



# Overhead Sign Structures, Standards, and Poles – Overhead Sign Structures

## Revision and Approval

| Revision | Date       | Nature of Changes | Approved By  |
|----------|------------|-------------------|--------------|
| 0        | 11-15-2025 | Original issue    | John Lammers |

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## Background

This process establishes Structure Construction (SC) responsibilities for:

- Review and authorization of sign structures, standards, and poles shop drawings.
- Review and authorization of overhead sign structure quality control programs.
- Construction inspection of overhead sign and bridge-mounted sign structures, including inspection for the installation of existing sign structures.
- Assisting Materials Engineering and Testing Services (METS) with quality assurance of overhead sign and bridge-mounted sign structures, including quality control for non-destructive testing, walkway safety railing, and Department acceptance of structural materials.

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the [Contract Specifications](#) Section 56-2.01C, *Overhead Sign Structures, Standards, and Poles – Overhead Sign Structures – General – Submittals*; Section 56-2.01D, *Overhead Sign Structures, Standards, and Poles – Overhead Sign Structures – General – Quality Assurance*; Section 56-2.03, *Overhead Sign Structures, Standards, and Poles – Overhead Sign Structures – Construction*, that this BCM is based on as identified in the title block above. The information in the *Contract Specifications* typically will not be repeated in the text of this BCM.

# **Process Inputs**

1. Form [CEM-3101](#)<sup>1</sup>, *Notice of Materials to be Used*
2. Sign structure shop drawings
3. Quality Control (QC) Program from:
  - a. Each sign structure fabricator
  - b. Each installer of sign structures
4. Fabricated and METS released overhead sign structure
5. METS inspection and release documentation
6. Overhead sign support structure, which may include:
  - a. An overhead sign structure pile foundation in place per [BCM 49-3](#), *Piling – Cast-In-Place Concrete Piling*
  - b. An overhead sign structure, spread footing, or pile footing foundation in place
  - c. A bridge ready to receive a bridge-mounted sign structure

# **Procedure**

1. All work associated with this process is charged as [Project Direct – Construction](#)<sup>1</sup>.
2. Inspection of field work for this process is:
  - a. [Continuous](#)<sup>1</sup> for the erection and installation of overhead sign structures and foundations.
3. Before construction begins:
  - a. Review the:
    - i. Contract documents to prepare for and identify any potential constructability issues for sign structure installation, including foundations. All relevant contract documents must be reviewed; however, for this process review:
      1. Utility and electrical plan sheets for potential conflicts with the sign foundations. Sign sheets for structure type and sign panel details.
    - ii. Applicable ASTM and welding standards specified in the contract documents. These standards may be accessed by the “Engineering

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Workbench” resource found within the Caltrans [Transportation Library](#)<sup>1</sup> (Note – registration required.)

- iii. *METS [Quality Assurance and Source Inspection \(QASI\) Manual](#)<sup>1</sup>, the [Overhead Sign Structures Guide](#)<sup>1</sup>, [BCM 49-3](#), *Piling – Cast-In-Place Concrete Piling*, and the *Construction Manual*, [Section 4-56](#), *Construction Details – Overhead Sign Structures, Standards, and Poles*, for information on sign structure submittal review and installation process.*
- iv. Project-specific Code of Safe Practices (COSP) for safety considerations including elevated work areas, crane safety, drill and bond dowels, and epoxies. Revise the project COSP if information needs to be modified for drill and bond dowels, and epoxies.
- v. *[Outline of Field Construction Practices](#)<sup>1</sup>, Section 43, *Sign Structures*, for information on the sign structure installation process.*
- vi. *Attachment 2, *Sign Structure Installation Guide*, and Attachment 3, *Sign Structure Fastener Installation Guide*.*
- b. Review the following topics with the Contractor at the preconstruction conference before the start of work at the beginning of the project:
  - i. Verification that the fabricator is on the Materials Engineering and Testing Service (METS) [Authorized Facility Audit Lists](#) per *Contract Specifications* Section 11-3, *Welding – Welding for Overhead Sign Structures, Standards, and Poles*.
  - ii. Use of [Form CEM-3101](#)<sup>1</sup>, *Notice of Materials to be Used*, and [Form TL-38](#)<sup>1</sup>, *Inspection Request*.
  - iii. Notification of materials delivery to the fabrication site.
- c. Coordinate with the Resident Engineer for:
  - i. Sufficient traffic work windows, work footprint, traffic control, and night work safety requirements, e.g., work lights, to support overhead sign structure installation.
  - ii. All work to be performed during overhead sign structure installation.
  - iii. Agency/utility impacts.
  - iv. Procurement and delivery of Department-furnished sign materials.
  - v. Covering sign panels not in immediate use due to construction staging.
  - vi. A copy of the CEM-3101, *Notice of Materials to be Used*, for this work to verify the facility is on the METS Authorized Facility Audit List.

