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RINCON DEL DIABLO MUNICIPAL

WATER DISTRICT

Standard Drawings - Water

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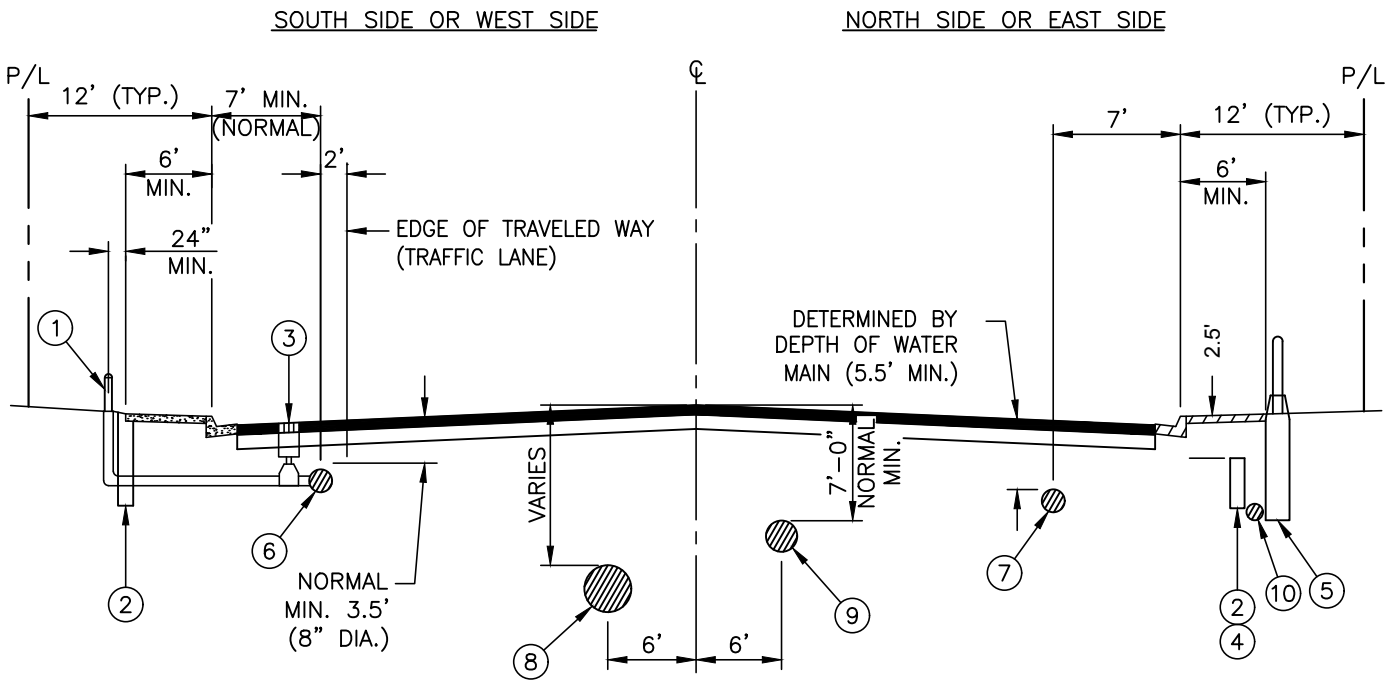

NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE ROAD DEPARTMENT FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY RINCON IN CASES OF CONFLICTING FACILITIES.
3. FOR COMMERCIAL SIDEWALKS, THE FIRE HYDRANT SHALL BE PLACED 18" BEHIND SIDEWALK. HYDRANTS SHALL NOT BE LOCATED IN SIDEWALKS.
4. MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.
5. REFER TO RINCON STD DWG W-2 FOR PIPE SEPARATION REQUIREMENTS.

ITEM	DESCRIPTION
1	FIRE HYDRANT, LOCATE IN ACCORDANCE WITH RINCON STANDARDS
2	JOINT UTILITIES TRENCH
3	VALVE BOX
4	STREET LIGHTING CONDUIT IN TRENCH
5	STREET LIGHT BASE
6	DOMESTIC WATER MAIN
7	RECLAIMED WATER MAIN
8	STORM DRAIN
9	SEWER MAIN
10	GAS MAIN

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Rincon del Diablo Water

STANDARD DRAWINGS

NORMAL UTILITY LOCATION

DWG. NO. W-1

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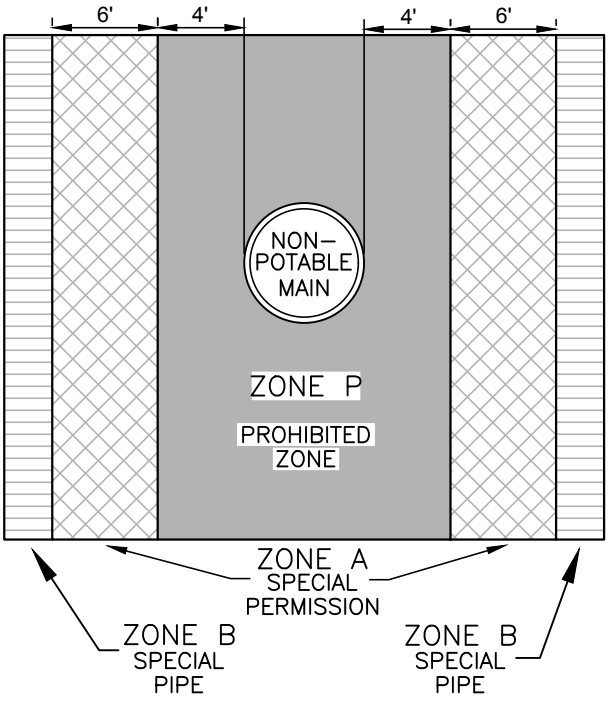
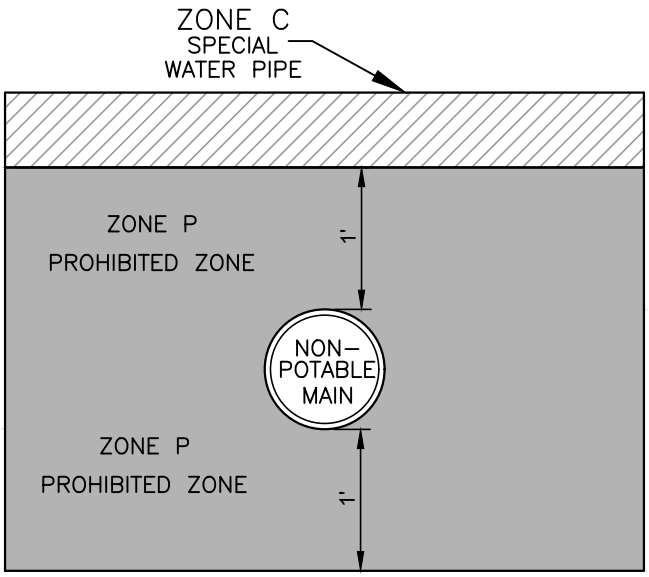
PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION



NOTES:

1. WATER MAINS ARE NOT PERMITTED WITHIN THE PROHIBITED ZONE UNLESS APPROVED BY THE STATE WATER RESOURCE CONTROL BOARD (STATE BOARD). IF APPROVAL IS REQUIRED, THE ENGINEER OF RECORD SHALL SUBMIT A WATERWORKS STANDARDS MAIN SEPARATION ALTERNATIVE REQUEST CHECKLIST TO THE DISTRICT. THE DISTRICT WILL COORDINATE THE APPROVAL WITH STATE BOARD ON THE DEVELOPER'S BEHALF.
2. SEPARATION OF WATER MAIN FROM SEWER AND OTHER NON–POTABLE FLUIDS SHALL BE IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATION (CCR), TITLE 22, DIVISION 4, CHAPTER 16, SECTION 64572 OR MOST RECENT UPDATE.
3. DIMENSIONS ARE FROM OUTSIDE OF WATER MAIN TO OUTSIDE OF SEWER OR NON–POTABLE FLUID PIPELINES.
4. REFER TO RINCON STD DWG W–1 FOR NORMAL UTILITY LOCATIONS.

ZONE	SPECIAL SEWER CONSTRUCTION REQUIREMENTS
ZONE A	NO SANITARY SEWER MAINS PARALLEL TO WATER OR NON–POTABLE FLUID MAINS SHALL BE CONSTRUCTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CALIFORNIA DDW
ZONE B	SPECIAL SEWER PIPE – RUBBER GASKETED PVC SEWER PIPE (ASTM 3034) OR EQUIVALENT; OR HDPE PIPE WITH FUSION WELDED JOINTS.
ZONE C	NO JOINTS IN SEWER MAIN – SPECIAL SEWER PIPE MAY BE REQUIRED.
ZONE "P"	CONSTRUCTION PROHIBITED IN THIS AREA.

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Rincon del Diablo Water

STANDARD DRAWINGS
PIPE SEPARATION REQUIREMENTS

DWG. NO. W–2

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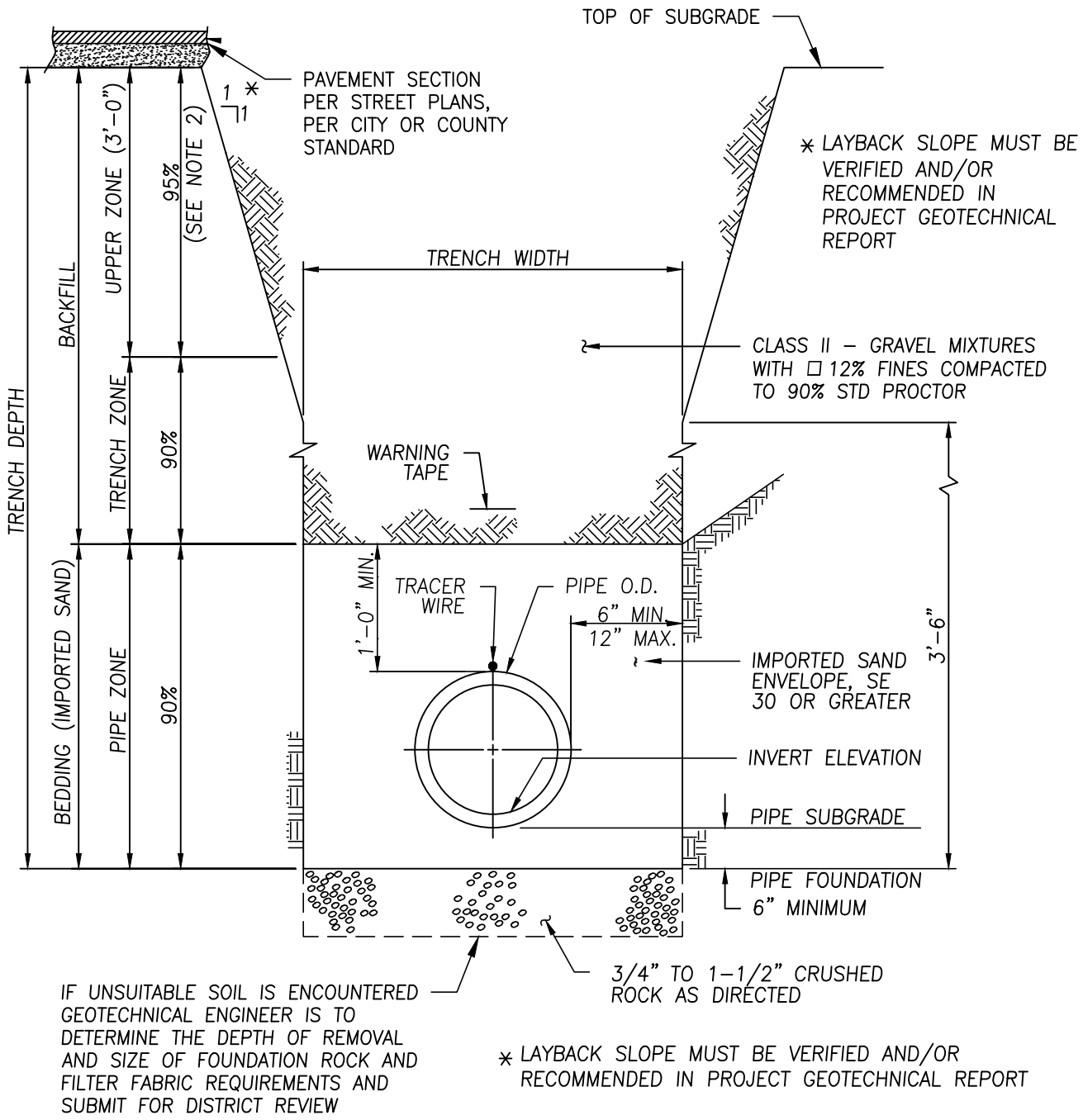

NOTES:

1. PAVING DICTATED BY LOCAL JURISDICTION.
2. 95% MAXIMUM DENSITY MINIMUM AS DETERMINED BY ASTM D1557.
3. TRENCHES GREATER THAN 5' DEPTH REQUIRE CAL/OSHA EXCAVATION PERMIT.
4. CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM ALL TRENCHING AND EXCAVATION IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATIONS, TITLE 8.
5. EXCAVATION, BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
6. FULL TIME SOILS TECHNICIAN MUST BE ON-SITE DURING BACKFILLING AND COMPACTION AS DETERMINED BY EVMWD.
7. IF TRENCH DEPTH IS GREATER THAN 30-FEET TRENCH BACKFILL SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.
8. PIPE ZONE MATERIAL SHALL BE MOISTURE CONDITIONED AND MECHANICALLY DENSIFIED AS REQUIRED.
9. RESTORE TRENCH WITH 1 SAC SLURRY TO SUBGRADE AND EDGE OF ROW FOR NEW PIPES IN EXISTING STREETS

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Rincon del Diablo Water

STANDARD DRAWINGS

TRENCH COMPACTION AND BACKFILL

DWG. NO. W-3

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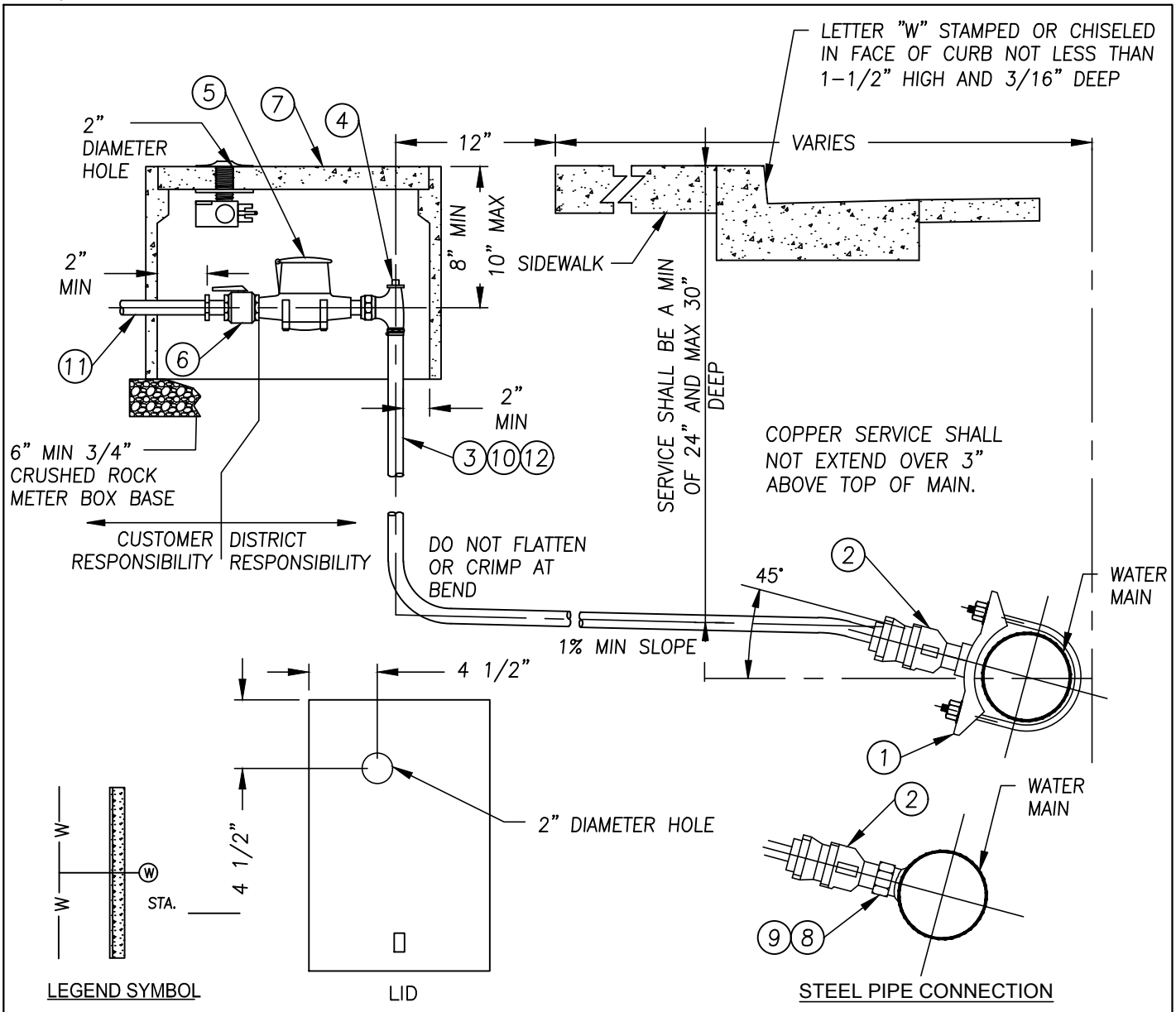

NOTES:

1) IN NO CASE SHALL THE METER AND BOX BE PLACED IN THE SIDEWALK WITHOUT DISTRICT APPROVAL.
2) BACKFLOW REQUIRED, PER W-23.
3) METER BOX TO BE WITHIN ROW OR EASEMENT. LOCATE AT PROPERTY LINE. (SEE W-12)
4) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	SADDLE
2	1" BALL CORP STOP (MIPT X QUICK) POSITIONED WITH OPERATING NUT ON THE SIDE (AS SHOWN)
3	1" TYPE "K" SOFT COPPER TUBING (NO JOINTS ALLOWED)
4	CURB STOP (COMP)
5	WATER METER (PROVIDED BY DISTRICT)
6	CUSTOMER BALL VALVE W/ HANDLE (PROVIDED BY DISTRICT)
7	POLYMER CONCRETE METER BOX W/ LID
8	3000# FORGED STEEL HALF COUPLING (WELDED STEEL PIPE ONLY)
9	DIELECTRIC INSULATING BUSHING (WELDED STEEL PIPE ONLY)
10	BLUE PLASTIC POLY SLEEVE ON THE COPPER LATERAL
11	CUSTOMER SERVICE LINE
12	WARNING TAPE PER SDRSD WP-01

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Rincon del Diablo Water

STANDARD DRAWINGS
WATER SERVICE CONNECTION (5/8" THROUGH 1" METER)

DWG. NO. W-4

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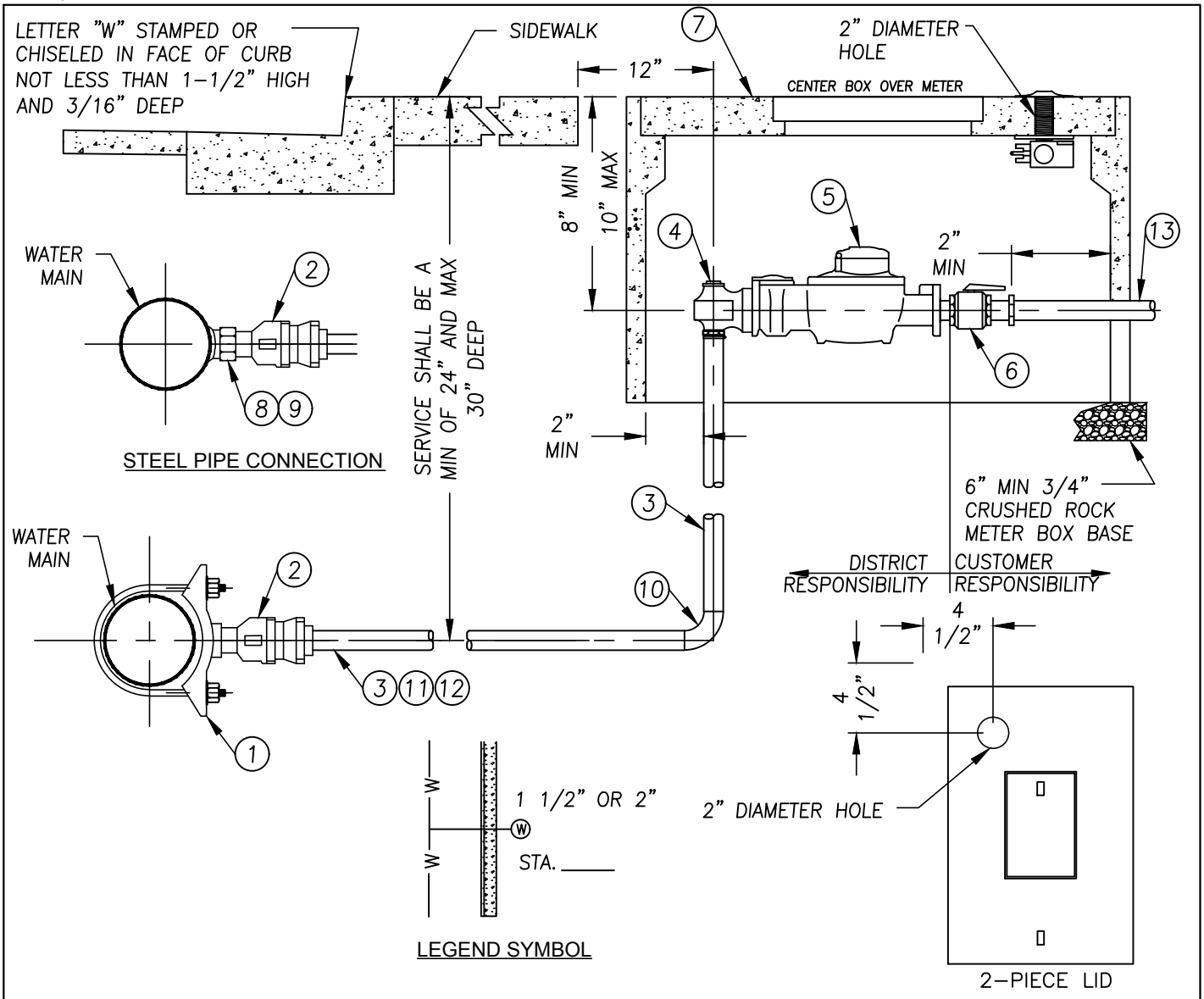

NOTES:

1) IN NO CASE SHALL THE METER AND BOX BE PLACED IN THE SIDEWALK WITHOUT DISTRICT APPROVAL.
2) BACKFLOW REQUIRED, PER W-23.
3) METER BOX TO BE WITHIN ROW OR EASEMENT. LOCATED AT PROPERTY LINE. (SEE W-12)
4) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	SADDLE
2	2" BALL CORP. STOP (MIPT X QUICK) POSITIONED WITH OPERATING NUT ON THE SIDE
3	2" TYPE "K" SOFT COPPER TUBING (NO JOINTS ALLOWED)
4	CURB STOP (QUICK X FLG)
5	WATER METER (PROVIDED BY DISTRICT)
6	CUSTOMER BALL VALVE W/ HANDLE (PROVIDED BY DISTRICT)
7	POLYMER CONCRETE METER BOX W/ 2-PIECE LID
8	3000# FORGED STEEL HALF COUPLING (WELDED STEEL PIPE ONLY)
9	DIELECTRIC INSULATING BUSHING (WELDED STEEL PIPE ONLY)
10	2" COPPER 90° ELBOW (QUICK X QUICK)
11	BLUE PLASTIC POLY SLEEVE ON COPPER LATERAL
12	WARNING TAPE PER SDRSD WP-01
13	CUSTOMER SERVICE LINE

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STANDARD DRAWINGS
2" WATER SERVICE CONNECTION (1-1/2" AND 2" METER)

DWG. NO. W-5

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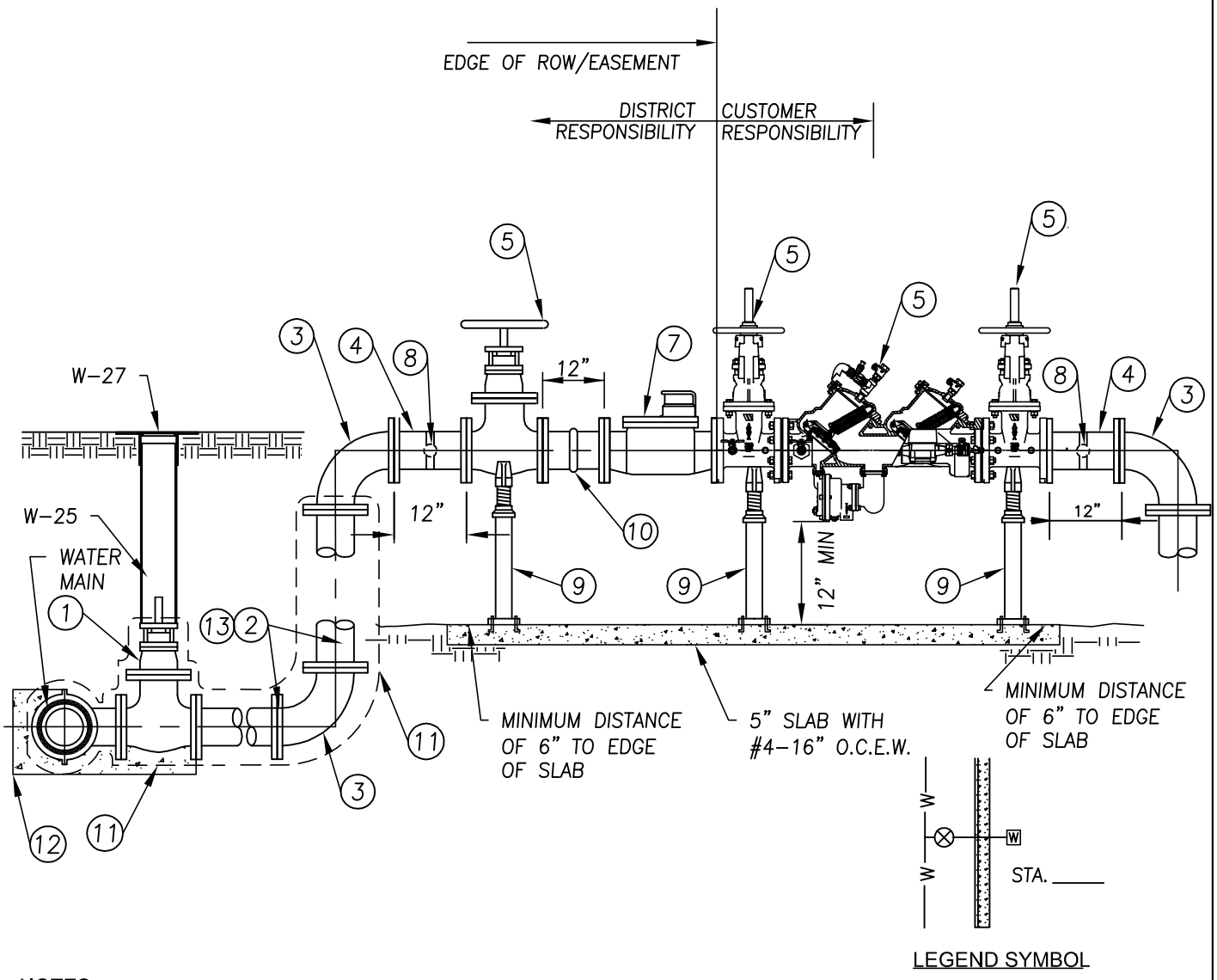

