

SECTION 15045
CLOSED-CIRCUIT TELEVISION (CCTV) INSPECTIONS

PART 1 GENERAL

1.01 DESCRIPTION

This section describes the requirements and procedures for closed-circuit television (CCTV) inspection of newly-constructed and rehabilitated water and sewer mains.

1.02 REFERENCED STANDARDS

The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of the Districts Standards and Specification, said standards below or unless otherwise called for on the approved project plans.

SSPWC - Standard Specifications for Public Works Construction ("Greenbook")

1.03 REQUIREMENTS PRIOR TO TESTING

CCTV inspections on newly-constructed water and sewer mains shall be conducted after all utilities have been installed and backfill compaction has been completed, but prior to final paving.

The Contractor shall notify the District Engineer two (2) working days in advance of the anticipated date of televising so that the District Engineer may observe CCTV inspection operations. Schedule shall also include time for pre-cleaning operations, when necessary.

1.04 QUALITY ASSURANCE

- A. New Mains: CCTV inspections shall be performed by the Contractor as follows:
1. CCTV inspection of steel water mains (36") and smaller shall be performed to document the physical condition and cleanliness of the pipe. CCTV inspection will be performed to verify defects from installation such as sags or reverse slope in the pipe.
 2. CCTV inspection of sewer mains (36") and smaller shall be performed to document the physical condition and cleanliness of the pipe and to detect reverse slope or low spots in pipe grades.

- B. Existing Mains: CCTV inspections shall be performed on existing sewer mains to detect and locate defects and document the current condition of the sewer main, leading to evaluation and selection of repair methodology by the Agency.

PART 2 MATERIALS

2.01 CCTV EQUIPMENT

The Contractor shall furnish all equipment and materials required for inspection. Equipment shall be in accordance with the Districts Standards and Specifications, approved plans or SSPWC Section 500, SSPWC Regional Supplement Amendments Section 306 and as noted below:

- A. The video equipment utilized shall be specifically designed and constructed to be operative in one hundred percent (100%) humidity conditions. Lighting for the camera shall minimize reflective glare. Lighting and camera quality shall be suitable to provide a clear, continuously in-focus picture of the entire inside periphery of the pipe for all conditions encountered during the inspection. A reflector in front of the camera may be required to enhance lighting in large diameter pipe.
- B. Video equipment utilized for inspection of potable water mains shall be certified for potable water main inspection only, and shall also be certified to never have been utilized in non-potable systems.
- C. CCTV inspections shall be recorded onto digital media and presented to the District for review.

2.02 TEMPORARY BYPASS PUMPING

If temporary bypass piping is required, the Contractor shall provide pumps, piping, hoses, and accessories suitable for continuous pumping of raw sewage. Backup equipment of equal size and power shall be provided to ensure continuous pumping in the event of equipment or power failure.

2.03 PRE-CLEANING

The Contractor shall coordinate with the District Engineer for determination of equipment required and its use. Equipment selection and method for cleaning may be based on the age, pipe material, and the probable condition of the sewer pipe.

PART 3 EXECUTION

3.01 TEMPORARY BYPASS PUMPING

If temporary bypass pumping is required during the duration of the CCTV inspection, the existing sewer main shall be plugged at the nearest manhole and sewage effluent shall be bypassed around the areas of inspection. Bypass piping shall be located out of the traveled way and shall be protected during use.

3.02 PRE-CLEANING

The Contractor shall coordinate closely with the District Engineer during the cleaning operations. Cleaning operations shall not damage the sewer or any manhole during cleaning. Cleaning operations shall remove dirt, sand, rocks, solids, debris, grease or grit from the entire circumference of the sewer between manholes or access points. If pipe condition is found to be unacceptable, the contractor will be required to repeat cleaning and video until satisfactory to District Inspector.

3.03 CCTV PROCEDURES

Procedures for CCTV inspections shall be in accordance with the Districts Standards and Specifications, Project Plans or SSPWC Section 500, SSPWC Regional Supplement Amendments Section 306 and as noted below:

- A. The camera operator shall slow or stop the camera at potential or actual imperfections in the new main to obtain a high-quality video image. Each location where a potential obstruction or structural deficiency exists shall be identified with accurate distance measurements above ground from the manhole or access hole.
- B. For new underground sewer installations, the maximum operational tolerance for a sag shall not exceed 1/2". A calibrated 1/4" diameter steel bar/sag gage or approved equal device, mounted in front of the camera shall be used to measure the depth of the sag.
- C. For CCTV inspections on water mains the Contractor shall examine the main to insure the passage of the camera through all valves and fittings prior to any televising. Mains with fittings that would obstruct the camera, such as butterfly valves, shall be televised either prior to the installation of those fittings or from access holes immediately adjacent to the obstructing fitting, if available.

3.04 CCTV INSPECTION

Structural cracking, excessively deflected joints, protruding joint sealing material, corrosion, evidence of reverse slope by ponding of water or low spots in sewer pipe grades and any other defect revealed by the CCTV inspection shall be repaired to the satisfaction of the District Engineer at the Contractor's expense.

After defects in the pipe lining or joints are repaired, another video shall be taken of the repaired section and submitted for approval by the District Engineer.

3.05 DOCUMENTATION

Documentation of CCTV inspections shall be in accordance with SSPWC Section 500, except as otherwise modified herein.

- A. If voice recording is used on the digital media, the recording shall have brief informative comments on unusual conditions, type and size of connections and fittings, collapsed sections, the presence of scale or corrosion, the location and description of each defect and any other unusual or significant conditions noted.
- B. The Contractor shall prepare an inspection report which shall be a complete written log of pipe conditions, indexed to the footage counter. The Contractor shall provide a minimum of two (2) copies of the inspection report, together with digital media, to the District Engineer at the completion of the inspection.

END OF SECTION 15043