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THRUST BLOCK MINIMUM BEARING AREA
REQUIRED (SQ.FT.)

<table>
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<tr>
<th>FITTINGS</th>
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</table>

NOTES

1. THRUST BLOCKS AND ANCHOR BLOCKS SHALL BE OF 2500 P.S.I. CONCRETE AND POURED AGAINST UNDISTURBED SOIL.
2. THRUST RESTRAINT SIZES REQUIRED ARE BASED ON 150 P.S.I. HYDROSTATIC TEST PRESSURE AND A 1.25 FACTOR OF SAFETY.
3. STIRRUPS SHALL BE MINIMUM 1/2" DIAMETER.
4. TWO STIRRUPS REQUIRED ON 4" - 8" FITTINGS, FOUR STIRRUPS REQUIRED ON 12" FITTINGS.
5. ALL CAST IRON AND STEEL SURFACES (INCLUDING IRON SADDLES) SHALL BE ENCASED IN POLYETHYLENE.

TYPICAL REVERSE ANCHOR

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

TITLE:
THRUST BLOCK & ANCHOR BLOCK DETAILS FOR 4", 6", 8" & 12" FITTINGS

APPROVED DATE:

STANDARD DETAIL NO.: SD-1

APPROVED FOR USE:

DATE: 11/05/03 SHEET 1 OF 2
BLOWOFF THRUST BLOCK

REDUCER THRUST BLOCK

TEE THRUST BLOCK

OFFSET ANCHOR BLOCK

ELL THRUST BLOCK

FITTING ANCHOR BLOCK

THRUST BLOCK SECTION

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA
STANDARD DETAIL

TITLE:
THRUST BLOCK & ANCHOR BLOCK DETAILS FOR 4", 6", 8" & 12" FITTINGS

APPROVED FOR USE:

DATE: 11/05/03
SHEET 2 OF 2
TRACER WIRE CONNECTION

SERVICE SADDLE REQUIREMENTS FOR PIPELINES (DRY TAP AND/OR PRESSURE TAP)

<table>
<thead>
<tr>
<th>PIPE SIZE &amp; PIPE</th>
<th>CORP STOP SIZE</th>
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<tr>
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<tr>
<td>DUCTILE IRON PIPE/CAST IRON PIPE</td>
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</tr>
<tr>
<td>4&quot; &amp; LARGER</td>
<td>MSS</td>
</tr>
<tr>
<td>STEEL PIPE</td>
<td>MDS</td>
</tr>
<tr>
<td>10&quot; &amp; SMALLER</td>
<td>MDS</td>
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<tr>
<td>12&quot; &amp; LARGER</td>
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<tr>
<td>PLASTIC PIPE</td>
<td>TLT</td>
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<tr>
<td>LESS THAN 4&quot;</td>
<td>BSP</td>
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<tr>
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<td>BSP</td>
</tr>
<tr>
<td>ASPHOS CEMENT PIPE</td>
<td>MDS</td>
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</tbody>
</table>

KEY:
- BSP—BRONZE SADDLE FOR PLASTIC
- MDS—MALLEABLE SINGLE STRAP SADDLE
- MSS—MALLEABLE DOUBLE STRAP SADDLE
- TLT—THREADOLE/ OR EQUIVALENT
- KTS—COPPER TUBING SIZE

NOTES

1. SEE TABLE FOR SERVICE SADDLE REQUIREMENTS.

2. ALL CAST IRON AND STEEL SURFACES (INCLUDING IRON SADDLES) SHALL BE ENCASED IN POLYETHYLENE.

3. BACKFILL AND COMPACT SOIL BENEATH CORP STOP AND COPPER SERVICE BEFORE BACKFILLING TRENCH.

4. PIPE COATINGS SHALL BE REPAIRED TO ORIGINAL CONDITION AFTER CONNECTION IS MADE.

5. USE A COMPATIBLE NSF 61 APPROVED THREAD SEALANT.

6. 1/4" THICK FABRICATED TAPPING SLEEVE REQUIRED FOR STEEL—CYLINDER CONCRETE PRESSURE PIPE.

7. TUBING SHALL BE TYPE K, SOFT COPPER, CONTINUOUS FROM CORP STOP TO ANGLE STOP.

8. FITTINGS SHALL BE BRASS CTS COMPRESSION OR FLARE TYPE; COMPRESSION FITTINGS SHALL BE MUELLER 110 CONDUCTIVE COMPRESSION CONNECTION FOR CTS O.D TUBING, OR APPROVED EQUAL.

9. AFFIX SOLID NO. 12 COPPER WIRE TO PIPE WITH 10 MIL POLYVINYL TAPE. CONNECT TO ALL SEGMENTS OF EXISTING TRACER WIRE AT JUNCTION POINT WITH COPPER SPLIT BOLT CONNECTOR.

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

TITLE: 1" & 2" SERVICE CONNECTION (COPPER)

APPROVED DATE: 2/28/20

FILE: SD-02S1R3.DWG
SCALE: NONE
STD. DETAIL NO.: SD-2
REV.: 3
TRACER WIRE CONNECTION, TYP. (SEE NOTE 2)

COPPER TRACER WIRE, TYP. (SEE NOTE 2)

2" COPPER STOP I.P. (INSULATING FOR DI AND STEEL PIPE) X FLARE OR COMPRESSION
2" COPPER TUBING (SEE NOTE 3)

PVC PIPE

SADDLE (PER CHART) W/2" I.P. OUTLET

STEEL (SMALLER THAN 12" O.D.)
AND D.I. PIPE

2" THREADOLET I.P

STEEL PIPE (12" OR LARGER O.D.)

2" SERVICE CONNECTIONS

NOTES
1. SEE SHEET 1 FOR SERVICE SADDLE CHART AND TRACER WIRE CONNECTION.
2. REFER TO STANDARD DETAIL 2, SHEET 1, NOTES #2-9.
3. COUPLINGS ARE NOT PERMITTED ON SERVICE RUNS THAT ARE LESS THAN 20 FEET.
1" PVC PIPE (1" LONG)

2" X 4" X 6" REDWOOD MARKER POST
(SEE NOTE 1 BELOW)

1" PVC PIPE AS REQUIRED
GALV. CONDUIT STRAPS, SECURE TO MARKER POST WITH GALV. SCREWS

KNOCK OUT HOLE FOR PIPE

1" PVC PIPE, LENGTH AS REQUIRED

1" ELL 90° SLIP X SLIP SW

1" Y PVC PIPE, MALE THREAD SW x IP

1" COMBINATION AIR VALVE

1" X 3" BRASS NIPPLE

1" X 8" BRASS NIPPLE

ANGLE METER STOP

2" X 4" COMPOSITE BLOCKS UNDER METER BOX

1" INSERT COUPLING W/ SS CLAMPS
(NOTE: WRAP WITH TWO LAYERS OF SCOTCHWRAP #50 TAPE)

1" PE TUBING (AS REQUIRED TO LOCATE METER BOX OUT OF PAVEMENT). PE TUBING MUST CONTINUOUSLY SLOPE UP FROM PIPE TO ARV ASSEMBLY (SEE NOTE 5)

1" INSERT COUPLING W/ SS CLAMPS

1" CORP. STOP COUPLING 1/4 BEND

1" CORP. STOP PER STD. DETAIL SD-2

NOTES

1. INSTALL MARKER POST WITHIN 12" OF METER BOX. BURY MIN. DEPTH 3'. PAINT WHITE WITH BLACK LETTERS "AR".

2. 1" PVC PIPE SHALL BE SCHEDULE 80.