NOTES:

1) SUBSTITUTIONS IN MATERIAL SHALL NOT BE MADE WITHOUT DISTRICT APPROVAL.
2) PIPE LENGTH SHALL BE VERIFIED IN THE FIELD.
3) ALL EXPOSED PIPING AND BOLTS SHALL BE PAINTED GREEN PER CURRENT DISTRICT STDS. (EXCLUDING METER).
4) USE 6" TAP AND 6" VALVE FOR CONNECTION TO MAIN. USE 4" PIPING AFTER VALVE FOR 3" AND 4" METERS.
5) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.
6) PRESSURE REDUCING VALVE AND METER PROVIDED AND INSTALLED BY DISTRICT

ITEM	DESCRIPTION
1	6" TAP, GATE VALVE, AND REDUCER (AS NECESSARY) PER STD DWG W-29
2	DIP SPOOL
3	90° FLG ELBOW
4	D.I.P. SPOOL W/ 2" SADDLE
5	REDUCED PRESSURE BACKFLOW ASSEMBLY PER STD DWG W-24
6	NOT USED
7	METER
8	2" LOCK WING BALL VALVE, BRASS
9	VALVE SUPPORT STAND W/ SADDLE TOP
10	GROOVED CONNECTION
11	WAX TAPE SYSTEM
12	CONCRETE THRUST BLOCK PER W-38
13	WARNING TAPE SDRSD WP-01

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Rincon del Diablo Water

STANDARD DRAWINGS
WATER SERVICE CONNECTION 3" AND LARGER METER (ABOVE GROUND)

DWG. NO. W-6

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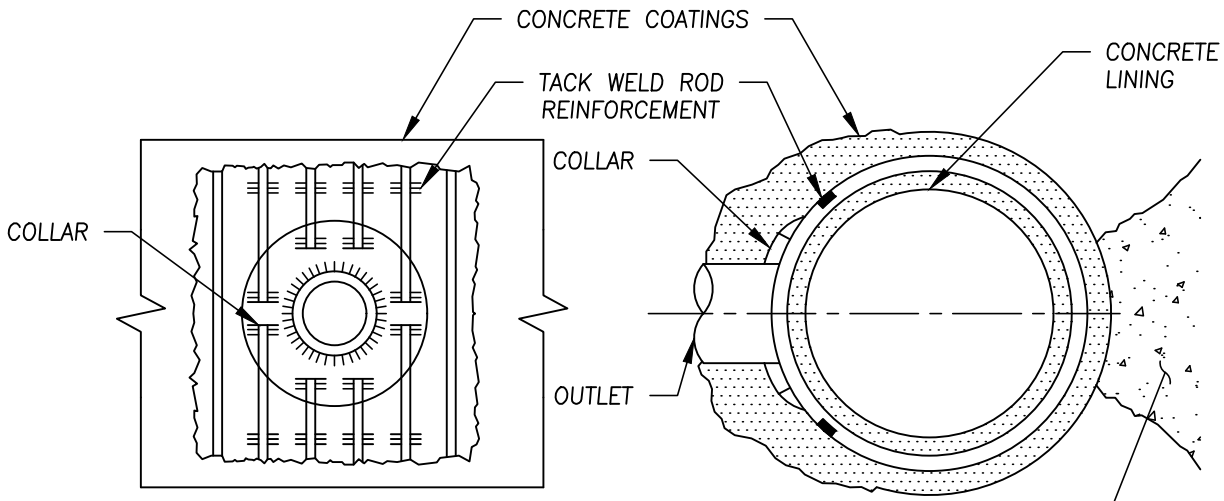
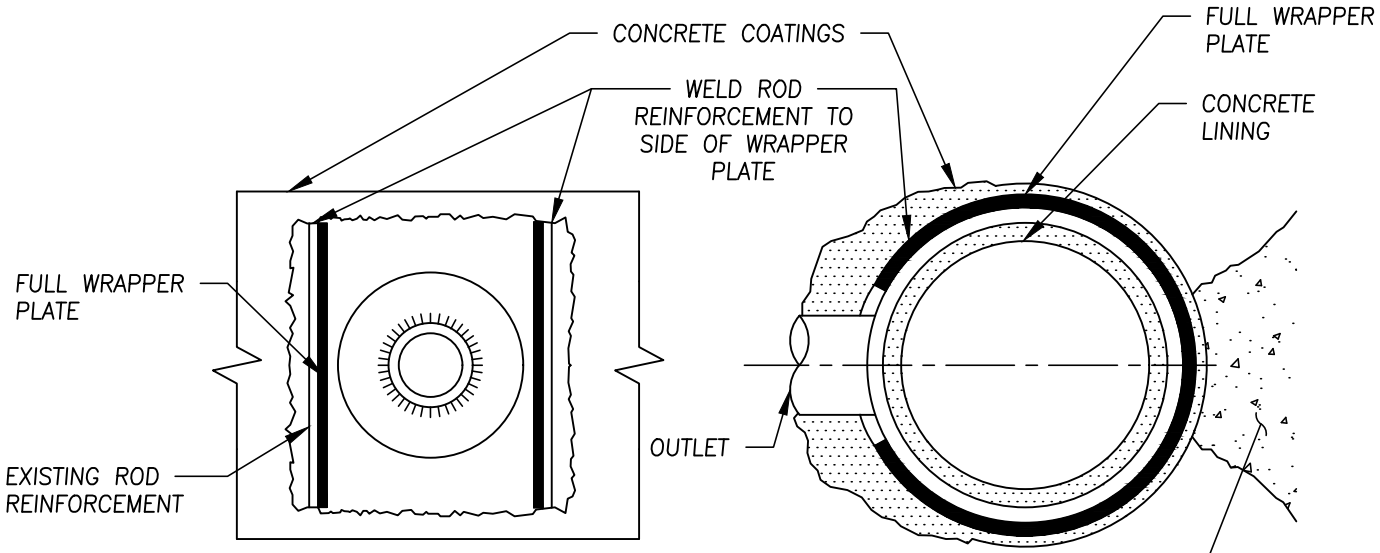


NOTES:

1) TACK WELD TO BE MADE PRIOR TO REINFORCING RODS BEING CUT.
2) NOZZLE SHALL BE WELDED TO PIPE BEFORE BACK-UP PLATE IS INSTALLED.
3) WELDERS USED ARE AT DISTRICT DISCRETION

CONNECTIONS 2" & SMALLER



NOTES:

1) NOZZLE SHALL BE WELDED TO PIPE BEFORE BACK-UP PLATE IS INSTALLED.
2) WELDERS USED ARE AT DISTRICT DISCRETION

CONNECTIONS 3" & LARGER

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STANDARD DRAWINGS

SERVICE CONNECTION FOR CONCRETE CYLINDER PIPE

DWG. NO. W-7

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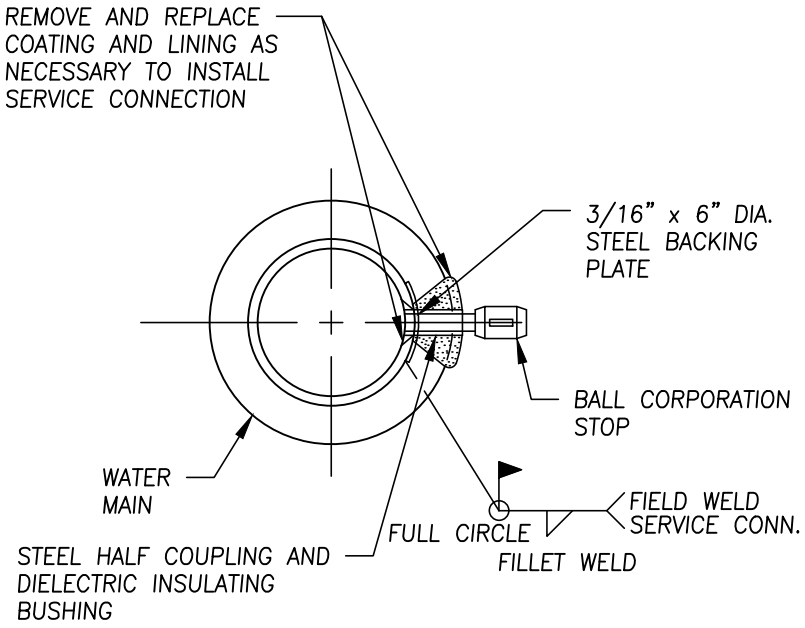
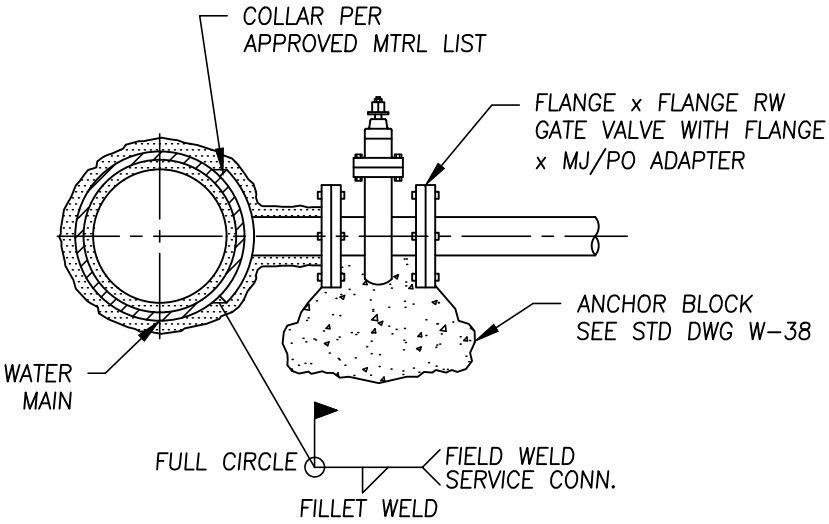


2" & SMALLER METER



3" & LARGER METER

NOTES:

1) WELDERS USED ARE AT DISTRICT DISCRETION

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STANDARD DRAWINGS

SERVICE CONNECTION FOR STEEL PIPE

DWG. NO. W-8

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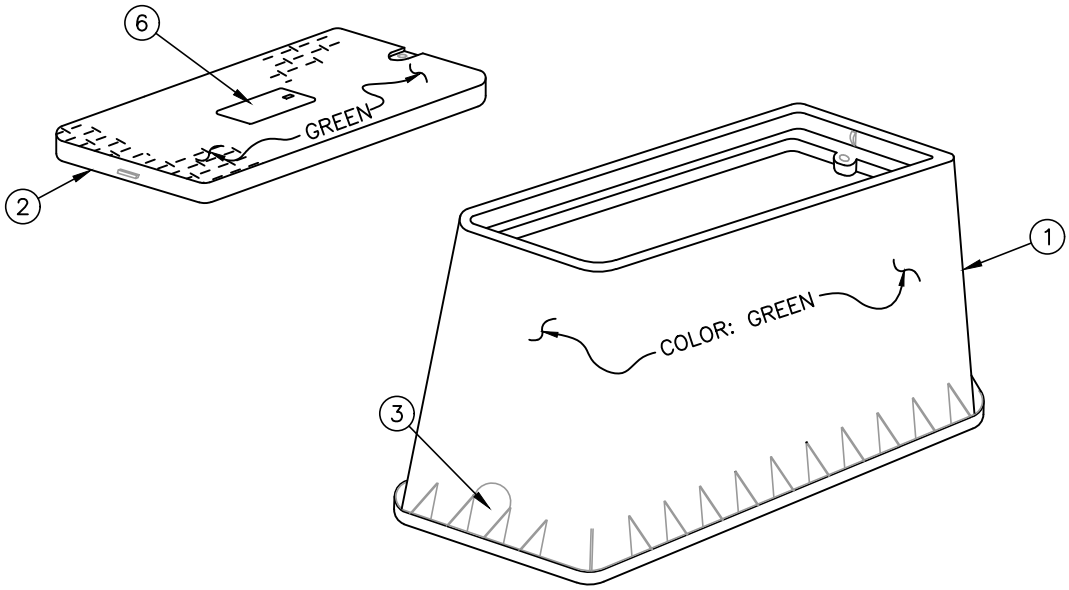
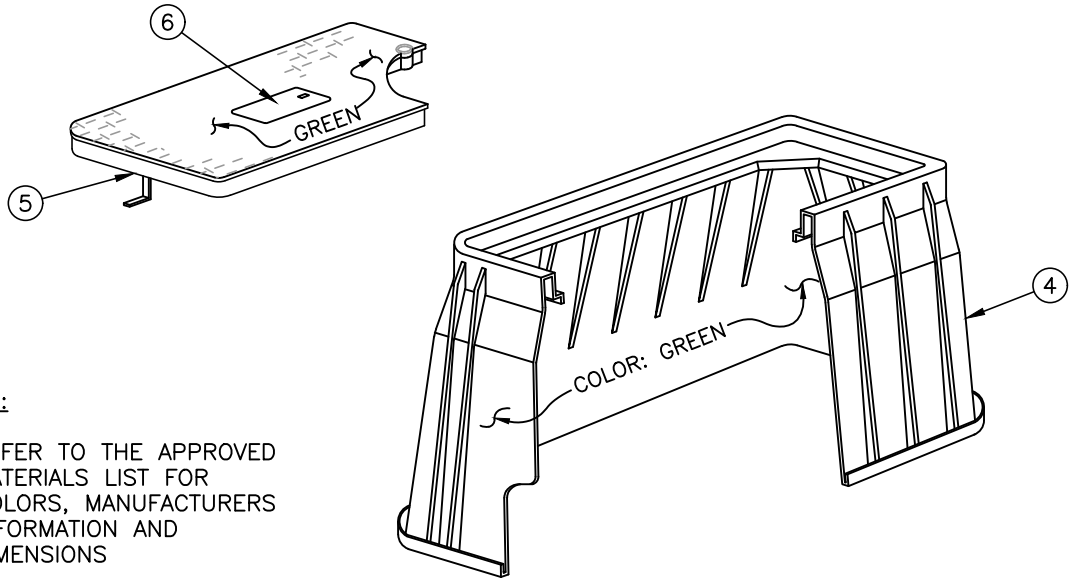


3/4" TO 1" METERS



NOTES:

1. REFER TO THE APPROVED MATERIALS LIST FOR COLORS, MANUFACTURERS INFORMATION AND DIMENSIONS

2" METERS

ITEM	DESCRIPTION
1	METER BOX – (METER READING BOLT DOWN)
2	METER BOX LID – (BOLT DOWN)
3	3" x 4" KNOCK OUTS (OPTIONAL – 2 PLACES)
4	METER BOX – (METER READING CAPTIVE L–BOLT DOWN)
5	METER BOX LID – (CAPTIVE L–BOLT LOCK)
6	2–PIECE LID

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STANDARD DRAWINGS

STANDARD METER BOX

DWG. NO. W–9

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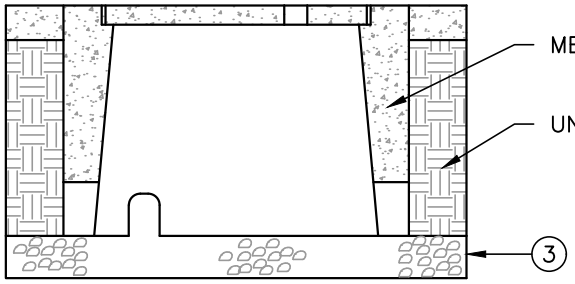
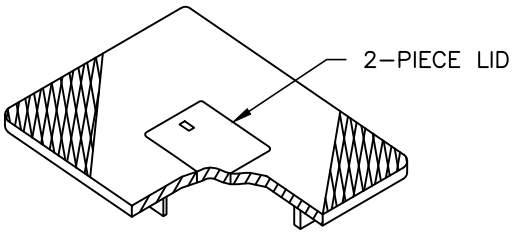
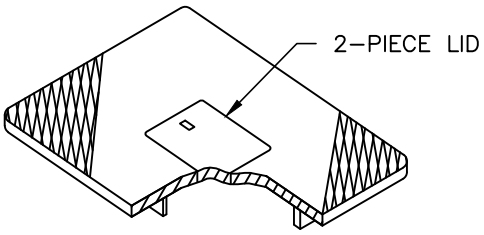
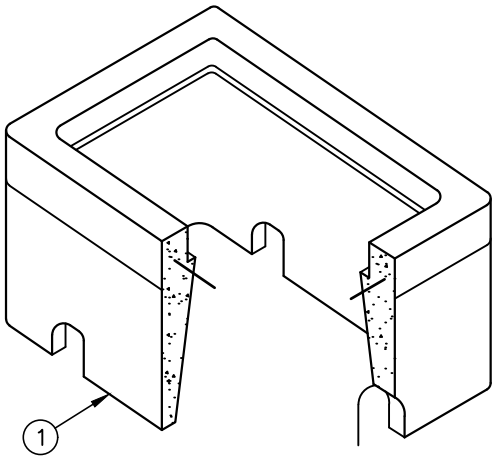
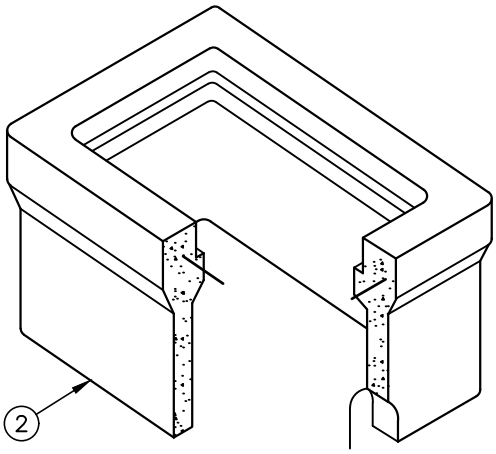


TYPICAL METER BOX INSTALLATION









3/4" TO 1" SERVICE

2" SERVICE

NOTES:

1. ALL TRAFFIC AREA LIDS SHALL BE REINFORCED FIBERGLASS. SEE APPROVED MATERIALS LIST.
2. REFER TO THE APPROVED MATERIALS LIST FOR COLORS, MANUFACTURERS INFORMATION, AND DIMENSIONS.

ITEM	DESCRIPTION
1	METER BOX – HIGH DENSITY POLYMER COMPOSITE OR EQUAL
2	METER BOX – HIGH DENSITY POLYMER COMPOSITE OR EQUAL (FOR TRAFFIC AREA)
3	PAD TO BE 8" CLASS 2 BASE

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Rincon del Diablo Water

STANDARD DRAWINGS

METER BOXES FOR EXISTING SIDEWALK AREAS ONLY

DWG. NO. W–10

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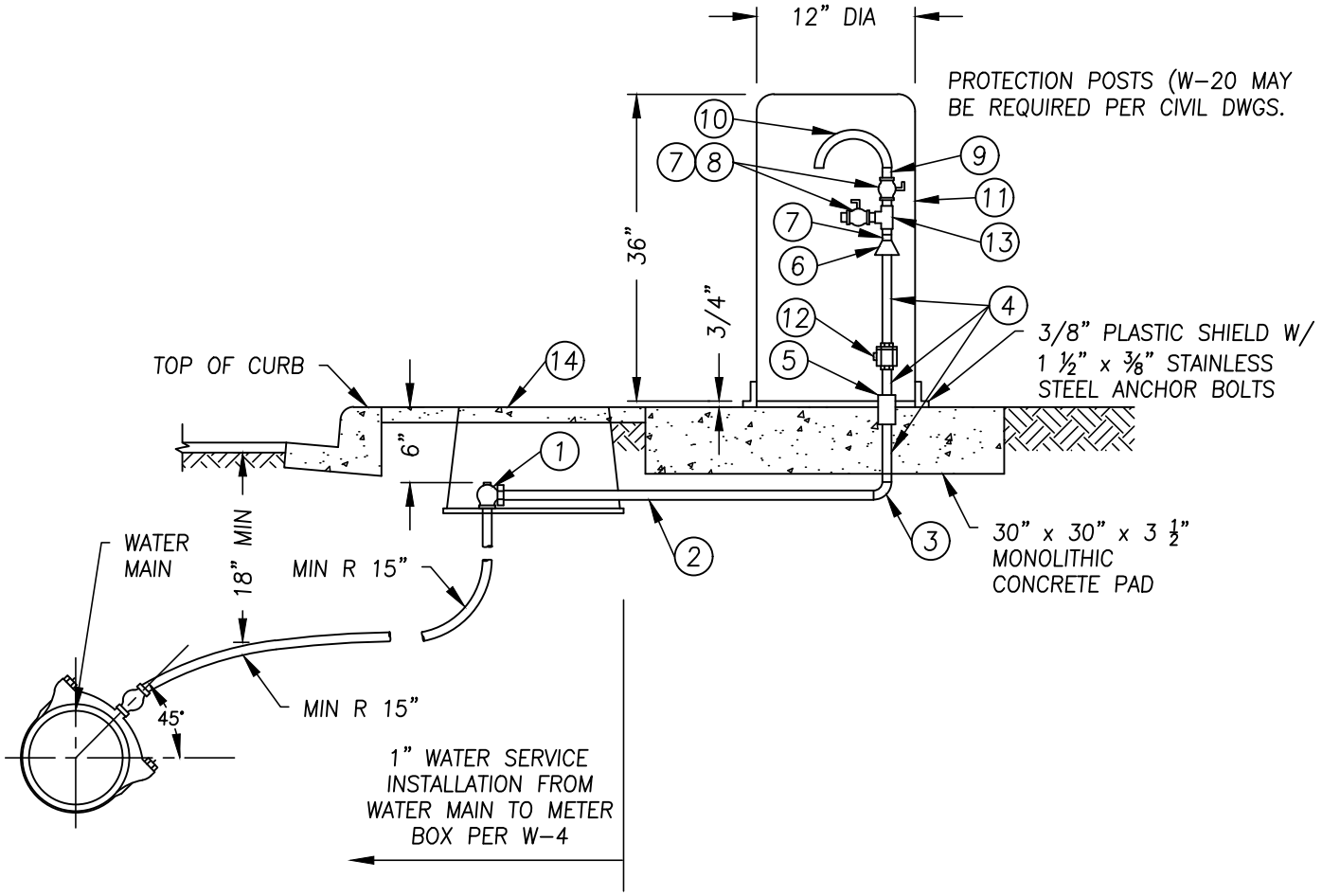

NOTES:

1) ALL MATERIAL TO BE PER APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	1" CURB STOP (QUICK X FIPT)
2	1" BRASS NIPPLE
3	1" FIPT 90 ELBOW
4	1" BRASS NIPPLE (1" X 4" MIDDLE SECTION; LOWER AND UPPER LENGTHS MAY VARY)
5	1" THREADED BRASS COUPLING
6	1" X 1/2" BELL REDUCER
7	1/2" X CLOSE NIPPLE
8	1/2" FIPT BALL VALVE W/ T HANDLE
9	1/2" MIPT X COMPRESSION ADAPTER
10	1/2" STAINLESS STEEL SPIGOT
11	WATER SAMPLING ENCLOSURE
12	1" BRASS BALL VALVE
13	1/2" FIPT TEE
14	METER BOX W/LID (TYPE BASED ON TRAFFIC DUTY)

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APPROVED 2/17/2023
DocuSigned by: Jim Bogle
GENERAL MANAGER
DocuSigned by: Shawnelle Morelos
ENGINEERING MANAGER

Rincon del Diablo Water

STANDARD DRAWINGS

1" WATER TEST STATION

DWG. NO. W-11

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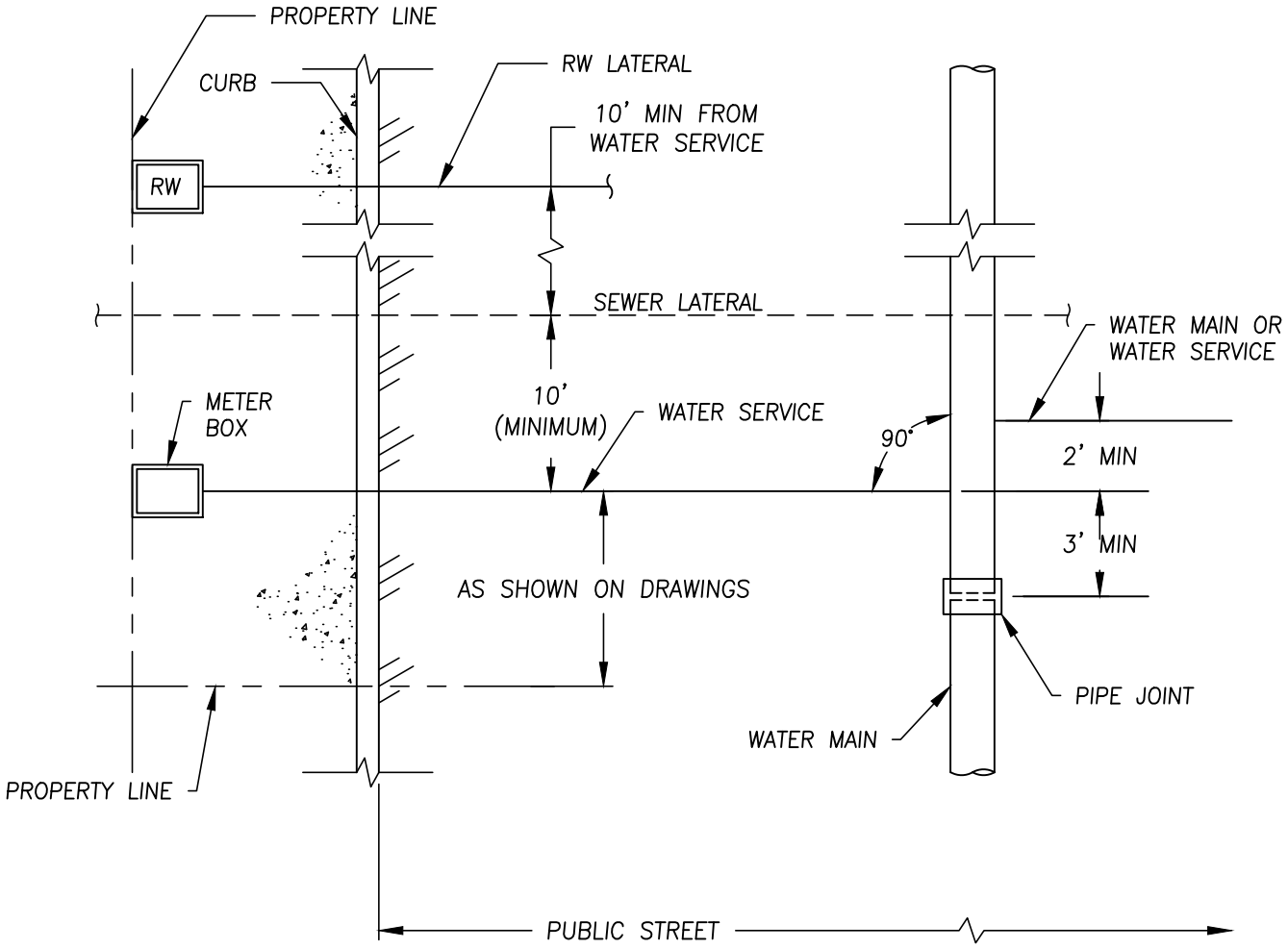

