PART 1 – GENERAL

1.1 SECTION INCLUDES

1. Sanitary drain, waste and vent (DWV) system shall be smoke tested to locate significant defects which are causing or could cause infiltration of sewer gas contamination, soil erosion, and degradation to the existing sanitary sewer system or other underground utilities and surface structures.
2. All new or repaired main line or service lateral connections must be smoke tested and the authorities having justification at WPCS will field determine if the system is accepted or failed. Any failed systems will be replaced, repaired and tested again until the system passes with no leaks.
3. All new construction and modifications to Sanitary Sewer systems must be video inspected.

1.2 PAYMENT

No direct payment will be made for smoke testing in conjunction with acceptance testing of sewer joint repair or in conjunction with warranty item work.

PART 2 - PRODUCTS

1. Nontoxic, odorless, non-hazardous, and non-staining smoke generators (bombs or liquid smoke) shall be used to produce smoke for testing.
2. Smoke shall be blown by a "squirrel cage" or other approved blower located on top of a central manhole or plumbing vent stack. Blower pressure should be adequate to force smoke throughout the isolated line section and to the ground surface through cracks, channels, improper jointing, etc.
3. Sand bags and/or plugs, or other means of properly sealing each end of the test section are to be utilized to prevent smoke from escaping through the manholes and/or plumbing vent stack in conjunction with the sewer lines (smoke must be observed at all stacks serving section being tested to insure proper distribution of smoke, prior to sealing off of stacks).
4. All data pertinent to the smoke testing will be recorded on the smoke testing log form using the proper inspection. This form shall be submitted to and remain in the possession of the owner after a section of line has been tested.

PART 3 - EXECUTION

3.1 PREPARATION

Contractor’s testing schedule shall consider the unique conditions of the test site such as, but not limited to, cross connected storm/sanitary sewers, heavy flow sections, and traffic patterns.

3.2 METHODS

1. Only sewer line segments on the upstream and downstream side of the blower shall be tested on a single set-up.
2. Verify trap seal at all fixtures and drains.
3. Smoke shall be introduced into a manhole or stack and then blown into the connecting sewer lines.
4. All visible leaks, including those from under slab lines, floor drains, waxed rings, vents, and stacks shall be recorded on the smoke testing log form. The information listed below shall be included on the log form:
	1. Test date(s), test time(s) and test location(s).
	2. Attendees of the test (i.e., engineer, contractor, subcontractor, etc.).
	3. Upstream and downstream manhole to the building numbers.
	4. Manhole depths.
	5. Direction of flows.
	6. Location of sandbags and plugs.
	7. Sketch showing leak location, distance, and offset from the upstream manhole.
	8. Leak type that clearly describes the leak.
	9. Smoke quantification.
5. The contractor shall be responsible to communicate with owner’s personnel to shut down all HVAC, intake air, make-up air, or other mechanical systems before the start of any smoke testing work requiring materials that will produce any odor.
6. This contractor shall coordinate start-up, after work stops, and provide fresh air intake ventilation (circulation fans) as required, providing enough air exchanges before classes begin each day and purging all remaining fumes and/or odors.
7. Smoke tests shall not be performed when the smoke coming out of the ground may be blown away so quickly as to escape visual detection.
8. Smoke testing shall not be performed during wet weather or saturated ground conditions.
9. For Physical Inspection Contracts, all smoke testing shall be performed after all wall penetrations, handicap rails, handicap shower seats, and water coolers are properly anchored/secured.
10. The contractor will be solely responsible and held liable for any claims or damages arising from the lack of public notification and coordination with the city police and fire departments.

3.3 INSPECTION

1. The smoke testing shall be performed to identify leaks by visible inspection of all areas within the building. Smoke can be identified by sight and/or odor.
2. The School Board’s authority having justification (AHJ), or authorized representative, shall witness all smoke testing and review a smoke testing log to be prepared and maintained by the testing entity or individual. A certified copy of the test log shall be provided to the School Board’s AHJ or representative. The log shall be available on the next work day following the performance testing.

3.4 SANATARY SEWER PIPING VIDEO INSPECTION

The Contractor shall perform a video inspection with commentary recorded on CD and provide three (3) as a part of the project closeout package.

# END OF SECTION