



Miscellaneous Drainage Facilities – Casings for Bridges

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	02-09-2023	Original Issue	Richard Foley

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Background

This process establishes Structure Construction (SC) responsibilities and procedures for review and authorization of submittals, materials, quality assurance, construction, and payment for fabricating and installing welded steel pipe casings through bridges and under approach slabs.

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the [Contract Specifications](#), Section 70-7, *Miscellaneous Drainage Facilities – Casings for Bridges*, and the [contract documents](#). The information in the *Contract Specifications* typically will not be repeated in the text of this BCM.

Process Inputs

1. Submittals:
 - a. Shop drawings for temporary support of casings
2. Materials:
 - a. Welded steel pipe casing
 - b. Casing hanger assemblies
 - c. Concrete casing supports
3. Quality Assurance:

- a. [CEM-3101](#), *Notice of Materials to be Used*

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. Inspection of field work for this process is:
 - a. [Benchmark](#) inspection as required to verify contract compliance with material type and installation.
 - b. [Intermittent](#) inspection as required during casing backfilling and utility testing.
3. Before construction begins:
 - a. Review the contract documents and *Contract Specifications (CS)*:
 - i. Section 51-1, *Concrete Structures – General* (for concrete, mortar, etc.)
 - ii. Section 70-3.02, *Miscellaneous Drainage Facilities – Welded Steel Pipe Drainage Facilities – Materials*
 - iii. Section 75-1, *Miscellaneous Metal – General*
 - iv. To verify materials and construction activities are in compliance with contract requirements.
 - b. Verify casing for bridges are welded steel, according to CS, Section 70-3.02, *Materials*.
 - c. Verify the length of casing is sufficient to meet the limits as required in the contract documents.
 - d. If a utility is specified on the plans, review both the civil and structure plans to verify that similar size and material types are shown. Verify that the casing specified is of sufficient size to support the utility and spacers.
 - e. Verify receipt of temporary support shop drawings. Review and authorize shop drawings before construction.
 - f. Review the plan details and verify with the Resident Engineer (RE) that adequate number of utility openings are being provided for current and future use. Additional openings require approval from the Bridge Design Structure Project Engineer, and will necessitate a change order.
 - g. Verify the Contractor submits [Form CEM-3101](#), *Notice of Materials to be Used*.
 - h. Review any additional informational submittals, manufacturer data, etc., and verify compliance with the contract requirements.
4. During construction:
 - a. Verify that casing will not be bonded to abutment until after post tensioning.

- b. Verify that the casing is adequately supported before bonding into place.
- c. Collect required materials fabrication documentation for steel casings and hanger assemblies not released by Materials Engineering Testing Services Representative ([METS Rep](#)). Field release all materials before installation, using [Form CEM-4102](#), *Material Inspected and Released on Job*.
- d. Verify casing alignment will follow gradient of the bridge after mounting to supports. This may require leveling adjustments to precast pipe supports or require casting supports in place near bridge bents, hinges, or abutments. If the casing is used for drainage, verify that the final profile will accommodate the required slope for drainage as shown on the plans.
- e. Verify future casing end is sealed prior to backfilling behind the abutment.
- f. Verify that all damaged pipe support galvanized coatings are repaired in accordance with CS, Section 75-1.02B, *Miscellaneous Metal – General – Materials – Galvanizing*.
- g. Verify that all damaged casing coatings or welded casing joints are repaired in accordance with CS, Section 70-7.03, *Miscellaneous Drainage Facilities – Casings for Bridges – Construction*.
- h. Reject casing with no coating, or with incorrect coating.
- i. Verify bond breaker is applied to casing when passing through the abutment wall.
- j. Verify wrapping tape, casing hanger assemblies, and concrete casing supports comply with CS, Section 70-7.02, *Miscellaneous Drainage Facilities – Casings for Bridges – Materials*.
- k. Perform casing inspection according to the Division of Construction [Code of Safe Practices](#) (COSP). Note that inspecting inside of closed box girder cells is considered working in a confined space as defined by the COSP.
- l. Verify bridge cells with future or current utilities have cleared vent openings in soffit, and any additional soffit drainage or access plates are as required. Typically, soffits will have additional drainage grates in uncased areas of waterlines.
- m. Verify soffit access openings are adequately secured against unwanted entry. This may require welding shut or installation of a tamper proof locking system. Check with local maintenance to confirm that plan details are adequate.
- n. Verify lost deck forms are removed as required by CS, Section 51-1.03C(2)(b), *Concrete Structures – General – Construction – Preparation – Forms – Removing Forms*.
- o. Coordinate with the RE and verify all active utilities are tested as required prior to backfilling or sealing soffit access.

- p. Verify the Contractor meets Stormwater Pollution Prevention Plan requirements during casing installation.
 - q. Document all inspection, construction, and quality assurance activities, pertinent to this BCM, in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.
5. Following construction:
- a. Verify openings for future utilities, which were added during construction, are adequately shown on the as-built project plans.
 - b. Adequately document active utilities on as-built project plans.
 - c. Verify all deviations and updates from the project plans are documented on the as-built project plans as outlined in [Attachment 3](#), *Guidance for Completing As-Built Project Plans*, of BCM C-6, *Required Documents to be Submitted During Construction*.
 - d. Verify payment quantity for welded steel pipe casing is the length measured along the centerline of the casing.
6. File all project documentation (correspondence, materials acceptance documentation, daily reports, etc.) in the appropriate category in the project records as specified in the *Construction Manual*, [Section 5-102](#), *Organization of Project Documents*.

Process Outputs

1. Authorized shop drawings and submittals
2. Material inspection reports and certificates of compliance
3. Steel pipe casings installed per requirements of the contract documents
4. Test reports and documentation of utilities passing through the steel pipe casing

Attachments

None