NOTES:

1) REFER TO AGENCY SPECIFICATIONS, STD DWG W-2, AND CCR TITLE 22 WHERE APPLICABLE
2) STAMP OR CHISEL A 2" HIGH 'W' IN CURB FACE TO IDENTIFY POTABLE WATER SERVICE LOCATION
3) STAMP OR CHISEL A 2" HIGH 'RW' IN CURB FACE TO IDENTIFY RECYCLED WATER SERVICE LOCATION
4) METER BOXES ARE NOT TO BE INSTALLED IN DRIVEWAYS, SIDEWALKS OR WITHIN PAVED ROADWAYS. SERVICE LATERALS SHALL NOT BE INSTALLED IN DRIVEWAYS OR SIDEWALKS.
5) MULTIPLE METER BOXES AND SERVICE LATERIALS SHALL BE INSTALLED WITH A MINIMUM OF 9" BETWEEN BOXES
6) METER BOX SHALL BE INSTALLED 9" FROM THE BACK OF BERM, CURB, OR SIDEWALK (TYP). WHERE NO BERM, CURB OR SIDEWALK EXIST, LOCATION SHALL BE DETERMINED BY THE DISTRICT.
7) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF METER BOX WHERE NO BERM, CURB, OR SIDEWALK EXISTS, LOCATION SHALL BE DETERMINED BY THE DISTRICT
8) METER BOXES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS REQUIRED BY DISTRICT.
9) MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022

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Rincon del Diablo Water

STANDARD DRAWINGS

WATER SERVICE LATERAL LOCATION

DWG. NO. W-12

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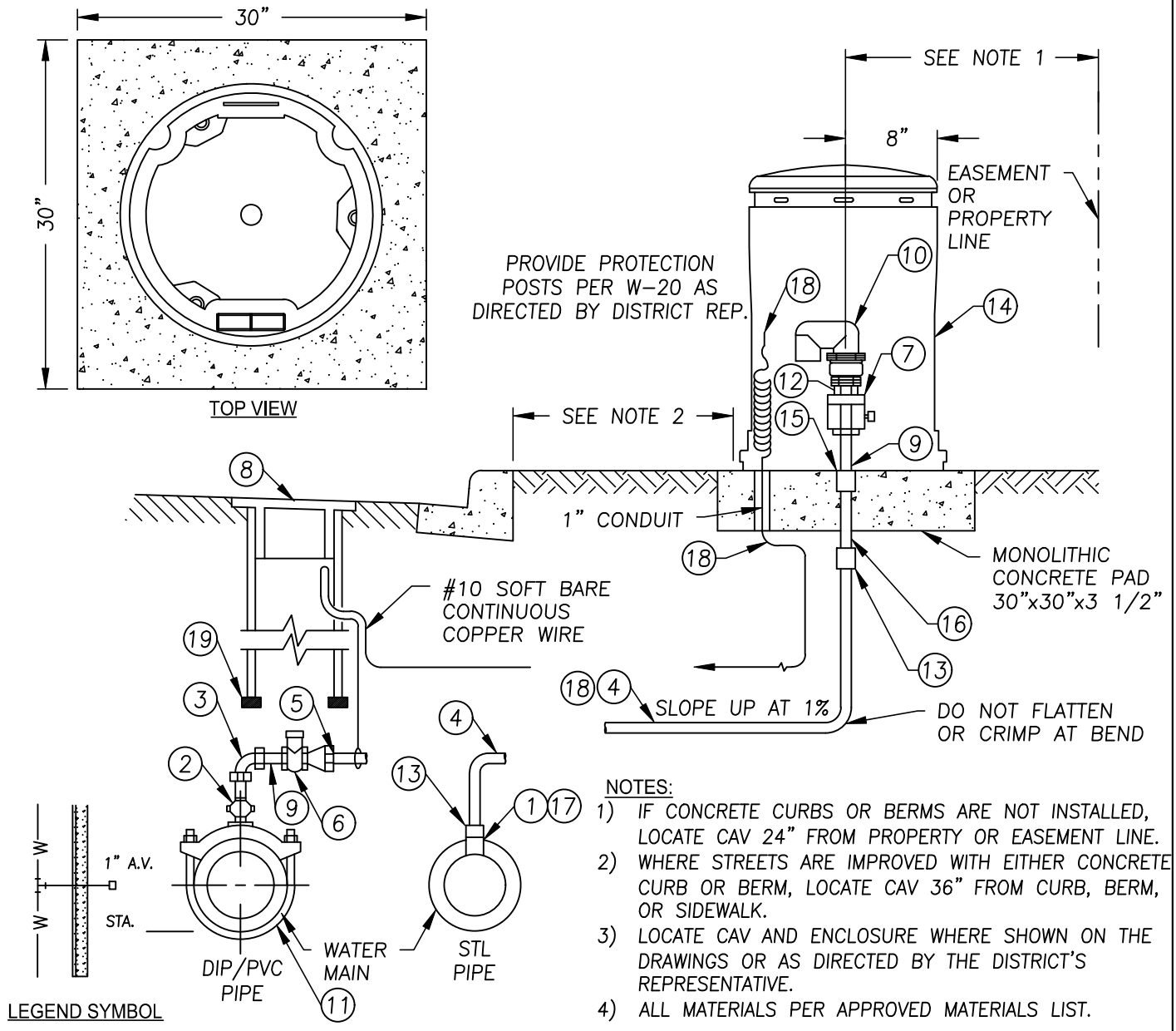

NOTES:

1) IF CONCRETE CURBS OR BERMS ARE NOT INSTALLED, LOCATE CAV 24" FROM PROPERTY OR EASEMENT LINE.
2) WHERE STREETS ARE IMPROVED WITH EITHER CONCRETE CURB OR BERM, LOCATE CAV 36" FROM CURB, BERM, OR SIDEWALK.
3) LOCATE CAV AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
4) ALL MATERIALS PER APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	1 1/4" HIGH PRESSURE STEEL WELD COUPLING
2	1" MIPT BRONZE BALL CORP STOP
3	1" FIPT BRONZE 90 DEGREE ELBOW
4	1" COPPER TUBING
5	1" MIPT X SUPER GRIP RING ADAPTER ADD BLUE POLY SLEEVE
6	1" BALL VALVE 360 DEG TURN WITH OPERATING NUT
7	1" BALL VALVE, T-HANDLE NOT ALLOWED
8	VALVE COVER PER W-27
9	1" – 3" LONG RED BRASS NIPPLE
10	2" COMBINATION AIR & VACUUM RELEASE VALVE W/ SCREEN (CAV)
11	SADDLE
12	1" X 2" BRASS REDUCER
13	1" FIPT X SUPER GRIP RING ADAPTER
14	PROTECTIVE COVER
15	1" FIPT X FIPT
16	1" RED BRASS NIPPLE (LENGTH TBD IN FIELD)
17	DIELECTRIC INSULATING BUSHING (STEEL PIPE ONLY)
18	TRACER WIRE AND WARNING TAPE PER SDRSD WP-01
19	2" X 4" REDWOOD BLOCKS

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022
2	2/24	SKM	VERSION UPDATE 2/2024

APPROVED 2/15/2024

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Rincon del Diablo Water

STANDARD DRAWINGS

1" COMBINATION AIR & VACUUM VALVE

DWG. NO. W-13

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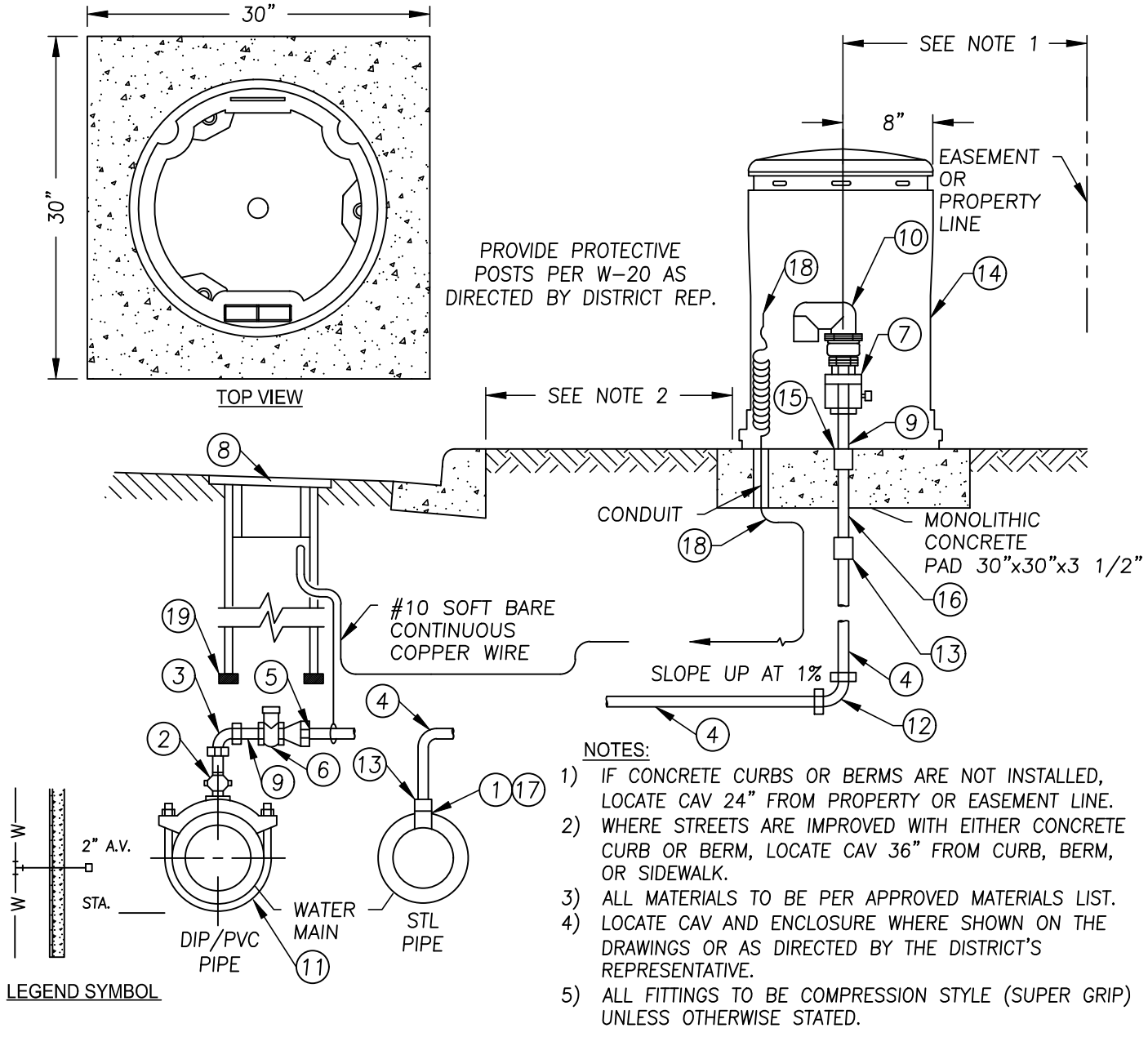

NOTES:

1) IF CONCRETE CURBS OR BERMS ARE NOT INSTALLED, LOCATE CAV 24" FROM PROPERTY OR EASEMENT LINE.
2) WHERE STREETS ARE IMPROVED WITH EITHER CONCRETE CURB OR BERM, LOCATE CAV 36" FROM CURB, BERM, OR SIDEWALK.
3) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.
4) LOCATE CAV AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
5) ALL FITTINGS TO BE COMPRESSION STYLE (SUPER GRIP) UNLESS OTHERWISE STATED.

ITEM	DESCRIPTION
1	2 1/2" HIGH PRESSURE STEEL WELD COUPLING
2	2" MIPT BRONZ BALL CORP STOP
3	2" FIPT BRONZE 90 DEGREE ELBOW
4	2" COPPER TUBING
5	2" MIPT X COMP ADAPTER
6	2" BALL VALVE 360 DEG TURN WITH OPERATING NUT
7	2" BALL VALVE, T-HANDLE NOT ALLOWED
8	VALVE COVER PER W-27
9	2" – 3" LONG RED BRASS NIPPLE
10	2" COMBINATION AIR & VACUUM RELEASE VALVE W/ SCREEN (CAV)
11	SADDLE
12	2" BRASS ELBOW (SUPER GRIP)
13	2" FIPT X GRIP RING ADAPTER
14	PROTECTIVE COVER FOR ASSEMBLY
15	2" BRASS COUPLING
16	2" BRASS NIPPLE (LENGTH TBD IN FIELD)
17	DIELECTRIC INSULATING BUSHING (STEEL PIPE ONLY)
18	TRACER WIRE AND WARNING TAPE PER SDRSD WP-01
19	2" X 4" REDWOOD BLOCKS

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022
2	2/24	SKM	VERSION UPDATE 2/2024

2/15/2024

APPROVED

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Flint Baze
GENERAL MANAGER

DocuSigned by:
Shawnee Moreos
ENGINEERING MANAGER

Rincon del Diablo Water

STANDARD DRAWINGS

2" COMBINATION AIR & VACUUM VALVE

DWG. NO. W-14

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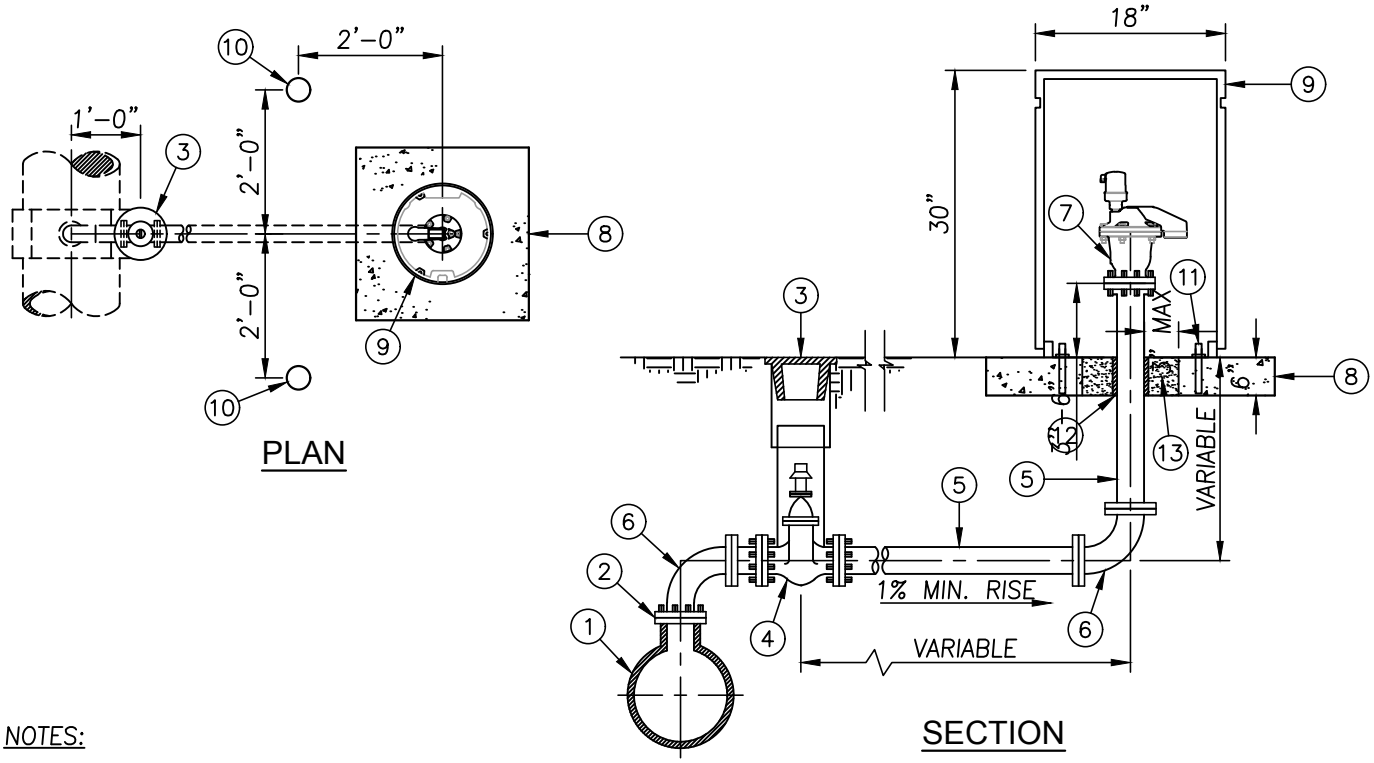

NOTES:

1. PAINT EXPOSED SECTIONS YELLOW (POTABLE WATER MAINS) OR PURPLE (RECYCLED WATER MAINS).
2. ALL MATERIALS FURNISHED TO BE OF PIPE PRESSURE CLASS CALLED FOR ON PLANS, BUT NOT LESS THAN CLASS 200 WORKING PRESSURE (MIN).
3. THE FLANGES SHALL BE 125 LB. FLANGES.
4. BURIED APPURTENANCES, DUCTILE IRON PIPING AND FITTINGS TO BE POLY WRAPPED AND TAPED.
5. MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.
6. A REDUCING ELBOW OR REDUCER MAY BE NEEDED ON LARGE DIAMETER PIPES BETWEEN ITEM NOS. 1 AND 2.
7. VALVE PLACEMENT AND CIRCULAR CONCRETE PAD ON RURAL ROADWAYS WHERE CURB AND GUTTER AND SIDEWALKS ARE NOT PRESENT WILL BE AT THE DISCRETION OF THE FIELD INSPECTOR.

ITEM	DESCRIPTION
1	WATER MAIN
2	RINCON ACCEPTED SADDLE OR FLANGED OUTLET ON D.I. TEE
3	8" GATE VALVE CAP AND RISER PER STD. W-25, W-26, W-27
4	4"/6" RESILIENT WEDGE GATE VALVE
5	4"/6" FLANGED DUCTILE IRON PIPE (CLASS 52)
6	4"/6" FLANGED D.I. 90° ELBOW
7	4"/6" FLANGED AIR-VAC AND VACUUM RELEASE VALVE
8	2'-6" X 2'-6" X 6" THICK CONCRETE SLAB W/ #4 @12" OC EW MIN. CONCRETE SHALL BE CLASS 560-C-3250.
9	VALVE ENCLOSURE
10	GUARD POST
11	1/2" X 3" STAINLESS STEEL POST-INSTALLED ANCHORS (3 EA. @ 120° APART)
12	2 LAYERS 10-MIL POLYETHYLENE TAPE - THROUGHOUT FULL DEPTH OF PENETRATION.
13	EPOXY GROUT

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022

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DocuSigned by: Jim Bayne
GENERAL MANAGER
DocuSigned by: Shawnell Morelos
ENGINEERING MANAGER

Rincon del Diablo Water

STANDARD DRAWINGS
4" AND 6" COMPACT STYLE AIR RELEASE & VACUUM RELIEF VALVE INSTALLATIONS

DWG. NO. W-15

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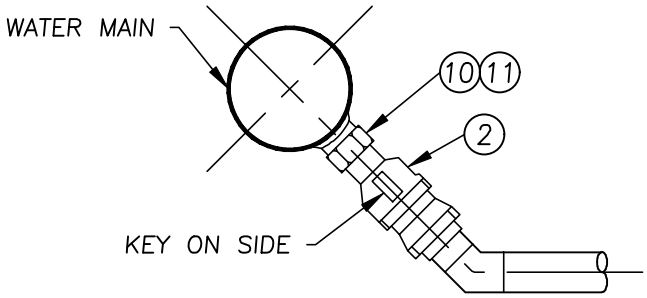
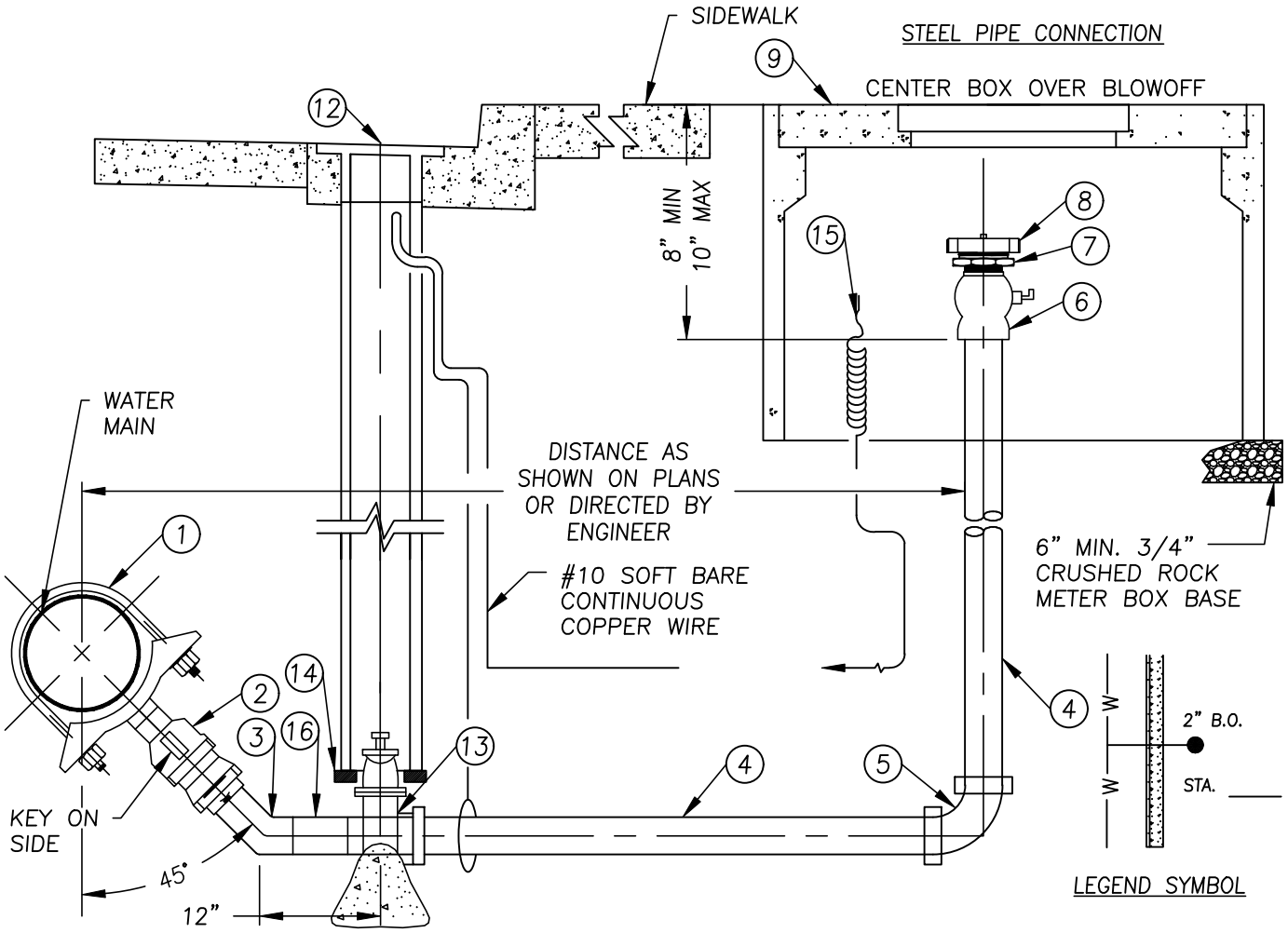
NOTES:

1) BLOW-OFF SHALL BE LOCATED BEHIND CURB OR SIDEWALK ON SIDE OF STREET NEAREST STORM DRAIN INLET. LOCATE WHERE SHOWN ON DRAWINGS OR AS DIRECTED BY DISTRICT ENGINEER.
2) NO SOLDERED OR FLARE JOINTS, USE GRIP AND THREADED CONNECTION.
3) BOX MUST BE WITHIN ROW OR EASEMENT, 24" FROM ROW OR EASEMENT BOUNDARY.
4) ALL MATERIAL TO BE PER APPROVED MATERIALS LIST.



