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INSTALLATION OF NEW SANITARY SEWER

ZONE A SPECIAL PERMISSION
ZONE B SPECIAL PIPE
ZONE A SPECIAL PERMISSION
ZONE B SPECIAL PIPE

FIGURE 1 - PARALLEL CONSTRUCTION

ZONE C SPECIAL PIPE (NO JOINTS IN SEWERLINE)
ZONE P PROHIBITED CONSTRUCTION ZONE

FIGURE 2 - CROSSINGS

MINIMUM SEPARATION REQUIREMENTS FOR WATER MAIN AND SEWER LINE CONSTRUCTION PER SECTION 64572 (WATER MAIN SEPARATION, CALIFORNIA WATERWORKS STANDARDS, TITLE 22, CALIFORNIA CODE OF REGULATIONS.)
INSTALLATION OF NEW WATER MAIN

ZONE B
SPECIAL PIPE

ZONE A
SPECIAL PERMISSION

ZONE P

ZONE B
SPECIAL PIPE

6'  3'  1'  1'  3'  6'

PROHIBITED CONSTRUCTION ZONE

SANITARY SEWER

FIGURE 1 - PARALLEL CONSTRUCTION

ZONE D

ZONE P

SANITARY SEWER

6'  4'  4'  6'

PROHIBITED CONSTRUCTION ZONE

ZONE C

SPECIAL PIPE

(NO JOINTS IN WATERLINE)

FIGURE 2 - CROSSINGS

NEW WATER MAIN - EXISTING SANITARY SEWERLINE

MINIMUM SEPARATION REQUIREMENTS FOR WATER MAIN AND SEWERLINE CONSTRUCTION PER SECTION 64572 (WATER MAIN SEPARATION, CALIFORNIA WATERWORKS STANDARDS, TITLE 22, CALIFORNIA CODE OF REGULATIONS.)

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

WATER MAIN AND SANITARY SEWER SEPARATION

CASE 2

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

DATE: MAR 2004

CWD-015-2
NOTES AND DEFINITIONS

1. HEALTH AGENCY — THE DEPARTMENT OF HEALTH SERVICES. FOR THOSE WATER SYSTEMS SUPPLYING FEWER THAN 200 SERVICE CONNECTIONS, THE LOCAL HEALTH OFFICER SHALL ACT FOR THE DEPARTMENT OF HEALTH SERVICES.

2. WATER SUPPLIER — "PERSON OPERATING A PUBLIC WATER SYSTEM" OR "SUPPLIER OF WATER" MEANS ANY PERSON WHO OWNS OR OPERATES A PUBLIC WATER SYSTEM.

3. LOW HEAD WATER MAIN — ANY WATER MAIN WHICH HAS A PRESSURE OF FIVE PSI (POUNDS PER SQUARE INCH) OR LESS AT ANY TIME AT ANY POINT IN THE MAIN.

4. DIMENSIONS ARE FROM THE OUTSIDE OF WATER MAIN TO THE OUTSIDE OF SANITARY SEWER LINE OR MANHOLE.

5. COMPRESSION JOINT — A PUSH-ON JOINT THAT SEALS BY MEANS OF THE COMPRESSION OF A RUBBER RING OR GASKET BETWEEN THE PIPE AND A BELL OR COUPLING.

6. MECHANICAL JOINTS — BOLTED JOINTS.

7. RATED WORKING WATER PRESSURE OR PRESSURE CLASS — A PIPE CLASSIFICATION SYSTEM BASED UPON INTERNAL WORKING PRESSURE OF THE FLUID IN THE PIPE, TYPE OF PIPE MATERIAL, AND THE THICKNESS OF THE PIPE WALL.

8. FUSED JOINT — THE JOINING OF SECTIONS OF PIPE USING THERMAL OR CHEMICAL BONDING PROCESSES.

9. SLEEVE — A PROTECTIVE TUBE OF STEEL WITH A WALL THICKNESS OF NOT LESS THAN ONE-FOURTH INCH INTO WHICH A PIPE IS INSERTED.

10. GROUND WATER — SUBSURFACE WATER FOUND IN THE PART OF THE GROUND THAT IS WHOLLY SATURATED.

11. HOUSE LATERAL — A SANITARY SEWER CONNECTING THE HOUSE LATERAL DRAIN, BUILDING DRAIN, AND THE MAIN SANITARY SEWERLINE.
TYPE A OR B ENCASEMENT FOR WATER & SEWER
REQUIRED TO SPAN TRENCH, OR WHERE ENCASEMENT IS NOT Poured ON UNDISTURBED EARTH

NOTE:
1. EXTEND MACHINED PIPE ENDS BEYOND ENCASEMENT
2. SEE CWD-023-2 FOR CROSS-SECTION OF A, B, OR C ENCASEMENT DETAIL

TYPE C ENCASEMENT FOR WATER & SEWER
SUPPORT WATER PIPE OR VCP AT 3 POINTS AND POUR CONTINUOUS AGAINST UNDISTURBED EARTH 1

PROTECT PIPE AGAINST FLOATATION
1/4" MIN WELDED STEEL CASING.

COMPACT EARTH AROUND ENCASEMENT AS REQUIRED ON PLANS & DETAIL SPECS

OD = OUTSIDE DIAMETER OF BELL, COLLAR, OR COUPLING.

ID CASING = OD + 6"

FILL ANNULAR SPACE WITH PER PLAN NOTES.

SEWER PIPE OR WATER PIPE

NOTE: SUPPORT AT LEAST 2' OF EACH END OF CASING ON UNDISTURBED EARTH.

TYPE A - PIPE CASING
SECTION A

6" TYP ENCASEMENT ALL SIDES
W/ PCC 560-C-3250

SEWER PIPE OR WATER PIPE

#5 @ 6' MAX CONTINUOUS FOR LENGTH OF ENCASEMENT SUPPORT AT LEAST 2' OF EACH END OF ENCASEMENT ON UNDISTURBED EARTH. COMPACT EARTH AS REQUIRED ON PLANS & DETAIL SPECS.

TYPE B - REINFORCED ENCASEMENT
SECTION B

6" TYP ENCASEMENT ALL SIDES
W/ PCC 520-C-2500

SEWER PIPE OR WATER PIPE
(PROTECT PIPE AGAINST FLOATATION)

SUPPORT ON CONCRETE BLOCKS

POUR AGAINST UNDISTURBED EARTH

TYPE C - PLAIN ENCASEMENT
SECTION C

GENERAL NOTES
1.) ALL MATERIALS OF CONSTRUCTION SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION"
GUIDELINE

NOTES:

1.) ALL MATERIALS OF CONSTRUCTION SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".


3.) ENGINEERED–APPROVED RESTRAINED JOINTS MAY BE USED IN–LIEU OF THRUST BLOCKS.

4.) ANCHOR BLOCK FOR GATE VALVES SHALL BE KEYED A MINIMUM OF 12 INCHES INTO TRENCH WALL AND 6 INCHES INTO BOTTOM OF TRENCH.

5.) THE ENGINEER OF RECORD SHALL SIZE ALL THRUST BLOCKS ON THE BASIS OF THE SOIL PASSIVE PRESSURE.
1\" AC SURFACE COURSE TYPE (D2-AR-4000) PER STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION

Q WATER MAIN

12' MIN

DRIVING LANE

6"

6"

PARKING LANE

EXISTING PAVEMENT

EXISTING PAVEMENT

FEATHER TO MEET EXISTING PAVEMENT

BASE COURSE, SEE NOTES #5 AND #6 IN CWD-040-2, AND SPECIFICATIONS

WATER PIPELINE

95% RELATIVE COMPACTION

95% RELATIVE COMPACTION

6"

VARIERS

BACKFILL MATERIAL

90% RELATIVE COMPACTATION

12" MIN

BEDDING

90% RELATIVE COMPACTATION

4" MIN.

SUBGRADE, SEE NOTE #7, CWD-040-2, FOR OVER-EXCAVATION REQUIREMENTS

EXTEND BEDDING TO 6" MIN BELOW THE BOTTOM OF THE PIPE IF THE TRENCH IS IN ROCKY GROUND

SEE NOTE #1, CWD-040-2

MAX TRENCH WIDTH = OD PIPE + 36"

TYPICAL TRENCH SECTION

SEE CWD-040-2 FOR NOTES

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL PIPE TRENCH, BEDDING, BACKFILL AND PAVEMENT REQUIREMENTS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

DATE: MAR 2004

CWD-040-1
GENERAL NOTES:

1.) MINIMUM TRENCH WIDTH = OD + 12” FOR 4” TO 12” NOMINAL DIAMETER PIPE AND OD + 18” FOR GREATER THAN 12” NOMINAL DIAMETER PIPE.

2.) THE MATERIAL FOR BEDDING SHALL BE COHESIONLESS SANDY LOAM, SAND, OR SANDY GRAVEL MATERIAL OBTAINED FROM PROJECT EXCAVATION OR FROM APPROVED BORROW AREAS. THE BEDDING MATERIAL SHALL NOT CONTAIN ANY ROCKS OR OTHER MATERIAL DELETERIOUS TO THE PIPE.


