NOTES:
1. ALL WATER METERS SHALL REGISTER IN GALLONS AND BE SET LEVEL - METERS PROVIDED BY PWCSA.
2. 36" OF COVER SHALL BE REQUIRED OVER SERVICES FROM DISTRIBUTION MAIN TO Meter BOX.
3. METER BOX SHALL BE ONE PIECE CONSTRUCTION OF CONCRETE, PVC, OR RIGID FIBERGLASS.
   (NOT ORANGEBURG)
4. METER YOKE SHALL INCLUDE ONE ¾" ANGLE VALVE AND ONE BACKFLOW PREVENTER.
5. ALL FITTINGS SHALL BE FLARED. (SOLDERED FITTINGS WILL NOT BE PERMITTED)
6. SERVICE LINE LEAVING METER BOX SHALL BE STUBBED OUT AT LEAST 5' WITH TYPE "K"
   COPPER OR MUNICIPEX PIPE.
7. METER SET BEHIND SIDEWALK - NOT IN DRIVEWAY, WALKWAYS, ETC.
8. THE SERVICE LINE BETWEEN THE MAIN AND THE METER WILL BE ONE CONTINUOUS PIECE OF
   PIPE. (NO JOINTS WILL BE PERMITTED)
9. ALL YARD IRRIGATION CONNECTIONS WILL BE MADE AT THE END OF THE 5-FOOT STUB ON THE
   HOUSE SIDE. (NO CONNECTIONS WILL BE PERMITTED INSIDE THE METER BOX)
10. FORD 500P SERIES (OR EQUIVALENT) YOKE AND 1" DIAMETER GALVANIZED STEEL TUBING
    TO BE USED WITH MUNICIPEX SERVICES.
11. FORD FB600-X-NL CORPORATION STOP TO BE USED WITH COPPER SERVICE.
12. FORD FB1000-XX-NL CORPORATION STOP TO BE USED WITH MUNICIPEX SERVICES.
5/8\" x 3/4\" to 1\" ADAPTER (2 EACH)
A.Y. McDonnell #10J24 or APPROVED SUBSTITUTE

2\" COPPER METER SETTER
MUELLER B-2423

36\" MIN.

PACK JOINT
W/ SET-LOCKING NUT. MUELLER
P.15428 OR APPRV'D EQUAL

20\" WATER METER BOX COVER, SET UP FOR SCHLUMBERGER PRO-READ SYSTEM. (FORD OR APPROVED SUBSTITUTE)

1\" to 2\" ADAPTER (2 each)
A.Y. McDonnell #10J47 or APPROVED SUBSTITUTE

FLOW

18"

18"

5.0' MIN.

SOLID BRICK AT QUARTER POINTS

SOLID CONC. BLOCK

4\" DIP FROM MAIN TO METER SETTER

STONE DUST OR SUITABLE SOIL INSIDE OF CROCK, NOT TO EXCEED TOP OF BRICK (NO GRAVEL)

NOTES:
1. WATER METERS AND ADAPTERS ARE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
2. 36\"W x 30\"H ONE PIECE BOX MUST BE USED.
3. GASKETS PROVIDED WITH THE WATER METER SETTERS ARE THE CONTRACTOR'S RESPONSIBILITY.
4. METER BOX MATERIAL: CONCRETE, PVC or RIGID FIBERGLASS.
5. COPPER METER SETTER (MUELLER B-2423 or APPROVED SUBSTITUTE) TO BE USED.
6. NO FIELD ADJUSTMENTS OF METER SETTER IS PERMITTED.
7. ONLY 2\" METER SETTER TO BE INSTALLED.

5/8\" x 3/4\" METER IN 2\" COPPER SETTER
for COMMERCIAL USE (ONLY)
N.T.S.
W-3
REV-2020
1”, 1–1/2” AND 2” METER IN 2” COPPER SETTER
for RESIDENTIAL FIRE PROTECTION
N.T.S.

W–4
REV–2020

NOTES:

1. WATER METERS AND ADAPTERS ARE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
2. 36”W x 30”H ONE PIECE BOX MUST BE USED.
3. GASKETS PROVIDED WITH THE WATER METER SETTERS ARE THE CONTRACTOR’S RESPONSIBILITY.
4. METER BOX MATERIAL: CONCRETE, PVC or RIGID FRP.
5. COPPER METER SETTER TO BE MUELLER B–2423 OR APPROVED EQUAL.
6. NO FIELD ADJUSTMENT OF METER SETTER IS PERMITTED.
7. ONLY 2” METER SETTER IS TO BE INSTALLED.
1" METER IN 2" COPPER SETTER for COMMERCIAL USE (ONLY) 
N.T.S. 

