

- B. The Contractor shall give full details of pipe diameter, route, levels etc. In such proposals, and subject to the Engineer's approval, the Contractor shall be solely responsible for obtaining all other permissions and approvals relevant to the execution of such temporary works. On completion of temporary diversionary works the relevant pipework shall be removed or be adequately sealed and inlet and outlet manholes returned to a condition suitable for their subsequent re-use, all to the approval of the Engineer. All diversionary work shall be subject to the requirements of the Contract as if they formed part of the Permanent Works.

29.3.3.5 Entrances to Private Properties

- A. No pumps or equipment shall be fixed in front of private properties unless it is unavoidable and this shall be with the approval of the Engineer. When it is essential to close any access, the Contractor shall provide suitable alternative access at no extra cost to ADM. Vehicle access for emergency services shall be available at all times.

29.3.4 Drainage Manhole Sealing

- A. It is the intent to provide for the elimination of extraneous water leakage into manholes that are otherwise structurally sound. All manhole sealing shall be done during high groundwater conditions, unless the points of leakage have been previously identified.
- B. The basic equipment shall consist of chemical pumps, chemical containers, injection packers, hoses, valves, and all necessary equipment and tools required to seal manholes. The chemical injection pumps shall be equipped with pressure meters that will provide for monitoring pressure during the injection of the chemical sealant. When necessary, fluid bypass lines equipped with pressure-regulated bypass valves will be incorporated into the pumping system.
- C. At each point of leakage within the manhole structure a hole should be carefully drilled from within the manhole and shall extend through the entire manhole wall. In cases where there are multiple leaks around the circumference of the manhole, fewer holes may be drilled providing all leakage is stopped from these holes. Into the previously drilled holes, chemical sealant injection devices shall be placed in such a way that they will provide a watertight seal between the holes and the injection device. A hose, or hoses, shall be attached to the injection device from an injection pump. Chemical sealing materials as specified shall then be pumped through the hose until material refusal is recorded on the pressure gauge mounted on the pumping unit or a predetermined quantity of sealant has been injected. Care shall be taken during the pumping operation to ensure that excessive pressures do not develop and cause damage to the manhole structure. Upon completion of the injection, the injection packers shall be removed and the remaining holes filled with mortar and