4.) FOR PAVED AND UNPAVED AREAS, THE COMPACTION OF BEDDING AND BACKFILL MATERIALS AND PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION “GREEN BOOK” LATEST EDITION.

5.) COMPACTED BACKFILL MATERIAL IN THE UNPAVED AREAS SHALL COMPLY WITH THE SAME REQUIREMENTS AS THE BACKFILL MATERIAL COMPACTION IN THE STREETS.

6.) THE BASE COURSE MATERIAL SHALL BE CRUSHED AGGREGATE BASE MATERIAL AS SPECIFIED IN SECTION 200-2 “UNTREATED BASE MATERIALS” OF THE CONSTRUCTION SPECIFICATIONS.

7.) IF THE ENGINEER DETERMINES THAT THE SOIL UPON WHICH THE PIPE IS TO BE PLACED IS UNSTABLE, THE CONTRACTOR SHALL OVER-EXCAVATE THE BOTTOM OF THE TRENCH TO A DEPTH OF 12” OR AS DIRECTED BY THE ENGINEER AND PLACE A LAYER OF CRUSHED ROCK ON THE TRENCH SUBGRADE COMPACTED TO 90% RELATIVE COMPACTION.

8.) THE BACKFILL AND PAVING SHALL COMPLY WITH THE CONSTRUCTION SPECIFICATIONS. THE BACKFILL AND PAVING MAY VARY ACCORDING TO AGENCY REQUIREMENTS.
SQUARE HEAD
THREADED STEEL PLUG

WELD STL PLUG
AFTER INSPECTION

10"

T = 3/16" : 8"Ø THRU 24"Ø
T = 1/4" : 30"Ø THRU 42"Ø

SECTIONAL DETAIL OF SPLIT BUTT STRAP

MORTAR COATING

13 GA WELDED
WIRE MESH

STEEL CYLINDER

MORTAR LINING

FIELD WELDED CLOSURE

NOTEs:
1.) SHIP IN HALVES AND WELD IN FIELD
2.) PIPE SIZE

HANDHOLES

8" THROUGH 12"  1
14" THROUGH 18"  2
20" THROUGH 42"  4

FIELD-APPLY STIFF CLASS C CEMENT MORTAR COATING, PER "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" SEC. 201-5.1, REINFORCED WITH 2" x 4" x 13 GA WELDED WIRE MESH

TYPICAL SPLIT BUTT STRAP
8" THROUGH 42" DIAMETER
(150 PSI DESIGN PRESSURE)
SECTIONAL DETAIL OF OUTLET

<table>
<thead>
<tr>
<th>NOMINAL OUTLET DIA (in.)</th>
<th>MINIMUM &quot;T_r&quot; (in.)</th>
<th>HUB FLANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;C&quot; (in.)</td>
<td>&quot;A&quot; (in.)</td>
</tr>
<tr>
<td>4</td>
<td>0.237</td>
<td>7 1/2</td>
</tr>
<tr>
<td>6</td>
<td>0.280</td>
<td>9 1/2</td>
</tr>
<tr>
<td>8</td>
<td>0.322</td>
<td>11 3/4</td>
</tr>
<tr>
<td>10</td>
<td>0.366</td>
<td>14 1/4</td>
</tr>
<tr>
<td>12</td>
<td>0.375</td>
<td>17</td>
</tr>
<tr>
<td>14</td>
<td>0.375</td>
<td>18 3/4</td>
</tr>
<tr>
<td>16</td>
<td>0.375</td>
<td>21 1/4</td>
</tr>
<tr>
<td>18</td>
<td>0.375</td>
<td>22 3/4</td>
</tr>
<tr>
<td>20</td>
<td>0.375</td>
<td>25</td>
</tr>
</tbody>
</table>

NOTES:

1.) SEE MAINLINE PIPING DRAWING FOR POSITION AND USE OF OUTLET.
2.) STEEL HUB FLANGE CLASS D AS PER AWWA STD C207-86.
3.) SEE MAINLINE PIPE DRAWING FOR MINIMUM DESIGN THICKNESS "T_r".
4.) "W" AND "T", REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA M11, 13.3-13.6, OR EQUAL TO MANUFACTURERS REINFORCING GUIDE.
5.) "T_y" = MAINLINE CYLINDER THICKNESS.
6.) "T_r" = REQUIRED MAINLINE CYLINDER THICKNESS.
7.) "t_y" = BRANCH CYLINDER THICKNESS.
8.) "t_r" = REQUIRED BRANCH CYLINDER THICKNESS.
9.) USE SADDLE OR WRAPPER WHENEVER OUTLET DIAMETER IS LESS THAN OR EQUAL TO 55% OF THE MAINLINE DIAMETER; WHEN GREATER THAN 55%, USE CROUCH PLATE IN ACCORDANCE WITH MANUFACTURER'S REINFORCING GUIDE.
SECTIONAL DETAIL OF OUTLET

<table>
<thead>
<tr>
<th>NOMINAL OUTLET DIA (in)</th>
<th>MINIMUM &quot;t_r&quot; (in)</th>
<th>HUB FLANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;C&quot; (in)</td>
<td>&quot;A&quot; (in)</td>
</tr>
<tr>
<td>4</td>
<td>0.237</td>
<td>7 1/2</td>
</tr>
<tr>
<td>6</td>
<td>0.280</td>
<td>9 1/2</td>
</tr>
<tr>
<td>8</td>
<td>0.322</td>
<td>11 3/4</td>
</tr>
<tr>
<td>10</td>
<td>0.366</td>
<td>14 1/4</td>
</tr>
<tr>
<td>12</td>
<td>0.375</td>
<td>17</td>
</tr>
</tbody>
</table>

NOTES:
1.) SEE MAINLINE PIPING DRAWING FOR POSITION AND USE OF OUTLET.
2.) STEEL HUB FLANGE CLASS D AS PER AWWA STD. C207-86.
3.) SEE MAINLINE PIPING DRAWING FOR MINIMUM DESIGN THICKNESS "T_y".
4.) "w" AND "T", REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA M11, 13.3-13.6, OR EQUAL TO MANUFACTURERS REINFORCING GUIDE.
5.) "T_y" = MAINLINE CYLINDER THICKNESS.
6.) "t_r" = REQUIRED MAINLINE CYLINDER THICKNESS.
7.) "t_y" = BRANCH CYLINDER THICKNESS.
8.) "t_r" = REQUIRED BRANCH CYLINDER THICKNESS.
9.) "L" = \( \frac{\text{NOMINAL DIA}}{2} + 12" \)

TYPICAL FLANGED TANGENT OUTLET
4" THROUGH 12" DIAMETER

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING
DATE: MAR 2004
CWD-320
SEE MAINLINE PIPING DRAWING FOR POSITION, SIZE, AND USE OF OUTLET

EXTRA-HEAVY STEEL FULL COUPLING AS SPECIFIED, STANDARD IRON PIPE THREADS

5/8" CEMENT-MORTAR COATING

3/16" TYPICAL

ID CYL
CEMENT-MORTAR LINING

ID PIPE

CROSS-SECTION OF OUTLET

WATER DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL THREADED OUTLET
1" THRU 2 1/2" DIAMETER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-340
NOTES:

1.) PAINT ALL EXPOSED INTERIOR & EXTERIOR METAL SURFACES OF FLANGES, EXCEPT GASKET SURFACE, PER SPECIFICATIONS.

2.) 150 LB. HUB FLANGES SHALL BE USED IF WORKING PRESSURE 175 PSI OR LESS, 300 LB. FLANGES SHALL BE USED IF WORKING PRESSURE OVER 175 PSI.

3.) REINFORCE MANWAY IN ACCORDANCE WITH AWWA M11 OR EQUAL, MANUFACTURER’S REINFORCING GUIDE.

4.) MANWAY STATIONS MAY BE VARIED IN ORDER TO LOCATE THE 24” DIA OPENING @ MIDPOINT IN INDIVIDUAL PIPE LENGTHS THUS PERMITTING THE MANUFACTURE OF A UNIVERSAL PIPE LENGTH.

5.) PAINT UNDERSIDE OF BLIND FLANGE WITH EPOXY PER SPECIFICATIONS.

