


MANUAL CHANGE TRANSMITTAL		NO. 19-8
TITLE: Department of Transportation <i>Construction Manual</i>	APPROVED BY:  Rachel Falsetti, Chief Division of Construction	DATE ISSUED: 09-25-2019
SUBJECT AREA Sections 3-5, 3-8, 5-0, 5-3, 6-2	ISSUING UNIT Division of Construction	
SUPERSEDES Sections 3-5, 3-8, 5-0, 5-3, and 6-2 of July 2019	DISTRIBUTION All Requested Manual Holders	

The purpose of this manual change transmittal is to announce updates and corrections to the Caltrans *Construction Manual*. The following section or sections have been updated to reflect new policy and supersede the corresponding section of the *Construction Manual* as previously published. Updated sections are available at <https://dot.ca.gov/programs/construction/construction-manual> and are indicated by the date listed in the right-hand column on that page. Changes are identified by change lines in the margins in this document.

Section 3-5, “Control of Work”

Clarifies coordination between construction and other functional groups, such as maintenance, safety, environmental or right of way, for reviews of project. Provides inclusion of the maintenance engineer in the inspection process.

Section 3-8, “Prosecution and Progress”

Clarifies maintenance division’s role in the project review process and during periods of project suspension.

Section 5-0, “Conduct of the Work”

Changes to this section reflect Federal Highway Administration’s redefinition of major change orders. Adds the inclusion of the maintenance engineer for the project with Caltrans personnel and discussion of the Buy Clean California Act requirements at the preconstruction conference with the contractor. Specifies maintenance roles in review of the project during the contract.

Section 5-3, “Change Orders”

Reflects Federal Highway Administration’s redefinition of major change orders. Lists increased change order delegation to districts with Division of Construction approved district change order quality control plan. Assumes quality assurance on all change orders is the role of the Division of Construction. Revises district-level on change orders. Requires weekly transmittal of approved change orders to the Division of Construction file server at least one a week.

Section 6-2, “Acceptance of Manufactured or Fabricated Materials and Products”

Adopts revisions to Form CEM-3101. Replaces structural materials representative with Materials Engineering and Testing Services representative.

Section 5 Control of Work

3-501 General

3-502 Engineer's Authority

3-503 Protests

3-504 Partnering

3-505 Order of Work

3-506 Assignment

3-507 Subcontracting

3-507A Amount of Work Subcontracted

3-507B Calculating the Amount of Work Subcontracted

3-507C The Subletting and Subcontracting Fair Practices Act

3-507C (1) Subcontracting in the Bidding Process

3-507C (2) Substitution Process

3-507C (3) Hearing Process for Substitutions

3-507C (3a) Before the Substitution Hearing

3-507C (3b) During the Substitution Hearing

3-507C (3c) After the Substitution Hearing

3-507C (4) Violations of the Subletting and Subcontracting Fair Practices Act

3-507C (5) Hearing Process for Substitution Violations

3-507C (5a) Before the Violation Hearing

3-507C (5b) During the Violation Hearing

3-507C (5c) After the Violation Hearing

3-507D Procedure for Approval or Acknowledgment of Subcontractors

3-508 Representative

3-509 Character of Workers

3-510 Coordination with Other Entities

3-510A Permits, Licenses, Agreements, and Certifications

3-510B Contractor-Property Owner Agreement

Example 3-5.1. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Acquiring Construction-Related Material From Property Owner's Property (1 of 2)

Example 3-5.1. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Acquiring Construction-Related Material From Property Owner's Property (2 of 2)

Example 3-5.2. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Disposing of Construction-Related Material on Property Owner's Property (1 of 2)

Example 3-5.2. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Disposing of Construction-Related Material on Property Owner's Property (2 of 2)

Example 3-5.3. Sample Approval to Acquire Material From Property Owner's Property Letter

Example 3-5.4. Sample Approval for Disposal of Material Outside the Highway Right-of-Way Letter

3-511 Submittals

3-512 Construction Surveys

3-513 Before Work Begins

3-514 During the Course of Work

3-515 Records

3-516 Noncompliant and Unauthorized Work

3-517 Job Site Appearance

3-518 Areas for Use

3-519 Equipment

3-520 Property and Facility Preservation

3-520A Landscape

3-520B Railroad Property

3-520C Nonhighway Facilities

3-520C (1) General

3-520C (2) Duties of the Utility Relocation Resident Engineer

3-521 Maintenance and Protection

3-521A General

3-521B Load Limits

3-521C Damage by Public Traffic

3-522 Maintenance and Protection Relief

3-523 Requests for Information and Potential Claim Records

3-523A General

3-523B Requests for Information

3-523C Potential Claim Records

3-523C (1) Form CEM-6201D, Initial Potential Claim Record

3-523C (1a) Resident Engineer's Response to the Initial Potential Claim Record

3-523C (2) Form CEM-6201E, Supplemental Potential Claim Record

3-523C (2a) Resident Engineer's Response to the Supplemental Potential Claim Record

