Hagerstown Wastewater Details

WW101  Trenching, Encasement, and Cradle
WW102  Manhole Frame and Cover
WW103  Manhole Cover Grade Ring
WW104  Precast Concrete Manhole
WW105  Option 1: Inside Drop Manhole Connection
WW106  Option 2: Outside Drop Manhole Connection
WW107  Precast Concrete Shallow Manhole
WW108  Manhole Steps
WW109  Plans of Typical Manhole Flow Channels
WW110  Precast Manhole Pipe Connections (Gaskets)
WW111  Manhole Pipe Connections
WW112  Manhole Future Connections
WW113  Single Sewer House Connection
WW114  Double Wye House Connection
WW115  Built-up Lateral Connection
WW116  Cleanout Assembly
WW117  Typical Cleanout Safety Protection
WW118  Tunnel or Jacking Installation, Type I
WW119  Pipes Through Sleeves, Jacking or Boring Installation Type II, III, and IV
WW120  Receiving Manhole for Force Main or Low Pressure Sewer Discharge
WW121  In-Line Flushing Connection Detail
WW122  In-Line Flushing Connection 1-1/4” Through 4”
WW123  Terminal Flushing Connections
WW124  Compression Repair Coupling for Low Pressure Force Mains
WW125  PVC Pipe Union for Repairing Low Pressure Force Mains
WW126  Joint Restraint for Force Mains
WW127  Buttress for Horizontal 90° M.J. Bends
WW128  Buttress for Force Mains Less Than 90°
WW129  Air and Vacuum Relief Valve and Vault
WW130  Required Grading and Landscaping at Grinder Pump
WW131  Pipe Repair or New Connection Details
WW132  Manhole Abandonment
STEEL SLEEVE ENCASEMENT PROFILE

NOTES:
1. TRENCH SHALL BE BRACED WITH SHORING OR PROTECTED WITH TRENCH BOX. (OSHA APPROVED)
2. BEARING SHALL BE PROVIDED FOR FULL LENGTH OF BARREL.
3. BELL HOLES SHALL BE DUG.
4. DIMENSION "A" IS MAXIMUM ALLOWABLE CLEARANCE TO TRENCH WALL OR INSIDE FACE OF BRACING OR SHEETING. 1/2 DIA. PIPE.
5. MINIMUM "W" SHALL BE PIPE O.D. + 1'-0".
6. PAVEMENT WIDTH SHALL BE O.D. + 2 "A".
7. USE OF COMPACTED DCR-6 STONE IS REQUIRED.
8. AGGREGATE MAY BE WASHED, CRUSHER RUN GRAVEL, CRUSHED STONE OR CRUSHER RUN NO. 6.
* NOT STANDARD NEEDS TO BE APPROVED BY ENGINEERING DIVISION.

GRANULAR EMBEDMENT

*CONECTRE ENCASEMENT

W=O.D.+18"  MD. S.H.A.  STD. MIX NO. 1 CONC. 2,500 P.S.I.

*LOW CRADLE

WARNING TAPE

COMPACTED DCR-6 STONE

"A"

9"

120°

2'-0" MIN

1'-0" MIN

6" MIN

2'-6" MAX

4 1/2"

MD. S.H.A.  STD. MIX NO. 1 CONC. 2,500 P.S.I.

*SAND CUSHION

WARNING TAPE

COMPACTED DCR-6 STONE

*CONCRETE ENCASEMENT

WARNING TAPE

COMPACTED DCR-6 STONE

SANITARY SEWER

FLOW

STORM DRAIN

3' MIN ON BOTH SIDES OF PIPE

1' MIN.

120°

4"

1"
ANTI-INFLOW INSERT IS MANDATORY FOR ALL MANHOLES EXCEPT WATERTIGHT

ANTI-INFLOW MANHOLE INSERT DETAIL
AS AVAILABLE FROM FM RAIN GUARD, OR NO FLOW IN FLOW, OR AN APPROVED EQUAL.

NOTE:
MATERIAL: CAST IRON
APPROXIMATE WEIGHT: CLASS 30 OR 35 FRAME-250 LBS. COVER-170 LBS.

