NOTE:
SEAMS SHALL BE STAGGERED IF MORE THAN ONE LAYER IS INSTALLED.

TYPICAL INSTALLATION

TYPICAL SECTION

COMPACTED BACKFILL

MINIMUM 2 LAYERS OF HIGH DENSITY POLYETHYLENE RIGID INSULATION 8' WIDE BY 4" THICK, 6" ABOVE WATERMAIN

BITUMINOUS SURFACE OR GRASSY SURFACE

5'-7' TO TOP OF PIPE

UNDISTURBED SOIL

EXISTING WATERMAIN

HIGH DENSITY POLYETHYLENE RIGID INSULATION
BUTTERFLY VALVE AND BOX TYPICAL INSTALLATION

BUTTERFLY VALVE ADAPTOR AS MANUFACTURED BY ADAPTOR INC. OR APPROVED EQUAL

END VIEW

WATER

POWERSEAL VALVE BOX DROP LID OR MUELLER COVER NO. H-10361 OR APPROVED EQUAL LABELED ‘WATER’

DROP LID

FINISHED GRADE

ADJUST TOP TO 3/8" TO 1/2" BELOW FINISHED BLACKTOP GRADE OR 1" BELOW FINISHED BOULEVARD GRADE, AND SHALL BE SET SO AS TO PROVIDE 12" OF UPWARD ADJUSTMENT

BUTTERFLY VALVE BOX DUCTILE IRON POWERSEAL MODEL NO. 8860 OR APPROVED EQUAL

BUTTERFLY VALVES 15" OR LARGER, DRESSER 450, OR PRATT GROUNDHOG OR KENNEDY OR APPROVED EQUAL

BUTTERFLY ADAPTOR AS MANUFACTURED BY ADAPTOR INC. OR APPROVED EQUAL

PROVIDE CONDUCTIVITY STRAP (TYP.) MINIMUM 1/16" X 1/2" WIDE FLAT COPPER STRAP.

0.5 CY 1 1/2" WASHED ROCK

8" CONCRETE BLOCK

BUTTERFLY ADAPTOR AS MANUFACTURED BY ADAPTOR INC. OR APPROVED EQUAL

EXTENSION LENGTHS:
NO. 58- 14"
NO. 59- 18"
NO. 60- 24"

EXTENSION PIECES

TOP SECTION

BOTTOM SECTION

VARIABLE

VARIABLE

VARIABLE

NOTES:
NO INSIDE ADJUSTMENT SECTIONS ALLOWED.

VALVE AN BOX SHALL BE STRAIGHT, ALLOWING A 4" PVC PIPE TO SLIDE DOWN THE BOX AND OVER THE GATE OPERATING NUT.

OPERATING ROD EXTENSION SHALL BE INSTALLED ON ALL VALVES DEEPER THAN 9'.

MARK ALL VALVE WITH STEEL POST AND GATE VALVE SIGN AND LOCATE 2.0’ TO THE SIDE THAT TRAFFIC IS APPROACHING. (OFF STREET AREAS ONLY) SIGN TO FACE TRAFFIC. SEE STANDARD PLATE GEN-5.

OPERATING ROD EXTENSION SHALL BE TERMINATED AT A OF 5 FEET BELOW STREET GRADE.

VALVE BOXES SHALL NOT BE LOCATED IN CURB AND GUTTER OR WITHIN 12" AWAY FROM LIP OF CURB AND GUTTER.

FITTINGS SHALL BE FUSION EPOXY COATED. NUTS AND BOLTS SHALL BE COR-BLUE OR APPROVED EQUAL.

CHISAGO CITY

STANDARD DETAILS
BUTTERFLY VALVE AND BOX TYPICAL INSTALLATION

Revised
1/2019
WAT-2

Standard Plate No.
STANDARD DETAILS

GATE VALVE AND BOX
TYPICAL INSTALLATION

Revised: 1/2019
Standard Plate No.: WAT-3
NOTES:
1. SHAPE OF BACK OF BUTTRESS MAY VERY AS LONG AS POURED AGAINST FIRM UNDISTURBED EARTH.
2. DIMENSION C1,C2,C3 SHOULD BE LARGE ENOUGH TO MAKE ANGLE Ø EQUAL TO OR LARGER THAN 45°.
3. DIMENSION A1,A2,A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH MJ BOLTS.
4. Ø = 45° MINIMUM.
5. PLACE POLYETHYLENE BETWEEN CONCRETE & PIPE.