<table>
<thead>
<tr>
<th>ID</th>
<th>FLANGE OD</th>
<th>BC</th>
<th>T</th>
<th>BOLT DIA</th>
<th>NO. BOLTS</th>
<th>PIPE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>24”</td>
<td>32”</td>
<td>29 1/2”</td>
<td>1 1/4”</td>
<td>1 1/4”</td>
<td>20</td>
<td>24” TO 30”</td>
</tr>
<tr>
<td>30”</td>
<td>38 3/4”</td>
<td>36”</td>
<td>1 3/8”</td>
<td>1 1/4”</td>
<td>28</td>
<td>36” &amp; LARGER</td>
</tr>
</tbody>
</table>
6" HYDRANT HEAD BLOW-OFF
ML&C STEEL BURY
24" MAIN AND SMALLER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING
DATE: MAR 2004  CWD-408
6" HYDRANT HEAD BLOW-OFF
DI BURY
24" MAIN AND SMALLER

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STANDARD HYDRANT : 1 - 2 1/2&quot;, 1 - 4&quot;</td>
<td>1 CWD-700</td>
</tr>
<tr>
<td>2</td>
<td>SUPER HYDRANT : 2 - 2 1/2&quot;, 1 - 4&quot;</td>
<td>1 CWD-700</td>
</tr>
<tr>
<td>3</td>
<td>6&quot; FLG x MJ RW GATE VALVE</td>
<td>1 CWD-500</td>
</tr>
<tr>
<td>4</td>
<td>6&quot; x 4&quot; FLANGED ADAPTER, 8 HOLE TO 6 HOLE</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>6&quot; x 18&quot; DI SPOOL FLG x FLG AS REQUIRED</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6&quot; x 48&quot; DI BURY FLG x MJ</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>6&quot; DI PIPE AS REQUIRED (RESTRAIN ALL JOINTS)</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>6&quot; FLANGED 90° ELL (LONG RADIUS)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>6&quot; x 12&quot; DI SPOOL FLG x FLG AS REQUIRED</td>
<td>1 CWD-515</td>
</tr>
<tr>
<td>10</td>
<td>8&quot; GATE BOX CAP, GALV SPLIT-SLEEVE, 12 GA STL PIPE</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>6&quot; FLANGED OUTLET</td>
<td>1 CWD-300</td>
</tr>
<tr>
<td>12</td>
<td>6&quot; GRIP RING KIT</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTES:
1.) STANDARD OR SUPER HYDRANT PER PLANS AND SPECIFICATIONS.

2.) BREAK-OFF BOLTS REQUIRED BETWEEN HYDRANT AND FLANGE. INSTALL PER SPECIFICATIONS.

3.) HYDRANT HEAD OUTLETS SHALL FACE STREET.

4.) TOP OF HYDRANT HEAD BLOW-OFF TO BE PAINTED BLUE #315-15 BY FULLER O'BRIEN CO. OR DEPARTMENT APPROVED EQUIVALENT.

5.) "H" AND "V" DIMENSION AS SHOWN ON PLAN.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-409
MINIMUM LENGTH OF PIPE WITH
RESTRAINED JOINTS REQUIRED
TO RESTRAIN PIPE SHALL BE DESIGNED
BY ENGINEER AND SHOWN ON PLANS.

END OF WATER MAIN,
STATION AS SHOWN
ON PLANS

NOTCH GATE
BOX SLEEVE
6" H X 4" W
TO FIT AROUND
2" PIPE

10" GATE BOX PIPE SHALL BE ASPHALT-DIPPED

INSTALL CONCRETE BLOCK AROUND CIRCUMFERENCE
OF GATE BOX PIPE WITH
3/4" CRUSHED ROCK IN CENTER. SUPPORT VALVE
WITH CONC BLOCK.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4&quot; THROUGH 12&quot; MAIN</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>MAIN SIZE MJ CAP W/ 2&quot; TAP IPF</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2&quot; X 12&quot; BRASS NIPPLE</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2&quot; BRONZE VALVE, IPF, PER SPEC</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2&quot; 90° ELL SW x IPM</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2&quot; x 30&quot;± COPPER PIPE, HARD, NO JOINTS</td>
<td>VARIABLE</td>
</tr>
<tr>
<td>7</td>
<td>2&quot; ADAPTER SW x IPF</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>2&quot; BRASS PLUG, IPM</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>10&quot; GATE BOX CAP AND SPLIT SLEEVE</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>10&quot; DIA. 12 GA. STEEL PIPE</td>
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</tr>
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<td>11</td>
<td>1&quot; SQ NUT FOR 2&quot; VALVE AS REQUIRED</td>
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<tr>
<td>12</td>
<td>MAIN SIZE GRIP RING KIT</td>
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</tbody>
</table>

WATER DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 2" BLOW-OFF ASSEMBLY
FOR MAINS WITH LESS THAN
42" OF COVER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-411-A
MINIMUM LENGTH OF PIPE WITH RESTRAINED JOINTS REQUIRED TO RESTRAIN PIPE SHALL BE DESIGNED BY ENGINEER AND SHOWN ON PLANS.

INSTALL CONCRETE BLOCK AROUND CIRCUMFERENCE OF GATE BOX PIPE WITH 3/4" CRUSHED ROCK IN CENTER, SUPPORT VALVE WITH CONC BLOCK.

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
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<th>REFERENCE</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>PER PLAN</td>
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<td>PER PLAN</td>
</tr>
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<td>Variable</td>
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WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL 2" BLOW-OFF ASSEMBLY FOR MAINS WITH MORE THAN 42" OF COVER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-411-B
MINIMUM LENGTH OF PIPE WITH RESTRAINED JOINTS REQUIRED TO RESTRAIN PIPE SHALL BE DESIGNED BY ENGINEER AND SHOWN ON PLANS.

END OF WATER MAIN, STATION AS SHOWN ON PLANS

BILL OF MATERIALS

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<th>DESCRIPTION</th>
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<tr>
<td>1</td>
<td>6&quot; THROUGH 10&quot; WATER MAIN</td>
<td>PER PLAN</td>
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<tr>
<td>2</td>
<td>MJ END CAP WITH 2&quot; TAP</td>
<td>1</td>
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<tr>
<td>3</td>
<td>2&quot; GALV 90° STREET ELL (IPT)</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>2&quot; GATE (IPT)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2&quot; GALV COUPLING (IPT)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2&quot; x 30°± GALV PIPE (IPT)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2&quot; x 24°± GALV PIPE (IPT)</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>2&quot; IPF x 2 1/2&quot; MHT BUSHING</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2 1/2&quot; HOSE CAP</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2&quot; x 12&quot;± GALV NIPPLE (IPT)</td>
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</tr>
<tr>
<td>11</td>
<td>MAIN SIZE GRIP RING KIT</td>
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</tr>
</tbody>
</table>

NOTES:
1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES

WATER DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

6" THROUGH 10"
TEMPORARY CONSTRUCTION END CAPS
FOR FLUSHING, TESTING, & CHLORINATION

RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING  DATE: MAR 2004  CWD-412
MINIMUM LENGTH OF PIPE WITH
RESTRAINED JOINTS REQUIRED
TO RESTRAIN PIPE SHALL BE DESIGNED
BY ENGINEER AND SHOWN ON PLANS.

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
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<tbody>
<tr>
<td>1 12&quot; WATER MAIN</td>
<td>PER PLAN</td>
</tr>
<tr>
<td>2 12&quot; MJ END CAP WITH 4&quot; ECCENTRIC TAP (IPT)</td>
<td>1</td>
</tr>
<tr>
<td>3 4&quot; x 12&quot; GALV STEEL PIPE (IPT)</td>
<td>2</td>
</tr>
<tr>
<td>4 4&quot; GALV STEEL PIPE (IPT)</td>
<td>6 LF ±</td>
</tr>
<tr>
<td>5 4&quot; VALVE (FIPT), PER SPECIFICATIONS</td>
<td>1</td>
</tr>
<tr>
<td>6 4&quot; x 90° GALV STEEL ELL (FIPT)</td>
<td>2</td>
</tr>
<tr>
<td>7 4&quot; GALV END CAP (FIPT)</td>
<td>1</td>
</tr>
<tr>
<td>8 MAIN SIZE GRIP RING KIT</td>
<td>1</td>
</tr>
<tr>
<td>9 METER VAULT PER SPECIFICATIONS</td>
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NOTES:
1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES
BILL OF MATERIALS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ML&amp;C Steel or Dip Water Main</td>
<td>PER PLAN.</td>
<td>CWD-340</td>
</tr>
<tr>
<td>2</td>
<td>1&quot; Threaded Outlet</td>
<td>1</td>
<td>CWD-515</td>
</tr>
<tr>
<td>3</td>
<td>1&quot; MIPT x MIPT Ball Corp Stop</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1&quot; Galv Steel Coupling</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1&quot; PVC Adapter</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1&quot; PVC Pipe</td>
<td>VARIES</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1&quot; Brass Cap</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10&quot; Gate Box and Split-Sleeve</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:

1.) CONTRACTOR SHALL REMOVE VALVE BOX, CLOSE AND CAP 1" BALL CORP STOP, AND REMOVE PVC RISER FOLLOWING ACCEPTANCE OF THE TRANSMISSION MAIN.

