

## SECTION 33 05 05

### PIPING - GENERAL PROVISIONS

#### PART 1: GENERAL

##### 1.01 DRAWINGS

Dimensions shown on Drawings are approximate only. Verify all piping geometry in the field and to ensure proper alignment and fit of all piping consistent with the intent of the Drawings. Submit field layout drawings as required for approval.

#### PART 2: PRODUCTS

##### 2.1 CONTRACTOR'S RESPONSIBILITY FOR MATERIAL

- A. Examine all material carefully for defects. Do not install material which is known, or thought to be, defective.
- B. Owner reserves the right to inspect all material and to reject all defective material shipped to the job site or stored on the site. Failure of Owner to detect damaged material shall not relieve the Contractor from his total responsibility for the completed work if it leaks or breaks after installation.
- C. Lay all defective material aside for final inspection by Owner. Owner will determine if corrective repairs may be made, or if the material is rejected. Owner shall determine the extent of the repairs.
- D. Classify defective pipe prior to Owner's inspection as follows:
  - 1. Damage to interior and/or exterior paint seal coatings.
  - 2. Damage to interior cement-mortar or epoxy lining.
  - 3. Insufficient interior cement-mortar lining or epoxy thickness.
  - 4. Excessive pitting of pipe.
  - 5. Poor quality exterior paint seal coat.
  - 6. Pipe out of round.
  - 7. Pipe barrel area damaged to a point where pipe class thickness is reduced (all pipe).
  - 8. Denting or gouges in plain end of pipe (all pipe).
  - 9. Excessive slag on pipe affecting gasket seal (DIP).

10. Any visible cracks, holes.
  11. Embedded foreign materials.
  12. Non-uniform color, density and other physical properties along the length of the pipe.
- E. The Contractor shall be responsible for all material, equipment, fixtures, and devices furnished. These materials, equipment, fixtures and devices shall comply with the requirements and standards of all Federal, State, and local laws, ordinances, codes, rules, and regulations governing safety and health.
- F. The Contractor shall take full responsibility for the storage and handling of all material furnished until the material is incorporated in the completed project and accepted by Owner. Contractor shall be solely responsible for the safe storage of all material furnished to or by him until incorporated in the completed project and accepted by Owner.
- G. Load and unload pipe, fittings, valves, and accessories by lifting with hoists or skidding to avoid shock or damage. Do not drop these materials. Pipe handled on skidways shall not be skidded or rolled against other pipe. Handle this material in accordance with AWWA C600, C605 or C906 whichever is applicable.
- H. Drain and store fittings and valves prior to installation in such a manner as to protect them from damage due to freezing of trapped water.

## 2.2 PETROLATUM TAPE COATING

- A. The tape coating shall be a cold applied, saturant tape made from either petrolatum or petroleum wax with a noncellulosic synthetic fiber fabric. The fabric shall be encapsulated and coated on both sides with the petrolatum or petroleum wax. The thickness of the tape shall be no less than 40 mil. The petrolatum or petroleum wax shall be at least 50% of the product by weight.
- B. The tape coating shall be supplied in sheets, pads or rolls. Pads and sheets shall be sized to fit the area that is to be covered, allowing for an overlap per AWWA Standards.

## 2.3 RUBBERIZED-BITUMEN BASED SPRAY-ON UNDERCOATING

Subject to approval by Owner, an alternative corrosion protection for exposed buried metal is an aerosol applied rubberized coating. The material shall be rapid dry and specifically designed for corrosion protection. 3M Rubberized Underseal Undercoating 08883 or any equivalent rubberized-bitumen based spray-on undercoating may be used. Follow manufacturer's recommendations for storage and application.