3. REFER TO STANDARD DETAIL SD-4 FOR BOX DIMENSIONS. LOCATIONS SIMILAR TO "METER INSTALLATIONS WITH RPBPD" SHOWN ON SHEET 2 OF 2, SD-4. USE TRAFFIC RATED BOXES AND LIDS IN ROADMANS, DRIVEWAYS OR SIDEWALKS. MAY USE LIGHT WEIGHT BOXES AND LIDS IN NON-TRAFFIC AREAS ONLY.

4. INSTALL LOCATOR WIRE FROM WATER MAIN TO BRASS ANGLE METER VALVE. LOCATOR WIRE SHALL BE A CONTINUOUS #12 AWG SOLID THHN-THWN COPPER WIRE, DISTRICT-FURNISHED. TAPE WIRE TO 1" P.E. TUBING @ 5' O.C.

5. AIR RELIEF VALVE ASSEMBLY MAY BE INSTALLED ABOVE GROUND IF REQUIRED TO PROVIDE RISING SLOPE FOR PE TUBING. WHEN ARV ASSEMBLY IS INSTALLED ABOVE GROUND, OMIT METER BOXES AND INSTALL COMBINATION AIR VALVE AND VENT INSIDE METAL ENCLOSURE ON CONCRETE PAD PER STANDARD DETAIL SD-15 WITH ARV ENCLOSURE PER STANDARD DETAIL SD-13.

6. ALL MATERIALS SHALL BE PROVIDED BY THE DISTRICT, UNLESS NOTED OTHERWISE.
3/4" OR 1" INSULATED METER COUPLING

METER BOX (SEE TABLE)
12" OF TRACER WIRE SLACK
1" X 3/4" OR 1" ANGLE METER STOP W/ LOCK WING COPPER OUTLET TO MATCH METER SIZE AND COMPRESSION OR FLARED INLET
PLACE 2" X 4"
COMPOSITE BLOCKS UNDER METER BOX

METER & DCVA SIZES

<table>
<thead>
<tr>
<th>METER</th>
<th>DCVA</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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</table>

NOTES:

1. ALL MATERIALS SHALL BE PROVIDED BY THE DISTRICT, UNLESS NOTED OTHERWISE.
2. INSTALL TRAFFIC RATED BOXES AND LIDS IN ROADWAYS, SIDEWALKS, DRIVEWAYS AND AREAS WITHIN 3 FEET FROM DRIVEWAYS. LIGHTWEIGHT COMPOSITE BOXES AND LIDS MAY BE USED IN OTHER NON-TRAFFIC LOADING AREAS ONLY.
3. INSTALL BOLLARDS AS NECESSARY IF RPBPD ASSY IS WITHIN 5 FEET OF A DRIVEWAY OR PARKING LOT, OR IF LOCATED IN A HIGH RISK LOCATION.
4. SEE SHEET 3 OF 3 FOR METER INSTALLATIONS WITH RPBPD.
5. USE 76 LB-FT TORQUE ON 5/8" BRASS BOLT.
6. DCVA REQUIRED FOR RESIDENTIAL FIRE SPRINKLER SYSTEMS UNLESS DISTRICT DETERMINED RPBPD REQUIRED.
7. FITTINGS SHALL BE BRASS CTS COMPRESSION OR FLARE TYPE; COMPRESSION FITTINGS SHALL BE MUELLER 110 CONDUCTING COMPRESSION FOR CTS O.D TUBING, OR APPROVED EQUAL.
8. INSTALL 15-LB. ZINC ANODE FOR SERVICES LESS THAN 25 FEET LONG, AND 30-LB ZINC ANODES FOR SERVICES GREATER THAN 25 FEET LONG. BURY IN NATIVE SOIL (NOT SAND OR ROCK BACKFILL) AND INSTALL AT MAXIMUM DISTANCE FROM LATERAL WITHIN EXCAVATION. SATURATE ANODE WITH WATER PRIOR TO BACKFILL (MIN. 5 GALLONS).
# METER & DCVA SIZES

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<th>NON-TRAFFIC AREA</th>
<th>SIZE</th>
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**NOTES:**

1. REFER TO STANDARD DETAIL 4, SHEET 1 NOTES #1–7.

2. INSTALL 30–LB ZINC ANODE ON SERVICES LESS THAN 25 FEET AND 48–LB ZINC ANODE ON SERVICES GREATER THAN 25 FEET. BURY IN NATIVE SOIL (NOT IN SAND OR ROCK BACKFILL) AND INSTALL AT MAXIMUM DISTANCE FROM SERVICE LINE WITHIN EXCAVATION. SATURATE ANODE WITH WATER PRIOR TO BACKFILL (MIN. 5 GALLONS).

3. SEE SHEET 1 FOR METER BOX INSTALLATION DETAILS.
### RPBPD INSTALLATION DIMENSIONS

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<th>B</th>
<th>C</th>
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**A (APPROXIMATE)**

- WATER METER (SEE SHEET 1 & 2 OF 3 SD-4)
- METER BOX (SEE SHEET 1 & 2 OF 3 SD-4)
- METER BOX & RPBPD AT BACK OF SIDEWALK
- ALTERNATE METER BOX LOCATION ONLY
- MONOLITHIC SIDEWALKS (5' WIDE OR LESS)
  - METER LOCATION W/ RPBPD
    * (OR STRUCTURE (I.E. WALL))

**NOTES:**

1. PROVIDE METAL ENCLOSURE OR CAGE (10"W X 24"H X 22") WITH LIFT-OFF COVER IN HIGH TRAFFIC AREAS OR WHERE VANDALISM IS A CONCERN, OR AS REQUIRED BY THE DISTRICT. FOREST GREEN COLOR.

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**MONOLITHIC SIDEWALKS (GREATER THAN 5' WIDE)**

- METER LOCATION W/ RPBPD
  - ALTERNATE RPBPD LOCATION IF LIMITED SPACE AVAILABLE
  - METER BOX (ADJACENT TO BACK OF S/W)
  - STREET (TYP.)

---

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

**TITLE:** 5/8" TO 2" METER INSTALLATIONS W/ RPBPD

**APPROVED FOR USE:**

**CAD FILE:** SD043JR2.DWG

**SCALE:** NONE

**STD. DETAIL NO. REV.** SD-4 2

**APPROVED DATE:** 2/21/20
1. Install hydrant head at 2'-4" from face of curb for areas with no sidewalk adjacent to curb or for monolithic sidewalk greater than 5'-6" wide. Install hydrant head at 1'-6" from back of sidewalk for monolithic sidewalk of 5' or less in width.

