

Section X

GRAVITY SANITARY SEWER

MATERIALS FOR CONSTRUCTION

A. GENERAL

1. Unless otherwise noted or approved by the Hilton Head No. 1 Public Service District all materials shall be manufactured in the United States.
2. Materials and installation for all gravity sewer lines and force mains shall comply with commonly accepted design standards such as ASTM (American Society for Testing and Materials), ANSI (American National Standard), AWWA (American Water Works Association) or other design standards as approved by the Department.
3. All design criteria, materials, and construction shall be in accordance with DHEC regulations, AWWA, and ASTM standards.

B. PIPE AND FITTINGS

1. Ductile-iron pipe and fittings (DIP):
 - a. Comply with ANSI/AWWA C151/A21.51.
 - b. Use mechanical or push-on joints: ANSI/AWWA C111/A21.11 as modified by ANSI/AWWA C151/A21.51.
 - c. Use rubber gaskets and lubricant: ANSI/AWWA C111/A21.10.
 - d. Use wall thickness in accordance with Section XI for depth and bedding conditions.
 - e. Use fittings with pressure rating of 150 psi: ANSI/AWWA C110/A21.10.
 - f. Lining:
 - 1) Amine cured Novalac Epoxy polymeric lining, 40 mils nominal thickness.

- 2) Acceptable products:
 - a) Protecto 401 by Vulcan Painters, Birmingham, Alabama.
2. Polyvinyl chloride pipe and fittings (PVC):
 - a. Wall, bell and spigot, minimum of SDR26: ASTM 3034.
 - b. For pipe 8" in diameter and greater, provide elastomeric gasket joints, providing watertight seal.
 - c. For pipe smaller than 8", provide solvent weld joints.
 - d. 12.5 or 20 foot lengths.

C. MANHOLES

1. Use precast manholes:
 - a. Comply with ASTM C478.
 - b. Portland cement: ASTM C150, Type II.
 - c. Monolithic base slab with walls.
 - d. Flat slab top sections: HS-20 traffic loadings.
 - e. Provide tongue and groove with vulcanized butyl rubber sealant or "O" ring rubber gasketed joints.
 - f. Cast or factory cut pipe opening in manholes:
 - 1) Flexible pipe boot: ASTM C923M.
 - 2) Attach boot to piping with dual stainless steel straps.
 - 3) All other hardware to be stainless steel.
 - 4) Acceptable product: Kor-N-Seal or equal.
 - g. Size lift holes and inserts for a precision fit with the lift devices.
 - 1) Do not penetrate through the manhole wall.

- 2) Comply with OSHA Standard 1926.704.
- h. Provide flat slab tops where manhole depth is less than 4'-0".
- 2. Coatings:
 - a. Coat interior of standard manholes with 21 dry mils coal tar epoxy, Tnemec "Tneme-Tar" or equal.
 - 1) Do not coat joints.
 - b. Coat existing manholes where a new force main enters and in the next manhole down stream with HDPE Protective Liner or Raven Systems Epoxy Coating.
- 3. Lining:
 - a. Provide lining system in pump stations, wetwells, valve pits, pressure sewer receiving manholes, the next manhole downstream of receiving manholes, air release valve manholes and drop manholes.
 - 1) Approved Systems:
 - a) Agru Sure Grip HDPE concrete protective liner
 - b) Raven Systems Epoxy Coating System
- 4. Steps:
 - a. Polypropylene plastic steps reinforced with _" diameter steel rod.
 - 1) Acceptable product: M.S.A. Industries, Inc. Model PS-K, or equal.
 - b. Ladder rungs cast into the units.
 - 1) Embed a minimum of 3".
 - 2) Maximum spacing - 16".
- 5. Exterior joint collar:
 - a. Install an exterior joint collar on all manhole joints.
 - b. Provide a 12" wide band.

- c. Acceptable product: Seal Wrap Exterior Joint Sealer by Mar-Mac Manufacturing Company.
- 6. Frames and covers:
 - a. Provide gray iron castings, ASTM A48, Class 30 iron.
 - b. Machine all bearing surfaces.
 - c. Covers to have the words "SANITARY SEWER" cast in the metal.
 - d. Coat frames and covers with two (2) shop coats of bitumastic paint.
 - e. Provide watertight covers, where indicated, conforming to above requirements and with frame tapped for four bolts, countersunk in cover.
 - 1) Provide rubber gasket between frame and cover.
 - f. Acceptable products: Sumter Machinery Company Model MC-18 and MF-11 or US Foundry Model 680.

D. CLEANOUTS

- 1. Acceptable products: Smith #4253 or Josam #58860, with XH cast iron top.
- 2. Provide ABS cleanout plugs.

E. SEWER SERVICE SADDLES

- 1. Provide sewer service saddle for new gravity sewer service lines tapping into gravity main lines greater than 8".
- 2. Acceptable product: Romac – Style CB Sewer Saddle