STEEL PIPE CONNECTION



LEGEND SYMBOL

ITEM	DESCRIPTION
1	SADDLE
2	MIPT X MIPT BALL CORP STOP
3	2" FIPT X FIPT 45° ELBOW
4	2" TYPE K SOFT COPPER TUBING
5	2" 90° ELBOW (COMP)
6	2" BALL VALVE COMP X MIPT (WITH OP. NUT)
7	2" NPT X 2 1/2" MIPT X NST ADAPTER
8	2 1/2" NST HOSE CAP W/ CHAIN
9	POLYMER CONCRETE METER BOX WITH FULL DROP IN LID
10	STAINLESS STEEL HALF COUPLING (ON STEEL PIPE ONLY)
11	NYLON DIELECTRIC INSULATING BUSHING (ON STEEL PIPE ONLY)
12	VALVE COVER PER W-27
13	2" BALL VALVE 360 DEG TURN WITH OPERATING NUT (FIPT X COMP)
14	2" X 4" REDWOOD BLOCKS
15	TRACER WIRE AND WARNING TAPE PER SDRSD WP-01
16	2" MIPT X MIPT NIPPLE

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022
2	2/24	SKM	VERSION UPDATE 2/2024

APPROVED 2/15/2024

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DocuSigned by: Clint Baze
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DocuSigned by: Shawnee Morcos
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Rincon del Diablo Water

STANDARD DRAWINGS

2" BLOW OFF ASSEMBLY

DWG. NO. W-16

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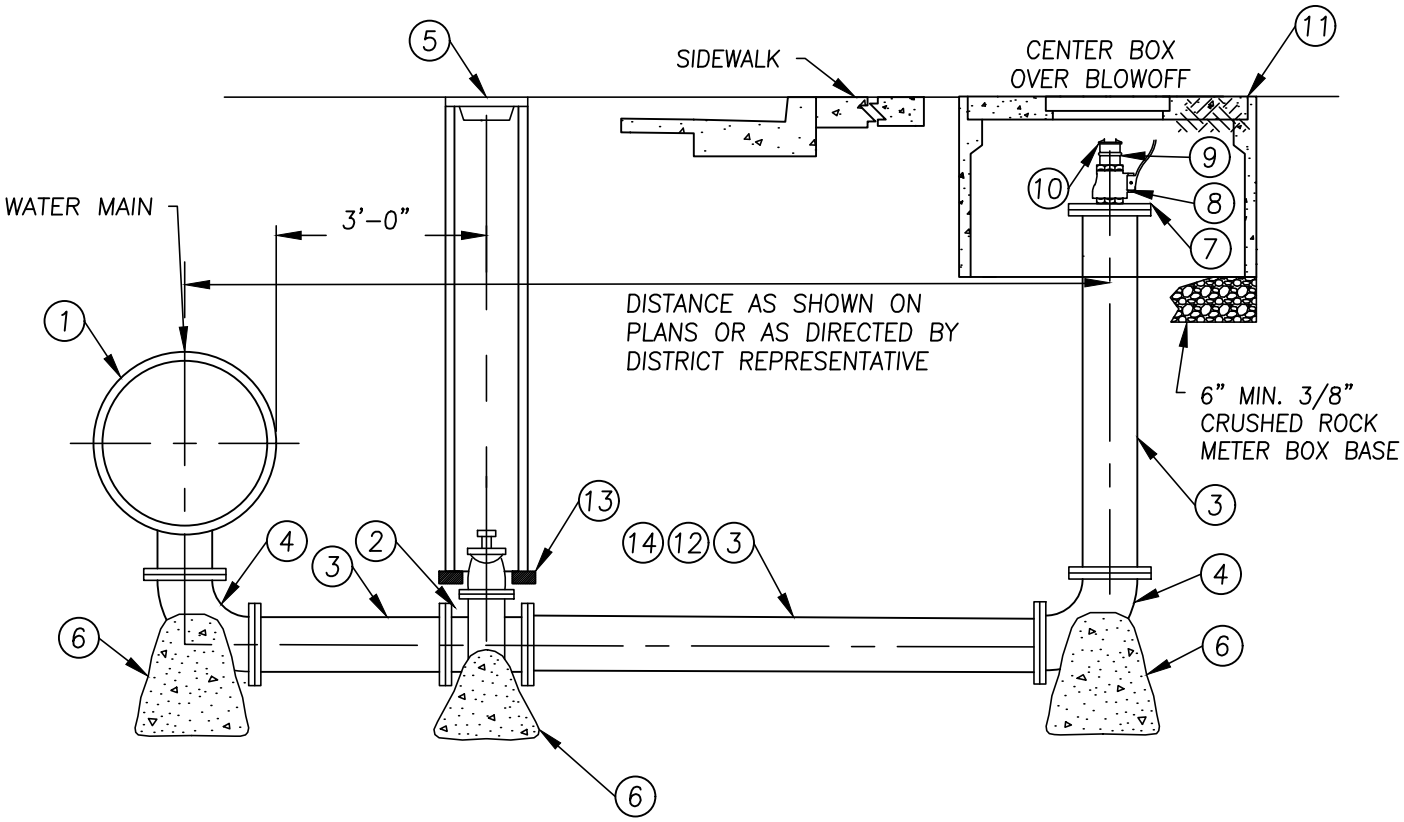

NOTES:

1) LOCATE AS SHOWN ON APPROVED DWGS. OR AS DIRECTED BY DISTRICT REP.
2) BOX MUST BE WITHIN ROW OR EASEMENT, 24" FROM ROW OR EASEMENT BOUNDARY.
3) BLOW-OFF PIPING SHALL BE FULLY RESTRAINED AND OF THE SAME MATERIAL AS MAIN UNLESS OTHERWISE STATED.
4) ALL MATERIAL TO BE PER APPROVED MATERIAL LIST.

ITEM	DESCRIPTION
1	TEE SIZE OF MAIN X 4" DIP RESTRAINED
2	GATE VALVE, FLG
3	PIPE SPOOL PIECE, FLG x FLG (DIP)
4	90 DEGREE FLG ELBOW (DIP)
5	VALVE COVER PER W-27
6	THRUST BLOCK
7	COMPANION FLANGE W/2" FIPT AND 2" BRASS NIPPLE
8	2" BALL VALVE W/ OP NUT
9	2" X 2 1/2" MIPT X MHT ADAPTER
10	2 1/2" HOSE CAP W/ CHAIN
11	POLYMER CONCRETE METER BOX
12	WAX TAPE COATING SYSTEM + 10 MIL WRAP
13	2" X 4" REDWOOD BLOCKS
14	WARNING TAPE PER SDRSD WP-01

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Rincon del Diablo Water

STANDARD DRAWINGS

4" AND LARGER BLOW-OFF

DWG. NO. W-17

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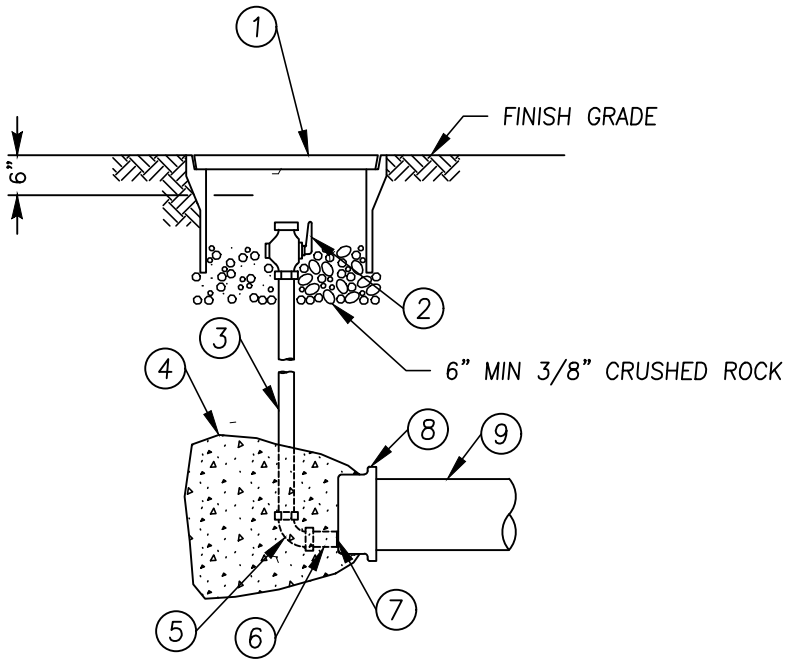

NOTES:

1) SET TOP OF METER BOX 2" ABOVE FINISH GRADE IN DIRT OR AT FINISH GRADE IN ASPHALT AND CONCRETE.
2) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED USING PURPLE MATERIALS PER RINCON STANDARDS.
3) THE CONSTRUCTION OF A TEMPORARY BLOW-OFF IS FOR THE USE OF TESTING AND FLUSHING OF ONGOING CONSTRUCTION.
4) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.
5) THIS INSTALLATION IS ONLY TO BE USED FOR TEMPORARY FACILITIES (LESS THAN 6 MONTHS). LONGER TERM OR FACILITIES TO BE DEDICATED TO THE DISTRICT SHALL BE CONSTRUCTED PER STD. DWG. W-11.

ITEM	DESCRIPTION
1	POLYMER METER BOX WITH LID (PURPLE LID)
2	2" COMPRESSION X FIPT BALL VALVE
3	2" X REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
4	CONCRETE THRUST BLOCK PER W-20
5	2" 90° IPT BY SUPER GRIP (COMPRESSION)
6	2" CLOSE NIPPLE IPT
7	NYLON DIELECTRIC BUSHING (2.5"X2")
8	DI END CAP WITH 2" FIPT OUTLET
9	WATER MAIN

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1	12/22	SKM	VERSION UPDATE 12/2022

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Rincon del Diablo Water

STANDARD DRAWINGS

TEMPORARY 2" BLOW-OFF INSTALLATION (FOR USE DURING ONGOING CONSTRUCTION ONLY)

DWG. NO. W-18

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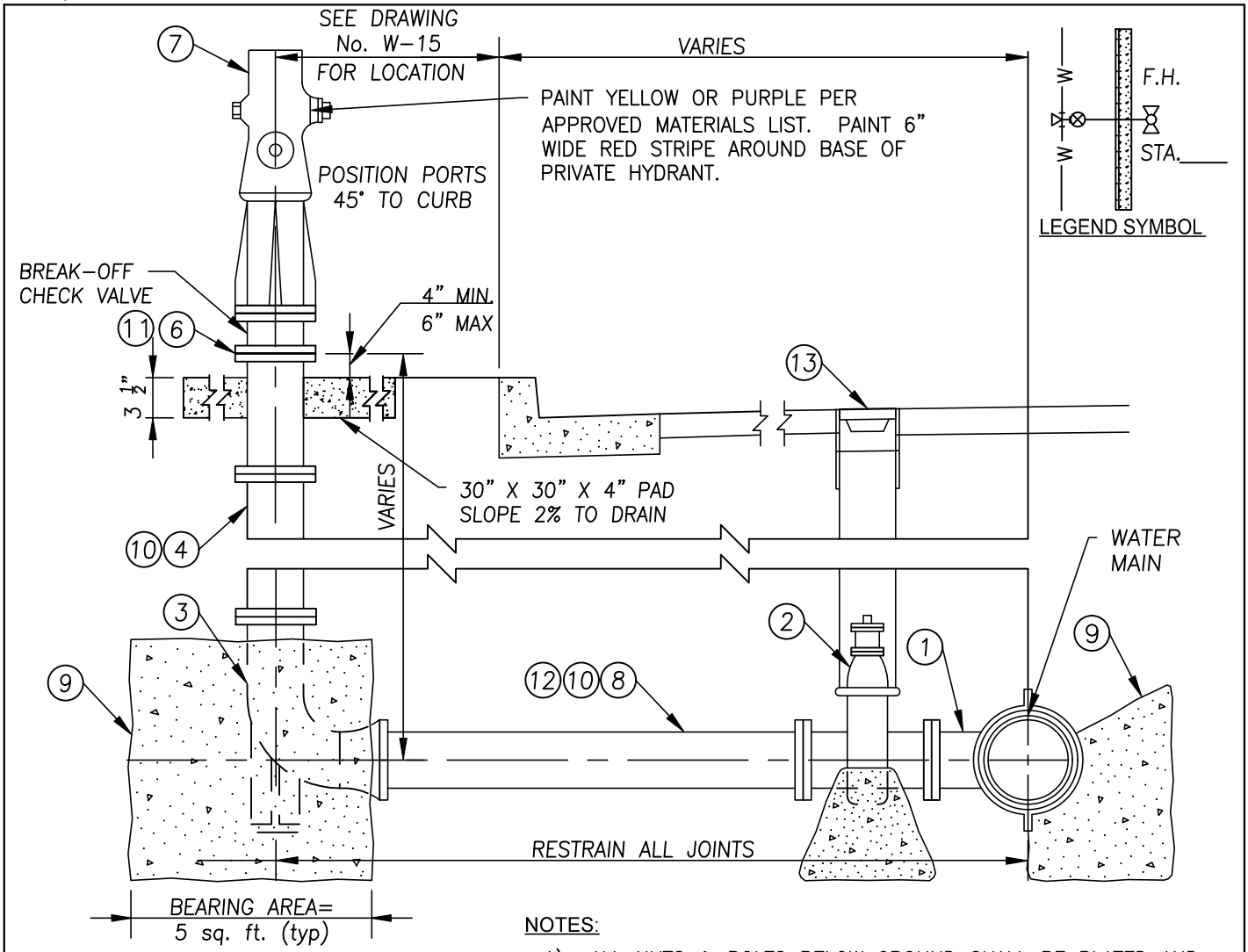

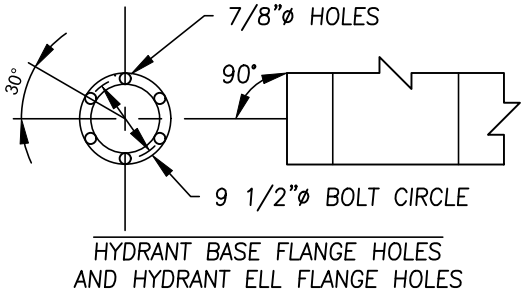

HYDRANT BASE FLANGE HOLES AND HYDRANT ELL FLANGE HOLES

NOTES:

1) ALL NUTS & BOLTS BELOW GROUND SHALL BE PLATED AND COATED WITH NO-OXIDE GREASE, WAX TAPE, AND VISQUEEN.
2) FL x FL VALVES REQUIRE ADAPTER PER MATERIALS LIST.
3) BREAK-OFF CHECK VALVE WILL BE REQUIRED.
4) PROVIDE TRACER WIRE AND WARNING TAPE PER DRAWING W-22.
5) PROTECTION POSTS MAY BE REQUIRED (SEE W-20)
6) ALL MATERIAL TO BE PER APPROVED MATERIALS LIST.
7) FIRE HYDRANT TO BE APPROVED BY FIRE DEPARTMENT.

ITEM	DESCRIPTION
1	MAIN SIZE x 6" FLG TEE
2	6" FLG x FLG GATE VALVE
3	6" MJ x FLG W/ MJ RESTRAINT BURY SHORT RADIUS
4	6" FLG x FLG DI SPOOL, LENGTH AS REQUIRED
6	PLATED NUTS AND BOLTS W/ RING GASKET
7	FIRE HYDRANT
8	6" PE X FLG DIP SPOOL
9	THRUST BLOCK PER W-38
10	WAX TAPE & 10 MIL. POLY SLEEVE
11	ADD PROTECTION POST ON EITHER SIDE PER W-20
12	WARNING TAPE AND TRACER WIRE PER W-22
13	VALVE COVER PER W-27

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Rincon del Diablo Water

STANDARD DRAWINGS

FIRE HYDRANT INSTALLATION

DWG. NO. W-19

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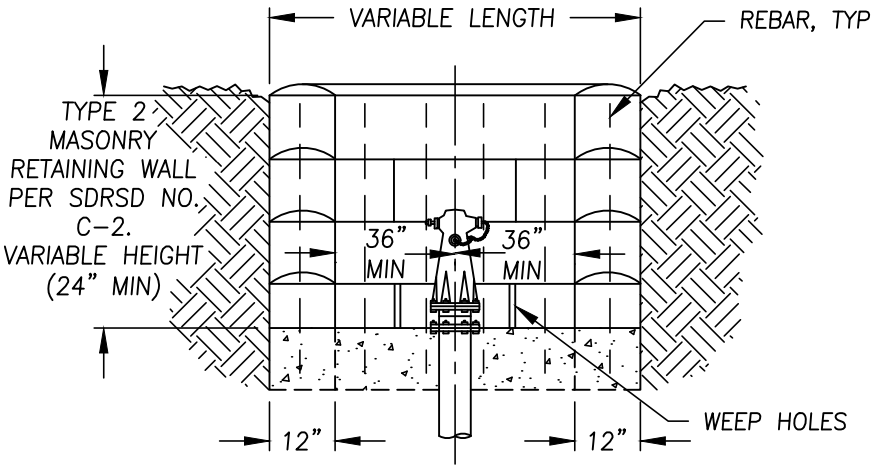
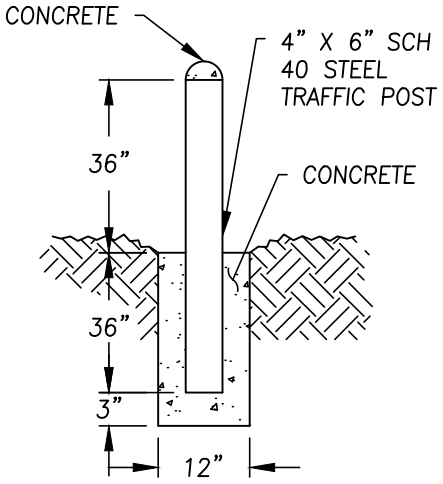
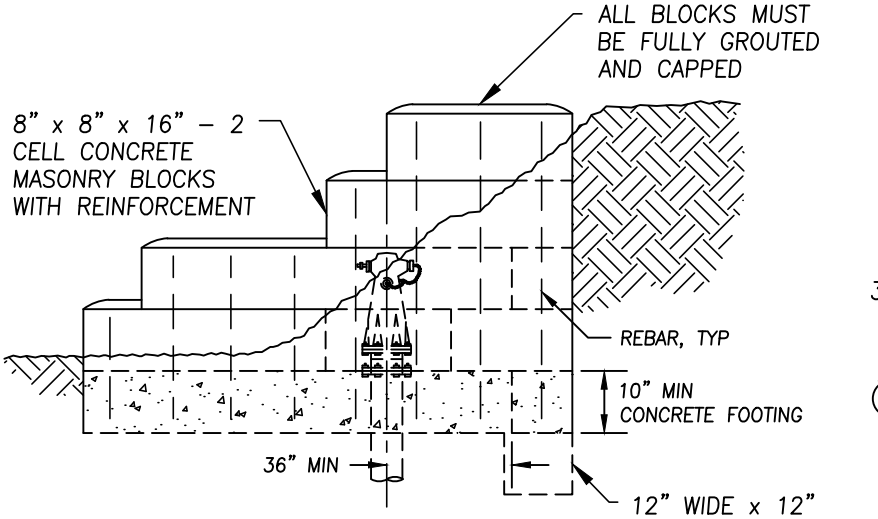


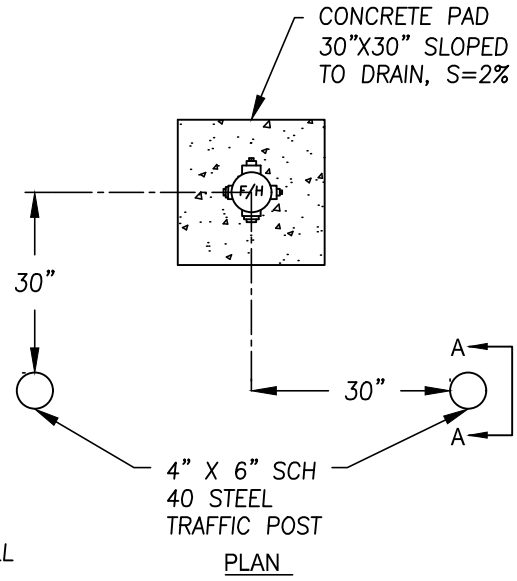
FRONT VIEW



SECTION A-A



SIDE VIEW



PLAN

RETAINING WALL

PROTECTION POST

NOTES:

1) WALL REINFORCEMENT NOT SHOWN FOR CLARITY. SEE SDRSD NO. C-2.
2) FINAL DETERMINATION FOR THE NEED OF RETAINING WALL AND PROTECTION POSTS SHALL BE MADE IN THE FIELD BY THE DISTRICT INSPECTOR.
3) POST TO BE PAINTED YELLOW AND FILLED W/CONCRETE

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1	12/22	SKM	VERSION UPDATE 12/2022

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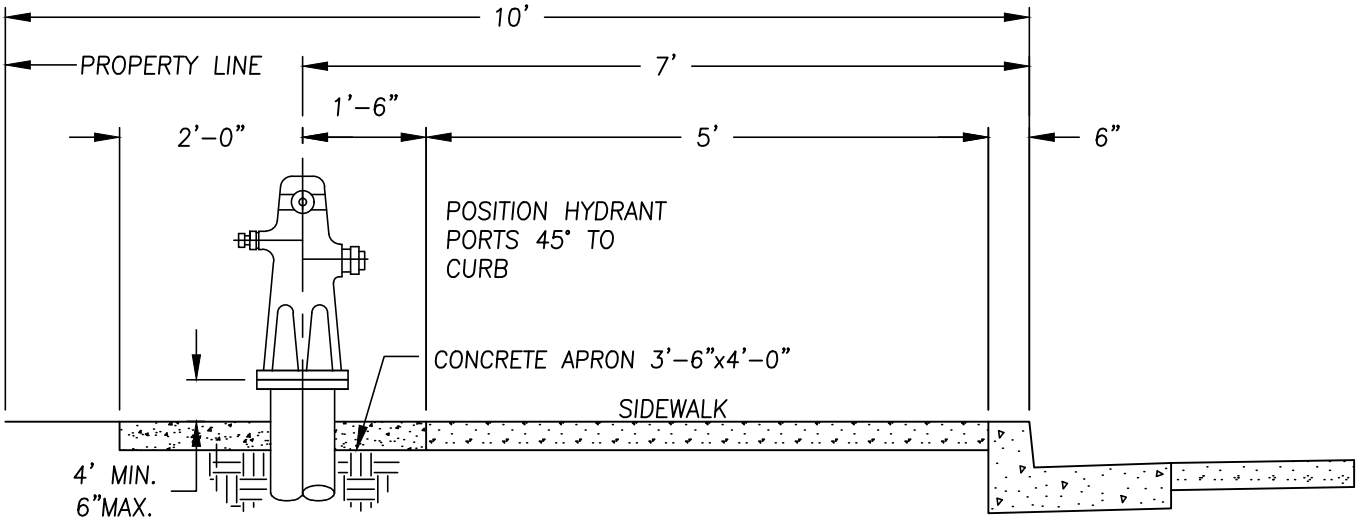
Rincon del Diablo Water

STANDARD DRAWINGS

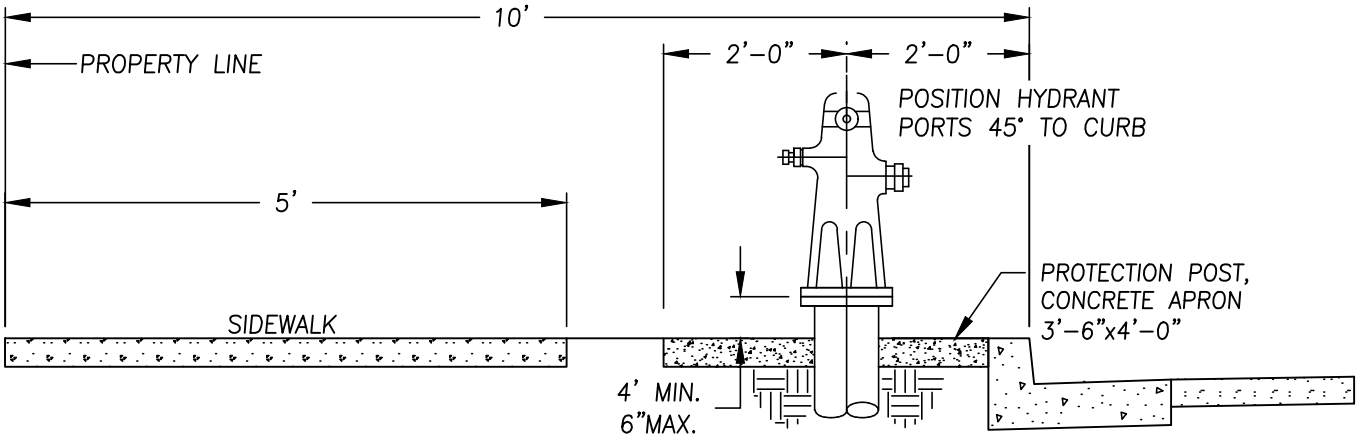
RETAINING WALL AND PROTECTION POSTS

DWG. NO. W-20

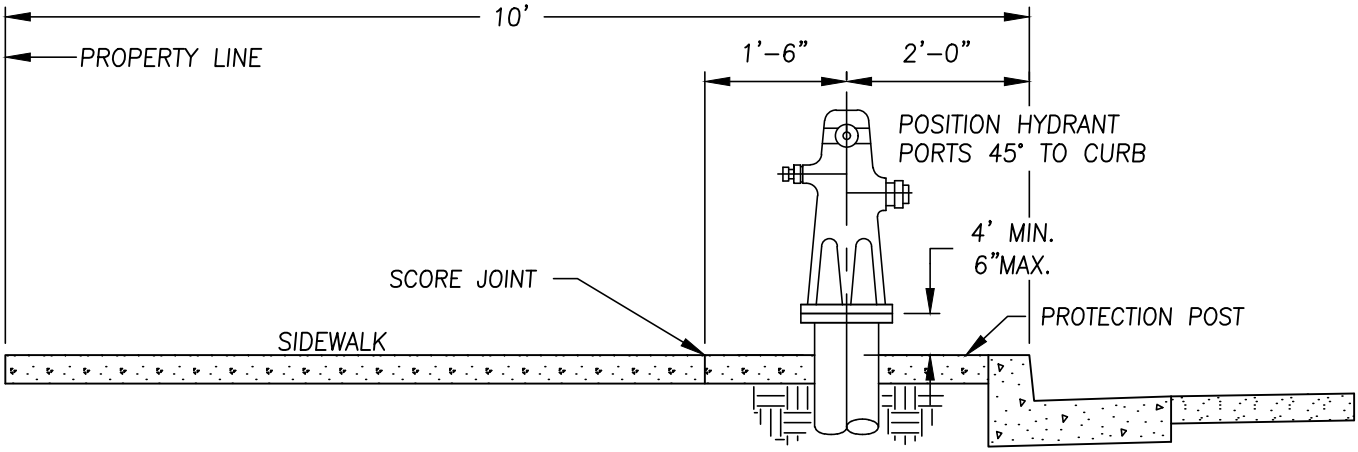
DocuSign Envelope ID: 0BE7DAC4-973B-4D86-B184-54D9F9596524



FIRE HYDRANT - SIDEWALK CONTIGUOUS WITH CURB



FIRE HYDRANT - SIDEWALK CONTIGUOUS WITH PROPERTY LINE



FIRE HYDRANT - SIDEWALK OCCUPIES FULL WIDTH OF PARKWAY STRIP

NOTE:

1) A 10' MIN. HORIZONTAL OFFSET FROM EDGE OF DRIVEWAY ENTRANCES AND CURB RETURNS IS REQUIRED

2) PROVIDE PROTECTION POSTS (W–20) AS NECESSARY. LOCATION DETERMINED BY ENGINEER CONSIDERING FIELD CONDITIONS

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ENGINEERING MANAGER
Shawnell Morales
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STANDARD DRAWINGS