W-5 
REV-2020

NOTES:
1. WATER METERS AND ADAPTERS TO BE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
2. 36"W x 30"H ONE PIECE BOX MUST BE USED.
3. GASKETS PROVIDED WITH THE WATER METER SETTERS ARE THE CONTRACTOR’S RESPONSIBILITY.
4. METER BOX MATERIAL: CONCRETE, PVC or RIGID FRP.
5. COPPER METER SETTER TO BE MUELLER B-2423 OR APPROVED EQUAL.
6. NO FIELD ADJUSTMENT OF METER SETTER IS PERMITTED.
7. ONLY 2" METER SETTER IS TO BE INSTALLED.
20" WATER METER BOX COVER (A.Y. McDonald #74ML20RGP or APPROVED SUBSTITUTE) SET-UP FOR SCHLUMBERGER PRO-READ SYSTEM.

FINISH GRADE

36" MIN.

2" COPPER METER SETTER

PACK JOINT W/ SET-LOCKING NUT. MUELLER #15428 or APPRV'D EQUAL

SOLID BRICK AT QUARTER POINTS

SOLID CONC. BLOCK

FLOW

4" DIP FROM MAIN TO METER SETTER

STONE DUST OR SUITABLE SOIL INSIDE OF CROCK, NOT TO EXCEED TOP OF BRICK (NO GRAVEL)

BYPASS CLOSED & CABLE TIED

NOTES:

1. WATER METERS AND ADAPTERS ARE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
2. 36"W x 30"H ONE PIECE BOX MUST BE USED.
3. GASKETS PROVIDED WITH THE WATER METER SETTERS ARE THE CONTRACTOR'S RESPONSIBILITY.
4. INSTALLER MAY SUBSTITUTE TYPE "K" SOFT COPPER FOR BRASS SHOWN, PROVIDED APPROPRIATE FITTINGS AND VALVES ARE USED.
5. METER BOX MATERIAL: CONCRETE, PVC or RIGID FRP.
6. COPPER METER SETTER TO BE MUELLER B-2423 OR APPROVED EQUAL.
7. NO FIELD ADJUSTMENT OF METER SETTER IS PERMITTED.
8. ONLY 2" METER SETTER IS TO BE INSTALLED.
NOTES:

1. WATER METERS ARE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
2. 36"W x 30"H ONE PIECE BOX MUST BE USED.
3. GASKETS PROVIDED WITH THE WATER METER SETTERS ARE THE CONTRACTOR’S RESPONSIBILITY.
4. INSTALLER MAY SUBSTITUTE TYPE "K" SOFT COPPER FOR BRASS SHOWN, PROVIDED APPROPRIATE FITTINGS AND VALVES ARE USED.
5. METER BOX MATERIAL: CONCRETE, PVC or RIGID FRP.
6. COPPER METER SETTER TO BE MUELLER B–2423 OR APPROVED EQUAL.
7. NO FIELD ADJUSTMENT OF METER SETTER OR METER BOX IS PERMITTED. FACTORY CUT LENGTH TO 2" METER.
8. ONLY 2" METER SETTER IS TO BE INSTALLED.
NOTES:
1. PIPING UP TO AND LEADING OUT OF VAULT WILL BE RESTRAINED USING MEGA–LUGS SERIES 1100 or APPROVED SUBSTITUTE.
2. SHOP DRAWINGS FOR VAULT AND PIPING MATERIALS WILL BE SUBMITTED TO THE PWCSA FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
3. 4" x 3" REDUCERS REQUIRED BETWEEN VALVES FOR 3" METER APPLICATION.
4. WATER METERS WILL BE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
5. FLOOR WILL BE DESIGNED TO DRAIN TO SUMP AREA, PROVIDE GRAVITY DRAIN TO DAYLIGHT.
6. THE STRUCTURE SHALL NOT BE INSTALLED WHERE SUBJECT TO VEHICULAR OR PEDESTRIAN TRAFFIC.
7. THE EXTERIOR OF ALL METER VAULTS SHALL HAVE A BITUMASTIC COATING.
FLANGE – DRESSER STYLE-711 or
APPROVED EQUAL (RESTRAINED)
(TYP. OF TWO)

14’0"

36” x 36” ALUMINUM ACCESS
HATCH W/LOCKING HASP
(BILCO #J-AL or APPROVED
SUBSTITUTE)

36"

DIP IN

DIP OUT

VARIABLE

MIN. 1’3"

MIN. 2’3"

MIN. 2’3"

18” WATER METER BOX COVER
SET-UP FOR 2 SCHOUMBERGER
PRO-READ SYSTEMS.

12"x12" CUTOUT FOR SUMP

STEEL PIPE SUPPORTS
(TYP. OF 4)
ADJUSTABLE

SLOPE TO SUMP

BLOCKOUT
FOR DRAIN

HIGH WATER
ALARM FLOAT

12"x12"

METER
W/STRAINER

NRS
GATE VALVE
(TYP. OF 3)

DEHUMIDIFIER

ELECTRIC HEATER
SHELF

LIGHT SWITCH

RTU
24"X24"
(12”DEEP)