STANDARD MANHOLE FRAME & COVER
AS MANUFACTURED BY E.A. QUIN, EAST JORDAN IRONWORKS, OR APPROVED EQUAL
MANHOLE COVER TO BE STAMPED HAGERSTOWN WASTEWATER

WATERTIGHT MANHOLE FRAME AND COVER
AS MANUFACTURED BY E.A. QUIN, EAST JORDAN IRONWORKS, OR APPROVED EQUAL MANHOLE COVER TO BE STAMPED HAGERSTOWN WASTEWATER

CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT - WASTEWATER DIVISION

MANHOLE FRAME AND COVER

DETAIL WW102
NOTES:
1. 4000 PSI TYPE II PORTLAND CEMENT (MIN).

2. ADJUST TO FINAL GRADE WITH PRECAST CONCRETE GRADE.

3. 4-1" HCLES IN GRADE RING 90 DEGREES APART.

2" (INCH) THICKNESS
24" (INCH) DIAMETER
SERVICE LOAD HEAVY DUTY
SUITABLE FOR A A5H TO H20/HS20 LOADING CONDITIONS

CHANNEL TO RECEIVE ALL THREAD ROD.

VARIES 2", 4", OR 8"
SECTION A-A

NOTES:

1. CONCRETE ONLY IF REQUIRED BY CITY WASTEWATER DIVISION.

2. PRECAST MANHOLE SHALL BE MANUFACTURED IN ACCORDANCE WITH CONCRETE LEVELING RINGS OR BRICK TO MIN. 6”.

3. TERMINAL MANHOLE SIMILAR IN ALL RESPECTS EXCEPT INFLUENT CONNECTIONS.

4. COMPLETE BACKFILL OF MANHOLE WITH DIRTY CRUSHER RUN DCR-6.

5. REJECT ANY MANHOLE DAMAGED OR REPAIRED.

6. THE GRADE RINGS UP TO THE FRAME AND COVER NEED TO BE PARGED WITH NON SHRINK GROUT.
NOTES:

1. FOR STRUCTURE OF MANHOLE SEE DETAIL WW 104.

2. 5' DIAMETER MANHOLE, (FOR 8" MAINS)
OPTION 2: OUTSIDE DROP MANHOLE CONNECTION

FOR STRUCTURE OF MANHOLE SEE DETAIL WW104

DROP INLET TYPICAL FOR ALL MANHOLES. THE DROP INLET SHALL BE PIPE OF THE SIZE AND TYPE INDICATED ON THE PLANS. THE PIPE SHALL EXTEND A MINIMUM OF 4 FROM THE MANHOLE BEFORE ANY PIPE IS CONNECTED. THE INVERT CHANNEL SHALL BE SHAPED TO CONFORM TO BOTTOM PORTION OF PIPE AND SLOPED TO MAIN INVERT CHANNEL.

INVERT CHANNEL TO BE FORMED WITH CONCRETE.

PRECAST REINFORCED CONCRETE BASE WITH RISER SECTION.

HOLES FOR PIPES TO BE CAST WITH PRESS SEAL OR STAR SEAL BY HAIL MARY RUBBER COMPANY GASKETS (FOR AN APPROVED EQUAL) TO SUIT JOB REQUIREMENTS.

BACKFILL IN 6" COMPACTED LAYERS WITH DCR-6 (TYPICAL)

UNDISTURBED GROUND

1/8 (45°) BEND

STRAIGHT PIPE, AS REQ'D

2-1/8 (45°) BENDS

MIN. 12" IN BACK, MIN. 4" ON EACH SIDE

2 FITTING MAXIMUM

WYE

COMPACTED DCR-6 LAYERS OR B-10 STONE

2/FT.

1/8 (45°) BEND

3" MIN

6" MIN

YAVES

6" MIN

NOTE:

CITY OF HAGERSTOWN, MARYLAND - ENGINEERING AND INSPECTIONS DEPARTMENT

ISSUE DATE: MARCH 2009

REVISIONS

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DETAIL WW106
NOTES:

1. MANHOLE FRAME & COVER SHALL BE PLACED AS SHOWN.

2. PRECAST MANHOLE SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.T.M C 478-80 UTILIZING 4,000 P.S.I. PORTLAND CEM. CONC.