2.) STATION, LOCATION AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

A) DOUBLE-STRAP SERVICE SADDLES SHALL BE USED ON ALL DIP CONNECTIONS.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TEMPORARY WATER SAMPLER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-432
TYPICAL 2" AIR VALVE INSTALLATION

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2&quot; IPT OUTLET</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2&quot; BRONZE MIPT x MIPT BALL CORP STOP</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2&quot; BRASS STREET ELL</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2&quot; TYPE K COPPER PIPE (SOFT)</td>
<td>VARIABLE</td>
</tr>
<tr>
<td>5</td>
<td>2&quot; SW x IPM BRONZE ADAPTER</td>
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<tr>
<td>6</td>
<td>2&quot; BRONZE GATE VALVE NRS</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2&quot; SW x SW 90° ELL</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>2&quot; HARD DRAWN COPPER PIPE, TYPE K</td>
<td>VARIABLE</td>
</tr>
<tr>
<td>9</td>
<td>2&quot; UNIVERSAL AIR VALVE</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2&quot; GALV STREET ELL - SEE NOTE A</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>8&quot; GATE VALVE CAP, GALV SPLIT SLEEVE, &amp; 12 GA STL PIPE</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>1/4&quot; GROSS GATE VALVE, 1/4&quot; GROSS PLUG, 1/4&quot; x 2&quot; BRASS NIPPLE, 1/4&quot; BRASS STREET ELL</td>
<td>1 EA</td>
</tr>
<tr>
<td>13</td>
<td>2&quot; x 6&quot; NIPPLE</td>
<td>1 EA</td>
</tr>
<tr>
<td>14</td>
<td>2&quot; SW x IPF BRONZE ADAPTER</td>
<td>1 EA</td>
</tr>
</tbody>
</table>

NOTES:

A 1/8" SQ MESH GALVANIZED SCREEN SHALL BE EPOXIED FLAT INTO OPEN ST ELL.

B STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

C USE 2" COPPER PIPE BETWEEN CORP STOP AND ELL TO ADJUST DEPTH – IF NEEDED.

D DOUBLE-STRAP SERVICE SADDLES SHALL BE USED ON ALL DIP CONNECTIONS.

GUARD POSTS PER CWD-900B WHERE INDICATED ON PLANS

FINISH GROUND SURFACE

CONTINUOUS UP GRADE

2 CU FT SUPPORT POURED AGAINST UNDISTURBED SOIL PCC 480-C-2000
**NOTES:**

A 1/8" SQ. MESH, GALVANIZED SCREEN, SHALL BE EPOXIED INTO OPEN STREET ELL.

B STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

C BREAK-OFF BOLTS, PER SPECIFICATION

D BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500

E HOLD BACK COATING 12"
NOTES:
A) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
B) BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.
C) BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500
D) HOLD BACK COATING 18”

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 6” FLANGED OUTLET</td>
<td>1</td>
<td>CWD-300</td>
</tr>
<tr>
<td>2) 6” 90° ELL F/F</td>
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</tr>
<tr>
<td>3) 6” RW GATE VALVE F/F</td>
<td>1</td>
<td>CWD-500</td>
</tr>
<tr>
<td>4) 6” ML&amp;C STL PIPE, 10 GA</td>
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<td></td>
</tr>
<tr>
<td>5) 6” 5/16” CML, 3/4” CMC</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6) 6” WELD FLANGE, SHIP FLG LOOSE</td>
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<td></td>
</tr>
<tr>
<td>7) 6” COMBINATION AIR VALVE, PER SPEC</td>
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<td></td>
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<tr>
<td>8) 8” GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE</td>
<td>1</td>
<td>CWD-515</td>
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<tr>
<td>9) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10) 1/2” BRASS GV, 1/2” x 2” BRASS NIPPLE</td>
<td>1 EA</td>
<td></td>
</tr>
<tr>
<td>11) 1/2” BRASS STREET ELL, 1/2” BRASS PLUG</td>
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<td></td>
</tr>
<tr>
<td>6” STA SPOOL, PE X PE, ML &amp; NO COATING</td>
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<td></td>
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</tbody>
</table>
NOTES:
A. STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
B. BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED. INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.
C. BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500
D. HOLD BACK COATING 18”.

BILL OF MATERIALS

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<tr>
<th>ITEM</th>
<th>QUANTITY</th>
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<tr>
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<td>2</td>
<td>8” 90° ELL F x F</td>
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<tr>
<td>3</td>
<td>8” RW GATE VALVE F x F</td>
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<tr>
<td>4</td>
<td>8” MIL&amp;C STL PIPE, 10 GA 8” ID, 5/16” CML, 3/4” CMC</td>
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<tr>
<td>5</td>
<td>8” – 90° WELD ELL</td>
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<tr>
<td>6</td>
<td>8” WELD FLANGE, SHIP LOOSE</td>
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<tr>
<td>7</td>
<td>8” COMBINATION AIR VALVE, PER SPEC</td>
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<tr>
<td>8</td>
<td>8” GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE</td>
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<tr>
<td>9</td>
<td>FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS</td>
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</tr>
<tr>
<td>10</td>
<td>1/2&quot; BRASS GV 1/2” x 2” BRASS NIPPLE, 1/2” BRASS STREET ELL, 1/2” BRASS PLUG</td>
<td>1 EA</td>
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<tr>
<td>11</td>
<td>8” DIA X 12” STL SPOOL, PE X PE, ML &amp; NO COATING</td>
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WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL 8” AIR VALVE INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING
DATE: MAR 2004
CWD-465
FINISHED GROUND SURFACE

VALVE BOX CAP PER CWD-515

8" SPLIT-SLEEVE LINER AND GATE BOX PIPE PER CWD-515

2" SQUARE OPERATING NUT

SPOKED-WHEEL 7" OD x 1/4" PLATE WELDED TO SHAFT EXTENSION

CENTER AND PLUMB OVER OPERATING NUT

SHAFT EXTENSION REQUIRED WHERE TOP OF VALVE IS GREATER THAN 3.5' BELOW THE FINISH GROUND SURFACE (1 1/4" DIA STD BLACK PIPE PAINTED WITH PRIMER AFTER FABRICATION)

ADAPT TO OPERATING NUT ON VALVE

VALVE SIZE, STATION, AND LOCATION AS SHOWN ON PLAN AND PROFILE SHEETS

BEARING BLOCK PER CWD-030 NOTCHED IN UNDISTURBED SOIL

#5 BAR BETWEEN THE BODY AND FLANGE BOTH SIDES

MAIN TRENCH

VALVE LOCATION TIES DETAIL

NOTE:
1.) FOR 2" GATE AND PIPING (AND FOR ALL COPPER PIPING), THE GATE BOX MATERIAL SHALL BE NOTCHED AND BLOCKED TO CLEAR SAME.

2.) GATE VALVES ARE TO BE INSTALLED IN THE VERTICAL POSITION UNLESS THEY ARE DESIGNED TO OPERATE IN OTHER POSITIONS.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL VALVE BOX FOR GATE VALVES

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-500
TAPPING SLEEVE AND TAPPING VALVE DETAIL FOR DOMESTIC AND FIRE SERVICES

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

NOTE:
1.) INSTALL TAPPING TEE THRUST BLOCK AFTER TAPPING THE MAIN.
2.) TAPPING SLEEVE TO BE WRAPPED PER SPECIFICATIONS.

SIZE TAPPING PIT PER TAPPING MACHINE MANUFACTURER'S RECOMMENDATIONS AND AS SPECIFIED HEREIN.

1/2" OR 3/4" CORP STOP

DOUBLE STRAP BRONZE SERVICE SADDLE W/1"TAP (CHLORINATION CORP)

DOMESTIC OR FIRE SERVICE LATERAL

TAPPING SLEEVE PER PLANS AND SPECIFICATIONS

EXIST WATER MAIN

NOTE:
1.) INSTALL TAPPING TEE THRUST BLOCK AFTER TAPPING THE MAIN.
2.) TAPPING SLEEVE TO BE WRAPPED PER SPECIFICATIONS.

VALVE BOX CAP PER CWD-515

FINISHED GROUND SURFACE

SPLIT-SLEEVE LINER, AND GATE BOX PIPE PER CWD-515

FURNISH AND INSTALL VALVE BOX PER CWD-500 FOR 4" THRU 6" GATE VALVES, AND CWD 501 FOR 8" AND LARGER GATE VALVES.

OUTLET JOINT FITTING ON GATE AND PIPELINE MATERIALS PER CONSTRUCTION PLANS.

1" BALL CORP STOP, MIPT X MIPT, W/1" BRASS CAP (FOR CHLORINATION)

DOMESTIC OR FIRE SERVICE LATERAL

BEARING BLOCK PER CWD-030

THRUST BLOCK PER CWD-030

STAINLESS STEEL TAPPING SLEEVE

TAPPING GATE VALVE PER SPECIFICATIONS

SECTIONAL VIEW

PLAN VIEW
FINISHED GROUND SURFACE

18"

VALVE BOX CAP PER CWD-515

8" SPLIT-SLEEVE LINER AND GATE BOX PIPE, PER CWD-515

2" SQUARE OPERATING NUT

SPOKED-WHEEL DETAIL

SPOKED-WHEEL
7" OD x 1/4"
PLATE WELDED TO SHAFT EXTENSION

CENTER AND PLUMB OVER OPERATING NUT

SHAFT EXTENSION REQUIRED WHERE TOP OF VALVE IS GREATER THAN 3.5' BELOW THE FINISH GROUND SURFACE (1 1/4" DIA STD BLACK PIPE PAINTED WITH PRIMER AFTER FABRICATION)

ADAPT TO OPERATING NUT ON VALVE

PROVIDE SUPPORT FOR VALVE OPERATOR WITH MASONRY BLOCKS AND REDWOOD SHIMS.