ALUMINUM
ACCESS LADDER

5,000 PSI
REINFORCED
CONCRETE

SECTION VIEW

NOTES:
1. PIPING UP TO AND LEADING OUT OF VAULT WILL BE RESTRAINED USING MEGA-LUGS SERIES 1100 or APPROVED SUBSTITUTE.
CALCULATIONS FOR RESTRAINT BASED ON DEAD END LINE.
2. SHOP DRAWINGS FOR VAULT AND PIPING MATERIALS WILL BE SUBMITTED TO THE PWCSA FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
3. WATER METERS WILL BE PROVIDED AND INSTALLED BY THE SERVICE AUTHORITY.
4. FLOOR WILL BE DESIGNED TO DRAIN TO SUMP AREA. PROVIDE GRAVITY DRAIN TO DAYLIGHT.
5. THE STRUCTURE SHALL NOT BE INSTALLED WHERE SUBJECT TO VEHICULAR OR PEDESTRIAN TRAFFIC.
6. APPROVED FLEXIBLE JOINT REQUIRED ON ALL PIPE CONNECTIONS IN STRUCTURE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURE’S RECOMMENDATIONS.

6”, 8”, OR 10” MAIN LINE
METER VAULT
N.T.S.
W-9
REV-2020
WORM GEAR LOCKING ASSEMBLY DETAIL

74M24 MONITOR FRAME & COVER

SMALL PENTAGON KEY (27/32" STANDARD)

PLASTIC WASHER
COPPER WASHER
WORM GEAR

COVER CENTER HOLE DETAIL

74M32ARGP METER BOX FRAME & COVER

5" x 3/4" AND 1" WATER METER AND MONITOR FRAME & COVER DETAIL

W-T.S.

W-10
REV-2018
1. THE SERVICE LINE BETWEEN THE MAIN AND THE METER WILL BE ONE CONTINUOUS PIECE OF PIPE. (NO JOINTS WILL BE PERMITTED)
2. BACK TO BACK TAPS ON A WATER MAIN ARE NOT ALLOWED.
3. TAPS SHALL BE SPACED A MINIMUM OF 24 INCHES.
4. IF USE OF C-900 IS PERMITTED BY PWCSA, INJECTION MOLDED TEES SHALL BE USED FOR DOMESTIC TAPS ON C-900 PIPE.
5. FORD FB600–X–NL CORPORATION STOP TO BE USED WITH COPPER SERVICES.
6. FORD FB1000–XX–NL CORPORATION STOP TO BE USED WITH MUNICIPEX SERVICES.
NOTE:
1. ALL JOINTS FROM THE MAIN TO THE METER WILL BE RESTRAINED USING AN APPROVED RESTRAINING GLAND.
PROVIDE NPT FOR BLOWOFF
2" PLASTIC HANDBITE CAP

2" 90° BRASS PIPE FITTING
COMPACT GRANULAR BEDDING
2" BRASS NIPPLE
M.J. TAPPED PLUG

1'-6" X 3'-0" X 6"
CONCRETE PAD
(IN EASEMENT AREA
ONLY)

PROPOSED
GRADE

GATE VALVE
RESTRAIN AS REQUIRED
FOR DEAD END

DIP WATERMAIN

SOLID CONCRETE
BLOCK

NOTES:
1. ALL 2" PIPE TO BE WITH I.P. THREAD.
2. PROVIDE RESTRAINT IN ACCORDANCE WITH DEAD END LINE,
   ACCORDING TO MAIN LINE SIZE.

TEMPORARY BLOW-OFF ASSEMBLY
N.T.S.
W-13
REV-2018
NOTES:
1. ALL 2" PIPE TO BE WITH I.P. THREAD.
2. PROVIDE RESTRAINT IN ACCORDANCE WITH DEAD END LINE, ACCORDING TO MAIN LINE SIZE.
NOTES:

1. VALVES THAT ARE NORMALLY CLOSED, PROVIDE ACCESS INSERT AND PAINT TOP OF VALVE BOX RED.
2. VALVE AND PIPE SHALL HAVE SAME NOMINAL DIAMETER.
3. VALVE EXTENSIONS TO BE ONE ROD ONLY, USE OF MULTIPLE EXTENSIONS IS PROHIBITED.

ONLY SERVICE AUTHORITY TO ACCESS AND OPERATE ANY OPERATIONAL VALVE
NOTES:
1. Air release valve shall be simplex type "AV" "CRISPIN UNIVERAL" or approved substitute. Valve shall have 2" diameter screwed connection and shall function at working pressure up to 150 PSI.
2. Pipe to be groused in at dog house openings.
3. Ductile iron service saddle with stainless steel double straps and bolts shall be "MUELLER DR25" or approved substitute.
4. 2" pipe shall be threaded ductile iron made by Harco or approved substitute.
5. Manhole steps to be American Step Company ML-10-TDS-SSR or approved equivalent.