3. SEE WW111 FOR MANHOLE PIPE CONNECTIONS.

4. SHALLOW MANHOLE MAY BE CONSTRUCTED USING PRECAST BASE WITH RISER SECTION, WHERE PERMITTED.

5. THE GRADE RINGS UP TO THE FRAME AND COVER NEED TO BE PARGED WITH NON SHRINK GROUT.

6. FOR STRUCTURE OF MANHOLE SEE WW120
NOTES:
1. AMERICAN STEP COMPANY INC. STEPS ML10 OR APPROVED EQUAL.
2. PRECAST MANHOLE STEPS-AMERICAN STEP COMPANY INC. ML10 OR APPROVED EQUAL.
3. STEPS INSTALLED BY THE PRECAST MANHOLE MANUFACTURER MUST EQUAL #2 ABOVE.
4. 1/2" DIAMETER DEFORMED REINFORCING STEEL COPOLYMER POLYPROPYLENE OUTER LAYER.
5. POST FABRICATION 3M SCOTCH KOTE 426 (PURPLE) FUSION BONDED EPOXY COATING FOR MAXIMUM CORROSION PROTECTION.
NOTE:
ALL BENCHES SHALL SLOPE A
MINIMUM OF 2" PER FOOT
TOWARD FLOW CHANNELS
HOLES FOR PIPES TO BE CAST WITH PRESS SEAL, STAR SEAL BY HAIL MARY RUBBER COMPANY GASKETS, OR APPROVED EQUAL BY MANHOLE MANUFACTURER.

PLAN

END VIEW

SECTION

PSX BY PRESS-SEAL GASKET CORP FLEXIBLE MANHOLE SLEEVE IS ACCEPTABLE ALTERNATE TO "STARSEAL" GASKET.

IN LIEU OF CAST-IN GASKETS, PIPES MAY BE GROUTED IN OPENINGS IN PRECAST BASE USING CONNECTION METHODS SHOWN ON DETAIL WW111 WITH APPROPRIATE SLEEVE FOR PIPE USED.
NOTE:
CONNECTIONS ARE SHOWN WITH STANDARD PRECAST MANHOLE BASES.

PSX OR "LINK SEAL", AS MANUFACTURED BY PIPELINE SEAL AND INSULATOR INC. OR APPROVED EQUAL

BOLTS TO BE FASTENED FROM OUTSIDE OF MANHOLE

1/8" MAX. TAPER

PSX OR STAR SEAL MANHOLE ADAPTER

GASKET

PITCH

WATERSTOP

PVC PIPE CONNECTIONS

FLEXIBLE MANHOLE CONNECTIONS

1°-2"

1/8" MAX. TAPER

JOINTS SHALL CONFORM TO A.S.T.M. C425

WATERSTOP

WATERSTOP

DUCTILE IRON OR HDPE PIPE CONNECTION

6" MAX.
NOTES:
1. PVC PIPE PRECAST BASE WITH PIPE TO MANHOLE SEAL.
2. DISTANCE SHOWN OR TO PROPERTY LINE OR TO END OF EASEMENT.
NOTE: LATERALS FOR HOUSE CONNECTIONS SHALL BE 6" MIN.

ELEVATION

PLAN

WYE

FLOW

2' MIN.

12" MIN.

CURB

6" BRASS CLEAN OUT PLUG

CURB

WARNING TAPE

2' MIN.

6"x6" WYE
(SANITARY WYE)

1/4" PER FOOT MIN. SLOPE (SDR-35)

CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT, WASTEWATER DIVISION

SINGLE SEWER HOUSE CONNECTION

DETAIL WW113
PLAN VIEW

NOTES:
1. ALL PVC MATERIAL IS SCH SDR-35.
2. BACKFILL WITH COMPACTED DCR-6 STONE.
ALL PVC MATERIAL IS SCH SDR-35

WARNING TAPE

1-6" 1/8" (45°) BEND ALLOWED

2" MIN.

6"X6"X6" WYE

6" 45° BEND

VARIES

12:00

1/4" PER FOOT MIN. SLOPE TO CLEANOUT BEHIND CURB. SEE DETAIL WW 116.

PIPE CANNOT BE LESS THAN 2' LONG. PIPE MUST NOT BE PLACED AT 3:00, 9:00, OR 12:00 BUT CAN BE AT ANY ANGLE BETWEEN.

8"X8"X6" WYE

3:00

COMPACTED DCR-6 STONE
NOTES:
1. FOR DRIVEWAY, ROADWAY, GRASS STRIP, OR SIDEWALK LOCATIONS, A H-20 TRAFFIC LOADING COVER ASSEMBLY SHALL BE UTILIZED.

