

SECTION UC-350
SEWER DEFLECTION TEST

PART 1 - GENERAL

1.01 SCOPE

The Contractor shall test new sewer system installations, completely and satisfactorily, prior to final acceptance by the Department.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 GENERAL

All testing performed by the Contractor shall be witnessed by the Department Inspector, who shall be notified a minimum of twenty-four (24) hours in advance of the test.

3.02 DEFLECTION TESTS

- A. Deflection testing of the new sewer shall be performed by the Contractor. No section of sewer shall be tested before at least 30 days have elapsed from the date of completed backfill over the section. The pipe will be observed for evidence of obvious ovality, deflected or offset joints, and other pipe defects.
- B. The deflection, or deformation of the pipe due to external loading, shall not exceed approximately 7.5 percent. All labor, materials and equipment necessary for cleaning the sewers and performing the deflection testing shall be furnished by the Contractor. However, prior to the test, the Contractor's mandrel must pass a ring gauge test, performed by the Inspector at the site using the Department's ring gauge, to show that the mandrel is properly sized in accordance with the mandrel sizes listed hereinbelow 7.5 percent deflection.
- C. Deflection testing the system may also be performed by the Department, at its cost, at any time during the Warranty or Contract Bond period, and the deflection in any pipe shall not exceed 7.5 percent.

- D. Deflection shall be determined by passing an approved go/no go mandrel through the gravity sewer main. Deflection will be based on the average inside diameter as presented in ANSI/AWWA C900, "AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches through 12 inches, for Water Distribution:", Table 1, for Poly (Vinyl Chloride) (PVC) C 900 pipe. However, no mandrel testing is required for AWWA C900 PVC pipe installed with up to 14 feet of cover, in accordance with subsection 1.05-C of Section UC-005.
- E. The deflection may also be based on the average inside diameter as presented in ASTM D3034, Table XI.I, for PSM SDR35 PVC sewer pipe. The mandrel sizes are listed as follows:

<u>Pipe Size Nominal (inches)</u>	<u>Average Inside Diameter</u>	<u>Mandrel 7.5% Deflection</u>
6	5.893	5.31
8	7.891	7.09
10	9.864	8.84
12	11.737	10.51
15	14.374	12.86

- F. If any pipe fails the deflection test, performed by the Contractor or by the Department, unstable conditions and/or improper bedding will be assumed. The overly deflected pipe shall be removed and replaced by the Contractor, at his expense. Re-rounding of overly deflected pipe will not be allowed. A trench to unstable conditions, as shown on Department Standard Detail SS 18.0, shall be excavated and new pipe installed to unstable soil condition specifications. New replacement pipe shall be connected to existing pipe to remain with new double bell PVC repair couplings (no stop) with a maximum 1-inch gap between the pipes inserted therein. The couplings shall conform to the Specifications herein for PVC pipe and fittings. The Contractor shall furnish the Department with a new one year Warranty or Contract Bond guaranteeing the replacement work and materials under the same terms and conditions as the original new Warranty or Contract Bond. The new warranty period shall commence from the Department's acceptance of the replacement work performed by the Contractor.

END OF SECTION