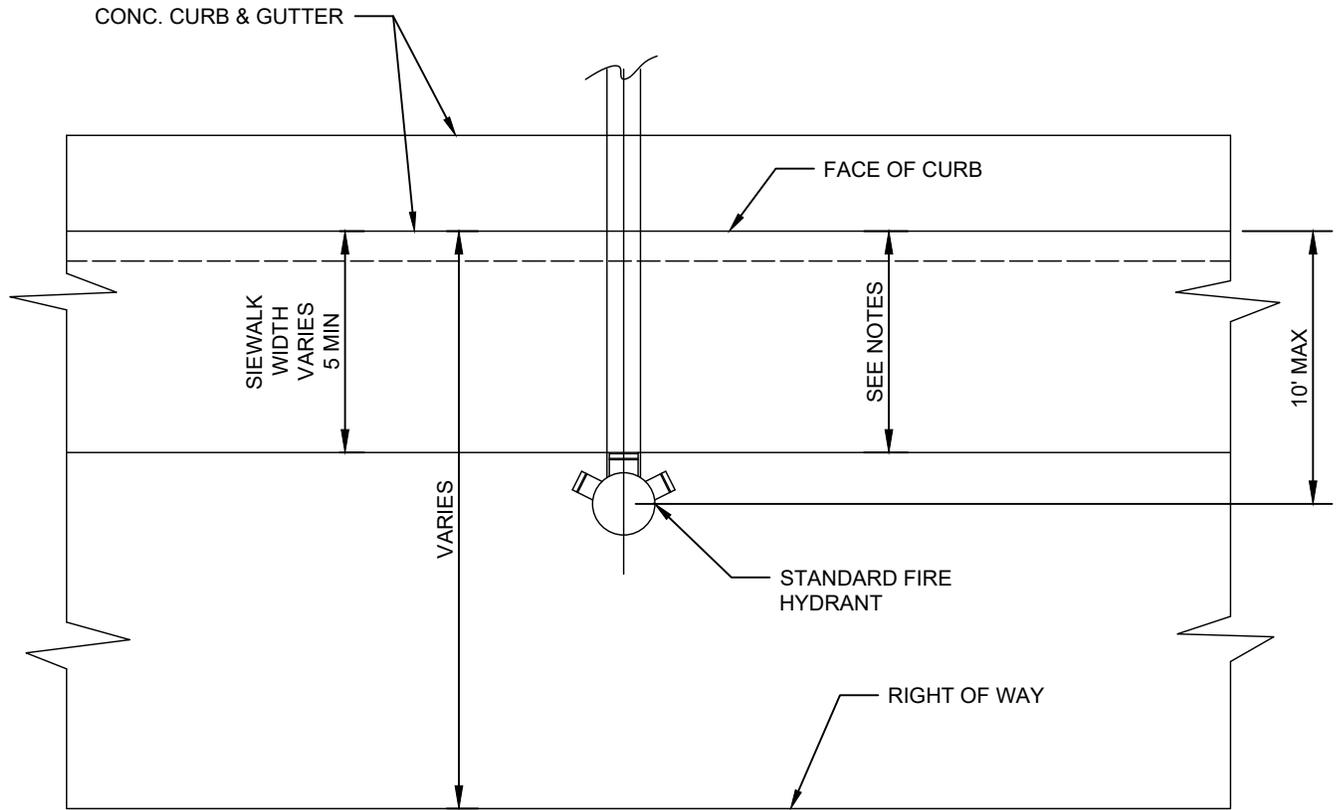
NOTES

1. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH STD. DETAIL 522.
2. BREAK-OFF SPOOL SHALL BE EPOXY COATED, AND FIRE HYDRANT PAINTED PER MANUFACTURER RECOMMENDATIONS. PUBLIC FIRE HYDRANT SHALL BE PAINTED WITH YELLOW FINISH COAT AND PRIVATE FIRE HYDRANT SHALL BE PAINTED WITH RED FINISH COAT.
3. FIRE HYDRANT SPACING SHALL BE IN ACCORDANCE WITH THE CITY AND SANTA BARBARA COUNTY FIRE DEPARTMENT REQUIREMENTS.
4. THIS DETAIL SHALL BE USED FOR ALL INSTALLATIONS REQUIRING UP TO 750 GPM. ANY OTHER CHANGES SHALL REQUIRE EXPLICIT WRITTEN AGREEMENT BY THE CITY.
5. IF HYDRANT IN NOT PROTECTED BY CURB OR IF ROLLED CURB IS USED, GUARD POSTS SHALL BE PLACED TO PROTECT HYDRANT PER STD. DETAIL 505.
6. FIRE HYDRANT SHALL BE INSTALLED PLUMB.
7. WHERE APPROVED BY THE CITY OR S.B. COUNTY, HYDRANT MAY BE LOCATED IN SIDEWALK. SIDEWALK SHALL COMPLY WITH A.D.A. REQUIREMENTS. FIRE HYDRANT SHALL BE LOCATED A MINIMUM OF TEN FEET CLEAR ABOVE AND FIVE FEET CLEAR BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, UTILITIES AND DRIVEWAYS, AND TEN FEET CLEAR OF TREES AND BUSHES.
8. BRONZE CAPS SHALL BE CHAINED TO HYDRANT AND SHALL BE 1/8" DIAMETER WEEP HOLE DRILLED ADJACENT TO OPERATING NUT.
9. TRACER WIRE ABOVE CONCRETE COLLAR SHOULD BE NO SHORTER THAN 6" AND NO LONGER THAN 12".

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	FIRE HYDRANT INSTALLATION	DRAWING NUMBER 503 3 OF 3
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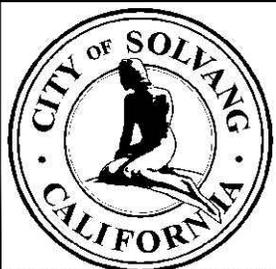


NOTES:

1. FIRE HYDRANT INSTALLATION SHALL BE IN ACCORDANCE WITH STANDARD DETAIL 503.
2. CONCRETE SIDEWALK CONSTRUCTION SHALL CONFORM TO STANDARD DETAIL 404.
3. WHEN INSTALLED IN A COMMERCIAL AREA, THE HYDRANT SHALL BE LOCATED SO THAT THE CAP OF THE 4" OUTLET IS 18" FROM THE FACE OF CURB.
4. WHEN INSTALLED IN RESIDENTIAL AREAS, THE HYDRANT SHALL BE LOCATED SO THAT THE CAP OF THE 4" OUTLET IS FLUSH WITH THE BACK OF THE SIDEWALK.
5. WHEN INSTALLED IN A MOW/PLANTER STRIP, THE HYDRANT SHALL BE LOCATED 30" MIN. FROM FACE OF CURB.

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CITY OF SOLVANG - STANDARD DETAILS

FIRE HYDRANT LOCATION

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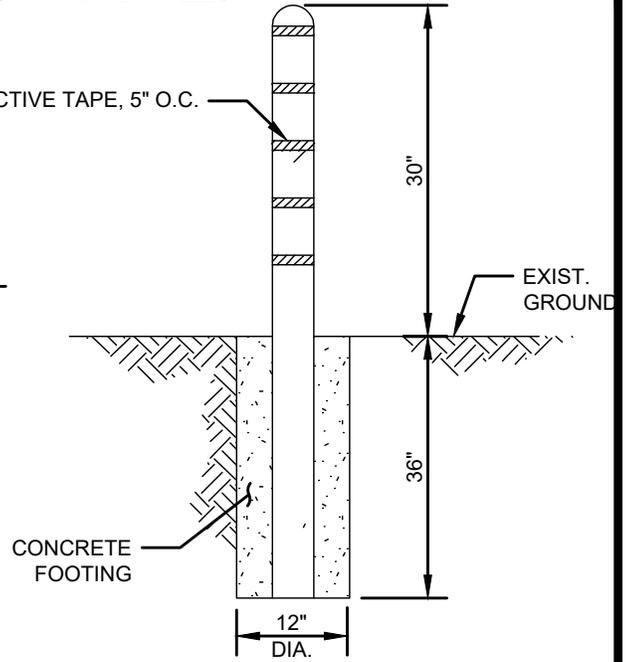
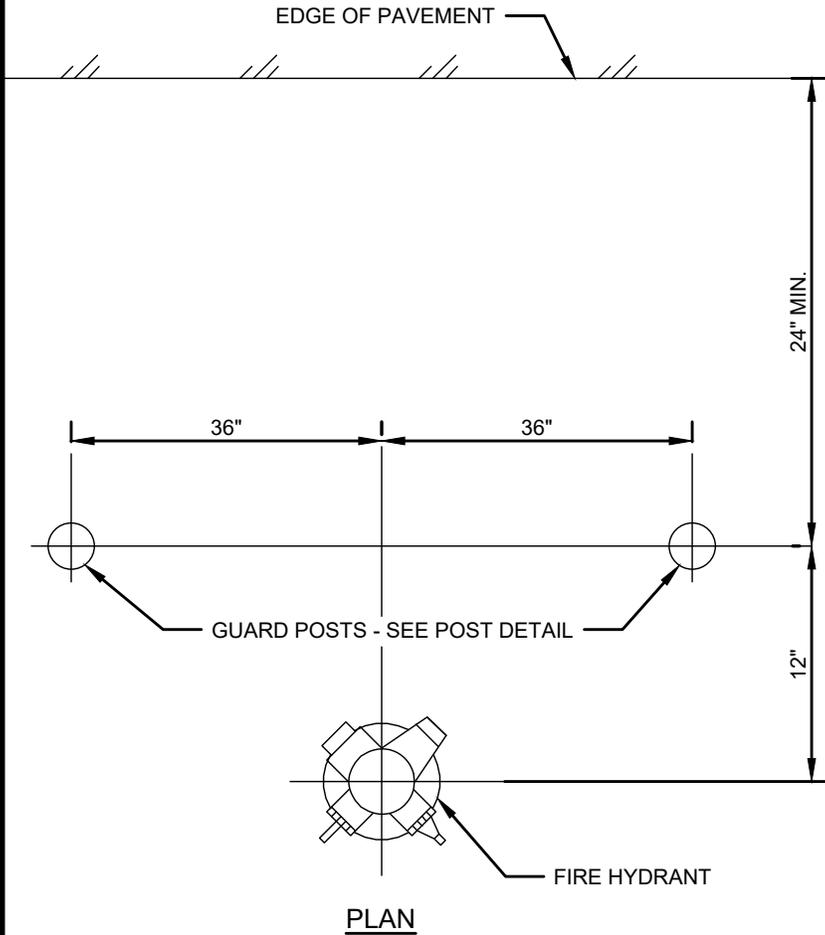
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4" DIA. STANDARD WIGHT STEEL PIPE,
 CONCRETE FILLED, PAINTED PER
 MANUFACTURER'S RECOMMENDATIONS FOR A
 PROTECTIVE COATING WITH SAFETY YELLOW
 FINISH COAT.

1" WIDE WHITE REFLECTIVE TAPE, 5" O.C.



POST DETAIL

NOTES

1. GUARD POSTS SHALL BE INSTALLED PLUMB.
2. CONCRETE SHALL BE PLACED AGAINST FIRM UNDISTURBED NATIVE SOIL AND SHALL BE THOROUGHLY CONSOLIDATED.
3. CONCRETE SHALL HAVE 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI
4. ANY VARIANCE TO GUARD POST LAYOUT REQUIRES EXPLICIT CITY WRITTEN APPROVAL
5. WHERE NATIVE SOIL IS NOT WELL COMPACTED, CONTRACTOR SHALL COMPACT AREA BEFORE INSTALLING POSTS.



CITY OF SOLVANG - STANDARD DETAILS

FIRE HYDRANT GUARD POSTS

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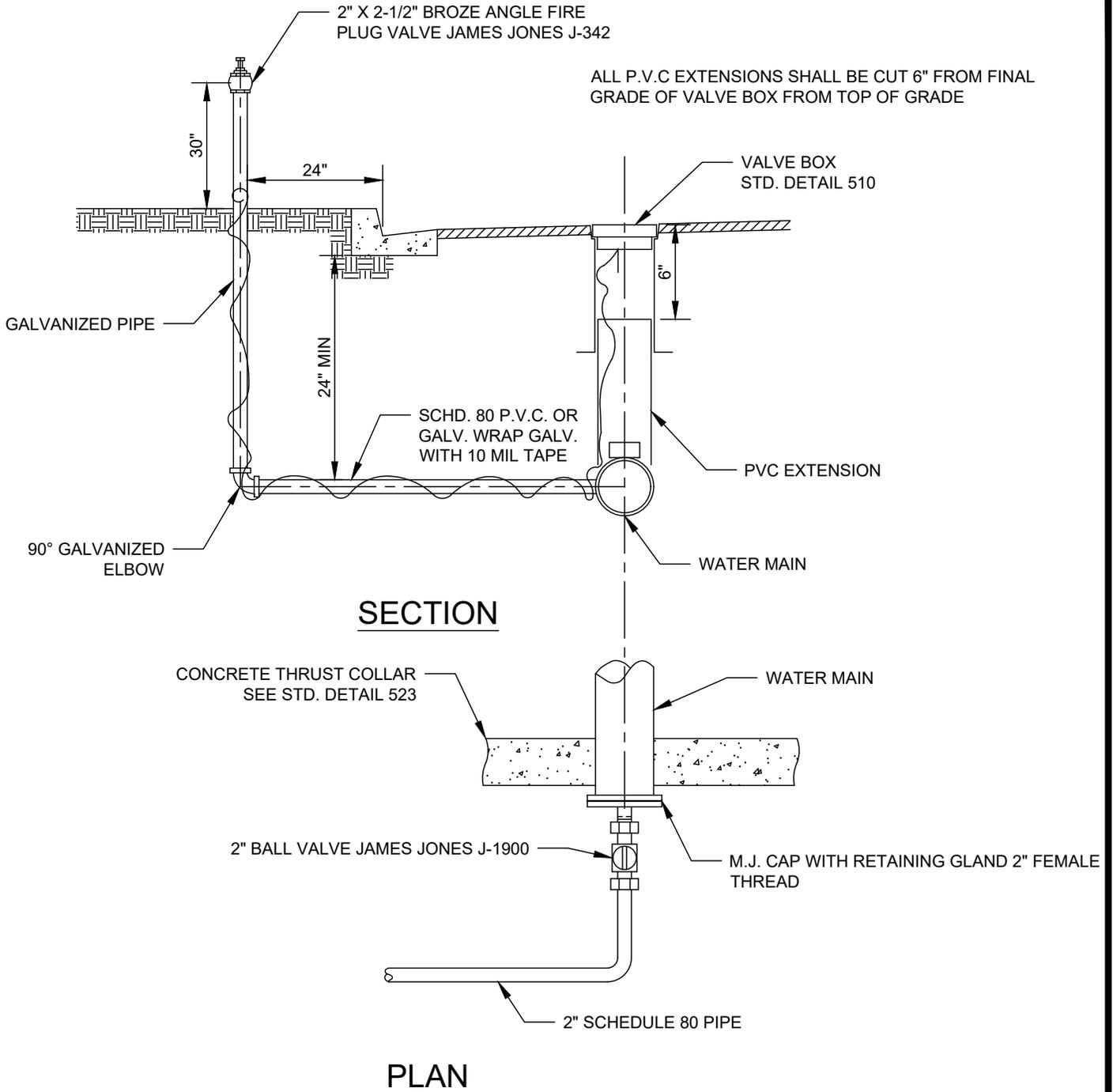
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CITY OF SOLVANG - STANDARD DETAILS

STAND PIPE

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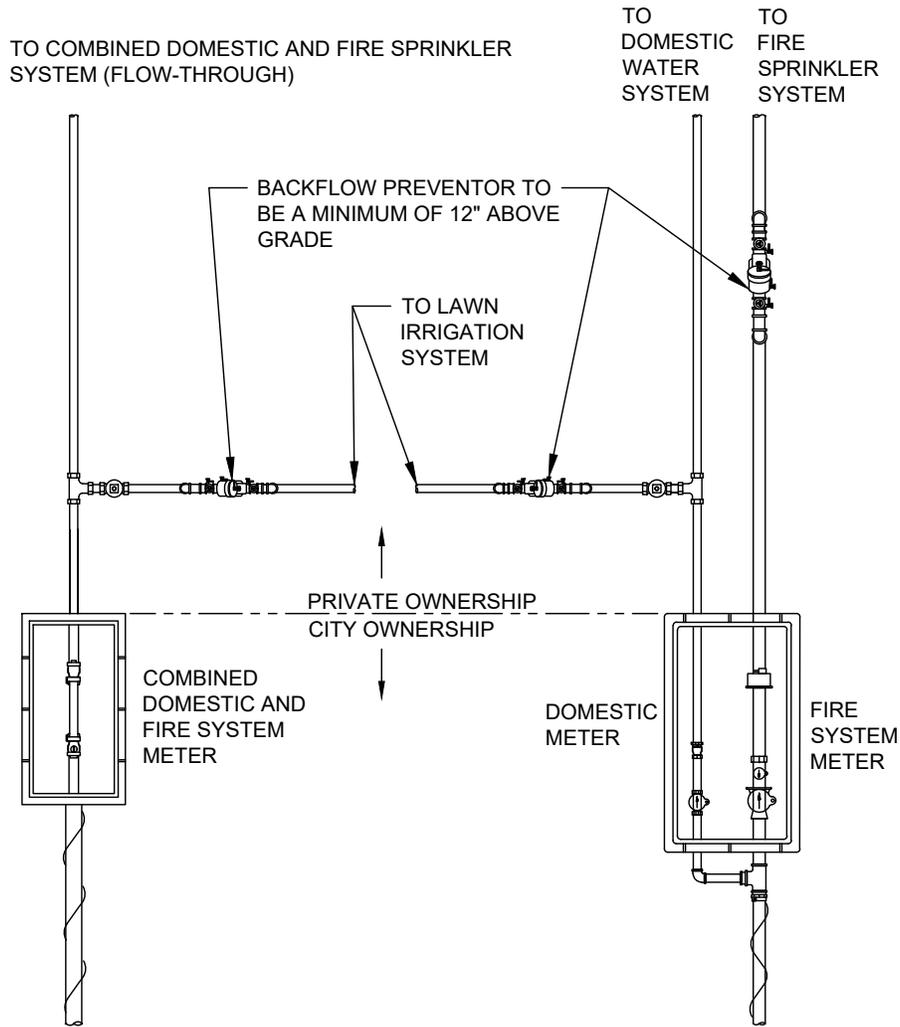
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SINGLE METER ALTERNATIVE

DOUBLE METER ALTERNATIVE

NTS

NTS

NOTES:

1. AN APPROVED BACKFLOW PREVENTOR IS REQUIRED FOR ALL FIRE SPRINKLER SYSTEMS EXCEPT APPROVED FLOW-THROUGH SYSTEMS. BFPS SHALL BE LOCATED DOWNSTREAM IN THE BUILDING OR ADJACENT TO THE FIRE SYSTEM METER BOX.