2. MEETS ASTM A74-98 AND ASME A112.36
   CUT PIPE TO DESIRED LEVEL, LUBE GASKET AND PUSH ON PIPE, TAP WITH LEAD HAMMER TO SEAT, THEN INSTALL BRASS PLUG.
TYPICAL CLEANOUT SAFETY PROTECTION

NOTES:

1. CONSTRUCT CLEANOUT SAFETY PROTECTION AFTER COMPLETION OF CONSTRUCTION.

2. STANDARD PROTECTION APPLIES TO ALL CLEANOUTS UNTIL CUTOFF AT FINISHED GRADE.
PIPE IN SLEEVE

2" GROUTING PLUGS 7' O.C. AT CROWN OF TUNNEL. GROUTING PLUGS AT HORIZONTAL CENTERLINE LOCATED MIDWAY BETWEEN CROWN GROUTING PLUGS.

EXCAVATION
PUMP GROUT BETWEEN SLEEVE & EXCAVATION. NO VOIDS PERMITTED.

LINER PLATE (GAGE AS INDICATED ON CONTRACT DRAWINGS)

2"X 3/16" STEEL STRAP WELDED TO 3/8" TURNBUCKLE. ONE STRAP ON EACH LENGTH OF PIPE OR WELDED ANGLE IRON.

1/2" DIAM HOOK OR TEE BOLT

UTILITY PIPE

0.6 D

CLASS "B" CONCRETE TO BE PLACED BEFORE PIPE IS LAID

4" MAX CLEARANCE 1"

4X4 SUPPORT INSULATORS WEYERHAEUSER CHOICE DEK OR PRESSURE TREATED LUMBER WITH THOMPSON'S WATER SEAL

NOTES:

1. PROVIDE ACCESS MANHOLE AT DOWNSSTREAM END; 8" BRICK BULKHEAD AT UPSTREAM END UNLESS OTHERWISE NOTED ON CONTRACT DRAWINGS.

2. WHEN NOTED ON CONTRACT DRAWINGS, STRAPS MAY BE ELIMINATED IF SLEEVE IS TO BE SAND FILLED AND BULKHEADED AT EACH END. UTILITY PIPE MUST BE BLOCKED IN PLACE DURING FILLING OPERATION.

3. CATHODIC PROTECTION OF CASING TO BE PROVIDED AS NEEDED.

<table>
<thead>
<tr>
<th>SEWER PIPE SIZE, INCHES</th>
<th>SLEEVE MIN SIZE, INCHES</th>
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<tbody>
<tr>
<td>8-10</td>
<td>36</td>
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<td>12-16</td>
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<td>30</td>
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</table>

PROVIDE 4" WIDE WEYERHAEUSER CHOICE DEK OR PRESSURE TREATED LUMBER WITH THOMPSON'S WATER SEAL UNDER BARREL OF PIPE AT SPIGOT END OF EACH PIPE LENGTH.

CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT, WASTEWATER DIVISION

TUNNEL OR JACKING INSTALLATION, TYPE I

DETAIL WW118
NOTES:
1. WHEN NOTED ON CONTRACT DRAWINGS ANNULAR SPACE IS TO BE COMPLETELY FILLED WITH SAND.
2. CASING INSULATORS TO BE NON CONDUCTIVE CASING INSULATION TYPE AS SUPPLIED BY: F.H. MALONEY, HOUSTON, TEXAS BRANCE-KRACHY CO. INC., HOUSTON, TEXAS MARSHALL HYDE, PORT HURON, MICHIGAN
3. CATHODIC PROTECTION SHOULD BE DESIGNED FOR THE CASING.

<table>
<thead>
<tr>
<th>TYPE II</th>
<th>PIPE SIZE</th>
<th>SLEEVE</th>
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<tbody>
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<th>TYPE III</th>
<th>PIPE SIZE</th>
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<tbody>
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<tr>
<td>16&quot;</td>
<td>24&quot;</td>
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</tbody>
</table>

ANNULAR SPACE AT EACH END OF CASING SHALL BE SEALED WITH 6" OF CEMENT GROUT.

