

# **NORTH MARIN WATER DISTRICT**

## **STANDARD SPECIFICATIONS**

### **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 sewer mains and rehabilitated water mains (if required by the District).

##### **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 said standards unless otherwise called for.

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

##### **1.03      RELATED WORK SPECIFIED ELSEWHERE**

WAS Standard Specifications 01000, 15043, and 15061.

##### **1.04      REQUIREMENTS PRIOR TO TESTING**

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

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

##### **1.05      QUALITY ASSURANCE**

- A.      New Mains: CCTV inspections shall be performed by the Contractor as follows:
  - 1.      Inspection of sewer mains 36 inches and smaller for the purpose of documenting the physical condition and cleanliness of the pipe and detection of reverse slope by ponding of water or dips in pipe alignment.
  
- 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 District.

## **PART 2 MATERIALS**

### **CCTV EQUIPMENT**

The Contractor shall furnish all equipment and materials required for inspection. Equipment shall be in accordance with 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. CCTV inspections must be recorded onto digital media such as DVD.
- C. Equipment used in sewer surveillance shall not be used in drinking water mains.

### **2.02 TEMPORARY BYPASS PUMPING**

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 work with the District 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 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 protected during use.

### **3.02 PRE-CLEANING**

The Contractor shall work closely with the District 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.

### **3.03 CCTV PROCEDURES**

Procedures for CCTV inspections shall be in accordance with 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 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.

### **3.04 CCTV INSPECTION**

Structural cracking, excessively deflected joints, protruding joint sealing material, corrosion, evidence of reverse slope by ponding of water or dips in sewer pipe alignment 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, SSPWC Regional Supplement Amendments Section 306 and as noted below:

- A. Audio and written documentation shall accompany all DVD(s) submitted to the District Engineer.
- B. If voice recording is used on the videotape the recording shall have brief informative comments on unusual conditions, type and size of connection and fitting, collapsed sections, the presence of scale and corrosion, location and description of each defect, and other significant data.
- C. 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 turn over the original videotape or DVD and written reports to the District Engineer at completion of the inspection.

### **3.06 DISINFECTION FOLLOWING INSPECTION AND REPAIRS OF POTABLE WATER MAINS**

Following inspection by CCTV and any repairs performed on drinking water mains, the District's procedures for disinfection of new water mains should be carried out to prevent bacterial contamination of potable water supply.

END OF SECTION