* PWCSA MUST GIVE SPECIFIC PERMISSION AND OR APPROVAL TO USE THIS OR ANY OTHER DESIGN
NOTES:
1. MAKE ANY JOINT DEFLECTION NECESSARY BEFORE TORQUING THE T-HEAD BOLTS.
2. TIGHTEN T-HEAD BOLTS, BOTTOM FIRST, THEN TOP, SIDES AND REMAINDER.
3. REPEAT NOTE #2 UNTIL ALL T-BOLTS ARE PROPERLY TORQUED.
4. TIGHTEN TWIST-OFF NUTS SO THAT ALL WEDGES FIRMLY CONTACT PIPE.
5. TIGHTEN TWIST-OFF NUTS IN ALTERNATING MANNER, SHEARING OFF NUTS.
6. MEGALUG MAY BE RESET OR REUSED BY ASSEMBLY AS DESCRIBED ABOVE AND TORQUING WEDGE BOLTS TO 90 FT. LBS.
<table>
<thead>
<tr>
<th>SOIL PROPERTIES</th>
<th>SIZE</th>
<th>CONCRETE BLOCK DIMENSIONS AT 150 PSI PRESSURE</th>
<th>ADD TO DIMENSION D FOR EACH ADD 50 PSI PRESSURE UP TO 300 PSI</th>
<th>Adjustment For Conc. Area For Different Height HC To Be Measured From Grade To Q Of Pipe</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
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<td>$CS = 1000\text{ PSF}$</td>
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<td>$\phi = 15'$ SOFT SILTY CLAY OR BETTER</td>
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<td>$CS = 0\text{ PSF}$</td>
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<tr>
<td>$\phi = 0'$ LOOSE SILTY SAND</td>
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<td>11'-8&quot;</td>
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</tbody>
</table>

**NOTES:**
1. FC = 3,000 PSI at 28 DAYS.
2. CS = SOIL COHESION IN PSF AND $\phi =$ ANGLE OF INTERNAL FRICTION.
3. CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUB-GRADE.
4. CONCRETE THRUST BLOCKING TO BE USED ONLY AT THE DISCRETION OF THE SERVICE AUTHORITY FIELD INSPECTOR, AND WHEN JOINT RESTRAINT IS INADEQUATE OR INFEASIBLE.
<table>
<thead>
<tr>
<th>Soil Properties</th>
<th>Size</th>
<th>Concrete Block Dimensions At 150 PSI Pressure</th>
<th>Add To Dimension D For Each Add 50 PSI Pressure Up To 300 PSI</th>
<th>Adjustment For Conc. Area For Different Height HC To Be Measured From Grade to Q Of Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS = 1000 PSF, Φ = 15°</td>
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<tr>
<td>Soft Silty Clay or Better</td>
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<td>3”</td>
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<td>4”</td>
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<td>5’-0”</td>
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<td>30”</td>
<td>6’-0”</td>
<td>4’-0”</td>
<td>1’-4”</td>
<td>2’-3”</td>
</tr>
</tbody>
</table>

| CS = 0, Φ = 15°          |      |                                              |                                                               |                                                                  |
| Loose Silty Sand         |      |                                              |                                                               |                                                                  |
| 3”                       | 1’-6”| 1’-6”                                        | 6”                                                             | 4”                                                               |
| 4”                       | 2’-0”| 2’-0”                                        | 6”                                                             | 4”                                                               |
| 6”                       | 3’-0”| 2’-0”                                        | 6”                                                             | 4”                                                               |
| 8”                       | 4’-0”| 2’-6”                                        | 8”                                                             | 6”                                                               |
| 10”                      | 6’-0”| 2’-6”                                        | 8”                                                             | 6”                                                               |
| 12”                      | 7’-0”| 3’-0”                                        | 1’-0”                                                          | 6”                                                               |
| 16”                      | 11’-0”| 4’-0”                                       | 1’-0”                                                          | 9”                                                               |
| 20”                      | 11’-8”| 5’-0”                                       | 1’-0”                                                          | 9”                                                               |
| 24”                      | 12’-6”| 6’-0”                                        | 1’-6”                                                          | 1’-4”                                                            |
| 30”                      | 20’-0”| 6’-0”                                        | 2’-0”                                                          | 2’-0”                                                            |

**Notes:**
- Dimension D & E shall be adjusted for required area.
- Dimension F & G shall remain same.
- Dimension D shall be adjusted for required pressure in excess of 150 PSI before making adjustment for height.
- Concrete thrust blocking to be used only at the discretion of the service authority field inspector.

**Buttresses for 45° Horizontal Bend**

**W-19**

**Rev-2018**
### Table: Concrete Block Dimensions

<table>
<thead>
<tr>
<th>SIZE</th>
<th>Concrete Block Dimensions</th>
<th>Add to Dimension &quot;D&quot; For Each Add'l 50 PSI Pressure Up To 300 PSI</th>
<th>Adjustment for Conc. Area For Different Height (HC) To Be Measured From Grade To C of Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>E</td>
<td>F</td>
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<td>15'-10&quot;</td>
<td>6'-0&quot;</td>
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</tbody>
</table>

**Notes:**
- Dimension D & E shall be adjusted for required area.
- Dimension F & G shall remain same.
- Dimension D shall be adjusted for required pressure in excess of 150 PSI before making adjustment for height.
- Special design required for lines 24" or greater in diameter.
- Concrete thrust blocking to be used only at the discretion of the service authority field inspector.

