Standard Details

Adopted August 2018

P: 206.362.8100 1519 NE 177th St.
F: 206.361.0629 Shoreline, WA 98155
### STANDARD DETAILS

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</tbody>
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**Notes:**

1) All Materials shall be Domestic made.
   *With exception of 931 valve box, lid and bottom.
2) All brass shall be domestic and conform to the low lead rule.
1. PRIOR TO BORING:
   A. TAPPING SLEEVE AND VALVE SHALL BE STERILIZED WITH 12.5% CHLORINE PER SPECIFICATIONS.
   B. TAPPING SLEEVE AND VALVE SHALL BE AIR TESTED.

2. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING.
STORZ FITTING
5" SHORELINE; 4" LFP
(USE NOT PAINT)
CULVERT AS REQUIRED
BY THE DISTRICT.
OLYMPIC FOUNDRY 931
VALVE BOX LID
RICH STYLE 3½" DEEP
VALVE BOX O.F.
931 D.I.
6.00 x 12 GA
WSP BARE
VALVE BOX
BOTTOM
BLOCKING
2 LAYERS OF
6 MIL PLASTIC
HYDRANT TEE
(MJxSWIVEL)

NOTES:
1. BOLTS AND NUTS TO BE USA MADE W/ TRIPAC T2000 BLUE COATING.

2. PROVIDE LEVEL ACCESS TO FIRE HYDRANT.

3. FIRE HYDRANTS & BOLLARDS TO BE PAINTED WITH (2) COATS KELLY MOORE SAFETY YELLOW ACRYLIC GLOSS ENAMEL LUXLITE Q.D. ALKYD GLOSS ENAMEL #5880–563 DTM OR PPG PITT-TECH 90–330 SAFETY YELLOW.

4. DETAIL ABOVE SHOWS NEW CONSTRUCTION HYDRANT TEE.


6. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING.
NOTES:

1. PROVIDE LEVEL ACCESS TO FIRE HYDRANT.

2. FIRE HYDRANTS & BOLLARDS TO BE PAINTED WITH (2) COATS KELLY MOORE SAFETY YELLOW ACRYLIC GLOSS ENAMEL LUXLITE Q.D. ALKYD GLOSS ENAMEL #5880–563 DTM OR PPG PITTECH 90–330 SAFETY YELLOW.

3. DETAIL ABOVE SHOWS NEW CONSTRUCTION HYDRANT TEE.


5. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING.
STORZ FITTING 5" SHORELINE; 4" LFP
(Do not paint)
CULVERT AS REQUIRED BY THE DISTRICT.
O.F. 931 D.I.
VALVE BOX LID
RICH SYTLE 3%" DEEP
VALVE BOX O.F. 931 D.I.
6.00 x 12 GA WSP BARE
VALVE BOX BOTTOM
HYDRANT TEE (MJxSWIVEL)
INSTALL ETHAFOAM PAD/RING
6" VERT BEND (RJ) SEE NOTE 4.
6" MJ D.I. RESTRAIN PIPE FROM GATE VALVE TO FIRE HYDRANT W/ EBBA IRON MEGA LUGS OR APPROVED EQUAL
6" AUXILIARY GATE VALVE (MJ)
BLOCKING
2 LAYERS OF 6 MIL PLASTIC
INSTALL BOLLARDS AS DIRECTED.
TOP OF BOLLARD TO BE LEVEL W/ TOP OF OPERATING NUT.
NOTES:
1. PROVIDE LEVEL ACCESS TO FIRE HYDRANT.
2. FIRE HYDRANTS & BOLLARDS TO BE PAINTED WITH (2) COATS KELLY MOORE SAFETY YELLOW ACRYLIC GLOSS ENAMEL LUXLITE Q.D. ALKYD GLOSS ENAMEL #5880–563 DTM OR PPG PIT-T-TECH 90–330 SAFETY YELLOW.
3. DETAIL ABOVE SHOWS NEW CONSTRUCTION HYDRANT TEE.
5. MAX. BURY DEPTH FOR FIRE HYDRANTS SHALL BE 6'. FOR DEEPER INSTALLATIONS INSTALL A 4' FIRE HYDRANT WITH VERTICAL BENDS AS SHOWN. 45' MAX. VERTICAL BEND.
6. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING.

