

SECTION 02130 LINES AND GRADES

A. General

All work shall be constructed in accordance with the lines and grades shown on "approved" Engineering Plans. The full responsibility for keeping alignment and grade shall rest upon the Valparaiso City Utilities or its Contractor.

Reference marks for lines and grades shall be set by the Developer as the work progresses and will be located to cause as little inconvenience to the prosecution of the work as possible. The Valparaiso City Utilities or its Contractor shall place excavation and other materials so as to cause no inconvenience in the use of the reference marks provided.

B. Alignment and Grade

The water mains shall be laid and maintained to lines and grades established by the plans with fittings and valves at the required locations unless otherwise approved by the Department Representative. Valve operating stems shall be oriented in a manner to allow proper operation.

C. Prior Investigation

Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care should be exercised during excavation to avoid damage to existing structures.

D. Clearance

When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary to provide clearance as required by federal, state, or local regulations.

Water mains shall be installed in accordance with Section 8.6, Separation of Water Mains and Sewers of the "10 State Standard" — Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers Recommended Standards for Water Works.

The water mains must be protected from contamination by existing sewers. The following construction methods should be followed unless otherwise directed by the Department Representative:

1. Maintain at least a ten (10) foot horizontal (edge to edge) distance from any existing sewers. Installation of the water mains closer to a sewer is acceptable where the water main is laid in a separate trench or on an undisturbed earth shelf located on one

(1) side of the sewer at such an elevation that the bottom of the water main is at least eighteen (18) inches above the top of the sewer.

2. Provide a minimum vertical distance of eighteen (18) inches between the outside of the water main and the outside of the sewer mains. This shall be the case where the water main is either above or below the sewer main. At crossings, one (1) full length of water pipe should be located so both joints will be as far from the sewer mains as possible if polyethylene wrap is not used. Special structural support for the water and sewer mains may be required.
3. Provide at least a ten (10) foot horizontal separation between water mains and forced sewer mains. There shall be an eighteen (18) inch vertical separation at crossings.
4. Locate water mains so that they do not pass through any sewer manholes.
5. When an eighteen (18) inch vertical separation between water mains and sewer mains is not possible a second layer of polyethylene wrap shall be installed on the water main so that a 20 foot length of polyethylene wrap is centered over the sewer main at the crossing.

E. Pipe Installation Parallel to Other Utilities

The water main shall not be installed in a location where a parallel electric wire, electric conduit, telephone wire, telephone conduit, or gas main will be installed in the same ditch area. Furthermore, the Department Representative shall approve any deviations. Pipe installation shall be performed as specified and shown in Figure 1.

F. Trench Construction and Pipe Cover

The trench shall be excavated to the required alignment, depth and width and in conformance with all federal, state, and local regulations for the protection of the work and personnel.

All newly installed or relocated pipe shall normally be laid to a depth of at least 60 inches and no more than 72 inches below proposed finished street pavement grade or proposed finished grade of ground over pipe ditch, whichever is lower, unless otherwise directed by the Department Representative. The measurement will be to the top of the pipe.

END OF SECTION

UTILITY LAYOUT
NOTE: NOT TO SCALE

FIGURE 1

NOTE: Curb Stops (customer shutoff valves) to be placed 2' behind the sidewalk.