CITY OF SOLVANG - STANDARD DETAILS

RESIDENTIAL FIRE SPRINKLER DETAILS

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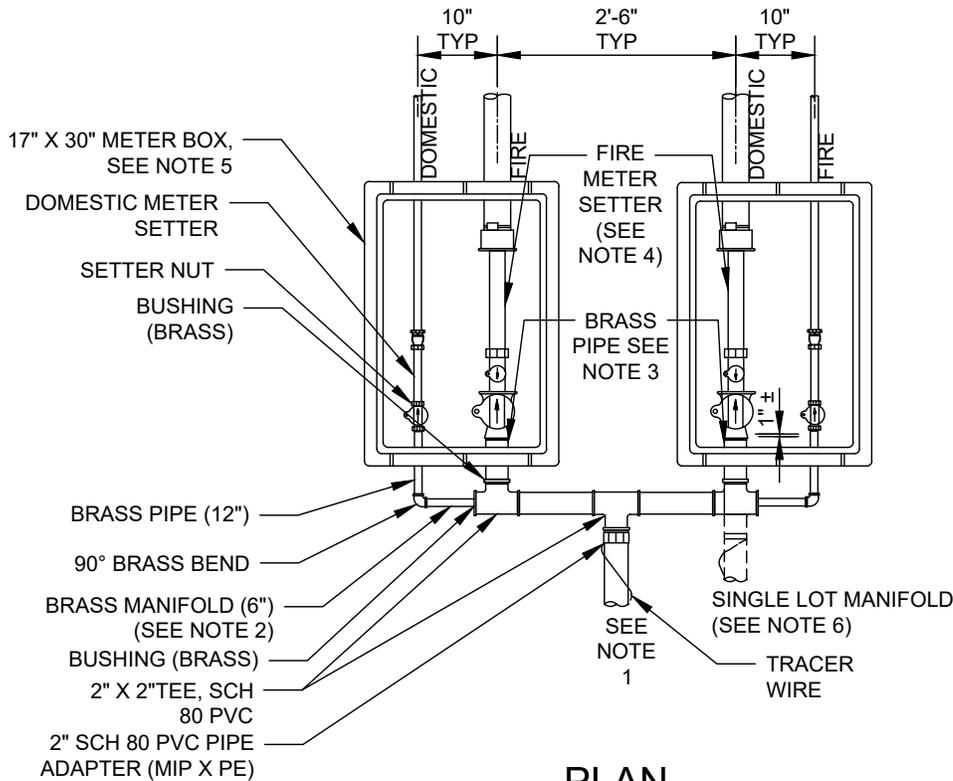
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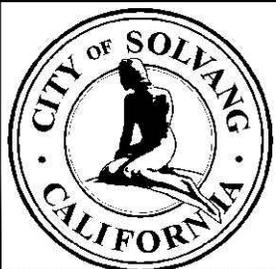
PLAN

NOTES:

1. USE CORPORATION STOP CONNECTION.
2. FOR 1 INCH DOMESTIC METER SETTERS, MANIFOLD SIZE SHALL BE 1 INCH FROM BUSHING AT TEE.
3. FOR 1 INCH FIRE METER SETTER, PIPE SHALL BE 12 INCHES LONG. FOR 1-1/2 INCH FIRE METER SETTER, PIPE SHALL BE 6 INCHES LONG.
4. FIRE METER SETTERS FOR VACANT LOTS SHALL BE INSTALLED AS 1-1/2 INCH METER SETTERS. IF FIRE SPRINKLER DESIGNS HAVE BEEN APPROVED UTILIZING SMALLER SETTERS, THE SETTER SIZE MAY BE REDUCED. USE APPROPRIATE SIZED BUSHING AND SCH 80 PVC PIPE FROM TEE.
5. THE METER BOXES SHALL BE CENTERED OVER THE METER SETTER ASSEMBLIES AS SHOWN. METER BOXES SHALL BE BROOKS 66.
6. FOR A SINGLE LOT MANIFOLD, ROTATE 2" TEE AT FIRE METER SETTER AND CONNECT WATER SUPPLY TO THIS TEE. USE CORPORATION STOP CONNECTION.
7. AN APPROVED BACKFLOW PREVENTOR IS REQUIRED FOR ALL FIRE SPRINKLER SYSTEMS EXCEPT APPROVED FLOW-THROUGH SYSTEMS. BFPS SHALL BE LOCATED DOWNSTREAM IN THE BUILDING OR ADJACENT TO THE FIRE SYSTEM METER BOX.

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CITY OF SOLVANG - STANDARD DETAILS

DOMESTIC AND FIRE SPRINKLER MANIFOLD

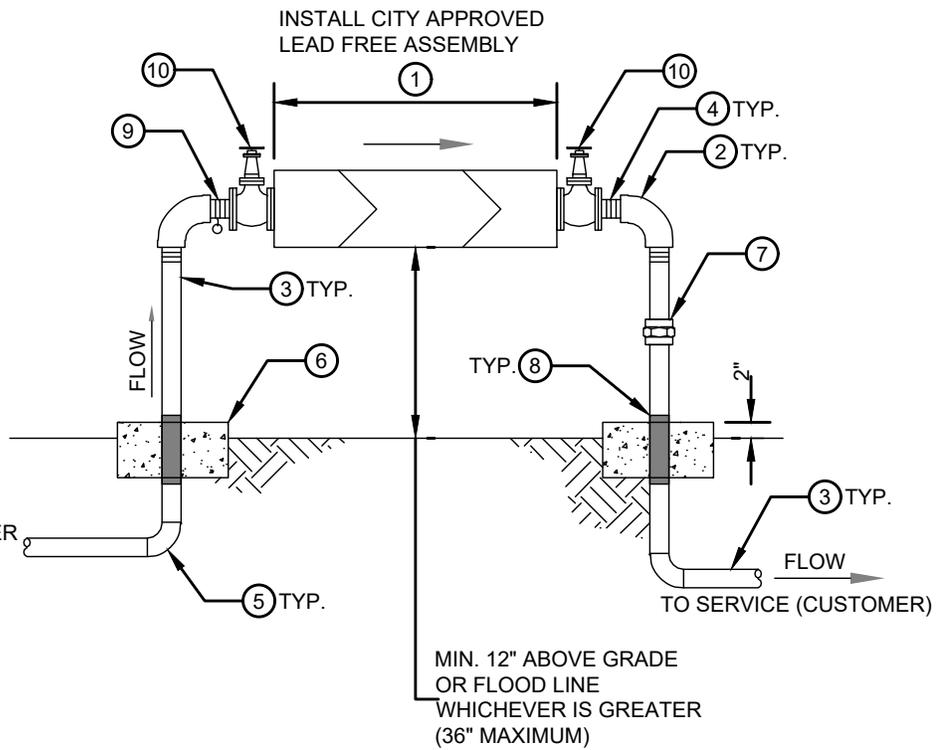
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SEE STD. DETAIL FOR WATER SERVICE AND METER

MIN. 12" ABOVE GRADE OR FLOOD LINE WHICHEVER IS GREATER (36" MAXIMUM)

ITEM	QUANTITY	DESCRIPTION
1	1	USC APPROVED LEAD FREE ASSEMBLY
2	2	BRASS 90° BEND, THREADED
3	VARIES	TYPE K COPPER TUBING, WITH SLIP X THREADED ADAPTORS AS NECESSARY
4	2	THREADED BRASS NIPPLE
5	2	PVC x COPPER 90° BEND
6	2	12" DIA. x 6" THICK CONCRETE COLLAR (OPTIONAL) OR PAD
7	1	BRASS UNION FITTING
8	VARIES	PIPE WRAP TAPE (TO PREVENT CONTACT OF COPPER PIPE TO CONCRETE)
9	1	BRASS TAG WITH SERVICE ADDRESS AND TYPE OF SERVICE. SEE DETAIL A
10	2	ISOLATION GATE VALVE, FL x FL

SEE NOTES ON PAGE 4



CITY OF SOLVANG - STANDARD DETAILS

DETECTOR CHECK DOUBLE CHECK VALVE ASSEMBLY

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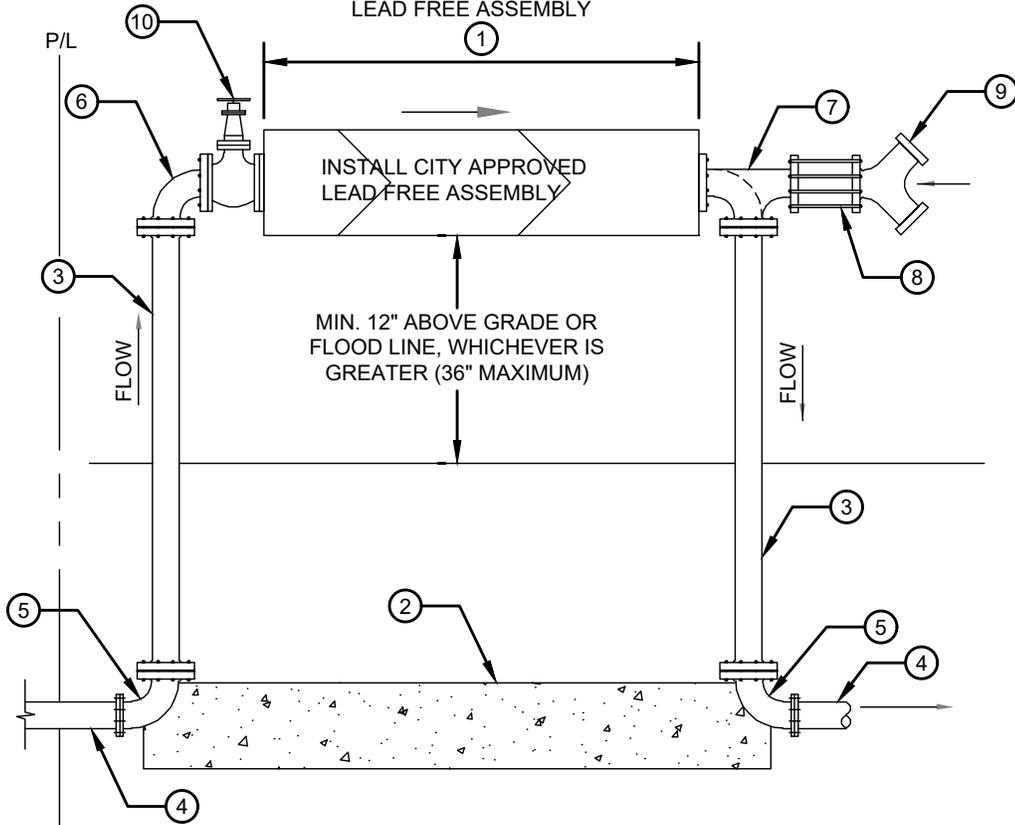
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1 OF 4

INSTALL USC FOUNDATION FOR
CROSS CONNECTION CONTROL AND
HYDRAULIC RESEARCH AND CITY
APPROVED BACKFLOW ASSEMBLY

INSTALL CITY APPROVED
LEAD FREE ASSEMBLY



ITEM	QUANTITY	DESCRIPTION
1	1	USC APPROVED LEAD FREE ASSEMBLY
2	1	THRUST BLOCK, H x W = 3D x 3D, D=PIPE DIAMETER
3	2	DIP OR STEEL FLANGED SPOOL
4	VARIES	CL 305 PVC PIPE, AWWA C900, WITH JOINT HARNESSSES, STEEL OR DIP
5	2	90° BEND, MJ x FL, WITH RETAINER GLAND
6	2	90° BEND, FL x FL
7	1	90° BEND, FL x FL (OR TEE, FL x FL WHERE FIRE CONNECTION REQUIRED)
8	1	WAFER STYLE, SILENT CHECK VALVE, OR APPROVED EQUAL WHERE FIRE CONNECTION REQUIRED
9	1	HOSE CONNECTION AS REQUIRED BY SANTA BARBARA COUNTY FIRE DEPARTMENT
10	1	ISOLATION GAE VALVE, FL x FL

SEE NOTES ON PAGE 4



CITY OF SOLVANG - STANDARD DETAILS

DETECTOR CHECK DOUBLE CHECK VALVE ASSEMBLY

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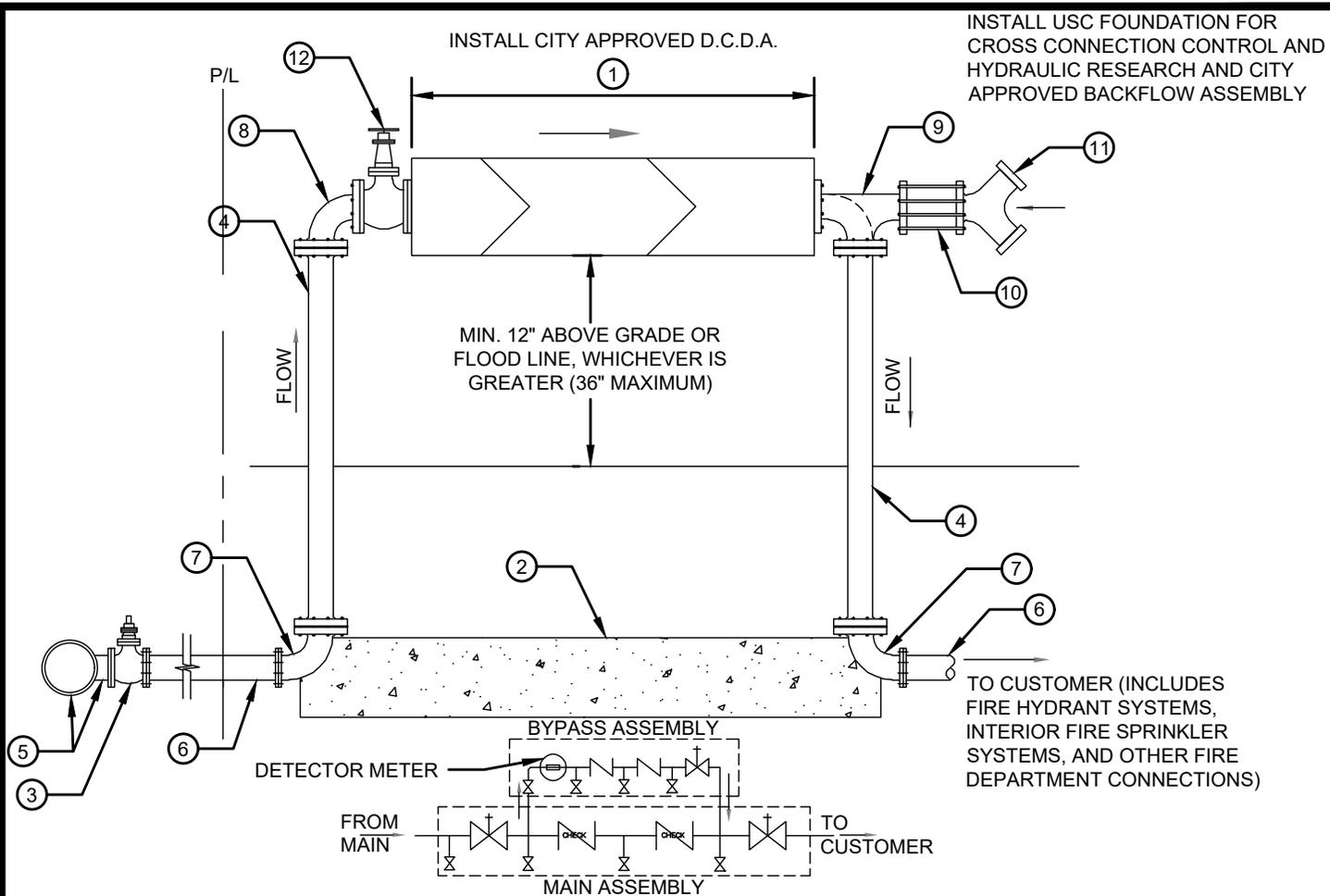
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ITEM	QUANTITY	DESCRIPTION
1	1	USC APPROVED LEAD FREE ASSEMBLY
2	1	THRUST BLOCK, H x W = 3D x 3D, D=PIPE DIAMETER
3	1	GATE VALVE, FL x MJ, WITH RETAINER GLAND, 6" MIN.
4	2	DIP OR STEEL FLANGED SPOOL
5	1	TEE - MJ x FL FOR NEW PVC MAIN, TAPPING SLEEVE FOR EXISTING MAIN, 6" MIN.
6	VARIES	CL 305 PVC PIPE, AWWA C900, WITH JOINT HARNESSSES
7	2	90° BEND, MJ x FL, WITH RETAINER GLAND
8	2	90° BEND, FL x FL
9	1	90° BEND FL x FL (OR TEE, FL x FL WHERE FIRE CONNECTION REQUIRED)
10	1	WAFER STYLE, SILENT CHECK VALVE, OR APPROVED EQUAL WHERE FIRE CONNECTION REQUIRED
11	1	SIAMESE HOSE CONNECTION WITH NST THREADS AS REQUIRED BY SANTA BARBARA COUNTY FIRE DEPARTMENT
12	1	ISOLATION GATE VALVE, FL x FL