REVISED: 06/18
NCWD STANDARD DETAIL NO. 4

North City Water District
CHS Engineers

FIRE HYDRANT BEND INSTALLATION
NOTES:

1. 1˝ CORP STOP. AWWA C90H INLET BY COMPRESSION FITTING FOR COPPER PIPE.

2. NEW SERVICE LINE EXTENSION – SOFT COPPER 1˝ TYPE K.

3. EXISTING SERVICE LINE IS ASSUMED TO BE COPPER. FIELD VERIFY BEFORE CONSTRUCTION.
5/8" x 3/4" YOKE EXPANSION CONNECTION
FORD EC-23, MUELLER H-14234N OR
OR APPROVED EQUAL

METER BOX AND LID
BOX—OLDCASTLE FL12
LID—OLDCASTLE B-12GP
OR FL-12GP W/
MOLDED HOLE

3/4"x1" CUSTOMER
VALVE (YOKE x FIP) FORD
B-91-324W/HH-34

5/8"x3/4" YOKE BAR
A Y MCDONALD 14-2

6" MIN. [COPPER CERRO OR
MUELLER STREAM LINE]

CORPORATION STOP
(CCTxHC-COMP) MUELLER
B-25008N OR FORD QUICK
JOINT FB 1000-Q

BED AROUND CORP STOP AND
SERVICE LINE CONNECTION
WITH 5/8" MINUS CRUSHED
GRAVEL

NOTES:

1. FOR RELOCATED SERVICES: CONTRACTOR SHALL PROVIDE ALL
MATERIALS SHOWN ON DETAIL UNLESS OTHERWISE SPECIFIED.
NCWD WILL RELOCATE METER. CONTRACTOR TO RECONNECT
CUSTOMER'S SERVICE LINE.

2. FOR EXISTING SERVICES TO BE RECONNECTED TO NEW MAIN:
INSTALL CORPORATION STOP.

3. ALL BRASS PARTS SHALL BE DOMESTIC AND CONFORM TO THE
LOW LEAD RULE.

REVISED: 06/18

NCWD STANDARD DETAIL

5/8" X 3/4" SERVICE WITH METER SETTING

REVIEWED: 06/18

North City
Water District

CHS Engineers
1" YOKE EXPANSION CONNECTION FORD EC-4, MUELLER H-14234N OR APPROVED EQUAL

METER BOX AND LID BOX-OLDCASTLE FL30 LID-OLDCASTLE B-30GP OR FL-30GP W/ MOLDED HOLE

1" ANGLE STOP (COPPER COMP x YOKE) MUELLER B-24273-3N (360° ROTATION)

1" TYPE K SOFT COPPER CERRO OR MUELLER STREAM LINE

1" CORPORATION STOP (CCThxC-COMP) MUELLER B-25008N OR FORD QUICK JOINT FB 1000-Q

BED AROUND CORP STOP AND SERVICE LINE CONNECTION WITH 5/8" MINUS GRAVEL

NOTES:

1. FURNISH AND INSTALL COPPER SERVICE LINE. FURNISH AND INSTALL CORPORATION AND ANGLE STOPS. FURNISH AND INSTALL YOKE BAR, CUSTOMER VALVE, METER BOX, AND LID. PROVIDE EXCAVATION AND BACKFILL.

2. FOR EXISTING SERVICES TO BE RECONNECTED TO NEW MAIN: INSTALL CORPORATION STOP.

3. ALL BRASS PARTS SHALL BE DOMESTIC AND CONFORM TO THE LOW LEAD RULE.

REVISED: 06/18

NCWD STANDARD DETAIL

1" SERVICE WITH METER SETTING

NO. 8
NOTES:

1. FURNISH AND INSTALL COPPER SERVICE LINE. FURNISH AND INSTALL CORPORATION AND ANGLE STOPS. FURNISH AND INSTALL METER BOX AND LID. PROVIDE EXCAVATION AND BACKFILL.

2. FOR EXISTING SERVICES TO BE RECONNECTED TO NEW MAIN: INSTALL CORPORATION STOP.

3. ALL BRASS PARTS SHALL BE DOMESTIC AND CONFORM TO THE LOW LEAD RULE.

4. CONTRACTOR TO INSTALL ANGLE VALVE AND METER BOX W/ LID. DISTRICT TO PROVIDE METER, A67 ADAPTERS AND CUSTOMER VALVE.
NOTES:

1. FURNISH AND INSTALL COPPER SERVICE LINE. FURNISH AND INSTALL CORPORATION AND ANGLE STOPS. FURNISH AND INSTALL METER BOX AND LID. PROVIDE EXCAVATION AND BACKFILL.