3-523C (3) Form CEM-6201F, Full and Final Potential Claim Record

- 3-523C (3a) Resident Engineer’s Response to the Full and Final Potential Claim Record
- 3-523D Documentation Guidelines for Disputes
- 3-523E Sample Dispute Response Clauses
 - 3-523E (1) Request for Information for Notification of a Possible Differing Site Condition
 - 3-523E (1a) General
 - 3-523E (1b) If No Merit
 - 3-523E (1c) If Merit
 - 3-523E (1d) If Partial Merit
 - 3-523E (2) Requests for Information to Protest a Time Adjustment Determination in a Change Order
 - 3-523E (2a) General
 - 3-523E (2b) If No Merit
 - 3-523E (2c) If Merit
 - 3-523E (2d) If Partial Merit
 - 3-523E (3) Requests for Information to Protest a Weekly Statement of Working Days
 - 3-523E (3a) General
 - 3-523E (3b) If No Merit
 - 3-523E (3c) If Merit
 - 3-523E (3d) If Partial Merit
 - 3-523E (4) Potential Claim Record
 - 3-523E (4a) General
 - 3-523E (4b) If No Merit
 - 3-523E (4c) If Merit
 - 3-523E (4d) If Partial Merit
 - 3-523E (4e) Request Additional Information
- 3-524 Alternative Dispute Resolution Processes**
 - 3-524A Partnering-Facilitated Dispute Resolution
 - 3-524B Dispute Resolution Ladder
 - 3-524B (1) Dispute Resolution Ladder—Establishment
 - 3-524B (2) Dispute Resolution Ladder—Operation
 - 3-524C Dispute Resolution Advisor and Dispute Resolution Board
 - 3-524C (1) Establishment
 - 3-524C (2) DRA or DRB Member Replacement
 - 3-524C (3) Operation
 - 3-524C (3a) Informal Dispute Meetings
 - 3-524C (3b) Traditional Dispute Meetings
 - 3-524C (3c) Dispute Resolution Board Progress Meetings
 - 3-524C (4) DRA or DRB Recommendations and Responses
- 3-525 Final Inspection and Contract Acceptance**

- 3-525A General
- 3-525B Contract Acceptance
- 3-525C Work for Other Agencies or Owners

3-526 Guarantee

- 3-526A General
- 3-526B Work Not Completed by Contractor

Section 5 Control of Work

3-501 General

Section 5, “Control of Work,” of the *Standard Specifications*, details how contract work will be controlled. The proper performance of the contractor and resident engineer assure control.

Verify that the contractor provides quality control over the work. During the manufacture of products and the execution of the project, the contractor performs the actions necessary to assess and adjust production and construction processes to control the level of quality produced in the end product or facility, and to fulfill specified requirements.

The California Department of Transportation (Caltrans) performs activities required for Department acceptance. The resident engineer and authorized representatives sample, test, and inspect the work to determine if the quality characteristics meet the contract requirements within the tolerances specified. When tolerances are not specified, use judgment to determine if any deviation is allowed consistent with the trades involved.

For additional information on quality control and Caltrans acceptance, refer to Section 3-606, “Quality Assurance,” of this manual.

Section 5-1.01, “General,” of the *Standard Specifications*, requires the contractor to provide safe and unrestricted access to the work for inspection by Caltrans. The resident engineer must take full advantage of this access.

The Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) establishes standards for safe access to work, and Caltrans enforces them under Section 7-1.02K(6), “Occupational Safety and Health Standards,” of the *Standard Specifications*.

The cost of providing access for inspection of bid item work is included in the bid item price. If the contractor is required to construct facilities specifically to provide access for inspection of extra work, the cost may be included on change order bills. These costs, however, are limited to only the increased cost of providing inspection for the extra work and may not include the access costs that fall under the original item work.

Never operate the contractor’s equipment or allow any Caltrans representatives to operate the contractor’s equipment. During quality assurance inspections, only the contractor’s own equipment operators must operate the equipment.

3-502 Engineer’s Authority

The term “engineer” refers to the resident engineer and authorized representatives. The engineer is responsible for contract administration and is authorized to make the final decision on questions regarding the contract. The engineer must act in

accordance with Caltrans policies and procedures and, in the absence of written policy or procedures, must exercise judgment within their ability and span of control as established by the district.

