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<th>DWG #</th>
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<td>Reinforced Pipe Outlets Steel Cylinder Pipe</td>
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<td>Slip On Weld Flange Joint CML &amp; CC Pipe, 14&quot; &amp; Larger</td>
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<td>Split Butt Strap Field Connection Steel Cylinder Pipe</td>
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<td>1&quot; Air Vacuum &amp; Air Release Valve Assembly</td>
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<td>Cathodic Protection Test Station Flange Insulation Gasket Kit</td>
<td>W-0490</td>
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<td>Cathodic Protection Test Station Steel Cylinder Pipe</td>
<td>W-0500</td>
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<td>Cathodic Protection Test Station Steel Cylinder Pipe</td>
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<td>Double Check Valve Backflow Prevention Assy. (Do not use)</td>
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<td>4&quot; x 2 1/2&quot; Fire Hydrant - Standard</td>
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WESTERN MUNICIPAL WATER DISTRICT STANDARD DRAWINGS

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Recycled Water Service 1 ½” and 2”
¾” Through 2” Outlet Saddle Steel Cylinder Pipe
1” Air Vacuum & Air Release Valve Assembly
Thrust Block Installation Class 150 & 200
2” Air Vacuum & Air Release Valve Assembly
Typical Valve Installation AWWA C-900 P.V.C. Pipe
6” Blow-off Assembly (Below Ground)
Recycled Water Service ¾” and 1”
Gate Valve Assembly
Water/Sewer location
4” Guard Posts
Trench Backfill Standard No. 818
Excavation and Backfill Details
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Pressure Reducing Station Type "A" (Gen Notes and Mat List) Page 3 of 4
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Thrust Block Installation Class 150 & 200
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Sewer Lift Station Guidelines – Lift Station Plan
Sewer Lift Station Guidelines – Hatch Plan
Sewer Lift Station Guidelines – Lift Station Section
Sewer Lift Station Guidelines – Control Building Plan
Sewer Lift Station Guidelines – Control Building Section
**NOTES:**

1. USE DOUBLE-PASS WELDS FOR FABRICATION & FIELD WELDS

2. SADDLE CURVATURE TO BE FORMED TO MEET WESTERN MUNICIPAL WATER DISTRICT (WMWD) PIPE DIAMETERS D₁ AS STATED

3. WHEN INSTALLED, OUTLET TO BE COATED WITH SAME COATING AS PIPE

4. FOR 3/4" SERVICE USE ALL 1" COPPER, SERVICE WELD SADDLE AND ANGLE STOP/CUSTOMER VALVE USE 3/4" TO 1" METER BUSHING FOR 3/4" SERVICES

---

**SADDLE DIMENSIONS**

<table>
<thead>
<tr>
<th>SERVICE SIZE</th>
<th>D₁</th>
<th>D₂</th>
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</thead>
<tbody>
<tr>
<td>3/4&quot;, 1&quot;</td>
<td>1 1/4&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>1 1/2&quot;, 2&quot;</td>
<td>2 1/2&quot;</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>
NOTES:

1. WATER NOTES PER WMWD STANDARDS.

2. DRAWING SIZE TO BE SIZE "D" AT FIRST PLAN CHECK (24"x36")

3. WATER IMPROVEMENT PLANS SHALL SHOW THE PAD ELEVATION OF ONE LOT NEAREST EACH INTERSECTION AND THE ELEVATION OF THE HIGHEST AND LOWEST LOT IN BETWEEN INTERSECTIONS.

4. MINIMUM CLEARANCE SHALL BE CONSISTENT WITH CA DEPARTMENT OF HEALTH MINIMUM O.D TO O.D

5. PAD ELEVATIONS (DESCRIBED IN 3 ABOVE) SHALL SHOW FOUR DIGITS TO THE LEFT OF THE DECIMAL POINT AND SHALL BE ACCURATE TO THE NEAREST ONE HALF FOOT.

LOCATION OF FIRE HYDRANT PER AGENCY OF LOCAL JURISDICTION

LEGEND
SYMBOLS AND ABBREVIATIONS PER STANDARD DRAWING W-0060

QUANTITY ESTIMATE

--- FEET OF --- PVC-C900
--- FEET OF --- INCH CML & C PIPE
--- EACH --- INCH GATE VALVE ASSY.
--- EACH --- INCH BLOWOFF VALVE ASSY.
FIRE HYDRANT LOCATIONS

INTERSECTIONS

LOT LINES

FIRE HYDRANT ASSEMBLY

PER AGENCY OF LOCAL JURISDICTION

WHARFHEAD FIRE HYDRANT ASSEMBLY

PER RIV. CO. STD 701

CENTER POINT

CUL-DE-SAC

END OF MAIN

NORMAL FLOW

FOUR WAY

THREE WAY

TYPICAL AIR VAC-AIR REL. VALVE ASSY.

NORMAL FLOW

TYPICAL PLAN LAYOUT

VALVE LOCATIONS

(USUAL LOCATIONS SHOWN; MAY VARY WITH SYSTEM)
NOTES:

1. ALL PIPE FITTINGS BETWEEN AND INCLUDING THE STOPS SHALL BE:
   a. BE MADE OF BRASS OR BRONZE
   b. BE DESIGNED FOR MORE THAN 175 PSI (COLD) WATER WORKING PRESSURE

2. ALL STEEL OR IRON SHALL BE COATED, PROTECTED AND INSPECTED PER SPECIFICATIONS PRIOR TO PLACING BACKFILL.

3. CORRUGATED FLEXIBLE AND SERVICE LINE WITHIN 3' OF SADDLE SHALL BE COATED WITH NO-OX OIL OR TRENTOX TEMPRISE 3000 PRIMER, 20 ML WRAP OR WAX TAPE WRAP SYSTEM PER APPROVED MATERIALS LIST.

4. ALL SERVICE PIPE & TUBING SHALL BE LAID ON A CONSTANT SLOPE UP FROM THE WATER MAIN TO METER. NO DIPS OR POCKETS IN LINE WILL BE PERMITTED.

5. THREAD NOTATION SHOWS THIS:
   P = IRRON PIPE THREAD

6. METER BOX IS TO BE LOCATED PER STANDARDS OF AGENCY OF LOCAL JURISDICTION. LOCATION ALONG LOT FRONTAGE WITH WESTERN INSPECTOR.
   SIDEWALK - PLACE METER TOUCHING SIDEWALK NO SIDEWALK - PLACE METER 3' FROM BACK OF CURB
   NO CURB - PLACE METER AT BACK EDGE OF ROW

7. METER BOXES SHALL BE ONE-PIECE POLYMER CONCRETE WITH TOUCH READ LID PER APPROVED MATERIALS LIST.

8. CUSTOMER PIPING REQUIRED TO BE BRASS FOR 6' MINIMUM WITH NO JOINTS OR ADAPTERS ALLOWED.

9. MINIMUM 10'-0" SEPARATION BETWEEN SEWER LATERAL AND WATER SERVICE

10. BACKFLOW DEVICE MUST BE INSTALLED WITHIN 5'-0" OF CUSTOMER VALVE.

STANDARD DRAWING
DOMESTIC WATER SERVICE
3/4" AND 1"

W-0070
NOTES:
1. ALL PIPE & FITTINGS BETWEEN AND INCLUDING THE STOPS SHALL:
   A) BE MADE OF BRASS OR BRONZE
   B) BE DESIGNED FOR MORE THAN 175 PSI (COLD) WATER WORKING PRESSURE.
2. ALL BARE STEEL OR IRON SHALL BE COATED AND PROTECTED AS PER SPECS.
   PRIOR TO PLACING BACKFILL.
3. PRESSURE TEST PRIOR TO WRAPPING OR BACKFILLING.
4. CORP. STOP FITTINGS AND SERVICE LINE WITHIN 3' OF SADDLE SHALL BE
   COATED WITH #1170 PRIMER AND 20 MIL. MIN. WRAP.
5. METER BOXES SHALL BE POLYMER WITH POLYMER CONCRETE ONE PIECE TOUCH READ LID.

1. ALL SERVICE PIPE AND TUBING SHALL
   BE LAYED ON A CONSTANT SLOPE UP FROM
   THE WATER MAIN TO METER. NO DIPS
   OR POCKETS IN LINE WILL BE PERMITTED.
2. THREAD NOTATION SHOWS THUS:
   I.P. - IRON PIPE THREAD.
3. METER BOX IS TO BE LOCATED PER
   AGENCY OF LOCAL JURISDICTION
   COORDINATE LOCATION ALONG LOT
   FRONTAGE WITH W.M.W.D. INSPECTOR.
4. THE BACKFLOW DEVICE SHALL BE AS CLOSE
   AS PRACTICAL TO THE METER WITH NO OUTLET
   CONNECTIONS OR TEES BETWEEN.
5. BACKFLOW ASSEMBLIES
   SUPPLIED AND INSTALLED BY CONTRACTOR
   1 1/2" OR 2" THREADED BRASS
   FULL CIRCUMFERENCE
   SADDLE REQUIRED FOR
   AWWA C-900 P.V.C. PIPE
   ONLY.
6. THE BACKFLOW PREVENTION ASSEMBLY
   SHALL BE SIZED IN ACCORDANCE WITH THE UNIFORM
   PLUMBING CODE.

DO NOT USE. REFER TO W-0110A
NOTES:

1. CUSTOMER SHALL SUPPLY AND INSTALL A USC APPROVED LEAD FREE BACKFLOW PREVENTION ASSEMBLY (BPA) TO STATE REGULATIONS, UNIFORM PLUMBING CODE AND SPECIFICATIONS OF WMWD APPROVED MATERIAL LIST.

2. BPA SHALL BE SIZED TO MATCH THE DIAMETER OF THE SUPPLY METER OR UP TO 1" LARGER IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE.

3. BPA SHALL BE INSTALLED WITH NO OUTLETS, TEES OR CONNECTIONS BETWEEN THE METER AND THE BPA.

4. MAINLINE MATERIAL FROM THE DOWNSTREAM SIDE OF THE METER TO THE DOWNSTREAM SIDE OF THE BPA SHALL CONSIST OF BRASS OR COPPER.

5. BPA SHALL BE INSTALLED AS CLOSE AS PRACTICAL TO THE METER BUT NOT FURTHER THAN 3 FT. UNLESS A VARIANCE IS OBTAINED FROM A WMWD CROSS CONNECTION CONTROL SPECIALIST PRIOR TO INSTALLATION.

6. UPON INSTALLATION AND PRIOR TO WATER DELIVERY, THE BPA SHALL BE INSPECTED, TESTED AND CERTIFIED BY A RIVERSIDE COUNTY CERTIFIED BACKFLOW TESTER THAT IS LISTED ON THE WMWD APPROVED BACKFLOW TESTER LIST. COMPLETED TEST REPORTS SHALL BE FORWARDED TO THE WMWD CROSS CONNECTION CONTROL / BACKFLOW DEPARTMENT.

7. BACKFLOW CERTIFICATION / TESTING IS REQUIRED ANNUALLY AT A MINIMUM, BUT MAY BE REQUIRED MORE FREQUENTLY IF WMWD DEEMS NECESSARY. THE CUSTOMER IS RESPONSIBLE TO TEST AND MAINTAIN THE BPA.
LINESETTER UNIT IS AVAILABLE PREASSEMBLED
BY FORD METER BOX CO. (ASSEMBLY # LSVBG-95040-016)
JAMES JONES LINESETTER (PART NO. J05CCT5F1PAM8B04AH)

TO BE USED IN CONJUNCTION WITH W.M.W.D.
STANDARD DRAWING W-0070

REVISIONS
NO. DATE INITIAL DESCRIPTION APPD. DATE

APPROVED DATE: 5/26/21
DIRECTOR OF OPERATIONS

APPROVED DATE: 6/2/2021
DIRECTOR OF ENGINEERING

STANDARD DRAWING
LINESETTER ASSEMBLY

STD. DWG.
W-0120
ALL WELDS TO BE FULL-WELD, DOUBLE-PASS
REPAIR COATING TO CONDITION

GENERAL NOTES:
1. OUTLETS ARE DESIGNED FOR MAXIMUM PRESSURE OF 225 PSI. IF GREATER TEST PRESSURE IS REQUIRED, CONTACT DISTRICT FOR NEW SIZES.
2. FABRICATION TO BE AS PER LATEST API-ASME CODE FOR UNFIRED PRESSURE VESSELS.

<table>
<thead>
<tr>
<th>OUTLET</th>
<th>SADDLE</th>
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<tbody>
<tr>
<td>d</td>
<td>T1(min.)</td>
</tr>
<tr>
<td>4&quot;</td>
<td>12 ga.</td>
</tr>
<tr>
<td>6&quot;</td>
<td>12 ga.</td>
</tr>
<tr>
<td>8&quot;</td>
<td>12 ga.</td>
</tr>
<tr>
<td>10&quot;</td>
<td>10 ga.</td>
</tr>
<tr>
<td>12&quot;</td>
<td>3/16&quot;</td>
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</tbody>
</table>
NOTES:
1. VALVE RISER TO BE 12 GA. (MIN.) DOUBLE-DIPPED ASPHALT COATED STEEL PIPE. (P.V.C. IN PAVED AREA ONLY)
2. CENTER AND PLUMB RISER OVER GATE VALVE OPERATING NUT.
3. GATE VALVE CAP TO BE PAINTED GROUND TRAFFIC BLUE
4. ALL PIPE, FLANGES, GATE VALVES, AND OTHER PIPELINE MATERIALS, SHALL BE CLASS 150 (175WPP) MINIMUM; OR HIGHER CLASS AS SHOWN ON PLANS.

CENTER & PLUMB OVER OPERATING NUT
8" I.D.x1/4" P, SPOKED WHEEL, OPTIONAL. TACK WELDED TO SHAFT EXTENSION
SHAFT EXTENSION REQUIRED WHERE TOP OF VALVE IS MORE THAN 3' BELOW FINISH GROUND SURFACE. 1-1/4" DIA. STD. BLACK PIPE PAINTED W/PRIMER AFTER FABRICATION # 5010.

FOR STEEL PIPE USE RING FLANGES, BOLTS, ETC. FOR C900 PVC PIPE USE FLANGE ADAPTER BY GRIP-TYPE (OR APPROVED EQUAL) OR SLIP ON VALVE.

THRU BLOCK

ALT. SLIP ON VALVE

LINE VALVE

CUT TO FIT VALVE BODY INSTALLATIONS.

COMPACTED BACKFILL

VALVE SIZE & LOCATION AS SHOWN ON JOB PLAN AND PROFILE SHEETS.

8" O.D. DOUBLE-DIPPED ASPHALT COATING OR P.V.C., SDR-35 IN PAVED AREA ONLY

TOP SECTION SLIP CAN LENGTH 12", 18" OR 24" AS REQUIRED

12 GA. GALV. SLIP CAN 8 O.D.

2" SQ. OPERATING NUT

1/4" P, SPOKED WHEEL, OPTIONAL. TACK WELDED TO SHAFT EXTENSION

6" I.D. x 1/4" P, SPOKED WHEEL, OPTIONAL. TACK WELDED TO SHAFT EXTENSION

GATE VALVE CAP WITH 6" SKIRT(MARK: W.M.W.D. WATER) PAINTED GROUND TRAFFIC BLUE.

FINISHED GROUND SURFACE

ADJUST CAP & RIM FLUSH TO 1/4" HIGH ABOVE FINISHED PAVEMENT. GRADE &/OR 1" ABOVE NATURAL GROUND SURFACE

STD. DWG.
NO.
W-0150

DIRECTOR OF ENGINEERING

APPROVED DATE: January 1, 2011

STANDARD DRAWING
GATE VALVE ASSEMBLY
VALVE INSTALLATION AT FITTINGS

AWWA C-900 PVC PIPE

LINE VALVE INSTALLATION

MIN. 4" BOLT & NUT CLEARANCE

SUPPORT BLOCK

FLANGED GATE VALVE (SUPPORT BLOCK NOT SHOWN)

FLANGE BY MJ ADAPTER

FLANGE BY MJ ADAPTER

AWWA C-900 P.V.C. PIPE
NOTES:

1. ALL MATERIALS SHALL BE CLASS 150 (MINIMUM).

2. NON-OXIDE GREASE AND POLY PLASTIC WRAP ALL FITTINGS AND VALVES.

3. REPAIR PIPE COATING WITH APPROVED MATERIAL OF SIMILAR NATURE.

4. IN UNPAVED AREAS, GATE VALVE RISER AND CAP SHALL BE INSTALLED 3" ABOVE GRADE.

5. HOSE THREADS TO BE NATIONAL STANDARD.

6. SET WARFHEAD OUTLET AT 90° TO CURB.

7. ALL SUPPORT BLOCKS TO BE Poured AGAINST UNDISTURBED EARTH. USE CONCRETE PER WESTERN STANDARD.

8. PAINT ALL MATERIAL ABOVE GRADE WITH PRIMER AND TWO COATS OF SAFETY YELLOW PER APPROVED MATERIALS LIST.

9. RESTRAINED FLANGE COUPLING ADAPTER.

10. FOR TEMPORARY ADD VALVE UP STREAM AND BLIND FLANGE DOWNSTREAM.

11. CONSTRUCT A 3"x3"x8" CONCRETE PAD 1" BELOW SET SCREWS ON CHECK VALVE.

12. BOLTS TO BE TRIPAK BLUE 2000.

13. MAIN GREATER THAN 12" REQUIRES 24" SPOOL. MAIN GREATER THAN 36" TO BE DETERMINED IN FIELD.

* PER LOCAL AGENCY OR JURISDICTION.
NOTES:
1. OMIT WHERE WELDED PIPE JOINT REQUIRED, OR RING-SEAL JOINT IS WELDED FOR THRUST.

2. FORCE 1/4" DIA. ROD INTO PLACE. AT ONE END, WELD TO BELL. AT OTHER, WELD TO SPIGOT. REQ'D LENGTH OF WELD EACH END=D/6 (1" MIN.; 4" MAX.)

3. WELD AS SHOWN. DO NOT WELD EITHER END TO BOTH BELL & SPIGOT OF Pipe.
NOTE:
UNLESS OTHERWISE STATED ON DRAWING OR SPECIFICATIONS, OR DIRECTED BY THE ENGINEER:
1. INSTALL BOND WIRE IN ACCORDANCE WITH DRAWING W-0310.

RUBBER GASKET JOINT
FORMED BELL & SPIGOT JOINT
STEEL CYLINDER PIPE
(BOND WIRE OMITTED FOR CLARITY)
FOR STEEL CYLINDER PIPE 14"Ø AND LARGER

IF NOT DONE PROPERLY, COULD CAUSE CML TO BREAK AND FALL INTO PIPE. DIFFICULT TO REPAIR.

HEAT & BEND END OF BELL (STARTING AT BOTTOM OF PIPE) AS SHOWN. DOUBLE PASS, FULL WELD TO SPIGOT.