## PART 3: EXECUTION

### 3.1 INSTALLATION - GENERAL REQUIREMENTS

- A. Lay and maintain all pipe to the required lines and depths on the plans. Provide 42 inches of cover from the top of the pipe barrel to the top of the finished grade unless otherwise authorized by Owner. Install fittings and valves in strict accordance with the Specifications at the required locations with joints centered, spigots home, and all valve stems plumb. Do not deviate from the required alignment, depth or grade without the written consent of Owner.
- B. Lay all pipe to the depth specified. Measure the depth from the final surface grade to the top of the pipe barrel. The minimum pipe cover shall be as shown on the Drawings or as specified in the Specifications.
- C. Do not lay pipe in a wet trench, on subgrade containing frost, or when trench conditions are unsuitable for such work. If all efforts fail to obtain a stable dry trench bottom and Owner determines that the trench bottom is unsuitable for such work, Owner will order the kind of stabilization to be constructed, in writing. In all cases, water levels must be at least 6" below the bottom of the pipe.
- D. Thoroughly clean the pipes and fittings before they are installed. Keep these materials clean until the acceptance of the completed Work. Lay pipe with the bell ends facing in the direction of laying, unless otherwise shown on the Drawings, or directed by Owner. Exercise care to ensure that each length abuts the next in such a manner that no shoulder or unevenness of any kind occurs in the pipe line.
- E. Do not wedge or block the pipe during laying unless by written order of Owner.
- F. Before joints are made, bed each section of pipe the full length of the barrel, at the required grade, and at the invert matching the previously laid pipe. Dig bell holes sufficiently large to permit proper joint making. Do not bring succeeding pipe into position until the preceding length is embedded and secure in place.
- G. Take up and relay pipe that is out of alignment or grade, or pipe having disturbed joints after laying. Take up such in-place pipe sections found to be defective and replace them with new pipe. Take up, relaying, and replacement will be at the Contractor's expense.
- H. Place enough backfill over the center sections of the pipe to prevent floating. Take all other necessary precautions to prevent the floating of the pipeline by the accumulation of water in the trench, or the collapse of the pipeline from any cause. Should floating or collapse occur, restoration will be at the Contractor's expense.
- I. Contractor shall install tracer wire along all pipelines. Tracer wire may be installed in trench below both the pipe and pipe bedding to prevent the tracer wire from being disturbed during repairs.
- J. Bedding materials and concrete work for the pipe bedding and thrust restraint shall be as specified.

- K. Prevent foreign material from entering the pipe while it is being placed. Do not place debris, tools, clothing, or other materials in the pipe during laying operations. Close all openings in the pipeline with watertight plugs when pipe laying is stopped at the close of the day's work, or for other reasons such as rest breaks or meal periods.
- L. Only cut pipe with equipment specifically designed for cutting pipe such as an abrasive wheel, a rotary wheel cutter, a guillotine pipe saw, or a milling wheel saw. Do not use chisels or hand saws. Grind cut ends and rough edges smooth. Bevel the cut end slightly for push-on connections as per manufacturer recommendations.
- M. In distributing material at the site of the Work, unload each piece opposite or near the place where it is to be laid in the trench. If the pipe is to be strung out, do so in a straight line or in a line conforming to the curvature of the street. Block each length of pipe adequately to prevent movement. Block stockpiled pipe adequately to prevent movement. Do not place pipe, material, or any other object on private property, obstructing walkways or driveways, or in any manner that interferes with the normal flow of traffic.
- N. Exercise special care to avoid damage to the bells, spigots or flanged ends of pipe during handling, temporary storage, and construction. Replace damaged pipe that cannot be repaired to Owner's satisfaction, at the Contractor's expense.
- O. Remove all existing pipe, fittings, valves, pipe supports, blocking, and all other items necessary to provide space for making connections to existing pipe and installing all piping required under this Contract.
- P. Maintain the minimum required distance between water and sewer lines and other utility lines in strict accordance with all Federal, State, and local requirements and all right-of-way limitations.
- Q. Marking tape to be provided along all mains and service lines installed. Marking tape to be installed 12" below grade. Foil backing is not required on marking tape. Tape shall be colored blue for water mains and green for sewer. Marking tape along pressurized force mains shall be labeled "Pressurized Wastewater".

**END OF SECTION 33 05 05**