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- vii. Survey requests.
- viii. Potential changes to sign panel sizes, sign locations, or electrical work.
- d. Coordinate with the METS Representative ([METS Rep](#)) to:
  - i. Discuss submittal requirements, verify fabrication inspection, and obtain copies of either [Form TL-28](#)<sup>1</sup>, *Notice of Materials to be Inspected at Job Site*, or [Form TL-608](#)<sup>1</sup>, *Notice of Materials to be Furnished*.
  - ii. Review material issues, including proposed substitutions and Buy America requirements.
- e. Review the Contractor's critical path method (CPM) schedule for the fabrication, delivery, and installation of the overhead sign structure.
- f. Receive and review overhead sign shop drawings and QC program for each proposed fabricator and erector.
  - i. Perform an initial review of submittals for completeness and return any incomplete documents immediately. The submittals need to contain the basic information necessary to perform a review successfully.
  - ii. Forward complete submittals to the METS Rep for concurrent review.
  - iii. Create and maintain a review log:
    - 1. Document the authorization or rejection of the submittals.
    - 2. Track review times of all submittals.
  - iv. Review the shop drawings:
    - 1. Confirm that the overhead sign structure is properly sized and positioned to meet the required horizontal and vertical roadway clearances.
    - 2. In conjunction with:
      - a. *The Overhead Sign Structures Guide*
        - i. Section 5, *Shop drawings*.
        - ii. Appendix A, *Shop Drawing Review Aids*.
      - b. Attachment 1, *Additional Information for Shop Drawings Reviews*.
      - c. BCM 11, *Welding*.
  - v. Review the QC program for the installation of sign or pole structures in conjunction with:
    - 1. Applicable plans and specifications.
    - 2. *The Overhead Sign Structure Guide*.

- vi. Contact the Design and Technical Services [Overhead Sign Structure Specialist](#)<sup>1</sup> for technical assistance in resolving any review issues.
  - vii. Verify that the QC plan includes additional bolts required for testing.
  - viii. Verify that the Contractor is not introducing changes to the basic design of overhead sign structure, standards, and poles specified in the contract documents. Changes can only be allowed with the Department's authorization and through a Change Order (CO).
  - ix. Structure Representative (SR) provides all final submittal authorization according to the METS Rep's review:
    - 1. Stamp each authorized page with the authorization stamp.
    - 2. Provide a copy of authorized submittals to the Contractor along with a reminder regarding the timely notification of the start of fabrication.
    - 3. Provide a copy of authorized submittals to METS.
    - 4. Provide a copy of authorized submittals to Assistant Structure Representatives (ASRs).
    - 5. Document the authorization or rejection of submittals.
  - g. Prepare [Form TR-0020](#)<sup>1</sup>, *Notice of Change in Vertical or Horizontal Clearance*, and submit to the Construction/Maintenance Liaison (Permits) with horizontal and vertical clearances. Report the impaired clearance not less than 15 days before erecting the overhead sign structure over traffic.
  - h. For Department-furnished material:
    - i. Review the contract for any requirements for Department-furnished material.
    - ii. Resident Engineer will coordinate for Department-furnished sign materials to be ordered and ready for timely delivery.
    - iii. Make a physical inspection and inventory to confirm that all Department-furnished sign materials are delivered in good condition.
    - iv. Verify correct spelling of messages on sign panels.
    - v. After delivery, the Contractor is responsible for any damage to Department-furnished materials.
4. During construction:
- a. Review lane closure requests to verify that the duration and closure limits are sufficient to support the operation, and provide feedback to the Resident Engineer.

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- b. Conduct a pre-erection meeting with the Contractor to discuss:
  - i. The installation portion of the quality control program
  - ii. Safety (safety harness, work lights, COZEEP, contingency plan, etc.)
  - iii. Splices
  - iv. Inspection hold-points (if necessary)
  - v. Fastener installation and timing of verification
  - vi. Verification of staging area (and closure limits) for equipment and installation.
- c. Upon delivery of the overhead sign structure:
  - i. Check for inspection release tag (Form TL-624, *Inspection Release Tag*), and match with [Form TL-0029](#)<sup>1</sup>, *Report of Inspection of Material*.
  - ii. Check for certificates of compliance and Buy America certification.
  - iii. Review the following tables in the *Construction Manual*, found within Section 6-2, *Sampling and Testing – Acceptance of Manufactured or Fabricated Materials and Products*:
    - 1. [Table 6-2.1](#), *Inspection of Fabricated and Manufactured Materials*.
    - 2. Table 6-2.2, *Materials Acceptance Based on Authorized Material List*.
    - 3. Table 6-2.3, *Materials Accepted by Certificate of Compliance*.
  - iv. Check the overhead sign structure for damage incurred during the delivery:
    - 1. If any damage is discovered, request a repair plan from the Contractor.
    - 2. Document repairs.
  - v. Check the walkway safety railing wobble per the requirements of the contract documents.
  - vi. Verify the overhead sign structure delivered is the correct one authorized for the specified location, has the correct spelling, and orientation with the roadway.
  - vii. Verify that all connection hardware complies with the contract requirements, has been authorized, and/or is listed on Authorized Material Lists ([AML](#)), etc.