STANDARD FIRE HYDRANT LOCATIONS WHERE CURBS ARE INSTALLED

DWG. NO. W–21

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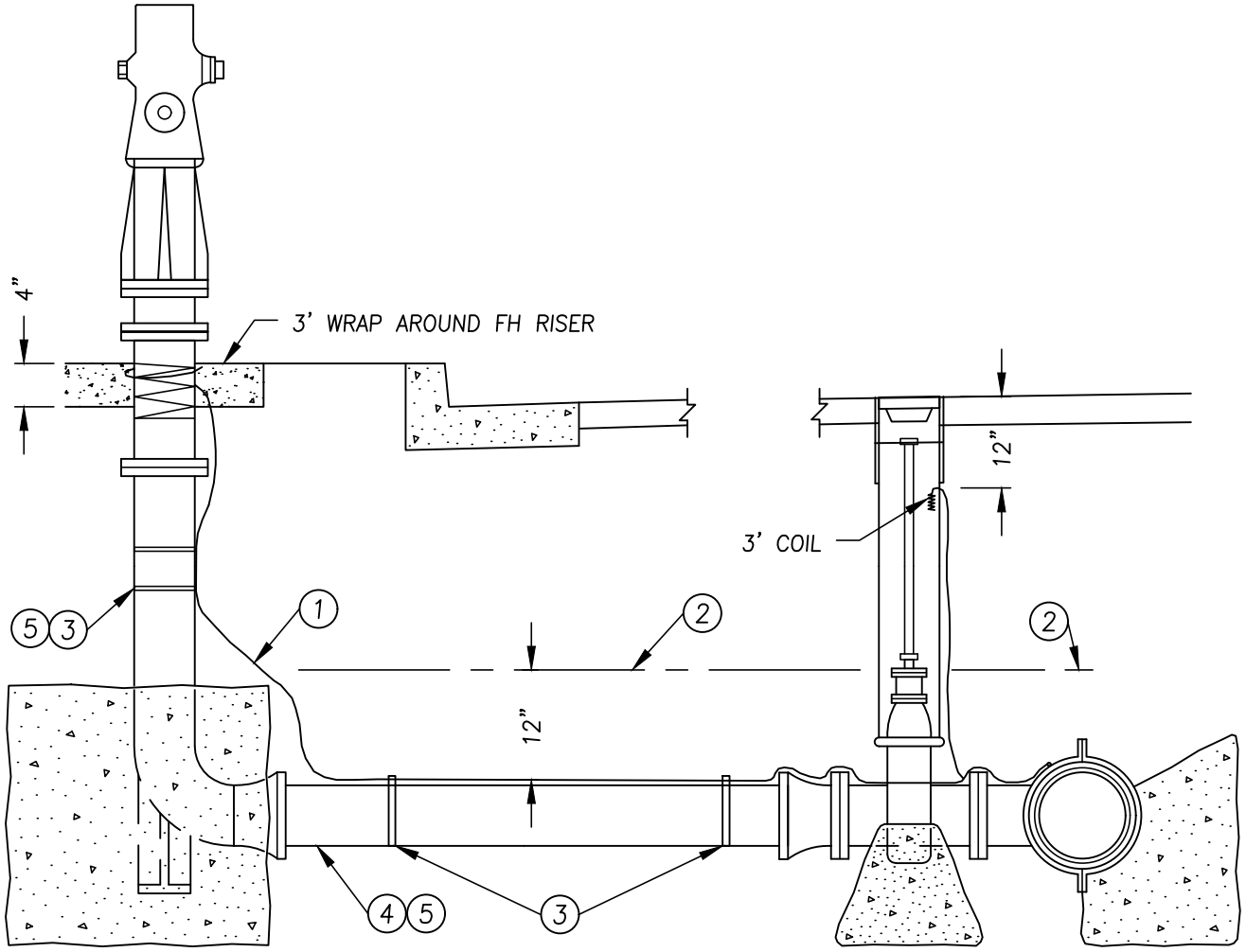

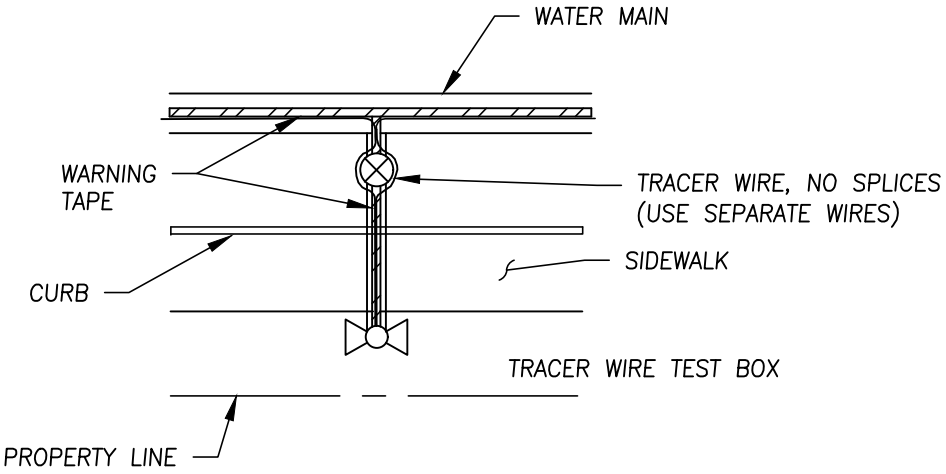

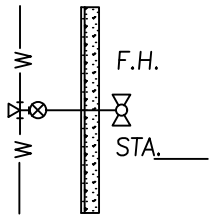

LEGEND

ITEM	DESCRIPTION
1	10 GA. SOLID INSULATED TRACER WIRE PER SDRSD WP-01
2	WARNING TAPE PER SDRSD WP-01
3	TAPE (SECURING TRACER WIRE TO PIPE) PER SDRSD WP-01
4	DUCTILE IRON
5	WAX TAPE AND POLY SLEEVE

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022

APPROVED 2/13/2023
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ENGINEERING MANAGER
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Rincon del Diablo Water

STANDARD DRAWINGS

WARNING IDENTIFICATION TAPE AND TRACER WIRE INSTALLATION FOR FIRE HYDRANTS (PVC PIPE)

DWG. NO. W-22

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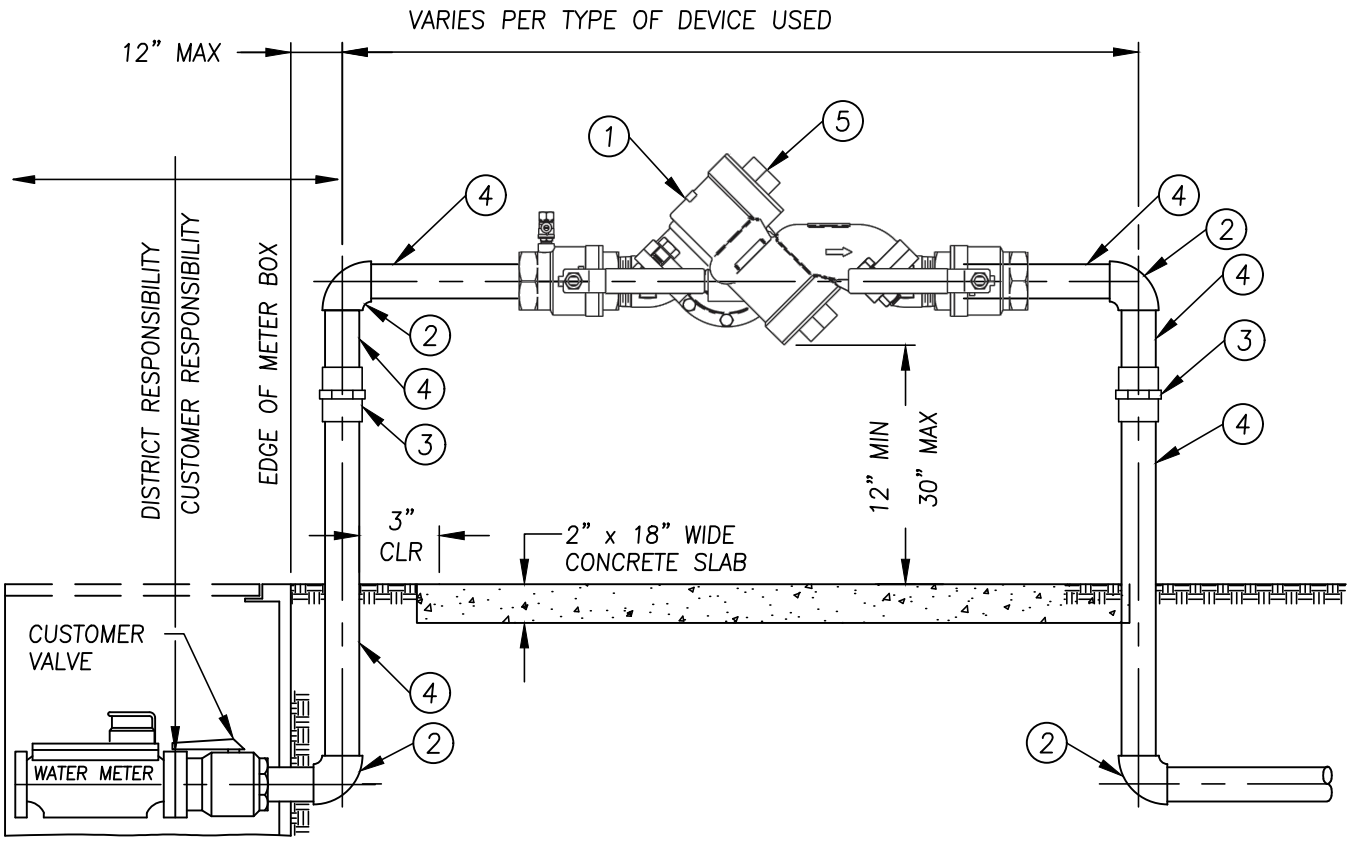

NOTES:

1) ALL INSTALLATIONS SHALL BE ABOVE GROUND AND IN NO CASE PLACED IN THE SIDEWALK WITHOUT DISTRICT APPROVAL.
2) ALL BACKFLOW PREVENTION DEVICES SHALL BE WITHIN 12" FROM THE WATER METER.
3) THE BACKFLOW PREVENTION DEVICE SHALL BE SELECTED FROM APPROVED STATE OF CALIFORNIA–DEPARTMENT OF HEALTH SERVICES LIST.
4) NO CONNECTIONS SHALL BE MADE BETWEEN THE WATER METER AND THE BACKFLOW PREVENTION DEVICE.
5) APPROPRIATE TEST COCKS SHALL BE IN PLACE AT ALL TIMES.
6) DISTRICT SHALL HAVE ACCESS TO BACKFLOW PREVENTION DEVICE AT ALL TIMES.
7) CONCRETE PAD SHALL BE A MINIMUM OF 18" LONG.
8) REFER TO STANDARD DRAWINGS FOR INSTALLATION OF WATER METER AND SERVICE.
9) PIPING MATERIAL SHALL BE RED BRASS, OR "K" OR "L" RIGID COPPER PIPING.
10) BACKFLOW DEVICE SHALL BE THE SAME SIZE AS WATER METER OR LARGER.
11) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	REDUCED PRESSURE BACKFLOW ASSEMBLY
2	90° ELBOW (MATERIAL TO MATCH PIPE MATERIAL)
3	THREADED UNION
4	NIPPLE, VARIES IN LENGTH (RED BRASS OR RIGID COPPER)
5	TEST COCK (4 REQUIRED)

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1	12/22	SKM	VERSION UPDATE 12/2022

APPROVED: 2/17/2023
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STANDARD DRAWINGS

RP BACKFLOW PREVENTION DEVICE – 2" AND SMALLER

DWG. NO. W–23

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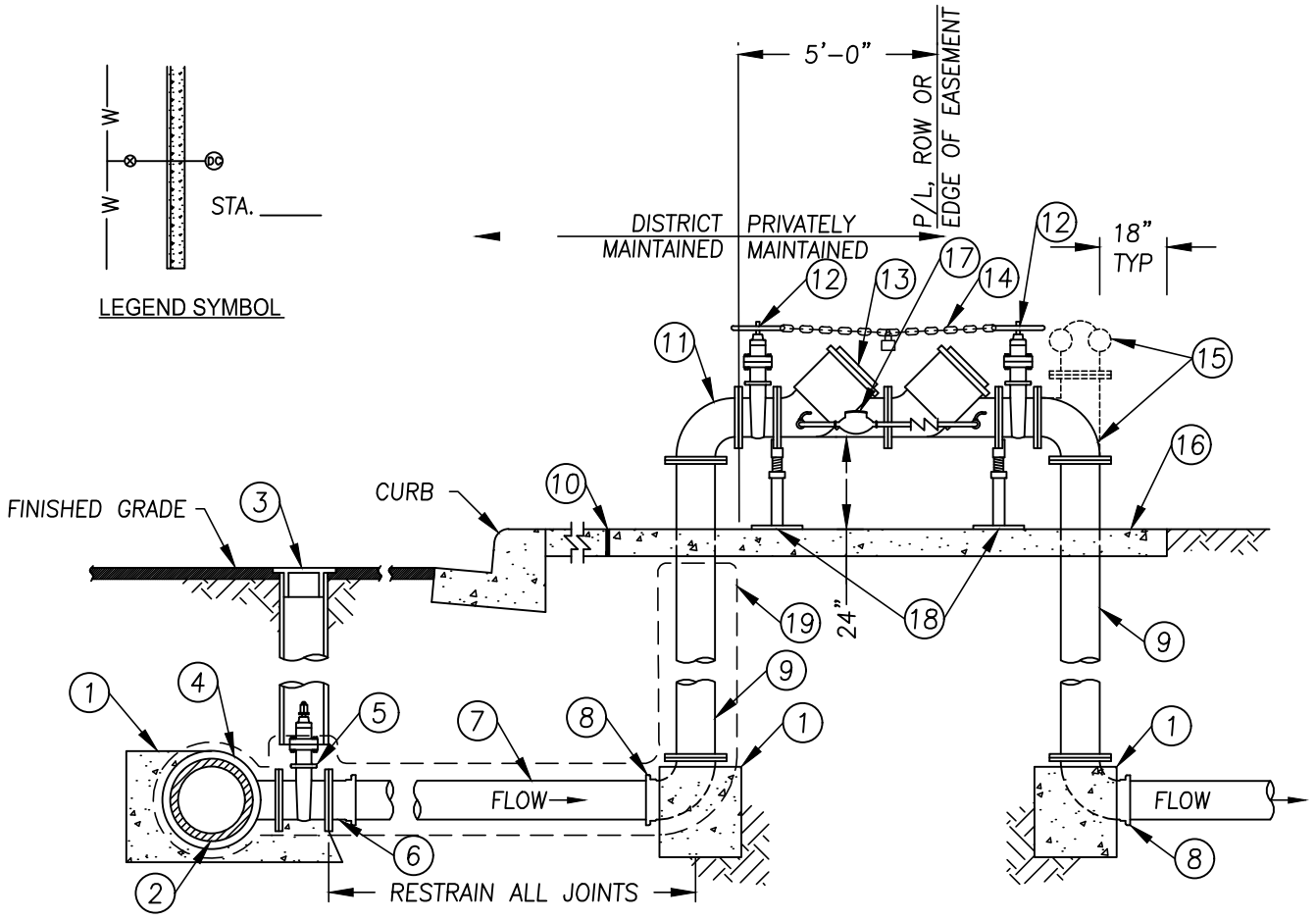

NOTES:

1) SUBSTITUTIONS IN MATERIAL SHALL NOT BE MADE WITHOUT APPROVAL OF THE DISTRICT.
2) PIPE LENGTH SHALL BE VERIFIED IN THE FIELD.
3) ALL EXPOSED PIPING AND BOLTS SHALL BE PAINTED, COLOR PER DISTRICT DISCRETION (EXCLUDING BY-PASS PLUMBING).
4) CONTACT THE APPROPRIATE FIRE PROTECTION DISTRICT FOR SPECIFICATIONS ON FIRE DEPARTMENT CONNECTION.
5) RPDA PER STATE HEALTH DEPARTMENT APPROVED LIST.
6) PROTECTION MAY BE REQUIRED AS PER W-20.
7) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST

ITEM	DESCRIPTION
1	CONCRETE THRUST BLOCK PER W-38
2	WATER MAIN
3	VALVE COVER PER W-27
4	TAPPING SLEEVE AND TEE
5	FLG X FLG GATE VALVE PER W-25
6	MJ/PO ADAPTER W/ RESTRAINTS
7	SPOOL, SIZE DETERMINED BY DISTRICT
8	MJ/PO X FLG ELBOW W/ RESTRAINTS
9	FLANGED DUCTILE IRON PIPE
10	EXPANSION JOINT
11	FLANGED ELBOW
12	FLANGED OS&Y RWGV W/ HAND WHEEL
13	REDUCED PRESSURE DETECTOR ASSEMBLY
14	CHAIN W/ KNOX LOCK
15	FLANGED TEE W/ "FDC" OR AS REQ. BY FIRE DEPT.
16	4" THICK CONCRETE SLAB EXTENDING 18" BEYOND THE ASSEMBLY LIMITS
17	BYPASS METER (READ IN GAL.) W/ RP DEVICE (PROVIDED BY DISTRICT)
18	ADJUSTABLE VALVE SUPPORT W/ 3/8" S.S ANCHOR BOLTS
19	WAX TAPE SYSTEM W/ 10 MIL POLY WRAP AND TRACER WIRE PER SDRSD WP-01

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STANDARD DRAWINGS

RP DETECTOR CHECK ASSEMBLY (ABOVE GROUND)

DWG. NO. W-24

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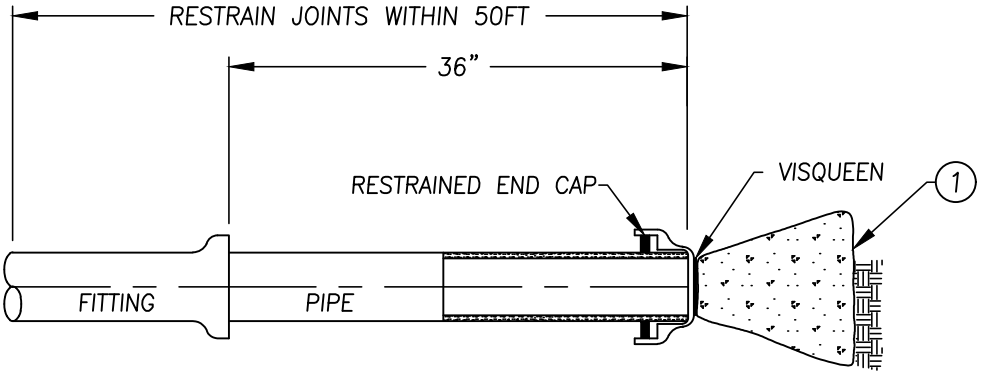
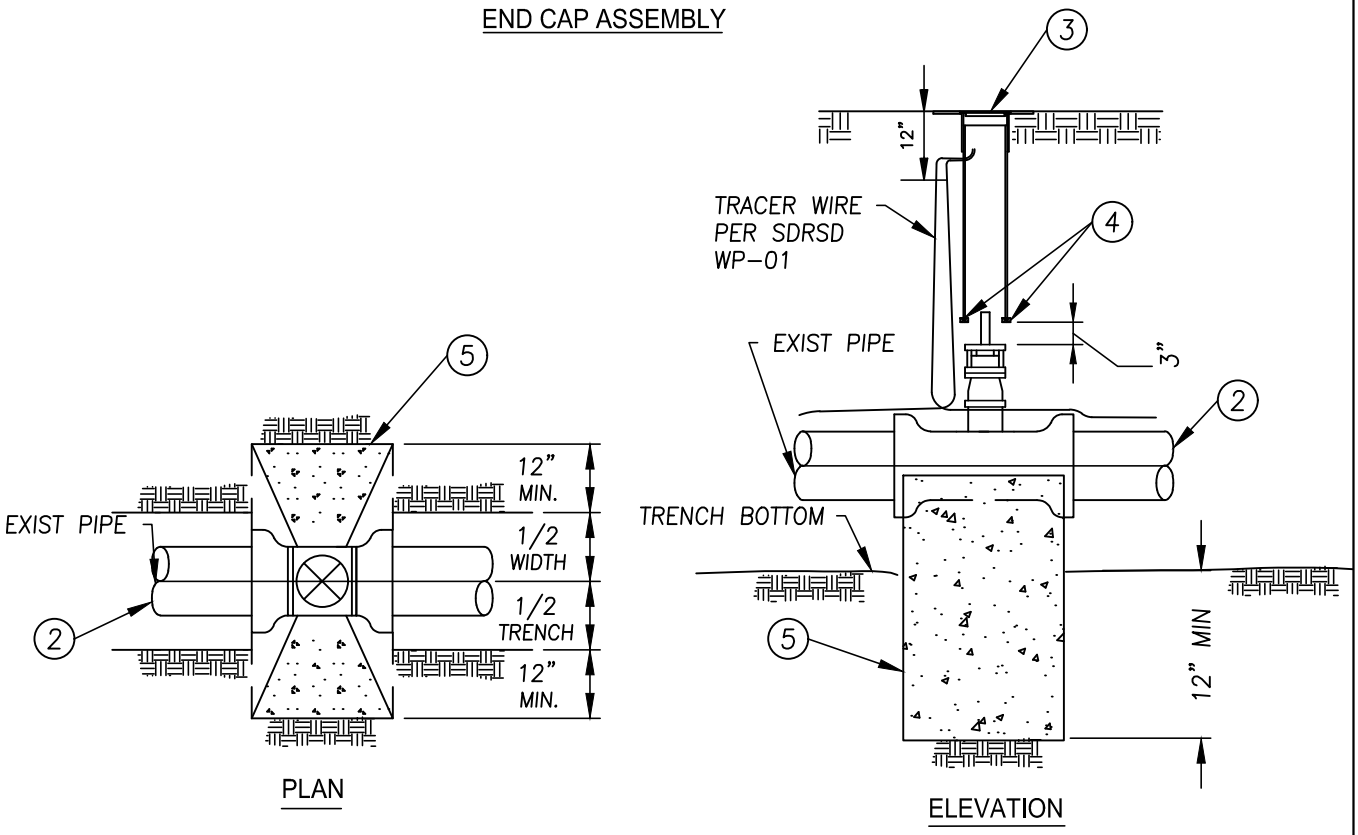


END CAP ASSEMBLY



NOTES:

1) NUTS & BOLTS TO BE COATED WITH NO-OXIDE GREASE AND VISQUEEN.
2) GATE VALVES TO COMPLY WITH RDDMWD SPECIFICATIONS.
3) VALVES DEEPER THAN 5FT REQUIRE VALVE STEM EXTENSIONS. EXTENSION SHALL BE SUCH THAT NUT IS ~3FT BELOW FINISH SURFACE EXTENSION SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT EXTENSION SHALL BE STEEL GALVANIZED W/CENTER RING.

ITEM	DESCRIPTION
1	CONCRETE THRUST BLOCK PER W-38 USE BEARING AREA PER FIG. 1
2	WATER MAIN
3	VALVE COVER PER W-27
4	2" X 4" REDWOOD BLOCKS
5	ANCHOR BLOCK PER W-26

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2/14/2023

Rincon del Diablo Water

STANDARD DRAWINGS

GATE VALVE INSTALLATION AND CAP ASSEMBLY

DWG. NO. W-25

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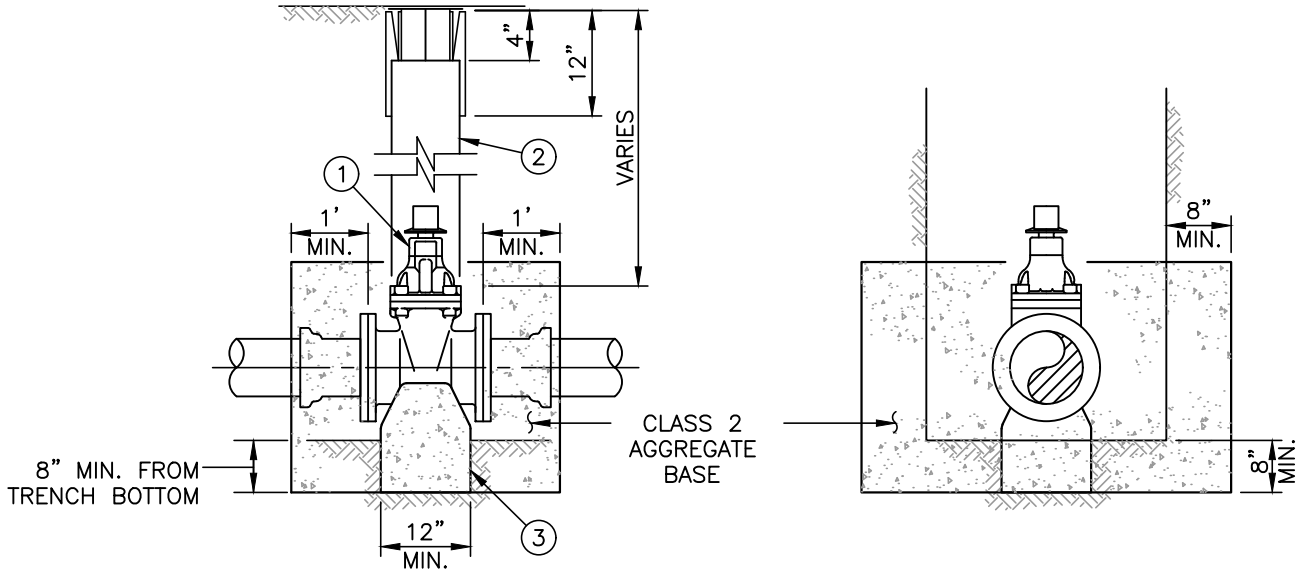
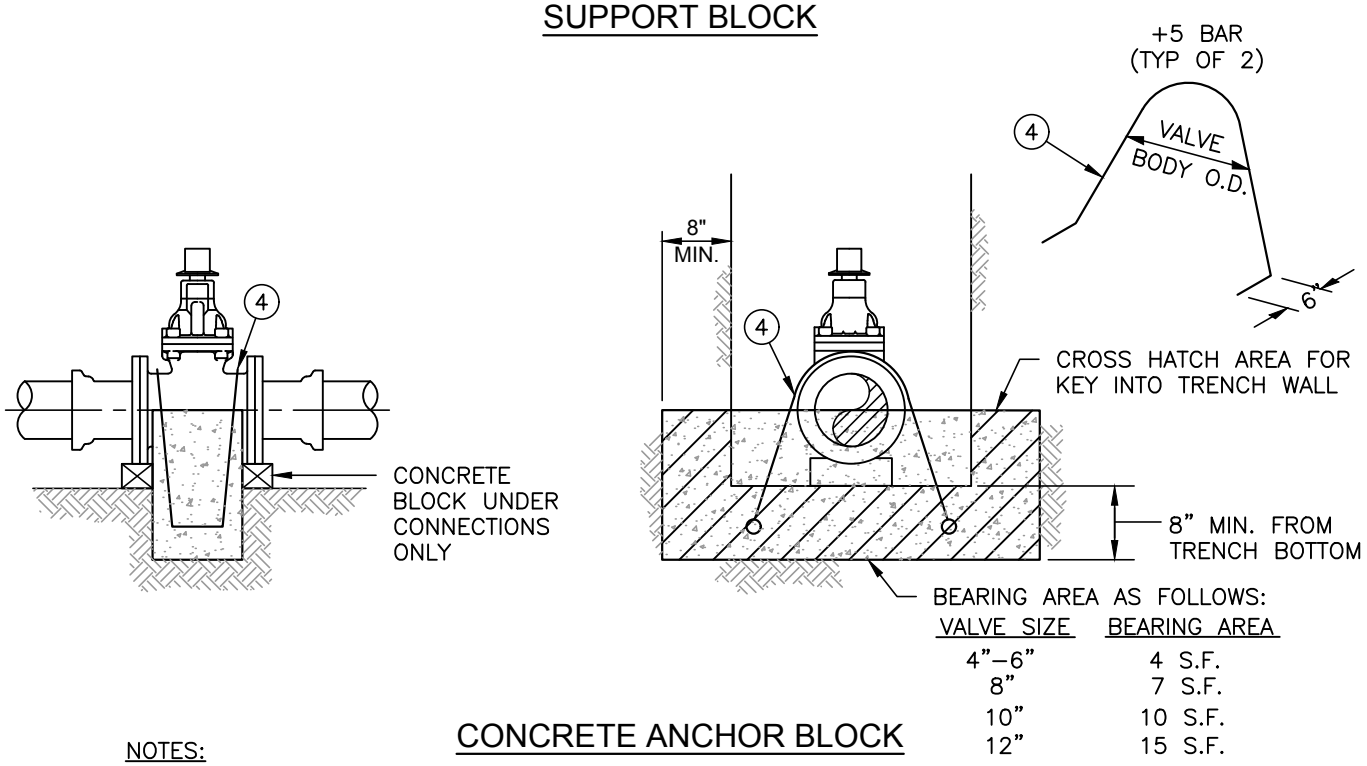


SUPPORT BLOCK



VALVE SIZE	BEARING AREA
4"–6"	4 S.F.
8"	7 S.F.
10"	10 S.F.
12"	15 S.F.