BUTTRESS DIMENSIONS

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>22 1/2° BEND</th>
<th>45° BEND</th>
<th>90° BEND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B1</td>
<td>D1</td>
<td>B2</td>
</tr>
<tr>
<td>6”</td>
<td>1'-5”</td>
<td>1'-5”</td>
<td>1'-5”</td>
</tr>
<tr>
<td>8”</td>
<td>1'-5”</td>
<td>1'-5”</td>
<td>2'-1”</td>
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<tr>
<td>12”</td>
<td>1'-10”</td>
<td>1'-10”</td>
<td>3'-4”</td>
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<td>16”</td>
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<tr>
<td>20”</td>
<td>3'-6”</td>
<td>2'-8”</td>
<td>5'-6”</td>
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<tr>
<td>24”</td>
<td>4'-4”</td>
<td>3'-0”</td>
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</tr>
<tr>
<td>30”</td>
<td>-</td>
<td>-</td>
<td>9'-3”</td>
</tr>
</tbody>
</table>

- SEE NOTE 4

CONCRETE SHALL BE IN CONTACT WITH THIS QUADRANT OF PIPE

BEDDING MATERIAL UNDISTURBED EARTH CONCRETE

SECTION A-A

PLAN 90° BENDS

PLAN 45° BENDS

PLAN 22 1/2° BENDS
NOTES:
1. ANNUAL TESTING OF RPZ REQUIRED.
2. REQUIRED EQUIPMENT MUST BE ENCLOSED AND SUPPORTED.
3. SLEEVES FOR PIPES IN CONCRETE SLABS SHALL BE PVC OR APPROVED EQUAL, AND MINIMUM OF ONE NOMINAL SIZE LARGER IN DIAMETER THAN THE PIPE.
4. SEE STANDARD PLATE _____ FOR CURB STOP AND WINTERIZING CURB STOP DETAIL.
1. ALL HYDRANTS LEADS MUST BE VALVED.
2. HYDRANT TO BE 5'-6' BEHIND BACK OF CURB OR 3' BEHIND BIT. TRAIL.
3. NO HYDRANTS SHALL BE LOCATED BETWEEN P.C. OR P.T. OF INTERSECTION RADII.
4. HYDRANT TO BE WATEROUS W-67-250 PACER W/16' BREAKOFF, #5 NUT, 8' BURY, OPENS LEFT.
5. 2 HYDRANT FLAGS PER FIRE HYDRANT ARE REQUIRED (NO SPLINTER PROOF FIBER GLASS AS PRODUCED BY EZ-PRODUCTS IN HUGO, MN OR APPROVED EQUAL).
6. HYDRANT TO BE TIED TO TEE WITH APPROVED RESTRAINING DEVICES, MEGA LUGS OR AS APPROVED BY THE CITY ENGINEER.
7. INTERNAL INSERT TOP SECTIONS ARE NOT ACCEPTABLE (FOR G.V. BOX).
8. HYDRANTS SHALL BE MARKED WITH APPROVED "OT OF SERVICE" TAGS WHEN INSTALLED.
9. "PUMP AFTER USE" PLATES TO BE INSTALLED WHEN "DRAIN HOLES" IN VALVE SEAT ARE OMITTED IN GROUND WATER SITUATIONS.
10. ALL GATE VALVES SHALL BE IN ROADWAY.
11. 6" GATE VALVES TO BE INSTALLED A MINIMUM OF 7' FROM CENTER OF HYDRANT ON ALL HYDRANT LEADS OR AS CLOSE TO HYDRANT TEE AS POSSIBLE.
12. A ONE-PIECE HEAVY DUTY OPERATING VALVE ROD IS REQUIRED ON HYDRANTS THAT ARE EXTENDED 24" OR MORE.
13. WHEN INSTALLING A HYDRANT ROD EXTENSION THE NONBREAKABLE COUPLING SLEEVES GO ON THE BOTTOM AND THE BREAKABLE SLEEVES GO ON THE TOP OF THE EXTENSION ROD. VERIFY "TOP AND BOTTOM" OF BREAKOFF SECTION.
14. THE WB-67-250 PACER REQUIRES THE OIL RESERVOIR BE FILLED WITH FOOD GRADE MINERAL OIL.
15. TOUCH UP HYDRANT PAINT (WITH AFC WATEROUS RED) AFTER TURF ESTABLISHMENT AS DIRECTED.
16. FITTINGS SHALL BE FUSION EPOXY COATED. NUTS AND BOLTS SHALL BE COR-BLUE OR APPROVED EQUAL.
CUBIC YARD MIN. 1 1/2" WASHED ROCK.

COVER WITH POLYETHYLENE.

HYDRANT FLAG AS SPECIFIED

CONNECT TRACER WIRE TO SNAKE PIT MAGNETIZED TRACER BOX - CONCRETE DRIVEWAY BOX BY COPPERHEAD INDUSTRIES, OR EQUAL.

