

Section 49 Piling

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Section 49 Piling

4-4901 General

Section 49, "Piling," of the *Standard Specifications* includes specifications for cast-in-place concrete, steel, timber, and precast prestressed concrete piling. Other materials for piling may be shown on the plans or required in the special provisions. For detailed information regarding piling, refer to Section 49, "Piling," of Structure Construction's *Bridge Construction Records and Procedures Manual, Vol. 2* and the *Foundation Manual*:

<https://dot.ca.gov/programs/engineering-services/manuals>

4-4902 Before Work Begins

Before work begins, do the following:

- Review the project plans with the contractor to determine the locations where piling will be installed adjacent to traffic lanes open to the public. Require the contractor to submit for authorization a work plan for those locations where the distance from the pile driving area to the nearest traffic lane open to the public is less than the length of piles to be handled or installed. Review and authorize the plan before allowing the contractor to start piling operations adjacent to traffic lanes open to the public.
- At the start of a project, do a field review of locations where piling is to be installed, and check for overhead obstructions and underground utilities that the project plans may not have addressed. Early identification of conflicts can avoid lengthy and costly project delays.
- Verify that Form CEM-3101, "Notice of Materials to Be Used" includes piling materials. Refer to Section 6-202, "Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products," of this manual for additional information.
- For instructions on preparing pile records to be kept during piling operations, review Bridge Construction Memo C-6, "Required Documents to be Submitted During Construction," of Structure Construction's *Bridge Construction Records and Procedures Manual, Vol. 1*, and Section 49, "Piling," of *Vol. 2*.

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4-4903 During the Course of Work

Piling operations are dangerous. The *Foundation Manual* contains safety information for various types of piling operations. In addition, Structure Construction's *Code of Safe Practices* contains guidelines to follow for various piling operations. Before the contractor's operations begin, review both sources of information and the contractor's work plan, if required, in a tailgate safety meeting.

Record drilling and driving information required in Bridge Construction Memo 49-3, "Piling—Cast-In-Place Concrete Piling", and 49-2, "Piling—Driven Piling." At the completion of the piling operation, forward the piling information to Structure Construction's headquarters in Sacramento, as outlined Bridge Construction Memo C-6, "Required Documents to be Submitted During Construction," of Structure Construction's *Bridge Construction Records and Procedures Manual, Vol. 1*.

4-4904 Quality Control

Guidance for quality control activities for steel pipe piles is summarized as follows:

- Review and authorize the contractor's shop drawings.
- Review and authorize the contractor's welding quality control plan.
- Verify that steel pipe piles are fabricated at a plant on Caltrans' authorized facility audit list.
- Verify that nondestructive weld testing is performed and verify that test results comply with the requirements of Section 49-2.02A(4)(b)(iii), "Nondestructive Testing," of the *Standard Specifications*.

Guidance for quality control activities for cast-in-place concrete piles placed is summarized as follows:

- Review and authorize the pile installation plan.
- When concrete is to be placed under slurry:
 - Verify concrete test batch is produced and transported under the same conditions anticipated during pile construction.
 - Make sure that the contractor does not vibrate or agitate the concrete test batch during the set period.
 - Coordinate slump testing for Caltrans acceptance.
- Review the contractor's concrete placement log.

4-4905 Payment

Furnished and cast-in-place concrete piles are measured by the foot the longest side from the tip of the pile to the plane of pile cutoff. Driven piles include an added item for driving each pile. Record information about drilling, driving, and measurements in accordance with Bridge Construction Memos 49-2, "Piling—Driven Piling," and 49-3, "Piling—Cast-In-Place Concrete Piling," of Structure Construction's *Bridge Construction Records and Procedures Manual, Vol.2*.