



Railings and Barriers – Existing Railings and Barriers – Existing Metal Bridge Railings

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	12-22-2022	Original Issue	Richard Foley

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Background

This process establishes Structure Construction (SC) responsibilities and procedures for review and authorization of submittals, quality assurance, materials, construction, and payment for work performed on existing metal bridge railings, including removal and/or reconstruction, and coordinating inspection and release of metal bridge railing with the Materials Engineering and Testing Services (METS) Representative.

Additional related requirements for this process are detailed in the [Contract Specifications](#) (CS), Section 75, *Miscellaneous Metal* and additional guidance is contained in [BCM 75](#), *Miscellaneous Metal*.

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the CS, Section 83-11.03, *Railings and Barriers – Existing Railings and Barriers – Existing Metal Bridge Railings*, that this BCM is based on as identified in the title block above. The information in the CS typically will not be repeated in the text of this BCM.

Process Inputs

1. Submittals
2. [Form CEM-3101](#), *Notice of Materials to be Used*
3. [Form TL-38](#), *Inspection Request Form*

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. Inspection of field work for this process is:
 - a. [Intermittent](#) when work is not over live traffic.
 - b. [Continuous](#) for work near and/or over live traffic.
3. Before construction begins, the Structure Representative (SR) or delegate must:
 - a. Review shop drawing submittal in coordination with the Bridge Design (BD) Structure Project Engineer and the METS Representative as needed; authorize or reject for resubmittal, in writing.
 - b. Coordinate with the Resident Engineer and District Specialist for asbestos testing and to determine appropriate removal, if shims are not identified in the Contract. A change order may be needed for a right-of-way delay.
 - c. Verify information on [Form CEM-3101](#), *Notice of Materials to be Used*.
 - d. Verify that [Form TL-38](#), *Inspection Request Form*, has been submitted.
 - e. Request [Form TL-29](#), *Report of Inspection of Material*, from the METS Representative (METS Rep).
 - f. Review the following (since the CS requires that refabrication and installation of the railing must comply with the specifications for a new metal bridge railing of the type being reconstructed):
 - i. Guidance found in [BCM 83-\(2.05-2.08\)](#), *Railings and Barriers – Metal Railings and Barriers – California Bridge Rails, Chain Link Railings, Cable Railings, and Tubular Railings*.
 - ii. Requirements found in applicable sections of the *Contract Specifications*, Section 83-2, *Railings and Barriers – Metal Railings and Barriers*.
 - iii. Applicable [Standard Plans](#) related to *Metal Railings and Barriers*, which include sheets B11-7 through B11-52, and B11-65 through B11-78.
 - g. Anticipate and inspect replacement metal bridge railings delivered to the job site. If field release is required, request assistance from the METS Rep.
 - h. Discuss responsibilities for reconstructing metal bridge railings shop drawings review with the METS Rep:
 - i. Request assistance with the review of the welding quality control plan (WQCP), if applicable.
 - i. Review the utility plans to identify any existing utilities that must be maintained:

- i. During the removal of existing metal bridge railing.
 - ii. During the reconstruction of existing metal bridge railings.
 - j. Coordinate with the Resident Engineer and/or third-party utility owner to implement a change order if needed, for existing utilities that are encountered but not shown on the contract plans.
 - k. Discuss requirements of the authorized work plans for the removal of existing and erection of replacement metal bridge railings with the Contractor prior to starting field work.
4. During construction, the SR or delegate must:
- a. Communicate safety requirements per the authorized workplan with the Contractor for work over traffic and/or railroad.
 - b. Use fall protection equipment while performing inspection where work is over traffic and/or railroad.
 - c. Verify that proper removal procedures for existing metal bridge rail are followed, especially when asbestos removal and/or salvaging is required.
 - d. Verify that reconstructed metal bridge railing complies with the Contract requirements for the type of railing and coating shown.
 - e. Coordinate with the Caltrans electrical inspector to verify that all electrical components are in place and compliant with the Contract.
 - f. Verify that prefabricated metal bridge railing assemblies are free of defects upon delivery to the project site.
 - i. Verify that the Contractor repairs any damage to galvanized surfaces as outlined in the CS, Section 75-1.02B, *Miscellaneous Metal – Materials – Galvanizing*.
 - g. Verify that sections of metal bridge railings (due to geometric shape), are matchmarked, if required.
 - h. Verify that metal bridge railings at expansion joints, such as hinges and abutments, are installed with the correct expansion joint details, per the authorized shop drawings.
 - i. Perform construction survey to verify a smooth profile for the finish grade of the top of metal bridge railing. As a final check, “eyeball” the top finish grade of metal bridge railing to smooth out the final profile.
 - j. 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, the SR or delegate must:
 - a. Survey elevations of permanent reference points and document the information on the as-built plans per [BCM C-13](#), *Permanent Reference Elevations*.
 - b. 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 reconstructed metal bridge railings submittals
2. Reconstructed metal beam bridge rail
3. Completed Form TL-29, *Report of Inspection of Material*, with corresponding TL-0624, *Inspection Release Tag* (orange tag)
4. Daily reports

Attachments

None