2. East Bay Type Fire Hydrant Head with 1-4 1/2" and 1-2 1/2" outlet.

3. Ductile iron (DI) pipe and metal fittings installed below ground shall be en cascaded with polywrap and tape in accordance with AWWA C105 and District Specifications.

4. Affix solid No. 10 copper wire to pipe with 10 mil polyvinyl tape. Connect to all segments of existing tracer wire at junction point with copper split bolt connector.

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**NOTES**

**TRACER WIRE CONNECTION**

**PROFILE**

**PLAN**

**HYDRANT OUTLET POSITION**

<table>
<thead>
<tr>
<th>Hydrant Outlet Position</th>
<th>AV</th>
<th>BP</th>
<th>Date</th>
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<tbody>
<tr>
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<tr>
<td>5 UPDATED DETAILS</td>
<td>HN</td>
<td>JL</td>
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<tr>
<td>4 REVISED NOTES</td>
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<td>DS</td>
<td>3/04</td>
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<td>3 DELETED REDWOOD BLOCK CALLOUT</td>
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<td>RP</td>
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<td>2 CHANGE PVC PIPE TO CLASS 200</td>
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**CONTRIBUTION COSTA WATER DISTRICT CONCORD, CALIFORNIA**

**STANDARD DETAIL**

**FIRE HYDRANT**

**APPROVED DATE:** 12/9/20

**CAD FILE:** SD05S1R5.DWG

**SCALE:** NONE

**STD. DETAIL NO.:** SD-5

**REV.:** 8
STANDARD G-5 VALVE CAN COVER

AC PAVEMENT

CHRISTY G-5 BOX AND COVER, OR APPROVED EQUAL

LEAVE 18" OF WIRE EXTEND OUT OF CAN AND SECURE SO NOT TANGLED ON VALVE STEM

REDWOOD BLOCKS OR COMPOSITE BLOCKS PER DETAIL SD-21 (4 REQ.)

MIN 6" OF AB (95% REL. COMP.)

RISER-8" PVC PIPE (AWWA C900 DR-25 OR SDR-35)

LOCATOR WIRE - CONTINUOUS 
#12 AWG SOLID THHN-THWN COPPER WIRE (TYP)

TAPE LOCATOR WIRE TO PIPE @ 5' O.C. (TYP)

LOCATOR WIRE TO WRAP AROUND VALVE BODY A MINIMUM OF TWO TURNS

NOTES:

1. OPERATING NUT IS GREATER THAN 48" BELOW FINISHED GRADE, A 1" DIAMETER STEEL EXTENSION SHAFT SHALL BE PROVIDED AND INSTALLED WITH A 7 1/2" DIAMETER CENTERING DISK.

2. ALL MATERIALS SHALL BE PROVIDED BY THE DISTRICT UNLESS NOTED OTHERWISE.

STANDARD 8" VALVE CAN INSTALLED IN TRAFFIC AREA

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

TITLE:
STANDARD 8" VALVE CAN ASSEMBLY

APPROVED DATE:
9/24/13

DATE: 9/24/13 SHEET 1 OF 2

CAD FILE: SD06S1R3.DWG SCALE: NONE STD. DETAIL NO. SD-6 REV. 3
NOTES:

1. PREVENT CONCRETE AND DEBRIS FROM SPILLING ONTO VALVE.

2. FAST SETTING CONCRETE SHALL BE QUICKCRETE OR APPROVED EQUAL.

3. THIS DETAIL IS REQUIRED FOR ALL VALVE CAN ADJUSTMENTS, INCLUDING RAISING THE VALVE CAN FOLLOWING PAVEMENT IMPROVEMENT PROJECTS.

4. PREVENT DAMAGE TO LOCATOR WIRE.

5. ALL MATERIALS OTHER THAN AB AND AC SHALL BE PROVIDED BY DISTRICT.

8" VALVE CAN ADJUSTMENT
INSTALLED IN TRAFFIC AREA
**LIST OF MATERIALS**

- 1/2" STAINLESS SPIGOT W/ PLASTIC CAP
- 1/2" x 1" NIPPLE STD. BRASS
- 1/2" x 3/4" BUSHING STD. BRASS
- 3/4" COUPLING C FL X MA. I.P.
- 3/4" COUPLING C FL X FE. I.P.
- 3/4" COPPER TUBING *
- 3/4" SERVICE COCK
- 3/4" NIPPLE STD. BRASS *
- 1" close NIPPLE STD. BRASS
- 1" X 3/4" TEE STD. BRASS
- 2-36 METER BOX & COVER
- SAMPLING STATION RISER
- PEA GRAVEL
- CONCRETE (1,500 PSI MIN. STRENGTH)
- STAINLESS STEEL WOOL
- 10 MIL PE TAPE

**NOTE:**

1. Use light weight QUAZITE BOXES.
   - Of equivalent sizes in non-traffic areas only. Do not use QUAZITE BOXES in sidewalks or driveways.

**EXIST. 1" X 3/4" ANGLE STOP I.P.**

**EXIST. 1" SERVICE LINE**

**3/4" COUPLING C FL X MA. I.P.**

**3/4" COPPER TUBING**

**3/4" NIPPLE STD. BRASS**

10 MIL PE TAPE, 1/2 LAP WRAPPING.
Apply around aluminum riser and copper tubing to be encased in concrete footing

**Wie SAD S41ST STEEL WOOL**

R = MIN. BEND RADIUS OF 4 1/2"

**HASP & LOCK**

**DISTRICT STANDARD KEY LOCK**

**SAMPLING STATION**

**6" ALUMINUM RISER**

**WADDING OF STAINLESS STEEL WOOL**

**18" DIA. CONCRETE FOOTING**

LEAVE BOTTOM OPEN TO DRAIN

**2" X 12" CUT OUT**
LIST OF MATERIALS

1/2" STAINLESS SPIGOT W/ PLASTIC CAP
1/2" X 1" NIPPLE STD. BRASS
1/2" X 3/4" BUSHING STD. BRASS
3/4" COUPLING C FL X MA. I.P.
3/4" COUPLING C FL X FE. I.P.
3/4" COPPER TUBING *
3/4" SERVICE COCK
3/4" STREET ELL.
3/4" COUPLING INSERT X MA. I.P.
1" SERVICE LINE PER DWG. SD-2 AND SD-4
1- #36 METER BOX & COVER
SAMPLING STATION RISER
PEA GRAVEL
CONCRETE (1,500 PSI MIN. STRENGTH)
STAINLESS STEEL WOOL
10 MIL PE TAPE

NOTES:

1. UNLESS DIRECTED OTHERWISE
   BY DISTRICT, ALL ITEMS SHOWN
   SHALL BE INSTALLED BY APPLICANT.
2. USE LIGHT WEIGHT QUARTZ BOXES
   OF EQUIVALENT SIZES IN NON-TRAFFIC
   AREAS ONLY. DO NOT USE QUARTZ
   BOXES IN SIDEWALKS OR DRIVEWAYS.