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- viii. Verify the inspection and release of the overhead sign structure with the METS Rep. Contact the METS Rep if no Form TL-0029 was received or if there are no inspection release tags.
  - ix. Check the overall condition of the overhead sign structure to verify compliance with the contract requirements.
  - x. Authorize installation of the overhead sign structure if it conforms to the requirements of the authorized shop drawings.
- d. Follow these field procedures for installation of new or relocated overhead sign structures and bridge-mounted signs:
- i. The SR disseminates the latest authorized QC program and shop drawings to all SC field staff and verifies that the Contractor is using the same copy.
  - ii. Coordinate inspection with the METS Rep for any field welding.
  - iii. Coordinate installation of conduits, boxes, and other electrical appurtenances with the District. For relocated structures, verify openings are sized to support new conduit installation.
  - iv. For overhead sign structures:
    - 1. Verify that CIDH concrete has been in place for seven full days prior to the erection of the overhead sign structure. For bridge-mounted signs, verify that the concrete elements have attained 2500 psi before installation of the signs.
    - 2. Verify the orientation, height, and elevation of the anchor bolt assembly (when applicable).
    - 3. Verify that installation of the overhead sign structure complies with the project requirements and conforms to the authorized QC plan.
    - 4. Deviations to the QC program require discussion with the SR prior to the change.
    - 5. Verify installation of fastener assemblies through direct tension indicators, as per Attachment 3, *Sign Structure Fastener Installation Verification Guide*.
    - 6. Verify that the tightening of anchor bolt nuts for poles is performed incrementally and in an alternating pattern to evenly apply force to the connection. Anchor bolts are tensioned to a snug-tight condition unless otherwise specified.
    - 7. Verify rake (lean) of the posts, such that the truss will be level relative to the traveled way.

8. Verify that the measured vertical and horizontal clearances are greater than or equal to the clearance previously reported to Construction/Maintenance Liaison (Refer to Step 3g). Do not allow the sign structure to be installed if the measured clearance is less than the previously reported clearance. Discuss with the SR to verify corrective action. Report final values to the Construction/Maintenance Liaison.
  9. Verify that the location of sign arrows aligns with actual lanes and off-ramps.
  10. Verify that mortar is placed under base plate per *Contract Specifications* Section 56-3.01C(2)(a), *Overhead Sign Structures, Standards, and Poles – Standards, Poles, Pedestals, and Posts – General – Construction – Foundations – General*, and Standard Plan S37, *Overhead Signs – Tubular Single Post and Two Post Type Round Pedestal Pile Foundation*.
- v. For bridge-mounted sign structures:
1. Verify that anchors have been or will be installed following the manufacturer's recommendations to the correct position and dimension.
  2. Verify that anchorages will not penetrate prestressing ducts in post-tensioned box girder bridges.
- vi. Upon completion of installation, verify that all temporary shipping and lifting attachments are removed from the overhead sign structure. Have the Contractor repair any damage to the overhead sign structure resulting from the removal of these attachments, including galvanization or painting systems per the *Contract Specifications* Section 75-1.02B, *Miscellaneous Metal – General – Materials – Galvanizing*.
- vii. Measure the horizontal and vertical clearances per Attachment 2, *Guidance for Completing Required Documents Submitted to SC HQ*, of [BCM C-6](#), *Required Documents to be Submitted During Construction*:
1. Record as-built elevations (and vertical clearance) on sign detail plan sheets.
  2. Send updated clearance form; similar process as Step 3.g.
- e. For existing overhead sign structures:
- i. When removing or salvaging the overhead sign structure:
    1. Confirm the removal depths of the foundation with the Contractor.
    2. Request, review, and authorize removal plan.

3. Coordinate with the receiving site on the timing of a salvage operation (when applicable).
- ii. When modifying the overhead sign structure:
  1. Review the condition of the structure.
  2. Verify that existing structures to be modified agree with the as-built drawings.
  3. Initiate a Change Order to replace any portion of the structure that cannot be reused.
- f. Authorize installation of the overhead sign structure if it conforms to the requirements of the authorized shop drawings.
- g. Document all inspection, construction, and quality assurance activities pertinent to this BCM in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.
- h. Document all field revisions to the contract documents in as-built project plans. Provide a copy to all pertinent parties.
5. 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](#), *Contract Administration – Project Records and Reports – Organization of Project Documents*.

## **Process Outputs**

1. Authorized or rejected submittals
2. Inspection release tags (Form TL-0624, *Inspection Release Tag*, and matching Form TL-0029, *Report of Inspection of Material*)
3. Form TR-0020, *Notice of Change in Vertical or Horizontal Clearance*
4. Welding inspection reports
5. Field welding quality assurance forms (if field welding is performed)
6. Buy America certification from the manufacturer for federal-aid projects
7. Certificates of compliance
8. Daily reports
9. As-built project plans
10. Installed overhead sign structure

# **Attachments**

[Attachment 1](#), *Additional Information for Shop Drawing Reviews*

[Attachment 2](#), *Sign Structure Installation Guide*

[Attachment 3](#), *Sign Structure Fastener Installation Guide*