FOR STEEL CYLINDER PIPE 12"Ø AND SMALLER

CEMENT MORTAR LINING

FIELD APPLIED CEMENT MORTAR COATING
WELDED JOINT DETAIL
(DOUBLE PASS, FULL WELD)

*NOTE: INTERIOR AND EXTERIOR WELDS
T = THICKNESS OF STEEL WALL OF PIPE
CEMENT GROUT POURED IN FIELD WITH DIAPER

2 PASSES

CEMENT-MORTAR LINING

FIELD APPLIED MORTAR

LAP WELDED SLIP JOINT
BELL-END STEEL CYLINDER PIPE

\( t = \text{THICKNESS OF STEEL WALL OF PIPE} \)
BELL END OF BELL-ENDED, LAP-WELDED, SLIP-JOINT PIPE SECTION
CEMENT MORTAR COATING
CEMENT GROUT Poured in FIELD
2 PASSES

FIELD APPLIED MORTAR
PIPE LINING

FIELD CONNECTION
WELD BELL TO SPIGOT JOINT

t = THICKNESS OF STEEL WALL OF PIPE
FINISH EXPOSED SURFACES TO BE COATED PER PROJECT SPECS.

THICKNESS CONTROL DIMENSION FOR BOLT LENGTH CLEARANCE

WRENCH CLEARANCE

STANDARD DRAWING
SLIP ON WELD FLANGE JOINT
CML&CMC PIPE, 14" DIA. & LARGER

ALTERNATE - A

STEEL SLIP-ON WELD FLANGE WITH SERRATED FACE

FIELD APPLIED COATING

CEMENT MATERIAL COATING

CEMENT MORTAR LINING

WIRE MESH PER PROJECT SPECS

T = THICKNESS OF STEEL WALL OF PIPE

ALTERNATE - B

1 = THICKNESS OF STEEL WALL OF PIPE
STEEL SLIP-ON WELD FLANGE
WITH SERRATED FACE

FIELD APPLIED CEMENT MORTAR COATING

T 2 PASS

PIPE COATING

CEMENT MORTAR LINING

ALTERNATE - A

STEEL SLIP-ON WELD FLANGE
WITH SERRATED FACE

FIELD APPLIED CEMENT MORTAR COATING

T 2 PASS

PIPE COATING

CEMENT MORTAR LINING

ALTERNATE - B
AFTER ASSEMBLY, ALL BARE METAL TO HAVE SAME COATING APPLIED AS IS ON PIPE

ASSEMBLED VIEW
(PIPE COATING OMITTED FOR CLARITY)

PIPE LINING
FIELD APPLIED MORTAR (ALL AROUND)

MINIMUM 3/16"

SPLIT BUTT-STRAP JOINT
FULL DOUBLE PASS WELD SHUT

t = THICKNESS OF STEEL WALL OF PIPE

MINIMUM 10"

2 PASSES

January 1, 2011
NOTES:

1. ALL MATERIALS FURNISHED TO BE OF THE PIPE PRESSURE CLASS CALL FOR ON PLANS.

2. UNLESS NOTED OTHERWISE, ALL THREADS TO BE STANDARD IRON PIPE SIZE THREADS.

3. GUARD POSTS, AS REQUIRED ON PLANS OR SPECIFICATIONS, SEE STANDARD DRAWING No. W-1520.

4. CORPORATION STOP AND FITTINGS AT WATER PIPELINE SHALL BE PRIMED WITH NON-OXIDE AND WRAPPED WITH 20 MIL. MINIMUM.

5. VALVE BOX SHALL BE 8 3/4" DIAMETER BROOKS PRODUCTS No. 1-RT OR EQUIVALENT.

6. 1/2" DIAMETER x 4" LONG TYPE STAINLESS STEEL ANCHOR BOLT (3 EACH AT 120 DEGREE APART WITH 2-PART EPOXY AND STAINLESS STEEL NUTS AND WASHERS).
   - PER LOCAL AGENCY OR JURISDICTION.

STANDARD DRAWING

1" OR 2" AIR VACUUM AND AIR RELEASE VALVE ASSEMBLY

STD. DWG. NO.
W-0460
TEST STATION TO BE LOCATED AT LOCATIONS SHOWN ON DRAWINGS

4" X 72" MARKER
(CARSONITE "CURV-FLEX"
UTILITY MARKER W/ ANCHOR BARB KIT. STD. DWG. W-1520

CONCRETE C.P. TEST BOX PER APPROVED MATERIAL'S LIST
(CHRISTY 605T TRAFFIC VALVE BOX (10 3/8" I.D. X 12" H
COVER MARKED "WMWD CP TEST"

FLANGE INSULATION GASKET KIT
ADVANCE PRODUCTS TYPE E WITH SINGLE WASHER SET (OR EQUAL)
PER DIST. INSPECTOR.

STEEL CYLINDER PIPE

COPPER-COPPER REFERENCE ELECTRODE

FLANGE INSULATION GASKET KIT
ADVANCE PRODUCTS TYPE E WITH SINGLE WASHER SET (OR EQUAL)
PER DIST. INSPECTOR.

NOTE:
1. COPPER – COPPER SULFATE REFERENCE ELECTRODE
WHEN CALLED OUT ON PLANS OR IN CORROSION REPORT.

2. LEAD WIRES SHALL BE 36" DEEP THROUGH ROAD SHOULDER AND 24" OTHERWISE.

3. ISOLATION FLANGE MUST BE TESTED WITH ABOVE GROUND ISOLATOR TESTER BY WESTERN INSPECTOR PRIOR TO BACK FILL.

NOTES:

1. COPPER – COPPER SULFATE REFERENCE ELECTRODE WHEN CALLED OUT ON PLANS OR IN CORROSION REPORT.

2. LEAD WIRES SHALL BE 36" DEEP THROUGH ROAD SHOULDER AND 24" OTHERWISE.

3. ISOLATION FLANGE MUST BE TESTED WITH ABOVE GROUND ISOLATOR TESTER BY WESTERN INSPECTOR PRIOR TO BACK FILL.
4" X 72" PIPE UTILITY MARKER, CARSONITE "CURVE-FLEX" 4" X 72" W/ ANCHOR BARB KIT "SAFETY YELLOW" (DOMESTIC WATERLINE) OR "PURPLE" (RECYCLED) WATERLINE. (BY DISTRICT)

GENERAL NOTES:
1. TEST STATIONS TO BE INSTALLED AT LOCATIONS SHOWN ON JOB DRAWINGS.
2. BOX TO BE FIELD LOCATED PER WMWD INSPECTOR.

CONCRETE C.P. TEST BOX PER APPROVED MATERIALS LIST. (CHRISTY G05T TRAFFIC VALVE BOX W/ CAST IRON COVER MARKED WMWD "CP TEST"

STEEL CYLINDER PIPE

HAND BACKFILL IN AREA OF WIRE

SECURE WIRE ENDS TO PIPE 6" APART (TYP.) BY THERMITE WELDS OR PIN BRAZE METHOD. COAT BARE METAL WITH #1170 PRIMER & #200-A PROTECTO WRAP. SEE STD. DWG. W-0840.

2- #8 HMWPE BLACK COPPER WIRES TWISTED OR TAPED TOGETHER; 4' SLACK MIN. IN CTS BOX.
4" PIPE MARKER POST PAINTED
"SAFETY YELLOW" (DOMESTIC WATERLINE) OR "PURPLE"
(RECYCLED) WATERLINE. LABEL C.T.S.
2"H X 1"W LETTERING
1/4" x 1" BRASS OR COPPER NUTS,
BOLTS, AND WASHER

4" P.V.C. CAP
ATTACH #8 WIRE
WITH 1/4" EYE CONNECTOR

2' SLACK
HAND BACKFILL
IN AREA OF WIRE

SECURE WIRE ENDS TO PIPE BY THERMITE WELDS OR PIN BRAZE METHOD. COAT BARE METAL WITH #1170 PRIMER & #200-A PROTECTED WRAP APPLY MORTAR ON CML&C PIPE, SEE STANDARD DWG. W-0840.

STEEL CYLINDER PIPE
STRANDED HMWPE BLACK COPPER WIRE INSULATION & JACKET: 2-#8 HMWPE AND 4-#8 HMWPE

GENERAL NOTES:
1. TEST STATIONS TO BE INSTALLED AT LOCATIONS SHOWN ON JOB DRAWINGS.
2. TO BE FIELD LOCATED PER WMWD INSPECTOR.
NOTES:

1. ALL PIPE & FITTINGS BETWEEN AND INCLUDING THE STOPS SHALL:
   A. BE MADE OF BRASS OR BRONZE.
   B. BE DESIGNED FOR MORE THAN 175 PSI (COLD) WATER WORKING PRESSURE.

2. ALL BARE STEEL OR IRON SHALL BE COATED AND PROTECTED AS PER SPECS PRIOR TO PLACING BACKFILL.

3. PRESSURE TEST PRIOR TO WRAPPING OR BACKFILLING.

4. THE BACKFLOW DEVICE SHOULD BE AS CLOSE AS PRACTICAL TO THE METER WITH NO OUTLET CONNECTIONS OR TEES BETWEEN.

5. UPON INSTALLATION AND PRIOR TO WATER DELIVERY, THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND CERTIFIED BY A TESTER POSSESSING A CERTIFICATE OF COMPETENCY ISSUED BY COUNTY DEPT. OF HEALTH AND APPROVED BY WMWD. COMPLETED TEST REPORTS SHALL BE FORWARD TO WMWD BACKFLOW PREVENTION PROGRAM DEPARTMENT. BACKFLOW PREVENTION ASSEMBLY TESTING IS REQUIRED ANNUALLY. ACCESS TO DEVICE FOR TESTING MUST BE MAINTAINED.

DOUBLE CHECK VALVE ASSEMBLY
USC APPROVED BACKFLOW PREVENTION DEVICE

DO NOT USE

1 1/2" OR 2" THREADED RED BRASS
METER SUPPLIED AND INSTALLED BY WMWD

UNION (THREADED)
OPERATED AND MAINTAINED BY WMWD
OPERATED AND MAINTAINED BY CUSTOMER

12" MIN.
FLOW
FINISH GRADE

METER
SUPPLIED AND INSTALLED BY
WMWD

DOUGLAS H. HULL
DIRECTOR OF ENGINEERING

APPROVED DATE: January 1, 2011

STANDARD DRAWING
2" METER AND SMALLER
BACKFLOW PREVENTION ASSY.

STD. DWG. NO.
W-0520
MATERIALS:
1. ALL PIPES AND FITTINGS SHALL BE DESIGNED FOR 175 P.S.I. (WMWD SYSTEM WORKING PRESSURE).
2. ALL BARE STEEL OR IRON SHALL BE COATED AND PROTECTED AS PER SPECIFICATIONS PRIOR TO PLACING BACKFILL.
3. LOCATION OF BACKFLOW ASSEMBLY TO BE APPROVED BY LOCAL JURISDICTION PRIOR TO INSTALLATION.
4. EASEMENT TO BE GRANTED TO WMWD FOR METER READING PURPOSES.

5. DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER ASSEMBLY WITH BYPASS METER APPROVED BY USB.
6. FACTORY INSTALLED BYPASS METER ASSEMBLY COMPRISING OF APPROVED METER AND DOUBLE CHECK DETECTOR ASSEMBLY PER WMWD STANDARD SPECIFICATION METER TO BE USED FOR FIRE SYSTEMS ONLY. METER READS IN CUBIC FEET AND MODEL TO BE APPROVED BY WMWD.
7. ADJUSTABLE PIPE SUPPORT FOR ASSEMBLIES 6-INCH DIAMETER AND LARGER PER W-1568.
8. MIN 12" TO MAX 36" VERTICAL CLEARANCE MUST BE PROVIDED FROM BOTTOM OF ASSEMBLY TO TOP OF CONCRETE PAD.
9. PIPELINE MATERIAL AFTER BACKFLOW ASSEMBLY TO BE APPROVED BY LOCAL JURISDICTION.

NOTES:
1. SITE PLAN AND TYPE OF DOUBLE CHECK DETECTOR ASSEMBLY TO BE APPROVED BY WMWD PRIOR TO INSTALLATION.
2. THE DOUBLE CHECK DETECTOR ASSEMBLY SHOULD BE INSTALLED AS CLOSE AS PRACTICAL TO THE SERVICE CONNECTION WITH NO OUTLET CONNECTIONS OR TEES.
3. ALL WELDS TO BE FULL WELD, DOUBLE-PASS.
4. TRIPAK BLUE 2000 BOLTS REQUIRED. ALL FLANGES BOLTED IN THE FIELD.
5. ALL DUCTILE IRON (DI) JOINTS SHALL BE RESTRAINED.
6. RETAINING WALLS MAY BE REQUESTED DEPENDING ON SLOPE OR LOCATION FOR PROTECTION PURPOSES.
7. FIRE SYSTEM USING ONSITE PUMP IS REQUIRED TO INSTALL BYPASS METERING LOOP AND INSERTION FLOW METER FOR EACH PUMP.
NOTES:

1. SIZE AND TYPE OF R.P. BACKFLOW DEVICE TO BE APPROVED BY W.M.W.D. BEFORE INSTALLATION. LOCATION TO BE APPROVED BY THE CITY OF RIVERSIDE OF THE COUNTY OF RIVERSIDE BEFORE INSTALLATION.

2. PIPING PER W.M.W.D. STANDARD DRAWING NO. W-0520 OR W-0110.


4. FIRE SERVICE CONNECTION PER W.M.W.D. STANDARD DRAWING NO. ALTERNATE W-0530 P1

APPROVED DATE: January 1, 2011

DIRECTOR OF ENGINEERING

STANDARD DRAWING
BACKFLOW ASSY W/
BY-PASS METER FOR FIRE
DEPARTMENT CONNECTION

STD. DWG. NO.
W-0530p2
MATERIALS:
1. All pipes and fittings shall be designed for 175 psi. (WMWD System Working Pressure).
2. All bare steel or iron shall be coated and protected as per specifications prior to placing backfill.
3. Location of backflow assembly to be approved by local jurisdiction prior to installation.
4. Easement to be granted to WMWD for meter reading purposes.

5. Reduced pressure backflow preventer assembly with bypass meter approved by USC.
6. Factory installed bypass meter assembly comprising of approved meter and reduced pressure principal assembly per WMWD standard specification meter to be used for fire systems only. Meter reads in cubic feet and model to be approved by WMWD.
7. Adjustable pipe support for assemblies 6-inch diameter and larger per W-1588.
8. Min 12-inch to max 36-inch vertical clearance must be provided from bottom of relief valve to top of concrete pad.
9. Pipeline material after backflow assembly to be approved by local jurisdiction.
10. RPOA relief valve.

NOTES:
1. Site plan and type of reduced pressure detector assembly to be approved by WMWD prior to installation.
2. The reduced pressure detector assembly should be installed as close as practical to the service connection with no outlet connections or tees.
3. All welds to be full weld, double-pass.
4. Tripak blue 2000 bolts required. All flanges bolted in the field.
5. All ductile iron (DI) joints shall be restrained.
6. Retaining walls may be requested depending on slope or location for protection purposes.
7. Fire system using onsite pump is required to install bypass metering loop and insertion flow meter for each pump.

PLAN VIEW

OPERATED AND MAINTAINED BY W.M.W.D.
OPERATED AND MAINTAINED BY CUSTOMER

GATE VALVE WITH TAMPER SWITCH

FINISHED GRADE

CONCRETE PAD 18" CLEAR SPACE ON ALL SIDES (MIN 8" THICK)

ELEVATION VIEW

LINE SIZE GATE VALVE PER W-0150

DIP SPOOL

CONCRETE THRUST BLOCK

1 2 DIP SPOOL

C900 PVC 1 2

SEE NOTE 8

90° MJ X FLANGE DI

TO CUSTOMER

MAIN (FLANGED TEE OR TAPPING SLEEVE)

FLANGED COUPLING ADAPTOR X MJ

W-0531

DIRECTOR OF OPERATIONS

DIRECTOR OF ENGINEERING

APPROVED DATE:  

APPROVED DATE:  

STANDARD DRAWING

REDUCED PRESSURE DETECTOR ASSEMBLY
BACKFLOW PREVENTOR 4", 6", 8", 10" OR 12"
### TABLE "A"

<table>
<thead>
<tr>
<th>CASING DIAMETER &quot;D&quot; (INCHES)</th>
<th>STREETS &amp; HWYS (THICKNESS &quot;T&quot; MINIMUM)</th>
<th>RAILROADS (THICKNESS &quot;T&quot; (MINIMUM))</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>UP TO 150' LENGTH</td>
<td>OVER 150' LENGTH</td>
</tr>
<tr>
<td>4&quot; - 10&quot; OD</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>12&quot; - 16&quot; OD</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
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<tr>
<td>62&quot; - 72&quot; OD</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. THE ANNULAR SPACE BETWEEN THE CARRIER PIPE AND CASING SHALL NOT BE FILLED UNLESS OTHERWISE SPECIFIED ON THE PLANS.

2. RESTRAIN OR WELD ALL JOINTS FOR CARRIER PIPE WITHIN CASING.

3. MINIMUM CASING WALL THICKNESS "T" SPECIFIED IN "TABLE A" IS REQUIRED FOR CASING IN PLACE, AND DOES NOT ACCOUNT FOR CONSTRUCTION LOADS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE STRUCTURAL SUFFICIENCY OF THE CASING DURING CONSTRUCTION, AND ALSO THE METHOD OF INSTALLATION.

4. IF CARRIER PIPE IS NON-METALLIC DELETE CATHODIC TEST LEADS TO CARRIER PIPE.
NOTES:

1. ALL MATERIALS SHALL BE CLASS 175 WWP (MINIMUM).
2. COAT ALL BARE METAL WITH NON-OXIDE GREASE, OR TRENTON PRIMER AND POLY PLASTIC WRAP.
3. REPAIR PIPE COATING WITH APPROVED MATERIAL OF SIMILAR NATURE.
4. HOSE THREADS TO BE NATIONAL STANDARD.
5. ALL WELDS ON CML PIPE TO BE FULL WELD, DOUBLE-PASS.
6. SET HYDRANT WITH OUTLETS AT 45' TO CURB.
7. ALL THRUST BLOCKS TO BE Poured AGAINST UNDISTURBED EARTH. USE CLASS "C" CONCRETE.
8. RESTRAINED FLANGE COUPLING ADAPTER.
9. PAINT ALL MATERIAL ABOVE GRADE WITH TWO COATS OF SAFETY YELLOW. HYDRANT CAPS TO BE PAINTED WITH COLOR AS PER CODE OF AGENCY (CITY/COUNTY) HAVING JURISDICTION.
10. CONSTRUCT A 3'x3'x8" CONCRETE PAD 1" BELOW SET SCREWS ON CHECK VALVE.
11. BOLTS TO BE TRIPAK BLUE 2000.
* PER LOCAL AGENCY OR JURISDICTION.
1. ALL MATERIALS SHALL BE CLASS 175 WWP (MINIMUM).
2. COAT ALL BARE METAL WITH NON-OXIDE GREASE, OR TRENTON PRIMER AND 20 MIL MINIMUM WRAP.
3. REPAIR PIPE COATING WITH APPROVED MATERIAL OF SIMILAR NATURE.
4. IN UNPAVED AREAS, GATE VALVE RISER AND CAP SHALL BE INSTALLED 6" BELOW GRADE.
5. HOSE THREADS TO BE NATIONAL STANDARD.
6. ALL WELDS ON CML PIPE TO BE FULL WELD, DOUBLE-PASS.
7. SET HYDRANT WITH OUTLETS AT 45° TO CURB.
8. ALL SUPPORT BLOCKS TO BE Poured AGAINST UNDISTURBED EARTH. USE CLASS "C" CONCRETE.
9. RESTRAINED FLANGE COUPLING ADAPTER.
10. PAINT ALL MATERIAL ABOVE GRADE WITH TWO COATS OF SAFETY YELLOW. HYDRANT CAPS TO BE PAINTED WITH COLOR AS PER CODE OF AGENCY (CITY/COUNTY) HAVING JURISDICTION.
11. CONSTRUCT A 3"x3"x8" CONCRETE PAD 1" BELOW SET SCREWS ON CHECK VALVE.
12. BOLTS TO BE TRIPAK BLUE 2000.