2. FOR EXISTING SERVICES TO BE RECONNECTED TO NEW MAIN: INSTALL CORPORATION STOP.

3. ALL BRASS PARTS SHALL BE DOMESTIC AND CONFORM TO THE LOW LEAD RULE.

4. CONTRACTOR TO INSTALL ANGLE VALVE AND METER BOX W/ LID. DISTRICT TO PROVIDE METER, A67 ADAPTERS AND CUSTOMER VALVE.
UTILITY VAULT CO. OR APPROVED EQUAL. VAULT MODEL, SEE TABLE BELOW. VAULT SHALL BE SEALED WATERTIGHT. SET VAULT ON 6" FOUNDATION GRAVEL.

SINGLE LEAF ALUM. ACCESS DOOR (30" SQ.) DIAMOND PLATE LW HATCH OR APPROVED EQUAL. H-20 LOADING (UNLESS OTHERWISE SPECIFIED). SPRING ASSISTED, W/ RECESSED LIFT HANDLE AND RECESSED PADLOCK HASP.

NCWD TO PROVIDE METER ASSEMBLY AND PIPE SUPPORTS (2): AT EACH GATE VALVE. CONTRACTOR TO LAY PIPE THROUGH VAULT.

NOTES:

1. VAULT SHALL BE CORE DRILLED AND SEALED WITH LINK SEAL FOR MAINLINE PENETRATIONS. INSTALL MEGALUG RETAINER AND BRACE TO EDGE OF VAULT. WATER TIGHT CROUT SHALL BE USED IN ALL OTHER VAULT PENETRATIONS.

2. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING

<table>
<thead>
<tr>
<th>SIZE</th>
<th>MIN. VAULT SIZE (INSIDE)</th>
<th>UTIL. VAULT CO. MODEL</th>
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<tr>
<td>3&quot;/4&quot;</td>
<td>4'-6&quot;</td>
<td>6'-11&quot;</td>
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REVISED: 06/18

NCWD STANDARD DETAIL NO. 11

3" AND 4" WATER SERVICE

North City WATER DISTRICT

CHS ENGINEERS
SURFACE RESTORATION IN ACCORDANCE WITH LOCAL JURISDICTIONAL REQUIREMENTS. MINIMUM REQUIREMENTS SHOWN IN TRENCH RESTORATION DETAIL.

BACKFILL PER JURISDICTIONAL REQUIREMENTS. COMPACT TO MIN. 95% MAX. DENSITY

BEDDING GRAVEL

FOUNDATION GRAVEL (PER SPECIFICATIONS) AS REQUIRED BY DISTRICT

MAXIMUM TRENCH WIDTH PER TABLE "A"

TABLE "A"

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Maximum Diameter</th>
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<tbody>
<tr>
<td>6&quot; PIPE</td>
<td>2'-6&quot;</td>
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<tr>
<td>8&quot; PIPE</td>
<td>2'-6&quot;</td>
</tr>
<tr>
<td>10&quot; PIPE</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>12&quot; PIPE</td>
<td>3'-0&quot;</td>
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<tr>
<td>15&quot;,16&quot; PIPE</td>
<td>3'-6&quot;</td>
</tr>
<tr>
<td>18&quot; PIPE</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>24&quot; PIPE</td>
<td>4'-0&quot;</td>
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TRENCH SECTION

NOTES:

1. FILL AREAS SHALL BE FILLED AND COMPACTED PRIOR TO INSTALLATION OF WATER MAINS. 95% COMPACTION PER ASTM D-1557 REQUIRED IN FILL AREAS. REPORTS REQUIRED PRIOR TO TRENCHING.

2. BEDDING SHALL BE 3/8" MINUS SURFACING.
NOTES:

1. EXISTING SURFACE
2. MATCH EXISTING ASPHALT DEPTH
3. CRUSHED GRAVEL PER LOCAL JURISDICTIONAL REQUIREMENTS.
4. SAW CUT, TACK EDGES WITH EMULSIFIED ASPHALT SEAM SEAL, AR4000.
5. TRENCH BACKFILL
6. RESTORE EXISTING SURFACE. TOP SOIL, SOD, 5/8" MINUS CRUSHED GRAVEL (2" MIN.) OR AS NOTED ON THE PLANS.