* FIELD DETERMINE LENGTH
NON-POTABLE PIPELINE CROSSING SEPARATION

- FINISHED GRADE
- NON-POTABLE PIPELINE
- DUCTILE IRON PIPE W/ HOT DIP BITUMINOUS COATING (SEE NOTE 3)
- DEPTH PER GENERAL SPECIFICATIONS UNLESS OTHERWISE NOTED
- LOCATOR WIRE; TYP.

C-900 PVC PIPE

MJ SLEEVE WITH RETAINER GLANDS

DEEP BELL RESTRAINT

MIN. 1' ABOVE

8' MIN.

(SEE NOTE 2)

NOTES:

1. CROSSING SHALL BE AT AN ANGLE OF NO LESS THAN 45° HORIZONTALLY FROM THE NON-POTABLE PIPELINE.

2. NO JOINT IN THE NEW TREATED WATER MAIN SHALL BE WITHIN 8' OF A FLUID PIPELINE CONVEYING THE FOLLOWING (REQUIRED BY § 64572 OF THE CALIFORNIA WATERWORKS STANDARDS): SEWAGE, STORM WATER, RECYCLED WATER, AND HAZARDOUS LIQUIDS.

3. DUCTILE IRON (DI) PIPE AND METAL FITTINGS INSTALLED BELOW GRADE SHALL BE ENCASED WITH POLYWRAP AND TAPE IN ACCORDANCE WITH AWWA C105 AND DISTRICT STANDARDS.

4. ANY EXCEPTION TO THIS STANDARD REQUIRES PRIOR WRITTEN APPROVAL FROM THE DISTRICT'S ENGINEERING MANAGER.

5. TAPE LOCATOR WIRE ON ALL PIPES. REFER TO STD. DETAIL SD-6 FOR MORE DETAILS.
### BILL OF MATERIAL

**DUAL 2” METER INSTALLATION**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4” PVC PIPE (C.I.O.D.)</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>4” TEE FLG.</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>1” FLG. ADAPTER F/C900 PVC</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>2” x 4” NIPPLE STD. BRASS</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>#65 (B36) METER BOX &amp; COVER, OR EQUAL (SEE NOTE)</td>
<td></td>
</tr>
</tbody>
</table>

CONTINUED ON SHT. 2 OF 2

**BILL OF MATERIAL**

**DUAL 1 1/2” METER INSTALLATION**

SAME AS 2” EXCEPT AS LISTED BELOW

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>#38 (B30) METER BOX &amp; COVER, OR EQUAL (SEE NOTE)</td>
<td></td>
</tr>
</tbody>
</table>

CONTINUED ON SHT. 2 OF 2

---

**NOTE:**

USE LIGHT WEIGHT QUAZITE BOXES OF EQUIVALENT SIZES IN NON-TRAFFIC AREAS ONLY. DO NOT USE QUAZITE BOXES IN SIDEWALKS OR DRIVEWAYS.

---

**CONTRA COSTA WATER DISTRICT**

**STANDARD DETAIL**

**TITLE:**

**DUAL 2” & 1 1/2” METER INSTALLATION W/R.P.B.P.D.**

**APPROVED DATE:** 11/3/05

**CAD FILE:** SD9S1R4.dgn

**SCALE:** NONE

**STD. DETAIL NO.** SD-9

**REV.** 4

**DATE:** 11/2/04

**SHEET 1 OF 2**

---
### BILL OF MATERIAL

**CONTINUED FROM SHT. 1 OF 2**

#### DUAL 2" METER INSTALLATION

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>4</td>
<td>4&quot; FLG. TAPPED 2&quot; I.P.</td>
</tr>
<tr>
<td>H</td>
<td>6</td>
<td>2&quot; ELL 90° STD. BRASS</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>2&quot; x 24&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>K</td>
<td>2</td>
<td>2&quot; ANGLE METER STOP FLG.</td>
</tr>
<tr>
<td>L</td>
<td>2</td>
<td>2&quot; METER</td>
</tr>
<tr>
<td>M</td>
<td>2</td>
<td>2&quot; BRONZE OVAL METER FLG.</td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>2&quot; x 10&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>Q</td>
<td>2</td>
<td>2&quot; x 42&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>R</td>
<td></td>
<td>THRUST BLOCK (PER DWG. SD-1)</td>
</tr>
<tr>
<td>S</td>
<td>2</td>
<td>2&quot; R.P.B.P.D. ASSY. (FEBCO 825 YA)</td>
</tr>
<tr>
<td>U</td>
<td>2</td>
<td>2&quot; x 14&quot; NIPPLE STD. BRASS</td>
</tr>
</tbody>
</table>

### BILL OF MATERIAL

**CONTINUED FROM SHT. 1 OF 2**

#### DUAL 1 1/2" METER INSTALLATION

SAME AS 2"CEXCEPT AS LISTED BELOW)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>4</td>
<td>2&quot; ELL 90° STD. BRASS</td>
</tr>
<tr>
<td>H**</td>
<td>2</td>
<td>1 1/2&quot; ELL 90° STD. BRASS</td>
</tr>
<tr>
<td>L</td>
<td>2</td>
<td>1 1/2&quot; METER</td>
</tr>
<tr>
<td>M</td>
<td>2</td>
<td>1 1/2&quot; BRONZE OVAL METER FLG.</td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>1 1/2&quot; x 10&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>S</td>
<td>2</td>
<td>1 1/2&quot; R.P.B.P.D. ASSY. (FEBCO 825 YA)</td>
</tr>
<tr>
<td>T</td>
<td>2</td>
<td>2&quot; x 1 1/2&quot; REDUCER BRASS (NOT SHOWN)</td>
</tr>
<tr>
<td>U</td>
<td>2</td>
<td>1 1/2&quot; x 14&quot; NIPPLE STD. BRASS</td>
</tr>
</tbody>
</table>

---

**CONTRA COSTA WATER DISTRICT**
**CONCORD, CALIFORNIA**

**STANDARD DETAIL**

**TITLE:**
DUAL 2" & 1 1/2" METER INSTALLATION W/R.P.B.P.D.

**ENGINEERING REVIEW:**
**CONSTRUCTION REVIEW:**
**Q & M REVIEW:**
**APPROVED FOR USE:**

**APPROVED DATE:**
5/24/04

**CAD FILE:** SD952R3.DGN

**SCALE:** NONE

**STD. DETAIL NO.:** SD-9

**REV.:** 3
### BILL OF MATERIAL

**DUAL 2" METER INSTALLATION**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>4&quot; PVC PIPE (C.I.O.D.)</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>4&quot; TEE FLG.</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>4&quot; FLG. ADAPTER F/C900 PVC</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
<td>2&quot; x 4&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>METER BOX &amp; COVER</td>
</tr>
</tbody>
</table>

CONTINUED ON SHT. 2 OF 2

### BILL OF MATERIAL

**DUAL 1 1/2" METER INSTALLATION**

SAME AS 2" (EXCEPT AS LISTED BELOW)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>4</td>
<td>1 1/2&quot; x 4&quot; NIPPLE STD. BRASS</td>
</tr>
</tbody>
</table>

CONTINUED ON SHT. 2 OF 2

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**CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA**