**Buttresses for 90° Horizontal Bend**

N.T.S.   

W-20  

REV-2018
**BUTTRESES FOR TEES, PLUGS, & CAPS**

**N.T.S.**

**W-21**

**REV-2018**

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**BUTTRESS FOR PLUGS & CAPS**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>3&quot;</th>
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<th>8&quot;</th>
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<td>M</td>
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**REINFORCE WITH 66" EW**

**BUTTRESS FOR TEES**

<table>
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<tr>
<th>SIZE OF BRANCH</th>
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<th>4&quot;</th>
<th>6&quot;</th>
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<tbody>
<tr>
<td>J</td>
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<td>6&quot;</td>
<td>8&quot;</td>
<td>9&quot;</td>
<td>1'-1&quot;</td>
<td>1'-3&quot;</td>
<td>1'-8&quot;</td>
<td>2'-0&quot;</td>
<td>2'-6&quot;</td>
<td>3'-4&quot;</td>
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<td>K</td>
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<td>1'-3&quot;</td>
<td>1'-4&quot;</td>
<td>1'-9&quot;</td>
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<td>L</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>8&quot;</td>
<td>9&quot;</td>
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<td>1'-2&quot;</td>
<td>1'-6&quot;</td>
<td>1'-8&quot;</td>
<td>2'-0&quot;</td>
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<td>H</td>
<td>4&quot;</td>
<td>4&quot;</td>
<td>6&quot;</td>
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<td>8&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
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</tbody>
</table>

**AREA OF BLOCK = 2J X 2K**

**NOTE:** TAPPING ASSEMBLIES & SLEEVES TO BE CONCRETE BLOCKED AS COMPARABLE SIZED TEES

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**NOTES:**

1. **Fc = 3000 PSI AT 28 DAYS.**
2. **THE BUTTRESS DIMENSIONS ARE BASED ON THE WATER PRESSURE OF 150 PSI**
   WHERE THE PRESSURE IS DIFFERENT, THE AREA OF BLOCK SHALL BE PROPORTIONED TO REQUIRED PRESSURE.
3. **CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.**
4. **CONCRETE THRUST BLOCKING TO BE USED ONLY AT THE DISCRETION OF THE SERVICE AUTHORITY FIELD INSPECTOR.**
### BUTTRESS FOR LOWER VERTICLE BENDS

<table>
<thead>
<tr>
<th>BEND</th>
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<tbody>
<tr>
<td>11-1/4&quot;</td>
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<tr>
<td></td>
<td>M</td>
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<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>22-1/2&quot;</td>
<td>L</td>
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<tr>
<td></td>
<td>M</td>
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<td>N</td>
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<tr>
<td>45°</td>
<td>L</td>
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<td>M</td>
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<td>N</td>
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</tbody>
</table>

**NOTES:**
1. $F_c = 3000$ PSI AT 28 DAYS.
2. CARRY ALL BEARING SURFACES TO UNDISTURBED EARTH OR FIRM SUBGRADE.
3. THE BUTTRESS DIMENSIONS ARE BASED ON THE WATER PRESSURE OF 150 PSI AND SOIL BEARING PRESSURE OF 2500 PSI. WHERE THE WATER PRESSURE AND SOIL BEARING PRESSURE ARE DIFFERENT, THE AREA OF CONCRETE BLOCK (I.E. L & M) SHALL BE PROPORTIONED ACCORDINGLY. AREA ADJUSTMENT FOR REQUIRED PRESSURE SHALL BE MADE FIRST BEFORE MAKING ADJUSTMENT FOR SOIL BEARING PRESSURE.
4. CONCRETE THRUST BLOCKING TO BE USED ONLY AT THE DISCRETION OF THE SERVICE AUTHORITY FIELD INSPECTOR.
**ANCHORAGE FOR 11\(\frac{1}{4}\)^\circ, 22\(\frac{1}{2}\)^\circ and 45\(^\circ\) UPPER VERTICAL BENDS**

**W-23**

**N.T.S.**

**REV-2018**

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**Table: Reinforcing Bars Where 4 Reinforcing Bars Are Used**

<table>
<thead>
<tr>
<th>BEND</th>
<th>3&quot;</th>
<th>4&quot;</th>
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<tbody>
<tr>
<td>11-1/4&quot;</td>
<td>L</td>
<td>1'-6&quot;</td>
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<td>3'-3&quot;</td>
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<td>2'-0&quot;</td>
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<td>2'-3&quot;</td>
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<td>3'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>REINFOR. BARS NO &amp; SIZE</td>
<td>3 #5</td>
<td>3 #5</td>
<td>3 #5</td>
<td>3 #5</td>
<td>3 #6</td>
<td>3 #6</td>
<td>3 #6</td>
<td>3 #8</td>
<td>3 #8</td>
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</tbody>
</table>