* PER LOCAL AGENCY OR JURISDICTION.
NOTES:
1. VALVE RISER TO BE 12 GA. (MIN.) DOUBLE-DIPPED ASPHALT COATED STEEL PIPE. (P.V.C. IN PAVED AREA ONLY)
2. CENTER AND PLUMB RISER OVER GATE VALVE OPERATION NUT.
3. VALVE CAP TO BE PAINTED GROUND TRAFFIC BLUE
4. ALL PIPE, FLANGES, GATE VALVES, AND OTHER PIPELINE MATERIALS, SHALL BE CLASS 150 (175 WWP) MINIMUM; OR HIGHER CLASS AS SHOWN ON PLANS
5. ALL STEEL FLANGES SHALL BE PRIMED AND COATED PER WMWD SPECS.
6. CONCRETE SUPPORTS TO AVOID INTERFERENCE WITH BOLTS OR HUB END CONNECTIONS AND Poured AGAINST UNDISTURBED EARTH.
A 1" BALL VALVE WILL CONTROL THE WATER FLOW, AND BE LOCATED BEFORE THE SAMPLING BIBB.

NOTES:

1. ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE, ALUMINUM-CAST HOUSING.

2. WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND THE WATER WILL FLOW IN AN ALL BRASS WATERWAY.

3. ALL WORKING PARTS WILL BE OF BRASS AND SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING.

4. A 1" BALL VALVE WILL CONTROL THE WATER FLOW, AND BE LOCATED BEFORE THE SAMPLING BIBB.
APPROVED PRECAST CONCRETE VAULT CARDER 60" DIA GSTA OR 60" NSTA OR EQUAL CONFORMING TO ASTM DESIGNATION C478 AND WITHSTANDING AASHTO/H-20 LOADING.

THE PURPOSE OF THIS INSTALLATION IS TO ALLOW FOR RECORDING OF FLOWS IN THE PIPE OVER A PERIOD OF TIME WITH A DEVICE CALLED A PITOT TUBE, WHICH IS INSERTED INTO THE PIPE THROUGH THE CORPORATION STOP.

NOTES:

1. APPROVED PRECAST CONCRETE VAULT CARDER 60" DIA GSTA OR 60" NSTA OR EQUAL CONFORMING TO ASTM DESIGNATION C478 AND WITHSTANDING AASHTO/H-20 LOADING.

2. THE PURPOSE OF THIS INSTALLATION IS TO ALLOW FOR RECORDING OF FLOWS IN THE PIPE OVER A PERIOD OF TIME WITH A DEVICE CALLED A PITOT TUBE, WHICH IS INSERTED INTO THE PIPE THROUGH THE CORPORATION STOP.

3. CONCRETE FOOTING MEMBERS TO HAVE REINFORCING BARS. LONGITUDINAL: 3 #6'S @ 3" SPACING TRANSVERSE: 7 #4'S @ 12" SPACING
NOTES:

1. VAULTS WITH H+COVER > 4.0' SHALL HAVE ACCESS LADDER. LANDING SHALL HAVE A MIN. CLEAR AREA OF 3' X 3'.
2. MANUFACTURES DESIGN DATA AND DRAWINGS FOR PRECAST CONCRETE VAULT W/BOTTOM SECTION, SHALL BE SUBMITTED AND APPROVED BY W.M.W.D. BEFORE INSTALLATION.
3. PROVIDE GRAVITY FLOW DRAIN PIPE FOR SUMP, OR IF POWER IS AVAILABLE, INSTALL SUMP PUMP WITH APPROPRIATE DRAIN PIPING. MUST DISCHARGE TO PUBLIC STORM DRAIN OF DRAINAGE SWALE WITH DRAINAGE EASEMENT.
4. LATERAL CLEARANCE BETWEEN THE PIPES, VALVES, AND FITTINGS SHALL BE A MINIMUM OF 4' O.D. TO O.D. AND 3' O.D. TO VAULT WALL.

UTILITY VAULT
N.T.S.
VENTILATION DUCT DETAIL

NOTE:
INSTALL STEEL CAGE TO PROTECT FAN & SWITCH IN AREAS SUBJECTED TO VANDALISM

SCALE: NTS

APPROVED DATE: May 13, 2015

STANDARD DRAWING
VENTILATION DUCT FOR VAULTS (CONFINED SPACE)

STD. DWG. NO.
W-0705

DIRECTOR OF ENGINEERING
RESTRAINT JOINT LENGTHS USAGE GENERAL NOTES:

1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED
2. FOR TEE RESTRAIN BOTH RUN-SIDE JOINTS AND INSTALL A FULL LENGTH OF PIPE ON EACH SIDE OF BRANCH.
3. THIRTY-SIX (36) INCHES MINIMUM DEPTH OF COVER
4. A SAFETY FACTOR OF 1.5
5. PIPE BEDDING PER WMWD STANDARD DRAWING W-1030
6. TEST PRESSURE 1.5 TIMES THE PRESSURE RATING OF THE PIPE PER WMWD SPECIFICATIONS
7. 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 APPROVED BY WMWD.
1. LOCATOR WIRE TO BE #14 COPPER-CLAD STEEL (CSS) WIRE PART #1430B-HS MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC

2. LOCATOR WIRE SHALL BE BROUGHT TO THE SURFACE BY FIRE HYDRANTS OR INSTALL MARKER POST. (FOR TRACT CONSTRUCTION CHISEL "LW" IN FACE OF CURB IN LIEU OF MARKER POST).

3. LOOP 2 FEET OF WIRE IN VALVE BOX WITHIN 2 FEET OF FIRE HYDRANT OR MARKER POST.

4. WIRE TO BE 14 AWG CONTINUOUS STRAND.

5. LOCATOR WIRE SHALL BE INSTALLED OVER ALL WATERLINES, AND SEWER FORCEMAINS WHETHER OR NOT TELEMETRY WIRE IS BURIED WITH THE PIPE.

6. A CONDUCTIVITY TEST IS TO BE PERFORMED ON ALL LOCATOR WIRES.

7. VALVE BOX SHALL BE A BROOKS 1-SP OR JR1-R OR EQUAL

8. ANY SPLICING OF LOCATING WIRE MUST BE APPROVED BY WESTERN, AND THE CONNECTION IS TO BE MADE WITH A DRYCONN DIRECT BURY LUG AS MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC
ANODE LEAD WIRES
TEST BOX (AT-GRADE)
PIPE LEAD WIRES
METALLIC PIPE
ALUMIN 0 - THERMIC WELD OR PIN BRAZE METHOD
REFERENCE ELECTRODE

15'-0" MIN.
10'-0" MIN.

PREPACKAGED ANODE

PLAN

12" x 12" x 12" CONCRETE PAD
PIECE LEAD WIRE

TEST BOX (AT-GRADE) FOR WIRING SEE STRD. DRAWING W#0850

PLASTIC WARNING TAPE "CORROSION TEST STATION" 12" ABOVE WIRES

FINISHED GRADE

ALUMIN 0 - THERMIC WELD SEE STANDARD DRAWING W#

METALLIC PIPE
PREPACKAGED ANODE (TYPICAL 5 PLACES) SEE STANDARD DRAWING W#0830

REFERENCE ELECTRODE LEAD 1- NO. 10 AWG STRD. COPPER WIRE W/WMW-PE INSUL.

REFERENCE ELECTRODE SEE STANDARD DRAWING W#0810

ELEVATION

NOTE: REFERENCE ELECTRODE SHALL NOT BE INSTALLED AT LOCATIONS WHERE THERE IS AN EXISTING TEST STATION

15'-0" MIN. TYP.

APPROVED DATE: January 1, 2011
DIRECTOR OF ENGINEERING
STANDARD DRAWING
ANODE TEST STATION INSTALLATION DETAIL
STD. DWG. NO.
W-0800
PREPACKAGED ANODE

ANODE LEAD WIRES

TEST BOX (AT GRADE)

PIPE LEAD WIRES

REFERENCE ELECTRODE

LEAD WIRE

PIN BRAZE METHOD

REFERENCE ELECTRODE

PLAN

TEST BOX (AT GRADE)
FOR WIRING SEE STD.
DRAWING W-0850

ANODE LEAD WIRE 5 -
NO. 12 AWG STD. COPPER
WIRE W/ HMW-PE INSULATION

PLASTIC WARNING TAPE
"CORROSIVE TEST
STATION" 12-INCHES
ABOVE WIRES

ALUMIN O-TERMIC
WELD SEE STD.
DRAWING W-0840

STEEL PIPE

PREPACKAGED ANODE
(TYPICAL 5 PLACES)
SEE STD. DRAWING
W-0830

REFERENCE ELECTRODE LEAD 1 -
NO. 10 AWG STD. COPPER WIRE W/ HMW-PE INSULATION

REFERENCE ELECTRODE SEE STD.
DRAWING W-0810

ELEVATION

PIPE LEAD WIRE 2 -
NO. 8 AWG STD.
COPPER WIRE W/ HMW-PE INSULATION

FINISHED GRADE

24" 36" 10-0"
MIN.

NOTE: REFERENCE ELECTRODE SHALL NOT BE INSTALLED AT LOCATIONS WHERE THERE IS AN EXISTING TEST STATION.

*NOTE*: THIS DETAIL REQUIRED FOR ALL HOT-TAPS, CONNECTIONS, AND REPAIRS TO STEEL PIPELINES.
GENERAL NOTES:

1. PLACE REFERENCE ELECTRODE IN TRENCH. ADJACENT AND PERPENDICULAR TO PIPE, EVEN WITH OR BELOW PIPE SPRING LINE.

2. AFTER REFERENCE ELECTRODE IS PLACED IN TRENCH, OR HOLE, SOAK WITH A MINIMUM TEN GALLONS OF FRESH WATER. DO NOT PRESOAK BEFORE INSTALLATION.

3. IMMEDIATELY AFTER SOAKING REFERENCED ELECTRODE IN TRENCH OR HOLE, BACK FILL WITH NATIVE SOIL ONLY. NO SAND. TAP BACKFIELD TO INSURE GOOD COMPACTION.

4. CONNECT REFERENCED ELECTRODE LEAD WIRE AND PIPE TEST LEAD WIRE TO SEPARATE TERMINALS IN TEST BOX. (DO NOT CONNECT TOGETHER). SEE STD. DWG. W-0850.

PREPACKAGED BACKFILL

REFERENCE ELECTRODE
LEAD - N0.10 AWG. STRD.
COPPER WIRE WITH HMW-PE INSULATION

WATERTIGHT CONNECTION

SATURATED COPPER SULFATE SOLUTION

COPPER ROD

PERMANENT TYPE COPPER COPPER SULFATE REFERENCE ELECTRODE

POROUS PLUG

CLOTH BAG

BACKFILL COMPOSITION
75% GYPSUM
20% BENTONITE
5% SODIUM SULFATE
NOTE:
1. HARDWARE QUANTITIES IN INSULATING FLANGE KIT WILL VARY BASED ON GASKET PATTERN AND PIPE SIZE.
2. ISOLATION FLANGE MUST BE TESTED WITH ABOVE GROUND ISOLATER TESTER BY WESTERN INSPECTOR PRIOR TO BACKFILL.
GENERAL NOTES:

1. PLACE PREPACKAGED ANODE IN 12" DIA HOLE 15 FOOT MIN. BELOW PIPE SPRING LINE.

2. AFTER PREPACKAGED ANODE IS PLACED IN HOLE, SOAK ANODE WITH A MIN. 25 GALLONS OF FRESH WATER. DO NOT PRESOAK BEFORE INSTALLATION.

3. IMMEDIATELY AFTER SOAKING ANODE IN HOLE, BACKFILL WITH THE NATIVE MATERIAL ONLY. NO SAND. TAP BACKFILL TO INSURE GOOD COMPACTION.

4. CONNECT ANODE LEAD WIRE AND PIPE TEST LEAD WIRE IN TEST BOX AS SHOWN IN STD. DWG. W-0850.

5. SEE STANDARD DRAWING W—0800 FOR INSTALLATION DETAILS.

BACKFILL COMPOSITION
75% GYPSUM
20% BENTONITE
5% SODIUM SULFATE
INGOT WEIGHT: 48 LBS
PKGD WEIGHT: 106 LBS
(APPROX.)

HIGH POTENTIAL
ALLOY SPECIFICATIONS
CHEMICAL COMPOSITION

<table>
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<tr>
<th>ELEMENT</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>Al</td>
<td>0.010% Max.</td>
</tr>
<tr>
<td>Mn</td>
<td>0.50 to 1.30%</td>
</tr>
<tr>
<td>Cu</td>
<td>0.02% Max.</td>
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<tr>
<td>Ni</td>
<td>0.001% Max.</td>
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<tr>
<td>Fe</td>
<td>0.03% Max.</td>
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<tr>
<td>Other</td>
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<tr>
<td>Mg</td>
<td>0.3% Max. Total</td>
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CONNECTION
ALLOY INGOT
PACKAGED BACKFILL
HOLE 15 FOOT MIN. BELOW PIPE SPRING LINE.

AFTER PREPACKAGED ANODE IS PLACED IN HOLE, SOAK ANODE WITH A MIN. 25 GALLONS OF FRESH WATER. DO NOT PRESOAK BEFORE INSTALLATION.

IMMEDIATELY AFTER SOAKING ANODE IN HOLE, BACKFILL WITH THE NATIVE MATERIAL ONLY. NO SAND. TAP BACKFILL TO INSURE GOOD COMPACTION.

CONNECT ANODE LEAD WIRE AND PIPE TEST LEAD WIRE IN TEST BOX AS SHOWN IN STD. DWG. W-0850.

SEE STANDARD DRAWING W—0800 FOR INSTALLATION DETAILS.
NOTES:
1. WELDER SHOWN IS FOR HORIZONTAL SURFACES, FOR VERTICAL SURFACES, SIDE WELDER IS REQUIRED.
2. ALL WIRE WELDS SHALL BE 6 INCHES APART MINIMUM.
3. ALL EXPLODED METAL (STRUCTURE, WIRE AND WELD) SHALL BE COATED WITH BITUMINOUS COMPOUND PRIOR TO COATING REPAIR AND BACKFILLING.
4. STANDARD WELD CARTRIDGES SHALL BE USED FOR STEEL SURFACES.
DIELECTRIC COATED PIPE

NOTES:

1. THERMITE WELD ALLOY SHALL BE SUITABLE FOR TYPE OF PIPE METAL (i.e. STEEL OR IRON).
2. CLEAN PIPE TO BRIGHT METAL WITH FILE OR GRINDER.
3. WELD WIRE TO PIPE FOLLOWING WELD MANUFACTURER’S DIRECTIONS.
4. STRIKE SIDE OF WELD SOLIDLY WITH A 16 OZ. OR LARGER HAMMER TO TEST WELD.
5. REMOVE FLUX AND COAT WITH PRIMER.
6. RECOAT WITH MORTAR FOR CML&C PIPE AT JOINT ENCASE IN FIELD APPLIED MORTAR.
7. INSTALL MASTIC-FILLED PLASTIC CAP FOR DIELECTRIC COATED PIPE.
CATHODIC PROTECTION
WIRING DIAGRAM

- CAST IRON COVER
- "MARKED" WMWD C.P. TEST
- 1-NO.10 AWG STANDARD ELECTRODE LEAD
- BRASS (TYPICAL) IDENTIFICATION TAG
- CONCRETE BOX CHRISTY G5 OR EQUAL TEXT BOX WITH G5C LIDS MARKED "CP TEST" PER APPROVED MATERIAL'S LIST
- 5-NO.12 AWG STRD. COPPER WIRE W/THHN INSUL.
- SPLIT BOLT KS-15/KS-22 CONNECTOR
- 0.01 OHM SHUNT /TYPE RS
- PIPE LEADS 2-NO.8 AWG STRD. W/HMW/PE INSUL.
- IDENTIFICATION TAG BRASS (TYPICAL)
- ¾ CRUSHED ROCK
- ELECTRODE LEAD 1-NO.10 AWG STANDARD COPPER WIRE W/HMW-PE INSULATION (INSTALL IF SPECIFIED)
- CONCRETE PAD
- 12" x 12"