**STANDARD DETAIL**

**DUAL 2" & 1 1/2" METER INSTALLATION W/ DCVA**

**APPROVED DATE:**

**CAD FILE:** SD10S1R3.DWG

**SCALE:** NONE

**STD. DETAIL NO.:** SD-10

**REV.:** 3
### BILL OF MATERIAL
CONTINUED FROM SHT. 1 OF 2
DUAL 2" METER INSTALLATION

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>4</td>
<td>4&quot; FLG. TAPPED 2&quot; I.P.</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>2&quot; x 4&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>H</td>
<td>4</td>
<td>2&quot; ELL 90° STD. BRASS</td>
</tr>
<tr>
<td>I</td>
<td>2</td>
<td>2&quot; x 24&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>2&quot; ANGLE METER STOP FLG.</td>
</tr>
<tr>
<td>K</td>
<td>2</td>
<td>2&quot; METER</td>
</tr>
<tr>
<td>L</td>
<td>2</td>
<td>2&quot; BRONZE OVAL METER FLG.</td>
</tr>
<tr>
<td>M</td>
<td>2</td>
<td>2&quot; x 10&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>2&quot; ST. ELL 90° STD. BRASS</td>
</tr>
<tr>
<td>P</td>
<td>2</td>
<td>2&quot; UNION STD. BRASS</td>
</tr>
<tr>
<td>Q</td>
<td>2</td>
<td>2&quot; x 20&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>R</td>
<td>2</td>
<td>THRUST BLOCK (SD-1)</td>
</tr>
<tr>
<td>S</td>
<td>2</td>
<td>2&quot; D.C.V.A. ASSY.</td>
</tr>
</tbody>
</table>

### BILL OF MATERIAL
CONTINUED FROM SHT. 1 OF 2
DUAL 1 1/2" METER INSTALLATION
SAME AS 2" (EXCEPT AS LISTED BELOW)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>2</td>
<td>1 1/2&quot; x 4&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>K</td>
<td>2</td>
<td>1 1/2&quot; METER</td>
</tr>
<tr>
<td>L</td>
<td>2</td>
<td>1 1/2&quot; BRONZE OVAL METER FLG.</td>
</tr>
<tr>
<td>M</td>
<td>2</td>
<td>1 1/2&quot; x 10&quot; NIPPLE STD. BRASS</td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>1 1/2&quot; ST. ELL 90° STD. BRASS</td>
</tr>
<tr>
<td>T</td>
<td>2</td>
<td>2&quot; x 1 1/2&quot; BRASS BUSHING (NOT SHOWN)</td>
</tr>
<tr>
<td>S</td>
<td>2</td>
<td>1 1/2&quot; D.C.V.A. ASSY.</td>
</tr>
</tbody>
</table>

---

**CONTRA COSTA WATER DISTRICT**
CONCORD, CALIFORNIA

**STANDARD DETAIL**

**TITLE:**
DUAL 2" & 1 1/2" METER INSTALLATION W/D.C.V.A.

**CAD FILE:**
SD1052R1_REV.DGN
**SCALE:**
NONE
**STD. DETAIL NO.:**
SD-10
**REV.:**
1
**APPROVED DATE:**
5/24/04
**DATE:**
5/24/04
**SHEET 2 OF 2**
NOTE:
USE LIGHT WEIGHT QUARZITE BOXES OF EQUIVALENT SIZES IN NON-TRAFFIC AREAS ONLY. DO NOT USE QUARZITE BOXES IN SIDEWALKS OR DRIVEWAYS.

BYPASS ASSEMBLY
BILL OF MATERIAL

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>BUSHING (SIZE AS REQUIRED)</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>3/4&quot; CORP. STOP, I.P. X K</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>3/4&quot; CPLG. K X I.P. FE.-SI</td>
</tr>
<tr>
<td>D</td>
<td>10'</td>
<td>3/4&quot; COPPER TUBING</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>#38 (B30) METER BOX &amp; COVER, OR EQUAL (SEE NOTE)</td>
</tr>
</tbody>
</table>

CONTINUED ON SHT. 2 OF 2
### BY-PASS ASSEMBLY BILL OF MATERIAL

**CONTINUED FROM SHT. 1 OF 2**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>2</td>
<td>3/4&quot; CPLG. KxI.P. FE.-SL</td>
</tr>
<tr>
<td>G</td>
<td>10'</td>
<td>3/4&quot; COPPER TUBING(REF.)</td>
</tr>
<tr>
<td>H</td>
<td>2</td>
<td>3/4&quot; ELL 90° KxK-SL.</td>
</tr>
<tr>
<td>I</td>
<td>1</td>
<td>3/4&quot; ANGLE STOP I.P.</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>5/8&quot; x 3/4&quot; METER</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>3/4&quot; LONG METER COUPLING</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>1/4&quot; PETCOCK</td>
</tr>
<tr>
<td>M</td>
<td>1</td>
<td>3/4&quot; SWING CHECK VALVE OR APPROVED EQUAL</td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>3/4&quot; x CLOSE NIPPLE</td>
</tr>
<tr>
<td>P</td>
<td>1</td>
<td>3/4&quot; TEE SS BRASS</td>
</tr>
<tr>
<td>Q</td>
<td>1</td>
<td>3/4&quot; HOSE BIB</td>
</tr>
<tr>
<td>R</td>
<td>1</td>
<td>3/4&quot; x 1/4&quot; TEE SS BRASS</td>
</tr>
</tbody>
</table>

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**CONTRA COSTA WATER DISTRICT**
**CONCORD, CALIFORNIA**

**STANDARD DETAIL**

**TITLE:** DETECTOR CHECK VALVE INSTALLATION

**CAD FILE:** SD11S20.DGN  **SCALE:** NONE

**APPROVED DATE:** 10/22/99  **SHEET 2 OF 2**

---

**ISSUED FOR DISTRIBUTION:** DC  **DESCRIPTION:** BY APP. DATE

**ENGINEERING REVIEW:**  **CONSTRUCTION REVIEW:**

**O & M REVIEW:**  **APPROVED FOR USE:**

**STD. DETAIL NO.** SD-11  **REV.** 0
ANCHOR BLOCK WIDTH TO BE 30" MINIMUM

NOTES:

1. U-STRAP SHALL BE FABRICATED OF 1/2" STEEL REINFORCING BAR.

2. FIELD DETERMINE SUITABILITY OF ANCHOR BLOCK FOR SITE SOIL TYPE AND WHEN IN PROXIMITY OF OTHER UTILITIES, CONTACT DISTRICT INSPECTOR FOR ALTERNATIVE INSTALLATIONS AS REQUIRED.