NOTE:
1. THESE STANDARDS ARE THE MINIMUM ALLOWABLE. LOCAL JURISDICTIONAL REQUIREMENTS SHALL OVERRIDE WHERE APPLICABLE.
2. SEE TYPICAL TRENCH SECTION DETAIL 12.
ENCLOSURE "HOT BOX" OR EQUAL
3/8" X 2" EXPANSION ANCHORS (4 CORNERS)
4" CONC. (2000 PSI) SLAB EXTEND 6" BEYOND ENCLOSURE (ALL DIRECTIONS), REINFORCE W/ 6x6 W2.9xW2.9 WWF

FINISHED GRADE
6" MINIMUM FREE DRAINING GRAVEL
CONNECT TO WATER METER IMMEDIATELY ADJACENT TO RPBA

FLOW

NOTES:
1. PROVIDE DISTRICT APPROVED SUPPORT FOR DEVICES LARGER THAN 1" DIAMETER.
2. OWNER SHALL FURNISH, INSTALL, TEST AND MAINTAIN THE RPBA AND ALL PIPING AND APPURTENANCES SHOWN ON THIS PLAN.
3. DISTRICT WILL PROVIDE INSPECTION OF THE RPBA PRIOR TO ESTABLISHMENT OF WATER SERVICE.
4. REDUCED PRESSURE BACKFLOW ASSEMBLIES SHALL BE STATE APPROVED DEVICES.
5. SUBSEQUENT ANNUAL TESTING AND REPORTING OF RPBA REQUIRED BY OWNER.
6. DRAIN SHALL BE SIZED IN ACCORDANCE WITH AWWA CROSS CONNECTION CONTROL MANUAL
7. THE BACKFLOW ASSEMBLY SHALL BE STATE APPROVED. WITHIN 7 DAYS OF INSTALLATION THE DEVICE SHALL BE TESTED BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO NORTH CITY WATER DISTRICT. BACKFLOW ASSEMBLY SHALL BE INSTALLED IN THE APPROVED ORIENTATION AS PER THE USC APPROVED LIST.

REVISED: 06/18

NCWD STANDARD DETAIL NO. 14

2" AND SMALLER REDUCED PRESSURE BACKFLOW ASSEMBLY
CENTER RPBA IN BOTH DIRECTIONS OF BOX

HOT BOX INSTALLATION REQUIRED. CONTRACTOR TO VERIFY REQUIRED SIZE.

3' OR 4" 90° BEND (FL)

4" CONC. (2000 PSI) SLAB EXTEND 6" BEYOND ENCLOSURE (ALL DIRECTIONS). REINFORCE W/ 6x6 W2.9xW2.9 WWF

3/8" X 2" EXPANSION ANCHORS (4 CORNERS)

FINISHED GRADE

6" MINIMUM FREE DRAINING GRAVEL

4" D.I. CL 52 TO 3" OR 4" METER VAULT.

FLOW

ELEVATION

4"X3" REDUCER FOR 3" INSTALLATIONS.

DRAIN SEE NOTE 8

PROVIDE 6" PVC SLEEVE THROUGH SLAB

6x6-W2.9xW2.9 WWF (WELDED WIRE FABRIC)

NOTES:
1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY TO LAY HORIZONTAL ONLY.
2. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
3. THE WATERLINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY. THE BACKFLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
4. ALL FITTINGS SHALL BE FLANGED OR RESTRAINED.
5. LOCATION SHALL BE AS SHOWN ON THE DRAWINGS OR DIRECTED BY THE DISTRICT.
6. THE HOT BOX SHALL HAVE A MIN. CLEAR DISTANCE OF 3' FROM ALL OTHER STRUCTURES.
7. THE BACKFLOW ASSEMBLY SHALL BE STATE APPROVED. WITHIN 7 DAYS OF INSTALLATION THE DEVICE SHALL BE TESTED BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO NORTH CITY WATER DISTRICT. BACKFLOW ASSEMBLY SHALL BE INSTALLED IN THE APPROVED ORIENTATION AS PER THE USC APPROVED LIST.
8. DRAIN SHALL BE SIZED IN ACCORDANCE WITH AWWA CROSS CONNECTION CONTROL MANUAL
9. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING.

