

## SECTION 13511

### TELEVISION AND INSPECTION OF GRAVITY SEWER SYSTEMS

#### PART 1 GENERAL

##### 1.1 DESCRIPTION OF WORK

###### A. Work specified herein:

Furnish all labor, tools, test equipment and materials, including any and all permits required to televise, inspect, video tape, still photograph and document the gravity wastewater collection systems.

##### 1.2 QUALITY ASSURANCE

A. The CONTRACTOR shall provide a minimum of three (3) references proving competence in the field of TV/video inspection of wastewater collection systems.

B. CONTRACTOR shall do all work with the ENGINEER present. CONTRACTOR shall schedule all work with ENGINEER.

C. Equipment used shall be in good working order and provide continuous operation during TV/video tape inspection.

D. VHS video tapes shall be of good visual quality capable of slow motion and pausing without significant reduction of visual quality.

##### 1.3 SUBMITTALS

A. CONTRACTOR shall submit to the OWNER a list of equipment and materials to be used on the project, including all permits obtained prior to commencing with the Work.

B. CONTRACTOR shall submit to the OWNER a copy of all television inspection log sheets and VHS video tapes completed.

#### PART 2 MATERIALS

##### 2.1 GENERAL

A. Equipment used shall be designed for use in gravity wastewater collection systems. CONTRACTOR has the option of an approved equal device or other material than that which is specified. Submittals are required prior to commencement of work.

## 2.2 TELEVISION CAMERA

- A. Camera used shall be 360 degree COLOR RVC camera. Camera shall be operative in 100% relative humidity and be specifically designed for the environment. Camera shall have an integral lighting system capable of producing clearly focused, well defined images of the entire periphery of the pipe. The quality of video picture and definition provided shall be to the satisfaction of the ENGINEER and, if unsatisfactory, equipment shall be removed and replaced with satisfactory equipment.

## 2.3 MONITOR

- A. A high resolution TV monitor screen shall be used. Quality of monitor shall be to the satisfaction of the OWNER.

## 2.4 VIDEO TAPE EQUIPMENT

- A. Video tape equipment shall be furnished by the CONTRACTOR to provide a visual and audio recording of all areas in the pipe. Video tape system at the site shall be capable of rewind, play back, slow motion and stop motion. The video tape shall be 1/2-inch color VHS, with an audio channel for clearly recording the camera locations and operator observations (cracks, leaks, service connections, etc.). The system shall continuously indicate distance, in feet, from manhole to manhole and the manhole to manhole run numbers on the video recording.

## 2.5 WINCHES

- A. Variable speed powered remote controlled winches shall be furnished for upstream and downstream manhole locations to control two-way movement of the camera. If a self-propelled camera is used, winches are not necessary.

## 2.6 POWER SUPPLY

- A. Power supply shall be continuous. If night operations occur, CONTRACTOR shall supply all labor, power and lighting equipment for operations, traffic safety, permits, etc.

## PART 3 EXECUTION

### 3.1 GENERAL

- A. All sanitary sewer gravity lines shall be televised at the CONTRACTOR's expense; and a videotape of the subject mains provided prior to acceptance by Lee County Utilities. Televiewing may only occur after the stabilized subgrade has been installed and satisfactory density tests has been submitted to Lee County Utilities. A Lee County Utilities representative must be present during the televiewing. The sewer video inspection shall include rotating the camera lens to inspect the interior of each

sewer lateral. Additionally, the CONTRACTOR shall provide by tabular form utilizing "Remote Televiewing Form" (see Lee County Utilities Operations Manual, Section 11).

- B. The CONTRACTOR shall demonstrate the ability of the TV/video equipment (camera/light/video tape/audio/ photograph system) to the satisfaction of the OWNER. Distance meter shall be furnished on the video tape recording. Meter shall be checked using distances between manholes. Meter distances and actual distances shall be consistent.