| 22-1/2"   | L   | 1'-6" | 2'-0" | 2'-6" | 2'-9" | 3'-6" | 4'-0" | 4'-6" | 5'-6" | 6'-0" | 7'-0" |
|           | W   | 1'-6" | 2'-0" | 2'-6" | 2'-9" | 3'-6" | 4'-0" | 4'-6" | 5'-6" | 6'-0" | 7'-0" |
|           | D   | 1'-6" | 1'-6" | 2'-0" | 2'-3" | 2'-3" | 3'-0" | 3'-0" | 4'-0" | 4'-6" | 4'-6" |
|           | REINFOR. BARS NO & SIZE | 3 #5 | 3 #5 | 3 #5 | 3 #5 | 3 #6 | 3 #6 | 4 #6 | 4 #6 | 3 #8 | 4 #8 |

| 45"       | L   | 2'-0" | 2'-6" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 6'-0" | 7'-6" | 8'-0" | 10'-0" |
|           | W   | 2'-0" | 2'-6" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 6'-0" | 7'-6" | 8'-6" | 10'-0" |
|           | D   | 1'-6" | 2'-0" | 2'-0" | 2'-6" | 2'-9" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 5'-0" |
|           | REINFOR. BARS NO & SIZE | 3 #5 | 3 #5 | 3 #5 | 3 #5 | 3 #6 | 4 #6 | 4 #6 | 4 #8 | 4 #8 | 4 #8 |

**NOTES:**

1. \(F_{c}=3000\) PSI AT 28 DAYS.
2. CARRY ALL BEARING SURFACES TO UNDISTURBED EARTH OR FIRM SUBGRADE.
3. THE ANCHORAGE DIMENSIONS ARE BASED ON THE WATER PRESSURE OF 150 PSI. WHERE THE PRESSURE IS DIFFERENT, THE VOLUME OF THE CONCRETE (I.E. \(L \times W \times D\)) SHALL BE PROPORTIONED TO REQUIRED PRESSURE.
4. CONCRETE THRUST BLOCKING TO BE USED ONLY AT THE DISCRETION OF THE SERVICE AUTHORITY FIELD INSPECTOR.

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**Diagram:**

- Double Acting Steel Wedges
- Embed Reinforcing Bars Minimum 36" Diameter Including the Hooks. Paint Exposed Bars with Two Coats of Bituminous Paint.
- Reinforcing Bars Where 4 Reinforcing Bars Are Used, Place 2 Symmetrically Placed Reinforced Bars at Bends and Other 2 Bars as Shown in Detail.
NOTES:
1. BEARING AREA IS BASED ON 200 PSI TEST PRESSURE OF 2,000 LBS. PER SQUARE FOOT. INCREASE BLOCK DIMENSIONS AS REQUIRED IN SOILS WITH LOWER BEARING VALUES.
2. EXTEND DEAD END ANCHOR AS NECESSARY INTO UNDISTURBED SOIL AS INDICATED ON CHART.
3. ADDITIONAL REINFORCEMENT SHALL BE AS SPECIFIED BY THE DESIGN ENGINEER AND APPROVED BY THE SERVICE AUTHORITY.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACK FILL.
5. ANCHOR SCHEDULE TO BE COMPLETED BY THE DESIGN ENGINEER.
6. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.

DEAD END ANCHOR SCHEDULE

<table>
<thead>
<tr>
<th>LINE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
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MEGA-LUG FLANGE or APPROVED SUBSTITUTE.

PLAN VIEW

RESILIENT SEAT WEDGE VALVE

ELEVATION

MEGA-LUG FLANGE or APPROVED SUBSTITUTE.

M.J. PLUG

2'-0" MIN.

4'-0" MIN.

5'

9'

DEAD END ANCHOR DETAIL

N.T.S.

W-24

REV-2018
NOTES:

1. FIRE HYDRANT TO BE SET PLUMB.
2. FINISHED GRADE NOT TO EXCEED 0 to 3" BELOW THE BURY LINE ON HYDRANT BARREL.
3. FIRE HYDRANT LEADS 50' OR GREATER SHALL HAVE AN ADDITIONAL VALVE WITHIN 6' OF HYDRANT.
4. HYDRANT BARRELS SHALL BE PAINTED SAFETY YELLOW WITH EITHER MCCORMICK COTE-ALL #335031P OR RUST-OLEUM #7744402.

MUELLER CENTURION KENNEDY MODEL K-B1 A & D OR APPROVED SUBSTITUTE

VALVE IN GRASS/OPEN AREA TYPICAL

SLIDE STYLE ADJUSTABLE VALVE BOX AND LID. CAPITOL FOUNDRY #664A OR APPROVED SUBSTITUTE.

RESTRAN ALL JOINTS WITH SERIES 1100 MEGA-LUG or APPROVED SUBSTITUTE

42" MIN COVER

6" RESILIENT SEAT WEDGE VALVE MUELLER #A-2360 or APPROVED SUBSTITUTE

DUCTILE IRON TEE

8"X8" SOLID CONCRETE BLOCK

ELEVATION

BACK OF EXCAVATION TO FLANGE

TYPICAL FIRE HYDRANT INSTALLATION
DEPTH BETWEEN 3.5 & 5.0 FEET
N.T.S.