The engineer will focus on the details and methods of performing the work only if one or more of the following conditions exist:

- The details and methods of performing the work are specified.
- The essential attribute or end result cannot be measured.
- Public safety or convenience is involved.

Otherwise, the details and methods must be left to the contractor's discretion.

Resident engineers must report their assignments to all interested parties by submitting Form CEM-0101, "Resident Engineer's Report of Assignment." Submit this form as early as possible.

The resident engineer is the lead for contact and correspondence with the contractor.

3-503 Protests

Section 5-1.06, "Protests," of the *Standard Specifications* allows the contractor to protest an engineer's decision by submitting a request for information. Protests by the contractor of weekly statements of working days, change orders, or failure to issue a change order must be done through a request for information.

3-504 Partnering

Partnering allows all parties and stakeholders to establish and maintain cooperative communication channels and mutually resolve conflicts at the lowest responsible level. Become familiar with and follow Section 5-1.09, "Partnering," of the *Standard Specifications* and the Caltrans publication, *Field Guide to Partnering on Caltrans Construction Projects*. This publication is available under Resources/Manuals at:

<https://dot.ca.gov/programs/construction/partnering>

For additional guidance, contact the partnering coordinator in either the district or the Division of Construction. The names and contact numbers for these coordinators are available under Contacts on the Caltrans link at:

<https://dot.ca.gov/programs/construction/partnering>

Supplemental funds to cover the anticipated partnering costs are included in projects with an engineer's estimate of more than \$1 million. To pay for Caltrans' share of the partnering costs, execute a change order using the change order code AUZZ.

Use of a partnering facilitator is recommended on all projects. Use of a partnering facilitator is required, however, on all projects greater than \$10 million and longer than 100 working days. A list of partnering facilitators is available under Contacts at:

<https://dot.ca.gov/programs/construction/partnering>

When selecting a partnering facilitator:

- Consider the extent of a candidate's experience as a partnering facilitator on other Caltrans projects.
- Check with other resident engineers or the partnering coordinator in either the district or in the Division of Construction for information regarding potential facilitators.
- Interview several facilitators. Do not assume all facilitators are the same. Search for the right facilitator for the job.
- Confirm the full scope and cost of the facilitator's work. Not all facilitators perform the same amount of work, and the cost differences for a 1-day session can be as much as \$15,000. The cost for each session should include all costs of the facility, full payment for the facilitator, materials used during the session, and all pre- and post-session work. The facilitator should make an effort to get to know the parties, facilitate the sessions to foster a team dynamic, provide meeting notes, and follow up on any action items discussed at the meeting.
- Verify that the facilitator's services include administering monthly project surveys. The facilitator is allowed to charge for this survey.

3-505 Order of Work

If the plans or special provisions do not contain a specified sequence of operations, contractors may select their own schedules, provided the planned order of work meets any dates specified for completion and openings of portions of the work to traffic.

Occasionally, the contractor may submit a proposed modification of the specified order of work that will be more satisfactory for the work's operation. If, in the resident engineer's opinion, Caltrans will benefit as much or more by adopting the proposed modification as it would under the specified plan, the contractor's plan may be implemented with a change order requested by the contractor. Caltrans must receive a monetary adjustment if the contractor has any reduced costs from the change. Also, a contractor may benefit if a change is proposed and accepted under a change order for a value engineering change proposal. Refer to Section 3-405, "Value Engineering," of this manual and Section 4-1.07, "Value Engineering," of the *Standard Specifications*.

The resident engineer must recheck the specified plan of operations during the work's progress. Changes in circumstances may necessitate altering the planned sequence and schedule. Construction in stages is often a part of the contract on major projects, and revised progress schedules may be required as the stages of work develop.

3-506 Assignment

If the contractor submits any of the following contractor action request forms to the resident engineer, the contractor must also include a completed and signed Form STD 204, "Payee Data Record," as part of the submittal in accordance with Section

5-1.12, "Assignment," of the *Standard Specifications*. Submittal of scanned or faxed copies is acceptable.