BREAKOFF FLANGE WITH BREAKABLE RED COUPLINGS

BACKFILL TO BE TAMPERED

1 CUBIC YARD MIN. 1 1/2" WASHED ROCK. COVER WITH POLYETHYLENE.

4"X4" VERTICAL BLOCK

4"X4" THRUST BLOCK

PLUG DRAIN HOLE WHERE GROUND WATER IS PRESENT

8" CONCRETE BLOCK

TRACER WIRE:
#12 AWG COPPER CLAD STEEL
MINIMUM 30 MIL HDPE INSULATION
MINIMUM BREAK LOAD:
450 LB (OPEN TRENCH)
1,150 LB (DIRECTIONAL DRILL)

GATE VALVE AND BOX WITH EXTENSION ROD
GATE VALVE ADAPTOR
AND 1 1/2" ROCK
(SEE WAT - 4)

TIE ALL JOINTS WITH MEGALUGS (MIN. 4 REQ.)

NOTES:
1. ALL HYDRANTS LEADS MUST BE VALVED.
2. HYDRANT TO BE 5'-6" BEHIND BACK OF CURB OR 3' BEHIND BIT. TRAIL.
3. NO HYDRANTS SHALL BE LOCATED BETWEEN P.C. OR P.T. OF INTERSECTION RADI.
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15. TOUCH UP HYDRANT PAINT (WITH AFC WATEROUS RED) AFTER TURF ESTABLISHMENT AS DIRECTED.
16. FITTINGS SHALL BE FUSION EPOXY COATED. NUTS AND BOLTS SHALL BE COR-BLUE OR APPROVED EQUAL.

STANDARD DETAILS

HYDRANT AND GATE VALVE IN PAVEMENT

Revised
1/2019

Standard Plate No.
WAT-8
WATER MAIN/FORCE MAIN PIPE SUPPORT IN CASING, PLASTIC SPACERS
NOT TO SCALE

PHOENIX PLASTIC CASING SPACER OR APPROVED EQUAL

CASING PER SPECIFICATION
CARRIER PIPE

FILL VOID AREA WITH SAND (TYP)

MAX 2' FROM END OF PIPE
MAX 8' EQUALLY SPACED
MAX 8' EQUALLY SPACED
MAX 2' FROM END OF PIPE
NOTE:

1. ALL FITTINGS SHALL BE FUSION BONDED EPOXY COATED DUCTILE IRON TO MEET OR EXCEED ANSI/AWWA C550 AND C116/A21.16 REQUIREMENTS.

2. MEGALUGS WILL NOT BE ALLOWED ON ANY CIP WATER MAIN.

3. SELECT GRANULAR WILL BE REQUIRED BETWEEN INSULATION, WATER MAIN, AND OBSTRUCTION.

4. ALL BENDS SHALL HAVE MEGALUGS OR TIE RODS WITH BLOCKING IN ACCORDANCE WITH STANDARD PLATE WAT-03.

5. COPPER TRACER WIRER SHALL BE USED ON PVC WATER MAIN.

6. ALL WATER MAIN BOLTS SHALL BE CORE-BLUE OR APPROVED EQUAL.
ONE MAIN METER BILLING GOES TO MANAGEMENT COMPANY INDIVIDUAL METERS MAY BE ADDED FOR EACH UNIT FOR MANAGEMENT BILLING BREAK DOWN.

NOTE: ALL METERS MUST BE LOCATED IN A CENTRAL ROOM AT POINT WHERE WATER SERVICE ENTERS BUILDING. IRRIGATION LINES MUST ALSO HAVE SEPARATE METER IF LINE IS CONNECTED PRIOR TO MAIN.
INDIVIDUAL METERS PER UNIT AND EACH UNIT IS BILLED SEPARATELY.

INDIVIDUAL METERS AND VALVES PER UNIT AND IRRIGATION WATER.

GATE VALVE & BOX WITH EXTENSION

CITY MAIN

TO FIRE PROTECTION

6" DIP FIRE PROTECTION FROM CITY WATER MAIN

BASEMENT FLOOR

12"

NOTE: ALL METERS MUST BE LOCATED IN A CENTRAL ROOM AT POINT WHERE WATER SERVICE ENTERS BUILDING. IRRIGATION LINES MUST ALSO HAVE SEPARATE METER IF LINE IS CONNECTED PRIOR TO MAIN.
NOTES:
1. TIEING BACK IS TO BE CONSIDERED INCIDENTAL TO INSTALLATION OF WATERMAIN. NO COMPENSATION WILL BE PAID THEREFORE.
2. TIEING BACK OF THE PLUG IS TO BE DONE IN ADDITION TO NORMAL BLOCKING AGAINST UNDISTURBED SOILS.
NOTES:
1. FOR ALL HDPE PIPE OR EQUAL, INSTALL A TRACER WIRE OF 12 GA. MINIMUM DIAMETER. APPLIES TO WATERMAIN OR SANITARY FORcemain ONLY.
2. ATTACH TRACER WIRE SECURELY TO PIPE WITH DUCT TAPE OR EQUAL.
3. TRACER WIRE TO BE BROUGHT TO SURFACE AT GATE VALVE LOCATIONS AND AIR RELEASE MANHOLES.