CONCRETE ANCHOR BLOCK

NOTES:

1. CONCRETE SHALL BE CLASS 500–C–2500 MINIMUM.
2. SUPPORT IS REQUIRED ON VALVES OVER 3 INCHES IN SIZE.
3. MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	VALVE (FLG x FLG)
2	VALVE CAP, WELL AND RISER PER STD. DWG. W–27
3	CONCRETE SUPPORT BLOCK SHALL BE POURED WITH FORMS TO AVOID CONTACT WITH VALVE CONNECTIONS
4	ANCHOR = 5/8 DIA. REINF. BARS, COAT WITH 20 MILS. MIN. OF BITUMASTIC PER APPROVED MATERIALS GUIDELINE

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DocuSigned by: GENERAL MANAGER 8FB2F901AB694E4...
ENGINEERING MANAGER CE08EEA80EB7481...

Rincon del Diablo Water

STANDARD DRAWINGS

VALVE SUPPORT AND ANCHOR BLOCKING DETAIL

DWG. NO. W–26

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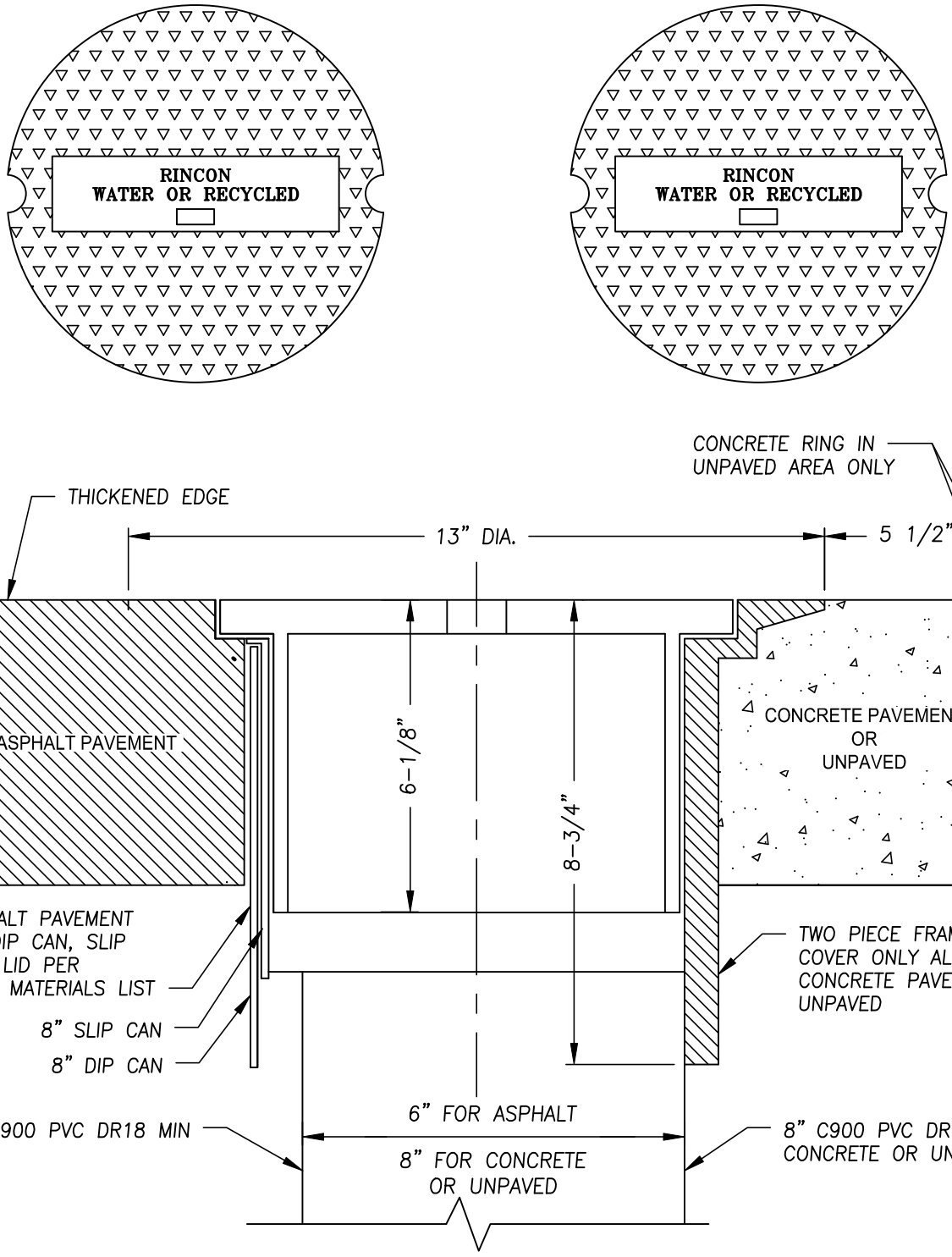

NOTES:

1) FRAME AND COVER SHALL BE SOUTHBAY FOUNDRY 8" GATE CAP.
2) GRAY CAST IRON PER ASTM A48, CLASS 35B.
3) FRAME AND LID EXCEED H-20 LOADING.
4) COAT LID YELLOW FOR POTABLE AND PURPLE FOR RECYCLED WATER BITUMINOUS PAINT.
5) SLIP CAN SHALL BE 20 GAUGE GALVANIZED SHEET METAL. 3/16" LIP AT BOTTOM. BOTH ENDS OPEN.
6) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST.
7) FOR UNPAVED AREAS, PROVIDE A CONCRETE RING AND TWO PIECE FRAME AND COVER.

REVISION	DATE	BY	DESCRIPTION
1	12/22	SKM	VERSION UPDATE 12/2022
2	2/24	SKM	VERSION UPDATE 2/2024

APPROVED 2/15/2024 DocuSigned by:
DocuSigned by: Clint Baze
GENERAL MANAGER
Shawnee Moreno
ENGINEERING MANAGER

Rincon del Diablo Water

STANDARD DRAWINGS

VALVE COVER – BOX FRAME & LID/SLIP CAN & LID

DWG. NO. W-27

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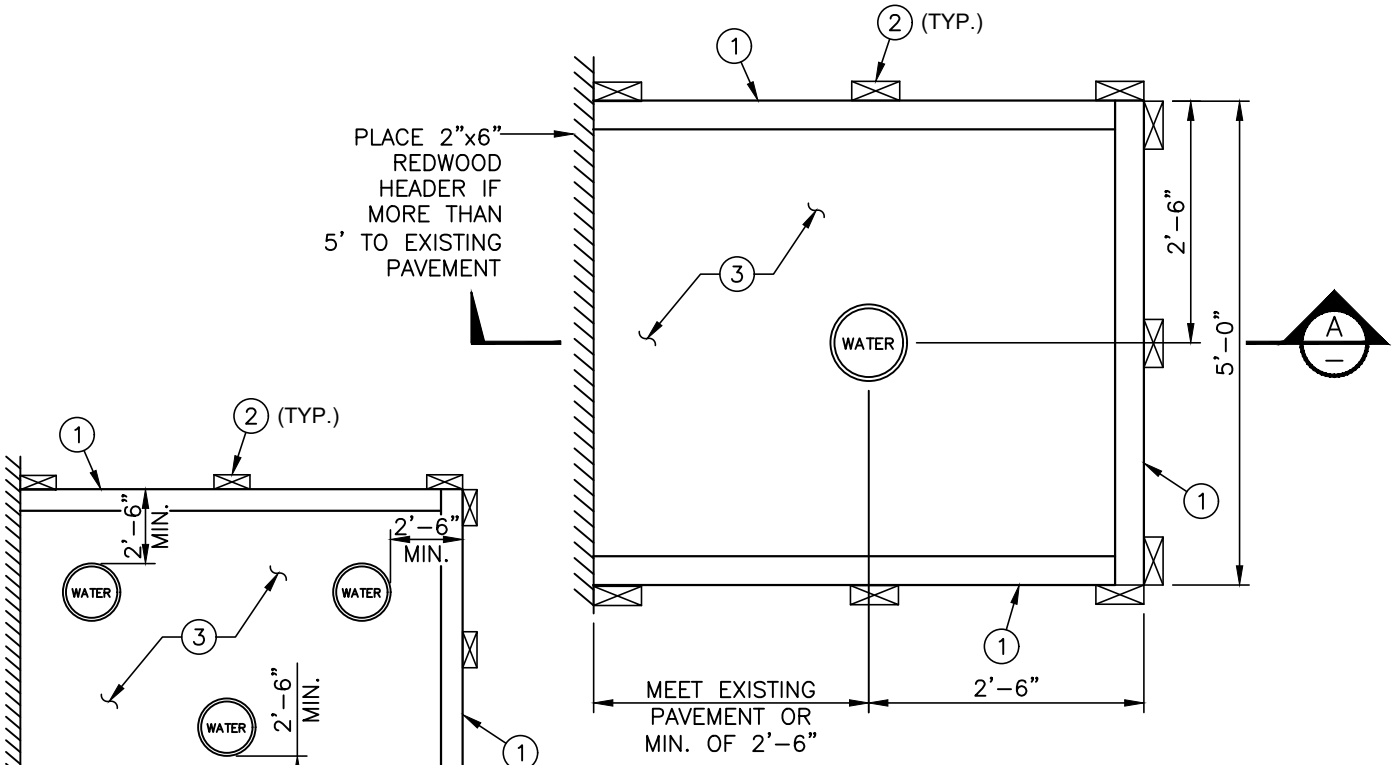

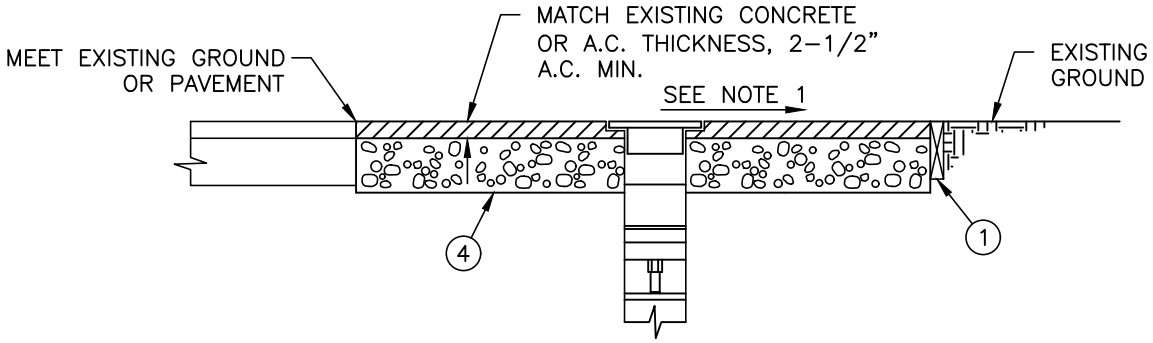

NOTES:

1. SLOPE WILL CONFORM TO SAN DIEGO COUNTY ROAD IMPROVEMENTS STANDARDS AND SPECIFICATIONS, OR MEET EXISTING CONDITIONS AS DIRECTED BY ENGINEER. PAD SHALL BE SLOPED AWAY FROM VALVE LID.
2. VALVES LOCATED IN LANDSCAPED AREAS SHALL HAVE A 2'x2' CONCRETE PAD INSTALLED.
3. MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.

ITEM	DESCRIPTION
1	2"x6" REDWOOD HEADERS IF REQUIRED BY ENGINEER OR AS DIRECTED
2	2"x4"x18" STAKES (3 PER SIDE) AT 30" O.C.
3	AREA TO BE PAVED
4	6" OF 3/4" CLASS 2 CRUSHED AGGREGATE BASE

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2/15/2023 | 8:32 PST

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STANDARD DRAWINGS

PAVING DETAIL AROUND VALVES (NOT IN PAVEMENT)

DWG. NO. W-28

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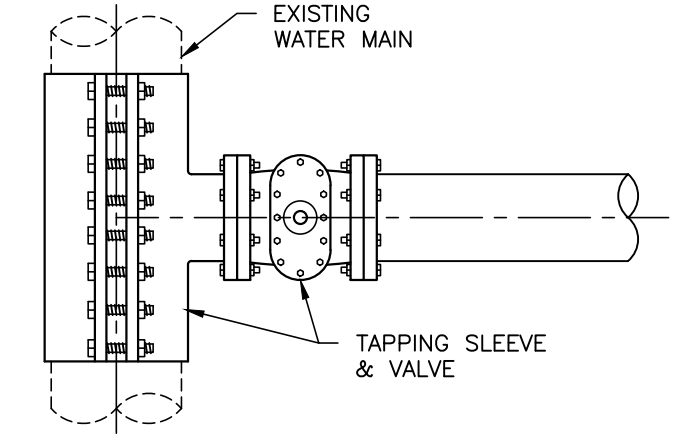
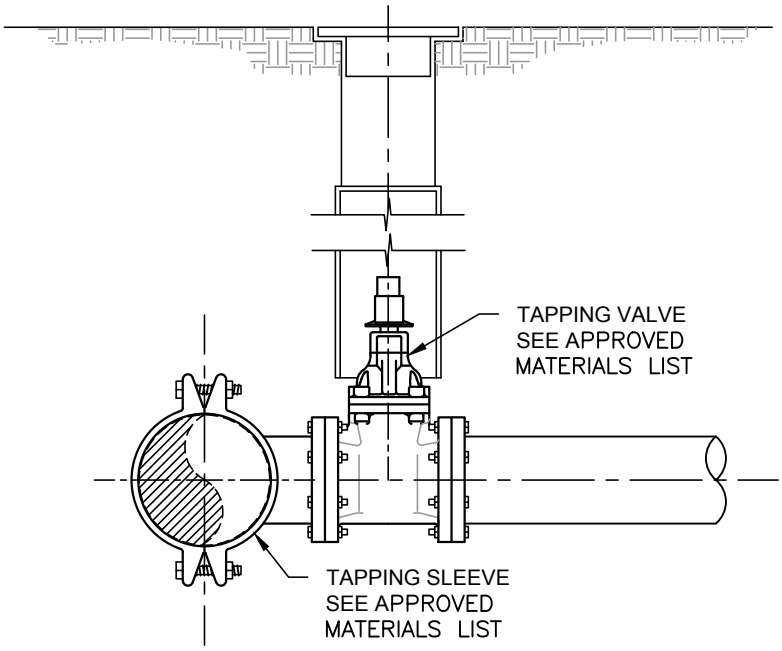


PLAN



SIDE VIEW

NOTES:

1. TAPPING SLEEVE TO BE STAINLESS STEEL PER APPROVED MATERIALS LIST.
2. TAPPING SLEEVE AND VALVE ARE TO BE COMPLETELY WRAPPED WITH 8 MIL POLYETHYLENE ENCASEMENT.
3. TAPPING SLEEVE SHALL BE TESTED AT A MINIMUM OF 150 PSI FOR A MINIMUM OF 15 MINUTES WITH NO VISIBLE LEAKAGE.
4. TAPPING SLEEVE SHALL HAVE A FULL LENGTH & WIDTH GASKET. O-RING GASKETS ARE NOT ACCEPTABLE.
5. DIAMETER OF THE HOT TAP SHALL NOT EXCEED 75% OF MAIN LINE DIAMETER.
6. HOT TAPPING MAY **ONLY** BE USED UPON WRITTEN AUTHORIZATION BY DISTRICT.
7. TAPPING VALVE SHALL HAVE A FLANGE INSULATION KIT BETWEEN DUCTILE IRON VALVE AND STAINLESS STEEL TAPPING SLEEVE

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STANDARD DRAWINGS

TAPPING SLEEVE AND VALVE DETAIL

DWG. NO. W-29

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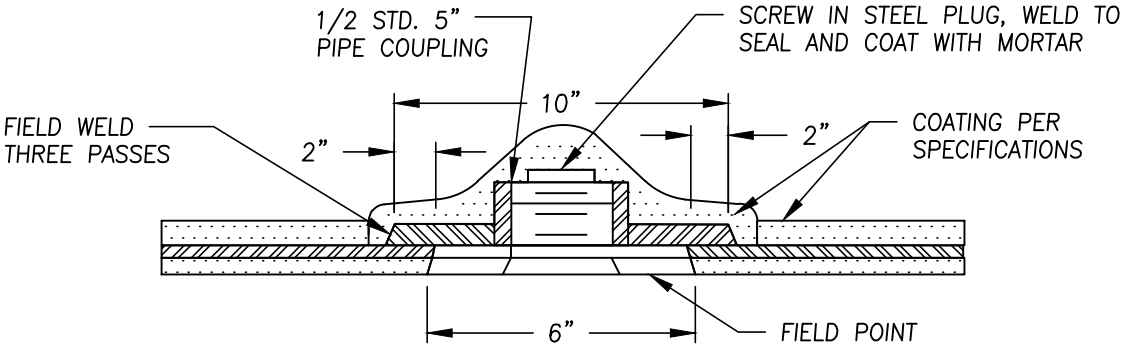
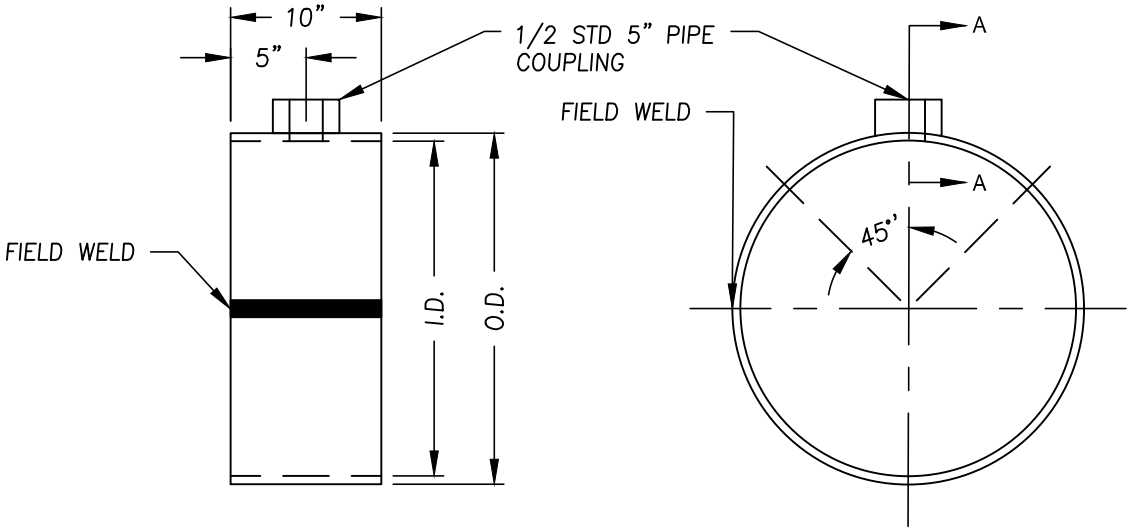


SECTION A-A



NOTES:

1) STRAP TO BE SHIPPED IN HALVES AND WELDED IN THE FIELD. PLATE THICKNESS SHALL BE EQUAL TO ADJOINING STEEL PIPE EXCEPT THAT MINIMUM THICKNESS SHALL BE 3/16". WHEN PIPE I.D. EXCEEDS 14", PROVIDE TWO HANDHOLES AT 45° FROM VERTICAL

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STANDARD DRAWINGS

BUTT STRAP CLOSURE WITH HANDHOLES

DWG. NO. W-30

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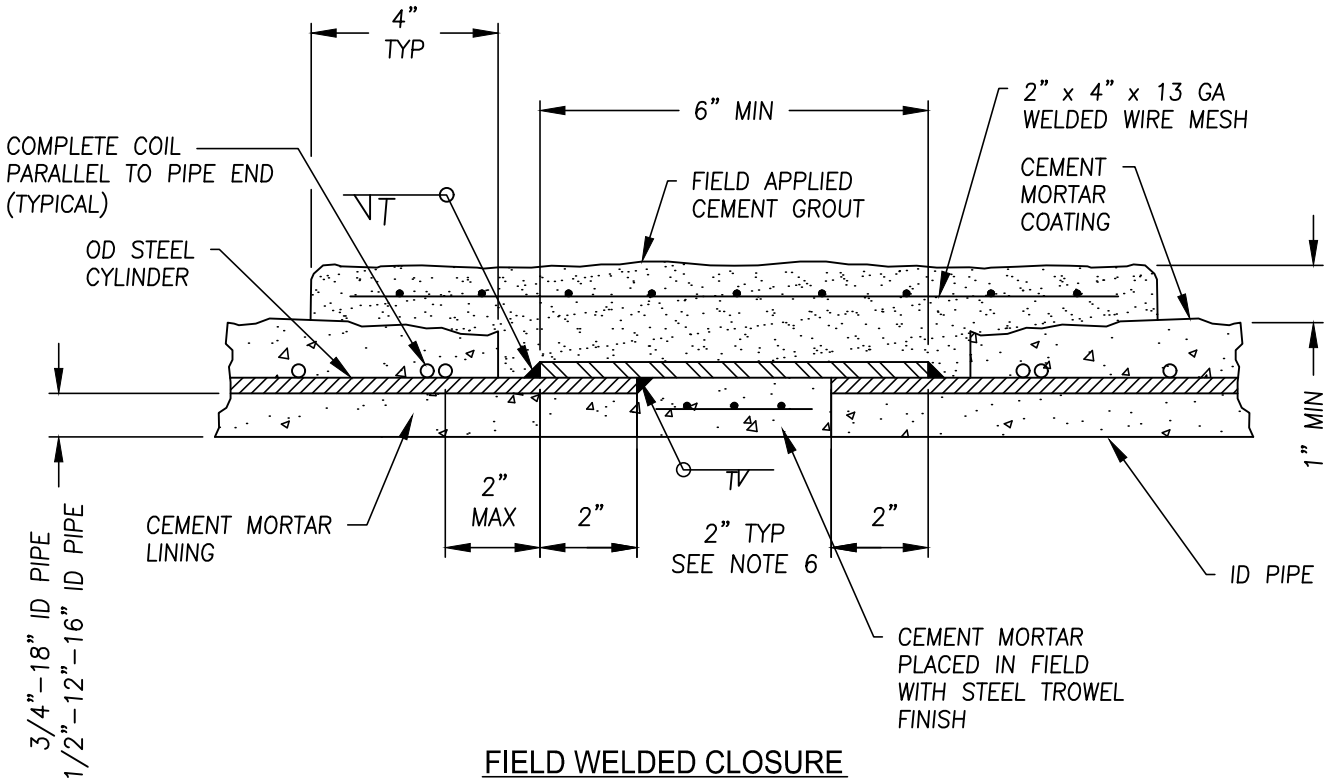

FIELD WELDED CLOSURE

NOTES:

1) WELDED JOINTS SHALL DEVELOP FULL STRENGTH OF PIPE.

2) MINIMUM ALLOWABLE THICKNESS OF STEEL CYLINDER, T, SHALL BE 10 GAUGE.

3) THICKNESS OF BUTT STRAP SHALL BE EQUAL TO THICKNESS OF THICKEST ADJOINING PIPE CYLINDER.

4) WELDS MAY EITHER BE ON INSIDE OR OUTSIDE.

5) THE CEMENT GROUT AND MORTAR USED SHALL HAVE A pH OF 12 OR GREATER.

6) WHERE ACCESS TO THE PIPE INTERIOR FOR MORTAR LINING IS NOT POSSIBLE, INSTALL 5" DIAMETER HANDHOLES WITH THREADED PLUG WHICH IS TO BE SEAL WELDED UPON COMPLETION OF FIELD MORTAR LINING. AT LEAST TWO HANDHOLES WILL BE REQUIRED FOR 14" DIAMETER AND LARGER PIPE. SEE W-29 FOR HANDHOLES.

7) FIELD WELDING OF STEEL PIPE SHALL COMPLY WITH AWWA C206.

