

ITEM 14 – APPENDIX ‘A’

HYDROSTATIC LEAKAGE TESTING FOR SEWERMAIN CONSTRUCTION

1.0 DESCRIPTION. All sewerline construction shall be subject to hydrostatic leakage testing as line sections are completed or upon completion of the sewer main as directed by the Engineer.

Before sections are tested, the following must be considered. The pipe must be sufficiently backfilled to prevent movement and thrust blocking shall be in place. Where reaction or thrust blocks are being used, adequate curing time must be allowed. A curing time of seven (7) days shall be required. Test ends shall be capped and braced to withstand thrusts that are developed under test pressures.

The test shall be under the direction of the Engineer. The Contractor is to furnish pressure gauge, pumps, compressors, pipe, bulkheads, and any other suitable appurtenances necessary to perform these tests.

Any testing performed without the knowledge of the Engineer shall be considered invalid for the satisfaction of these specifications.

2.0 PROCEDURE. Each section or with engineering approval, the entire system prior to testing shall be filled slowly with water, and all air shall be expelled during filling.

The contractor shall submit the pressure that will be used during hydrostatic testing to the SCMSD Project Engineer for approval prior to beginning any testing.

After testing, the section shall be drained. In cold weather, special care and precautions shall be taken to prevent damage due to freezing of the piping and appurtenances.

Leakage is defined as the quantity of water that must be supplied into the pipe as required to maintain the specified leakage test pressure for the required time after the pipe has been filled.

In calculating leakage, no allowance will be given for leakage at valves, bulkheads, etc.

For sewerline pipe, the leakage tests as specified herein or as directed by the Engineer shall govern. Generally, the line shall be filled and allowed to stand for twenty-four (24) hours and then hydrostatically tested for two (2) hours in duration with the leakage and pressure recordings being conducted simultaneously. The test pressure shall not vary by more than five (5) psi from the start pressure for the duration of the test. Any make-up water shall be carefully measured by a meter or by pumping the water from a vessel of known volume. After

every five (5) psi drop, if a pressure drop should occur, the pressure shall be returned to the starting pressure and leakage recorded.

Allowable leakage shall be determined by the following formula:

$$L = \frac{SD\sqrt{P}}{148,000}$$

L = testing allowance (makeup water) in gallons per hour

S = length of pipe tested in feet

D = nominal diameter of pipe in inches

P = average test pressure during the hydrostatic test in
pounds per square inch (gauge)

All defective materials and construction found in the pipeline as a result of the leakage test shall be corrected by removal of the defective materials and reconstruction with sound materials and construction. The entire section shall then be retested in accordance with the foregoing.

END OF SECTION