SEE NOTES ON PAGE 4



CITY OF SOLVANG - STANDARD DETAILS

DETECTOR CHECK DOUBLE CHECK VALVE ASSEMBLY

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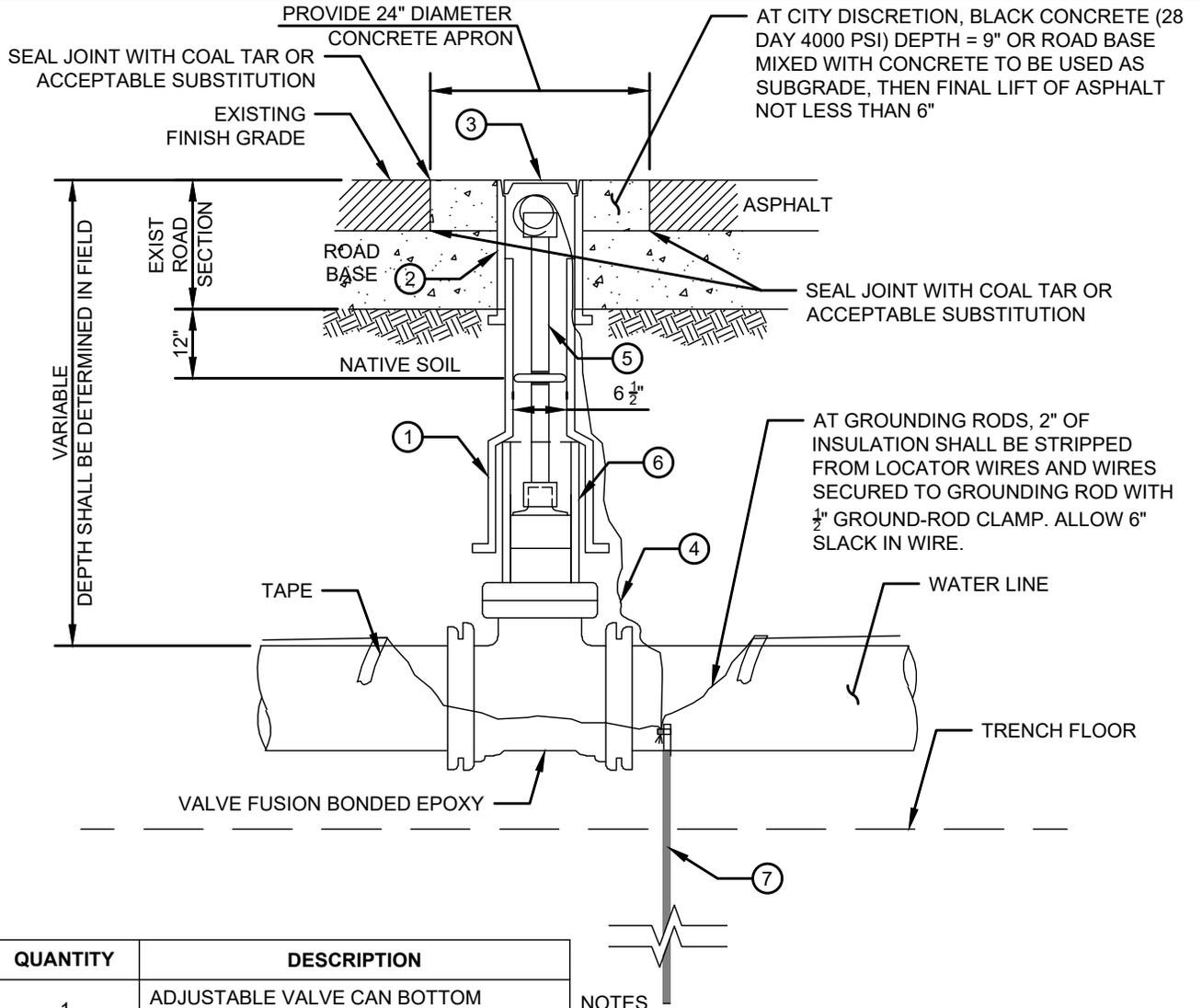
NOTES:

1. THE ASSEMBLY SHALL BE CONSTRUCTED AND TESTED IN CONFORMANCE WITH THE CITY'S CROSS CONNECTION ORDINANCE (95-165) PRIOR TO ACCEPTANCE BY THE CITY.
2. SIZE AND DIAMETER OF ASSEMBLY AND PIPING AS REQUIRED. PIPE SUPPORTS ARE RECOMMENDED BUT NOT REQUIRED.
3. ABOVE GROUND SMALL DIAMETER PIPING, UP TO 2" DIAMETER, SHOULD BE RIGID COPPER, OR TAPE WRAPPED GALVANIZED STEEL PIPING.
4. ALL CUSTOMER CONNECTIONS SHALL BE DOWNSTREAM OF BACKFLOW PREVENTION ASSEMBLY INCLUDING PRESSURE REGULATORS.
5. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI.
6. BACKFLOW ASSEMBLY TO BE INSTALLED AS CLOSE AS PRACTICAL TO METER, WITHIN 2 FEET. DISTANCES GREATER THAN 2 FEET REQUIRE APPROVAL BEFORE INSTALLATION.
7. CUSTOMER'S REGISTERED ENGINEER SHALL SUBMIT ALTERNATIVE DESIGN IF FLOOD ZONE EXCEEDS 36".
8. ALL PIPE AND FITTINGS SHALL BE DUCTILE IRON WITH FLANGED FITTINGS OR WITH MECHANICAL JOINTS WITH RETAINER GLANDS.
9. ALL BURIED BOLTS SHALL BE WRAPPED WITH A 10 MIL THICK POLYETHYLENE SHEET AND TAPED, AS SPECIFIED IN A.W.W.A. C-105/A21.5-82.
10. ALL PLUMBED POOLS ARE REQUIRED TO USE A ZURN WILKINS DOUBLE CHECK BACKFLOW PREVENTER MODEL 375 OR APPROVED EQUAL AND WITH APPROVED GATE VALVES.

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ITEM	QUANTITY	DESCRIPTION
1	1	ADJUSTABLE VALVE CAN BOTTOM SLEEVE
2	1	ADJUSTABLE VALVE CAN TOP SLEEVE
3	1	TRAFFIC RATED VALVE CAN COVER MARKED AS REQUIRED, SEE NOTES 6 & 7
4	VARIES	12 GAGE INSULATED SOFT COPPER LOCATOR WIRE. TO BE CONNECTED USING THREE CLAMPS AT THE CITY'S DISCRETION
5	1	SELF CENTERING VALVE STEM EXTENSION PER PAGES 2 AND 3, LENGTH AS REQUIRED
6	1	6" C900 PVC IF NECESSARY, LENGTH AS REQUIRED
7	1	32" LONG 1/2" DIAMETER COPPER GROUNDING ROD

NOTES

1. VALVE STEM EXTENSION, FITTED WITH SELF-CENTERING DEVICE AND ADAPTER SHALL BE INSTALLED WHEN COVER OVER VALVE NUT EXCEEDS 36". WHEN VALVE STEM EXTENSION IS REQUIRED, OPERATING NUT SHALL BE 12" BELOW TOP OF VALVE CAN.
2. FOR VALVE CAN EXTENSION USE 6" CLASS 200 PVS LOCATED BELOW BOTTOM SLEEVE.
3. LOCATOR WIRE SHALL BE BROUGHT FROM OUTSIDE VALVE CAN TO TOP OF VALVE CAN AT EVERY VALVE LOCATION. AT A TEE WHERE MORE THAN ONE VALVE IS INSTALLED, THE LOCATOR WIRE ONLY NEEDS TO BE BROUGHT UP IN ONE CAN.
4. VALVE SLEEVE SHALL BE OF A DESIGN AS NOT TO TRANSMIT SHOCK TO THE VALVE.
5. LID SHALL BE LABELED "WATER" FOR POTABLE LINES.
6. LID SHALL BE LABELED "RW" AND PAINTED PURPLE FOR RECLAIMED WATER LINES.
7. IN UNPAVED AREAS, FIBERGLASS VALVE MARKERS SHALL BE INSTALLED ADJACENT TO VALVE CAN.



CITY OF SOLVANG - STANDARD DETAILS

VALVE CAN

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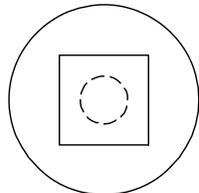
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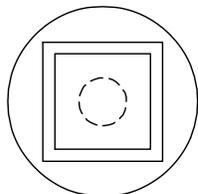
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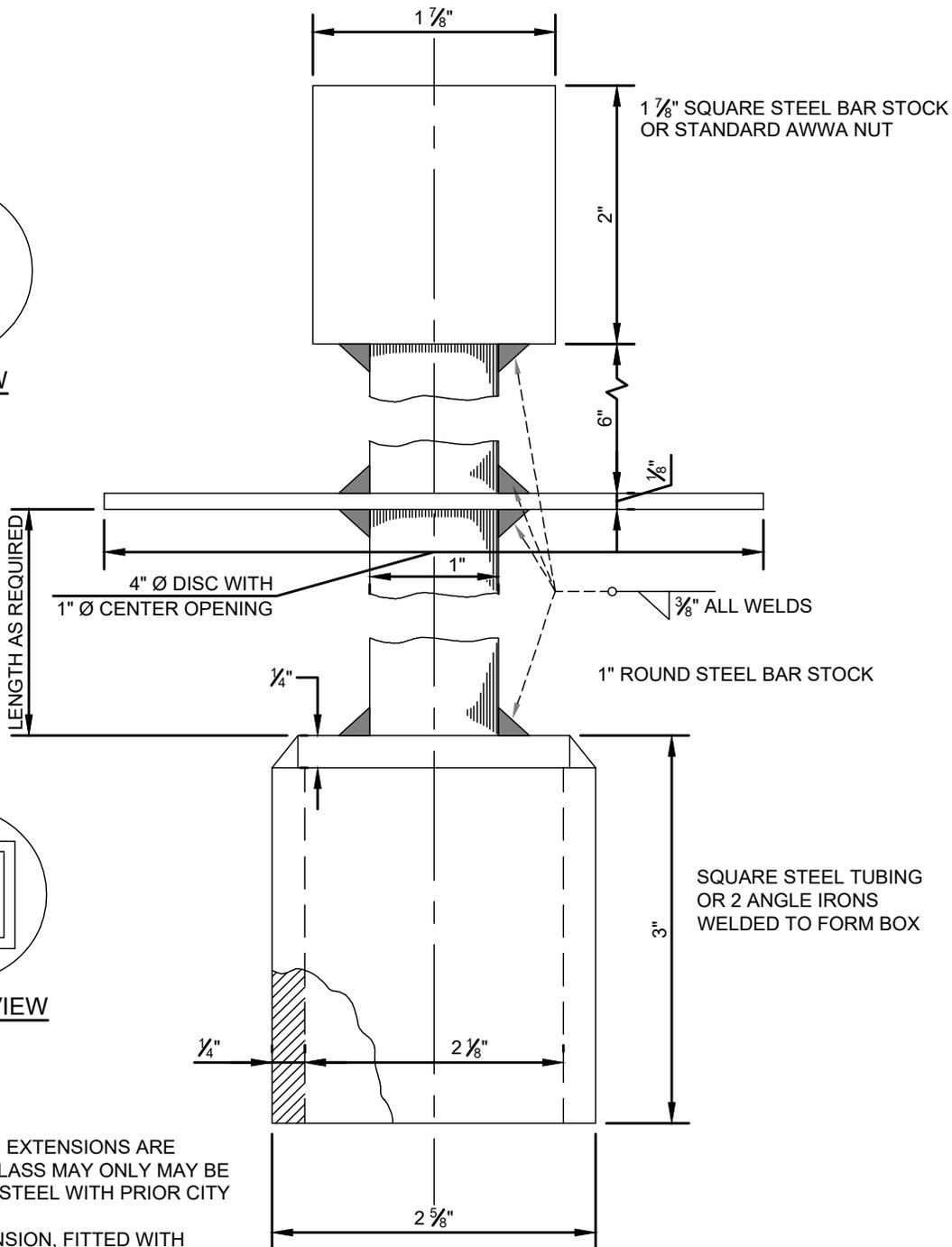
FOR GATE VALVE



TOP VIEW



BOTTOM VIEW



NOTES

1. STEEL VALVE STEM EXTENSIONS ARE REQUIRED. FIBERGLASS MAY ONLY BE SUBSTITUTED FOR STEEL WITH PRIOR CITY APPROVAL.
2. VALVE STEM EXTENSION, FITTED WITH SELF-CENTERING DEVICE AND ADAPTER SHALL BE INSTALLED WHEN COVER OVER VALVE NUT EXCEEDS 36". WHEN VALVE STEM EXTENSION IS REQUIRED, OPERATING NUT SHALL BE 12" BELOW TOP OF VALVE CAN.

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CITY OF SOLVANG - STANDARD DETAILS

VALVE CAN

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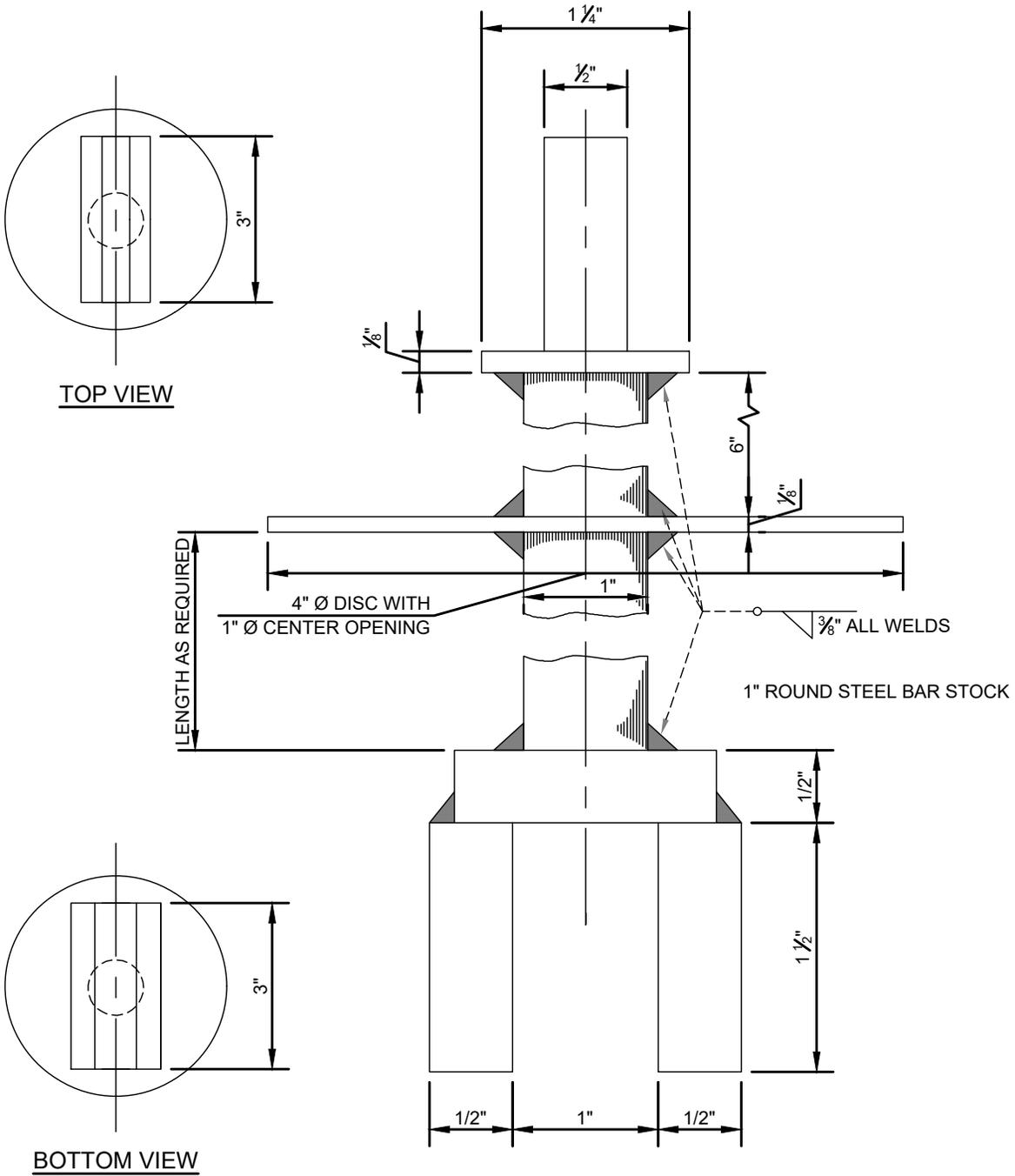
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FOR BALL VALVE



NOTES

1. STEEL VALVE STEM EXTENSIONS ARE REQUIRED. FIBERGLASS MAY ONLY MAY BE SUBSTITUTED FOR STEEL WITH PRIOR CITY APPROVAL.
2. VALVE STEM EXTENSION, FITTED WITH SELF-CENTERING DEVICE AND ADAPTER SHALL BE INSTALLED WHEN COVER OVER VALVE NUT EXCEEDS 36". WHEN VALVE STEM EXTENSION IS REQUIRED, OPERATING NUT SHALL BE 12" BELOW TOP OF VALVE CAN.