3. MINIMUM BEARING AREA FOR THRUST/ANCHOR BLOCK SHALL BE AS PROVIDED FOR THE CORRESPONDING TEE OR BLOW-OFF DIAMETERS LISTED IN STD. DWG. SD-1.
SECTION A
SCALE: 1" = 1'-0"

AIR VALVE PIPE LOCATION
MAY VARY NEAR CENTER OF ENCLOSURE

DETAIL

1
SHT. 2

STAMPED LOUVERS
8" ± LONG, STACKED
5" ± HIGH W/ 1/4"
GALV. MESH SCREEN
BEHIND LOUVERS

ENCLOSURE LEG, 4 REQ'D.
L 2" × 2" × 3/16" × 1' - 6"

DETAIL

MOUNTING FOOT

2
SHT. 2

DETALL

1'-9 1/2"

SECTION B
SCALE: 1" = 1'-0"

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

AIR VALVE ENCLOSURE

APPROVED DATE:

0 & M REVIEW:

ENGINEERING REVIEW:

CONSTRUCTION REVIEW:

CAD FILE: SD13S1RO.DGN
SCALE: AS SHOWN

STD. DETAIL NO. SD-13

REV. 0

0 ISSUED FOR DISTRIBUTION

APPROVED FOR USE:

DATE: 8/31/00

SHEET 1 OF 3

SEE NOTES ON SHEET 3 OF 3)
ENCLOSURE LEG
L 2” x 2” x 3/16” x 1’-6” (REF.)

SEAL WELD
TYP.
3/16

ROOF,
12 GA. STEEL

SIDE WALL,
12 GA. STEEL

BAR 2” SQ. x 1/4”
W/ 9/16” DIA. HOLE FOR
1/2” DIA. ANCHOR BOLT

(4 REQ’D.)

DETAIL
SCALE: 3/4” = 1’-0”
SHT.1

DETAIL
SCALE: 3/4” = 1’-0”
SHT.1

(SEE NOTES ON SHEET 3 OF 3 SHEETS.)

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

AIR VALVE ENCLOSURE

APPROVED DATE: 8/31/00
SHEET 2 OF 3
NOTES FOR PAINTING PROCEDURE:

1. DRY SANDBLAST ALL SURFACES TO AN EVEN, GRAY-WHITE COLOR AS DEFINED BY THE STEEL STRUCTURES PAINTING COUNCIL IN "SURFACE PREPARATION SPECIFICATION NO. 5, BLAST CLEANING TO WHITE METAL."

2. IMMEDIATELY AFTER SANDBLASTING, APPLY TO ALL SURFACES A COATING, 5 MILS IN THICKNESS OF DIMETCOTE NO. 4 MANUFACTURED BY AMERCOAT CORPORATION, 4809 FIRESTONE BLVD., SOUTH GATE, CALIFORNIA OR APPROVED EQUAL, STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

3. AFTER INSTALLATION, TWO EXTERIOR FINISH COATS OF ALKYD ENAMEL SHALL BE APPLIED BY INSTALLING CONTRACTOR. COLOR SHALL BE TAUPE OR AS DIRECTED BY CONSTRUCTION ADMINISTRATOR.

NOTES ON CONSTRUCTION:

1. ALL EXTERIOR WELDS SHALL BE GROUND SMOOTH. ALL WELD SPATTER SHALL BE REMOVED AND GROUND SMOOTH.

2. MATERIAL SHALL BE PRIME QUALITY, COMMERCIAL GRADE HOT ROLLED SHEET.

3. FINISHED ENCLOSURE SHALL PRESENT SMOOTH AND FINISHED APPEARANCE, TOLERANCE WITHIN ±1/32 INCH. WRINKLES, DISTORTION FROM WELD SHRINKAGE, AND OTHER POOR WORKMANSHIP WILL NOT BE ACCEPTABLE.
AWG #10 THHN OR THW (SEE NOTE #4)

CEMENT MORTAR COATING

S.C.C. PIPE

6" MIN. OR AS REQ'D. TO REPAIR DAMAGED MORTAR COATING

WIRE MESH REINFORCEMENT FOR CEMENT MORTAR COATING (TYP.)

NOTE:

1. ONLY TO BE USED IF EXISTING S.C.C. PIPE IS CATHODICALLY PROTECTED.

2. COATING TYP. FOR SIDE AND TOP OUTLETS AND VALVES.


4. #10 AWG BOND WIRE SHALL CONNECT STEEL WELD-ON OUTLET TO VALVE, VIA EXOTHERMIC WELD CONNECTIONS.
AWG #10 THHN or THW
(SEE NOTE #5)

VALVE CAN & COVER PER DWG. SD-6

6" MIN. OVERLAP OR AS REQ'D. TO REPAIR COATING

M.J. FOLLOWER RING NOT COATED; TO BE POLY-WRAPPED ONLY.

S.C.M. OR S.C.B.
PIPE

BUILD UP WITH MASTIC TO COVER NUTS AND BOLTS

COLD APPLIED 4" OR 6" COAL TAR, GLASS REINFORCED TAPE 20 MIL. DOUBLE LAP

POLYETHYLENE SLEEVE
(SEE NOTE #2)

PROFILE

NOTE:
1. ONLY TO BE USED IF EXISTING S.C.M./S.C.B. IS CATHODICALLY PROTECTED.
2. EXTEND POLYETHYLENE TO COVER ALL METAL PIPE AND FITTINGS.
3. COATING TYP. FOR SIDE AND TOP OUTLETS AND VALVES.
5. #10 AWG BOND WIRE SHALL CONNECT STEEL WELD-ON OUTLET TO VALVE, VIA EXOTHERMIC WELD CONNECTIONS.
NOTE:

1. TO RETROFIT EXISTING AIR RELIEF ASSEMBLIES, REMOVE EXISTING METER BOX WITH LID AND AIR RELIEF VALVE. INSTALL 4" D.I. SPOOL ON REMAINING FLG. OF BURIED ASSEMBLY, LENGTH TO PROVIDE CLEARANCE ABOVE FINISH GRADE AS SHOWN. BACKFILL AND POUR CONCRETE PAD AS SHOWN.

2. INSTALL AIR VALVE ENCLOSURE PER MANUFACTURER'S INSTRUCTIONS, USING 1/2" DIA. ANCHOR BOLTS THROUGH EACH MOUNTING FOOT.

3. DUCTILE IRON (DI) PIPE AND METAL FITTINGS INSTALLED BELOW GRADE SHALL BE ENCASED WITH POLYWRAP AND TAPE IN ACCORDANCE WITH AWWA C105 AND DISTRICT SPECIFICATIONS.

4. ALL MATERIALS SHALL BE PROVIDED BY THE DISTRICT, UNLESS NOTED OTHERWISE.

5. TAPE LOCATOR WIRE ON ALL PIPES. REFER TO STD. DETAIL SD-6 FOR MORE DETAILS.

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

4" AND 3" COMBINATION AIR RELIEF ASSEMBLY

APPROVED DATE: 5/7/19

SCALE: NONE

STD. DETAIL NO. SD-15

REV. 2

PAD PROVIDE LENGTH FOR CLEARANCE ABOVE CONCRETE PAD AS SHOWN.

CONTINUOUSLY SLOPE UPWARD
CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

2" AIR RELIEF ASSEMBLY

NOTES:

1. INSTALL 4" X 4" X 6' REDWOOD MARKER POST WITHIN 12" OF METER BOX. BURY MIN. DEPTH 3'. PAINT WHITE WITH BLACK LETTERS "AR".

