

PIPE CULVERT INSPECTION FOR NEW CONSTRUCTION

Introduction

The following Post-Installation Inspection Guide is a compilation of best practices from AASHTO, DOTs, and other agencies across the United States. This document was prepared to be used as guidance document for the preparation of Post Installation Inspection and Evaluation specifications.

Pipe Installation Inspection

The post-installation inspection shall be performed on 100% of all pipelines no sooner than 30 calendar days after completion of the pipe installation and final cover, which includes the embankment and all non-asphalt bases and/or subgrades. Post installation inspection may be completed by either the Remote Inspection Method or the Manual Inspection Method as outlined in Post Installation Methods, Tools, and Report. Conditions including joint gaps, tears, misalignment, cracks, and deformation shall be noted and reviewed by the Engineer. Engineer evaluation for the various conditions noted in PII report shall be evaluated as outlined in Guide for Drainage Pipe Evaluation section of this document.

In cases where paving operations will be conducted in less than 30 calendar days after pipe installation, a preliminary inspection of the pipe prior to paving shall be per

and post installation inspection shall be measured and paid for at the contract unit price as provided by the contract specification and in conformance with this specification.

All necessary remediation or replacement of pipe as required in Drainage Pipe Evaluation section of this document or determined to be necessary by the Engineer in conformance with this specification shall be the responsibility of the contractor at no additional expense to the owner. All supplemental work items that are affected by the remediation or replacement of pipe shall be the responsibility of the contractor at no additional expense to the owner. The Engineer shall approve all corrective actions before the work is performed and work shall be completed to the Engineers satisfaction. If any pipe requires remediation or replacement it shall be re-inspected after remediation or replacement has been completed. The Final Post Installation Inspection Report shall include all notes and data from the initial Post Installation Inspection and all subsequent Post Installation Inspections necessary to fulfill the requirements of this specification.

The Contractor is responsible for ensuring that all post installation requirements are performed in accordance with this document. It is the contractor's responsibility before post installation inspection to dewater and remove all debris and sediment from the installed pipe. The Engineer shall be provided an inspection schedule at least seven days in advance of beginning inspection.

Post Installation Methods , Tools , and Report

The inspection equipment utilized for all post installation inspection of all pipe types shall be capable of delivering accurate, repeatable measurements of all items of interest as described in the Guide for Drainage Pipe Evaluation. All individuals performing the in-field inspections and those responsible for preparing the Post Installation Report shall be certified Technicians in a program approved or developed by the DOT. The inspection company and or its employees shall be an independent third party to the contractor and the DOT. The DOT reserves the right to confirm any and all inspection data and defect measurement accuracy to insure the PII report and information included there in meets the requirements outlined in this specification. If the PII report and or data is found to be in non-conformance the owner

Remote Inspection:

Perform remote inspection for all pipe types with a vertical rise of less than 36 inches. Remote inspection shall be performed by using a crawler mounted camera and measurement technology. The camera shall incorporate a lens with low barrel distortion and capable of

Guide for Drainage Pipe Evaluation

[Note to user; the information provided in [...] are provided as suggested evaluation criteria for remote inspections where advanced measurement tools are not utilized for inspection data collection. As noted earlier the use of advanced measurement tools allows the engineer or evaluation team to make a more accurate and objective decision with respect to the severity of any given defect or area of damage.]

Concrete Pipe Culverts by given defect 2 (c) n de

Leak Resistant Joints Evaluation Criteria: Per AASHTO PP-63, Leak resistant joints are intended to limit water leakage at a maximum rate of 200 gallons/inch-diameter/mile/day for the pipeline system for the project specified head or pressure. Joint separation greater than pipe manufactures

Reduced Payment Option: In lieu of the options noted above for remediation of longitudinal cracks in concrete pipe installations, the Contractor may elect to follow the payment schedule below if agreed to by the Engineer.

Buckling, Bulging, and Racking: Flat spots or dents at the crown, sides or flow line of the pipe due to racking, wall buckling, and or inverse curvature shall be noted in the inspection report.

Buckling, Bulging, and Racking Evaluation Criteria: Flat spots, dents or racking that will reduce flow in any way shall be remediated. Flat spots, dents or racking that are determined to be detrimental to the long-term performance of the pipe by the Engineers review shall be replaced. Any pipe exhibiting wall buckling or inverse curvature shall be replaced.

[Camera Only Remote Inspection Evaluation Criteria for Buckling, Bulging, or Racking; Mandrel testing must be completed for all flexible pipe. Any buckling, bulging, or racked areas shall meet deflection limitations noted in Deflection ovality section below. In addition any Bulging areas or buckling areas that exceed 15% of the pipe wall surface should be further evaluated by Engineer

Reduced Payment Option: In lieu of the options noted above for remediation of deflection in flexible pipe installations, the Contractor may elect to follow the payment schedule below if agreed to by the Engineer.

Remediation efforts and percentage of payment shall apply to the entire section of the deflected pipe, joint to joint. Payment shall mean to include the complete installed unit bid price including the cost of the pipe, bedding material, backfill material, overfill, and other incidental costs included in the

