

## SECTION 41

### **GRAVITY SEWER PIPE LAYING, JOINTING, AND MISCELLANEOUS CONSTRUCTION DETAILS**

#### **41.1 SURVEY LINE AND GRADE**

The CONTRACTOR shall set Temporary Bench Marks (TBM'S) at a maximum five hundred (500) foot interval. The CONTRACTOR shall constantly check line and grade of the pipe by laser beam method. In the event line and grade do not meet specified limits described hereinafter, the WORK shall be immediately stopped, the CITY notified, and the cause remedied before proceeding with the WORK.

#### **41.2 PIPE PREPARATION AND HANDLING**

All pipe and fittings shall be inspected prior to lowering into trench to insure no cracked, broken, or otherwise defective materials are being used. The CONTRACTOR shall clean ends of pipe thoroughly and remove foreign matter and dirt from inside of pipe and keep clean during and after laying.

Proper implements, tools, and facilities shall be used for the safe and proper protection of the WORK. Pipe shall be lowered into the trench in such a manner as to avoid any physical damage to the pipe. Pipe shall not be dropped or dumped into trenches under any circumstances.

#### **41.3 SEWER PIPE LAYING**

Laying of sewer pipe shall be accomplished to line and grade in the trench only after it has been dewatered and the trench has been prepared in accordance with specifications outlined in Division III. Refer to Section 41.4 for additional bedding requirements. Mud, silt, gravel and other foreign material shall be kept out of the pipe and off the jointing surface. All pipe laid shall be retained in position so as to maintain alignment and joint closure until sufficient backfill has been completed to adequately hold the pipe in place. All pipe shall be laid to conform to the line and grade shown on the PLANS. Variance from established line and grade, at any point along the length of the pipe, shall not be greater than one-thirty second of an inch per inch of pipe diameter and not to exceed one-half (1/2) inch, provided that any such variation does not result in a level or reverse sloping invert.

The sewer pipe, unless otherwise approved by the CITY, shall be laid up grade from point of connection on the existing sewer or from a designated starting point. The sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress the open end of the pipe shall be kept tightly closed with an approved temporary plug.

All PVC pipe shall be installed in accordance with the pipe manufacturer's written recommendations as approved by the CITY. Laying of Ductile Iron Pipe shall conform

to the specifications outlined in Section 51.4.7.

#### **41. 4 TRENCH PREPARATION AND PIPE BEDDING**

##### 41. 4. 1 TRENCH EXCAVATION, DEWATERING, BEDDING MATERIAL, BACKFILL, COMPACTION, FILL AND GRADING

Applicable provisions of Section 32 shall apply. Also refer to STANDARD DRAWINGS.

##### 41. 4. 2 PLACEMENT OF PIPE BEDDING MATERIAL

CONTRACTOR shall hand-grade bedding to proper grade ahead of pipe laying operation. Bedding shall provide a firm, unyielding support along the entire pipe length.

If without direction from the CITY, the trench has been excavated below the required depth for pipe bedding material placement, CONTRACTOR shall fill the excess depth with pipe bedding material to the proper grade.

CONTRACTOR shall excavate bell holes at each joint to permit proper assembly and inspection of the entire joint.

##### 41. 4. 3 DEPTH OF BEDDING MATERIAL

CONTRACTOR shall provide pipe bedding material in accordance with the STANDARD DRAWINGS.

#### **41. 5 GRAVITY PIPE AND WATER MAIN SEPARATION**

Gravity sewers that are laid in the vicinity of pipe lines designated to carry potable water shall meet the conditions set forth in Section 51.3.

#### **41. 6 PLUGS AND CONNECTIONS**

Plugs for pipe branches, stubs or other open ends which are not to be immediately connected shall be made of an approved material and shall be secured in place with a joint comparable to the main line joint.

#### **41. 7 PIPE JOINTING**

The markings on reinforced concrete pipe indicating the minor axis of the elliptical reinforcement shall be placed in a vertical plane (top or bottom) when the pipe is laid.

All pipe shall be installed to the homing mark on the spigot. The CITY shall be given an opportunity to check all joints in this manner before backfilling.

Type of joint to be used will conform to the requirements of Sections 40.3. All pipe and jointing for gravity sewers shall be subject to the tests specified in Section 44.