2. PVC PIPE SHALL BE SCHEDULE 80.

3. USE TRAFFIC RATED BOXES AND LIDS IN ROADWAYS, DRIVEWAYS, AND SIDEWALKS. MAY ONLY USE LIGHT WEIGHT BOXES AND LIDS IN NON-TRAFFIC AREAS.

4. TAPE LOCATOR WIRE ON ALL PIPES. REFER TO STD. DETAIL SD-6 FOR MORE DETAILS.

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

TITLE:

2" AIR RELIEF ASSEMBLY

STANDARD DETAIL

REVISED DETAIL: JS SA 5/19
ISSUED FOR DISTRIBUTION: HN JL 4/07
APPROVED FOR USE:

DATE: 5/7/19
SHEET 1 OF 1

APPROVED DATE:

CAD FILE: SD16S1R1.DWG
SCALE: NONE

STD. DETAIL NO.: SD-16
REV.: 1
TRM SLOPE REPAIR PREPARATION

- Place engineered fill to match adjacent ground.
- Fill erosion gullies
- 2' transition width from scarp to outside edge of TRM, TYP
- See general note 1
- See subgrade preparation notes

TRM SLOPE REPAIR INSTALLATION

- 6" edge overlap
- See TRM notes for pin spacing
- EXIST FENCE WHERE PRESENT, REMOVE AND REPLACE AS NEEDED FOR WORK
- 12" end overlap, see TRM end overlap detail for pin spacing
- TOE OF SLOPE
- SEE GENERAL NOTE 1
- CONCRETE CANAL LINER
- TRM END OVERLAP DETAIL

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

TITLE:
CANAL SLOPE VENEER SLIDE REPAIR - TURF REINFORCEMENT MATRIX (TRM)

CONTRIBUTED BY:
CIVIL ENGINEER

APPROVED DATE:
12/21/11

SHEET 1 OF 2

STD. DETAIL NO. SD-17 REV. 0
GENERAL NOTES:
1. DETAILS SHALL ONLY BE USED FOR VERTICAL SLOPE HEIGHTS LESS THAN 45 FT, SLOPES OF 1:1 OR SHALLOWER AND SLOPES BETWEEN THE CANAL LINER AND BENCH OR OPERATIONS ROAD.
2. REPAIR WIDTH (RW) EQUALS WIDTH OF SCARP PLUS 2 FT EITHER SIDE OF SCARP. REPAIR LENGTH (RL) EQUALS HORIZONTAL SLOPE LENGTH FROM TOP OF CANAL LINER TO BENCH OR OPERATIONS ROAD.
3. INSTALL FIBERGLASS KNOCKDOWN POSTS, ONE ON EACH END OF THE TRM REPAIR LIMIT. LOCATE AT THE EDGE OF BENCH OR ACCESS ROAD. POST SHALL READ "TRM REPAIR, MONTH/YEAR" DESCRIBING DATE INSTALLED WITH AN ARROW POINTING IN DIRECTION OF REPAIR.
4. DETAILS SHALL NOT BE USED TO DIVERT STORM WATER RUNOFF FROM BENCH OR OPERATIONS ROAD DOWN SLOPE TO THE CANAL. SITE SPECIFIC DRAINAGE IMPROVEMENTS SHALL BE IMPLEMENTED TO ADDRESS STORM WATER RUNOFF.

SUBGRADE PREPARATION NOTES:
1. CLEAR AREA TO BE COVERED WITH TRM OF ANY DISTURBED SOIL, SOIL CLOIDS, LOOSE ROCKS, GRASS CLUMP, AND OTHER DEBRIS.
2. AFTER AREA IS CLEARED, SHAPE AND SMOOTH AREA TO BE COVERED WITH TRM SO THAT TRM WILL LIE FLUSH AND CREATE SMOOTH TRANSITION TO MATCH TOPOGRAPHY OF ADJACENT UNDAMAGED SLOPES. SUBGRADE SHALL BE UNIFORM AND SMOOTH.
3. PRIOR TO TRM PLACEMENT, APPLY SEED, FERTILIZER, AND FIBER TO SLOPE BY HYDROSEEDING. (SEE HYDROSEEDING STANDARD TECHNICAL SPECIFICATION, 02925).

TRM NOTES:
1. FOLLOWING MATERIALS ARE APPROVED FOR USE AS TRM: PROPAX LANDLOCK 300, NORTH AMERICA GREEN P550 OR EQUAL.
2. TRM ANCHOR PINS SHALL BE 12" LONG AND 0.20" DIAMETER GALVANIZED STEEL WITH 1-1/2" GALVANIZED STEEL WASHER AT THE HEAD OF THE PIN. METAL PINS SHALL BE DRIVEN FLUSH TO THE SOIL SURFACE.
3. ANCHOR TRM UPPER ANCHOR IN TRENCH AT TOP OF SLOPE, BACKFILL WITH ENGINEERED FILL (SEE ENGINEERED FILL NOTES) AND COMPACT UPPER ANCHOR TRENCH AFTER INSTALLING TRENCH TRM ANCHOR PINS.
4. UNROLL TRM DOWN SLOPE MAINTAINING EDGE AND END OVERLAPS SHOWN. AT ROLL ENDS, LAP UPSLOPE TRM EDGE OVER DOWNSLOPE TRM EDGE.
5. LAY TRM LOOSELY AND MAINTAIN DIRECT CONTACT WITH SOIL SURFACE. DO NOT PULL TRM TAUT AND DO NOT ALLOW BRIDGING OF TRM OVER SOIL SURFACE.
6. SECURE TRM TO GROUND SURFACE WITH TRM ANCHOR PINS IN PATTERN SHOWN. AT TRM EDGE OVERLAP, SECURE WITH ONE ROW OF PINS AT 12" O.C., CENTERED WITHIN OVERLAP. AT TRM END OVERLAP, SECURE WITH TWO ROWS OF PINS staggered 12" APART AT 12" O.C. AS SHOWN.
7. PLACE BOTTOM TRM EDGE IN LOWER ANCHOR TRENCH, INSTALL TRM ANCHOR PINS, AND BACKFILL.
8. HYDROSEED SURFACE (SEE HYDROSEEDING STANDARD TECHNICAL SPECIFICATION, 02925) OF TRM AND OTHER AREAS WHERE EXISTING VEGETATION WAS DISTURBED BY CONSTRUCTION ACTIVITIES.

