

DURHAM COUNTY UTILITIES



As-Built Video Requirements

Summary of Revisions

Adopted December 9, 2019

Revised January 23, 2024

Section 01: As-Built Submittal Video Review

1.1 General

The Engineer of Record shall submit the Video Inspection submittal packages to Durham County Utilities online portal (if less than 1 GB) or delivered to the Utility Division office on a USB (if greater than 1 GB). Durham County Utilities reserves the right to request videos to be submitted on a USB if unable to open videos submitted through the online portal. See the Project Submittal Checklist for required submittal documentation.

Once received, video inspection submittals will be evaluated to ensure required items are included. Submittals that do not include the applicable required items will not be accepted for review and will be returned to applicant. Once the As-Built Submittal is accepted, it will be reviewed in the order it is received. Comments will be issued electronically after the review is complete.

The Video Inspection submittal shall be submitted within 60 days of the video inspection being completed. The first As-Built submittal should be reviewed, and comments provided to the Engineer of Record prior to scheduling a utility walkthrough with the Durham County Inspector.

1.2 Minimum Requirements for Sanitary Sewer Video Inspection

A. Timeframe

1. CCTV inspection for utilities in roadways shall occur after the stone subbase is compacted and setup, but not less than 30 days after installation and backfill. Video Inspections for utilities outside of roadways shall be no sooner than 30 days after installation and backfill to finish grade.

B. Certified Operators

1. Per NASSCO requirements, all video inspections must be performed in the presence of a NASSCO certified individual. All Video Inspection Submittal Checklists must include the contractor's NASSCO certification number. Video inspections that are not performed in the presence of a NASSCO certified individual will not be accepted for review. Additionally, video inspections will not be accepted for review if the NASSCO certification number is not provided.

C. Video Equipment

1. Cameras shall be twin 185-degree panorama digital zoom cameras capable of unfolded view measurement with minimum 1080p HD resolution **OR** pan-tilt-zoom with minimum 720p HD resolution.
2. Lighting intensity shall be adjusted to minimize glare.
3. Lighting and picture quality shall be adjusted to provide a clear, in focus picture of the entire periphery of the pipeline for all conditions encountered.
4. The camera cable shall be retracted to remove slack and to ensure an accurate footage reading. The distance shall be measured between the exit of the start manhole and the entrance of the finish manhole for a true measurement of the length of the pipe segment. All measurements shall be recorded in standard units and the video display readout shall display units to one-tenth of a foot.

D. Video

1. Video shall make a continuous color digital recording in .IPF (panorama camera) or MPEG4 (pan-tilt-zoom) camera format for each pipe segment inspected.
2. Video software shall be PACP or NAASCO certified.
3. Video provided shall have the ability to pause, fast forward and rewind.
4. Video camera shall not be pulled or propelled at a speed greater than sixty (60) feet per minute (panorama camera) OR thirty (30) feet per minute (pan-tilt-zoom camera).
5. Video shall record from the downstream structure towards the upstream structure unless the downstream structure is a drop connection.
6. Camera shall stop at all lateral/service connections and provide a clear and focused view into the lateral/service.
7. Camera shall stop at all joints and rotate camera to view entire joint.
8. Camera shall stop to provide a clear and focused view of all labels placed inside the pipe.
9. Camera shall stop at all defects and significant observations to ensure a clear and focused view of the pipe condition and shall rotate the camera head at the defect to allow for adequate evaluation.
10. All defects and significant observations shall include a text overlay of the recorded observation.
11. Each pipe segment (manhole to manhole) shall be identified with a pipe report that includes the following information:

<u>Line #</u>	<u>Description</u>
Line 1:	Surveyed By
Line 2:	Street
Line 3:	City
Line 4:	Pipe Material
Line 5:	Pipe Diameter
Line 6:	Pipe Length (on plans)
Line 7:	Start Manhole Number
Line 8:	End Manhole Number
Line 9:	Inspection Time/Date

12. A full 360-degree pan of all manholes is required. This video footage shall occur at the beginning of each pipe segment survey inspection from the bottom of the manhole panning up the manhole shaft. The Contractor shall cover the manhole opening to prevent too much light from entering the structure and to ensure a clear and focused view of the manhole interior. In instances when the manhole is the terminating manhole, then the pan shall occur at the end of the pipe segment survey inspection.
13. Obstructions may be encountered during the CCTV inspection that prevent the travel of the camera. In instances when obstructions are not passable, the Contractor shall withdraw the equipment and begin a CCTV inspection from the opposite end of the sewer reach.
14. Durham County reserves the right to require the video to be re-done should it not provide a clear and focused view for the entire run.

E. Photographs

1. Digital photographs in JPEG format shall be made of all recorded defect observations. These photographs will be computer generated with the use of the inspection reporting system software.
2. At a minimum, all photographs shall be named consisting of the following descriptions: "FROM MANHOLE STATION NUMBER", "TO MANHOLE STATION NUMBER", six-digit inspection date (yymmdd), and the defect 'station' location along the pipe.

F. Traffic Control:

1. The Contractor shall provide all required traffic control, including warning lights and traffic cones, as needed or required in accordance with the Watch Manual, as well as any city-required traffic plans.
2. The Contractor shall obtain all permits required by the local jurisdiction.

G. Cleaning:

1. Pipeline shall be thoroughly cleaned prior to performing the video inspection. Pipes shall be free of grease, grit, solids, construction debris, and caked on mud preventing observation of pipe material.
2. The Contractor shall trap all debris at the end manhole and properly dispose of all debris when cleaning pipe segments.