

Testing Procedure

1. Immediately following pipe cleaning, the pipe installation shall be tested with low pressure air. Each pipe section between manholes shall be tested. Service laterals from the main to the property shall be included in the test. Backfill must be complete prior to acceptance testing.
2. Check the average height of groundwater over the pipe invert. The test pressure required below shall be increased 0.433 psi for each foot of water depth over the pipe (ex. If groundwater is 2.8 feet above pipe invert, add 1.2 psig to test pressures). Method to determine groundwater depth shall be acceptable to the Inspector.
3. Plug all pipe outlets using pneumatic plugs. Air shall be slowly supplied to the plugged pipe until internal air pressure reaches 4.0 psi greater than the average back pressure of any groundwater that may submerge the pipe. After the internal test pressure is reached, at least two minutes shall be allowed for the air pressure to stabilize.
4. The pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (greater than average backpressure of any groundwater over the pipe). At a reading of 3.5psig, or any pressure between 3.5 psig and 4.0 psig (above groundwater pressure), timing shall commence with an accurate stop watch.
5. Acceptance – The tested section shall be considered acceptable if the required testing time has elapsed before a 1.0 psig pressure drop has occurred. If the pressure drops 1.0 psig before the minimum length of time has elapsed, the air loss rate is considered excessive and the section of the pipe has failed the test.
6. Acceptance criteria is based on an allowable air loss of $Q=0.0015$ cubic feet per minute per square foot of pipe area being tested. The shortest time, in seconds, allowed for the air pressure to drop 1.0 psig is calculated with the following formula:

$T = 0.085 DK/Q$; $K = 0.000419DL$ but not less than 1.0, D = pipe ID in inches, L = length of pipe tested in feet, and Q = allowable leakage of 0.0015 cfm/sf of internal surface

7. Service laterals shall be included in the test; however, the length of service laterals may be ignored and the length of the main line only used in the table below. Service lateral lengths shall be considered only if the tested section does not achieve the required minimum time using length of main line only. In that case, minimum time may be calculated by:

$T = [0.085 K (D_1^2L_1+D_2^2L_2+\dots+D_n^2L_n)] / [Q (D_1L_1+D_2L_2+\dots+D_nL_n)]$; D_n = pipe ID of each pipe being tested, in inches, L_n = length of pipe in each diameter being tested, in feet, and $K=0.000419 (D_1L_1+D_2L_2+\dots+D_nL_n)$ but not less than 1.

8. Where the minimum time exceeds 60 minutes, a pressure drop of 0.5 psig may be used as an alternative. The required minimum time for a 0.5 psig pressure drop shall be half of the time for the 1.0 psig drop as calculated.

Pipe Diameter Inches	T _{min} up to Length Shown Min:Sec	Length for T _{min} Feet	T _{min} for Longer Length Seconds
4	3:46	597	0.380 L
6	5:40	397	0.854 L
8	7:34	298	1.520 L
10	9:26	239	2.374 L
12	11:20	199	3.418 L
15	14:10	159	5.324 L
18	17:00	133	7.692 L
21	19:50	114	10.470 L
24	22:40	99	13.674 L
27	25:30	88	17.306 L
30	28:20	80	21.366 L
33	31:10	72	25.852 L