ENGINEERED FILL NOTES:
1. ENGINEERED FILL SHALL BE A SELECT MIXTURE OF NATIVE EARTH WITH A MAXIMUM PARTICLE SIZE OF 4", OBTAINED FROM REQUIRED EXCAVATIONS AND FREE OF ORGANIC MATERIALS, DEBRIS AND TRASH.
2. BEFORE PLACING ENGINEERED FILL ON OR AGAINST SOIL AND SUBGRADES, MOISTURE CONDITION, REPLACE, AND/OR RECOMPACT ANY SURFACES WHICH HAVE BECOME SOFT OR LOOSE, WHICH CONTAIN EROSION CHANNELS OR CRACKS, OR ARE EXCESSIVELY DRY.
3. PLACE MATERIAL TO FORM A HOMOGENEOUS LAYER IN 8-INCH MAXIMUM THICKNESS LOOSE LIFTS. EACH LAYER SHALL BE CONSTRUCTED CONTINUOUSLY AND APPROXIMATELY HORIZONTAL. EACH PORTION OF THE LAYER SHALL BE INCLINED SLIGHTLY FROM THE HORIZONTAL TO PROVIDE SURFACE DRAINAGE TOWARDS THE BACK OF THE BENCH.
4. DO NOT PLACE WHEN THE FILL OR THE FOUNDATION IS SATURATED. FILL PLACEMENT SHALL BE TEMPORARILY STOPPED DURING UNSUITABLE WEATHER CONDITIONS.
5. COMPACT FILL IN PLACE TO 90 PERCENT OF MAXIMUM DRY DENSITY AND AT A MOISTURE CONTENT WITHIN A RANGE OF THE OPTIMUM TO 3 PERCENTAGE POINTS ABOVE OPTIMUM WHEN TESTED IN ACCORDANCE WITH ASTM D1557. PROCESS THE MATERIAL AS REQUIRED TO ACHIEVE THE SPECIFIED MOISTURE CONTENT.

SITE CLEAN UP NOTES:
1. CLEAR ALL DEBRIS, WASTE, GRASS CLUMPS, AND OTHER VEGETATION FROM SITE UPON PROJECT COMPLETION.
2. REMAINING DISTURBED SOIL, SOIL CLOIDS AND LOOSE ROCKS REMOVED DURING SUBGRADE PREPARATION CAN BE SPREAD AND COMPACTED ALONG NON OPERATIONS SIDE ROAD. GRADE ROAD AWAY FROM CANAL TOWARD EXISTING V-DITCHES WHERE PRESENT.
NOTES:

1. 4" DIAMETER SERVICE AND MATERIALS SHOWN. SIMILAR INSTALLATION AND MATERIALS FOR 3", 6", AND 8" DIAMETER SERVICES WITH MAGNETIC METERS AND RPBPD. SEE SHEET 2 FOR COMPONENT LAY LENGTHS.

2. METER ASSEMBLY SHALL BE INSTALLED FLAT OR SLIGHTLY SLOPED HIGHER TOWARDS THE DOWNSTREAM SIDE.

3. PROVIDE A METAL ENCLOSURE, OR CAGE (POWDER COATED FOREST GREEN COLOR), IN HIGH TRAFFIC AREAS OR WHERE VANDALISM IS A CONCERN, OR AS REQUIRED BY THE DISTRICT.

4. DUCTILE IRON PIPE AND METAL FITTINGS INSTALLED BELOW GROUND SHALL BE ENCASED WITH POLYWRAP AND TAPE IN ACCORDANCE WITH AWWA C105 AND DISTRICT SPECIFICATIONS.

5. ALL MATERIALS SHALL BE PROVIDED BY THE DISTRICT, UNLESS NOTED OTHERWISE.

6. LOCATION FOR INSTALLATION SHALL BE APPROVED BY THE DISTRICT.

7. ELSTOR AMCO EVOQ4 MAG METER OR AS NOTED ON PROJECT SPECIFIC BILL OF MATERIALS. STAINLESS STEEL METER SECURITY ENCLOSURE (NOT SHOWN FOR CLARITY) SHALL BE PROVIDED AND INSTALLED BY CCWD.
### COMPONENT LAY LENGTHS (INCHES)

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<th>PIPE DIAMETER</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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</table>

A = OVERALL LENGTH  
B = BACKFLOW PREVENTION DEVICE (WILKINS MODEL 375AST)  
C = DUCTILE IRON SPOOL  
D = METER (LENGTH BASED ON ELSTOR AMCO EVOQ4 MAGNETIC METER)  
E = DUCTILE IRON SPOOL  
F = STRAINER (BADGER METER PLATE STRAINER FOR 3"–6", BADGER METER FIRE SERVICE STRAINER MODEL 7000 AFSS FOR 8"–10")
1. 6" Diameter materials and installation shown. Similar installation and materials for 4", 8" and 10" diameter fire services w/ RPDA or DCDA. See Table at right for lay lengths of different diameters.

2. Class I fire services will require Wilkins 450 STDA (Double Check Detector Assembly). Private/commercial sprinkler systems other than Class I will require Wilkins 475 STDA.

3. Refer to SD-11 for detector check valve installations for private fire hydrants.

4. Ductile iron pipe and metal fittings installed below ground shall be encaused with Polywrap and tape in accordance with AWWA C105 and District Specifications.

5. All materials shall be provided by the District, unless noted otherwise.

6. Location for installation shall be approved by the District.

7. Provide a metal enclosure or cage powder coated forest green in high traffic areas, where vandalism is a concern, or as required by the District.

8. Orient valves and valve stems as shown on plan drawings.

9. Affix solid No. 10 copper wire to pipe with 10 mil polyvinyl tap, connect to all segments of existing tracer wire at junction point with copper split bolt connector.

Notes:

- Change RPDA & DCDA to Stainless Steel HN BP 8/20
- Combine RPDA & DCDA HN JPM 2/14
- Revised Pad & Cage HN JPM 2/12
- Issued for Distribution HN JL 8/10

CONTRA COSTA WATER DISTRICT
CONCORD, CALIFORNIA

STANDARD DETAIL

4" TO 10" FIRE SERVICE
W/ RPDA OR DCDA

APPROVED DATE: 10/27/20

CAD FILE: SD19S1R3.DWG
SCALE: NTS
STD. DETAIL NO. SD-19
REV. 3

0 & M REVIEW:
APPROVED FOR USE:
STANDARD G-5 VALVE CAN COVER

STANDARD VALVE CAN & RISER COVER PER SD-6

2" IP PLASTIC CAP
2" X 4" BRASS NIPPLE
2" BRASS STREET ELL

2" BRONZE OVAL METER FLG
2" GASKET
2" X 6" BRASS NIPPLE

BLOCKING PER DETAIL (TYP)
2" COUPLING

2" X 30" BRASS RISER

2" BRASS STREET ELL (SEE NOTE 1)

LOCATOR WIRE—CONTINUOUS
#12 AWG SOLID THHN—THWN COPPER WIRE (TYP)

Tape Locator Wire to Pipe @ 5' OC (TYP)

MIN 6" OF AB (95% REL COMP)

THRU BLOCK AS PER DWG SD-1

PVC WATER MAIN (DIAMETER < 12"
MJ GLAND (TYP)
MJ CAP TAPPED 2" IP (SEE NOTE 1)

2" BRASS ANGLE STOP

CHRISTY G-5 BOX AND COVER, OR APPROVED EQUAL

NOTES:

1. FOR 2" BLOWOFF ASSY ON A 2" PVC MAIN, IN PLACE OF MJ CAP AND 2" ST ELL USE:
   2" ADAPTER PVC SW x MA IP
   2" CPLG STD BRASS
   2" X 24" NIPPLE STD BRASS
   2" ELL 90' STD BRASS
   REMAINDER OF BLOWOFF IS AS SHOWN ABOVE.

2. ALL MATERIALS SHALL BE PROVIDED BY THE DISTRICT UNLESS NOTED OTHERWISE.