STEEL SLEEVE CASING

STEEL SLEEVE CASING

STEEL STRAP

2" x 4" SUPPORT INSULATORS: WEYERHAUSEN CHOICE DEK OR PRESSURE TREATED LUMBER TREATED WITH THOMPSON'S WATER SEAL OR ANGLE IRON

CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT, WASTEWATER DIVISION

PIPES THROUGH SLEEVES, JACKING OR BORING INSTALLATION TYPE II, III, & IV

DETAIL WW119
Max Force Main Dimensions with Outlet Pipe of Dimensions

<table>
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<tr>
<th>6&quot;</th>
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</thead>
<tbody>
<tr>
<td>8&quot;</td>
<td>12&quot;</td>
<td>18&quot;</td>
</tr>
</tbody>
</table>

Notes:

1. For structure of manhole see detail WW 104.

2. Alternate connection using 2-45° bends to bring force main down from 4 min. depth to very deep manhole.

3. Invert channel to be formed with concrete.
NOTE: DO NOT REDUCE THE MAIN SIZE.

18" x 24" FIBERGLASS WATER METER TILE WITH UNFACED INSULATION

2" SCH 40 MALE ADAPTOR W/ THREADED CAP

3" x 45° LONG RADIUS ELBOW (MJ)

3" x 3" MJ WYE (NEEDS TO BE AT LEAST PIPE SIZE OR LARGER)

2 1/2" PVC LPSS MAIN

2 1/2" PVC LPSS MAIN

3" x 2 1/2" BUSHING REDUCER WITH GASKET FITTING

SEWER LID

2" TEE HEAD VALVE (NEED TO REACH THE VALVE BY HAND)

BEDDING STONE DUST

CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT, WASTEWATER DIVISION

IN-LINE FLUSHIN CONNECTION DETAIL

DETAIL WW121
NOTE:
ALL VALVES AND CHECK VALVES WILL BE TRUE UNION

BACKFILL WITH COMPACTED DCR-6 STONE

48" MINIMUM

INSTALL VALVE BOX AROUND 1 1/2" RISER ASS'Y

FILL ANNULAR SPACE WITH GRAVEL

FLUSHING CONNECTION RISER ASS'Y (SEE STANDARD DETAIL PS/L21).

BEDDING STONE DUST

CONCRETE PAD TO BE WIDTH OF DITCH

LINE SIZE PVC UNION BALL Valve. SOLVENT WELD SOCKET ENDS.

LINE SIZE PS

8'-0"

3'-0"

3'-0"

1'-0"

1'-0"

1"

1 1/2"
TERMINAL FLUSHING CONNECTION

- COMPACTED DCR-6 STONE
- EXISTING GROUND
- MODIFIED CAST IRON VALVE BOX
- COVER ARCH OPENINGS WITH BUILDING PAPER TO EXCLUDE BEDDING FROM BOX INTERIOR MALE x SOCKET WELD ADAPTOR. (TYP)
- BEDDING STONE DUST
- LOW PRESSURE SEWER
- NOTE: ALL VALVES AND CHECK VALVES WILL BE TRUE UNION.

FLOW

6"  12"

6"  12"

5 FT
AVAILBLE IN 1" THROUGH 4"

COMPRESSON REPAIR COUPLING FOR
LOW PRESSURE FORCE MAINS
NOTES:

1. SCHEDULE 80

2. THREADING FOR FIGURE 857

<table>
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<tr>
<th>SIZE</th>
<th>SIZE CODE</th>
<th>L SLIP</th>
<th>N SLIP</th>
<th>L THREAD</th>
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SOLVENT WELD END CONNECTIONS

AVAILABLE IN 1/4" THROUGH 3"

P.V.C. PIPE UNION FOR REPAIRING
LOW PRESSURE FORCE MAINS

CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT, WASTEWATER DIVISION

ISSUE DATE: MARCH 2009

REVISIONS

DETAIL WW125
NOTES:
1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED.
2. FOR TEE, RESTRAIN BOTH RUN-SIDE JOINTS AND INSTALL A FULL LENGTH OF PIPE ON EACH SIDE OF BRANCH.
3. 36 INCHES MINIMUM DEPTH OF COVER.
4. A SAFETY FACTOR OF 1.5.
5. TEST PRESSURE 1.5 TIMES THE PRESSURE RATING OF THE PIPE PER WMWD SPECIFICATIONS.
6. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CAN NOT BE MET, THE RESTRAINED LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND APPROVED BY WATER/WASTEWATER ENGINEER.
**Notes:**