REVISED: 06/18

NCWD STANDARD DETAIL

2.5" AND LARGER
REDUCED PRESSURE BACKFLOW ASSEMBLY

[CHS ENGINEERS]
**PLAN**

**NOTES:**
1. CLEARANCES SHOWN ABOVE MUST BE MET OR BOX WILL NEED TO BE UP-SIZED.
2. BOXES & LIDS SHALL BE EQUIPPED WITH THE BOLT DOWN FEATURE. DO NOT INSTALL READER FLAP.
3. APPROVED DOUBLE CHECK VALVE ASSEMBLY TO BE INSTALLED HORIZONTAL WITH GROUND.
4. DESIGNED FOR BACK SIPHONAGE, BACK PRESSURE AND LOW HEALTH HAZARDS.
5. TEST COCKS TO EITHER FACE OUTWARDS OR UPWARDS FROM ASSEMBLY.
6. THE DCVA MAY BE INSTALLED BELOW GROUND PROVIDED ALL OF THE CLEARANCES ARE MET.
7. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
8. DCVA MUST BE ACCESSIBLE.
9. DCVA MUST BE PROTECTED FROM FREEZING CONDITIONS.
10. THE BACKFLOW ASSEMBLY SHALL BE STATE APPROVED. WITHIN 7 DAYS OF INSTALLATION THE DEVICE SHALL BE TESTED BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO NORTH CITY WATER DISTRICT. BACKFLOW ASSEMBLY SHALL BE INSTALLED IN THE APPROVED ORIENTATION AS PER THE USC APPROVED LIST.
11. FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
12. COVER & TYPE OF PIPE FOR FIREFLINES SHALL BE AS REQUIRED BY THE JURISDICTIONAL FIRE DISTRICT.

**WATER BOX REQUIREMENTS**

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<th>SIZE</th>
<th>CARLSON INDUSTRIES MODEL NO.</th>
<th>APPLICATION</th>
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<tr>
<td>1&quot;</td>
<td>1324-3B</td>
<td>FIRE</td>
<td>GRAY</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>1324-3B</td>
<td>IRRIGATION</td>
<td>GREEN</td>
</tr>
<tr>
<td>2&quot;</td>
<td>1730-3B</td>
<td>FIRE</td>
<td>GRAY</td>
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<tr>
<td>2&quot;</td>
<td>1730-3B</td>
<td>IRRIGATION</td>
<td>GREEN</td>
</tr>
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**REVISED: 06/18**

**NCWD STANDARD DETAIL NO. 16**

**DOUBLE CHECK VALVE ASSEMBLY 2" AND SMALLER**

**North City Water District**

**[CHS ENGINEERS]**
1'-6" MAX

1-INCH PRESSURE REDUCING VALVE WATTS LF 223, WATTS LF 223 HP OR APPROVED EQUAL

VALVE BOX, 10" ROUND x 12" HIGH

90° BEND, COMP

SERVICE FROM METER

SERVICE TO BUILDING

REVISED: 06/18

NCWD STANDARD DETAIL

RESIDENTIAL PRV

NO. 17
NOTES:
1. DISTRICT WILL DETERMINE IF REDUCED PRESSURE PRINCIPAL DEVICE IS REQUIRED.
2. ASSEMBLY TO BE MAINTAINED BY PROPERTY OWNER/CUSTOMER & ANNUAL CERTIFICATION REQUIRED.
3. FIRELINE SHALL NOT BE PUT INTO SERVICE UNTIL THE BACKFLOW PREVENTION ASSEMBLY IS APPROVED BY DISTRICT. CERTIFICATION FOLLOWING INSTALLATION REQUIRED.
4. TEE & GATE VALVE REQUIRED ON MAIN.
5. ALL CLEARANCES SHOWN ARE MINIMUM.
6. UL/FM METER REQUIRED IF POTABLE SERVICE ALSO PROVIDED FROM FIRE PROTECTION SERVICE LINE.
7. BOLTS AND NUTS TO BE USA MADE WITH TRIPAC T2000 BLUE COATING.