PER APPROVED MATERIAL'S LIST "MARKED" WMWD C.P. TEST

APPROVED DATE: January 1, 2011

DIRECTOR OF ENGINEERING

STANDARD DRAWING
W-0850

CATHODIC PROTECTION
WIRING DIAGRAM
MATERIALS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 ea</td>
<td>3&quot; COMPOUND METER</td>
</tr>
<tr>
<td>2</td>
<td>3 ea</td>
<td>4&quot; DATE VALVES</td>
</tr>
<tr>
<td>3</td>
<td>1 ea</td>
<td>4&quot; VITALLUX COUPLING</td>
</tr>
<tr>
<td>4</td>
<td>1 ea</td>
<td>4&quot; x 6&quot; VITALLUX NP, w/3&quot; METER FLANGE</td>
</tr>
<tr>
<td>5</td>
<td>1 ea</td>
<td>4&quot; x 2.5&quot; FLANGED x VITALLUX NIPPLE</td>
</tr>
<tr>
<td>6</td>
<td>1 ea</td>
<td>4&quot; x 2.5&quot; FLG SP. w/3&quot; METER FLANGE</td>
</tr>
<tr>
<td>7</td>
<td>1 ea</td>
<td>4&quot; x 2.5&quot; FLANGED SP.</td>
</tr>
<tr>
<td>8</td>
<td>12 ft</td>
<td>2&quot; BRASS (RED)</td>
</tr>
<tr>
<td>9</td>
<td>2 ea</td>
<td>2&quot; 90° BRASS THREADED</td>
</tr>
<tr>
<td>10</td>
<td>2 ea</td>
<td>4V2 54° SERVICE SADDLE w/2&quot;/2&quot; REDUCING BRASS BUSHING</td>
</tr>
<tr>
<td>11</td>
<td>1 ea</td>
<td>4&quot; BLIND FLANGE</td>
</tr>
<tr>
<td>12</td>
<td>1 ea</td>
<td>2&quot; CURB STOP BRASS &quot;Normandy&quot;</td>
</tr>
<tr>
<td>13</td>
<td>3 ft</td>
<td>4&quot; CAST &amp; C. PIPE (Length to reach main line)</td>
</tr>
<tr>
<td>14</td>
<td>5 ea</td>
<td>4&quot; FLANGE</td>
</tr>
<tr>
<td>15</td>
<td>1 ea</td>
<td>4&quot;-5&quot; x 4-5&quot; UTILITY BOX w/4&quot; WALLS</td>
</tr>
<tr>
<td>16</td>
<td>1 ea</td>
<td>TORSION SPRING ASSISTED TWO-PIECE STEEL PARKWAY COVER OR STEEL TRAFFIC COVER WITH MANUFACTURED TOUCH READ HOLE</td>
</tr>
<tr>
<td>17</td>
<td>3 ea</td>
<td>PRECAST CONCRETE BASE w/8&quot; SUMP</td>
</tr>
<tr>
<td>18</td>
<td>5 ea</td>
<td>4&quot; RING FLANGE GASKETS</td>
</tr>
<tr>
<td>19</td>
<td>66 ea</td>
<td>3/4&quot; BOLTS w/NEUTS</td>
</tr>
<tr>
<td>20</td>
<td>2 ea</td>
<td>VALVE RISER CAP</td>
</tr>
<tr>
<td>21</td>
<td>8 ft</td>
<td>6&quot; DOUBLE DIPPED PIPE (valve rear end) A-492</td>
</tr>
<tr>
<td>22</td>
<td>2 ea</td>
<td>3&quot; METER GASKETS</td>
</tr>
</tbody>
</table>

NOTES:

1. METER SUPPORT AS REQUIRED.
2. METER DIMENSIONS MAY VARY, CONTRACTOR SHALL VERIFY METER DINS AND SUPPLY UTILITY BOX WITH ADEQUATE CLEARANCE.
3. INSTALL A 3" COMPOUND METER W/3" METER FLANGE WHICH IS STD. 3" FLANGE w/4" x 4" (36" OUT x 4" IN COMPANION FLANGE).
4. METER REGISTERS TO BE IN CUBIC FEET.
5. BASE IS INCLUDED IN VAULT.
6. VAULT LIDS ARE TO BE POSITIONED OVER METER REGISTER AFTER METER IS INSTALLED.
7. VAULT LIDS TO BE ALUMINUM.
8. ALL MATERIALS PER VITALLUX APPROVED MATERIAL LIST.
MATERIALS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
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<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3&quot; TURBO METER PER WMD APPROVED MATERIAL LIST *</td>
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<tr>
<td>2</td>
<td>2 ea</td>
<td>4&quot; GATE VALVES</td>
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<tr>
<td>3</td>
<td>1 ea</td>
<td>4&quot; HYDRAULIC COUPLING</td>
</tr>
<tr>
<td>4</td>
<td>1 ea</td>
<td>4&quot; X 8&quot; HYDRAULIC NIP. W/3&quot; METER FLANGE ***</td>
</tr>
<tr>
<td>5</td>
<td>1 ea</td>
<td>4&quot; X 3&quot; FLANGED X HYDRAULIC NIPPLE</td>
</tr>
<tr>
<td>6</td>
<td>1 ea</td>
<td>2&quot; X 22&quot; FLO GROSS W/3&quot; STEEL METER FLANGE ***</td>
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<tr>
<td>7</td>
<td>1 ea</td>
<td>4&quot; X 2&quot; FLANGED SPOOL</td>
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<td>8</td>
<td>1 ea</td>
<td>4&quot; BLIND FLANGE</td>
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<tr>
<td>9</td>
<td>1 ea</td>
<td>2&quot; CUBE STOP BUSH &quot;NORMALLY CLOSED&quot;</td>
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<td>10</td>
<td>1 ea</td>
<td>4&quot; C-BOD WITH RESTRAINTJOINTS (LENGTH TO REACH MAIN LINE)</td>
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<tr>
<td>11</td>
<td>1 ea</td>
<td>40&quot; X 4&quot; X 4&quot; UTILITY BOX W/4&quot; WALLS</td>
</tr>
<tr>
<td>12</td>
<td>1 ea</td>
<td>TORSION SPRING ASSISTED TWO-PIECE ALUMINUM PARKWAY COVER OR STEEL TRAFFIC COVER WITH MANUFACTURED TOUCH READ HOLE</td>
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<td>50 ea</td>
<td>6/8&quot; X 3&quot; BOLTS W/NUTS</td>
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NOTES:

* 1. METER SUPPORT AS REQUIRED.
** 2. METER DIMENSIONS MAY VARY. CONTRACTOR SHALL VERIFY METER DIAMETERS AND SUPPLY UTILITY BOX WITH ADEQUATE CLEARANCE.
*** 3. INSTALL A 3" TURBO METER W/3" METER FLANGE WHICH IS STD. 3" FLANGE W/4" X 4" (3" OUT X 4" IN COMPANION FLANGE).
**** 4. METER REGISTERS TO BE IN CUBIC FEET.
***** 5. BASE IS INCLUDED W/VAULT.
****** 6. READ HOLES ARE TO BE POSITIONED OVER METER REGISTERS AFTER METER IS INSTALLED.
******* 7. VAULT LIDS TO BE ALUMINUM.
******** 8. ALL MATERIALS PER WMD APPROVED MATERIAL LIST.
NOTES:

1. SEWER NOTES PER WMWD STDS.
2. DRAWING SIZE TO BE SIZE "D" (24" X 36")
3. ALL MANHOLES SHALL BE NUMBERED AS SHOWN. (FROM DOWN STREAM SIDE UP.)
4. MINIMUM CLEARANCE SHALL BE CONSISTANT WITH CA DEPARTMENT OF HEALTH MINIMUM O.D. TO O.D.

LEGEND:
SYMBOLS AND ABBREVIATIONS PER STANDARD DRAWING W-0060

QUANTITY ESTIMATE

___FEET OF___INCH C-900
___FEET OF___INCH VCP
___EACH MANHOLES
___EACH SERVICE LATERALS
CONSTRUCTION CONDITION CLASSIFICATIONS

LOAD FACT CLASS BEDDING MATERIAL WMWD STD.
3.4 AA REINF'D CONCRETE ARCH W-1020
2.8 A CONCRETE ARCH W-1020
2.2 BB CRUSHED ROCK ENVELOPE W-1030
1.9 B CRUSHED ROCK BED W-1030
1.5 C CRUSHED ROCK PAD W-1030
1.1 D SELECT NATIVE MATERIAL W-1030

RECOMMENDED TRENCH WIDTH

DEPTHS OF COVER (d) IN FEET

PRIMARY TRENCH CONDITION

LOAD FACT CLASS BEDDING MATERIAL WMWD STD.
3.4 AA REINF'D CONCRETE ARCH W-1020
2.8 A CONCRETE ARCH W-1020
2.2 BB CRUSHED ROCK ENVELOPE W-1030
1.9 B CRUSHED ROCK BED W-1030
1.5 C CRUSHED ROCK PAD W-1030
1.1 D SELECT NATIVE MATERIAL W-1030

RECOMMENDED TRENCH WIDTH

DEPTHS OF COVER (d) IN FEET

SECONDARY TRENCH CONDITION

LOAD FACT CLASS BEDDING MATERIAL WMWD STD.
3.4 AA REINF'D CONCRETE ARCH W-1020
2.8 A CONCRETE ARCH W-1020
2.2 BB CRUSHED ROCK ENVELOPE W-1030
1.9 B CRUSHED ROCK BED W-1030
1.5 C CRUSHED ROCK PAD W-1030
1.1 D SELECT NATIVE MATERIAL W-1030

RECOMMENDED TRENCH WIDTH

DEPTHS OF COVER (d) IN FEET

TYPICAL PIPE BEDDING

W.1030

EXTRA STRENGTH

W.1020

VITRIFIED CLAY PIPE

W.1010

NOTE:
BASED ON 1.25 FACTOR OF SAFETY
(REFER NCDPI MANUAL SOIL WT. = 130 LB/FT³)
DEPTHS OVER 30' MAY BE CALCULATED
FROM MARSTON'S FORMULA (REFER NCPI MANUAL)
X DENOTES DISTANCE AT WHICH ADDITIONAL TRENCH WIDTH DOES NOT ADD TO THE WEIGHT ON THE PIPE.

NOTES:
NO LESS THAN THE LOWEST CLASS BEDDING FOR THE CONDITIONS SHALL BE USED.

a. THE NEXT HIGHER BEDDING CLASS SHALL BE REQUIRED WHERE DEPTH OF COVER EXCEEDS THAT GIVEN IN TABLE ABOVE.

b. CLASS "A" OR CLASS "AA", AS SPECIFIED BY THE DISTRICT WHEREVER DEPTH OF COVER IS LESS THAN 4'

c. CONSOLIDATED BACKFILL BEDDING BY FLOODING NOT PERMITTED WITHOUT PRIOR APPROVAL BY W.M.W.D.

d. DEPTHS OF COVER GREATER THAN 50' REQUIRE A SOIL INVESTIGATION AND ANALYSIS BY THE ENGINEER.

APPROVED DATE: January 1, 2011

DIRECTOR OF ENGINEERING

STANDARD DRAWING
TYPICAL PIPE BEDDING
VITRIFIED CLAY PIPE
EXTRA STRENGTH

STD. DWG. NO.
W-1010
1. Concrete arches shall be installed as required by specifications or directed by the engineer.

2. All concrete shall be Class "A" concrete.

3. Ratio of x-area of steel to area of concrete per lineal foot of pipe >= 0.4% reinforcing bar spacing max. = 8" C.C., min. = 6" C.C.

4. Concrete can be poured against trench wall - optional.

NOTES:
CONSOLIDATED AND/OR COMPACTED FILL-BRING UP IN LIFTS AS STATED IN SPECS, BUT NOT TO EXCEED 3 FEET BEFORE CONSOLIDATION AND COMPACTION. AS PER SPECS. LIFTS IN EXCESS OF 3' REQUIRE PRIOR APPROVAL BY DISTRICT CHIEF ENGINEER.

WITHIN ROAD RIGHT-OF-WAY BACKFILL OF ENTIRE TRENCH ABOVE THE PIPE ZONE SHALL MEET OR EXCEED THE REQ. OF THE REGULATORY ROAD AGENCY.

WELL GRADED 3/4" to 1/4" CRUSHED ROCK SHOVEL-SLICED UNDER HAUNCHES
D/8, 4" MIN.

COMPACTED SELECT BACKFILL MATERIAL PLACE AND COMPACT PER SPECS
D/2 D/6 MIN. D/8, 4" MIN.

FIRST LIFT PLACE, COMPACT, AND HANDFORM FOR PIPE AS PER SPECS.
2" MIN.

2nd LIFT

NOTE:
Refer to Specifications for pipe bedding requirements in rock or unstable ground.
SEWER: 1/2 CRUSH ROCK
WATER: IMPORT SAND

CRUSHED ROCK
REQUIRED GRADATION

<table>
<thead>
<tr>
<th>Percentage Passing</th>
<th>Size</th>
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<tbody>
<tr>
<td>100%</td>
<td>1&quot;</td>
</tr>
<tr>
<td>90-100%</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>20-55%</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>0-10%</td>
<td>#4</td>
</tr>
<tr>
<td>0-5%</td>
<td>#8</td>
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</table>

CLASS BB
CRUSHED ROCK ENVELOPE

CLASS B
CRUSHED ROCK BED

CLASS C
CRUSHED ROCK PAD

CLASS D
SELECT NATIVE MATERIAL

STD. DWG. NO.
W-1030

DIRECTOR OF ENGINEERING

APPROVED DATE: January 1, 2011

STANDARD DRAWING
CLASSES "BB", "B", "C" & "D" BEDDINGS
NOTES:

1. USE CONCRETE ENCASEMENT NO. 2 UNLESS OTHERWISE APPROVED BY THE ENGINEER OR SHOWN ON THE CONTRACT DRAWINGS.

2. CONCRETE ENCASEMENT SHALL BE INSTALLED AS REQUIRED BY THE SPECIFICATIONS OR DIRECTED BY THE ENGINEER.

3. ALL CONCRETE SHALL BE CLASS "A" CONCRETE UNLESS MODIFIED BY THE DISTRICT.

4. STEEL REINFORCEMENT SHALL BE INSTALLED WHEN REQUIRED BY THE DISTRICT ENGINEER. RATION OF X-AREA OF STEEL TO AREA OF CONCRETE PER LINEAL FOOT OF PIPE=0.4%. MAX. SPACING IS 8" C.C. MIN. SPACING IS 6" C.C.
NOTES
1. SEWER LATERALS SHALL HAVE A MINIMUM SLOPE OF 2% EXCEPT AS OTHERWISE APPROVED BY THE DISTRICT.
2. PLUGS SHALL BE NEOPRENE STOPPER OR DISTRICT APPROVED EQUAL.
3. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
4. LATERALS SHALL END AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS.
5. UNLESS WAIVED BY THE ENGINEER, 2" WIDE METALLIC, WITH TRACER WIRE, DETECTABLE LOCATOR TAPE SHALL BE PLACED WITH EACH LATERAL AT LEAST 6" ABOVE THE PIPE, BUT NOT GREATER THAN 4' DEEP.
6. SEPARATION BETWEEN WATER AND SEWER LINES SHALL MEET OR EXCEED RIVERSIDE COUNTY & STATE HEALTH STANDARDS.
7. WHERE SEWER LATERAL CROSSES ABOVE AN EXISTING OR PROPOSED WATER MAIN, USE D.I. PIPE (4"-CL.51; 6"-CL.50) WHOTDIP BITUMINOUS COATING 10' EACH SIDE OF WATER MAIN.
8. MIN. 5'-0" SEPARATION BETWEEN SEWER LATERAL AND WATER SERVICE.
9. USE VCP OR PVC-SDR 23.5 (MIN.)
10. INSTALL CLEANOUT AT PROPERTY LINE.
NOTES:

1. SEE DWG.W-1050 FOR DETAILS OF SEWER LATERAL TO PROPERTY LINE.
2. USE CLASS "A" CONCRETE WHERE SHOWN.
3. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
4. UNLESS WAIVED BY THE ENGINEER, 2" WIDE METALLIC DETECTABLE LOCATOR TAPE SHALL BE PLACE WITH EACH LATERAL APPROXIMATELY 6" ABOVE THE PIPE.
5. MINIMUM 5' SEPARATION BETWEEN SEWER LATERAL AND WATER SERVICE.
6. USE VCP OR PVC-SDR 23.5 (MIN.).
7. INSTALL CLEANOUT AT PROPERTY LINE.

** WHERE UTILITY TRENCH IS PROPOSED BACK OF CURB, SEWER LATERAL SHALL HAVE 5'-0" COVER BELOW FINISHED GRADE AT GROUND SURFACE PROPERTY LINE.
** WHEN CLEARANCE IS LESS THAN SHOWN CONCRETE ENCASEMENT OF SEWER IS REQUIRED.
NOTES:

1. ALL SECTIONS TO BE WASHED TO REMOVE ANY LOOSE MATERIAL, THEY ARE TO BE SET IN PRE-FORMED COLD-APPLIED READY-TO-USE PLASTIC JOINT SEALING COMPOUND AND PRIMER, RAM-NEK OR APPROVED EQUAL.

2. PROVIDE FLEXIBLE JOINT IN ALL SEWER PIPES OUTSIDE OF MANHOLE BUT WITHIN 12" OF CONCRETE BASE.

3. CONCRETE RING AROUND FRAME SHALL BE CURED WITH A PIGMENTED CURING COMPOUND MEETING THE REQUIREMENTS OF SECTION 90-7 OF STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

4. MANHOLE STEPS SHALL BE: M.A. INDUSTRIES, INC., MANHOLE STEP #P52-PFS OR APPROVED EQUAL.

5. ALL MANHOLE TOPS SHALL BE INSTALLED WITH MANHOLE COVER OVER THE THE UPSTREAM INLET, EXCEPT AS OTHERWISE SPECIFIED.

6. PRECAST REINFORCED CONCRETE MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. C476 AND A. BE DESIGNED FOR A.A.S.H.O. H-20 LOADING. B. CONCRETE SHALL BE COMPACTLY VIBRATED, CENTRIFUGALLY SPUN, OR MECHANICALLY TAMPED.

7. SEWER MAINS ARE TO BE LAID THRU THE MANHOLE WHERE POSSIBLE AND USED AS A FORM FOR THE INVERT. THE TOP 1/2 DIAMETER OF THE PIPE IS TO BE BROKEN OUT TO A NEAT LINE, BROKEN EDGES SHALL BE PLASTERED SMOOTH WITH CONCRETE MORTAR.

8. CONCRETE BASE SHALL BE OF CLASS "A" CONCRETE AND PLACED AGAINST UNDISTURBED EARTH IN ONE OPERATION. CONCRETE INVERTS SHALL BE TRUE TO GRADE AND ALIGNMENT, AND FINISHED WITH A SMOOTH SURFACE. SPECIAL CARE SHALL BE USED IN FORMING ALL CHANNELS TO FACILITATE THE FLOW OF SEWAGE.