CITY OF SOLVANG - STANDARD DETAILS

VALVE CAN

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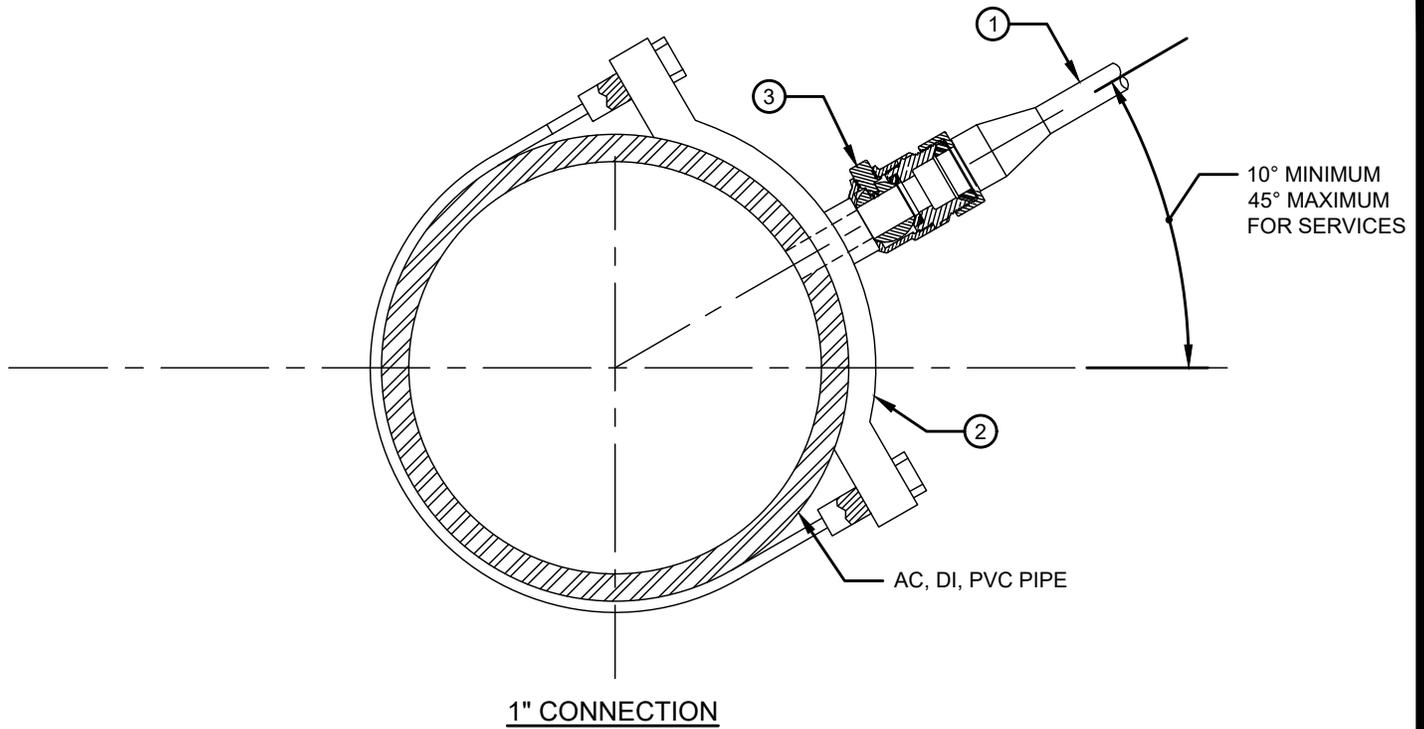
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ITEM	QUANTITY	DESCRIPTION
1	VARIES	1" PIPE SHALL BE HDPE.
2	1	STAINLESS STEEL SERVICE SADDLE WITH FIP THREAD. STRAP SHALL BE USED FOR AC PIPE
3	1	CORPORATION STOP WITH MIP THREADED INLET AND PACK JOINT CONNECTION OUTLET. ALL THREAD JOINTS SHALL INCLUDE JOINT COMPOUND. OPERATING VALVE SHALL FACE UPWARD

NOTES

- SERVICE AND OTHER TAPS SHALL NOT BE MADE CLOSER THAN 2 FEET TO THE EDGE OF A BELL, COUPLING, JOINT, FITTING, OR OTHER SERVICE.



CITY OF SOLVANG - STANDARD DETAILS

1", 1-1/2" & 2" SERVICE CONNECTION

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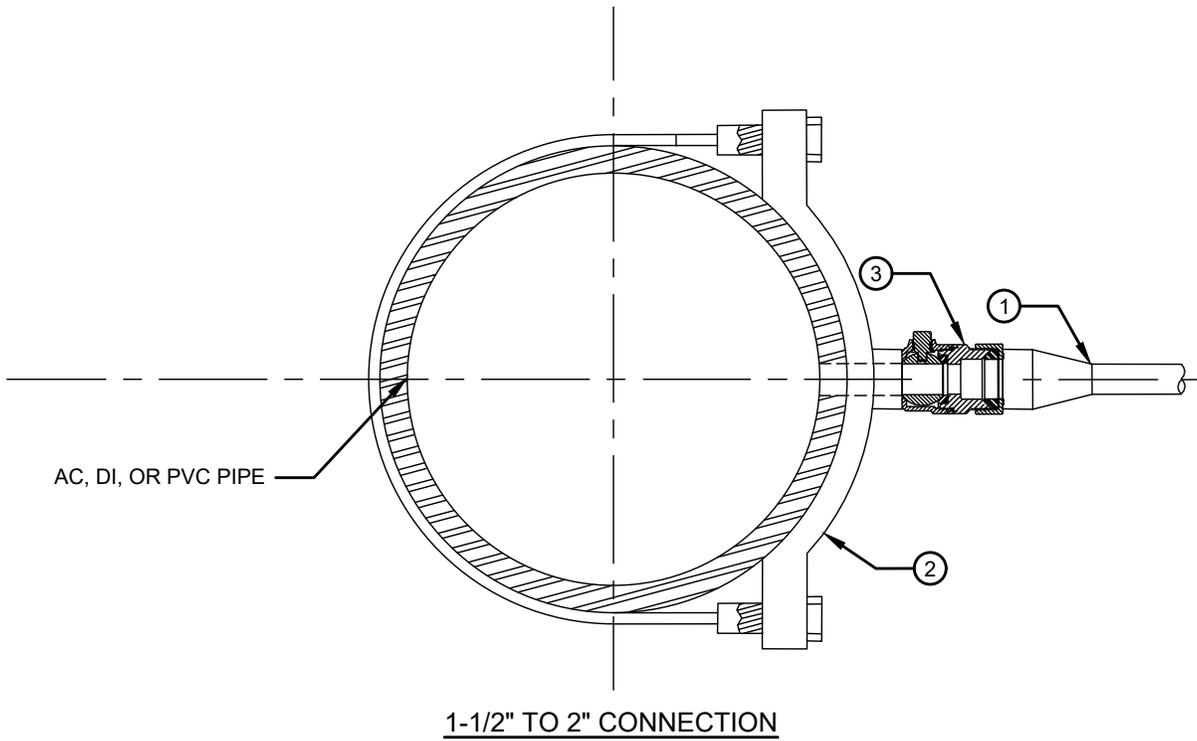
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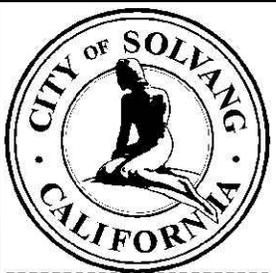
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ITEM	QUANTITY	DESCRIPTION
1	VARIES	1-1/2" TO 2" PIPE SHALL BE SCH 80 PVC
2	1	STAINLESS STEEL SERVICE SADDLE WITH FIP THREAD. STRAP SHALL BE USED FOR AC PIPE
3	1	CORPORATION STOP WITH MIP THREADED INLET AND PACK JOINT CONNECTION OUTLET. ALL THREAD JOINTS SHALL INCLUDE JOINT COMPOUND. OPERATING VALVE SHALL FACE UPWARD

NOTES

1. SERVICE AND OTHER TAPS SHALL NOT BE MADE CLOSER THAN 2 FEET TO THE EDGE OF A BELL, COUPLING, JOINT, FITTING, OR OTHER SERVICE.



CITY OF SOLVANG - STANDARD DETAILS

1", 1-1/2" & 2" SERVICE CONNECTION

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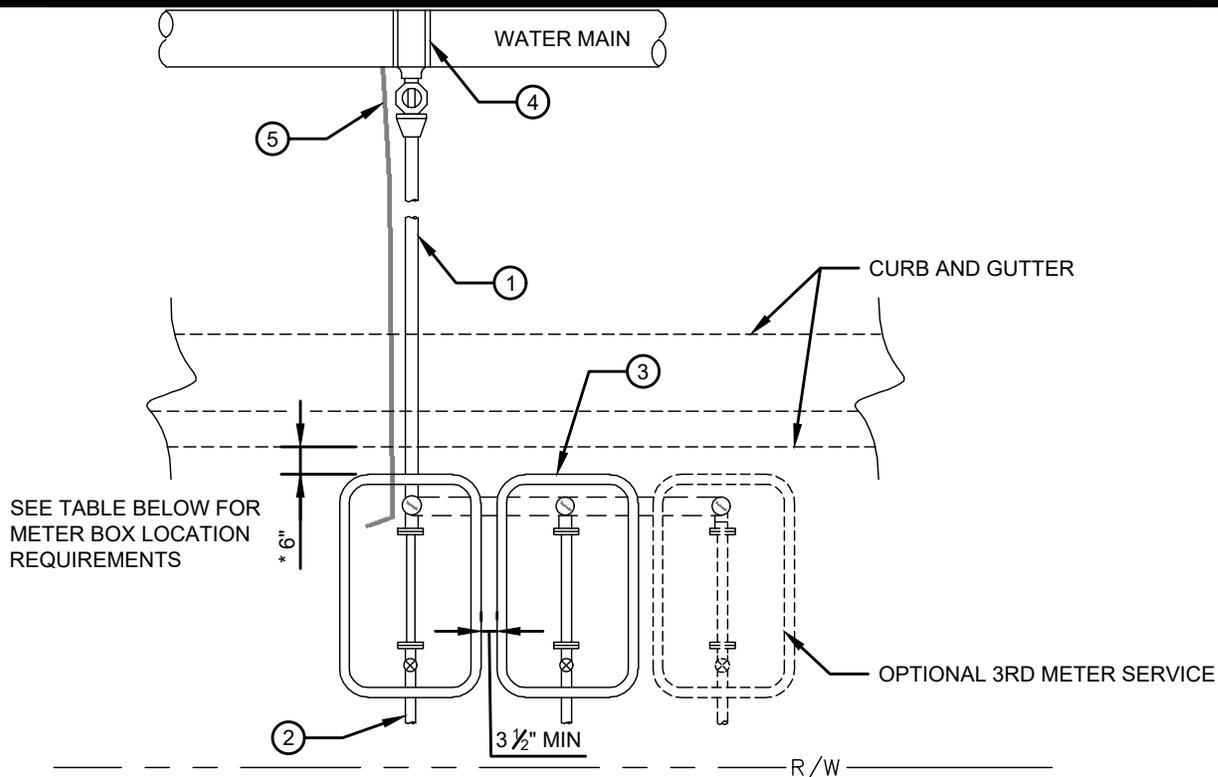
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SEE TABLE BELOW FOR METER BOX LOCATION REQUIREMENTS

ITEM	QUANTITY	DESCRIPTION
1	VARIES	2" SCH 80 PVC
2	VARIES	1" HDPE
3	VARIES	10"x20" METER BOX INSTALLATION PER STD DETAIL 513
4	VARIES	SERVICE CONNECTION INSTALLATION PER STD DETAIL 511
5	VARIES	INSULATED 12 GAGE SOFT COPPER LOCATOR WIRE FROM MAIN SHALL BE RUN TO INTERIOR OF METER BOX WITH MIN. 6" TAIL SECURED TO SERVICE LINE EVERY 8' MIN WITH 10 MIL PIPE TAPE

METER BOX LOCATION

CASE NO	CONDITIONS	METER BOX LOCATOIN
1	GRASS PARKWAY BETWEEN CURB AND SIDEWALK	6" BEHIND BACK OF CURB (AS SHOWN IN DETAIL ABOVE)
2	SIDEWALK DIRECTLY BEHIND CURB AND R/W EXTENDS MIN. OF 4' BEHIND SIDEWALK	DIRECTLY BEHIND SIDEWALK
3	SIDEWALK DIRECTLY BEHIND CURB AND R/W ENDS NEAR BACK OF SIDEWALK	6" BEHIND BACK OF CURB (AS SHOWN IN DETAIL ABOVE)



CITY OF SOLVANG - STANDARD DETAILS

2-INCH SERVICE CONNECTION MANIFOLD

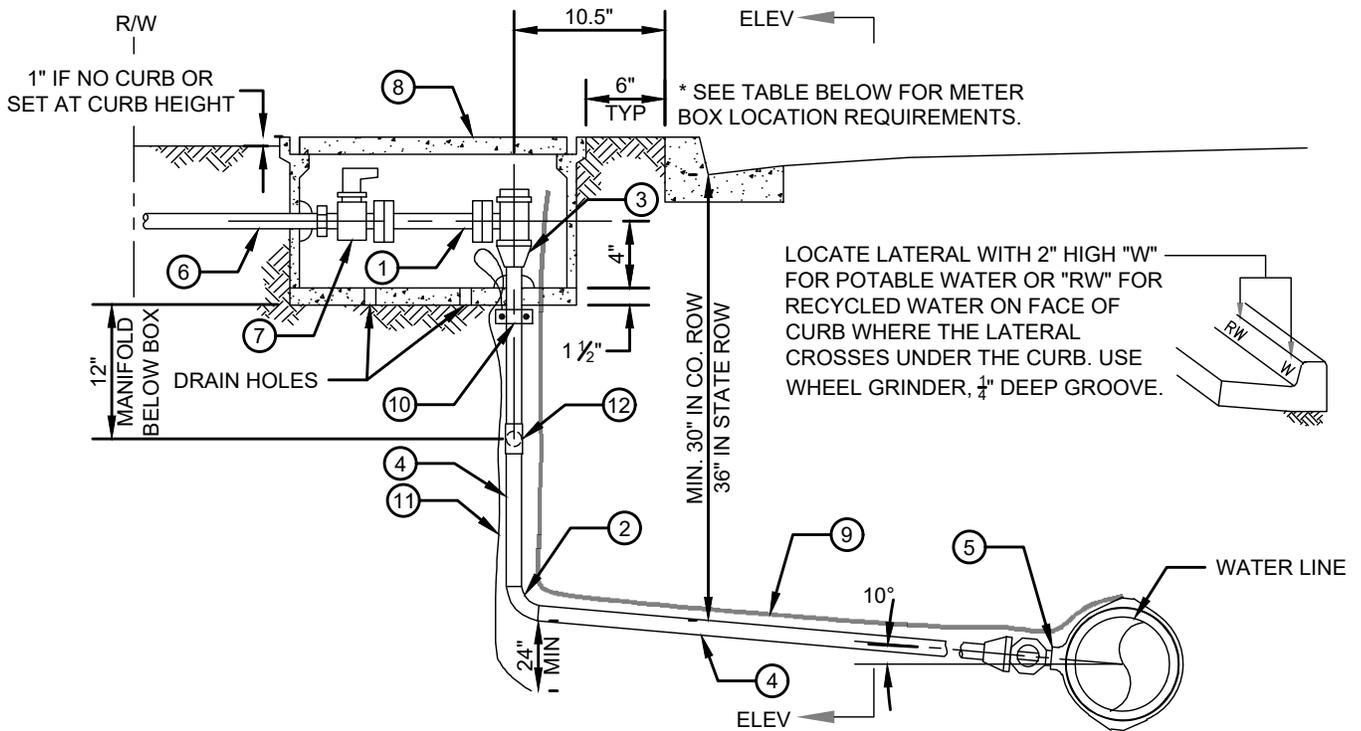
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512
 1 OF 3



ITEM	QUANTITY	DESCRIPTION
1	1	PVC JUMPER NIPPLE, (1-1/2" x 13-1/4" FOR 1-1/2" MTR) AND (2" x 17-1/4" FOR 2" MTR)
2	1	2" SCH 80 PVC 90° ELBOW
3	1	2" x 2" OR 2" x 1-1/2" ANGLED BALL METER STOP WITH 360° TEE HEAD ROTATION, FLARED PACK JOINT x METER FLANGE
4	VARIES	2" SCH 80 PVC
5	1	SERVICE CONNECTION INSTALLED PER STD DETAIL 511
6	VARIES	HDPE PIPE
7	1	1-1/2" OR 2" CURB STOP, METER FL x FIP THREAD
8	1	10"x20" METER BOX INSTALLED PER STD DETAIL 513
9	1	INSULATED 12 GAGE SOFT COPPER LOCATOR WIRE FROM MAIN SHALL BE RUN TO INTERIOR OF METER BOX WITH MIN. 6" TAIL SECURED TO SERVICE LINE EVERY 8' MIN. WITH 10 MIL PIPE TAPE
10	1	WIRE CLAMP, SEE NOTE 8
11	1	AWG NO. 8 STRANDED COPPER ANODE LEAD WIRE, LEAVE 18" OF COILED WIRE IN METER BOX
12	1	2" SCH 80 PVC TEE

SEE NOTES ON PAGE 3



CITY OF SOLVANG - STANDARD DETAILS

2-INCH SERVICE CONNECTION MANIFOLD

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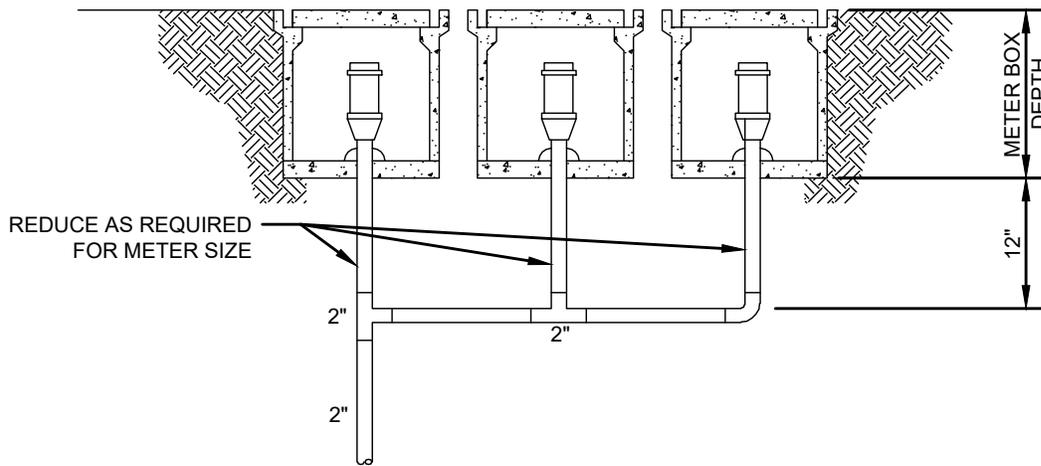
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ELEVATION

NOTES

1. SIZE SERVICE AS INDICATED ON PROJECT PLANS.
2. PIPE THREADS SHALL BE CLEAN AND SHARP AND WATER TIGHT SEALED WITH APPROVED JOINT COMPOUND.
3. CUSTOMER BALL VALVE SHALL BE IMMEDIATELY UPSTREAM OF BACK FLOW PREVENTER DEVICE.
4. ALL PIPE SHALL BE LAID STRAIGHT AND AT RIGHT ANGLES TO THE WATER MAIN.
5. JUMPER NIPPLE SHALL BE ON CENTER WITH METER BOX READING LID.
6. METERS SHALL BE LOCATED A MINIMUM OF FIVE FEET CLEAR OF ABOVE AND BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, UTILITIES, CURB RETURNS, ADA RAMP, TOP OF "X", DRIVEWAYS, STREET LIGHTS AND STREET SIGNS, AND TEN FEET CLEAR OF TREES AND BUSHES.
7. ATTACH THE SERVICE TRACING WIRE TO THE MAINLINE TRACER WIRE USING CITY APPROVED GEL CAPS.
8. SERVICE LINE MANIFOLD SHALL BE TEN FEET HORIZONTALLY CLEAR OF PARALLEL SEWER AND RECYCLED WATER PIPELINES.