BLOCK TO UNDISTURBED SOIL

SECTIONAL VIEW

INDICATE DISTANCE AND VALVE USE

<table>
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<tr>
<th>USE</th>
<th>SYMBOL</th>
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<td>MAIN</td>
<td>M</td>
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<tr>
<td>HYDRANT</td>
<td>FH</td>
</tr>
<tr>
<td>SERVICE</td>
<td>SVC</td>
</tr>
<tr>
<td>AIR VALVE</td>
<td>AV</td>
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<tr>
<td>BLOW-OFF</td>
<td>BO</td>
</tr>
</tbody>
</table>

TOP OF CURB

L = "SWING TIE" RADIAL LENGTH IN FT

VALVE LOCATION TIES DETAIL

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL VALVE BOX FOR BUTTERFLY VALVES

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

DATE: MAR 2004

CWD-510
8" AND 10" CAPS MANUFACTURED BY SOUTH BAY FOUNDRY, SAN DIEGO, CA OR APPROVED EQUAL. CAP MARKED "CWD", PAINTED PER SPECIFICATION.

DRILL 1/4" HOLE, 3/8" INSIDE INTERIOR RING ON CAP SURFACE. INSTALL 1/4" x 1 1/2" BRASS ROUND-HEAD SCREW, SECURE WITH A 1/4" BRASS NUT. ADD AN ADDITIONAL 1/4" BRASS NUT AND WASHER TO THE 1/4" BRASS SCREW TO FACILITATE FUTURE VALVE TAG.

ADJUST CAP FLUSH TO 1/4" HIGH ABOVE FINISH STREET GRADE.

COMPACT PAVEMENT UNDER GATE CAP FLANGE AND SPLIT-SLEEVE LINER WHEN SETTING OR ADJUSTING.

SPLIT-SLEEVE LINER

VALVE BOX LINER SPECIFICATIONS:

20 GA x 18" LONG GALV STL SPLIT-SLEEVE WITH 1 1/2" OVERLAP AND 1/2" LIP (FLARE) ON ONE END.

OD FOR 8" VALVE BOX = 7 3/4"
OD FOR 10" VALVE BOX = 9 3/4"

NOTES:

1.) THIS STANDARD IS TO BE USED IN CONJUNCTION WITH STANDARD DRAWINGS CWD-500, CWD-504, AND CWD-510.
SEWER PIPE OR CONDUIT AS SHOWN ON PLANS

NO. 4 BARS AT CORNERS (TYP)
NO. 4 BARS AT 12" OC (TYP)

SEWER PIPE OR CONDUIT AS SHOWN ON PLANS

TRENCH EDGE
PIPELINE
SAND BEDDING

NOTES
1.) SEE PLAN FOR "A" DIMENSION (6" MIN)
2.) BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF WALL
3.) CEMENT: TYPE 1 OR 2
   ASTM 5150, 2000 PSI
4.) REINFORCEMENT: GRADE 40 OR GRADE 60, ASTM A 615
5.) TRENCH WIDTH: OD PIPE + 18" MIN

SECTION A-A

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL CONDUIT SUPPORT
TYPICAL STREET INSTALLATION

BILL OF MATERIALS

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<th>ITEM</th>
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<tr>
<td>1 BRONZE DOUBLE-STRAP SERVICE SADDLE (IPT)</td>
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</tr>
<tr>
<td>1&quot; BRONZE MIPT x MIPT BALL CORP STOP</td>
<td>1</td>
</tr>
<tr>
<td>ANGLE BALL METER STOP COMPRESSION x METER COUPLING (WITH 1&quot; x 3/4&quot; ADAPTER FOR 3/4&quot; METER) PER SPECIFICATIONS</td>
<td>1</td>
</tr>
<tr>
<td>1&quot; TUBING, SOFT COPPER, TYPE K)</td>
<td>VARIES</td>
</tr>
<tr>
<td>METER INSTALLED BY CITY FORCES</td>
<td></td>
</tr>
<tr>
<td>METER BOX PER SPECIFICATIONS AND/OR PLANS.</td>
<td>1</td>
</tr>
<tr>
<td>1&quot; OR 3/4&quot; COUPLINGS</td>
<td></td>
</tr>
<tr>
<td>1&quot; FIPT x COMPRESSION ADAPTOR</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTES:
1.) METER BOX COVER TO BE CAST IRON WHERE BOX IS IN ALLEY OR CRIVWAY.
2.) CONTRACTOR SHALL INSTALL METER BOXES WITH READING HOLE AT TIME ANGLE METER STOPS ARE INSTALLED.
3.) CITY WILL FURNISH A TEMPORARY SERVICE METER JUMPER, PRIOR TO INSTALLING METER, UPON PAYMENT OF FEES.
4.) METER BOX TO BE CLEANED BEFORE NEW METER CAN BE INSTALLED BY CITY FORCES.

WATER DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

1-INCH WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

DATE: MAR 2004  CWD-600
BACK OF CURB
12"
SLOPE BOX 2%
AC PAVEMENT
CURB ELEV
BORE UNDER CURB & GUTTER
11"
TAIL PIPE
BY CUSTOMER
INSTALLED PRIOR
TO SETTING METER
4" CLEAR
25"

TYPE K COPPER PIPE

CONNECTION SHALL BE BRONZE DOUBLE-STRAP SERVICE SADDLE
4" THROUGH 12" DIP WATER MAIN

TYPICAL STREET INSTALLATION

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BRONZE DOUBLE-STRAP SERVICE SADDLE (IPT)</td>
<td>1</td>
</tr>
<tr>
<td>2. 2&quot; BALL CORPORATION STOP MIPT x MIPT</td>
<td>1</td>
</tr>
<tr>
<td>3. 2&quot; FIPT/SW BRASS 90° ELL</td>
<td>1</td>
</tr>
<tr>
<td>4. 2&quot; TYPE K COPPER PIPE (SOFT)</td>
<td>VARIABLE</td>
</tr>
<tr>
<td>5. 2&quot; SW/SW COPPER 90° ELL</td>
<td>1</td>
</tr>
<tr>
<td>6. RISER PIPE (2&quot; HARD DRAWN COPPER)</td>
<td>1</td>
</tr>
<tr>
<td>7. 2&quot; ANGLE BALL METER STOP (IPF x METER FLG)</td>
<td>1</td>
</tr>
<tr>
<td>8. 2&quot; COUPLING (COMP x MIPT)</td>
<td>1</td>
</tr>
<tr>
<td>9. 1 1/2&quot; OR 2&quot; METER (INSTALLED BY CITY)</td>
<td>1</td>
</tr>
<tr>
<td>10. 1 1/2&quot; OR 2&quot; METER FLANGE (INSTALLED BY CITY)</td>
<td>1</td>
</tr>
<tr>
<td>11. METER BOX: CONCRETE COVER 2 PC OR STEEL COVER 2 PC</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTES:
1.) A STEEL METER BOX LID IS REQUIRED IN ALLEY OR DRIVEWAY.
2.) DOUBLE GASKETS SHALL BE USED ON EACH SIDE OF METER SPACER (JUMPER) UNTIL METER IS INSTALLED BY CITY.
1. PRIME AND WRAP BURIED PIPE TO 6" ABOVE GRADE WITH POLYKEN #927 AND #900, OR APPROVED EQUAL.

2. CITY FORCES WILL BLIND FLANGE CONNECTION POINT. WATER INSPECTOR IS TO BE PRESENT WHEN BLIND FLANGE IS REMOVED AND DETECTOR ASSEMBLY IS INSTALLED.

3. FACILITIES TO BE DISINFECTED PER SPECIFICATION 205, PART C.

4. CUSTOMER TO SWAB CONNECTING VALVES WITH 600 PPM CHLORINE WHEN MAKING CONNECTION.

5. CUSTOMER TO PAINT ALL ABOVE GRADE PIPING AND DETECTOR ASSEMBLY.

6. FOR 10" DETECTOR ASSEMBLY INSTALL 12" LATERAL AND PIPING. CUSTOMER TO SUPPLY 12" x 10" FLANGED REDUCERS ON BOTH SIDES OF DETECTOR ASSEMBLY.

7. CONTACT CITY BACKFLOW ADMINISTRATOR FOR DETECTOR ASSEMBLY SPECIFICATION, AND FOR INSPECTION AND TESTING IMMEDIATELY AFTER INSTALLATION AT (909)351-6320.