9. FOR SEWER GREATER THAN 12 FEET DEEP OR 18 INCHES IN DIAMETER OR GREATER USE W-1130

STANDARD DRAWING
PRECAST CONCRETE MANHOLE

W-1070
NOTES:
1. ALL SECTIONS TO BE WASHED TO REMOVE ANY LOOSE MATERIAL, THEY ARE TO BE SET IN PRE-FORMED COLD-APPLIED READY-TO-USE PLASTIC JOINT SEALING COMPOUND AND PRIMER, RAM-NEK OR APPROVED EQUAL.
2. PROVIDE FLEXIBLE JOINT IN ALL SEWER PIPES OUTSIDE OF MANHOLE BUT WITHIN 12" OF CONCRETE BASE.
3. CONCRETE RING AROUND FRAME SHALL BE CURED WITH A PIGMENTED CURING COMPOUND MEETING THE REQUIREMENTS OF SECTION 90-7 OF STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
4. MANHOLE STEPS SHALL BE: M.A. INDUSTRIES, INC., MANHOLE STEP #P52-PFS OR APPROVED EQUAL.
5. ALL MANHOLE TOPS SHALL BE INSTALLED WITH MANHOLE COVER OVER THE THE DOWNSTREAM INLET, EXCEPT AS OTHERWISE SPECIFIED.
6. PRECAST REINFORCED CONCRETE MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. C478 AND: A. BE DESIGNED FOR A.A.S.H.O. H-20 LOADING; B. CONCRETE SHALL BE COMPACTLY VIBRATED, CENTRIFUGALLY SPUN, OR MECHANICALLY TAMPEP.
7. CONCRETE BASE SHALL BE OF CLASS "A" CONCRETE AND PLACED AGAINST UNDISTURBED EARTH IN ONE OPERATION. CONCRETE INVERTS SHALL BE TRUE TO GRADE AND ALIGNMENT, AND FINISHED WITH A SMOOTH SURFACE. SPECIAL CARE SHALL BE USED IN FORMING ALL CHANNELS TO FACILITATE THE FLOW OF SEWAGE.
8. FOR SEWER GREATER THAN 12 FEET DEEP OR 18 INCHES IN DIAMETER OR GREATER USE W-1130 WITH A FLAT SHELF.
NOTE:
1. FOUNDATION FOR DROP SECTION SHALL BE POURED MONOLITHICALLY WITH MANHOLE BASE.
2. ALL APPLICABLE PROVISIONS OF STANDARD MANHOLE DETAIL DRAWING W-1070 SHALL APPLY TO DROP MANHOLE.
3. THIS CONFIGURATION IS ALLOWED ONLY FOR A NEW SEWER CONNECTION TO AN EXISTING MANHOLE, SO THAT THE SLOPE OF THE NEW SEWER PIPE DOES NOT EXCEED 5%.
4. EXISTING MANHOLE MUST BE COMPLETELY COATED WITH ZEBRON OR T-LOK COATING.
5. WEIGHT OF CLEAN-OUT LID MUST NOT BE SUPPORTED BY THE PIPE.
SEWER CLEAN OUT

NOTE:
CLEAN OUT LINE TO BE OF THE SAME MATERIAL & SIZE AS SEWER MAIN. THE SEWER MAIN SHALL BE LAID TO THE CLEAN OUT STATION POINT AND INVERT ELEVATION AS SHOWN ON THE PLAN & PROFILE. THE TRENCH FOR THE CLEAN OUT SHALL BE EXCAVATED ONLY TO SUB GRADE WHICH IS THE BOTTOM OF THE SLOPING PIPE AND FITTINGS. SHOULD THE EXCAVATION FOR ANY REASON BE CARRIED BELOW SUB GRADE, IT SHALL BE REFILLED TO SUB GRADE WITH ROCK OR GRAVEL WHICH SHALL BE TAMMED UNTIL FIRM AND UNYIELDING. SHOULD A FIRM AND UNYIELDING FOUNDATION BE UNOBTAINABLE BY THIS METHOD A CONCRETE PIPE CRADLE SHALL BE USED.

NOTES:
1. REFER TO STANDARD DRAWINGS OF MANHOLES FOR DETAILS PERTAINING TO MANHOLES ONLY.
2. SEWER MAINS LAID IN THE MANHOLE ARE TO FORM THE INVERT. THE TOP 1/2 ∅ OF THE PIPE IS TO BE BROKEN OUT TO A NEAT LINE. BROKEN EDGES SHALL BE PLASTERED SMOOTH WITH CEMENT MORTAR.
3. AS MANY AS 4 - 4" LATERALS MAY FLOW INTO TERMINUS MANHOLE.
* REQUEST NOTCH AND PICKLE WHEN ORDERING FROM MANUFACTURER.

NOTES:
1. MANHOLE COVER SHALL BE DESIGNED FOR A.A.S.H.T.O. H-20 LOADING.
2. CASE IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 LBS. PER SQUARE INCH.
3. MANHOLE COVER SHALL BE 30" DIA, ALHAMBRA FOUNDRY CO. TYPE A-1252*, LONG BEACH IRON WORKS INC., TYPE X-106B, NEENAH FOUNDRY CO. TYPE NFC-1252 OR APPROVED EQUAL.
4. MARKER POSTS SHALL BE INSTALLED TO MARK MANHOLE LOCATIONS IN OPEN FIELD INSTALLATIONS.
5. FRAME & COVER TO BE RAISED TO FINISHED GRADE AFTER FINISHED PAVING.

SECTION THRU FRAME SHOWING TYPICAL INSTALLATION
FACTORY MADE WYE OR TEE CONNECTION

Band seal coupling for wye or tee connection to sewer lateral

Factory made wye or tee fitting

Band seal coupling for wye or tee connection to sewer main

FLOW

Sewer main to be machine cut for wye or tee connection

January 1, 2011
Although required by district, this unit is to be owned and maintained by the property owner.

If greater than zero, backwater valve required

Notes:

1. The backwater valve installation shall be installed where: (a) plumbing fixture levels are below the elevation of the curb at the point where the building sewer crosses under the curb or (b) plumbing fixtures levels are below the elevation of the upstream manhole rim unless waived in writing by W.M.W.D.

2. The recommended outlet elevation is one foot below the floor elevation, but under no circumstances shall this elevation be less than 4".

3. Caution shall be exercised in locating the hood to avoid damage to installation from surface impact.

4. Backwater overflow valve manufacturer to be same as currently approved by Riverside County.

1. Backwater Valve
2. 4" Coupling *
3. 4" Pipe *
4. 4" 1/8 Bend and Wye (Plain Ends) *

* Material varies

Director of Engineering

January 1, 2011

Standard Drawing

Backwater Installation for House Connections

W-1120
STANDARD MANHOLE FRAME AND COVER
SEE STD. DWG. W-1100

DIRECTOR OF ENGINEERING

APPROVED DATE: January 1, 2011

STANDARD DRAWING
5’ DIA. MANHOLE WITH
CAST IN PLACE BASE

STD. DWG. NO.
W-1130
NOTES:
1. EXCEPT AS INDICATED HEREON OR ON THE PROJECT PLANS, MANHOLES SHALL CONFORM TO STANDARD DWG. W-1070 PRECAST CONCRETE MANHOLE.
2. IN UNPAVED TRAFFIC AREAS FORM A CONCRETE COLLAR 10" WIDE AND 10" DEEP AROUND MANHOLE FRAME.
NOTES:
1) REFER TO SECTION 3.0 OF THE SPECIFICATIONS
2) CONNECTIONS TO EXISTING SEWER MAINS TO BE MADE BY DISTRICT PERSONNEL IN ACCORDANCE WITH SECTION 3.0 UNLESS OTHERWISE NOTED ON PLANS
3) IN NO CASE SHALL CONNECTION BE MADE DIRECTLY ON TOP OF SEWER MAIN
4) NO MORE THAN ONE CUT IN WYE WILL BE ALLOWED FOR EACH LENGTH OF EXISTING VCP SEWER MAIN
5) FOR SEWER LATERAL INSTALLATION SEE WMWD STD W-1050 & W-1060
6) FOR TRENCH BACKFILL SEE WMWD STD W-1540
7) MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST

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<tr>
<th>ITEM NO</th>
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<tr>
<td>1</td>
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<td>CONCRETE ENCASEMENT</td>
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<td>2</td>
<td>STAINLESS STEEL HOSE CLAMPS (2-EACH)</td>
<td>5</td>
<td>EXISTING VCP SEWER MAIN</td>
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<td>3</td>
<td>EXISTING PVC SEWER MAIN</td>
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PLAN PLAN
ELEVATION
CUT IN WYE CONNECTION FOR EXISTING PVC PIPE
TYPE A

PLAN PLAN
ELEVATION
CUT IN WYE CONNECTION FOR EXISTING VCP PIPE
TYPE B
MATERIAL LIST:

1. BROOKS 1-RT VALVE BOX MARKED "SEWER", OR APPROVED EQUAL.
2. THREADED CAP WITH SQUARE NUT.
3. 4" SEWER PIPE PER UNIFORM PLUMBING CODE.
4. WYE PER UNIFORM PLUMBING CODE.
5. MINIMUM 4" LATERAL, OR AS SHOWN ON PLANS. PER WMWD STANDARDS (SEE STD DWG W-1050 & W-1060)

NOTES:

1. PLACE CLEANOUT A MAXIMUM OF 3' BEHIND PROPERTY LINE OR EDGE OF EASEMENT.
2. LID MUST BE CAST IRON FOR LOCATING PURPOSES, MARKED "SEWER"

SEWER MAIN

CURB & GUTTER

SIDEWALK

ROAD SURFACE

GROUND

EDGE OF EASEMENT OR

3' MAX.

ON-SITE CLEANOUT
N.T.S.

SEWER ON-SITE CLEANOUT

W-1160
THE BARREL DIAMETER OF THE SAMPLING STATION SHALL BE A MINIMUM OF 2" LARGER THAN THE BUILDING DISCHARGE LINE.
2. THE DIAMETER OF THE RISER PIPE SHALL BE 4".
3. THE SAMPLE WYE SHALL BE ACCESSIBLE TO WMWD'S INDUSTRIAL PRETREATMENT PROGRAM REPRESENTATIVE DURING NORMAL WORKING HOURS.
4. THE SAMPLE WYE SHALL NOT BE INSTALLED IN TRAVEL WAYS, UNLESS AUTHORIZED BY WMWD.
5. A FLUSH CAP SHALL BE USED FOR ALL SAMPLE WYES INSTALLED IN FLOOR AREAS.
NOTES

1. STRUCTURES SHALL BE INSTALLED TO ALLOW ACCESS FOR MAINTENANCE OR INSPECTION AT ALL TIMES.

2. WHERE SUBJECT TO VEHICLE LOADING, DESIGN ADEQUACY SHALL BE SUBSTANTIATED AND STRUCTURE SHALL BE PLACED ON SUITABLE BASE OF COMPACTED SOIL OR UNDISTURBED EARTH.

3. ALL SURFACE WATER MUST DRAIN AWAY FROM THE SAMPLING BOX AND INTERCEPTOR TO EXCLUDE RAIN WATER FROM THE SEWER SYSTEM.

4. FLOW TO THE SAMPLING BOX AND/OR INTERCEPTOR SHALL EXCLUDE ALL SANITARY SEWAGE AND SURFACE DRAINAGE.

5. EACH INSTALLATION IS SUBJECT TO REVIEW BY WMWD FOR ADEQUATE CAPACITY PRIOR TO CONSTRUCTION.

6. INSPECTION COVERS SHALL BE BROUGHT TO GRADE TO PERMIT VISUAL INSPECTION OF INTERNAL FITTINGS, WITH RISERS AS REQUIRED.

7. SAMPLING BOX SHALL BE A MINIMUM OF 24" ID. SAMPLING BOX MAY BE ATTACHED OR AT A VARIABLE DISTANCE FROM THE INTERCEPTOR AS APPROVED BY WMWD SOURCE CONTROL DIVISION.

8. MINIMUM CAPACITY OF INTERCEPTOR IS 750 GALLONS.

9. INTERCEPTORS REQUIRING MORE THAN 8 FEET OF GRADE RINGS MUST HAVE APPROVAL BEFORE INSTALLATION.
1. ALL PIPE & FITTINGS BETWEEN AND INCLUDING THE STOPS SHALL:
   A) BE MADE OF BRASS OR BRONZE
   B) BE DESIGNED FOR MORE THAN 175 PSI (COLD) WATER WORKING PRESSURE.
2. ALL BARE STEEL OR IRON SHALL BE COATED AND PROTECTED AS PER SPECS. PRIOR TO PLACING BACKFILL.
3. PRESSURE TEST PRIOR TO WRAPPING OR BACKFILLING.
4. CORP. STOP FITTINGS AND SERVICE LINE WITHIN 3' OF SADDLE SHALL BE COATED WITH #1170 PRIMER AND 20 MIL. MIN. WRAP.
5. METER BOXES SHALL BE POLYMER WITH POLYMER CONCRETE ONE PIECE TOUCH READ LID.
6. ALL SERVICE PIPE AND TUBING SHALL BE LAID ON A CONSTANT SLOPE UP FROM THE WATER MAIN TO METER. NO DIPS OR POCKETS IN LINE WILL BE PERMITTED.
7. THREAD NOTATION SHOWS THUS: I.P. - IRON PIPE THREAD.
8. METER BOX IS TO BE LOCATED PER AGENCY OF LOCAL JURISDICTION COORDINATE LOCATION ALONG LOT FRONTAGE WITH W.M.W.D. INSPECTOR.
9. WHEN METER IS INSTALLED IT IS TO BE PAINTED APPROVED PURPLE.
10. WHEN METER IS INSTALLED IT IS TO BE PAINTED APPROVED PURPLE.

NOTES:

1. ALL PIPE & FITTINGS BETWEEN AND INCLUDING THE STOPS SHALL:
   A) BE MADE OF BRASS OR BRONZE
   B) BE DESIGNED FOR MORE THAN 175 PSI (COLD) WATER WORKING PRESSURE.
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NOTES:

1. USE DOUBLE-PASS WELDS FOR FABRICATION & FIELD WELDS.

2. SADDLE CURVATURE TO BE FORMED TO MEET WMWD. PIPE DIAMETERS D3 AS STATED.

3. WHEN INSTALLED, OUTLET TO BE COATED WITH SAME COATING AS PIPE.

4. VALVE CAP LID TO BE PAINTED PURPLE AND A (3) THREE INCH WIDE LOCATOR TAPE TO BE PLACED ABOVE THE RECYCLED WATER PIPELINE STATING IN (2) TWO INCH HIGH LETTERING. CAUTION NON-POTABLE WATER THE COLOR OF THE TAPE SHALL BE PURPLE PANTONE 522C

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<th>SERVICE SIZE</th>
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<th>D2</th>
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<td>7&quot;</td>
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</table>

SECTION A-A

A

D2=SIZE OF STEEL, EXTRA HEAVY HALF COUPLING

3/16" NYLON HEX BUSHING

I.P. MALE X I.P. (FEMALE) FOR 3/4" AND 1"

I.P. MALE X I.P. (FEMALE) FOR 1 1/4" AND 2"

3/4" - 1" CORP 3/16"

1 1/2" - 2" COPP STOP 1/4"

SERVICE SIZE DRILL HOLE

D3=O.D. OF STEEL REINFORCING SADDLE

D4=O.D. OF STEEL PIPE

D1=O.D. OF STEEL PIPE RECYCLED WATER MAIN

STANDARD I.P. THREAD
NOTES:

1. PAINT EXPOSED SECTIONS "SAFETY YELLOW" (DOMESTIC WATERLINE) OR RECYCLED PURPLE (RW PIPELINE)

2. ALL MATERIALS FURNISHED TO BE OF THE PIPE PRESSURE CLASS CALLED FOR ON PLANS.

3. UNLESS NOTED, ALL THREADS TO BE STANDARD IRON PIPE SIZE THREADS.

4. GUARD POSTS, AS REQUIRED ON PLANS OR SPECIFICATIONS, SEE DRAWING #W-1520.

5. CORPORATION STOP AND FITTINGS AT WATER PIPELINE SHALL BE PRIMED AND WRAPPED WITH 20 MIL. MIN.

6. VALVE BOX SHALL BE 8 3/4" DIA. BROOKS PRODUCTS NO. 1-RT OR EQUIVALENT.

* PER LOCAL AGENCY
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<th>PIPE SIZE</th>
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**NOTES:**

1. CONCRETE THRUST BLOCKS ARE TO BE Poured AGAINST UN-DISTURBED EARTH.
2. CONCRETE THRUST BLOCKS SHALL BE OF CLASS ‘C’ (4 1/2 SACK MIX) CONCRETE.
3. ALL GATE VALVES SHALL BE SUPPORTED PER DETAIL ‘A’ BELOW & STD DWG W-0150.
4. ALL CONCRETE SHALL BE POURED TO AVOID INTERFERENCE WITH BOLTED CONNECTIONS.
5. WHERE PIPE CONNECTS TO A FITTING IN A STEEL PIPELINE, THE STEEL PIPELINE SHALL BE BLOCKED AS SHOWN HEREON.
6. CONCRETE SHALL BE CONFined BY FORMS TO PROVIDE A MINI-MUM CLEARANCE OF 4" AT FLANGE BOLTS AND NUTS.
7. CONCRETE TO BE NO CLOSER THAN 4" TO BOLTS AND IF POSSIBLE SHALL BE FORMED.

**TYPICAL THRUST BLOCK INSTALLATION**

**PLAN VIEW**

**PERSPECTIVE VIEW**

**DETAIL ‘A’**

**CONCRETE TO BE NO CLOSER THAN 4" TO BOLTS AND IF POSSIBLE SHALL BE FORMED.**

**APPLIES TO HUB-END VALVES**

**No. 3 Re-Bar (Req. On Hub-End Valves Only)**
NOTES:
1. PAINT EXPOSED SECTIONS "SAFETY YELLOW" (DOMESTIC WATERLINE) PURPLE FOR RECYCLED
2. ALL MATERIALS FURNISHED TO BE OF THE PIPE PRESSURE CLASS CALLED FOR ON PLANS.
3. UNLESS NOTED, ALL THREADS TO BE STANDARD IRON PIPE SIZE THREADS.
4. GUARD POSTS, AS REQUIRED ON PLANS OR SPECIFICATIONS, SEE DRAWING #W-1520.
5. CORPORATION STOP AND FITTINGS AT RECYCLED WATER PIPELINE SHALL BE PRIMED AND WRAPPED WITH 20 MIL. MIN.
6. VALVE BOX SHALL BE 8 3/4" DIA. BROOKS PRODUCTS NO. 1-RT OR EQUIVALENT.
7. AIR VACUUM & AIR RELEASE ASSEMBLIES LARGER THAN 2" REQUIRE WESTERN'S APPROVAL.

* PER LOCAL AGENCY
RECYCLED WATER STANDARD DRAWING
TYPICAL VALVE INSTALLATION
AWWA C-900 P.V.C. PIPE

LINE VALVE INSTALLATION

MIN. 4" BOLT & NUT CLEARANCE

SUPPORT BLOCK

AWWA C-900 PVC PIPE

FLANGE BY MJ ADAPTER

FLANGED GATE VALVE PAINTED APPROVED PURPLE (SUPPORT BLOCK NOT SHOWN)

FLANGE BY MJ ADAPTER

VALVE INSTALLATION AT FITTINGS
NOTES:
1. ALL MATLS SHALL BE CLASS 150 (MIN).
2. COAT ALL NUTS AND BOLTS PER COATING STD & 20 MIL MIN. WRAP.
3. REPAIR PIPE COATING WITH APPROVED MATERIAL OF SIMILAR NATURE.
4. IN UNPAVED AREAS, GATE VALVE RISER & CAP SHALL BE INSTALLED TO GRADE.
5. HOSE THREADS TO BE NATIONAL STANDARD.
6. SET HYDRANT WITH OUTLETS AT 45° TO CURB.
7. ALL SUPPORT BLOCKS TO BE Poured AGAINST UNDISTURBED EARTH. USE CONCRETE PER WESTERN STANDARD.
8. FOR MAINLINE PIPELINES GREATER THAN 12" DIAMETER, INSTALL FLEXIBLE COUPLING.
9. VALVE BOX AND METER BOX LIDS TO BE PAINTED PURPLE PANTONE 522C. PER WMWD SPECIFICATIONS.
10. BALL VALVE AND CAM LOCK TO BE PAINTED PURPLE PANTONE 522C.
11. BLOW OFF LOCATIONS:
   A. BLOW OFF SHALL BE PLACED
      1. 1'-6" BEHIND CURB FACE WHEN THE WIDTH OF SIDEWALK IS 8' OR WIDER
      2. 7'-6" BEHIND CURB FACE WHEN THE WIDTH OF SIDEWALK IS 8' OR WIDER.
      3. 7'-6" BEHIND CURB FACE WHEN THERE IS NO SIDEWALK.
      4. 1'-6" WITHIN ROAD RIGHT-OF-WAY WHEN NO CURBS OR SIDEWALKS ARE PROPOSED.
   B. BLOW OFF TO BE 1' BACK FROM INTERSECTION OF SIDEWALK WITH CORNER APRON.
   C. AT OTHER THAN STREET INTERSECTIONS BLOW TO BE ON LOT LINES.
DISTRICT APPROVED SERVICE
OUTLET SADDLE (FOR STEEL PIPE SEE W-0020) (FOR C-900 PIPE REFER TO APPROVED MATERIALS LIST)

METER SUPPLIED AND INSTALLED BY WESTERN MWD
METER BOX TOUCH READ LIDS
METER BOX SUPPLIED AND INSTALLED BY CONTRACTOR
6" EXTENSION WHEN REQUIRED
CUSTOMER PIPING
6'-0"

1" 1/4" I.P. TO 1" I.P. NYLON HEX BUSHING (STEEL PIPE ONLY)
FULL CIRCUMFERENCE SADDLE REQUIRED FOR AWWA C-900 PVC PIPE ONLY.