CITY OF SOLVANG - STANDARD DETAILS

2-INCH SERVICE CONNECTION MANIFOLD

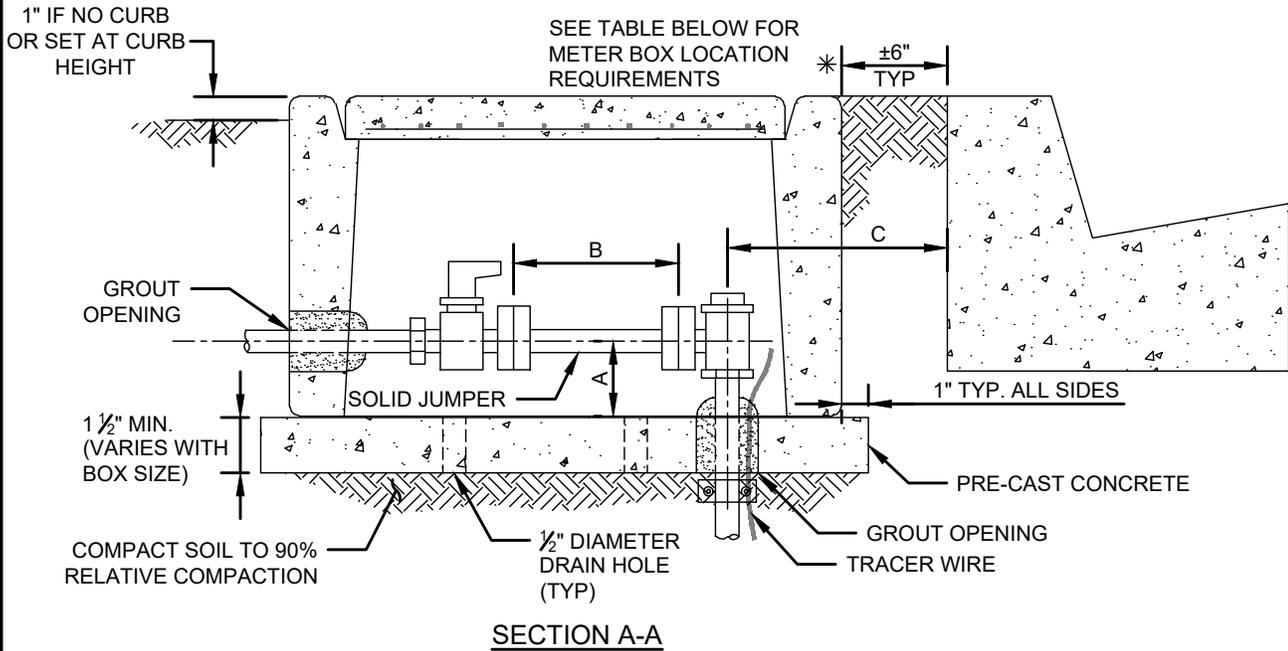
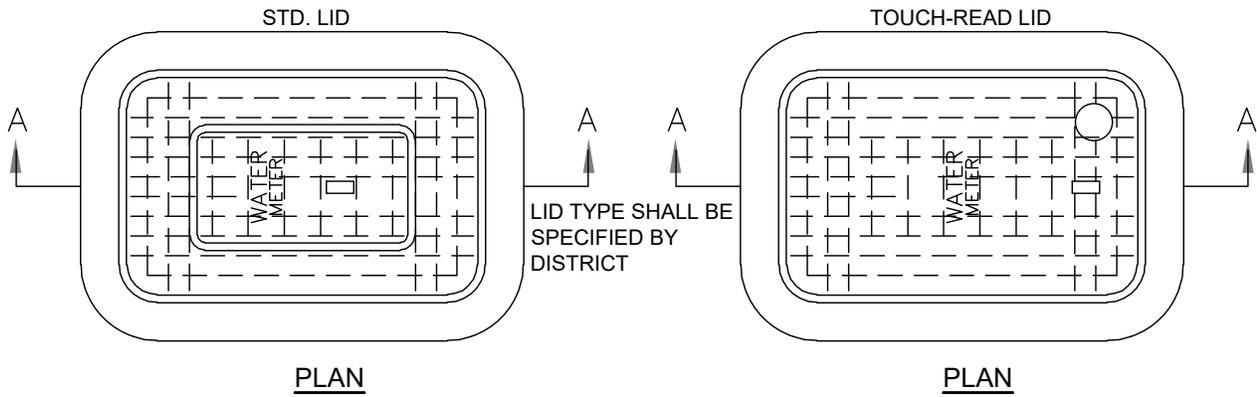
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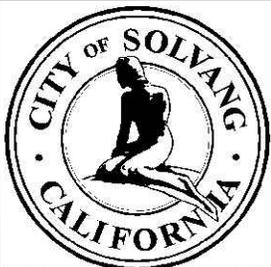
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3 OF 3



METER BOX LOCATION		
CASE NO	CONDITIONS	METER BOX LOCATOIN
1	GRASS PARKWAY BETWEEN CURB AND SIDEWALK	6" BEHIND BACK OF CURB (AS SHOWN IN DETAIL ABOVE)
2	SIDEWALK DIRECTLY BEHIND CURB AND R/W EXTENDS MIN. OF 4' BEHIND SIDEWALK	DIRECTLY BEHIND SIDEWALK
3	SIDEWALK DIRECTLY BEHIND CURB AND R/W ENDS NEAR BACK OF SIDEWALK	6" BEHIND BACK OF CURB (AS SHOWN IN DETAIL ABOVE)

METER SIZE	A	B	C	D	E
1"	3 1/2"	11"	9 3/4"	10"	20"
1 1/2"	4"	13 1/4"	13"	17"	30"
2"	4"	17 1/4"	11"	17"	30"



CITY OF SOLVANG - STANDARD DETAILS

METER BOX FOR UP TO 2" METERS

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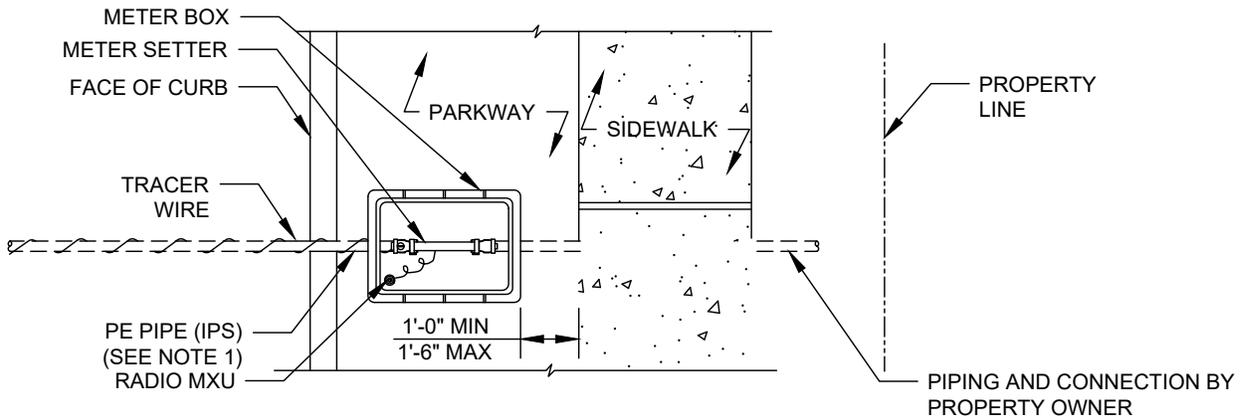
NOTES

1. METER BOX BASE SHALL BE PRE-CAST CONCRETE.
2. METER BOX FOR 1" LATERALS SHALL BE 10"x20" ARMORCAST METER BOX WITH ARMORCAST A6000483R LID.
3. METER BOX FOR 1-1/4" TO 2" LATERALS SHALL BE BROOKS 65 OR 66.
4. FOR BOXES IN AREA WHERE VEHICULAR TRAVEL IS ANTICIPATED, A TRAFFIC RATED LID (H-20) WITH READING LID SHALL BE USED.
5. ALL JOINTS BETWEEN BASE AND METER BOX AND OPENINGS AT METER BOX INLET & OUTLET SHALL BE MORTARED AS DIRECTED BY CITY INSPECTOR.
6. TRAFFIC RATED COVERS WITH READING LID ARE REQUIRED WHERE ROLLED CURB AND/OR NO CURBS HAVE BEEN INSTALLED ALONG EDGE OF PAVEMENT. WHERE NO CURBS EXIST, THE METER BOX SHALL BE LOCATED 15" BEHIND EDGE OF PAVEMENT.
7. METERS SHALL BE LOCATED A MINIMUM OF TEN FEET CLEAR ABOVE AND FIVE FEET CLEAR BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, UTILITIES, CURB RETURNS, ADA RAMPS, TOP OF "X", DRIVEWAYS, STREET LIGHTS AND STREET SIGNS, AND TEN FEET CLEAR OF TREES AND BUSHES.
8. D AND E REFERENCE THE SIZE OF THE METER BOX.

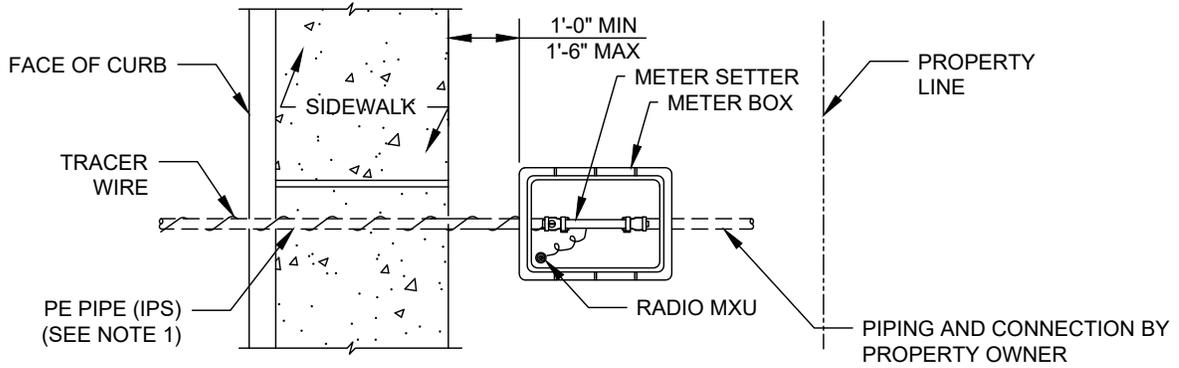
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	METER BOX FOR UP TO 2" METERS		REVISED: ----
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SINGLE SERVICE IN PARKWAY



SINGLE SERVICE

NOTES:

1. SEE THESE DETAILS AND CONSTRUCTION DRAWINGS FOR SERVICE CONNECTION PIPE SIZE. 1-1/2 INCH AND 2 INCH METERS SHALL BE INSTALLED AS SINGLE SERVICES WITH THE SAME SERVICE CONNECTION AS THE METER, UNLESS OTHERWISE SHOWN.

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CITY OF SOLVANG - STANDARD DETAILS

**STANDARD METER LOCATIONS
1" TO 2" METERS**

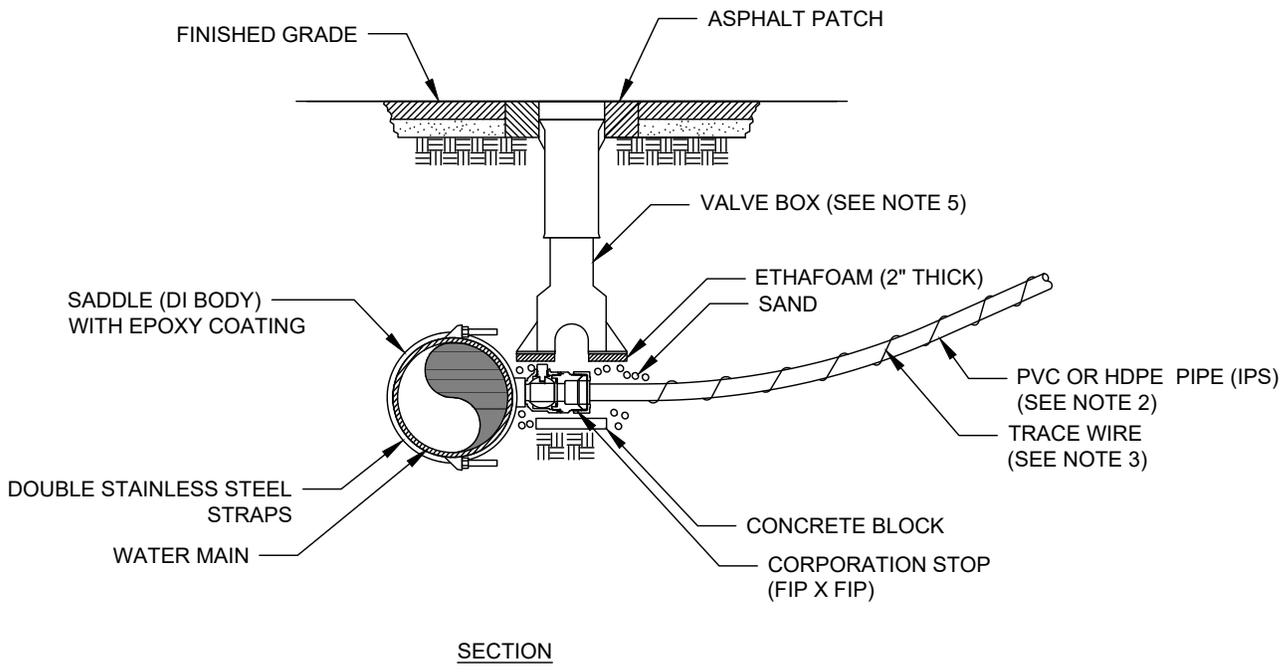
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514
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IPS = IRON PIPE SIZE
 FIP = FEMALE IRON PIPE THREAD
 MIP = MALE IRON PIPE THREAD

NOTES:

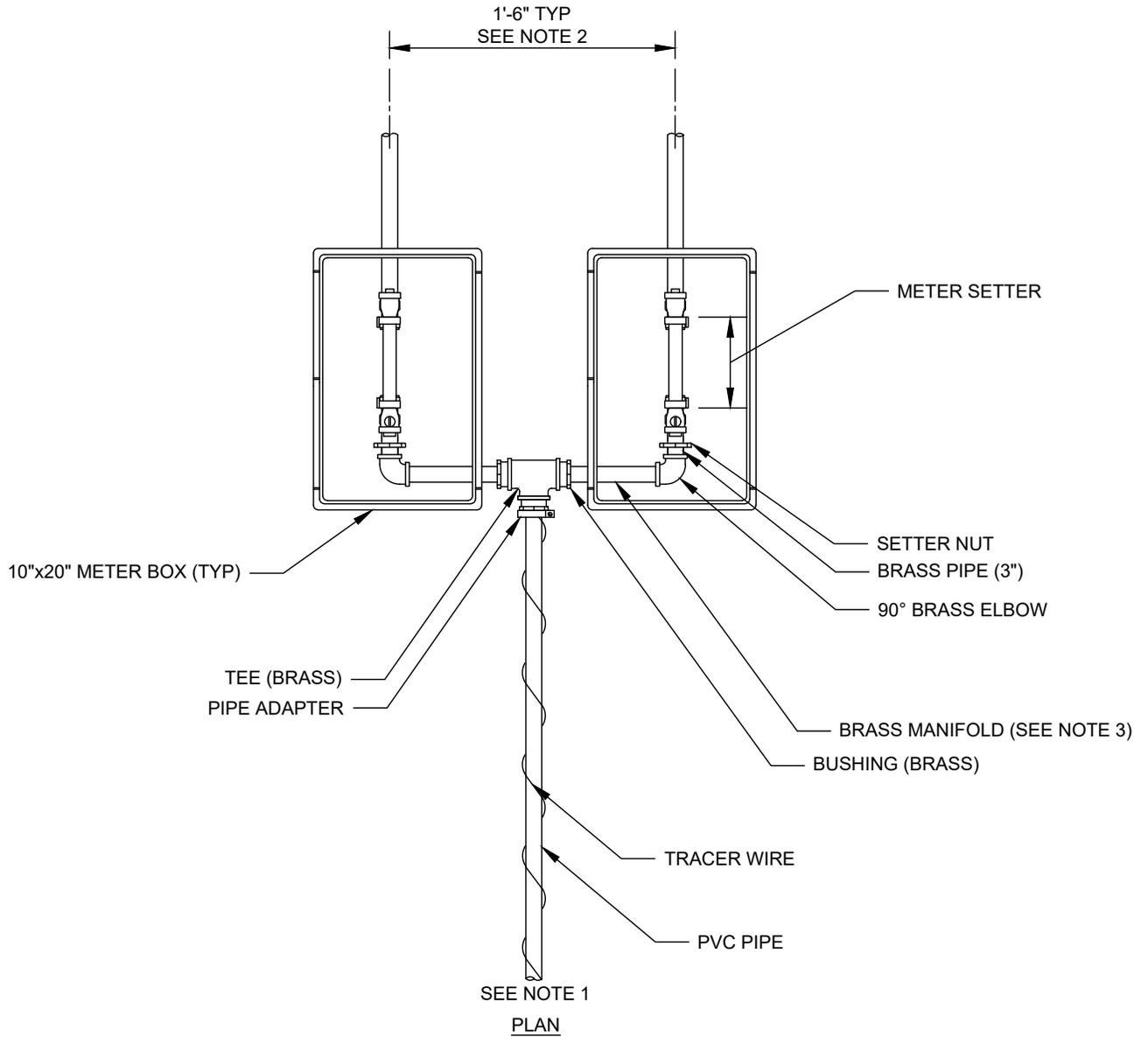
1. MANIFOLD SERVICE CONNECTION SHALL ONLY BE USED FOR TRIPLE OR QUADRUPLE MANIFOLDS. FOR SINGLE AND DOUBLE SERVICES, USE CORPORATION STOP CONNECTIONS.
2. SERVICE CONNECTION PIPE FOR TRIPLE AND QUADRUPLE MANIFOLDS SHALL BE 2" DIAMETER.
3. ATTACH 12 GAUGE TRACER WIRE TO WATER MAIN TO MAKE ELECTRICALLY CONTINUOUS.
4. SERVICE PIPE SHALL BE BURIED IN SAND.
5. VALVE BOX LIDS SHALL BE INSTALLED FLUSH WITH FINISHED GRADE. RAISE LIDS AFTER PAVING TO FINAL GRADE. SEE STANDARD DETAIL 510 FOR VALVE BOX DETAIL.
6. DIRECT TAPPING OF WATER MAIN IS NOT ALLOWED.