W-25
REV-2020
1. FIRE HYDRANT TO BE SET PLUMB.
2. FINISHED GRADE NOT TO EXCEED 0 TO 3" BELOW THE BURY LINE ON HYDRANT BARREL.
3. HYDRANT BARRELS SHALL BE PAINTED SAFETY YELLOW EITHER MCCORMICK COTE-ALL #335031P OR RUST-OLEUM #K774440Z.

NOTES:

CONCRETE COLLAR PER AWWA M17

VERTICAL AQUAGRIP SHOE

STANDARD DUCTILE IRON PIPE CUT TO LENGTH ACCORDING TO GRADE

SEE DETAIL W-25 TEAR GATE VALVE REQUIREMENTS

90° AQUAGRIP ELBOW

GROUND LINE 0" - 3" MAX
TYPICAL FIRE HYDRANT
LOCATION W/ CURB & GUTTER
OR DITCH LINE
N.T.S.

NOTE:
HYDRANT SHALL CONFORM IN ALL RESPECTS TO TYPICAL FIRE HYDRANT DETAIL.

EXISTING GROUND OR FINISHED GRADE

TYPICAL SECTION CURB & GUTTER STREET

6'-4"

DITCH LINE

SHOULDER

EDGE OF SHOULDER ELEVATION 4:1 SLOPE

2:1 SLOPE

SEE GRAVEL DRAIN DETAIL

TYPICAL SECTION STREET WITHOUT CURB & GUTTER

36" MAX.
18" MIN.
TYPICAL FIRE HYDRANT LOCATION ON STREET

INTERSECTION OR DRIVEWAY APRON

SIDEWALK

RADIUS

10’ (MIN.)

FIRE HYDRANT
FOR INDUSTRIAL AND COMMERCIAL SITES
STEEL POSTS OF A MINIMUM 8" Ø
SHALL BE PLACED

4" Ø STEEL POSTS, PAINTED YELLOW
7' LONG, FILLED WITH CONCRETE
SET IN 3' OF CONCRETE

THIS AREA MAY BE
DESIGNATED FIRE LANE
BY THE
FIRE MARSHAL

TYPICAL FIRE HYDRANT
POST PROTECTION
N.T.S.

W-29
REV-2020
Pour 2'x2' concrete pad around all valve boxes in grass areas. Pad to be 4" thick.

Valve in Grass/Open Area Typical

Tapping sleeve shall be: Mueller #H-615 Mechanical Joint Tapping Sleeve or Approved Substitute.

Slide Style Adjustable Valve Box and Lid. Capitol Foundry #664A or Approved Substitute.

Mueller #T-2360 Resilient Seat Wedge Tapping Valve or Approved Substitute.

Ductile iron pipe

#57 Stone base

8"x8" solid concrete block set on or against undisturbed soil

Notes:
1. Tapping sleeve and valve shall be tested for 10 min. at 200 PSI for sizes 4" thru 12" prior to tapping main. Taps larger than 12" will be tested for 10 min. at 150 PSI.
2. 1 piece valve extension required when valve depth from top of operating nut to finished grade is 5' or greater.
STD. CORPORATION STOP
FORD F-600 (WITH FLARE COPPER OUTLET) or TEE WITH VALVE

SUB-METER PROVIDED BY PWCSA

FORD Y-502 METER YOKE WITH FORD #AV92-32.5W ANGLE VALVE or (APPROVED SUBSTITUTE) ON BOTH SIDES OF YOKE.

60" MAX. DISTANCE

24" MIN. DIST.

REFERENCE PWCSA METER DETAIL FOR REQUIRED METER AND LINE SIZE.

INSPECTION OF ALL FITTINGS PAST THE MAIN METER BOX IS THE RESPONSIBILITY OF PWCS PLUMBING DEPARTMENT.

ALL FITTINGS ON BUILDING SIDE OF MAIN METER WILL CONFORM TO THE INTERNATIONAL/BOCA PLUMBING CODES.

NOTES:
1. SUB-METERS FOR NEW CONSTRUCTION WILL BE LOCATED OUTSIDE WITHIN 5 FEET OF THE MAIN METER, NO EXCEPTION.
2. METERS MUST BE SET IN GRASS AREA. METERS ARE NOT PERMITTED TO BE PLACED IN PEDESTRIAN TRAVEL WAY.
3. METERS WILL BE PROVIDED BY PWCSA AND WILL REGISTER IN GALLONS.
4. METERS MUST BE SET LEVEL.
5. ONLY ONE SUB-METER IS PERMITTED PER ACCOUNT.

5/8" x 3/4" AND 1"
SUB-METER DETAIL

W-31
REV-2018
NOTE:
1. MAXIMUM DEFECTION FOR EACH JOINT OF PIPE WILL NOT EXCEED MANUFACTURES RECOMMENDATIONS AND APPROVED BY PWCSA.

OR

NOTE:
1. LOWERED SECTION TO BE OF DUCTILE IRON MECHANICAL JOINT PIPE WITH RESTRAINED JOINTS. THE ENGINEER SHALL CALCULATE LENGTH OF RESTRAINED SECTION.
TRACER WIRE
TEST STATION
N.T.S.