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STANDARD DRAWINGS

CONCRETE CYLINDER PIPE
JOINT DETAILS

DWG. NO.
W-31

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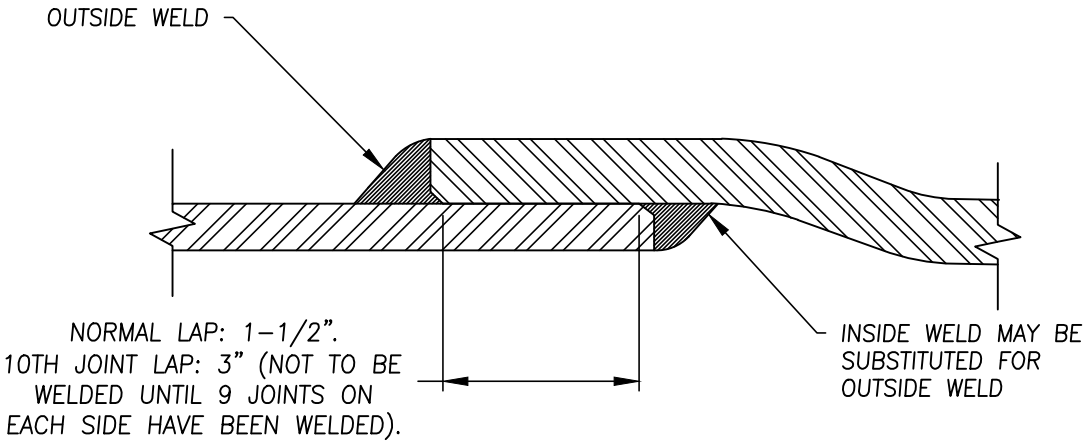
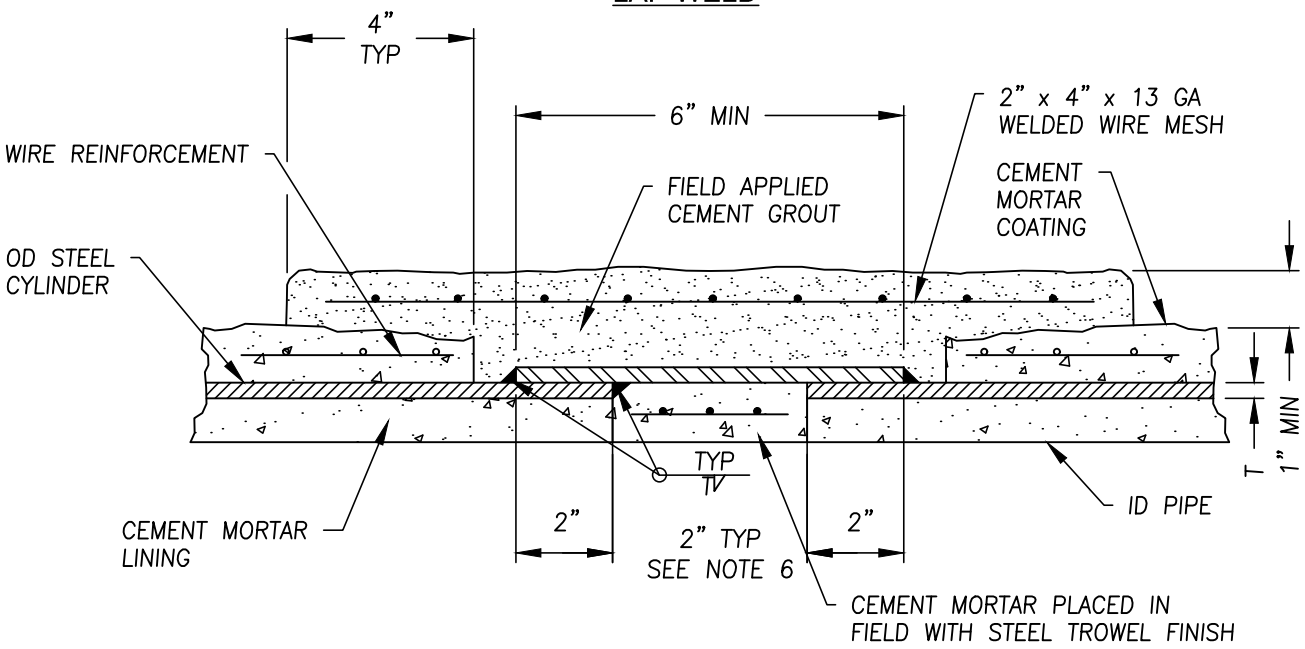


LAP WELD



BUTT STRAP CLOSURE

NOTES:

1) WELDED JOINTS SHALL DEVELOP FULL STRENGTH OF PIPE.
2) MINIMUM ALLOWABLE THICKNESS OF STEEL CYLINDER, T, SHALL BE 10 GAUGE.
3) THICKNESS OF BUTT STRAP SHALL BE EQUAL TO ADJOINING STEEL PIPE.
4) WELDS MAY EITHER BE ON INSIDE OR OUTSIDE.
5) THE CEMENT GROUT AND MORTAR USED SHALL HAVE A pH OF 12 OR GREATER.
6) WHERE ACCESS TO THE PIPE INTERIOR FOR MORTAR LINING IS NOT POSSIBLE, INSTALL 5" DIAMETER HANDHOLES WITH THREADED PLUG WHICH IS TO BE SEAL WELDED UPON COMPLETION OF FIELD MORTAR LINING. AT LEAST TWO HANDHOLES WILL BE REQUIRED FOR 14" DIAMETER AND LARGER PIPE. FOR HANDHOLES SEE W–30.
7) FIELD WELDING OF STEEL PIPE SHALL COMPLY WITH AWWA C206.

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STANDARD DRAWINGS
WELDED STEEL CML&C PIPE JOINTS (LAP WELD, BUTT STRAP)

DWG. NO. W–32

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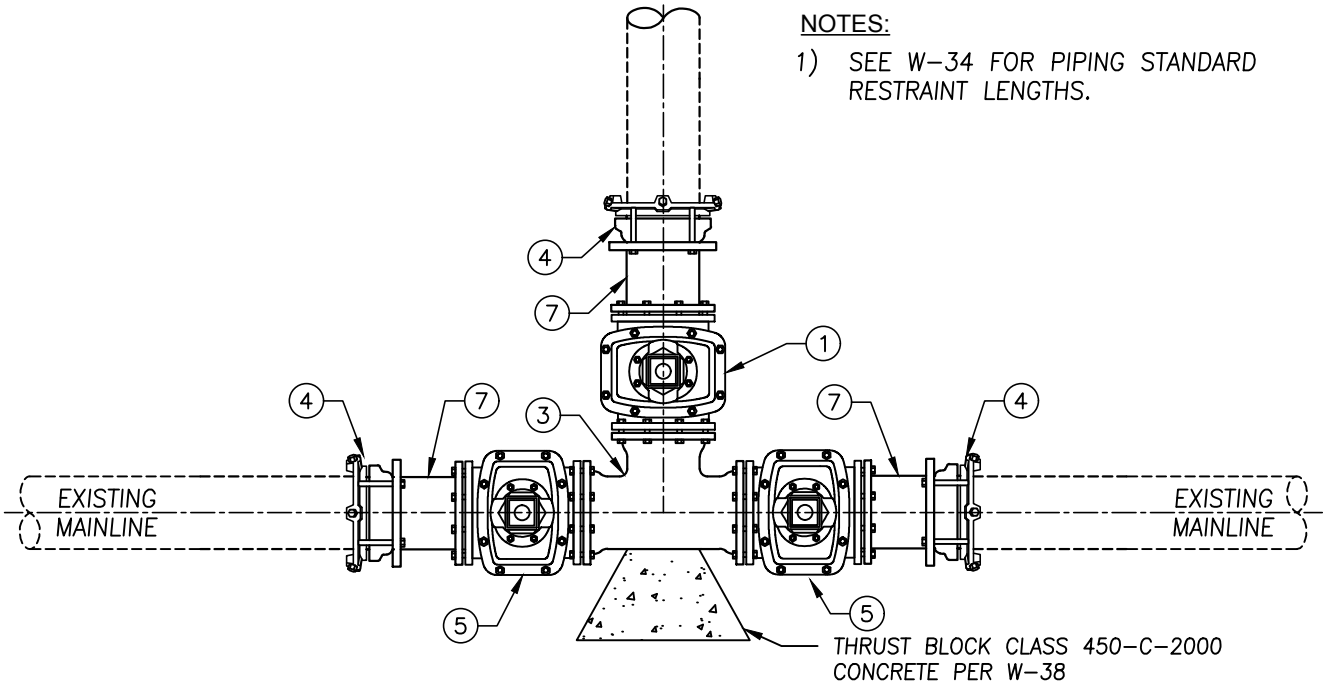
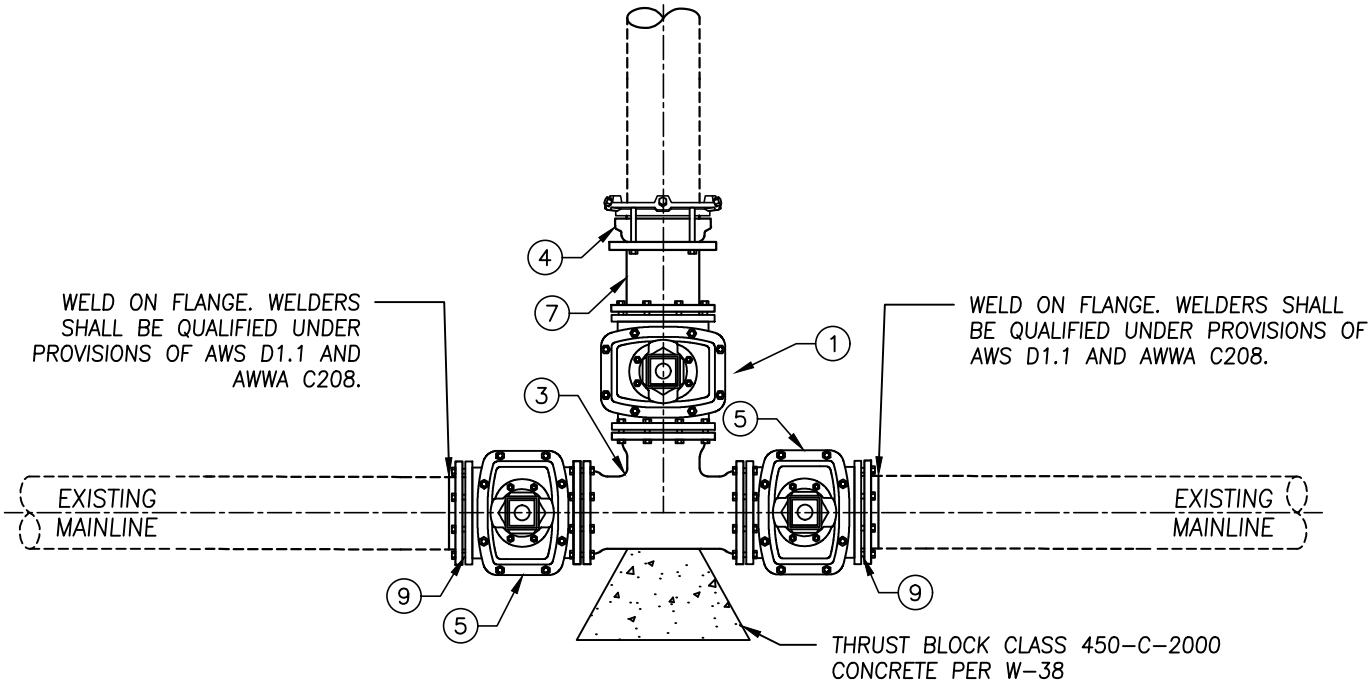
NOTES:

1) SEE W-34 FOR PIPING STANDARD RESTRAINT LENGTHS.



EXISTING PVC, DIP, AND ACP WATER MAIN



EXISTING CML&C STEEL WATER MAIN

ITEM	DESCRIPTION
1	GATE VALVE PER APPROVED MATERIALS LIST
2	NOT USED
3	FL DIP TEE PER APPROVED MATERIALS LIST
4	JOINT RESTRAINT ASSEMBLY PER APPROVED MATERIAL LIST
5	FL GATE VALVE TO BE INSTALLED UNLESS OTHERWISE DIRECTED
6	NOT USED
7	FLANGE X MECHANICAL JOINT ADAPTER PER APPROVED MATERIAL LIST
8	NOT USED
9	CATHODIC PROTECTION INSULATION KIT

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STANDARD DRAWINGS

CUT-IN TEE DETAIL

DWG. NO. W-33

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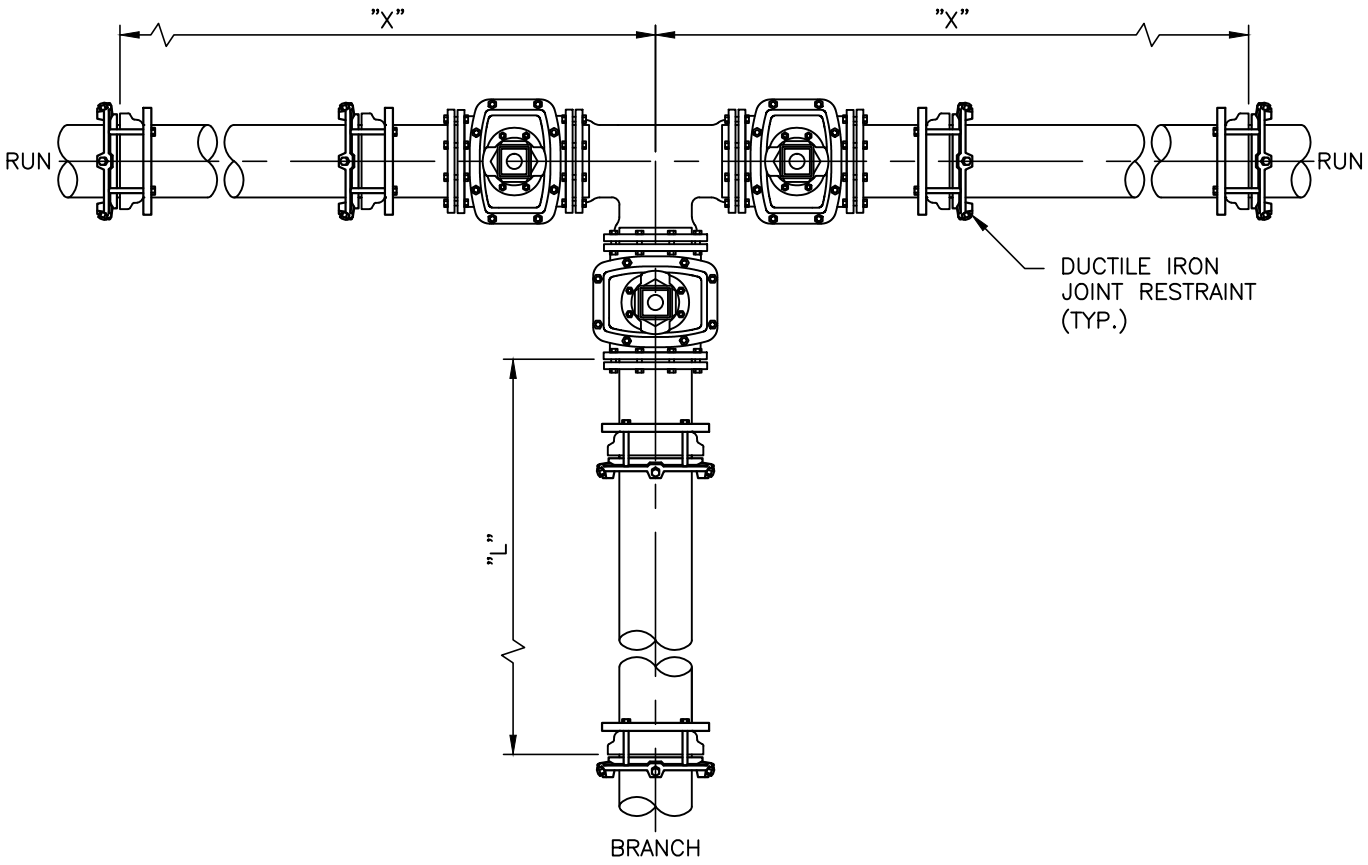

PIPE SIZE (RUN)

PIPE SIZE (BRANCH)	4	6	8	12	16	18	20	24
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6		N/A	N/A	N/A	N/A	N/A	N/A	N/A
8			191	169	169	169	169	169
12				240	240	240	240	240
16					309	309	309	309
18						342	342	342
20							374	374
24								438

RESTRAINED LENGTHS "L" IN FEET

TEE

NOTES:

1. "X" SHALL BE DETERMINED BY LENGTH VALUES GIVEN IN THE DEAD END/EACH SIDE OF VALVE CHART OR BY DIPRA DESIGN METHOD IF CONDITIONS DIFFER FROM ASSUMPTIONS BELOW:

- TEST PRESSURE: 225 PSI
- TYPE 4 LAYING CONDITION
- A SAFETY FACTOR OF 2
- SAND/SILT SOIL CONDITION
- POLYETHYLENE WRAP

2. REFER TO W-33 FOR CUT-IN TEE LAYOUT.
3. REFER TO W-35 FOR STANDARD RESTRAINT LENGTHS FOR BENDS.

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8FB2F901AB69AE4...
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Rincon del Diablo Water

STANDARD DRAWINGS

STANDARD RESTRAINT LENGTHS FOR TEES

DWG. NO. W-34

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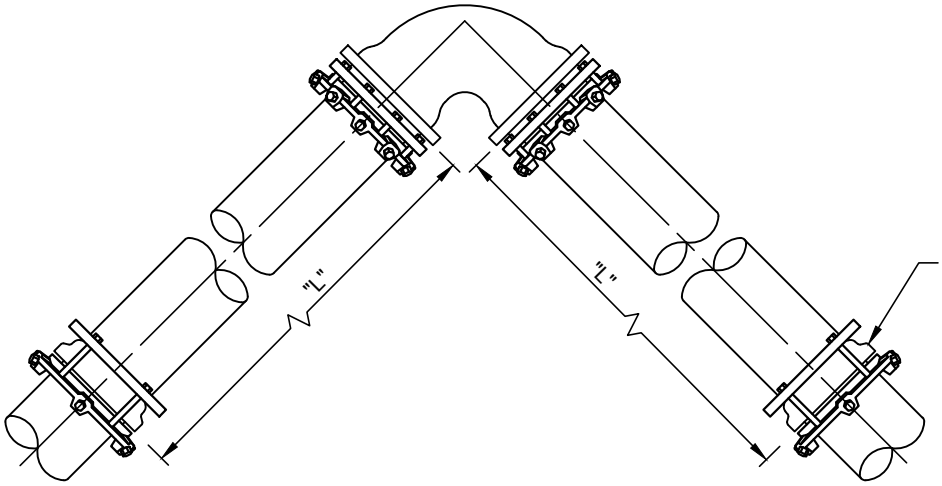
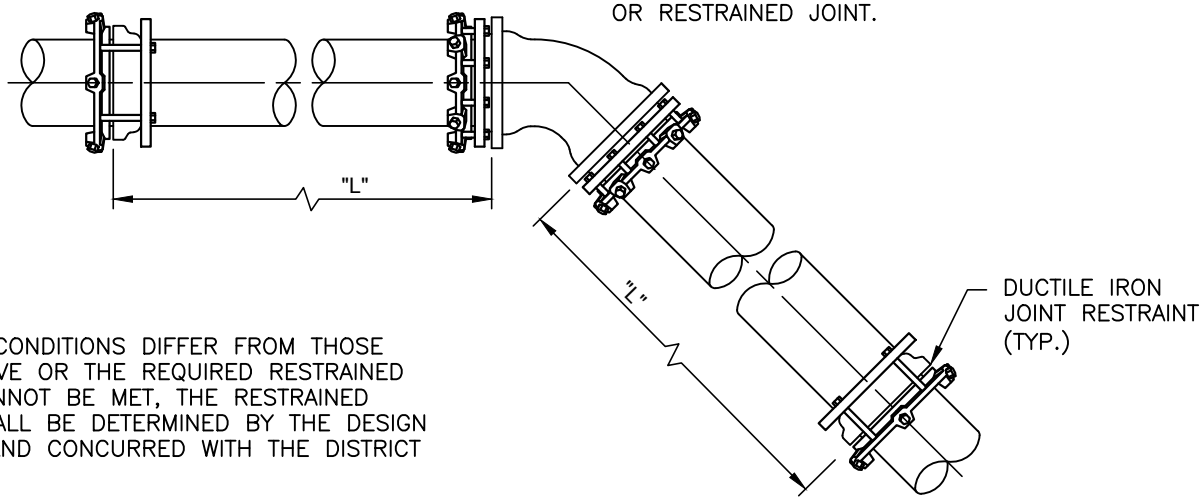


BEND ANGLE	PIPE SIZE 4	6	8	12	16	18	20	24
11.25°	3	5	6	7	9	10	11	13
22.5°	7	9	12	15	19	21	23	26
45°	14	19	25	31	39	43	47	54
90°	33	46	59	74	94	104	113	131

RESTRAINED LENGTHS "L" IN FEET (SEE NOTE 1 FOR LIMITS ON USE)

HORIZONTAL BEND

NOTE:
BEND FITTING CAN BE FLANGED OR RESTRAINED JOINT.



NOTES:

1. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND CONCURRED WITH THE DISTRICT ENGINEER.

BEND ANGLE	PIPE SIZE 4	6	8	12	16	18	20	24
11.25°	10	15	19	24	30	34	37	43
22.5°	21	29	38	48	61	68	74	87
45°	43	61	79	100	128	142	155	181

RESTRAINED LENGTHS "L" IN FEET (SEE NOTE 1 FOR LIMITS ON USE)

VERTICAL BEND

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STANDARD DRAWINGS

STANDARD RESTRAINT LENGTHS FOR BENDS

DWG. NO. W-35

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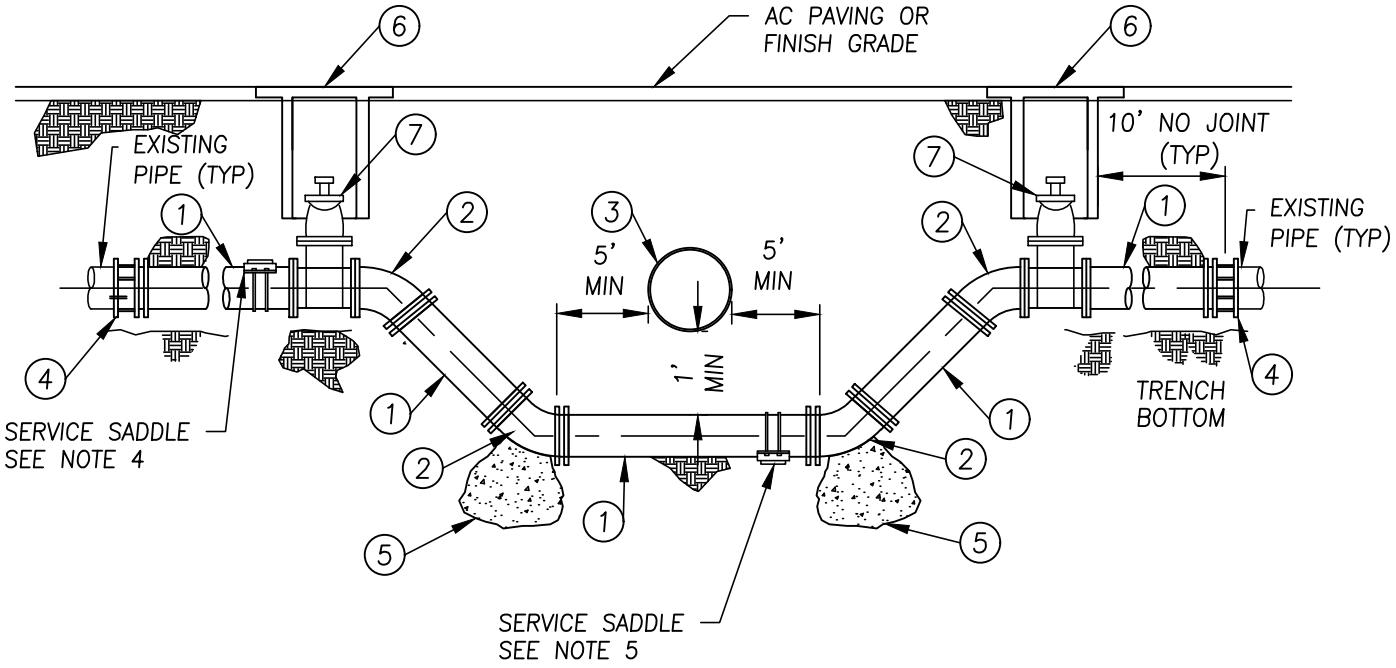

NOTES:

1) ALL PIPE JOINTS IN BETWEEN UPPER 45–DEGREE BENDS MUST BE RESTRAINED.
2) ALL MATERIALS TO BE PER APPROVED MATERIALS LIST
3) WARNING TAPE SHALL BE INSTALLED PER SDRSD WP–01
4) A COMBINATION AIR AND VACUUM VALVE (CAV) SHALL BE INSTALLED PER STD. DWG. W–13, W–14 OR W–15 ON THE HIGH POINT OF THE OFFSET AS SPECIFIED ON THE PLAN OR DIRECTED BY DISTRICT INSPECTOR. LOCATION AND NUMBER OF CAVS ARE DEPENDENT ON SITE CONDITIONS.
5) A BLOW OFF MAY BE REQUIRED AT THE LOW POINT OF THE OFFSET PER STD DWG W–16 OR W–17 AS SPECIFIED ON THE PLAN OR DIRECTED BY DISTRICT INSPECTOR.
6) ENTIRE ASSEMBLY INCLUDING POINTS OF CONNECTION TO EXISTING PIPING MUST BE PRESSURE TESTED AND DISINFECTED AS DIRECTED BY DISTRICT INSPECTOR.

ITEM	DESCRIPTION
1	RESTRAINED PIPE
2	45° BEND MECHANICAL JOINT RESTRAINED DIP
3	UTILITY CONDUIT
4	RESTRAINED TRANSITION COUPLING
5	THRUST BLOCK PER W–38
6	VALVE COVER PER W–27
7	GATE VALVE

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STANDARD DRAWINGS

UTILITY CROSSING
(RESTRAINED DUCTILE
IRON PIPE)

DWG. NO.
W–36

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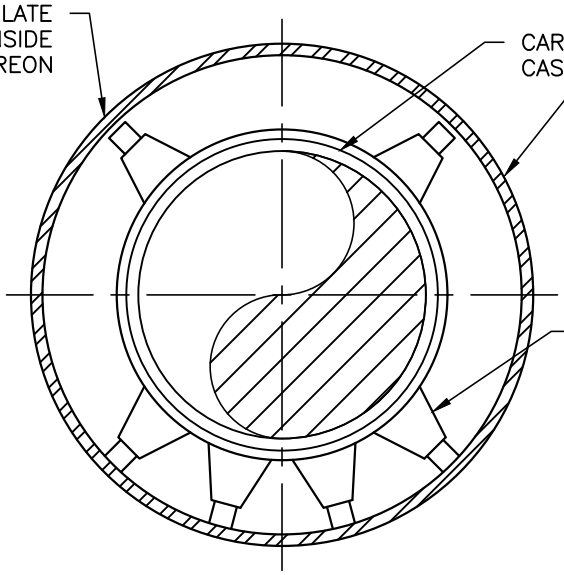

1. FOR PVC OR HDPE CARRIER PIPE, USE POLYETHYLENE CASING INSULATORS WITH POLYETHYLENE SKIDS.
2. FOR DUCTILE IRON CARRIER PIPE, USE STAINLESS STEEL BAND SPACERS AND INSULATORS WITH GLASS FILLED POLYMER PLASTIC RUNNERS.
3. ALL CASING INSULATORS SHALL BE DESIGNED BY THE MANUFACTURER FOR APPLICATION GIVEN THE PARTICULAR CARRIER PIPE O.D. AND CASING PIPE I.D.
4. ALL BOLTS AND BANDS SHALL BE TYPE 304 STAINLESS STEEL.
5. FILL ANNULAR SPACE AROUND CARRIER PIPE WITH AIR BLOWN SAND (SE30 OR GREATER).

CASING SCHEDULE		
NOMINAL PIPE SIZE	MINIMUM CASING SIZE	MIN. WALL
8”	16” I.D.	1/4”
12”	20” I.D.	5/16”
16”	30” I.D.	3/8”
18”	32” I.D.	3/8”
20”	36” I.D.	3/8”
24”	42” I.D.	1/2”
30”	48” I.D.	1/2”
36”	56” I.D.	5/8”
42”	60” I.D.	3/4”

NOTES:

1. SPACING BETWEEN THE CASING INSULATORS SHALL BE PER THE MANUFACTURERS RECOMMENDATIONS EXCEPT THAT THERE SHALL BE AT LEAST 4 CASING INSULATORS PER PIPE SECTION, ONE 12” FROM EACH JOINT AND ONE CENTERED. ADDITIONALLY, ONE INSULATOR SHALL BE INSTALLED 12” FROM EACH END OF THE CASING.
2. BOTH ENDS OF THE CASING BETWEEN THE CASING AND CARRIER PIPE MUST BE SEALED WATERTIGHT USING AN END SEAL, SELECTED FROM APPROVED MATERIALS LIST. BANDS SHALL BE TYPE 304 STAINLESS STEEL.
3. ALL STEEL CASING PIPE JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
4. MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.
5. ABOVE CASING THICKNESS ARE FOR OPEN TRENCH ONLY. FOR JACKED CASING SEE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION SECTION 307, MOST RECENT EDITION.
6. HDPE CASING MAY BE USED IF MEETS ADEQUATE STRENGTH FOR GEOTECHNICAL CONDITIONS AND WITH WRITTEN APPROVAL FROM THE ENGINEERING MANAGER.