- Form CEM-1202A, "Contractor Action Request–Change of Name/Address," is submitted by the original contractor as an informational submittal to notify Caltrans of change to the contractor's business name or mailing address.
- Form CEM-1202B, "Contractor Action Request–Assignment of Contract Monies, Assignee Change of Name/Address" is submitted by the original contractor or surety as an informational submittal to provide notification if a contractor is assigning contract payments to another entity, such as a surety, bonding company, or escrow company. If payments are assigned to a different entity and the remaining contract work is assigned to a new prime contractor, the contractor must submit Forms CEM-1202B and CEM-1203 to cover both actions.
- Form CEM-1203, "Contractor Action Request–Assignment of Contract Performance," is submitted by the original contractor, surety, or bonding company to assign contract performance to another contractor. An assignment of performance request is an action submittal that requires the Division of Construction Chief's consent, as authorized agent for the director in order for the request to be approved.

Carefully review and verify the information in contractor action request submittals. Adhere to the procedures listed in the instructions of Forms CEM-1202A, CEM-1202B, and CEM-1203. For a contractor business name change submitted under Form CEM-1202A, refer to Section 3-704A, "Responsibilities," of this manual for information regarding validation of insurance bonds and contract bonds.

3-507 Subcontracting

Contractors can use subcontractors on their projects provided the subcontractor and the prime contractor comply with Section 5-1.13, "Subcontracting," of the *Standard Specifications*, and with state and federal laws and regulations. The contractor is required to submit Form CEM-1201, "Subcontracting Request," before subcontracted work starts.

When projects use subcontractors, the resident engineer must focus primarily on:

- Always knowing which subcontractors are working on the project and on which specific items they are working.
- Making sure that listed subcontractors have a valid public works contractor registration number before they begin work.
- Making sure that listed subcontractors are not improperly removed or replaced.
- Verifying that the prime contractor achieves the subcontracting level pledged when the contract was awarded to meet requirements of the Disadvantaged Business Enterprise (DBE), Disabled Veteran Business Enterprise (DVBE), and small business programs.
- Assuring adherence to the provisions of the Public Contract Code.

For more information on these subcontracting requirements, refer to Section 8-3, “Disadvantaged Business Enterprises and Disabled Veteran Business Enterprises,” of this manual.

3-507A Amount of Work Subcontracted

Section 5-1.13, “Subcontracting,” of the *Standard Specifications*, requires that the prime contractor perform at least 30 percent of work using the contractor’s own organization unless a different percentage is specified in the special provisions. This requirement does not apply if the work is for a building-construction, non-federal-aid contract.

The percentage of work subcontracted is calculated for first-tier subcontractors only. A contractor’s organization includes only workers employed and paid directly by the prime contractor and only equipment owned or rented by the prime contractor, with or without operators.

Discuss unusual subcontracting situations with the construction engineer. If the situation indicates that additional information is necessary but only available through an inspection of the contractor’s records, request a copy of the subcontract agreement from the prime contractor. If a review of the subcontract agreement does not help resolve the situation, discuss the possibility of an audit with Division of Construction’s field coordinator.

3-507B Calculating the Amount of Work Subcontracted

The contractor must submit Form CEM-1201, “Subcontracting Request,” stating what percentage and dollar amount of an item will be subcontracted. The resident engineer must verify the amount. Any rational method of estimating the amount will be acceptable; for example:

- The percentage of an area, volume, or length
- The portion applicable to material cost
- The portion of labor and equipment cost

When an entire item is subcontracted, use the prime contractor’s item bid price as the dollar amount for the form. When a portion of an item is subcontracted, apply the percentage of the bid item subcontracted to the prime contractor’s item bid price as the dollar amount for the form.

To assure that the contractor is not requesting approval for a subcontractor other than those listed in the bid documents, the resident engineer must check the DBE, DVBE, and small business commitment listings and the list of subcontractors. If a discrepancy is noted, advise the contractor and ask for an explanation. The resident engineer must not approve the subcontracting request until the contractor provides an acceptable explanation.

3-507C The Subletting and Subcontracting Fair Practices Act

3-507C (1) Subcontracting in the Bidding Process

Sections 4100 through 4114 of the Public Contract Code are called the “Subletting and Subcontracting Fair Practices Act” (Act) and apply to Caltrans construction projects. The Act is designed to prevent prime contractors from “bid shopping” for subcontractors after bids are opened and the low bidder is known.

The Act requires that subcontracted work in excess of one-half of 1 percent (0.005) of the contractor’s total bid amount or \$10,000, whichever is greater, must be listed in the prime contractor’s bid proposal. When a prime contractor fails to list a subcontractor in its bid, the law requires that the prime contractor must perform the work with its own forces. The prime contractor may not add an unlisted subcontractor by requesting a substitution. Exceptions to this requirement are discussed in Public Contract Code 4107 (c) and Public Contract Code 4109.