8. FOR DETECTOR ASSEMBLY CLEARANCE REQUIREMENTS REFER TO CWD-630-1 AND CWD-630-2.

9. RESTRAIN ALL JOINTS WITH APPROVED RESTRAINT ASSEMBLY.

### MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DUCTILE IRON PIPE (CLASS 350)</td>
</tr>
<tr>
<td>2</td>
<td>90° ELL</td>
</tr>
<tr>
<td>3</td>
<td>1&quot; BALL CORPORATION STOP INLET FOR CHLORINATION POINT TO BE CLOSED AND CAPPED AFTER SUCCESSFUL DISINFECTION. TEMPORARY BLIND FLANGE WITH 1&quot; IPT TAP AND 1&quot; BALL CORPORATION STOP FOR SAMPLE.</td>
</tr>
<tr>
<td>5</td>
<td>FLANGE X MECHANICAL JOINT ADAPTOR, AS REQUIRED.</td>
</tr>
</tbody>
</table>

### WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

**4" THRU 10" ABOVE GROUND FIRE SERVICE**

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-615
TYPICAL BACKFLOW DEVICE CONFIGURATION

NOTES:
1. PRIOR TO INSTALLATION, LOCATION OF THE BACKFLOW DEVICE SHALL BE SUBJECT TO THE APPROVAL OF THE BACKFLOW PROGRAM SPECIALIST 951-351-6320/6282. DEVICE SHALL BE LOCATED AS CLOSE TO METER AS PRACTICAL (MIN. 18", MAX. 24" BACK OF RW).
2. PLACE BOTTOM OF DEVICE A MINIMUM OF 12 INCHES AND NOT MORE THAN 36 INCHES ABOVE FINISH GRADE.
3. INSPECTION OF PLUMBING IS REQUIRED PRIOR TO CONCRETE THRUST BLOCK AND/OR ABOVE GROUND SLAB BEING Poured.
4. MATERIALS SHALL BE IN COMPLIANCE WITH THE APPROVED MATERIALS SPECIFIED BELOW.
5. THE DEVICE MUST BE INSPECTED AND TESTED IMMEDIATELY AFTER INSTALLATION. TO SCHEDULE AN APPOINTMENT CALL 951-351-6320/6282.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EACH</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>BACKFLOW DEVICE (TYPE OF DEVICE TO BE DETERMINED BY BACKFLOW PROGRAM SPECIALIST)</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>BALL VALVE</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>90 DEGREE ELBOW, BRASS OR HARD DRAWN COPPER</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>RISER &amp; NIPPLES, BRASS OR HARD DRAWN COPPER</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>PRV VALVE (FOR PRESSURE IN EXCESS OF 80 PSI)</td>
</tr>
</tbody>
</table>

Adequate clearance must be provided to permit testing and repair work

<table>
<thead>
<tr>
<th>MINIMUM CLEARANCE SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
</tr>
<tr>
<td>3/4&quot; THRU 2 1/2&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EACH</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>WYE-STRAINER (OPTIONAL)</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>BRASS OR COPPER UNION</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>P.V.C. MALE ADAPTER (FEMALE THREADED x MALE SLIP)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>CONCRETE THRUST BLOCK (OPTIONAL)</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>SERVICE LINE, BRASS OR HARD DRAWN COPPER</td>
</tr>
</tbody>
</table>

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

BACKFLOW PREVENTION ASSEMBLY
3/4"-2 1/2" ABOVE GROUND INSTALLATION

OVERHEAD VIEW OF CLEARANCE REQUIREMENTS

RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING
DATE: MAY 2006
CWD-616
NOTES:
1. PRIOR TO INSTALLATION, LOCATION OF THE BACKFLOW DEVICE SHALL BE SUBJECT TO THE APPROVAL OF THE BACKFLOW PROGRAM SPECIALIST 951-351-6320/6282. DEVICE SHALL BE LOCATED AS CLOSE TO METER AS PRACTICAL (MIN. 18", MAX. 24" BACK OF RW)
2. PLACE BOTTOM OF DEVICE A MINIMUM OF 12 INCHES AND NOT MORE THAN 36 INCHES ABOVE FINISH GRADE.
3. INSPECTION OF PLUMBING IS REQUIRED PRIOR TO CONCRETE THRUST BLOCK AND/OR ABOVE GROUND SLAB BEING POURED.
4. MATERIALS SHALL BE IN COMPLIANCE WITH THE APPROVED MATERIALS SPECIFIED BELOW.
5. THE DEVICE MUST BE INSPECTED AND TESTED IMMEDIATELY AFTER INSTALLATION. TO SCHEDULE AN APPOINTMENT CALL 951-351-6320/6282.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EACH</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>BACKFLOW DEVICE (TYPE OF DEVICE TO BE DETERMINED BY BACKFLOW PROGRAM SPECIALIST)</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>FLANGED RESILIENT WEDGE GATE VALVE</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>90 DEGREE ELBOW</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>FLANGED RISER PIPE</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>PRV VALVE (FOR PRESSURE IN EXCESS OF 100 PS)</td>
</tr>
</tbody>
</table>

Adequate clearance must be provided to permit testing and repair work.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CLEARANCE SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>3&quot; AND UP</td>
<td>24&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EACH</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>2</td>
<td>PIPE SUPPORT</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>SERVICE LINE (NO PVC)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>CONCRETE THRUST BLOCK</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>CONCRETE SLAB (NECESSARY TO PREVENT EROSION)</td>
</tr>
</tbody>
</table>

OVERHEAD VIEW OF CLEARANCE REQUIREMENTS

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

BACKFLOW PREVENTION ASSEMBLY 3" & LARGER ABOVE GROUND INSTALLATION

RIVERSIDE PUBLIC UTILITIES DEPT. STANDARD

DATE: MAY 2006

CWD-617
NOTE: SEE CWD-620-2 FOR MATERIAL CALL-OUT.

PLANT VIEW

GENERAL NOTES:
1) CONTRACTOR SHALL PAINT PIPING PRIOR TO INSTALLATION OF METIER.

CONSTRUCTION NOTES:
1) DRY–PACK PIPE OPENINGS.
2) SUPPORT COMPOUNC METER ON CONCRETE PAD WITH CONCRETE BLOCK.
3) CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CUSTOMER", INCLUDING TEMPORARY FLANGED COUPLING CONNECTION AT INFLENT VALVE.
4) ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER SECTION 310.
5) PROVIDE JOINT RESTRAINTS PER CONSTRUCTION SPECIFICATIONS.
6) POUR PCC 480–C–2000 CONCRETE THRUST COLLAR AGAINST WALL OF VAULT.

TYPICAL DIMENSIONS

<table>
<thead>
<tr>
<th>SERVICE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 IN.</td>
<td>9&quot;</td>
<td>24&quot;</td>
<td>29±</td>
<td>11&quot;</td>
</tr>
<tr>
<td>4 IN.</td>
<td>9&quot;</td>
<td>24&quot;</td>
<td>24±</td>
<td>11 1/2&quot;</td>
</tr>
<tr>
<td>6 IN.</td>
<td>10 1/2&quot;</td>
<td>36 1/2&quot;</td>
<td>13±</td>
<td>12 1/2&quot;</td>
</tr>
</tbody>
</table>

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

3", 4" AND 6" COMPOUND METER WATER SERVICE
# BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITIES</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3&quot; METER</td>
<td>4&quot; METER</td>
</tr>
<tr>
<td>1 DIA x 18&quot; ADAPTER, FLG x MJ</td>
<td>1-(4&quot; DIA)</td>
<td>1</td>
</tr>
<tr>
<td>2 GATE VALVE, DIA x FLG x FLG</td>
<td>2-(4&quot; DIA)</td>
<td>2</td>
</tr>
<tr>
<td>3 DIA x 2&quot; BRONZE SERVICE SADDLE</td>
<td>2-(4&quot; DIA)</td>
<td>2</td>
</tr>
<tr>
<td>4 WELD FLANGE x DIA</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5 2&quot; x 12&quot; GALV NIPPLE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6 4&quot; x 3&quot; GALV BUSHING</td>
<td>2</td>
<td>NA</td>
</tr>
<tr>
<td>7 3&quot; x 6&quot; GALV NIPPLE</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>8 2&quot; GATE VALVE - BRONZE</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>9 4&quot; SCREW FLANGE</td>
<td>2-(4&quot; DIA)</td>
<td>NA</td>
</tr>
<tr>
<td>10 2&quot; BRASS PLUG</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11 COMPOUND METER, DIA x FLG x FLG</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12 DIA x FLANGED COUPLING ADAPTER</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>13 VAULT AND COVER</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14 STEEL PIPE, DIA x (SCHEDULE 40)</td>
<td>3 LNR FT CTF</td>
<td></td>
</tr>
<tr>
<td>15 2&quot; HEAVY BLACK COUPLING</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16 DIA X 36&quot; DIP SPOOL FLG x FLG</td>
<td>1-(4&quot; DIA)</td>
<td>1</td>
</tr>
<tr>
<td>17 3&quot; SCREW FLANGE</td>
<td>2</td>
<td>NA</td>
</tr>
<tr>
<td>18 3/4&quot; CRUSHED ROCK</td>
<td>16 CU FT</td>
<td></td>
</tr>
<tr>
<td>19 CONCRETE PCC 480-C-2000</td>
<td>15 CU FT</td>
<td></td>
</tr>
<tr>
<td>20 NO. 4 REBAR</td>
<td>48 LNR FT ±</td>
<td></td>
</tr>
</tbody>
</table>

2" BY-PASS (ALT A)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITIES</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 2&quot; x 90° ELL SW x MIPT</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>21 2&quot; COPPER PIPE, SOFT</td>
<td>7 LNR FT ±</td>
<td></td>
</tr>
<tr>
<td>22 2&quot; BRASS UNION</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23 2&quot; x 3&quot; BRASS NIPPLE</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

2" BY-PASS (ALT B)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITIES</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 2&quot; x 90° STREET ELL</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>25 2&quot; GALV PIPE</td>
<td>7 LNR FT ±</td>
<td></td>
</tr>
<tr>
<td>26 2&quot; GALV UNION</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>27 2&quot; x 3&quot; GALV NIPPLE</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

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WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

BILL OF MATERIALS FOR 3", 4" AND 6" COMPOUND METER WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-620-2
GENERAL NOTES:

1. SUPPORT METER ON CONCRETE PAD AND CONCRETE BLOCK.
2. ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER CONSTRUCTION SPECIFICATION SECTION 310.
3. PROVIDE JOINT RESTRAINTS PER CONSTRUCTION SPECIFICATION.
4. CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CUSTOMER", INCLUDING TEMPORARY FLANGE COUPLING CONNECTION AT THE INFLUENT VALVE LOCATION.
5. CITY FORCES WILL FURNISH AND INSTALL 8" FMCT METER AND FAB METER READING LID.
## BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 8&quot; x 4&quot; TEE MJ X MJ</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. 4&quot; - 90° ELL B X B</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. 4&quot; RW GATE VALVE B X B</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4. 4&quot; DI PIPE</td>
<td>16 FT±</td>
<td>1</td>
</tr>
<tr>
<td>5. 8&quot; FLG X MJ ADAPTER</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. 8&quot; GATE VALVE F X F</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7. 6&quot; STL PIPE (SCHEDULE 40)</td>
<td>1 FT</td>
<td>1</td>
</tr>
<tr>
<td>8. 6&quot; WELD FLANGE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9. 6&quot; BLIND FLANGE W/2&quot; IPT TAP</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10. 2&quot; X 12&quot; GALV NIPPLE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11. 8&quot; FLANGED COUPLING ADAPTER</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12. 8&quot; COMPOUND METER</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>13. VAULT AND COVER</td>
<td>1</td>
<td>CWD-801</td>
</tr>
<tr>
<td>14. 2&quot; BRASS PLUG</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15. 8&quot; STL PIPE (SCHEDULE 40)</td>
<td>7 FT±</td>
<td>1</td>
</tr>
<tr>
<td>16. 8&quot; WELD FLANGE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>17. CONCRETE PCC 480-C-2000</td>
<td>20 CU FT±</td>
<td>1</td>
</tr>
<tr>
<td>18. 3/4&quot; CRUSHED ROCK</td>
<td>28 CU FT</td>
<td>1</td>
</tr>
<tr>
<td>19. NO 4 REBAR</td>
<td>64 FT±</td>
<td>1</td>
</tr>
<tr>
<td>20. 8&quot; DI PIPE</td>
<td>2 FT</td>
<td>1</td>
</tr>
<tr>
<td>21. 8&quot; GATE BOX MATERIAL</td>
<td>1</td>
<td>CWD-500</td>
</tr>
<tr>
<td>22. 2&quot; GATE VALVE - BRONZE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ITEM</td>
<td>QUANTITY</td>
<td>REFERENCE</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>12” x 6” TEE F/F</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6” 90° ELL RT</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6” RW GATE VALVE B/B</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6” DI PIPE</td>
<td>20 FT±</td>
<td></td>
</tr>
<tr>
<td>12” x 10” REDUCER F/F</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10” GATE VALVE F/F</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12” FLG X MJ ADAPTER</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6” F/B ADAPTER</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10” STL PIPE (SCHEDULE 40)</td>
<td>10 FT±</td>
<td></td>
</tr>
<tr>
<td>2” BRONZE GATE VALVE</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10” FLANGE COUPLING ADAPTER</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10” COMPOUND METER</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VAULT AND COVER</td>
<td>1</td>
<td>CWD-802</td>
</tr>
<tr>
<td>2” BRASS PLUG</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2” X 12” GALV NIPPLE</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6” BLIND FLG W/2” IPT TAP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CONCRETE PCC 480-6-2000</td>
<td>40 CU FT</td>
<td></td>
</tr>
<tr>
<td>3/4” CRUSHED ROCK</td>
<td>40 CU FT</td>
<td></td>
</tr>
<tr>
<td>NO 4 REBAR</td>
<td>64 FT±</td>
<td></td>
</tr>
<tr>
<td>10” x 18” DIP SPOOL, F/F</td>
<td>ALTERNATE FOR STEEL</td>
<td></td>
</tr>
<tr>
<td>8” GATE BOX MATERIAL</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6” STL PIPE (SCHEDULE 40)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6” WELD FLG</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

* 12” x 12” TEE F/F WITH 12” x 6” REDUCER MAY BE USED INSTEAD OF 12” x 12” x 6” TEE.
NOTES
1.) REGULAR OR SUPER HYDRANT IN ACCORDANCE WITH PLAN AND SPECIFICATIONS.
2.) BREAK-OFF BOLTS REQUIRED BETWEEN FIRE HYDRANT AND FLANGE IN ACCORDANCE WITH SPECIFICATIONS. INSTALL WITH NUT ON TOP.
3.) BURY AND HYDRANT FLANGE SHALL BE 6-hole.
4.) FIRE HYDRANT OUTLETS SHALL FACE STREET.
5.) FIRE HYDRANT VALVE SHALL BE A MINIMUM OF 10 FEET FROM HYDRANT.
6.) THRUST AND BEARING BLOCKS PER CWD-030
7.) FURNISH AND INSTALL A STIMSONITE MODEL 88AB TWO-WAY BLUE REFLECTIVE FIRE HYDRANT MARKER DIRECTLY OPPOSITE HYDRANT, LOCATE MARKER ON HYDRANT SIDE OF STREET CENTERLINE IN ACCORDANCE WITH THE ABOVE DETAIL, WITH REFLECTIVE SIDE FACING ONCOMING TRAFFIC, PROVIDE 2 - MARKERS FOR HYDRANTS INSTALLED AT INTERSECTIONS.
8.) ALL PIPE TO BE POLYETHYLENE-ENCASED PER SPECIFICATION SECTION 306.
9.) IF MAIN LINE MUST BE WET TAPPED, SEE CWD-504.

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>REGULAR FIRE HYDRANT OUTLETS: 1 - 2 1/2&quot;, 1 - 4&quot;</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>SUPER FIRE HYDRANT OUTLETS: 2 - 2 1/2&quot;, 1 - 4&quot;</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>6&quot; GATE VALVE, FLG/MJ, RW</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>MAINLINE X 6&quot; TEE</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>6&quot; DI BURY, FLG/MJ</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>6&quot; DI PIPE</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>8&quot; GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>6&quot; GRIP RING</td>
<td>2</td>
</tr>
</tbody>
</table>
GENERAL NOTES
1.) VAULT AND COVER PER SPECIFICATIONS.
2.) FOOTING SHALL BE POURED AGAINST UNDISTURBED SOIL, PCC 560–C–3250.
3.) VAULT LOCATION TO BE APPROVED BY WATER DIVISION, PUBLIC UTILITIES.
4.) A JOINT SEALING COMPOUND SHALL BE USED AT ALL JOINTS.
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WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

NON-TRAFFIC VAULT FOR 10" COMPOUND METERS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-802
BLIND FLANGE WITH 1" IPT TAP AND 1" BALL CORP VALVE AND BRASS CAP

ALHAMBRA FOUNDRY MANHOLE FRAME AND COVER A-1252, OR A-1251-6, DIAMOND TREAD, AS REQUIRED, (OR APPROVED EQUAL)

FILL WITH GROUT (TYP)
GRADE RING AS REQUIRED
#5 WIREHOOPS @ 6" CC (TYP)

PRE-CAST MANHOLE SEE SECTION A-A BELOW
(560-C-3250)
3/4" CRUSHED ROCK
FOOTING POURED IN FIELD AGAINST UNDISTURBED OR WELL-COMPACTED BASE PER SPECIFICATION

SECTIONAL PROFILE

REINFORCE FOOTING WITH #5 BAR, BEND INTO 32" x 32" SQ

#5 BAR FOOTING REINF
INSIDE EDGE OF FOOTING
INSIDE EDGE OF MANHOLE
OUTSIDE EDGE OF MANHOLE
OUTSIDE OF FOOTING - EDGE OF EXCAVATION
OUTSIDE EDGE OF MANHOLE LID

SECTION A-A

PRE-CAST MANHOLE SECTION SPECIFICATIONS:
1) DESIGN LOADING H = 20 - S 16
2) CEMENT: TYPE II, ASTM C150, 3250 PSI
3) REINFORCEMENT: GRADE 40 OR GRADE 60 ASTM A615
4) COVER TO BE DIAMOND-TREAD FINISH, LETTERED "CWD"

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

BLOW-OFF MANHOLE INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-811
MANHOLE COVER & FRAME
ALHAMBRA A-1251, DIAMOND TREAD
WITH CAST LETTERS "CWD"
PAINT PER STANDARD SPECIFICATIONS.

GRADE RINGS
AS REQUIRED
12" MAX

VAULT SECTION

FILL WITH
3/4" CRUSHED
ROCK TO TOP
OF PIPE

2" MIN APPROVED JOINT FILLER
MATERIAL. VAULT SECTION SHALL
NOT BEAR ON THE PIPE.

POUR CONCRETE FOOTING
AGAINST UNDISTURBED EARTH,
OR 90% MIN COMPACTED SOIL
CLASS 560-C-3250. (TYP)

END VIEW

VAULT SECTION

2" MIN APPROVED
JOINT FILLER MATERIAL
BY 6" MIN WIDE.
VAULT SECTION SHALL
NOT BEAR ON PIPE.

INCREASING STATION

SIDE VIEW

NOTES:
1) STEPS SHALL BE 16" WIDE STIRRUP TYPE SAFETY STEPS.
2) CAST IN PLACE AT TIME OF MANUFACTURE. STEPS SHALL BE
PLACED AT A MAX. OF 1/3 CENTER TO CENTER.
4) VAULT SHALL BE DESIGNED FOR H-20, S-16 LOADING.
5) LOCATION, MATERIAL OF MANWAYS AS SHOWN ON THE
PLAN AND PROFILE SHEETS.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

MANHOLE DETAIL
48" MAX ID PIPE

DATE: MAR 2004

CWD-816
4" DIA. GUARD POST INSTALLATION

NOTES:
1.) NUMBER AND POSITION OF GUARD POSTS AS SPECIFIED ON PLANS.
2.) REFER TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEC. 210 AND SEC. 310.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING DATE: MAR 2004 CWD-900-A
2 1/2" DIA x 4'-6" LONG BLACK STD STL PIPE PAINTED PER SPECIFICATION

CONCRETE FOOTING 10" DIA (480-6-2000)

POUR AGAINST UNDISTURBED SOIL

FINISH GROUND SURFACE PAVEMENT OR CONCRETE

SLOPE TO DRAIN

2'-6"

1'-6"

6"

5"

NOTES:
1.) NUMBER AND POSITION OF GUARD POSTS AS SPECIFIED ON PLANS.

2.) REFER TO "STANDARD SPECIFICATIONS PUBLIC WORKS CONSTRUCTION", SEC 210 AND 310.
NOTES
1.) "CADWELD" TYPE HA-3 CONNECTION, CAH AA-IL, WITH F33 STANDARD CHARGE (STEEL PIPE); TYPE HB CONNECTION, CA HBA-16, XF-19 CHARGE (DUCTILE IRON PIPE); CR CITY APPROVED EQUAL.
2.) PREPARATION OF CONDUCTOR AND PIPE SURFACES SHALL BE MADE PER THE PUBLISHED INSTRUCTIONS OF THE CONNECTOR MANUFACTURER.
3.) SEE DRAWINGS FOR STATION AND LOCATION OF TEST LEAD CONNECTIONS.
4.) EPOXY SEALANT: MIX AND FIRMLY APPLY EPOXY PUTTY TO PROVIDE A WATER-TIGHT SEAL AT LEAST 1/4 INCH THICK OVER WELD AND BARE WIRE. OVERLAY WIRE INSULATION BY 1/2 INCH.

PROFILE VIEW

1. TEST LEAD BOX
   BROOMS NO. 37T BOX
   WITH CAST-IRON COVER
   (PAINT SAFETY YELLOW)

2. 2 - NO. 4 STRANDED COPPER
    CONDUCTORS WITH 600 V NEOPRENE
    INSULATION

3. PROVIDE 4" OF SLACK

4. SEAL ANNULAR OPENING
   OF PVC PIPE W/SILICONE
   OR APPROVED EQUAL (TYP)

5. 8" OF 3/4" CRUSHED ROCK

6. CONCRETE FOOTING

7. 2" PVC PIPE
   (SCHEDULE 40)
   LOCATE PVC PIPE CLOSE
   AS POSSIBLE TO WATER MAIN
   AND WITHIN THE
   TEST LEAD BOX

8. EPOXY SEALANT
   SELECT BOND GP-3000
   OR APPROVED EQUAL

9. STEEL CYLINDER PIPE
   OR DUCTILE IRON PIPE

10. HAND BACKFILL
     IN AREA OF
     WIRE

11. PROVIDE 6' OF SLACK

12. WELD CONNECTION

13. WATER MAIN

14. WATER MAIN

15. PIPE TRENCH

16. WALLS

17. FINISH GROUND SURFACE

18. VARIABLE

   LENGTH AND POSITION
   TO BE FIELD DETERMINED
   AS DIRECTED BY ENGINEER

19. GUARD POST
    PER CWD 900-8

20. PROPERTY LINE
    OR RIGHT OF WAY

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TEST LEAD INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING
DATE: MAR 2004
CWD-922
NOTES

1.) FLANGE INSULATION GASKETS SHALL BE FULL-FACED, NEOPRENE-COATED FABRIC-REINFORCED PHENOLIC, 1/8 INCH THICK. A ONE-PIECE SLEEVE AND WASHER, SEPARATE PHENOLIC WASHER, AND TWO CADMIUM-PLATED STEEL WASHERS SHALL BE USED FOR EACH BOLT OR CAP SCREW.

2.) FLANGE KITS SHALL BE FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS.

3.) TEST LEAD CONNECTIONS AND LOCATIONS IN ACCORDANCE WITH CWD–922.

4.) TEST LEADS SHALL BE TAGGED AND/OR COLOR-CODED EAST/WEST OR NORTH/SOUTH OF VALVE.

5.) TEST LEAD INSULATION KIT SHALL BE STRIPPED BACK ONE INCH FROM ENDS.

6.) WHEN FLANGE KITS ARE SPECIFIED; SIZE_____ – 150# – TYPE EN-DW.
NOTES:

1. STEEL BONDING CLIP SPECIFICATIONS:
   MATERIAL SPECIFICATION ASTM A356 COMMERCIAL QUALITY
   CUT LENGTH = 2½\" + ⅛\", WIDTH = 1⅛\" + ⅛\".

2. LYTERM FILLER STRIP DIMENSIONS TO BE 1"x1½"
   IN ORDER TO OVERLAP SIDES OF CLIP.

3. CRIMP BONDING CLIP OVER FILLER AT POINT "A" TO
   COMPRESS FILLER.

PERFORMANCE NOTE:

THE ADDED FLEXIBILITY OF THE BONDING CLIP
(⅛\" + MOVEMENT TOLERANCE) SIGNIFICANTLY
REDUCES THE CHANCES OF WELDS BREAKING,
AS OPPOSED TO THE RIGID "S"-BAR.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>JUMPERS/JOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>16&quot; THRU 24&quot;</td>
<td>2</td>
</tr>
<tr>
<td>24&quot; THRU 54&quot;</td>
<td>3</td>
</tr>
</tbody>
</table>

MILD STEEL JOINT BOND
CITY OF RIVERSIDE

PUBLIC UTILITIES PROJECT

(STREET NAME)

(DIA."') WATER (DISTRIBUTION OR TRANSMISSION) MAIN

(STREET NAME) TO (STREET NAME)

PROJECT DURATION: (DATE) THRU (DATE)

CONTRACTOR IS: (COMPANY NAME)

PHONE: (COMPANY PHONE NUMBER)

THANK YOU FOR YOUR PATIENCE!

FOR INFORMATION, PLEASE CALL: (909) 826-5285

NOTIFICATION SIGN NOTES:

1). SIGN DIMENSIONS ARE TO BE 48" HIGH X 60" WIDE.
DIMENSION LETTERS AS SHOWN ABOVE WITH CENTERED TEXT.

2). SIGN SHALL BE BLUE LETTERS ON WHITE BACKGROUND
WITH RPU LOGO IN YELLOW AND BLUE ON WHITE BACKGROUND.

3). SIGNS SHALL BE POSTED A MINIMUM OF
ONE WEEK PRIOR TO CONSTRUCTION.

4). SIGN SHALL BE POSTED AT EACH END OF
THE PROJECT AND LOCATIONS TO BE APPROVED
BY THE ENGINEER PRIOR TO ERECTING THE SIGNS.

5). SEE CWD-960-2 FOR CONSTRUCTION OF SIGN.
CONSTRUCTION NOTES:

1. 2 - DOUGLAS FIR CONSTRUCTION GRADE 4" X 4" POST.
2. 3/4" THICK PLYWOOD.
3. FASTEN PLYWOOD SIGN TO POST W/6 - 5"+ CARRIAGE BOLTS W/NUTS, FLAT WASHERS, AND JAM NUTS.

NOTES:

1) EXACT LOCATION OF SIGN TO BE DETERMINED BY ENGINEER WITH APPROVAL BY CITY PUBLIC UTILITIES DEPARTMENT.