NOTES:
1. ALL PIPE & FITTINGS BETWEEN AND INCLUDING THE STOPS SHALL:
   A. BE MADE OF BRASS OR BRONZE.
   B. BE DESIGNED FOR MORE THAN 175 P.S.I. (COLD) WATER WORKING PRESSURE.
2. ALL BARE STEEL OR IRON SHALL BE COATED AND PROTECTED AS PER SPECS. PRIOR TO PLACING BACKFILL.
3. PRESSURE TEST PRIOR TO WRAPPING OR BACKFILLING.
4. CORP STOP, FITTINGS & SERVICE LINE WITHIN 3' OF SADDLE SHALL BE COATED WITH #1170 PRIMER & 20 MIL. MIN. PIPE WRAP PER APPROVED MATERIALS LIST.
5. ALL SERVICE PIPE & TUBING SHALL BE LAID ON A CONSTANT SLOPE UP FROM THE WATER MAIN TO METER. NO DIPS OR POCKETS IN LINE WILL BE PERMITTED.
6. THREAD NOTATION SHOWS THUS:
   IP=IRON PIPE THREAD

7. METER BOX IS TO BE LOCATED PER STANDARDS OF AGENCY OF LOCAL JURISDICTION. COORDINATE LOCATION ALONG LOT FRONTAGE WITH WESTERN INSPECTOR.
8. METER BOXES SHALL BE ONE-PIECE POLYMER COVER TOUCH READ LID PER APPROVED MATERIALS LIST.
9. CUSTOMER PIPING REQUIRED TO BE BRASS FOR 6' MINIMUM, THREAD PIPE TO FIT LINESETTER, NO JOINTS ALLOWED.
10. MINIMUM 5'-0" SEPARATION BETWEEN SEWER LATERAL AND WATER SERVICE.
11. WHEN METER IS INSTALLED, IT IS TO BE PAINTED APPROVED PURPLE.

PROTECTED SERVICE

RECYCLED WATER STANDARD DRAWING
RECYCLED WATER SERVICE
3/4" AND 1"

APPROVED DATE: January 1, 2011
DIRECTOR OF ENGINEERING

STD. DWG. NO.
W-1270
NO. 1. VALVE RISER TO BE 12 GA. (MIN.) DOUBLE-DIPPED ASPHALT COATED STEEL PIPE. (P.V.C. IN PAVED AREA ONLY)

2. CENTER AND PLUMB RISER OVER VALVE OPERATING NUT.

3. VALVE CAP TO BE PAINTED GROUND TRAFFIC BLUE

4. ALL PIPE, FLANGES, VALVES AND OTHER PIPELINE MATERIALS, SHALL BE CLASS 150 (175WWP) MINIMUM; OR HIGHER CLASS AS SHOWN ON PLANS.

NOTES:

1. VALVE RISER TO BE 12 GA. (MIN.) DOUBLE-DIPPED ASPHALT COATED STEEL PIPE. (P.V.C. IN PAVED AREA ONLY)

2. CENTER AND PLUMB RISER OVER VALVE OPERATING NUT.

3. VALVE CAP TO BE PAINTED GROUND TRAFFIC BLUE

4. ALL PIPE, FLANGES, VALVES AND OTHER PIPELINE MATERIALS, SHALL BE CLASS 150 (175WWP) MINIMUM; OR HIGHER CLASS AS SHOWN ON PLANS.

ADJUST CAP & RIM FLUSH TO 1/4" HIGH ABOVE FINISHED PAVEMENT. GRADE &/or 1" ABOVE NATURAL GROUND SURFACE

VALVE CAP WITH 6" SKIRT (MARK: W.M.W.D. WATER) PAINTED GROUND TRAFFIC BLUE.

FINISHED GROUND SURFACE

20 GA. GALV SLIP CAN 8 5/8" O.D.

2" SQ. OPERATING NUT

8" O.D.

CUT TO FIT VALVE BODY INSTALLATIONS

COMPACTED BACKFILL

TOP SECTION SLIP CAN LENGTH 12", 18" OR 24" AS REQUIRED

COMPACTED BACKFILL

SHIPT EXTENSION REQUIRED WHERE TOP OF VALVE IS MORE THAN 5' BELOW FINISH GROUND SURFACE. 1-1/4" DIA. STD. BLACK PIPE PAINTED W/PRIMER AFTER FABRICATION # 5010.
NOTE:

1. REQUIRED CLEARANCE BETWEEN RECYCLED WATER PIPELINE AND DOMESTIC PIPELINE SHALL BE CONSISTENT WITH CA DEPARTMENT OF HEALTH STANDARDS.

2. FOR ANY DOMESTIC WATER, SEWER AND RECYCLED WATER CROSSINGS, A MINIMUM SEPARATION OF 1' VERTICAL MUST BE MAINTAINED.
EMBED IN CONCRETE HOLE TO BE 12" DIA. X 30" DEEP, AT EACH POST.

4" X 60" BLACK STANDARD PIPE FILL WITH CONCRETE, AND ROUND OVER CONCRETE TO FORM CAP.

POUR AGAINST UNDISTURBED OR WELL COMPACTED EARTH 90% MIN.

NOTES:

1. PAINT ALL MATERIAL ABOVE GROUND 2 COATS OF SAFETY YELLOW FOR TREATED WATER SYSTEM, OR 2 COATS OF PURPLE FOR RECYCLED WATER SYSTEMS.

2. INSTALL AT ALL AIR VALVE LOCATIONS AND AT DESIGNATED FIRE HYDRANTS, OR OTHER LOCATIONS, AS REQUIRED ON PLANS OR SPECIFICATIONS.
UNSURFACED MEDIANs  
ROADSIDE STRIPS  
& EASEMENTS

SURFACED STREETS

BASE MATERIAL
AND 6" SUBGRADE.
COMPACTED TO 95% 
RELATIVE
COMPACTION.

BACKFILL COMPACTED
TO 90% RELATIVE
COMPACTION MAXIMUM
LIFT THICKNESS IS 8 INCHES.
MAXIMUM LIFT
THICKNESS WHEN
PONDING AND JETTING
IS 4 FEET.

* MAY BE COMPACTED TO 90% RELATIVE
COMPACTION IF EXISTING SUBGRADE IS
LESS THAN 90% AS INDICATED BY
SOILS TEST.

I STRUCTURAL ZONE
II INTERMEDIATE ZONE
III PIPE AND UTILITY ZONE

NOTE:
WHEN A FIRM FOUNDATION IS
NOT ENCOUNTERED, DUE TO
SOFT, SPONGY OR OTHER
UNSUITABLE MATERIAL, SUCH
MATERIAL SHALL BE REMOVED
TO THE LIMITS DIRECTED BY
THE ROAD COMMISSION OR
AFFECTED UTILITY CO., AND THE
RESULTING EXCAVATION
BACKFILLED WITH PIPE BEDDING.

REPLACE STRUCTURAL
SECTION AS FOLLOWS:
SURFACING ___ EXISTING THICKNESS OR
3" MINIMUM
BASE — SAME TYPE AND THICKNESS AS
EXISTING BASE MATERIAL, 6" MIN.
OR AS DIRECTED.
NOTES:

1. CONTRACTOR SHALL DETERMINE DEPTH AND LOCATION OF UNDERGROUND FACILITIES PRIOR TO TRENCHING.

2. ALL EXCAVATION, BACKFILL, DISPOSAL OF WASTE, AND OPERATIONS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.

3. CONTRACTOR SHALL REMOVE & DISPOSE OF MATERIALS & OBSTRUCTIONS WHICH MAY INTERFERE WITH WORK.

4. OPEN TRENCH AT ANY ONE TIME SHALL BE LIMITED TO 500 FT. ALONG ROADS RIGHTS-OF-WAY & 1/2 MILE IN FIELDS, UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER.

5. PIPE SHALL BE HANDLED SO AS TO PROTECT THE PIPE, JOINTS, LINING & COATING, & CAREFULLY BEDDED SO TO PROVIDE CONTINUOUS BEARING & PREVENT UNEVEN SETTLEMENT. PIPE SHALL BE PROTECTED AGAINST FLOTATION AT ALL TIMES.

6. BACKFILL ALONG ROAD RIGHT-OF-WAY SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS, TO A RELATIVE DENSITY OF NOT LESS THAN 90% OR EQUIVALENT TO THE SURROUNDING GROUND, WHICHEVER IS GREATER.

7. MINIMUM COVER OVER PIPE (INCLUDING H-20 LOAD) SHALL BE 3FT. OR 1FT. ABOVE THE LINE VALVE BODY, OR 1FT. ABOVE THE VALVE OPERATING NUT; WHICHEVER OF THE ABOVE REQUIRES THE GREATEST PIPE COVER.

8. MAXIMUM COVER OVER PIPE (INCLUDING H-20 LOAD) TO BE 9FT. UNLESS OTHERWISE SHOWN ON THE PLANS.

9. EXCAVATIONS AND RESURFACING WITHIN COUNTY OR CITY RIGHT-OF-WAY MUST MEET OR EXCEED THEIR MINIMUM REQUIREMENTS.

10. FOR NON-METALLIC PIPELINE, LOCATER WIRE (14GA. SOLID COPPER WIRE, UF) TO BE PLACED ON TOP OF PIPE AND SECURED WITH TAPE. WIRE TO BE BROUGHT TO SURFACE IN EACH VALVE CAN.

EXCAVATION BACKFILL METHOD MATERIALS

TYPICAL TRENCH SECTION DETAIL

*IMPORTED MATERIAL TO BE EQUAL OR GREATER IN QUALITY TO EXISTING MATERIALS (SEE NOTE NO. 9)

STEEL PIPE 3" MAX.

** COHESIONLESS, GRANULAR IMPORTED OR SELECT EXCAVATED MATERIAL, FREE FROM ROCKS OR LUMPS LARGER THAN 3/4" MAX. DIMENSION WITHIN 6" OF PIPE; AND FREE FROM POCKETS; ALL AS PER SPECIFICATIONS.
TABLE I

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<th>MAX. CAP</th>
<th>PRES. RELIEF VALVE</th>
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</tr>
<tr>
<td>3&quot; X 10&quot;</td>
<td>5360</td>
<td>8&quot;</td>
<td>16&quot;</td>
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<tr>
<td>4&quot; X 12&quot;</td>
<td>7800</td>
<td>8&quot;</td>
<td>18&quot;</td>
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</table>

(1) STATION SIZE REFERS TO NOMINAL DIAMETERS OF THE PRV'S
"P"= PRIMARY PRV SIZE FOR NORMAL DOMESTIC FLOWS
"S"= SECONDARY PRV SIZE FOR GREATER THAN NORMAL FLOWS

NOTE:
The engineer of design must submit to the district a specific design based on the typical layout for each installation for review and written approval prior to construction and submittals for piping, gauges, and chart recorder.

DIRECTOR OF ENGINEERING

APPROVED DATE: January 1, 2011

STANDARD DRAWING
TYPE "A"
PRESSURE REDUCING STATION
(TYPICAL LAYOUT)

STD. DWG. NO.
W-1560
1 OF 4
GENERAL NOTES

1. The required pressure reducing station capacity and size shall be determined by District.

2. All materials, materials testing and inspection shall be in accordance with the requirements of the District standards. Failure to meet these requirements will be cause for rejection.

3. District shall be notified at least 48 hours prior to construction.

4. Contractor shall shore all excavations in accordance with Cal-OSHA requirements.

5. Unless otherwise approved by District, vaults and electrical equipment shall be located to set behind existing or future curbs.

6. Details of vaults for all PRV station sizes shall be submitted to District for approval.

7. The design shown is typical and symmetrical, the District will indicate which features shall be modified.

8. Elect/Tele/TV conduits etc. shall be located to clear the pressure reducing valve facilities.

9. The District, at its option, may require that a solenoid control valve (120V AC) be added to PRV pilory for PRV/Tank shut-off control.

10. Refer to standard dwg. no. W-1562 for electrical equipment details.

11. All exposed piping shall be primed and field painted per District specification, all buried piping, shall be cement mortar coated (CMC) or asphalt wrapped (AW) per District specification.

12. One (1) pipe support shall be furnished and installed under lines B, C and D within PRV vault.

13. Pressure class to be determined by the District.

MECHANICAL MATERIALS LIST

1. Primary ("P", see Table 1) size pressure reducing, and check valve flanged ends, stainless steel trim, epoxy lined, w/position indicator, CLA-VAL model 91G-01 ABK-101 (at the District's option a solenoid valve control shall be added to the PRV pilory) or other model as indicated by the District.

2. Secondary ("S", see Table 1) size pressure reducing, pressure sustaining, check valve, flanged ends, stainless steel trim, epoxy lining, position indicator, CLA-VAL model 92G-02 BKC-X101 (at the District's option a solenoid valve control shall be added to the PRV pilory) or other model as indicated by the District.

3. Line "D" size pressure relief and check valve, flanged ends, stainless steel trim, epoxy lining, delrin sleeve, CLA-VAL model 650-01BDLKC.

4. "P" size weld neck, STD WT steel

5. "P" size x "C" size eccentric reducer, STD WT, installed top flat with "C" end grooved for Victaulic flange.

6. "C" size slip-on flange

7. "C" size groove x flange adaptor, Victaulic style 741

8. "C" size CML/CMC WSP, 10 GA, ADD 12" CTF

9. "C" size flg'd rs gate valve

10. "C" size side outlet, 10 GA CML/CMC, W/COLLAR per AWWA M-11

11. "S" size weld neck flange, STD WT steel

APPROVED DATE: January 1, 2011

DIRECTOR OF ENGINEERING

STANDARD DRAWING

TYPE "A"

PRESSURE REDUCING STATION

(GEN NOTES AND MAT LIST)

STD. DWG. NO.

W-1560

2 OF 4
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>12</td>
<td>&quot;S&quot; size X &quot;B&quot; size eccentric reducer, STD WT, installed top flat with &quot;B&quot; end grooved for Victaulic flange</td>
</tr>
<tr>
<td>13</td>
<td>&quot;B&quot; size slip-on flange</td>
</tr>
<tr>
<td>14</td>
<td>&quot;B&quot; size groove x flange adaptor, Victaulic style 741 or 742</td>
</tr>
<tr>
<td>15</td>
<td>&quot;B&quot; size CML/CMC WSP, 10 ga, add 12&quot; CTF</td>
</tr>
<tr>
<td>16</td>
<td>&quot;B&quot; size flanged rs gate valve (12&quot; dia and under) or flanged butterfly valve (over 12&quot; dia)</td>
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<tr>
<td>17</td>
<td>&quot;B&quot; size side outlet, 10 ga CML/CMC, W/COLLAR PER AWWA M-11</td>
</tr>
<tr>
<td>18</td>
<td>&quot;D&quot; size STD WT TEE, W/6&quot; LONG GROOVED END PIPES WELDED TO RUNS AND BRANCH</td>
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<tr>
<td>19</td>
<td>&quot;D&quot; size side outlet, 10 ga CML/CMC, W/COLLAR PER AWWA M-11</td>
</tr>
<tr>
<td>20</td>
<td>&quot;D&quot; size groove x flange adaptor, Victaulic style 741 or 742</td>
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<tr>
<td>21</td>
<td>&quot;D&quot; size, STD WT, STEEL PIPE, OUTSIDE WRAPPED BELOW GRADE OR FIELD PAINTED WHERE EXPOSED (PE OR GROOVED AS REQUIRED)</td>
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<tr>
<td>22</td>
<td>&quot;D&quot; size slip-on flange</td>
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<tr>
<td>23</td>
<td>&quot;D&quot; size groove x flange adaptor, Victaulic style 741 or 742</td>
</tr>
<tr>
<td>24</td>
<td>&quot;D&quot; size groove coupling Victaulic style 77</td>
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<td>25</td>
<td>&quot;D&quot; size 90°, LR BEND, STD WT STEEL, OUTSIDE WRAPPED</td>
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<td>26</td>
<td>&quot;D&quot; size groove coupling Victaulic style 77</td>
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<td>27</td>
<td>&quot;A&quot; size dished head, 10 ga steel CML/CMC</td>
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<td>28</td>
<td>&quot;D&quot; size CML/CMC WSP, 10 ga, add 12&quot; CTF</td>
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<tr>
<td>29</td>
<td>&quot;A&quot; size CML/CMC WSP, 10 ga, add 12&quot; CTF</td>
</tr>
<tr>
<td>30</td>
<td>MAINLINE SIZE SLIP-ON FLANGE</td>
</tr>
<tr>
<td>31</td>
<td>&quot;A&quot; size slip-on flange</td>
</tr>
<tr>
<td>32</td>
<td>&quot;A&quot; size flanged side outlet, 10 ga CML/CMC, W/WRAPPER PER AWWA M-11.</td>
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<tr>
<td>33</td>
<td>MAINLINE SIZE FLANGED RS GATE VALVE (12&quot; Ø AND UNDER) OR FLANGED BUTTERFLY VALVE (OVER 12&quot; Ø)</td>
</tr>
<tr>
<td>34</td>
<td>1&quot;Ø 3000# COUPLING W/1&quot;Ø CORP STOP AND BRONZE REDUCER BUSHING TO 1/2&quot;Ø BRASS COMPRESSION COUPLING.</td>
</tr>
<tr>
<td>35</td>
<td>1/2&quot;Ø TYPE K COPPER TUBING, PRESSURE SENSING LINE TO CONTROL CABINET.</td>
</tr>
<tr>
<td>36</td>
<td>6&quot;W X 8&quot;H X 6&quot;D PRECAST CONCRETE VAULT W/BOTTOM SECTION, FULL OPEN TORSION HINGED, STEEL PARKWAY Lid, (TRAFFIC Lid MAY BE ADDED AT THE OPTION OF THE DISTRICT) SUITABLE FOR PRESSURE REDUCING STATION SIZES 2&quot; X 4&quot; AND 2&quot; X 6&quot;, LARGER SIZE STATIONS SHALL BE SIZED BASED UPON THE MINIMUM CLEARANCE DIMENSIONS INDICATED ON THE PRV &quot;TYPICAL LAYOUT&quot; (WMWD STD W-1560) BOTTOM SECTION SHALL HAVE 6&quot; Ø DRAIN HOLE AND BE SET ON MIN 6&quot; THICK BED OF 1&quot; GRAVEL.</td>
</tr>
<tr>
<td>37</td>
<td>3/4&quot;Ø 3000# COUPLING WITH 3/4&quot;Ø CORP STOP (JONES J-50), BRONZE REDUCER BUSHING AND 4&quot; FACE LIQUID FILLED PRESSURE GAUGE, WIKA 213.40 LM, 0-200 PSI DOWN STREAM AND 0-300 PSI UPSTREAM.</td>
</tr>
<tr>
<td>38</td>
<td>&quot;D&quot; SIZE, 6&quot; LONG MACHINED GROOVE, BREAK-OFF RISER, LONG BEACH IRON WORKS PART NO. LB403.</td>
</tr>
</tbody>
</table>
**N T S**

**ELECTRICAL GENERAL NOTES**

1. THE SERVICE PANEL, SERVICE CONDUIT AND TERMINATIONS SHALL CONFORM TO THE SERVING UTILITY REQUIREMENTS.

2. THE DIMENSIONS FOR THE SERVICE EQUIPMENT ENCLOSURE ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF ALL EQUIPMENT TO BE PURCHASED AND TO BE INSTALLED IN THE ENCLOSURE PRIOR TO THE PURCHASE OF THE EQUIPMENT ENCLOSURE.

