

and zoom in order to allow for 360 degree viewing. 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.

Within 2 hours of the video inspection, the Contractor shall clean the sewer mains and service connections 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 each upstream manhole for each segment (set the counter at zero at the ground for each service connection). The Contractor will be required to pan and tilt at each manhole and at each service connection. The interior of each manhole must be marked with the manhole station (or manhole number) with paint or some other legible identifier (6" - 12" high letters or numbers). Each cleanout stack must be marked with the house number or the lot number. For mains, the Contractor will also be required to pan, tilt and zoom at all couplings, at all dates for Protecto 401 lined ductile iron pipe, and when any potential problems or abnormalities are noticed or suspected. Travel speed for the camera will be 15 - 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

Flash drives are no longer acceptable effective 11-4-20.

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

For mains, a stream of water approximately 1" in width must be flowing during the entire video process. For service connections, a minimum of 5 gallons of water must be introduced into each cleanout stack just prior to the video process. In all cases, the flow must be shown on the bottom of the video screen. To connect to the Winston-Salem / Forsyth County Utilities water system for the video, contractors must obtain appropriate permits from Winston-Salem / Forsyth County Utilities per the Cross-Connection Control & Backflow Prevention program. Information on the program and permits can be found online at <https://www.cityofws.org/2625/Backflow-Prevention>.

Two copies of the entire video inspection along with a properly formatted PACP standard exchange database shall be submitted to the Engineer on a data disc (DVD ~~or flash drive~~). A "properly formatted PACP standard exchange database" includes properly PACP coded defects (NASSCO version 6.x), proper media paths to associated video files, and all asset IDs used in the inspection must match what the submitted record drawings indicate for each asset. The video file shall be formatted to MPEG-4 (MP4) 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 video file. Each inspection (manhole to manhole or cleanout to main) shall be separated into its own chapter or file. In the event of a main inspection, the chapter or file shall be named to indicate the upstream manhole station or number and then the downstream manhole station or number (e.g. MH1-MH2). In the event of a service connection inspection, the