

**ROGERS WATER UTILITIES SEWER SYSTEM
ROGERS, ARKANSAS**

**SPECIFICATIONS FOR SANITARY
SEWER MANHOLE TESTING
REVISED FEBRUARY 2006**

1. **SCOPE**

This specification governs the testing of sanitary sewer manholes by the vacuum test method. The hydrostatic (water/exfiltration) method of testing sanitary sewer manholes is not accepted by RWU. All manholes shall not leak after completion of vacuum testing.

2. **GENERAL REQUIREMENTS**

- a. Manholes shall be vacuum tested for leaks upon the completion of the backfill and compaction operation.
- b. The vacuum test method shall be in accordance with ASTM C1244-05a, except as specified otherwise herein.
- c. The Contractor shall furnish all equipment and labor required, including necessary piping/hoses, pneumatic plugs, test vacuum equipment (vacuum pump and vacuum plate/head), vacuum gauge and second timer. The vacuum gauge shall have a maximum range of 0-30 inches of mercury (Hg) and the vacuum gauge figure intervals shall be in ½ inch increments.
- d. The vacuum test shall be performed by the Contractor and witnessed by the Engineer and the RWU personnel. The Engineer shall furnish test reports of all manholes to the Contractor and RWU.
- e. At least fifty percent (50%) of the total sanitary sewer manholes on each project shall be vacuum tested as specified herein. Manholes to be tested shall be selected by the Engineer and the RWU personnel as to which manhole is tested. No advance notice will be provided to the Contractor as to which manhole will be tested. If one manhole test fails the initial test, an additional twenty-five percent (25%) of the total manholes shall be tested. This process shall continue until a series of manhole (75% of total) are successfully tested with no failures. If a second manhole test fails (two (2) manholes within a project), all manholes (100% of total) must be tested.

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3. TEST PROCEDURES

- a. After cleaning the interior surface of the manhole, the Contractor shall place and inflate pneumatic plugs in all the connecting pipes with the exception of sewer services to isolate the manhole. Complete sewer services entering the manhole shall be part of manhole vacuum test.
- b. The vacuum plate/head shall be placed on the top of the manhole lid frame. The vacuum pump shall be connected to the outlet port with the valve open. When a vacuum of ten (10) inches of mercury has been attained, the outlet valve shall be closed and the test period is started. The minimum test period is determined from the following table:

Depth of Manhole (Feet)	Diameter of Manhole (Foot)	
	4	6
<14	60	60
16	60	67
18	60	73
20	60	81
22	60	89
24	60	97
26	64	105
28	69	113
30	74	121

- c. All pneumatic plugs shall be removed from the manhole after the test.

4. FAILURE OF MANHOLE TEST

- a. Any manhole that fails the initial vacuum test must be repaired with a non-skrink grout material for manholes that is specified in Section 3-11 Protective Coating. The Contractor shall excavate the manhole and apply non-skrink grout on the interior and exterior of the manhole. Any repair between the pipe(s) and the manhole (gasket waterstop area) requires the removal of the pipe by means of coring and the installation of a new pipe with waterstop (grouting the annular opening). Upon completion of the repairs, the manhole shall be retested as described in the above test procedures. The cost of the manhole repair and backfill is incidental to the cost of the project.
- b. Any manhole that fails the second vacuum test must be removed and replaced with a new manhole. The new manhole shall be backfilled to grade and tested as

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described in the above test procedures. The cost of the new manhole and backfill is incidental to the cost of the project.

5. ACCEPTANCE

The manhole shall have passed the vacuum test if the manhole vacuum does not drop below nine (9) inches of mercury during the minimum specified test period.

Previous Specifications

April 16,1997