3. ALL WORK AND EQUIPMENT SHALL CONFORM TO NATIONAL ELECTRICAL CODE REQUIREMENTS AND ANY APPLICABLE LOCAL CODES AND ORDINANCES.

4. SHOP DRAWINGS (INCLUDING ELECTRICAL CONTROL SCHEMATIC) ON ALL EQUIPMENT TO BE INSTALLED, SHALL BE SUBMITTED TO DISTRICT FOR APPROVAL PRIOR TO EQUIPMENT BEING DELIVERED TO SITE.

5. CONDUIT INSTALLED IN CONTACT WITH THE EARTH SHALL BE PVC, SCH. 40.

6. EMT OR RIGID CONDUIT SHALL BE INSTALLED BETWEEN COMPONENT EQUIPMENT WITHIN THE ENCLOSURE.

7. INSTALLATIONS WHERE THE DISTRICT APPROVES THE DELETION OF THE ELECTRICAL CONNECTION REQUIREMENTS, CABINETRY FOR A SEVEN DAY, WIND-UP, 12" DIA, TWO PEN CHART RECORDER INSTALLATION SHALL BE SPECIFIED BY THE DISTRICT AS A REPLACEMENT. (REFER TO STANDARD DRAWINGS FOR TYPE "C" PRV STATION, W-1566 AND W-1567)

8. CONSULT DISTRICT STAFF FOR CURRENT LIST OF APPROVED MANUFACTURES.

**ELECTRICAL MATERIALS LIST**

- **A** 48"W X 42"H X 18"D WEATHERPROOF EQUIPMENT ENCLOSURE W/3 POINT LATCH, LOCKABLE DOOR HANDLE AND EQUIPMENT MOUNTING PANEL MOUNTED WITHIN THE ENCLOSURE. AS MANUFACTURED BY HOFFMAN MANUFACTURING CO. PAINT PER W.M.W.D. INSPECTOR.

- **B** SERVICE EQUIPMENT W/UNDERGROUND PULL BOX, METER AND BREAKER PANEL.

- **C** DUPLEX RECEPTACLE, 120V, 20A, GFI PROTECTED

- **D** 2" C.O. SERVICE (CONDUCTORS BY SERVING UTILITY).

- **E** 12" ROUND CHART, 2 PEN PRESSURE RECORDER, 120V.

- **F** SWITCH DIFFERENTIAL (RELAY), PULSE RATE RECEIVER (SIGNAL CONVERTER) AND POWER SUPPLY MODULE ALL WITHIN A 11"W X 12 3/4"H ENCLOSURE.

- **G** POWER SUPPLY TO REMOTE TRANSUDER.

- **H** TWO 3/4" CONDUITS BETWEEN CONTROL CABINET AND PRV VAULT FOR SOLENOID ACTIVATION WIRING.

- **I** PVC CONDUITS TO HOUSE D.B. CABLE FROM PIPE TRENCH TO CONTROL CABINET.

- **J** PRESSURE TRANSMITTER, F/A SERIES, MODEL NO. 2508-15A BY BRISTOL BABCOCK INC., SELECTED FOR THE APPROPRIATE PRESSURE RANGES FOR THE HIGH AND LOW SIDE OF THE PRV.

- **K** WIRING TERMINAL STRIP.

- **L** 1/2" TYPE K COPPER TUBING, PRESSURE SENSING LINE TO CONTROL CABINET

- **M** BALL VALVES (COORDINATE CLASS AND TYPE WITH DISTRICT INSPECTORS).

**APPROVED DATE:** January 1, 2011

**DIRECTOR OF ENGINEERING**

**STANDARD DRAWING**

**TYPE "A"**

**PRESSURE REDUCING STATION**

**(ELEC CONTROL CABINET DET)**

**STD. DWG. NO.**

W-1560

4 OF 4
TABLE I

<table>
<thead>
<tr>
<th>STATION SIZE</th>
<th>MAX. CAP.</th>
<th>BRANCH LINE SIZE</th>
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<tbody>
<tr>
<td></td>
<td>&quot;P&quot; &quot;S&quot;</td>
<td>&quot;A&quot; &quot;B&quot; &quot;C&quot;</td>
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<tr>
<td>2&quot; X 4&quot;</td>
<td>1008</td>
<td>8&quot; 6&quot; 4&quot;</td>
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<td>2&quot; X 6&quot;</td>
<td>2008</td>
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</tr>
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<td>3&quot; X 8&quot;</td>
<td>3560</td>
<td>14&quot; 12&quot; 4&quot;</td>
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<td>16&quot; 14&quot; 4&quot;</td>
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<tr>
<td>4&quot; X 12&quot;</td>
<td>7800</td>
<td>18&quot; 16&quot; 6&quot;</td>
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</table>

(1) STATION SIZE REFERS TO NOMINAL DIAMETERS OF THE PRESSURE REDUCING VALVES
"P"= PRIMARY PRV SIZE FOR NORMAL DOMESTIC FLOWS
"S"= SECONDARY PRV SIZE FOR GREATER THAN NORMAL FLOWS

NOTE:
THE ENGINEER OF DESIGN MUST SUBMIT TO THE DISTRICT, A SPECIFIC DESIGN BASED ON THE TYPICAL LAYOUT FOR EACH INSTALLATION FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION AND SUBMITTALS FOR PIPING, GAUGES, AND CHART RECORDER.

STANDARD DRAWING
PRESSURE REDUCING STATION
TYPE "B"
(TYPICAL LAYOUT)

DIRECTOR OF ENGINEERING

APPROVED DATE: January 01, 2011

STD. DWG. NO.
W-1564
1 OF 3
GENERAL NOTES

1. THE REQUIRED PRESSURE REDUCING STATION CAPACITY AND SIZE SHALL BE DETERMINED BY DISTRICT.
2. ALL MATERIALS, MATERIALS TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DISTRICT STANDARDS. FAILURE TO MEET THESE REQUIREMENTS WILL BE CAUSE FOR REJECTION.
3. DISTRICT SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL SHORE ALL EXCAVATIONS IN ACCORDANCE WITH CAL-Osha REQUIREMENTS.
5. UNLESS OTHERWISE APPROVED BY DISTRICT, VAULTS AND ELECTRICAL EQUIPMENT SHALL BE LOCATED TO SET BEHIND EXISTING OR FUTURE CURBS.
6. DETAILS OF VAULTS FOR ALL PRV STATION SIZES SHALL BE SUBMITTED TO DISTRICT FOR APPROVAL.
7. THE DESIGN SHOWN IS TYPICAL AND SYMMETRICAL, THE DISTRICT WILL INDICATE WHICH FEATURES SHALL BE MODIFIED.
8. ALL STD. PIPING AND FITTINGS SHALL BE EPOXY LINED WITH 10 MILS MIN. (2-COATS, 5 MILS EA.) OF KEYSITE 750 OR APPROVED EQUAL.
9. ALL EXPOSED PIPING SHALL BE PRIMED AND FIELD PAINTED PER DISTRICT SPECIFICATION, ALL BURIED PIPING, SHALL BE CEMENT MORTAR COATED (CMC) OR ASPHALT WRAPPED (AW) PER DISTRICT SPECIFICATION.
10. ONE (1) PIPE SUPPORT SHALL BE FURNISHED AND INSTALLED UNDER LINES B, AND C, WITHIN PRV VAULT.
11. PRESSURE CLASS TO BE DETERMINED BY THE DISTRICT.
12. INSIDE THE VAULT CLEARANCE FROM TOP OF VALVE TO BOTTOM OF VAULT LID SHALL BE GREATER THAN OR EQUAL TO 6".
13. CLEARANCE BETWEEN PIPE/VALVE BOTTOM AND INSIDE VAULT FLOOR SHALL BE GREATER THAN OR EQUAL TO 18".
14. LINE "B" AND "C" SHALL BE LEVEL.
15. ALL EXPOSED PIPING INSIDE VAULT SHALL BE PAINTED WITH 2 COATS (8 MILS MIN.) OF "DESERT SANDS" (Tnemec Ah52) OVER AND APPROVED ALKYD RUST INHIBITIVE PRIMER.

MECHANICAL MATERIALS LIST

1 PRIMARY ("P", SEE TABLE 1) SIZE PRESSURE REDUCING, PRESSURE REGULATING, CHECK VALVE FLANGED ENDS, STAINLESS STEEL TRIM, EPOXY LINED, W/POSITION INDICATOR, CLA-VAL MODEL 92G-01 BDSYKX101 (50 A or G).
2 SECONDARY ("S" SEE TABLE 1) SIZE PRESSURE REDUCING, PRESSURE REGULATING, CHECK VALVE, FLANGED ENDS, STAINLESS STEEL TRIM, EPOXY LINING, POSITION INDICATOR, CLA-VAL MODEL 91G-01 BDSYKX101 (50 A or G).
3 "A" SIZE DISHED HEAD, 10 GA STEEL CML/CMC.
4 "P" SIZE WELD NECK, STD WT STEEL
5 "P" SIZE X "C" SIZE ECCENTRIC REDUCER, STD WT, INSTALLED TOP FLAT WITH "C" END GROOVED FOR VICTAULIC FLANGE.
6 "C" SIZE SLIP-ON FLANGE
7 "C" SIZE GROOVE X FLANGE ADAPTER, VICTAULIC STYLE 741
8 "C" SIZE CML WSP, 10 GA, ADD 12" CTF. CMC WHERE BURIED, AND OUTSIDE PAINTED INSIDE VAULT.
9 "C" SIZE FLG'D RS GATE VALVE
10 "C" SIZE SIDE OUTLET, 10 GA CML/CMC, W/COLLAR PER AWWA M-11
11 "S" SIZE WELD NECK FLANGE, STD WT STEEL

APPROVED DATE: January 01, 2011

DIRECTOR OF ENGINEERING

STANDARD DRAWING
PRESSURE REDUCING STATION
TYPE "B"
(NEW NOTES AND MAT LIST)

STD. DWG. NO.
W-1564
2 OF 3
MECHANICAL MATERIALS LIST (CONT.)

12. "S" size x "B" size eccentric reducer, STD WT, installed top flat with "B" end grooved for Victaulic flange.
14. "B" size groove x flange adapter, Victaulic style 741 or 742.
15. "B" size CML WSP, 10 GA, ADD 12" CTF. CMC where buried, and outside painted inside vault.
16. "B" size flanged RS gate valve (12" dia and under) or flanged butterfly valve (over 12" dia).
18. "A" size CML/CMC WSP, 10 GA. AND 12" CTF.
19. MAINLINE size slip-on flange.
22. MAINLINE size flanged RS gate valve (12" and under) or flanged butterfly valve (over 12")
23. 1" 3000# COUPLING W/1" CORP STOP AND BRONZE REDUCER BUSHING TO 1/2" BRASS COMPRESSION COUPLING.
24. 1/2" TYPE K COPPER TUBING, PRESSURE SENSING LINE TO RECORDER CABINET.
25. PRECAST CONCRETE VAULT W/BOTTOM SECTION, FULL OPEN TORSION HINGED, STEEL PARKWAY LID. (TRAFFIC LID MAY BE ADDED AT THE OPTION OF THE DISTRICT) AND GALVANIZED LADDER. VAULT SHALL BE SIZED BASED UPON THE MIN. CLEARANCE DIMENSIONS INDICATED ON THE PRV 'TYPICAL LAYOUT' (WMWD STD W-1564) BOTTOM SECTION SHALL HAVE 6" DRAIN HOLE AND BE SET ON MIN. 6" THICK BED OF 1" GRAVEL.
26. 3/4" 3000# COUPLING WITH 3/4" CORP STOP (JONES J-50), BRONZE REDUCER BUSHING AND 4" FACE LIQUID FILLED PRESSURE GAUGE, WIKA 213.40 LM, 0-200 PSI DOWN STREAM AND 0-300 PSI UPSTREAM.
27. 30" X 20" X 8" NEMA TYPE 4 SINGLE DOOR ENCLOSURE WITH PANEL, AS MANUFACTURED BY HOFFMAN ENGINEERING. CAT. NO. A-L30H2008LP, PAINT PER W.M.W.D. INSPECTOR.
28. 8" ROUND-CHART RECORDER MODEL NO. 53011 OR 53012 AS MANUFACTURED BY BRISTOL BABCOCK.
29. 1 1/2" DIA. RIGID STEEL CONDUIT.
30. 1/2" DIA. ALL BRONZE BALL VALVE. 600 PSI WOG. APOLLO MODEL 70-100. USE APPROPRIATE BRASS COMPRESSION FITTINGS FOR COPPER TUBING AND 600 PSI STAINLESS STEEL BRAID FLEX HOSES WITH THREADED ENDS BETWEEN BALL VALVES AND CHART RECORDER CONNECTION.
31. ELECTRICAL CABINET SUPPORT PER DETAIL "A".
NOTE:
THE ENGINEER OF DESIGN MUST SUBMIT TO DISTRICT, A SPECIFIC DESIGN BASED ON THIS LAYOUT FOR EACH INSTALLATION FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION AND SUBMITTALS FOR PIPING, GAUGES, AND CHART RECORDER.

TABLE I

<table>
<thead>
<tr>
<th>STATION SIZE &quot;S&quot;</th>
<th>SIZING &quot;A&quot;</th>
<th>SIZE &quot;A&quot;</th>
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<tr>
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STATION SIZE REFERS TO NOMINAL DIAMETER OF THE PRESSURE REDUCING VALVE
REFER TO STANDARD DRAWING NO. W-1567 FOR MECHANICAL MATERIALS LIST AND GENERAL NOTES

DIRECTOR OF ENGINEERING

STANDARD DRAWING
PRESSURE REDUCING STATION
TYPE "C"
(TYPICAL LAYOUT)
GENERAL NOTES

1. THE REQUIRED PRESSURE REDUCING STATION CAPACITY AND SIZE SHALL BE DETERMINED BY DISTRICT.
2. ALL MATERIALS, MATERIALS TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DISTRICT STANDARDS. FAILURE TO MEET THESE REQUIREMENTS WILL BE CAUSE FOR REJECTION.
3. DISTRICT SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL SHORE ALL EXCAVATIONS IN ACCORDANCE WITH CAL-OSHA REQUIREMENTS.
5. UNLESS OTHERWISE APPROVED BY DISTRICT, VAULTS AND CONTROL EQUIPMENT SHALL BE LOCATED TO SET BEHIND EXISTING OR FUTURE CURBS.
6. DETAILS OF VAULTS FOR ALL PRV STATION SIZES SHALL BE SUBMITTED TO DISTRICT FOR APPROVAL.
7. THE DESIGN SHOWN IS TYPICAL, THE DISTRICT WILL INDICATE WHICH FEATURES SHALL BE MODIFIED.
8. ALL STD. PIPING AND FITTINGS SHALL BE EPOXY LINED WITH 10 MILS MIN. (2-COATS, 5 MILS EA.) OF KEYSITE 750 OR APPROVED EQUAL.
9. ALL EXPOSED PIPING SHALL BE PRIMED AND FIELD PAINTED PER DISTRICT SPECIFICATION, ALL BURIED PIPING, SHALL BE CEMENT MORTAR COATED (CMC) OR ASPHALT WRAPPED (AW) PER DISTRICT SPECIFICATION.
10. ONE (1) PIPE SUPPORT SHALL BE FURNISHED AND INSTALLED UNDER LINES A, WITHIN PRV VAULT.
11. PRESSURE CLASS TO BE DETERMINED BY THE DISTRICT.
12. INSIDE THE VAULT CLEARANCE FROM TOP OF VALVE TO BOTTOM OF VAULT LID SHALL BE GREATER THAN OR EQUAL TO 6".
13. CLEARANCE BETWEEN PIPE/VALVE BOTTOM AND INSIDE VAULT FLOOR SHALL BE GREATER THAN OR EQUAL TO 18".
14. LINE "A" SHALL BE LEVEL THROUGH THE VAULT.
15. ALL EXPOSED PIPING INSIDE VAULT SHALL BE PAINTED WITH 2 COATS (8 MILS MIN.) OF "DESERT SANDS" (TNEMEC AH52) OVER AND APPROVED ALKYD RUST INHIBITIVE PRIMER.