ELEVATION

KEY NOTES:
① STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY, COMPLETE W/ (4) RESILIENT SEATED TEST COCKS, & BRASS OR COPPER DETECTOR BY-PASS.
② STATE APPROVED 3/4" DOUBLE CHECK VALVE ASSEMBLY, COMPLETE W/ (4) RESILIENT SEATED TEST COCKS.
③ THE DEVICES MUST BE EQUIPPED WITH (2) RESILIENT WEDGE O.S.&Y. SHUT OFF GATE VALVES WITH HAND WHEELS. GATE VALVES SHALL CONFORM TO AWWA C-509 OR C515.
④ 5/8"x3/4" METER (CUBIC FEET READING)—SENSUS METER W/ TRPL.
⑤ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT FROM DOOR EDGE TO FLOOR.
⑥ CONCRETE VAULT W/ A MIN. 3'x6' DOUBLE LEAF ALUM. DIAMOND PLATE DOOR RATED FOR H2O LOADING, MARKED "WATER". DOORS SHALL BE LW HATCH OR EQUAL W/ SPRING LIFT & RECESSED PADLOCK HASP. PAINTED ALUM. SIGN TO BE MOUNTED ON UNDERSIDE OF HATCH "CONFINED SPACE, ENTRY BY PERMIT ONLY". VAULT SHALL BE EQUAL TO UTILITY VAULT CO. MODEL LISTED IN TABLE.
⑦ VAULT SHALL BE CORE DRILLED AND SEALED WITH LINK SEAL FOR MAINLINE PENETRATIONS. INSTALL MEGALUG RETAINER AND BRACE TO EDGE OF VAULT. WATER TIGHT GROUT SHALL BE USED IN ALL OTHER VAULT PENETRATIONS.
⑧ TWO ADJUSTABLE PIPE STANDS REQUIRED.
⑨ ALL PLUMBING FOR BY-PASS TO BE COPPER OR BRASS.
⑩ ACCESS TO BE CENTERED OVER METER.
⑪ CLASS 52 DUCTILE IRON PIPE REQUIRED. SIZE AS REQUIRED.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>MIN. VAULT SIZE (INSIDE)</th>
<th>UTILITY VAULT CO. MODEL</th>
</tr>
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<tbody>
<tr>
<td>3&quot;</td>
<td>5'-0&quot; x 7'-0&quot; x 4'-5&quot;</td>
<td>WH 675-WA</td>
</tr>
<tr>
<td>4&quot;</td>
<td>5'-0&quot; x 7'-0&quot; x 4'-5&quot;</td>
<td>WH 675-WA</td>
</tr>
<tr>
<td>6&quot;</td>
<td>5'-0&quot; x 7'-0&quot; x 4'-5&quot;</td>
<td>WH 675-WA</td>
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<tr>
<td>8&quot;</td>
<td>5'-0&quot; x 10'-6&quot; x 6'-0&quot;</td>
<td>CHS 5106-LA</td>
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<tr>
<td>10&quot;</td>
<td>5'-0&quot; x 10'-6&quot; x 6'-0&quot;</td>
<td>CHS 5106-LA</td>
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</tbody>
</table>
2" SAMPLE TREE

1" BRASS TEE
3/4" GATE VALVE
1"x3/4" GALV REDUCER
1"x6" GALV NIPPLE
1" TYPE K COPPER
                      1" TAP (BY NCWD) – SEE NOTE 2
                      EX. D.I. PIPE OR FITTING
                      ISOLATION VALVE
                      NEW D.I. PIPE

1" CORP STOP
1" BRASS GATE VALVE
1"x6" GALV. NIPPLE

1" DISINFECTION TREE

NOTES:

1. AT A MINIMUM, RESTRRAIN THE LAST THREE FULL PIPE LENGTHS FOR 4", 6", AND 8" PIPE. RESTRRAIN THE LAST FIVE FULL PIPE LENGTHS FOR 12" PIPE.

2. UPON COMPLETION OF REQUIRED TESTS AND AFTER CONFIRMATION OF SAMPLE RESULTS, CONTRACTOR TO REMOVE TREE ASSEMBLY IN PRESENCE OF NCWD INSPECTOR. NCWD TO PROVIDE EITHER 2" BRASS OR 1" BRASS PLUG.

3. BACKFILL WITH GRAVEL BEDDING IN PIPE ZONE AND CRUSHED SURFACING TOP COURSE IN REMAINING TRENCH.
1" COMBINATION AIR VALVE

5/8" x 3/4" YOKE EXPANSION CONNECTION FORD EC-23, MUELLER H-14234N, OR APPROVED EQUAL

5/8" x 3/4" x 1" ANGLE STOP (COPPER COMP x YOKE) MUELLER B-24273-3N (360° ROTATION)

1" 90° COUPLING (MIP x C-COMP) MUELLER H-15531N OR FORD QUICK JOINT L-84-44-Q

1" CORPORATION STOP (CCTH x FIP) MUELLER B-20045N

5/8" x 3/4" YOKE A Y MCDONALD 14-2

1" TYPE K SOFT COPPER CERRO OR MUELLER STREAM LINE

D.I. PIPE

6" x 24" HIGH PIPE VENT STACK ASSEMBLY PROVIDED BY NCWD (SEE NOTE 4).