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CITY OF SOLVANG - STANDARD DETAILS	
MANIFOLD SERVICE CONNECTION	
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515
1 OF 1



NOTES:

1. USE CORPORATION STOP CONNECTION.
2. MANIFOLD LENGTH BETWEEN SETTERS SHALL BE 2 FEET.
3. MANIFOLD SIZE SHALL BE 1 INCH FROM BUSHING AT TEE.
4. THE METER BOX SHALL BE CENTERED OVER THE METER SETTER ASSEMBLY AS SHOWN.

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CITY OF SOLVANG - STANDARD DETAILS

DOUBLE SERVICE MANIFOLD

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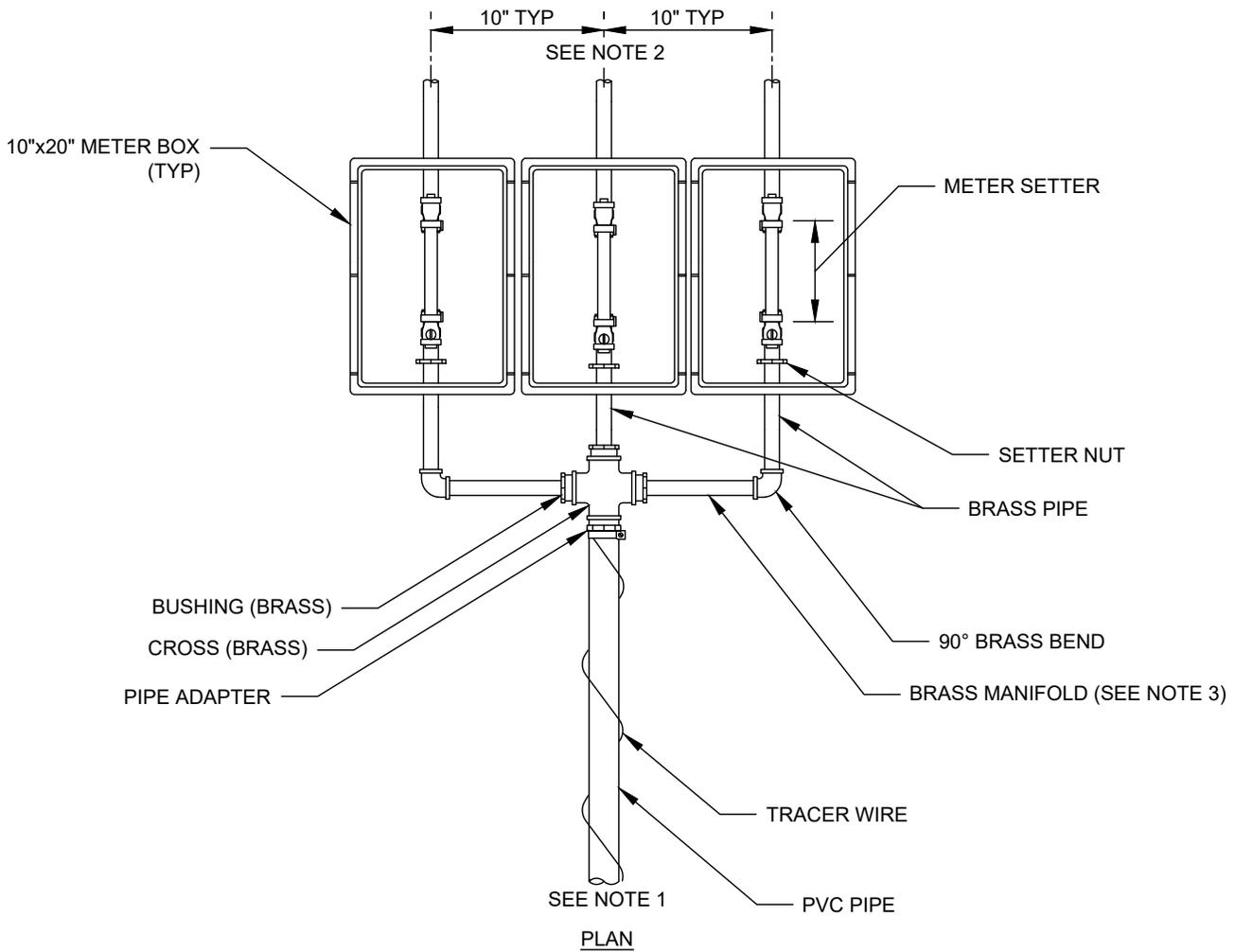
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NOTES:

1. USE MANIFOLD SERVICE CONNECTION. SEE STANDARD DETAIL 515.
2. MANIFOLD LENGTH BETWEEN SETTERS SHALL BE 24 INCHES.
3. MANIFOLD SIZE SHALL BE 1 INCH FROM BUSHING AT CROSS.
4. THE METER BOX SHALL BE CENTERED OVER THE METER SETTER ASSEMBLY AS SHOWN.



CITY OF SOLVANG - STANDARD DETAILS

TRIPLE SERVICE MANIFOLD

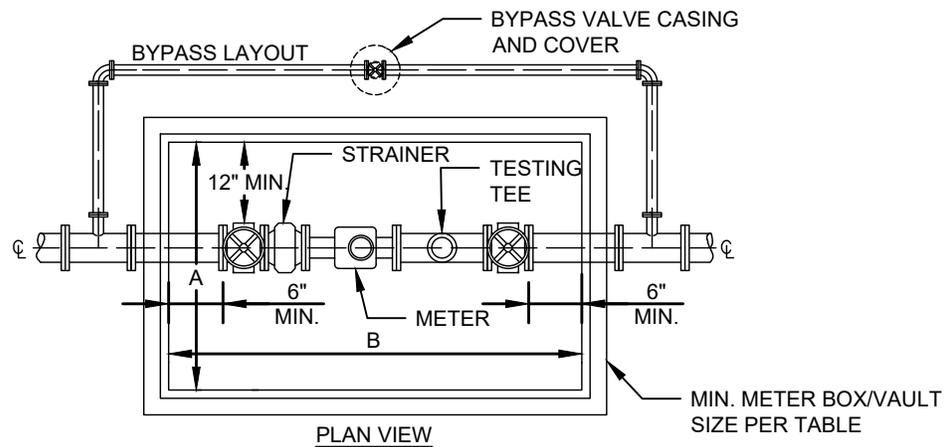
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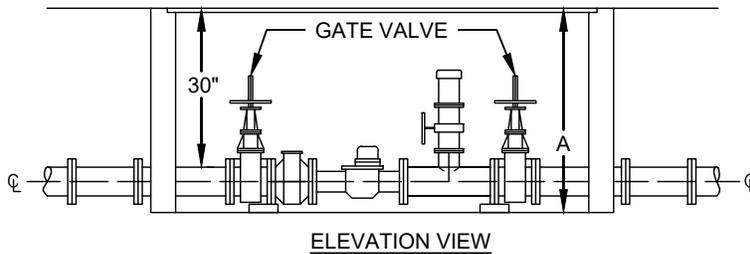
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1 OF 1



	A	B	C
3"	20"	48"	42"
4" & 6"	40"	72"	42"

MINIMUM METER
BOX/VAULT
SIZE



NOTES:

1. SIZE VALVE AND APPURTENANCES AS SHOWN ON PROJECT PLANS.
2. METER SHALL READ IN HUNDRED CUBIC FEET.
3. ALL PIPE SHALL BE OF THE SAME SIZE AS THE METER.
4. ALL BURIED FERROUS PIPE AND FITTINGS SHALL BE WRAPPED WITH 10 MIL THICK POLYETHYLENE SHEET.
5. ALL PIPE IN THE RIGHT-OF-WAY SHALL BE D.I.P. WITH MECHANICAL JOINTS AND RETAINER GLANDS.
6. ALL CUSTOMER CONNECTIONS SHALL BE DOWNSTREAM.
7. USE AWWA STANDARD C153 DUCTILE IRON FITTINGS FOR ALL MECHANICAL JOINT FITTINGS.
8. CUSTOMER'S REGISTERED ENGINEER SHALL SUBMIT ALTERNATIVE DESIGN IF FLOOD ZONE EXCEEDS 36".
9. USE RP IF RECYCLED WATER IS ON SITE.



CITY OF SOLVANG - STANDARD DETAILS

3", 4", AND 6" METER INSTALLATION

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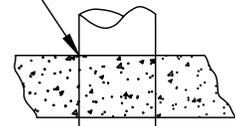
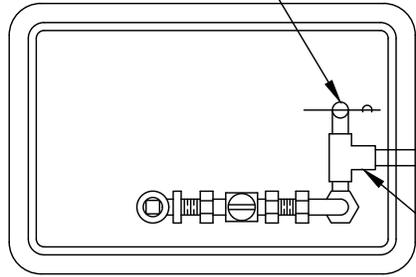
518
1 OF 1

CONCRETE THRUST COLLAR SEE STD. DET. 523

1" SCH 80 ELBOW, BRASS BUSHING AS REQUIRED, BY METER SIZE.

2" J-1900 BALL VALVE

M.J. CAP DRILLED FOR 2" FEMALE THREAD



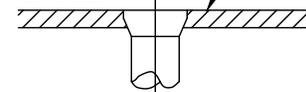
2" SCH 80
RED. TEE, SCH 80, AS REQUIRED BY METER SIZE.

PLAN

2" BRASS PLUG
2" BRASS 90° ELBOW

VALVE BOX, SEE STD. DET. 510

2" J-1900 2" MALE ADAPTER

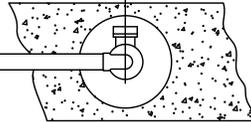
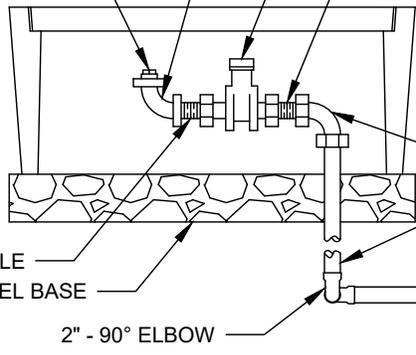


2" - 90° ELBOW

2" CLOSE BRASS NIPPLE
12" GRAVEL BASE

2" - 90° ELBOW

2" SCH 80



SECTION

NOTES:

1. METER BOX PER STANDARD DETAIL 513 WITHOUT BOTTOM.



CITY OF SOLVANG - STANDARD DETAILS

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2" FLUSH LINE WITH 1" SERVICE

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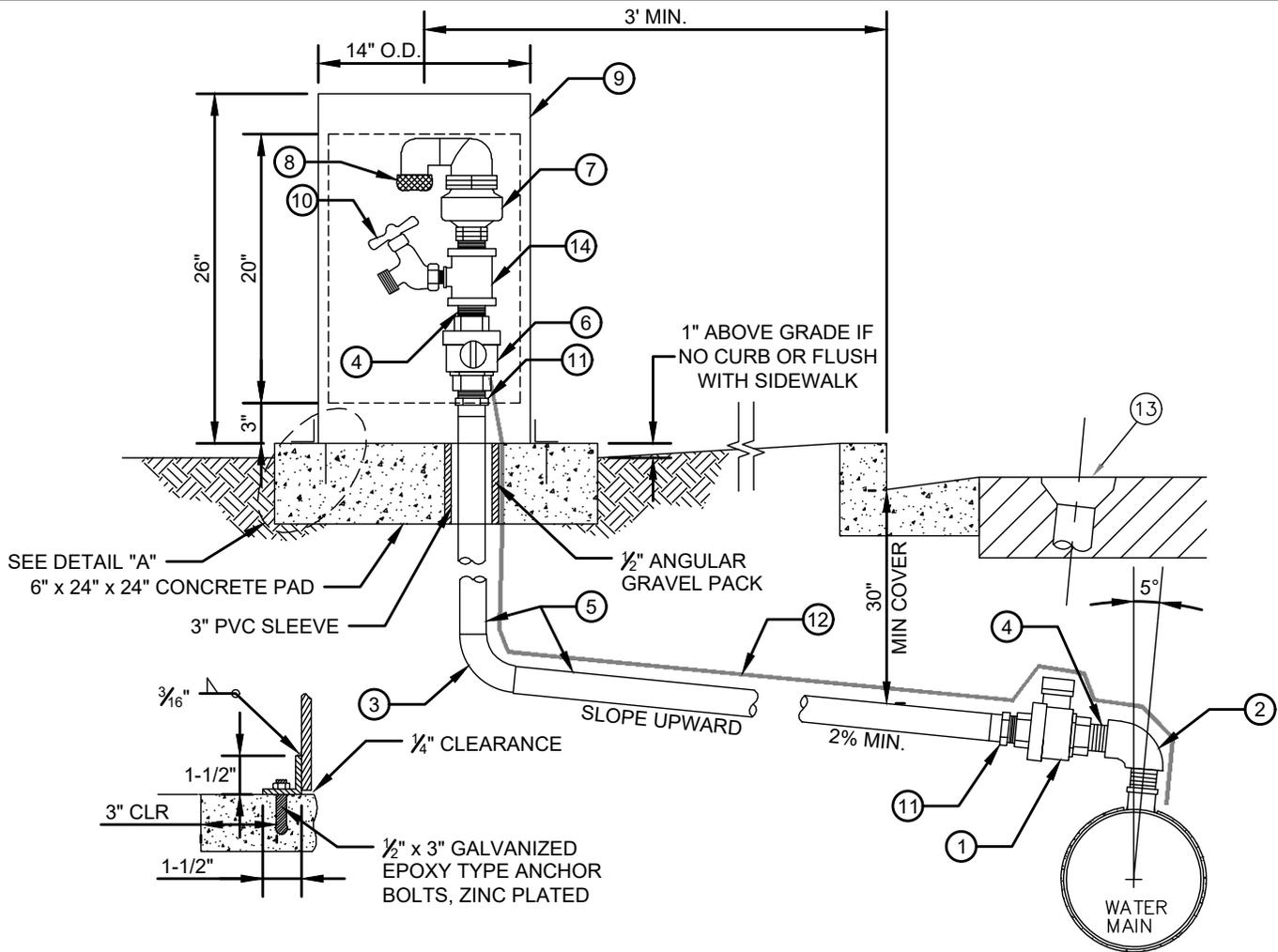
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DETAIL "A"

ITEM	QUANTITY	DESCRIPTION
1	1	2" BALL VALVE, FIP THREAD x FIP THREAD (WITH HANDLE ABOVE GROUND)
2	1	2" BRASS 90° ELBOW. MIP THREAD X FIP THREAD
3	1	2" SCH 80 PVC 90° ELBOW, SILVER SOLDERED
4	2	2" X CLOSE BRASS NIPPLE
5	VARIABLES	2" SCH 80 PVC WITH MIP ADAPTER
6	1	2" BALL VALVE, FIP THREAD X FIP THREAD (WITH HANDLE)
7	1	2" COMBINATION AIR VALVE
8	1	INSECT SCREEN
9	1	14" OD, 10 GAUGE STEEL PIPE, FABRICATED COVER, GALVANIZED OR OTHER APPROVED PROTECTIVE COATING
10	1	3/4" THREADED HOSE BIB
11	2	2" MALE ADAPTOR, MIP x PACK JOINT CONNECTION
12	VARIABLES	12 GAUGE INSULATED COPPER LOCATING WIRE FROM MAIN TAPED TO SERVICE LINE
13	1	ADJUSTABLE VALVE CAN PER STANDARD DETAIL 3-07
14	1	2"x2"x3/4" BRASS TEE, FIP

SEE NOTES ON PAGE 2



CITY OF SOLVANG - STANDARD DETAILS

1" & 2" COMBINATION AIR VALVE

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NOTES

1. THIS DETAIL APPLIES TO PIPELINES SIZES 10"-16" AND MAY BE MODIFIED FOR THE INSTALLATION OF 1" COMBINATION VALVES ON 6" AND 8" DIA. PIPELINES AS FOLLOWS: ITEMS 1-7, 10, 11, AND 14 ON PAGE 1 SHALL BE 1" AND ITEM 4 SHALL BE A 1" GALVANIZED STEEL NIPPLE WITH 2" NYLON BUSHING. VALVE CAN AND CONCRETE PAD MAY BE REDUCED IN SIZE ACCORDINGLY.
2. EXPOSED PIPING, AIR VALVE, AIR VALVE COVER, SHALL BE PAINTED PER MANUFACTURER'S RECOMMENDATIONS.
3. DRILL 2 ROWS OF 1/2" DIAMETER HOLES NEAR TOP OF COVER. TWELVE EVENLY SPACED HOLES SHALL BE DRILLED PER ROW.
4. WELD 3" X 1-1/2" X 1-1/2" X 3/16" BRACKET TO COVER IN 4 LOCATIONS.
5. DOOR SHALL BE ORIENTATED TO FACE STREET.
6. CALCULATIONS PREPARED BY A REGISTERED ENGINEER SHALL BE PROVIDED FOR COMBINATION AIR VALVE SIZING FOR PIPELINES 16" DIAMETER AND LARGER.
7. CAV SHALL BE LOCATED 5' CLEAR OF EASEMENT AND R/W LINES AND ALL ABOVE-GROUND OBSTRUCTIONS SUCH AS UTILITY POLES, SIGNS, ETC.
8. COMBINED 2" CAV/END DRAIN SHALL BE USED AT DEAD, END HIGH END POINTS.
9. CAV SHALL BE LOCATED A MINIMUM 5' CLEAR OF ABOVE-GROUND AND BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, CURB RETURNS, DRIVEWAYS, STREET LIGHTS AND STREET SIGNS, AND 10' CLEAR OF TREES AND BUSHES.
10. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 2,500 PSI.