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8FB2F9D1AB994E4...
DocuSigned by: Shawnelle Morelos
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STANDARD DRAWINGS

STEEL CASING FOR WATER MAINS

DWG. NO. W–37

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FIG. 1

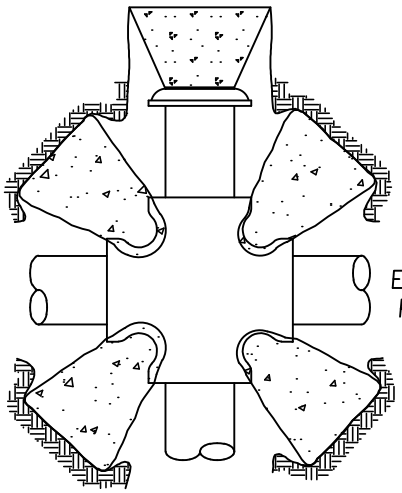


FIG. 2

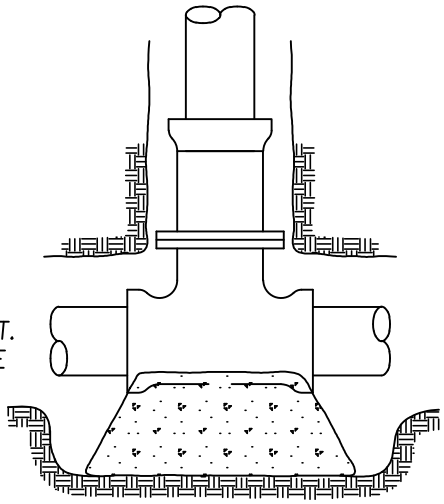
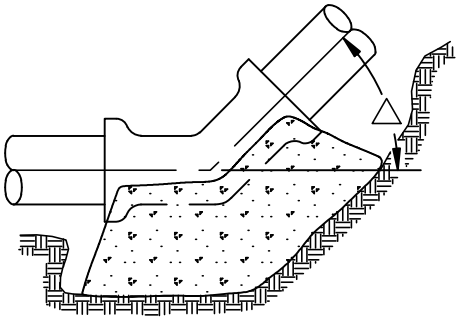


FIG. 3

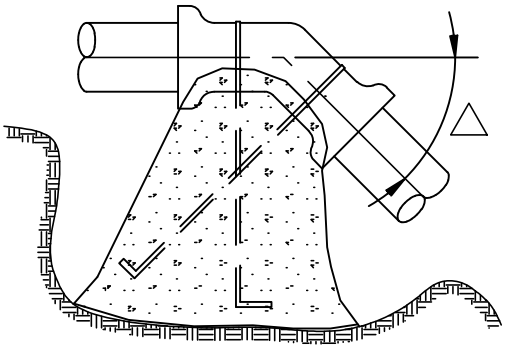
(HORIZONTAL OR VERTICAL BEND)



△ = 90°, 45°, 22 1/2°, 11 1/4°

FIG. 4

(VERTICAL BEND ONLY)

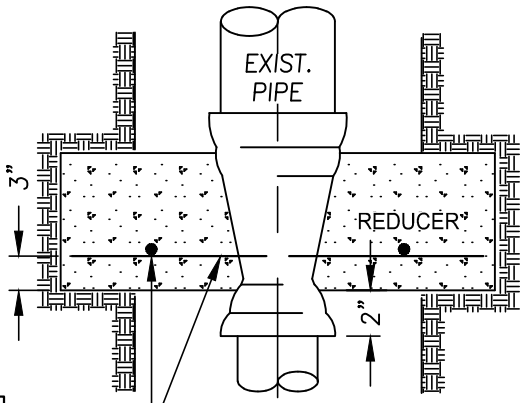


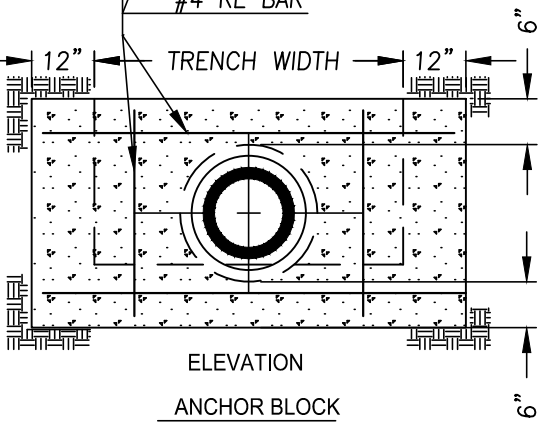
△ = 90°, 45°, 22 1/2°, 11 1/4°

MINIMUMS-SPECIAL DESIGN MAY BE REQUIRED

SIZE OF PIPE	BEARING AREA IN SQUARE FEET						CUBIC FEET		
	FIG 1	FIG 2	FIG 3				FIG 4		
			90°	45°	22 1/2°	11 1/4°	45°	22 1/2°	11 1/4°
	CL. 150	CL. 150	CL. 150	CL. 150	CL. 150	CL. 150	CL. 150	CL. 150	CL. 150
4"	3	3	4	2	1	1	19	10	5
6"	5	5	7	4	2	1	–	20	10
8"	9	9	12	7	3	2	–	–	18
10"	14	14	20	11	6	3	–	–	30
12"	20	20	29	16	8	4	–	–	–
14"	28	28	39	21	11	5	–	–	–

PLAN





ELEVATION

ANCHOR BLOCK

NOTES:

1) CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED IN ALL PIPELINES AT THE LOCATIONS SHOWN HEREON WHERE THE RESPECTIVE FITTINGS AND PLUGS ARE INSTALLED.
2) #4 REBAR LOOPS SHALL EXTEND TO THE DEPTH OR WIDTH OF BLOCK. WRAP EXPOSED METAL WITH 10 MIL TAPE PRIOR TO INSTALLTION.
3) ALL THRUST BLOCKS TO BE FORMED WITH SAND BAGS.
4) FOR CLASS 200 PIPE INCREASE AREAS AND VOLUMES BY 33%.

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Rincon del Diablo Water

STANDARD DRAWINGS

THRUST AND ANCHOR BLOCKS

DWG. NO. W-38

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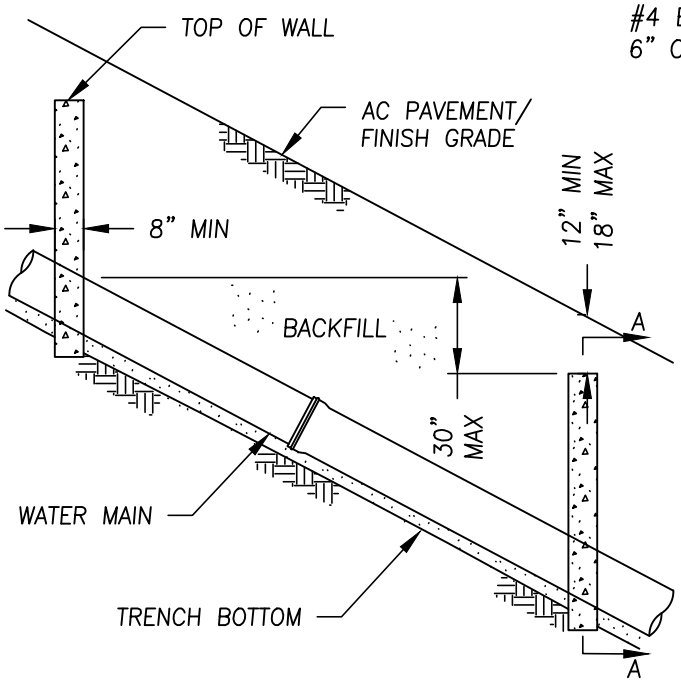
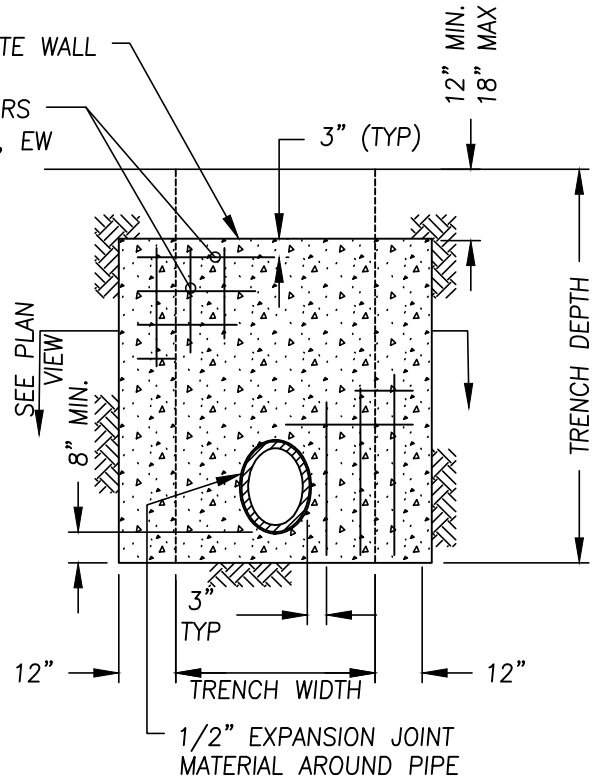
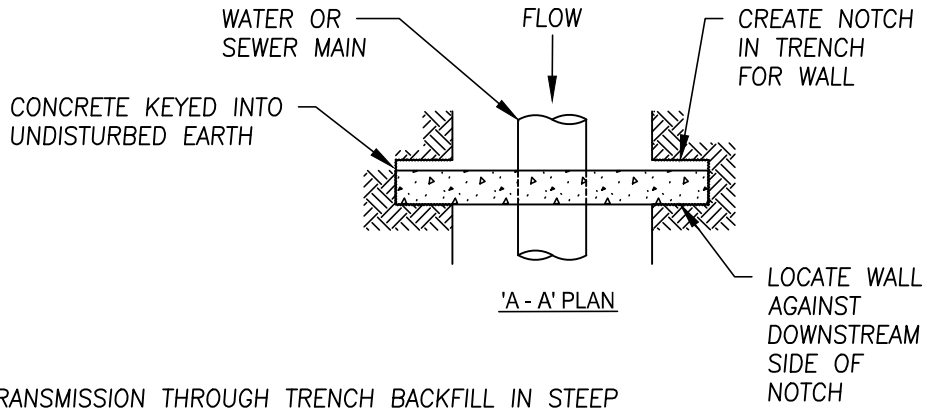


CUT-OFF WALL
FOR GRADES 20% TO 50%



SECTION 'A - A'



'A - A' PLAN

NOTES:

1) FOR USE IN DETERRING WATER TRANSMISSION THROUGH TRENCH BACKFILL IN STEEP AREAS.
2) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
3) WALLS SHALL BE REINFORCED CLASS 2, 3,250 PSI CONCRETE OR 8"X8"X16" CONCRETE BLOCK, ALL CORES FILLED WITH GROUT AND REINFORCED WITH #4 REBAR TOP TO BOTTOM.

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Rincon del Diablo Water

STANDARD DRAWINGS
CUT-OFF WALL INSTALLATION IN STEEP AREAS

DWG. NO.
W-39

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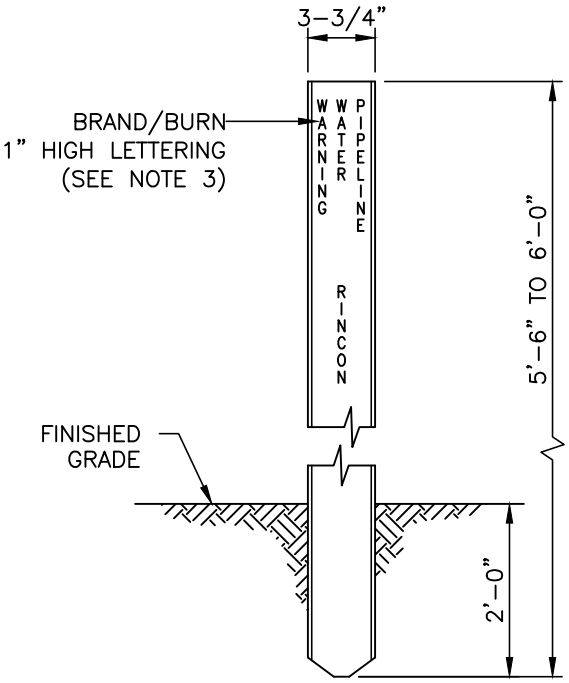
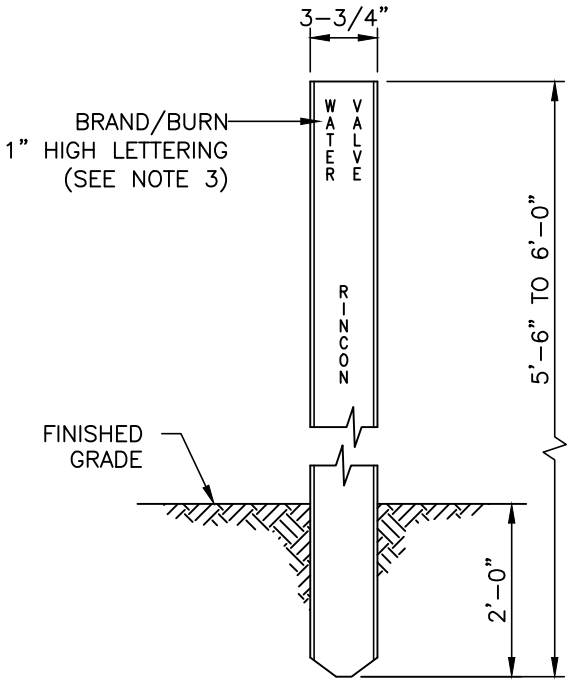


FIBERGLASS MARKER POST
PIPELINE MARKER



FIBERGLASS MARKER POST
VALVE MARKER

COLOR	MARKER POSTS USED FOR:
BLUE	POTABLE WATER MAINS
GREEN	SEWER MAINS
PURPLE	RECYCLED WATER MAINS
WHITE	GATE WELL

UTILITY MARKER COLOR TABLE

NOTES:

1. WATERLINE MARKER POST SHALL BE INSTALLED WHERE CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SPACING SHALL BE APPROXIMATELY 200’ BETWEEN MARKERS. CURVED ALIGNMENTS LESS THAN 800’ IN LENGTH SHALL HAVE A MINIMUM OF FOUR MARKERS TO DEFINE THE CURVE.
2. WATERLINE MARKER POST SHALL BE INSTALLED 12” TO THE SOUTH AND WEST OF THE UTILITY.
3. MARKER SHALL INCORPORATE 1” HIGH LETTERING BRANDED/BURNED INTO PADDLE. LETTERING SHALL INCLUDE RINCON ALONG WITH THE UTILITY IDENTIFIED. THE COLOR OF THE PADDLE SHALL BE AS SHOWN IN THE TABLE ABOVE.
4. LETTERING SHALL BE WHITE FOR PIPELINES AND BLACK FOR GATE WELLS.

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STANDARD DRAWINGS

PIPELINE MARKER POST INSTALLATION

DWG. NO. W–40

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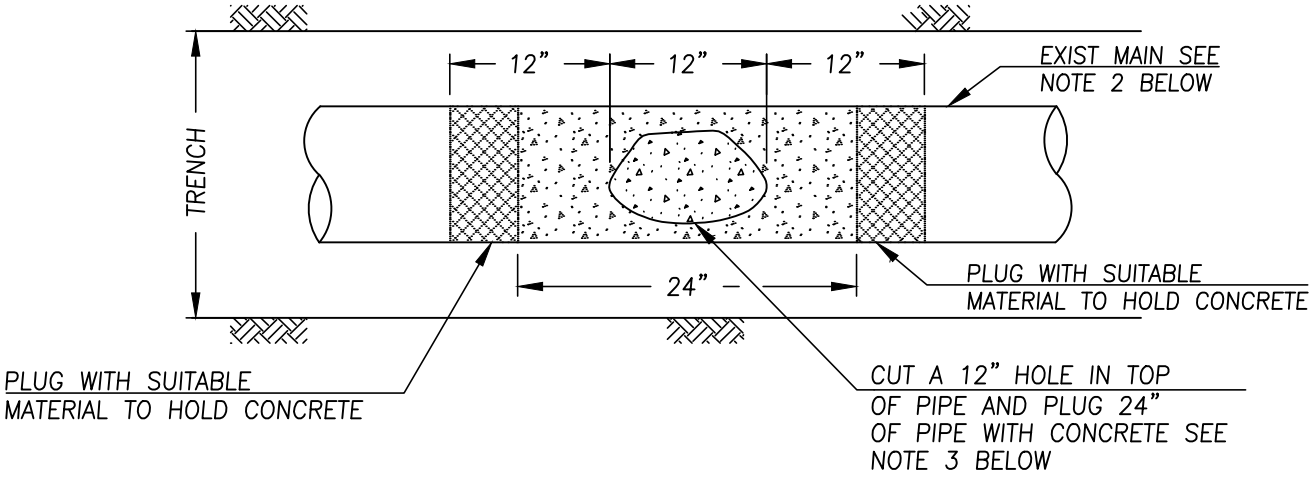
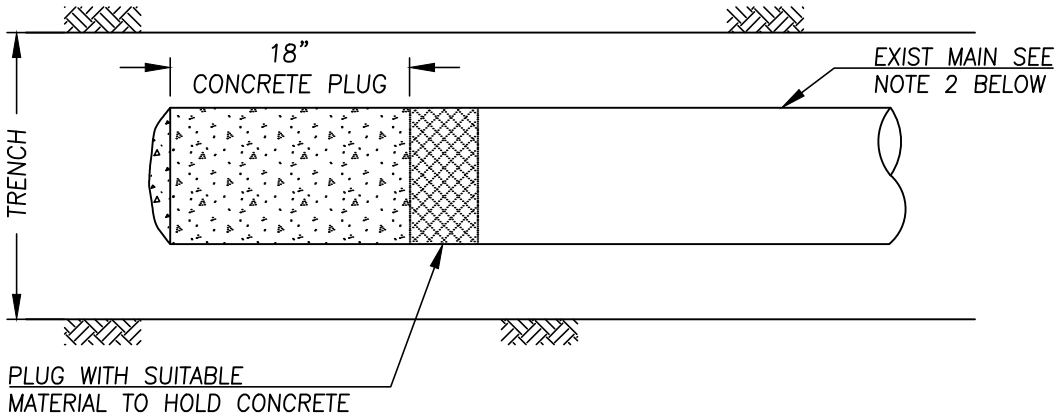


MIDDLE OF EXIST MAIN



ENDS OF EXIST MAIN

NOTES:

1) WATER AND RECYCLED WATER MAINS 4" DIAMETER AND SMALLER SHALL HAVE A MINIMUM OF 36" OF PIPE REMOVED AND PIPE ENCASED/PLUGGED WITH CONCRETE.
2) EXISTING MAIN TO BE PLUGGED WITH CONCRETE OR PRESSURE GROUTED AT INTERVALS OF 200' OR AS DIRECTED BY THE DISTRICT.
3) EXISTING MAINS 16" AND LARGER REQUIRE THE ENTIRE LENGTH OF THE PIPE TO BE FILLED BY PRESSURE GROUTING OR BY BLOWN SAND.
4) EXISTING VALVES SHALL BE TURNED TO THE CLOSED POSITION. REMOVE VALVE COVER ASSEMBLY AND REPLACE WITH COMPACTED BACKFILL.
5) PRIOR AGENCY APPROVAL REQUIRED FOR CUTTING AND PLUGGING.
6) SEE RINCON STD DWG W-42 FOR CUTTING & PLUGGING CONDITIONS.

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STANDARD DRAWINGS

CUTTING AND PLUGGING ABANDONED WATER AND RECYCLED WATER MAINS

DWG. NO. W-41

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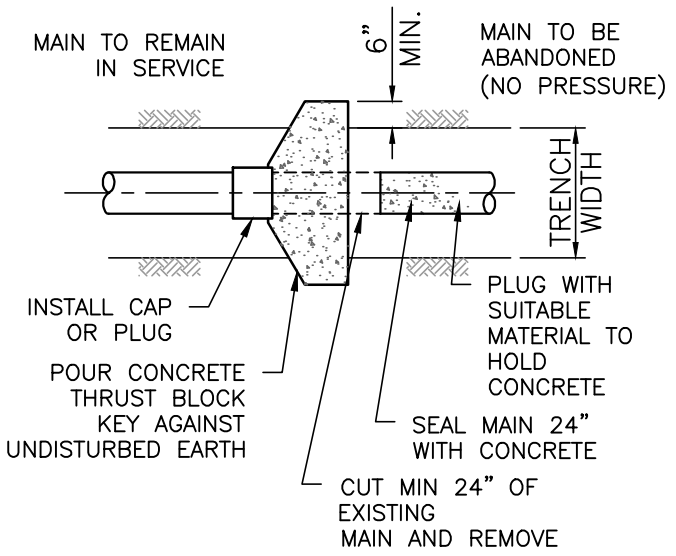
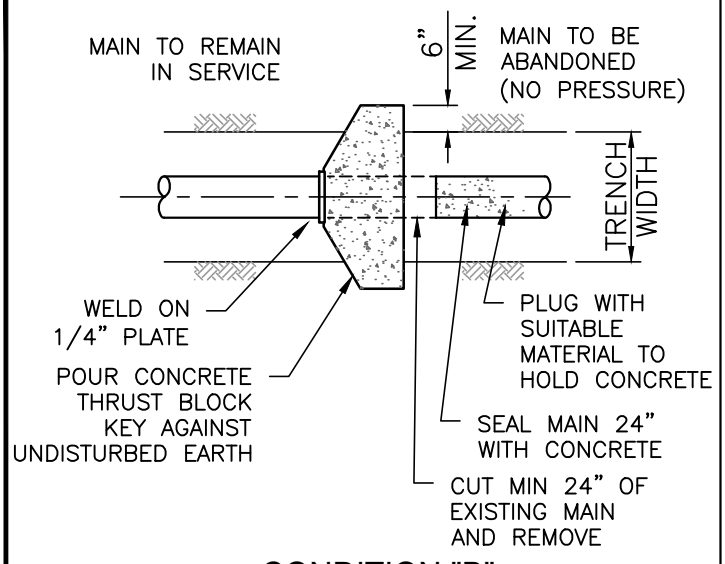


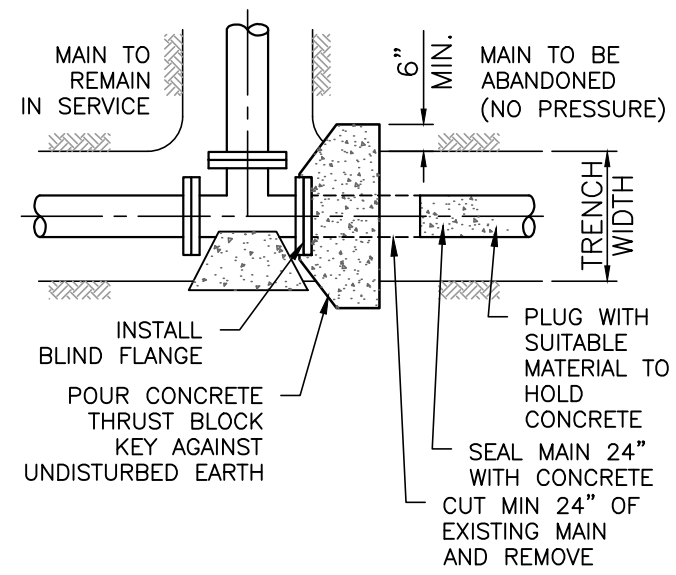
CONDITION "A"

EXISTING A.C., PVC OR C.I. MAINS



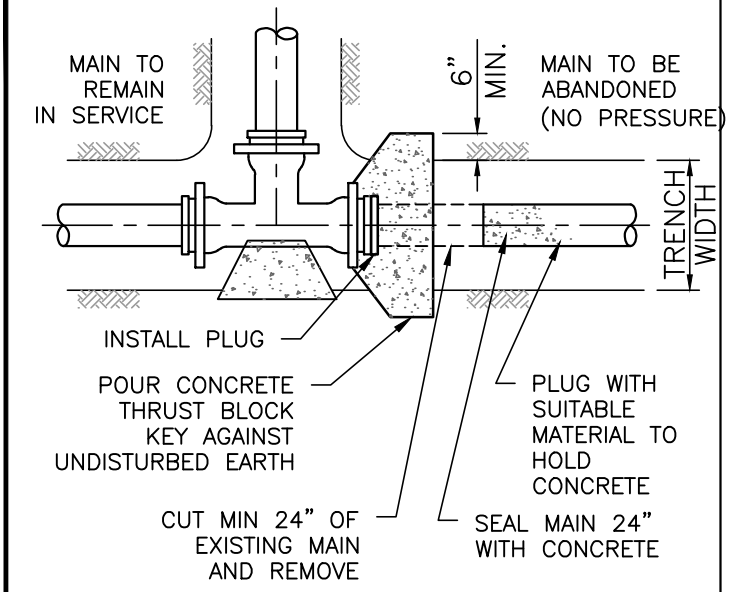
CONDITION "B"

EXISTING STEEL MAINS



CONDITION "C"

EXISTING FLANGED FITTING OR VALVE



CONDITION "D"

EXISTING HUB END FITTING OR VALVE

NOTES:

1) BEARING AREA AGAINST UNDISTURBED SOIL SHALL BE SAME AS FOR DEAD–ENDS
2) WHEN CALLED OUT ON PLANS, INSTALL BLOW–OFF.
3) THURST BLOCK AND CONCRETE TO PLUG WATERMIANS SHALL BE CLASS 560–C–3250 CONCRETE, UNLESS OTHERWISE SPECIFIED
4) ALL BUIRED BOLTS SHALL BE COATED PER THE APPROVED MATERIALS LIST.
5) IF ACP PIPE IS ENCOUNTERED DURING PIPE ABANDONMENT, IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LEGALLY DISPOSE OF ALL MATERIAL TO BE REMOVED.
6) EXISTING MAIN TO BE CUT AND PLUGGED SHALL BE PLUGGED AT INTERVALS OF 200' OR AS DIRECTED BY THE DESIGN ENGINEER.
7) DISTRICT APPROVAL IS REQUIRED PRIOR TO CUTTING AND PLUGGING WATERMAINS.

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Rincon del Diablo Water

STANDARD DRAWINGS

CUTTING & PLUGGING WATER, RECYCLED WATER, AND SEWER MAINS

DWG. NO. W–42