1. ALL CONCRETE TO BE 2,500 PSI.
2. THIS DETAIL FOR HORIZONTAL BENDS ONLY.
3. CARRY CONCRETE TO UNDISTURBED EARTH.
4. ALL DIMENSIONS SHOWN ARE MIN.
5. NO CONCRETE SHALL COVER FITTING HARDWARE.
6. COVER FITTING WITH POLYETHELEYNE WRAP. (5 MIL OR GREATER)

**Plan**

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<tr>
<th>D</th>
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<th>P</th>
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<tbody>
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<td>36&quot;</td>
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</table>
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5. COVER FITTING WITH POLYETHELELYNE WRAP. (5 MIL OR GREATER)

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<td>9&quot;</td>
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<td>6&quot;</td>
<td>1' 3&quot;</td>
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<tr>
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<td>2' 6&quot;</td>
<td>9&quot;</td>
<td>11&quot;</td>
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<tr>
<td>12&quot;</td>
<td>2' 11&quot;</td>
<td>11&quot;</td>
<td>1' 2&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>3' 8&quot;</td>
<td>1' 3&quot;</td>
<td>1' 5&quot;</td>
</tr>
<tr>
<td>20&quot;</td>
<td>4' 9&quot;</td>
<td>1' 6&quot;</td>
<td>1' 10&quot;</td>
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<td>24&quot;</td>
<td>6' 1&quot;</td>
<td>1' 8&quot;</td>
<td>1' 11&quot;</td>
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<td>7' 9&quot;</td>
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<td>3' 1&quot;</td>
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<tr>
<td>36&quot;</td>
<td>8' 11&quot;</td>
<td>2' 6&quot;</td>
<td>3' 4&quot;</td>
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CITY OF HAGERSTOWN, MARYLAND - UTILITIES DEPARTMENT, WASTEWATER DIVISION

BUTTRESS FOR FORCE MAINS LESS THAN 90°

ISSUE DATE: MARCH 2009

DETAIL WW128
METAL RISER PAVED AREAS

2" BALL VALVE

5/8" STEEL ROD TO FORM EYELET

TYPICAL 48" MANHOLE WITH STEPS
SEE STANDARD DETAIL WW106

SEWAGE AIR RELEASE VALVE PIPE TO
AIR/VAC VALVE PER MFR DWGS

2" BALL VALVE

2" THREADED BRASS PIPING

CONCRETE CRADLE TO SPRING LINE

BEDDING PER STANDARD DETAIL WW101

STANDARD WASTE WATER MANHOLE
FRAME & COVER (TRAFFIC LOADING)

CONCRETE TOP SLAB PER SD40 FOR
H-20 LOADING

5/8" STEEL ROD

2" SEWAGE AIR & VACUUM VALVE &
FITTINGS ORIENT TO PROVIDE ACCESS
TO ALL VALVES.

STRAP

4" x 8" BLOCK WITH STAINLESS STEEL
STRAPS (TYPICAL 2) TO SUPPORT AIR
RELEASE VALVE AND AIR/VAC VALVE.

NOTES:
1. MUST BE SET TO ALLOW BALL
FLOAT TO BE REMOVED.

2. ACPO MODEL 400 OR EQUAL
SERIES.

3. SPACERS FOR WALL MUST BE
SECURED TO THE WALL.
NOTES:

1. 5' MAXIMUM MATURE TREE HEIGHT.

2. AVOID DENSE HEDGE WHICH WOULD PREVENT ACCESS.
NOTES:
1. FIELD CUTTING OF PIPE SHALL BE DONE IN A SATISFACTORY MANNER WHICH WILL LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE.

2. PIPE LENGTH BEING INSTALLED SHALL ABUT AGAINST THE NEXT IN SUCH A MANNER THAT THERE SHALL BE NO SHOULDER OR UNEVENNESS OF ANY KIND ALONG INSIDE OF THE PIPE.
REMOVE MANHOLE FRAME AND COVER.

EXISTING FINISH GRADE

REMOVE MANHOLE TO 1' MINIMUM BELOW FINISHED GRADE

FILL MANHOLE SOLID WITH LEAN MIX CONCRETE

FOR SEWER 15" OR SMALLER DIAMETER, SET MECHANICAL PLUGS INTO ALL PIPES ENTERING MANHOLES AS SHOWN.
FOR SEWERS 18" AND LARGER DIAMETER, PROVIDE MASONRY BULKHEAD IN LEU OF MECHANICAL PLUGS.