1" SCH 40 PVC PIPE

METER BOX AND LID BOX—OLDCASTLE FL-30 AND 12" EXTENSION LID—OLDCASTLE FL-30 AND YOKE ADAPTOR PROVIDED BY NCWD

NOTES:

1. 1" COPPER PIPE SHALL BE INSTALLED WITH GRADE ALWAYS RISING TOWARD THE ANGLE STOP FROM THE CORP STOP.

2. ALL BRASS PARTS SHALL BE DOMESTIC AND CONFORM TO THE LOW LEAD RULE.

3. CRISPIN A111145 UL10, VAL-MATIC 201.C.2 SV OR APPROVED EQUAL.

4. STACK ASSEMBLY INCLUDES A 1" SCH. PVC PIPE TOPPED WITH FOUR (4) – 3/4" DIA. HOLES, COVERED WITH #18 MESH. THE 6" X 24" PIPE INCLUDES TWO (2) – 1 3/8" DIA. HOLES COVERED WITH #8 MESH.
6"Ø x 24" high pipe vent stack assembly provided by NCWD (see note 3).

2" SCH 40 PVC pipe

Meter box and lid box—oldcastle fl-30 and 12" extension

2" angle stop
muller b 24276-3n or approved equal

2" ball corp mipxc-comp muller # b-25028n or approved equal

D.I. pipe

2" combination air valve

2" brass nipple

2" brass elbow

2" brass meter flange

2" type "k" soft copper cerro or muller stream line

2" IP service saddle
Smith-Blair or romac epoxy coated w/ SS straps

Notes:
1. All brass parts shall be domestic and conform to the low lead rule.
2. Crispin A111145 UL10, Val-Matic 201.C.2 SV or approved equal.
3. Stack assembly includes a 2" SCH. PVC pipe topped with four (4) - ¾" dia. holes, covered with #18 mesh. The 6" x 24" pipe includes two (2) - 1⅝" dia. holes covered with #8 mesh.
NOTES:

1. SIZE OF BLOCK TO BE DETERMINED BY THE CONTRACTOR, TO BE ADEQUATE FOR SOIL CONDITIONS AND PRESSURE INVOLVED.

2. ALL BLOCKING TO BE ON UNDISTURBED MATERIAL.

3. PLUGS TO BE BLOCKED IF NOT SECURED BY BOLTING OR ADEQUATE STRAPS.
IN-LINE VALVE

RESTRAIN 5 FULL LENGTHS OF PIPE

MJ X MEGALUG OR APPROVED EQUAL

MJ PLUG

DEAD END PLAN

2 LAYERS OF 6 MIL PLASTIC

TEMP. WOOD SPACERS

TEMPORARY BLOCKING

NOTES:

1. THRUST BLOCKING REQUIRED – SEE NCWD STANDARD THRUST REQUIREMENTS DETAIL.

2. ADDITIONAL RESTRAINT IS REQUIRED ON DEAD ENDS WITH POOR GROUND CONDITIONS.

3. MEGALUGS (EBAA IRON OR APPROVED EQUAL) SHALL BE INSTALLED ON ALL INDICATED MECHANICAL JOINTS.

4. SEE STANDARD PLAN FOR BEND BLOCKING REQUIREMENTS.

5. RESILIENT SEAT GATE VALVE TO BE CLOW, M&H, KENNEDY AND MUELLER OR APPROVED EQUAL.

6. BOLTS AND NUTS SHALL BE USEA MADE WITH TRI-PAC 2000 BLUE COATING.
NOTES:

1. VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN 30 INCHES BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION WILL BE ALLOWED PER VALVE.

2. ALL VALVE OPERATING NUT EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED.
NOTES:

1. DEPTH OF COVER SHALL BE 3 FEET MIN. AT MAIN AND 2 FEET MIN. AT METER PAD.

2. WATER METER STAKE INFORMATION SHALL INCLUDE 1) OFFSET DISTANCE, 2) NUMBER OF SERVICE METERS, AND 3) CUT OR FILL TO FINISH GRADE.