CITY OF SOLVANG - STANDARD DETAILS

1" & 2" COMBINATION AIR VALVE

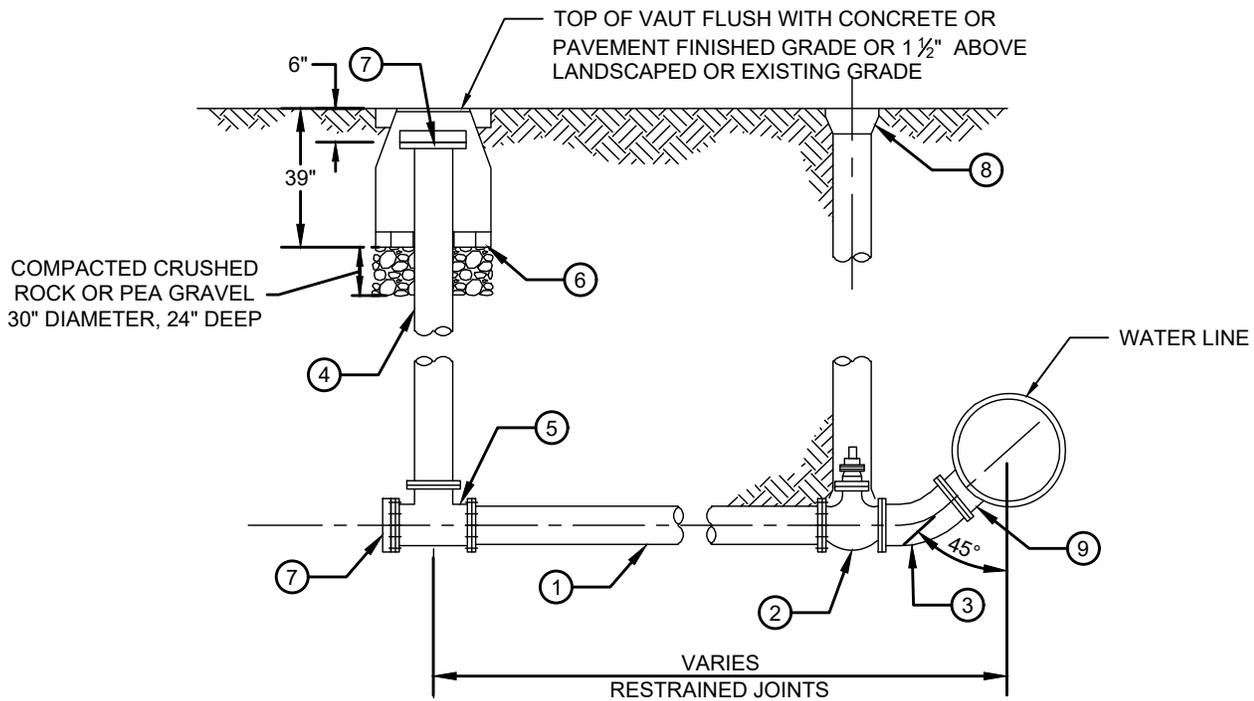
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ITEM	QUANTITY	DESCRIPTION
1	VARIES	PVC, AWWA C900, CLASS 200. DIAMETER AS INDICATED AT RIGHT
2	1	GATE VALVE, MJ X FL WITH RETAINER GLAND, SIZE AS INDICATED AT RIGHT, 6" MIN.
3	1	45 DEGREE DIP BEND, FL X FL
4	VARIES	DIP SPOOL. FL X FL. DIAMETER AS INDICATED AT RIGHT
5	1	TEE, MJ X FL WITH RETAINER GLAND, SIDE AS INDICATED AT RIGHT
6	1	30" TO 36" DIAMETER CIRCULAR VAULT WITH REINFORCED POLYMER COVER MARKED "BLOW OFF"
7	1	BLIND FLANGE, FASTENED WITH STAINLESS STEEL BOLTS & BUTS
8	1	ADJUSTABLE VALVE CAN PER STD DETAIL 510
9	1	MJ X FL TEE DI OR PVC MAIN, WELDED SADDLE WITH FLANGED OUTLET FOR STEEL MAIN

PIPELINE SIZE (IN)	BLOW OFF SIZE (IN)
6"-12"	6"
14"-22"	8"

NOTES:

- SPECIAL DESIGN OF BLOW OFF ASSEMBLIES SHALL BE REQUIRED FOR PIPELINES 24" AND LARGER DIAMETER.
- ALL EXPOSED PIPING SHALL BE FILLED PAINTED PER MANUFACTURE'S RECOMMENDATIONS.
- FOR RECYCLED WATER BLOW OFF. THE LID OF VAULT SHALL BE PURPLE AND LABELED "R.W. BLOW OFF".
- FOR RECYCLED WATER BLOW OFFS, BLIND FLANGE SHALL BE PAINTER PURPLE.
- WHEN POSSIBLE, FIRE HYDRANTS SHALL BE INSTALLED INSTEAD OF BLOW OFFS.
- BLOW OFFS SHALL BE LOCATED A MINIMUM OF FIVE FEET CLEAR OF ABOVE AND BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, CURB RETURNS.
- DRIVEWAYS, STREET LIGHTS AND STREET SIGNS, AND TEN FEET CLEAR OF TREES AND BUSHES.
- WRAP ALL BURIED FITTINGS AND BOLTS IN 10 MIL POLYETHYLENE.



CITY OF SOLVANG - STANDARD DETAILS

6" AND 8" BLOW OFF ASSEMBLY

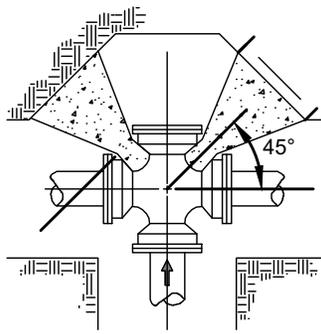
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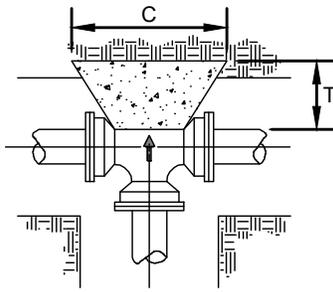
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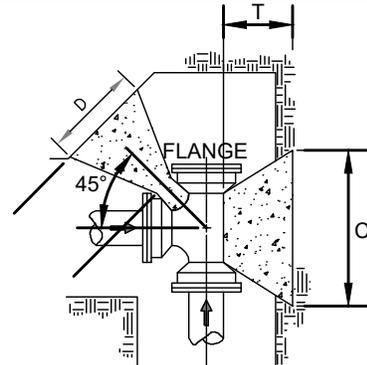
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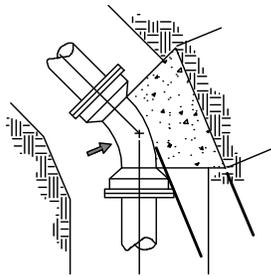
CROSS
(ONE END PLUGGED)
TABLE 1 & 2



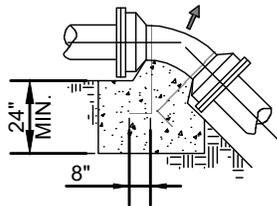
TEE
TABLE 1 & 2



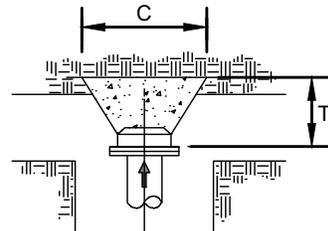
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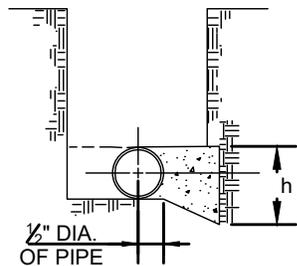
*** SEE SHEET 2**
HORIZONTAL BEND TABLES 1 & 2
HORIZONTAL BEND



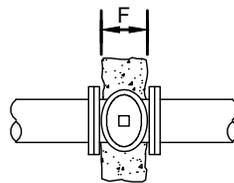
VERTICAL BEND
ANCHOR BLOCK



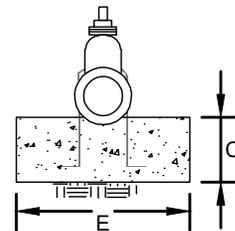
DEAD END
TABLE 1, SHEET 2



1/2" DIA.
OF PIPE
THRUST BLOCK
(TYPICAL SECTION)



VALVES
PLAN



VALVES
SECTION

SEE TABLES 1-3 ON SHEET 2.
SEE NOTES ON SHEET 3.



CITY OF SOLVANG - STANDARD DETAILS

CONCRETE THRUST BLOCK

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THRUST BLOCK DIMENSIONS

TABLE 1

PIPE SIZE (IN)	CROSSES, TEES, DEAD ENDS AND VALVES DIMENSION ARE IN FEET								90 & 45 DEGREE HORIZ. BENDS DIMENSION ARE IN FEET	
	T	h	B	C	D	O	F	G	A (90°)	A (45°)
4	3.00	2.00	1.25	1.50	2.25	2.00	1.50	1.50	2.25	1.25
6	4.00	2.50	2.25	3.00	4.00	2.00	1.50	1.50	4.00	2.2500
8	5.00	3.00	3.25	4.50	5.75	2.00	2.00	1.50	6.00	3.25
10	6.00	3.50	4.00	5.50	7.00	2.50	2.00	1.50	8.00	3.25
12	7.00	4.00	5.00	7.00	8.75	3.00	2.50	2.00	10.00	4.25
14	8.00	4.50	6.00	8.50	10.50	3.00	2.50	2.00	12.00	6.50

BLOCK SIZED BASED ON 250 PSI TEST PRESSURE AND 1000 PSF SOIL BEARING CAPACITY

TABLE 2

PIPE SIZE (IN)	22 ½ & 11 ¼ DEGREE HORIZONTAL BENDS DIMENSION ARE IN FEET			
	T	h	A(22 ½)	A(11 ¼)
4	2.00	1.50	1.50	1.50
6	2.50	1.50	2.00	1.50
8	3.00	2.00	2.50	1.50
10	3.50	2.00	4.00	2.00
12	3.50	2.00	5.50	2.75
14	4.00	2.50	6.00	3.00

BLOCK SIZED BASED ON 250 PSI TEST PRESSURE AND 1000 PSF SOIL BEARING CAPACITY

TABLE 3

PIPE SIZE (IN)	22 ½ & 11 ¼ DEGREE HORIZONTAL BENDS DIMENSION ARE IN FEET		
	45°	22 ½	11 ¼
4	16	8	4
6	36	18	9
8	64	32	16
10	100	51	25
12	144	73	37
14	196	100	50

BLOCK SIZED BASED ON 250 PSI TEST PRESSURE AND 1000 PSF SOIL BEARING CAPACITY

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CONCRETE THRUST BLOCK

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NOTES:

1. THE VALUES IN TABLE 1 ABOVE FOR SIZE OF THRUST ARE BASED ON A TEST PRESSURE OF 250 PSI AND SOIL BEARING CAPACITY OF 1000 PSF. A HIGHER SOIL BEARING PRESSURE MAY BE USED, IF THE PROJECT ENGINEER SUBMITS O THE DISTRICT A REPORT PREPARED BY A LICENSED GEOTECHNICAL ENGINEER INDICATING THAT THE NATIVE SOILS AT THE PROJECT SITE HAVE A HIGHER SOIL BEARING.
2. THE PROJECT ENGINEER SHALL SUBMIT CALCULATIONS FOR THRUST BLOCK SIZES OTHER THAN THOSE RECOMMENDED ABOVE. DIMENSIONS OF THRUST BLOCKS SHALL BE SHOWN ON THE PLANS.
3. CONCRETE MIX SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI.
4. THRUST BLOCKS SHALL BE INSTALLED TO THE DIMENSIONS AND CONFIGURATIONS AS SHOWN.
5. THRUST BLOCKS SHALL BE POURED SOLIDLY AGAINST FORM UNDISTURBED NATIVE SOIL.
6. CONCRETE POURED AGAINT THE PIPE FITTING SHALL NOT EXTEND TO THE JOINTS, AND A MIN, 3" CLEARANCE SHALL BE MAINTAINED FROM BOLTS.
7. JOINTS SHALL BE WRAPPED WITH TENTION #1 WAX TAPE BEFORE POURING CONCRETE.
8. UNLESS APPROVED OTHERWISE BY THE GWD INSPECTOR , WOOD FORMS SHALL BE USED FOR FORMING THRUST BLOCKS EXCEPT ON BEARING FACE BLOCKS.
9. ANCHOR RODS AT VALVES AND VERTICAL BENDS SHALL BE EPOXY COATED.
10. DIMENSIONS OF ALL THRUST BLOCKS SHALL BE SHOWN ON DESIGN DRAWING.

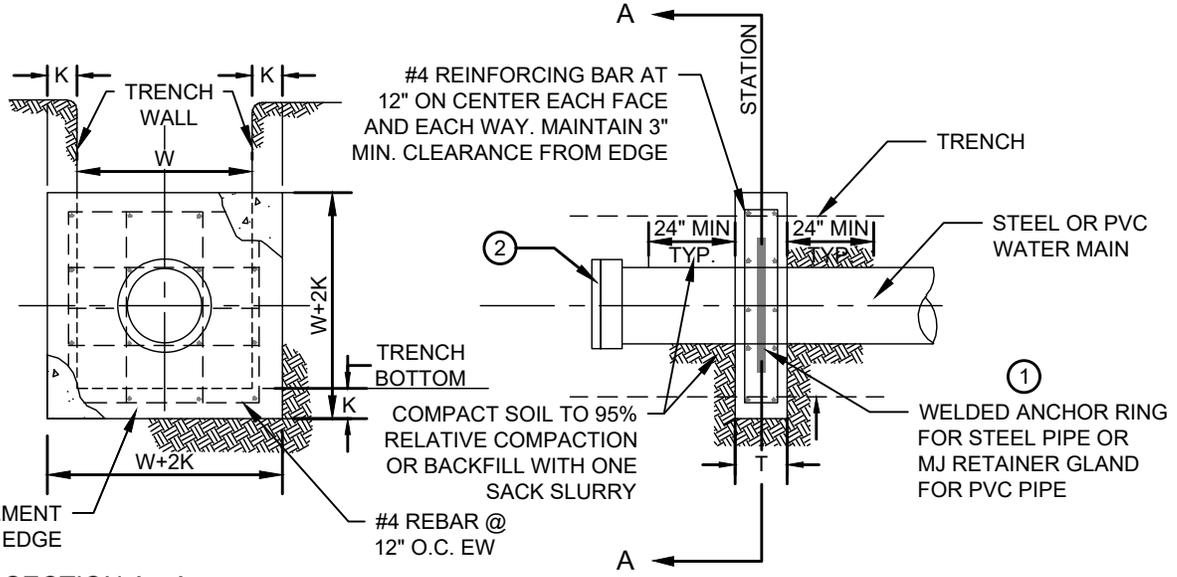
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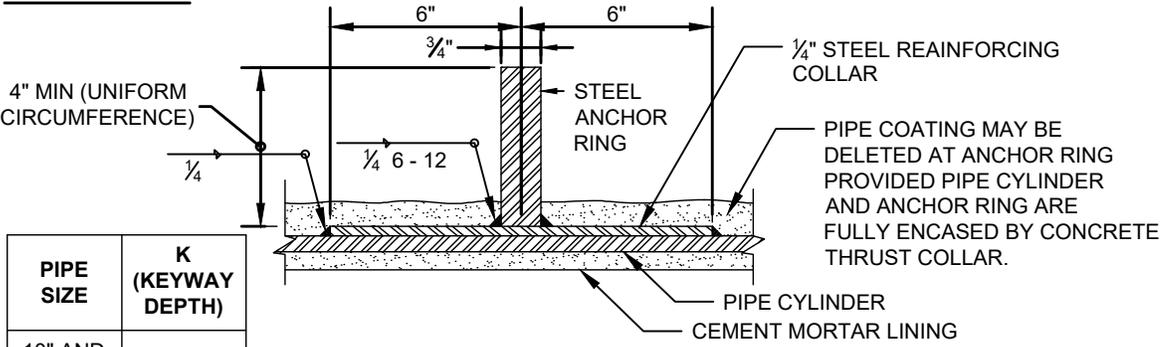
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SECTION A - A



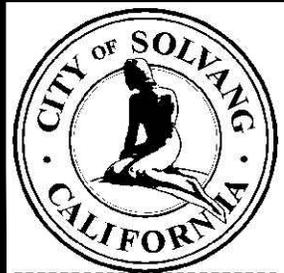
TYPICAL ANCHOR RING DETAIL

PIPE SIZE	K (KEYWAY DEPTH)
10" AND UNDER	6"
12"-18"	9"
20"-24"	12"
OVER 24"	BY DESIGN

ITEM	QTY.	DESCRIPTION
1	1	WELDED ANCHOR RING MJ RETAINER GLAND
2	1	BLIND FLANGE, DISHED HEAD, OR MJ END CAP WITH RETAINER GLAND

NOTES:

1. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI.
2. CONCRETE SHALL BE FORMED WITH TRIMMED EARTH AND OR LUMBER TO ACHIEVE REQUIRED CONFIGURATION.
3. ALL LUMBER FORMS SHALL BE REMOVED PRIOR TO BACKFILLING.
4. WHERE CONCRETE IS FORMED USING LUMBER, CONTRACTOR SHALL BACKFILL AND COMPACT EARTH FOR A DISTANCE OF 24" ALL AROUND THRUST COLLAR.
5. BLOCK BEARING (W x W) SHALL BE CALCULATED OR DETERMINED USING STD. DETAIL 522.
6. THRUST COLLAR THICKNESS (T) SHALL BE 12" MINIMUM FOR W UP 6 FEET . IF W IS LARGER THAN 6 FEET, STRUCTURAL CALCULATIONS REPAIRED BY A REGISTERED ENGINEER SHALL BE REQUIRED.