W-33
REV-2018

1. TRACER WIRE SHALL BE 12 GAUGE SOLID COPPER, SECURED ALONG THE LENGTH OF THE PIPE WITH CABLE TIES, 60" O.C.

2. TWO TRACER WIRES SHALL BE PROVIDED ALONG THE LENGTH OF THE PIPE, AT THE 4 AND 8 O'CLOCK POSITIONS (both 60" from the bottom of pipe).
BEDDING AND BACKFILL FOR ALL C-900 AND POLY-WRAPPED DIP

BACKFILL AND 4" MIN SIDEWALL SHALL BE CRUSHED AGGREGATE (LESS THAN 1") OR #57 STONE A MIN. OF 24" ABOVE CROWN OF PIPE.

#12 SOLID COPPER TRACER WIRE FOR ALL NON METALLIC PIPE.

BEDDING DEPTH SHALL BE A MIN. OF 4" CRUSHED AGGREGATE < 1" OR #57 STONE.

NOTES:

1. WHEN USING C-900 PIPE, MARKER BALLS TO BE PLACED AT ALL BENDS WITH A MAXIMUM DISTANCE OF 100'.

2. 6" WIDE DETECTABLE MARKING TAPE TO BE PLACED 2' ABOVE PIPE.
ACCESS GATE DETAILS

NOTES:
1. All metal used in the manufacturing of the access gate to be hot dip galvanized.
2. All welds and pipe to be painted and touched up in accordance with manufactures recommendations.
3. All pipe to be schedule 40 steel; diameters shown are nominal pipe size.
4. Pad lock to be furnished.
5. Contractor to furnish and install an additional 3" dia. post with 3/8" rod, located to hold gate in an open position of 90°.

DETAIL A
- 3/8" steel plate front and top plates not shown
- 3-1/2" x 3" slot
- 3/8" rod

DETAIL C
- 3" dia. gate post filled with concrete
- 3/8" steel plate with no bottom
- 3" gate
- 2" gate
- 3/8" rod
- 4" dia. gate post
- 1/8" thick x 3" wide, galvanized rolled to fit 3" dia. gate post and welded all around with 1/8" fillet weld
- 7" long 1/2" dia. hex head bolt, galvanized

ELEVATION
- Access road
- Concrete footing center gate post
- Crown top of concrete to shed water
- Fill with concrete and dome top to shed water
- See detail "A"
- See detail "B"
- See detail "C"
- Undisturbed earth

PLAN
- 3" dia. gate post filled with concrete
- 2" gate
- 3/8" rod
- 3/8" steel plate cap

DETAIL C
- Plate 1/8" thick x 3" wide, galvanized rolled to fit 3" dia. gate post and welded all around with 1/8" fillet weld
- 7" long 1/2" dia. hex head bolt, galvanized

ACCESS GATE DETAILS
N.T.S.
W-35
REV-2018
NOTES:
1. CONDUIT TO BE PVC SCHEDULE 40.
2. CONTINUE CIRCUIT TO GFI DUPLEX RECEPTACLE.
3. METER, METER HARNESS, AND CONVERTER ARE SUPPLIED
   BY PWCSA FOR INSTALLATION BY CONTRACTOR.
4. MUST BE WATERPROOF, MINIMUM 5' FROM BOTTOM;
   MULTIPLE BOXES ALLOWED.
SPECIFICATIONS:
1. BOLTS AND NUTS ARE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C111/A21.11
2. MATERIAL IS HIGH STRENGTH LOW ALLOY STEEL PER ANSI/AWWA C111/A21.11
3. THREADS PER ASME B1.1 UNIFIED STANDARD COARSE (CLASS 2A & 2B)

MECHANICAL PROPERTIES:
1. YIELD STRENGTH 45,000 PSI (MIN)
2. ELONGATION IN 2in. 20% (MIN)

CHEMICAL PROPERTIES:
CARBON 0.20% MAX
MANGANESE 1.25% MAX
SULFUR 0.05% MAX
NICKLE 0.25% MAX
COPPER 0.20% MAX
COMBINED 1.25% MAX (Ni, Cu, Cr)

OPTONAL COATING:
T—BOLTS & NUTS HAVE A FLUROPOLYMER COATING MATERIAL WHICH IS VOC—COMPLIANT, RESIN—BONDED THERMALLY CURED AND DRYED LUBRICANT

COATING PHYSICAL PROPERTIES:
FILM THICKNESS .03 TO .04 MIL PER COAT
NUMBER OF COATS 3 TO 4 COATS
ADHESION 1MM CROSS HATCH TEST + 5 PULLS. GOOD KNIF RESISTANCE
CURE TEST 50+ RUBS WITH MEK. NO SUBSTRATE EXPOSURE
PENCIL HARDNESS 4—6H
VOLATILE ORGANIC COMPOUNDS 2.74lbs/gal

T—BOLTS AND NUTS
HSLA STEEL
N.T.S.
W37
REV—2019