NOTES:

1. IF RIGHT-OF-WAY/STREET WIDTHS PRECLUDE FIRE HYDRANTS, WATER METERS, AND AIR RELEASE VALVES FROM BEING WITHIN RIGHT-OF-WAY, THEN DESIGN ENGINEER/SURVEYOR/DEVELOPER SHALL CONFIRM LOCATIONS WITH NCWD.
"CRITERIA FOR SEWAGE WORKS DESIGN"
REFER DOE LATEST EDITION C1-9.1

HORIZONTAL SEPARATION NOTES
(FOR PARALLEL CONSTRUCTION)

THE PARALLEL SEPARATION DETAIL ON THIS SHEET REFERS TO GRAVITY SEWERS ONLY W/ A MIN. DISTANCE OF 10’. PRESSURE SEWERS SHALL ONLY BE CONSTRUCTED UNDER WATER MAINS WITH A MINIMUM CLEARANCE OF 18” FROM THE BOTTOM OF THE WATER MAIN TO THE TOP OF THE PRESSURE SEWER LINE.

VERTICAL SEPARATION NOTES
(FOR PERPENDICULAR CONSTRUCTION)

SEWER LINES CROSSING WATER LINES SHALL BE LAID BELOW THE WATER LINES TO PROVIDE A SEPARATION OF AT LEAST 18” BETWEEN THE INVERT OF THE WATER PIPE AND THE CROWN OF THE SEWER, WHENEVER POSSIBLE. WHEN LOCAL CONDITIONS PREVENT THIS VERTICAL SEPARATION, THE FOLLOWING CONSTRUCTION SHALL BE USED:

A. GRAVITY SEWERS PASSING OVER OR UNDER WATER LINES SHALL BE:

1. CONSTRUCTED OF WATER MAIN STANDARD PIPE MATERIAL AS SHOWN IN THE TABLE. THE ONE SEGMENT OF THE MAXIMUM STANDARD LENGTH OF PIPE (BUT NO LESS THAN 18’ LONG) SHALL BE USED WITH THE PIPES CENTERED TO MAXIMIZE JOINT SEPARATION.

2. STANDARD GRAVITY SEWER MATERIAL ENCASED IN CONCRETE OR IN A ¾” THICK CONTINUOUS STEEL CASING WITH ALL VOIDS PRESSURE - GROUTED WITH SAND - CEMENT GROUT. THE LENGTH OF SEWER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SO THE JOINTS WILL BE EQUI-DISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE. THE SEWER PIPE SHALL BE THE LONGEST STANDARD LENGTH AVAILABLE FROM THE MANUFACTURER.

B. WATER LINES PASSING UNDER GRAVITY SEWER, IN ADDITION, SHALL BE PROTECTED BY PROVIDING:


2. ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING ON AND BREAKING OF THE WATER LINES.

C. PRESSURE SEWERS SHALL ONLY BE CONSTRUCTED UNDER WATER LINES AND DUCTILE IRON PIPE OR STANDARD SEWER PIPE IN A STEEL CASING FOR A MINIMUM DISTANCE OF AT LEAST TEN (10) FEET ON EACH SIDE OF THE CROSSING.
NOTES:

1. CASING SIZE AND MINIMUM THICKNESS OF CASING SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING THE THICKNESS CONSISTENT WITH HIS OPERATION.

2. SEAL CASING BOTH ENDS.
NOTES:

1. THE BACKFLOW ASSEMBLY SHALL BE STATE APPROVED. WITHIN 7 DAYS OF INSTALLATION THE DEVICE SHALL BE TESTED BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO NORTH CITY WATER DISTRICT. BACKFLOW ASSEMBLY SHALL BE INSTALLED IN THE APPROVED ORIENTATION AS PER THE USC APPROVED LIST.

PRESSURE VACUUM BREAKER ASSEMBLY (PVBA) OR SPILL-RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY (SVBA) INSTALLATION
NOTES:

1. ALL BOLTS AND NUTS SHALL BE USA MADE WITH TRIPAC T2000 BLUE COATING.

2. GASKETS SHALL BE RUBBER FLANGE TYTE RING STYLE DROP IN AS MANUFACTURED BY US PIPE AND FOUNDRY.

3. POLY PIGS SHALL BE BARE TYPE 5–7 LBS/CUFT DENSITY, AS PER A–6 IN THE TECHNICAL SPECS.