MECHANICAL MATERIALS LIST

1. PRESSURE REDUCING, PRESSURE SUSTAINING, CHECK VALVE FLANGED ENDS, STAINLESS STEEL TRIM, EPOXY LINED, POSITION INDICATOR, CLA-VAL MODEL 92G-02 BKC-X101.
2. "A" SIZE 90° BEND (CML/CMC, 10 GA)
3. "A" SIZE CML/CMC WSP (10 GA)
4. "S" SIZE WELD NECK FLANGE, 150# (EPOXY LINED)
5. "A" SIZE X "S" SIZE ECCENTRIC REDUCER, STD WT, INSTALLED TOP FLAT ("A" SIZE END TO BE VIC GROOVED, EPOXY LINED).
6. "A" SIZE SLIP-ON FLANGE, 150#
8. ELECTRICAL CABINET SUPPORT PER DETAIL "A".
9. "A" SIZE FLANGED RS GATE VALVE (12" DIA AND UNDER) OR FLANGED BUTTERFLY VALVE (OVER 12" DIA)
11. "A" SIZE SLIP-ON FLANGE, 150#, SHIPPED LOOSE.
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<th>No.</th>
<th>Description</th>
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<td>&quot;A&quot; SIZE FLANGED SIDE OUTLET W/WRAPPER REINF. PER AWWA M-11 (CML/CMC, 10 GA).</td>
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<td>13</td>
<td>MAINLINE SIZE FLANGED RS GATE VALVE (12&quot;∅ AND UNDER) OR FLANGED BUTTERFLY VALVE (OVER 12&quot;∅).</td>
</tr>
<tr>
<td>14</td>
<td>MAINLINE SIZE SLIP-ON FLANGE (SHIP LOOSE).</td>
</tr>
<tr>
<td>15</td>
<td>1&quot;∅ 3000# COUPLING W/1&quot;∅ CORP STOP AND BRONZE REDUCER BUSHING TO 1/2&quot;∅ BRASS COMPRESSION COUPLING.</td>
</tr>
<tr>
<td>16</td>
<td>1/2&quot;∅ TYPE K COPPER TUBING, PRESSURE SENSING LINE TO RECORDER CABINET.</td>
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<tr>
<td>17</td>
<td>5'L X 4'W X 6'D PRECAST CONCRETE VAULT W/BOTTOM SECTION, FULL OPEN TORSION HINGED, STEEL PARKWAY LID, (TRAFFIC LID MAY BE ADDED AT THE OPTION OF THE DISTRICT) SUITABLE FOR PRESSURE REDUCING STATION SIZE 4&quot; AND 6&quot;, LARGER SIZE STATIONS SHALL BE SIZED BASED UPON THE MIN. CLEARANCE DIMENSIONS INDICATED ON THE PRV &quot;TYPICAL LAYOUT&quot; (WMWD STD W-1566) BOTTOM SECTION SHALL HAVE 6&quot;∅ DRAIN HOLE AND BE SET ON MINIMUM 6&quot; THICK BED OF 1&quot; GRAVEL.</td>
</tr>
<tr>
<td>18</td>
<td>3/4&quot;∅ 3000# COUPLING WITH 3/4&quot;∅ CORP STOP (MUELLER), BRONZE REDUCER BUSHING AND 4&quot; FACE LIQUID FILLED PRESSURE GAUGE, WIKA 213.40 LM, 0-200 PSI DOWN STREAM AND 0-300 PSI UPSTREAM.</td>
</tr>
<tr>
<td>19</td>
<td>30&quot; X 20&quot; X 8&quot; NEMA TYPE 4 SINGLE DOOR ENCLOSURE WITH PANEL, AS MANUFACTURED BY HOFFMAN ENGINEERING. CAT. NO. A-L30H2008LP, PAINT PER W.M.W.D. INSPECTOR.</td>
</tr>
<tr>
<td>20</td>
<td>12&quot; DIA. CHART, 2 PEN PRESSURE RECORDER, MECHANICAL CHART DRIVE MODEL NO. 50012-10GA AS MANUFACTURED BY BRISTOL BABCOCK INC.</td>
</tr>
<tr>
<td>21</td>
<td>1 1/2&quot; DIA. RIGID STEEL CONDUIT.</td>
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<tr>
<td>22</td>
<td>1/2&quot; DIA. ALL BRONZE BALL VALVE, 600 PSI WOG, APOLLO MODEL 70-100. USE APPROPRIATE BRASS COMPRESSION FITTINGS FOR COPPER TUBING AND 600 PSI STAINLESS STEEL BRAID FLEX HOSES WITH THREADED ENDS BETWEEN BALL VALVES AND CHART RECORDER CONNECTION.</td>
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## THRUST BLOCK TABLES

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<tr>
<th>PIPE SIZE IN.</th>
<th>TYPE OF FITTING</th>
<th>SAFE SOIL BEARING #/S.F.</th>
<th>THRUST BLOCK DIMENSIONS</th>
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### NOTES:

1. CONCRETE THRUST BLOCKS ARE TO BE Poured AGAINST UNDISTURBED EARTH.
2. CONCRETE THRUST BLOCKS SHALL BE OF CLASS "C" (4 1/2 Sack MIX) CONCRETE.
3. ALL GATE VALVES SHALL BE SUPPORTED PER DETAIL 'A' BELOW & STD DWG W-0150.
4. PLUG ALL STUBS PER SPECS.
5. ALL CONCRETE SHALL BE POURED TO AVOID INTERFERENCE WITH BOLTED CONNECTIONS.
6. WHERE PIPE CONNECTS TO A FITTING IN A STEEL PIPELINE, THE STEEL PIPELINE SHALL BE BLOCKED AS SHOWN HEREON.
7. CONCRETE SHALL BE CONFINED BY FORMS TO PROVIDE A MINIMUM CLEARANCE OF 4" AT FLANGE BOLTS AND NUTS.

**CONCRETE TO BE NO CLOSER THAN 4" TO BOLTS AND IF POSSIBLE SHALL BE FORMED.**

**APPLIES TO HUB-END VALVES**

**NO. 3 RE-BAR** *(REQ. ON HUB-END VALVES ONLY)*

**TYPICAL THRUST BLOCK INSTALLATION**

---

**APPROVED DATE:** January 01, 2011

**DIRECTOR OF ENGINEERING**

**STANDARD DRAWING**

**THRUST BLOCK INSTALLATION**

**CLASS 150 & 200**

**STD. DWG. NO.:** W-1570
10 GA. STEEL DISC WELDED TO 6" DIA PIPE

6" DIA WSP 10 GA-12"LONG

5/16" DIA SELF TAPPING BOLTS (4EA.)

SECTION AA

36" ABOVE S/W

10 GA. STEEL ANGLE WELDED TO 4"DIA PIPE

4" DIA STD WT STEEL PIPE THREADED ONE END

4" DIA SCH 80 PVC THD. COUPLING (FOR BREAK AWAY)

24" SQ SPLASH PAD OR SIDEWALK

4" DIA, STD WT, STEEL PIPE THREADED

DIRECTOR OF ENGINEERING

APPROVED DATE: January 01, 2011

STANDARD DRAWING
PRESSURE RELIEF VALVE DISCHARGE OUTLET

STD. DWG. NO. W-1580
1. Diameter of conc. footing shall be 3 times O.D. of post (10" min.).

2. Installation shall be in accordance with manufacturers recommendations, the "Green Book" (Std. Spec. For Public Works Const. – Current Edition) as modified here on and shall be approved by the district.

3. Alignment deflections ≥ 30° shall be installed same as corner installations.

4. Wire reinforced razor wire/barbed tape unclipped helical type (18", Galv. 12#/roll, max stretch 33'/roll) shall be installed in lieu of barbed wire where specified by district.

5. Concre. class 500-c-2500 per std. specs for public construction sec. 201 (6 sacks)

6. 1/4" x 3/4" stretcher bar bands

7. 1/4" x 3/4" steel stretcher bar arms

8. 2 7/8" O.D. end, pull, & corner posts [brace all pull & corner posts in both directions w/ max pull post spacing at 500']

9. 3/8" dia. adjustable truss rod

10. 10' max. (typ.)

11. 10' max. (typ.)

12. 6'-0" O.D. top brace

13. 1-5/8" O.D. top brace

14. 7 ga. bottom & top tension wire

15. 9 ga. AWG gauge wire ties spaced 18" max

16. 3/8" dia. adjustable truss rod

17. 9" ga. Galv. fabric w/ swarp points top & bottom

18. 2-3/8" O.D. line post

19. 6" x 6" x 6" conc. footing

20. 12" & 9" ga. Galv. combination post top and barbed wire supporting arm.

21. 7 ga. bottom & top tension wire

22. 1/4" x 3/4" steel stretcher bar bands

23. 1/4" x 3/4" steel stretcher bar arms

24. 9" ga. Galv. fabric w/ swarp points top & bottom

25. 2-3/8" O.D. line post

26. 6'-0" O.D. top brace

27. 1-5/8" O.D. top brace

28. 7 ga. bottom & top tension wire

29. 1/4" x 3/4" steel stretcher bar bands

30. 1/4" x 3/4" steel stretcher bar arms

31. 2 7/8" O.D. end, pull, & corner posts [brace all pull & corner posts in both directions w/ max pull post spacing at 500']

32. 3/8" dia. adjustable truss rod

33. 10' max. (typ.)

34. 10' max. (typ.)

35. WMWD property or basement

36. Property line or permanent easement

37. Extension arms (45° angle)

38. Brace (where required)

39. Post with 9 gage wire ties spaced 18"

40. Concrete footing

41. See Note 1

NOTES:

1. Diameter of conc. footing shall be 3 times O.D. of post (10" min.)

2. Installation shall be in accordance with manufacturers recommendations, the "Green Book" (Std. Spec. For Public Works Const. – Current Edition) as modified here on and shall be approved by the district.

3. Alignment deflections ≥ 30° shall be installed same as corner installations.

4. Wire reinforced razor wire/barbed tape unclipped helical type (18", Galv. 12#/roll, max stretch 33'/roll) shall be installed in lieu of barbed wire where specified by district.
EACH GATE PANEL INSTALLATION SHALL INCLUDE A "DUCKBILL GATE HOLDBACK" LATCH MOUNTED ON A 1-5/8 OD GALV POST TO HOLD THE GATE IN THE OPEN POSITION. THE POST AND LATCH SHALL BE INSTALLED ACCORDING TO THE HOLDBACK LATCH MANUFACTURE'S RECOMMENDATION.

**GATE OPENINGS:**

- **"A"**
  - SINGLE TO 6' OR DOUBLE 12' INCL.
  - SINGLE OVER 6' TO 13' OR DOUBLE OVER 12' TO 26' INCL
  - SINGLE OVER 13' TO 18' OR DOUBLE OVER 26' TO 36' INCL.
  - SINGLE OVER 18' TO 18' OR DOUBLE OVER 36'

- **"B"**
  - 2-7/8"
  - 3-1/2"
  - 6-5/8*'
  - 8-5/8**'

*REQUIRES REVIEW & WRITTEN APPROVAL BY DISTRICT
SUBMERSIBLE RAW SEWAGE PUMP WITH CENTER DISCHARGE.

POWER AND CONTROL CABLES TO PUMP. SUPPORT CABLES WITH ST. STL. KELLMAR GRIPS HUNG FROM SUPPORT AND LOOP CABLE OVER SUPPORT.

LIFT STATION GUIDELINES

1. SUBMERSIBLE RAW SEWAGE PUMP WITH CENTER DISCHARGE.
2. POWER AND CONTROL CABLES TO PUMP. SUPPORT CABLES WITH ST. STL. KELLMAR GRIPS HUNG FROM SUPPORT AND LOOP CABLE OVER SUPPORT.
3. 3" DIAMETER ST. STL. LIFTING CABLE. LOOP THROUGH PUMP LIFT BAIL ASSEMBLY WITH OTHER ENDS ATTACHED TO ROOF SUPPORT.
4. CABLE SUPPORT. 3/4" DIAMETER ST. STL.
5. FLANGED ST STL SPOOL. LENGTH AS REQUIRED (TYP.).

NOTE

THESE PLANS ARE CONSIDERED GUIDELINES ONLY. THE DESIGN ENGINEER SHALL PREPARE PLANS SPECIFIC TO EACH LIFT STATION, BASED ON SITE SPECIFIC DATA, WESTERNS GUIDELINES AND OTHER INDUSTRY STANDARDS AS REQUIRED.
NOTES

THESE PLANS ARE CONSIDERED GUIDELINES ONLY. THE DESIGN ENGINEER SHALL PREPARE PLANS SPECIFIC TO EACH LIFT STATION BASED ON SITE SPECIFIC DATA, WESTERN’S GUIDELINES AND OTHER INDUSTRY STANDARDS AS REQUIRED.
1. Submersible raw sewage pump with center discharge.
2. Power and control cable to pump, hang on support with ST. STL. KELLM GRIPS AND LOOP CABLE OVER SUPPORT.
3. 316 ST. STL. LIFTING CABLE LOOPED THROUGH PUMP LIFTING BAIL ASSEMBLY WITH OTHER ENDS ATTACHED TO SUPPORT.
4. Cable support. 1/2" DIAMETER ST. STL. (TYP).
5. Schedule 40 ST. STL. PIPE GUIDE RAILS FOR SUBMERSIBLE PUMP.
6. ST. STL. INTERMEDIATE GUIDE RAIL SUPPORT.
7. ST. STL. UPPER GUIDE RAIL SUPPORT. ATTACH TO CONCRETE WITH ST. STL. EXPANSION ANCHORS.
8. Pump discharge elbow furnished by pump manufacturer. Anchor with ST. STL. ANCHOR BOLTS.
10. Support for discharge pipe and guide rail.
11. Flange x grooved end DI spool, length as required.
12. Grooved 90° Elbow, ST. STL.
13. 8" VENT. PVC SCHEDULE 40 WITH CAP.
14. Swing check valve with lever and weight or dash pots.
15. Gear operated non-lubricated plug valve. Provide square nut for operation above with valve key and with handwheel to fit square nut.
16. Flange x grooved end DI spool, minimum 6" long.
17. Victaulic grooved coupling (SYTLE 31).
18. Combination sewage air and vacuum valve with gate valve, back flush attachments, and PVC air discharge piping to wet well.
19. Valve vault. Associated concrete or brooks products precast concrete vault with aluminum walkway cover and concrete bottom, with breakout sump. Provide hinged manway openings and valve square nut access openings.
21. ST. STL. WEIGHT ATTACHED TO ST. STL. CABLE AND HANG OFF 1/2" ST. STL. CABLE SUPPPORT. ATTACH FLOATS TO ST. STL. CABLE WITH NYLON TIES.
22. Adjustable pipe saddle support (grinnel fig. 264, or equal) placed on a grout leveling pad and anchored to concrete slab with wedge anchors.
23. PVC schedule 40 odor scrubber supply vent.
24. Provide "T" lock on exposed concrete surface.
25. Provide grout filet.
26. Ultrasonic level transducer.
27. Floor drain with P-TRAP from pump wash down pad.
28. Concrete pump wash down pad.
29. Flanged DI spool, length as required.
30. Crushed rock base material.

TYPICAL NOTE FOR WET WELL PIPE PENETRATIONS:

Repair "T" lock at openings into concrete per "T" lock manufacturer requirements. Core drill holes in concrete, 2" larger than pipe O.D., fill annulus with non-shrink grout and install sealant inside and outside.

NOTE:

These plans are considered guidelines only. The design engineer shall prepare plans specific to each lift station, based on site specific data, western’s guidelines and other industry standards as required.

N.T.S.
MATERIAL AND EQUIPMENT LIST

1. MASONRY BLOCK BUILDING WITH WOOD ROOF. SIZE AS REQUIRED FOR EQUIPMENT FURNISHED.

2. ELECTRICAL SERVICE SECTION AND MAIN PER ELECTRICITY UTILITY REQUIREMENTS. MOUNT TO CONCRETE PAD WITH ST. STL. WEDGE ANCHORS.

3. MOTOR CONTROL CENTER, MOUNT TO CONCRETE PAD.

4. EMERGENCY STANDBY GENERATOR WITH VIBRATION ISOLATORS. MOUNT TO GENERATOR FOUNDATION WITH CAST IN PLACE OR DRILLED AND EPOXY ANCHOR BOLTS.

5. GRAVITY INTAKE LOUVER WITH AUTOMATIC SHUTTERS AND INTAKE SCREEN.

6. FIXED INTAKE LOUVER WITH INTAKE SCREEN, MOUNT Flush WITH EXTERIOR WALL.

7. EXHAUST VENTILATOR OPERATED BY ADJUSTABLE THERMOSTAT AND 24-HOUR TIMER. SIZE FOR MINIMUM OF 15 AIR CHANGES PER HOUR.

8. ENAMELED CAST IRON CLEANUP SINK 22” X 18” X 12”.

9. PACKAGED AERATION BLOWER UNIT IF REQUIRED WITH INLET AND EXHAUST SILENCER, WEIGHTED AIR RELIEF VALVE, BALL VALVE, CHECK VALVE, AND APPURTENANCES.

10. CONCRETE PAD.

11. WASH WATER WITH 3/4" HOSE BIBS.

12. HOLLOW METAL DOOR.

13. EXHAUST LOUVER WITH GRAVITY AUTOMATIC SHUTTERS AND SCREEN. SIZE PER GENERATOR MANUFACTURER AND TO ALLOW REMOVAL OF GENERATOR THROUGH THE WALL OPENING.

14. SMALL GENERATOR 5,000-6500 WATT COULD BE USED AS POWER LIGHTING AND SCADA (PROPANE)

NOTE
THESE PLANS ARE CONSIDERED GUIDELINES ONLY. THE DESIGN ENGINEER SHALL PREPARE PLANS SPECIFIC TO EACH LIFT STATION, BASED ON SITE SPECIFIC DATA, WESTERN’S GUIDELINES AND OTHER INDUSTRY STANDARDS AS REQUIRED.
1. MASONRY BLOCK BUILDING. SIZE AS REQUIRED FOR EQUIPMENT FURNISHED, (WALL HEIGHT 10'-0').
2. WOOD TRUSS ROOF WITH LIGHT WEIGHT CONCRETE SHINGLES. MINIMUM 4 IN 12 ROOF PITCH.
3. GRAVITY INTAKE LOUVER WITH AUTOMATIC SHUTTERS AND INTAKE SCREEN.
4. PACKAGED AERATION BLOWER UNIT IF REQUIRED WITH INLET AND EXHAUST SILENCER, WEIGHTED AIR RELIEF VALVE, BALL VALVE, CHECK VALVE, AND APPURTENANCES.
5. CRITICAL GRADE EXHAUST SILENCER. MOUNT TO ROOF AND PROVIDE INSULATED OPENING FOR EXHAUST PIPING.
6. GRAVITY EXHAUST LOUVER.
7. CONCRETE FLOOR AND FOUNDATION PER STRUCTURAL CALCULATIONS.
8. ISOLATED GENERATOR FOUNDATION, SIZE AND WEIGHT PER GENERATOR MANUFACTURERS REQUIREMENTS (MINIMUM WEIGHT EQUAL 1.5 TIMES GENERATOR WEIGHT). REINFORCEMENT AND GENERATOR ANCHORAGE PER STRUCTURAL CALCULATIONS.
9. REMOVABLE WALL SECTION TO ALLOW REMOVAL OF GENERATOR.

NOTE
THESE PLANS ARE CONSIDERED GUIDELINES ONLY. THE DESIGN ENGINEER SHALL PREPARE PLANS SPECIFIC TO EACH LIFT STATION, BASED ON SITE SPECIFIC DATA, WESTERN'S GUIDELINES AND OTHER INDUSTRY STANDARDS AS REQUIRED.

MATERIAL AND EQUIPMENT LIST

LIFT STATION GUIDELINES
N.T.S.

DIRECTOR OF ENGINEERING

APPROVED DATE: January 1, 2011

LIFT STATION GUIDELINES
CONTROL BUILDING
SECTION

STD. DWG. NO.

LS-5