CITY OF SOLVANG - STANDARD DETAILS

CONCRETE THRUST COLLAR

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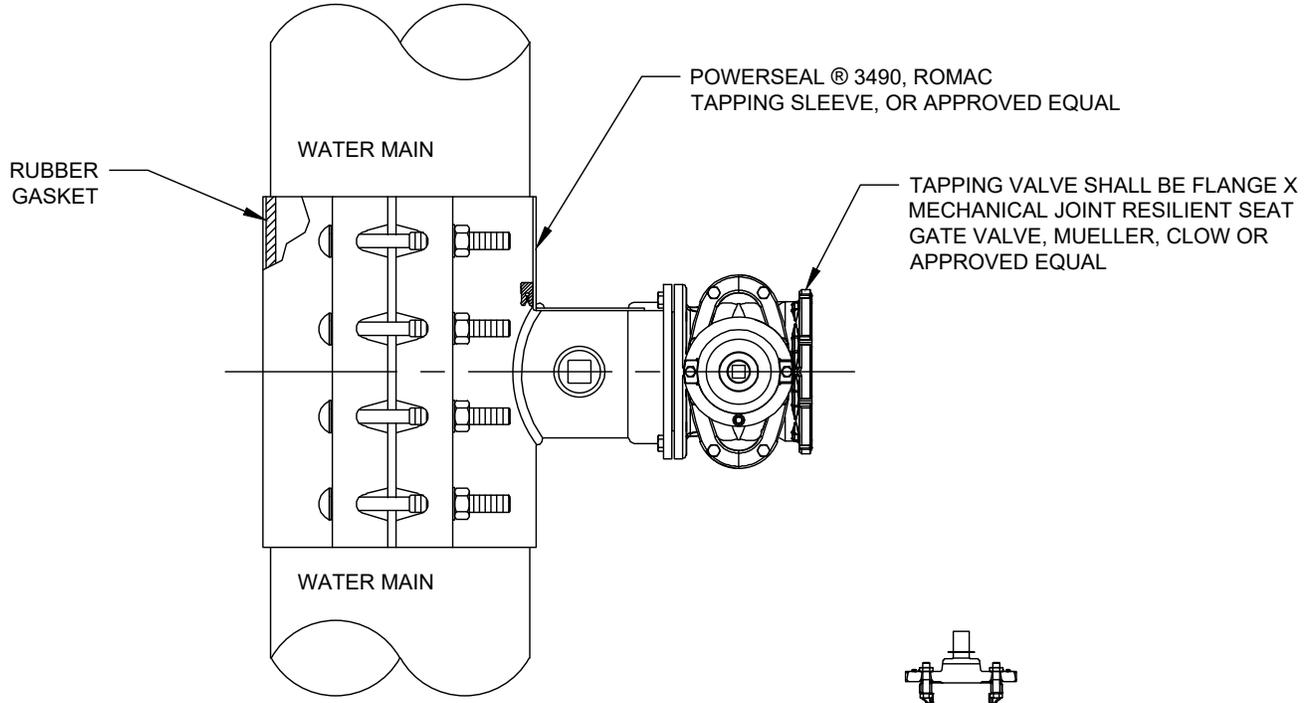
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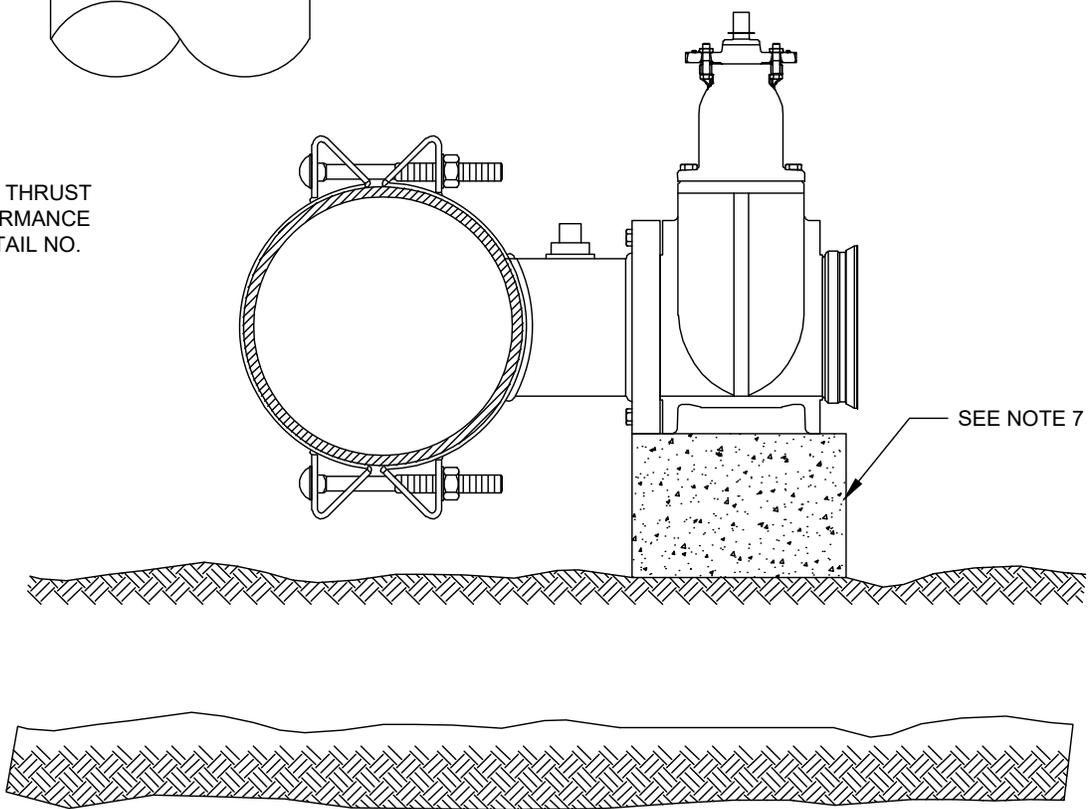
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NOTE:

PROVIDE CONCRETE THRUST BLOCKING IN CONFORMANCE WITH STANDARD DETAIL NO. 522.



CITY OF SOLVANG - STANDARD DETAILS

TAPPING SLEEVES

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NOTES:

1. TAPPING SLEEVE SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL AND SHALL BE FULLY PASSIVATED TO RETURN WELDED STAINLESS STEEL TO ITS ORIGINAL STATE.
2. RUBBER GASKET SHALL BE A 360° COMPLETE FULL CIRCLE. DO NOT USE GREASE OR PIPE LUBRICATES ON GASKET.
3. BRANCH SHALL BE MINIMUM 3/8" LARGER THAN NORMAL TO ALLOW FOR FULL SIZE CUTTER HEAD.
4. TAPPING SLEEVE SHALL BE SUPPLIED WITH FLANGE FACE ON BRANCH.
5. TAPPING SLEEVE SHALL HAVE A FLANGE FACE GASKET PERMANENTLY ATTACHED TO SLEEVE AT FACTORY.
6. LUGS SHALL BE STRUCTURALLY WELDED TO THE SHELL.
7. VALVE AND TAPPING EQUIPMENT SHALL BE SUPPORTED BY CONCRETE BLOCK DURING AND AFTER INSTALLATION.
8. THOROUGHLY CLEAN WATER MAIN WITH WIRE BRUSH PRIOR TO INSTALLATION OF TAPPING SLEEVE.
9. FLANGE FACE SHALL BE INSTALLED VERTICALLY TRUE AND PLUMB.
10. TAPPING SLEEVE SHALL NOT BE INSTALLED WITHIN 4 (FOUR) PIPE DIAMETERS OF AN EXISTING PIPE BELL UNLESS APPROVED OTHERWISE.



CITY OF SOLVANG - STANDARD DETAILS

TAPPING SLEEVES

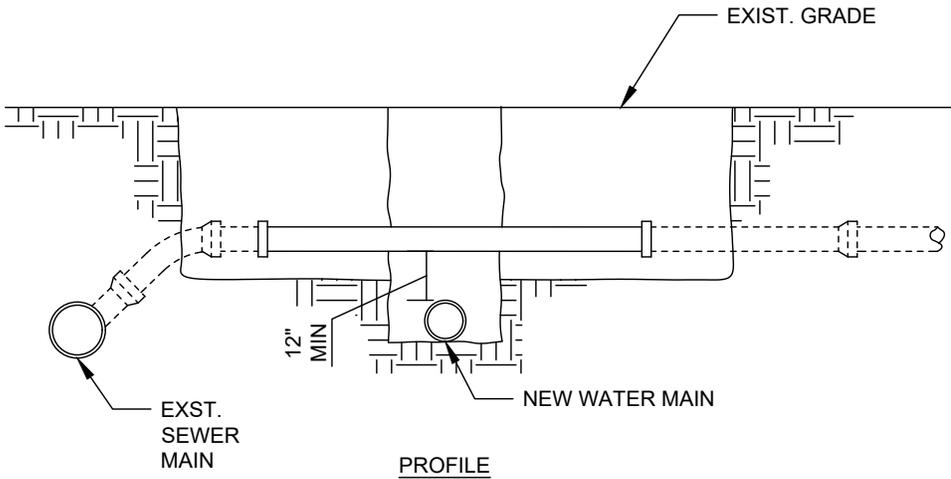
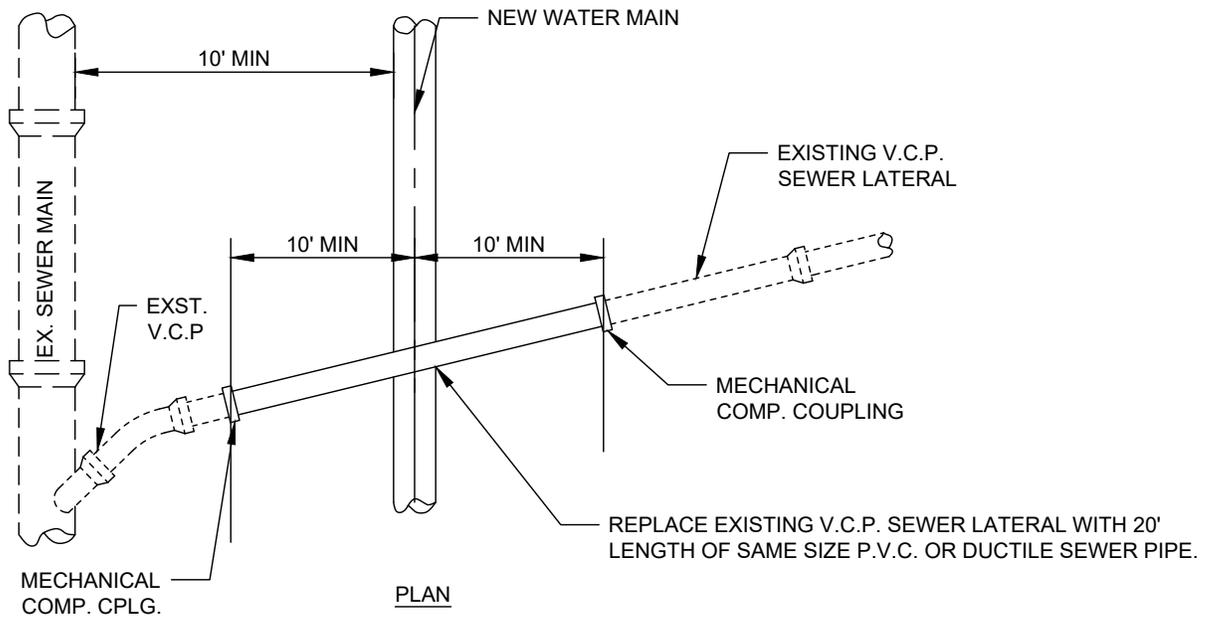
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NOTES:

1. ANY VARIATION FROM THAT SHOWN MUST BE APPROVED BY THE ENGINEER.
2. SEWER LATERALS SHALL MAINTAIN ORIGINAL SLOPE.
3. P.V.C. PIPE SHALL BE CLASS 150 (SDR 17.0) MEETING REQUIREMENTS OF ASTM D 2241, PRODUCT STANDARD PS 22-70 LONG SUSTAINED HYDRO SAFETY FACTOR OF 4 TO 1.
4. BACKFILL SHALL BE CLASS I OR II MATERIAL AS DEFINED IN ASTM D 2321 AND SHALL BE PLACED IN ACCORDANCE WITH ASTM D 2321.
5. MECHANICAL COMPRESSION COUPLING SHALL BE CAULDER COUPLING, OR APPROVED EQUAL.



CITY OF SOLVANG - STANDARD DETAILS

MODIFICATION OF SEWER LATERAL OVER WATER MAIN

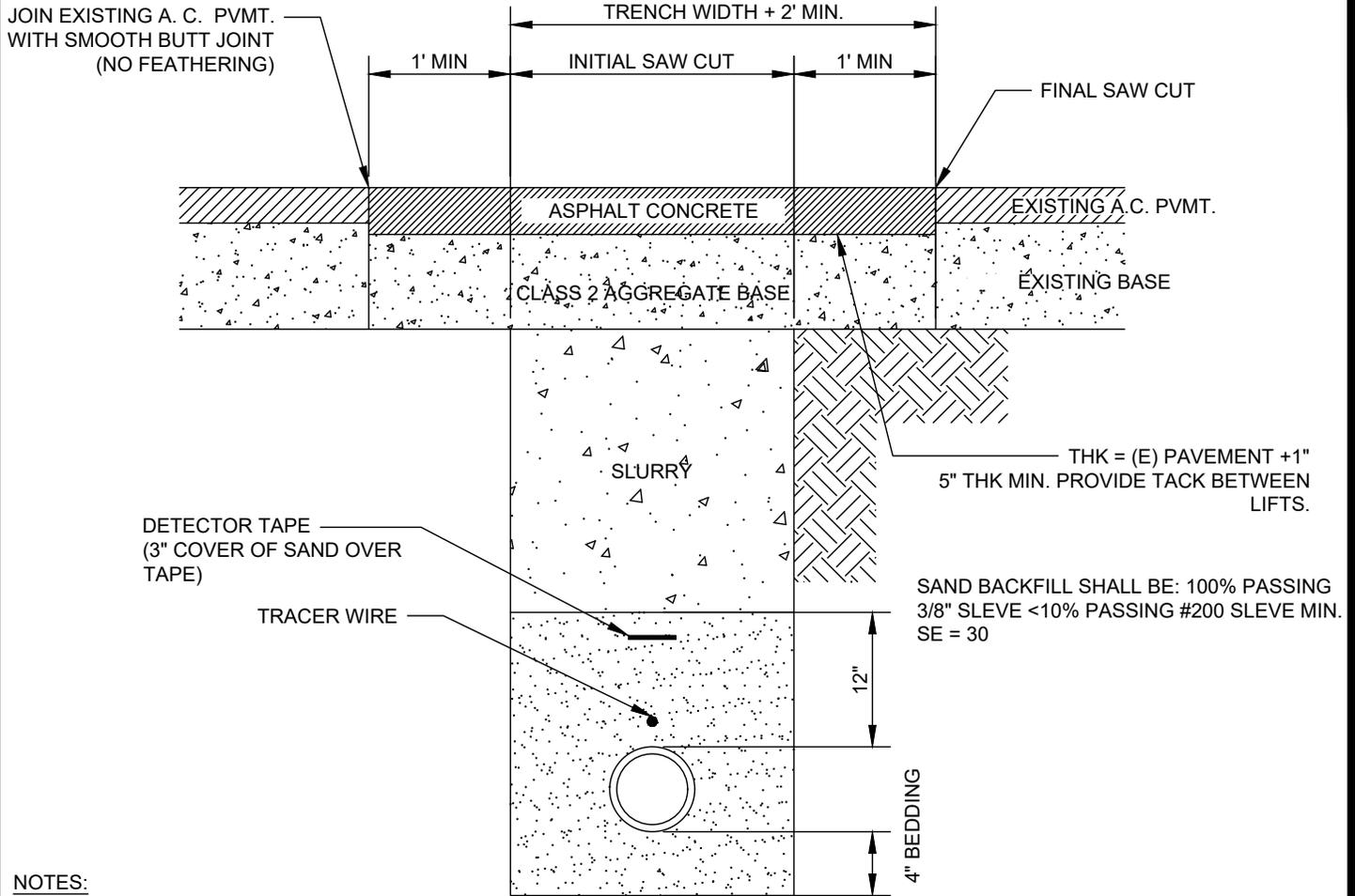
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NOTES:

1. ALL WATER MAINS SHALL BE CLASS 150 PVC (AWWA C900) OR CLASS 50 DUCTILE IRON PIPE (AWWA C151), MINIMUM. ALL FITTINGS ARE TO BE CL.50 DUCTILE IRON. ALL FITTINGS AND VALVES SHALL BE EPOXY LINED.
2. DETECTOR TAPE NOT LESS THAN 2" WIDE SHALL BE INSTALLED. TAPE IS TO BE ALUMINUM, READ "CAUTION WATER LINE BURIED BELOW" AND TO BE AS MANUFACTURED BY THOR ENTER-PRISES (1-800-872-8467) OR APPROVED EQUAL.
3. IF PVC PIPE IS USED, 10 GAUGE INSULATED SOLID CORE COPPER TRACER WIRE SHALL BE ATTACHED DIRECTLY TO THE TOP OF THE PIPE WITH ELECTRICAL TAPE OR APPROVED EQUAL. TRACER WIRE SHALL BE BROUGHT UP EACH VALVE BOX AND ATTACHED TO THE OUTSIDE AT THE TOP OF THE BOX. ALL SPLICES TO BE PERMANENTLY SEALED WITH DRI-SPLICE DS-100, MANUFACTURED BY SPEARS, INC. OR APPROVED EQUAL.
4. BACKFILL UNDER EXISTING OR PROPOSED PAVEMENT, INCLUDING SIDEWALKS, SHALL BE CEMENT SLURRY CLASS 100-E-100 (1 SACK/CUBIC YARD). IN OTHER LOCATIONS, BACKFILL SHALL BE PER SECTION 306-1.3.1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS (GREEN BOOK) WITH MAXIMUM SIZE OF ROCKS BEING 2-1/2" IN ANY DIMENSION.

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CITY OF SOLVANG - STANDARD DETAILS

WATER MAIN INSTALLATION & TRENCH DETAIL

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NOTES CONTINUED:

5. ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% RELATIVE DENSITY.
6. REPLACEMENT SECTION FOR ASPHALT CONCRETE PAVING SHALL BE NOT LESS THAN 4" OF ASPHALT CONCRETE ON NOT LESS THAN 6" OF CLASS 2 AGGREGATE BASE (CALTRANS SPEC.). IF THE EXISTING SECTION EXCEEDS THESE VALUES, MATCH EXISTING THICKNESSES.
7. IF EITHER SAW CUT LINE IS WITHIN 4' OF THE EDGE OF GUTTER, ALL PAVEMENT BETWEEN THE EDGE OF GUTTER AND THE FARTHER SAW CUT LINE SHALL BE REMOVED AND REPLACED.
8. BEDDING SHALL BE INCONFORMANCE WITH THE RECOMMENDATIONS OF THE PIPE MANUFACTURER. BEDDING COMPACTION SHALL RESULT IN NOT LESS THAN 90% RELATIVE DENSITY.

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CITY OF SOLVANG - STANDARD DETAILS

**WATER MAIN INSTALLATION &
TRENCH DETAIL**

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