### 3.2 TELEVISIONING/INSPECTION

- A. Inspection shall be done one manhole section at a time. Flow into the section being inspected shall be stopped prior to video inspection, unless otherwise approved in writing by the OWNER. CONTRACTOR shall not begin inspection without the ENGINEER present unless prior written approval is obtained from the OWNER.
- B. CONTRACTOR shall locate video vehicle on upstream side of manhole. CONTRACTOR shall always video tape in the downstream direction such that camera movement is with the flow.
- C. CONTRACTOR shall insert the camera in the upstream manhole after flow restrictions required have been accomplished. Flow into the system being inspected shall be stopped, with the exception of service laterals into the system being inspected. Camera shall be moved through the pipe lines at a moderate speed not exceeding 30 feet per minute. Camera shall be stopped at locations where one or more of the following conditions is observed:
  - 1. Infiltration/inflow sources.
  - 2. Service Laterals.
  - 3. Structural defects including broken pipe; collapsed or collapsing pipe, cracks, deterioration, punctures, etc.
  - 4. Abnormal joint conditions such as misalignments, open joints and joints not sealed.
  - 5. Unusual conditions such as root intrusion, protruding pipes, in-line pipe size changes, mineral deposits, grease and obstructions.
- D. Camera shall be stopped long enough for a thorough visual inspection of the conditions. All such conditions as specified above shall be audio recorded on video tape and the inspection log sheet. The camera shall be moved and rotated to obtain optimum view of the conditions. If requested by the OWNER's representative, problem areas shall be viewed in the opposite direction by pulling the TV camera from the opposite direction at no additional cost to the OWNER.
- E. While the camera is stopped at each service connection, the camera shall be rotated so as to be able to view the service connection for a length of time that enables a good visual inspection of the service connection for damage and infiltration. The

CONTRACTOR will be responsible for measurements such as service lateral locations, if used for subsequent rehabilitation work.

- F. When, during the inspection operation, the television camera will not pass through the entire manhole to manhole section, CONTRACTOR shall set up his equipment so that the inspection can be performed from the opposite manhole at no additional cost to the OWNER.

### 3.3 DOCUMENTATION

- A. CONTRACTOR shall furnish a detailed report and video tapes of the system inspected. The minimum information supplied shall be the following:
  - 1. Name and address of CONTRACTOR and the ENGINEER.
  - 2. Name of OWNER, system(s) inspected, and OWNER's representative involved.
  - 3. Log reports:
    - a. Log sheet for each section of pipe
    - b. Separate line for each deficiency and location
    - c. Corresponding video tapes and location of each section of pipe and deficiencies on tape.
  - 4. Video tapes shall be labeled with the following information:
    - a. System that is video taped (street name and manhole to manhole numbers) and log report number corresponding to video tape
    - b. Date video was taped
    - c. CONTRACTOR's name and representative
    - d. OWNER's name
- B. All tapes shall be rendered unable to be taped over after they are completed.

### 3.4 MAINTENANCE OF TRAFFIC

- A. CONTRACTOR is responsible for all maintenance of traffic around work site. CONTRACTOR shall maintain traffic in accordance to all federal, state and local regulations. At no additional cost to OWNER, CONTRACTOR shall submit a Maintenance of Traffic Plan, for review and approval by LCDOT as necessary, prior to commencing work. CONTRACTOR shall also obtain all necessary permits prior to commencing work, at no additional cost to the OWNER.
- B. MOT shall also include construction and maintenance of any necessary detour facilities, furnishings, installing and maintaining of traffic control and safety devices

during construction, control of dust, and any other special requirements for safe and expeditious movement of traffic around or through the work site.

- C. The CONTRACTOR shall be responsible for coordination with Lee County sheriff's department, fire department, public service, LCDOT, Lee County school board, and other affected agencies when roadways will be closed or traffic will be detoured. No detours or roadway closings shall be permitted unless specifically approved in writing by the OWNER or ENGINEER.

END OF SECTION

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