

Stormwater Conveyance Pipe Inspection Checklist

Checklist V1.2024

See COR Stormwater Design Manual Chapter 4.7 for additional guidance. This completed checklist shall be submitted to Raleigh Stormwater for both public and private stormwater conveyance systems.

Prior to any inspection, the infrastructure must be clear of sediment and debris and verified by a City representative.

Inspections will be evaluated for repair using NASSCO PACP scoring and guidelines outlined in AASHTO Guide Specifications for Highway Construction Appendix X5 Table X 5.2.3-1.

The pipe inspection data as required must be submitted electronically through a secure file sharing platform that can be submitted and received by asbuiltsubmittal@raleighnc.gov. The file sharing platform should be available for a minimum of 45 days.

Project Information

Project Name:	<input type="text"/>
Project Address:	<input type="text"/>
Case Number(s):	<input type="text"/>
Previous Case Number(s) (if applicable):	<input type="text"/>

Stormwater Inspection Documents

The Pipe Inspection Submittal requires varying inspections depending on the type and size of infrastructure installed. Please select the applicable submittal documents below:

YES NA

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | | Stormwater Conveyance Pipe Inspection Checklist |
| <input type="checkbox"/> | <input type="checkbox"/> | CCTV Inspection Database Files |
| <input type="checkbox"/> | <input type="checkbox"/> | CCTV Report PDF |
| <input type="checkbox"/> | <input type="checkbox"/> | Deflection Test Report for flexible pipe (HDPE or PP)– Mandrel Test or Laser Profiling |
| <input type="checkbox"/> | <input type="checkbox"/> | Repair Plan |
| <input type="checkbox"/> | <input type="checkbox"/> | Engineer Sealed Bridge Inspection Report in compliance with NBIS (for infrastructure 72" or greater) |

Submittal Requirements

The following lists includes the requirements for the above submittal documentation reports and must be completed to acknowledge compliance.

CCTV Inspection (required prior to the final lift of asphalt of **all stormwater pipes less than 72" diameter**):

YES NA

Stormwater infrastructure less than 72" diameter in any dimension has a completed CCTV Inspection.

Stormwater infrastructure must be cleaned and verified by a City Representation prior to inspection. The inspection video must have a clear view of the pipe joints and barrel.

Inspection is completed using NASSCO PACP 7 certified software and inspection protocol.

PACP exportable database includes all media files.

CCTV Operator must have a current NASSCO PACP Certification.

The inspection is completed with stormwater asset identification numbers provided on the **City's Stormwater Development Map** (Scan QR Code).



All inspection header information must be fully and accurately entered on all CCTV reports. These fields include:

- | | |
|---|--|
| a. Date and Time | o. CCTV Operator Name |
| b. City | p. CCTV Operator PACP Certificate Number |
| c. Street Name | q. Customer |
| d. Pipe Asset Identification number
(Pipe Segment Reference) | r. Weather |
| e. Upstream Node Number | s. Pre-Cleaning |
| f. Downstream Node Number | t. Date Cleaned |
| g. Direction of CCTV inspection in
relation to flow | u. Inspection Status |
| h. Pipe Shape | v. Location of node |
| i. Pipe Height/Diameter | w. Year constructed |
| j. If applicable, pipe width | x. If applicable, year renewed |
| k. Pipe Use | y. If applicable, lining method |
| l. Pipe Material | z. If applicable, coating method |
| m. Total Length | aa. If applicable, the CCTV Reviewer name PACP
certificate number |
| n. Length Surveyed | |

The following information is maintained in real time and is displayed on the video monitor:

- Date
- Time
- Distance Counter
- Indicator of Camera Head Position
- Pipe Asset Identification Number

Inspection speed shall not exceed 30 feet per minute.

- A minimum of TWO photographs of each defect and observation are provided, one with perspective view and one with a close-up view.
- A full 360-degree pan of the upstream and downstream manholes/structures during each pipe asset inspection is completed.
- A full 360-degree pan of all joints is completed.

Deflection Testing is required for flexible pipes (HDPE or PP). Either the Mandrel Test or Laser Profiling may be used.

YES NA

- The deflection test is completed no sooner than 30 days after installation and backfill of flexible pipes.
- The storm drain is clear and free of debris prior to conducting deflection testing.
- A 9-vane mandrel sized for 7.5% deflection of the inner diameter of flexible pipe is used.
- The mandrel is pulled by hand through pipe sections.
- Laser profiling is completed. Videos and reports are included in the CCTV Inspection Submittal.
- Flexible pipes that do not pass the deflection test are included in the repair plan.

The Repair Plan shall be required for all pipes that have NASSCO PACP structural or O&M (operational and maintenance) defect with a score of 2 or greater.

YES NA

- Completed Repair Plan.
- Attached supporting Repair Plan documents.
- Completed engineer review acknowledgement.

An Engineer sealed Bridge Inspection Report in compliance with the National Bridge Inspection Standards (NBIS) is required for all **stormwater conveyance infrastructure 72" or greater in any dimension**. The Bridge Inspector shall be prequalified by NCDOT to perform municipal bridge inspections.

YES NA

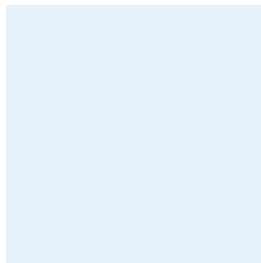
- Engineer Sealed NBIS Compliant Inspection Report

Professional Certification

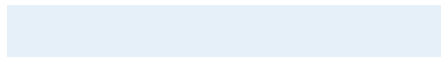
Professional certification must be completed by an engineer licensed in North Carolina unless otherwise stated in the permit conditions.

I, _____ as a duly registered _____ in the State of North Carolina attest that on _____, 20____ all stormwater conveyance systems are constructed and installed in conformance with the ordinances, rules, regulations, drainage design standards of the City of Raleigh, and the approved construction plans. All information provided is correct to the best of my knowledge. It is a violation of UDO 9.2.5(F) to falsify this certification. A civil penalty for falsifying this certification shall be assessed by the City of Raleigh in the amount of \$3000.00.

Professional Seal:



Applicant's Signature:



Date:

