

VIDEO INSPECTION: As a final measure required for acceptance, the Contractor shall clean and televise all sanitary sewer mains prior to requesting final inspection. The Contractor shall televise the entire sewer main and all service connections. The process shall begin at the upstream manhole for each segment, and proceed to the downstream manhole for that same segment. Connections shall be televised from the cleanout to the main. Video inspection may occur only after Record Drawings are accepted and approved by the City of Winston-Salem. Prior to video inspection of mains in paved areas, structures must be raised to final grade and 2" of asphalt must be in place. The City will not accept video that is more than 90 days old unless approved by the Engineer.

The camera used for inspection shall be one specifically designed and constructed for sanitary sewer pipeline inspection. Lighting for the camera shall be suitable to provide a clear color picture of the entire periphery of the pipe. The camera must be able to pan and tilt in order to allow for 360 degree viewing. The camera must also be capable of receiving and transmitting a picture having not less than a resolution of 320(x) by 240(y). The television system shall be equipped to indicate the camera travel distance in feet by display on the video viewing screen. All television equipment (camera, monitor, etc.) must be capable of producing picture quality which is satisfactory to the Engineer.

Prior to video inspection, the Contractor shall clean the sewer mains with a high velocity water jet. All debris shall be collected in the downstream manhole and removed by the Contractor. Debris shall not be released into the existing sewer system. During the entire video process, the distance counter must be set at zero at the upstream manhole for each segment (i.e. reset the counter to zero at each manhole). The Contractor will be required to pan and tilt at each manhole and at each service connection. Each manhole must be marked with the manhole station on the interior with paint or some other legible identifier. Each cleanout stack must be marked with the house number or the lot number. The Contractor will also be required to pan and tilt when any potential problems or abnormalities are noticed or suspected. Maximum travel speed for the camera will be 30 feet per minute. The following video screen data will be required:

- Project name and project number
- Date of inspection
- Travel distance and time
- Station of start and end manholes
- Depth of start and end manholes
- Size of main
- Type of pipe

All above data shall be shown at the start and end manholes of each segment. While the camera is moving through the pipe, distance shall be the only data shown on the screen (top left or top right of screen).

The entire video inspection shall be submitted to the Engineer on DVD (2 copies) and formatted with software compatible and readable by the City of Winston-Salem. The City of Winston-Salem shall not be responsible for purchasing additional software necessary to view the DVD.

Any video that does not clearly show the pipe and service connections will be rejected. In the event that repairs are made, the segment receiving the repairs shall be flushed and televised again. The Engineer must oversee the entire cleaning and televising process. Prior to beginning the process, a 24 hour notice must be given by the Contractor to the Engineer. The cost of cleaning and televising shall be included in the unit price for pipe.