For building projects such as a maintenance station or other off-highway project, all subcontracted work in excess of one-half of 1 percent (0.005) of the contractor’s total bid amount must be listed.

Verify that the listed subcontractor performs the work or that the contractor complies with the substitution procedures in the Act.

3-507C (2) Substitution Process

To replace a subcontractor listed in the bid documents, the prime contractor must submit a written request based on the reasons identified in Public Contract Code Section 4107, and include the public works contractor registration number of each substituted subcontractor. To assure this requirement is met, verify that the subcontractor’s registration number is valid at the California Department of Industrial Relations’ Public Works Contractor Registration Search website:

<https://efiling.dir.ca.gov/PWCR/Search>

When the prime contractor requests a substitution, proceed as follows:

1. Send the request to the district construction office for review.
2. The district construction office must send a written notice to the listed subcontractor by certified mail, overnight mail, or fax, informing the listed subcontractor of the prime contractor’s request to substitute and the reasons for the request. The notice must provide the subcontractor 5 business days to submit a written objection to the substitution.
3. If the listed subcontractor does not file a timely written objection, the resident engineer must approve the substitution. The resident engineer must approve the new subcontractor following the guidelines under Section 3-507D, “Procedure for Approval or Acknowledgment of Subcontractors,” of this manual. If the removed subcontractor’s firm was a listed DBE, DVBE, or small business, refer to Section 8-3, “Disadvantaged Business Enterprises and Disabled Veteran Business Enterprises,” of this manual for additional steps required in the process.

4. If the listed subcontractor submits timely written objections to the substitution, the district must conduct a hearing. Send written notice of the hearing to the prime contractor and the subcontractor a minimum of 5 business days before the hearing is conducted. The written notice should include a request that any substantiating documents be provided before the hearing.

3-507C (3) Hearing Process for Substitutions

The intent of the substitution hearing is to give both parties the opportunity to explain to the hearing officer why a substitution should or should not occur. Substitution hearings are conducted informally. Normally, the hearing officer is the district construction deputy director.

3-507C (3a) Before the Substitution Hearing

- Obtain from both parties documents to substantiate the reasons for substitution.
- Review all information submitted by both parties and provide copies to the hearing officer. If the hearing officer believes legal or other assistance may be required during the substitution or hearing process, the district must contact the construction field coordinator, who will arrange for such assistance as appropriate.
- The hearing officer must develop a line of questioning to assure that sufficient evidence exists on which to base a decision about the request.

3-507C (3b) During the Substitution Hearing

- Audio or video recording may be used to assist in taking notes but is not required.
- The hearing officer should allow each party sufficient time to present its position and offer a counterargument on the substitution request. List additional supporting information presented by either party in the hearing notes.

3-507C (3c) After the Substitution Hearing

- The hearing officer will issue written findings and a decision on the substitution request. As soon as possible after the hearing, send a copy of the decision to the prime contractor and the objecting subcontractor by certified mail with a return receipt.
- Send the Division of Construction's labor compliance manager a copy of the final decision.
- Require the contractor to submit a Form CEM-1201, "Subcontracting Request," for the new subcontractor.

3-507C (4) Violations of the Subletting and Subcontracting Fair Practices Act

The following presents typical examples of some of the more common violations of the Act by a prime contractor:

- Subcontracting additional work to a listed subcontractor where the work was not originally listed as subcontracted work and is in excess of the threshold requirements.
- Using a subcontractor not listed at bid time whose dollar value of work is in excess of the threshold.
- Substituting subcontractors without Caltrans' consent.
- Performing work that the bid documents designated a subcontractor to perform.

If these or any other violations occur, proceed as follows:

- Discuss the apparent violations with the construction engineer and the district labor compliance officer.
- If the construction engineer and district labor compliance officer agree that an apparent violation has occurred, send the prime contractor a certified letter including the following text:

You are in apparent violation of Sections 4100 through 4114, "Subletting and Subcontracting Fair Practices Act," of the Public Contract Code, for work being performed on item(s) _____ of Caltrans Contract No. _____. You will be assessed a penalty of \$_____ as provided in Section 4110 of the Public Contract Code.

If you wish to dispute this apparent violation or the assessed penalty, you must request a hearing with Caltrans. You will be given 5 days' notice of the time and place of the scheduled hearing in accordance with Section 4110 of the Public Contract Code.

If you do not request a hearing, the penalty will be assessed as a permanent deduction on the next progress pay estimate.

- Send copies of the letter to the subcontractor and to the district labor compliance officer.
- If a contractor requests a hearing, schedule it using the same procedure described in Section 3-507C (3), "Hearing Process for Substitutions," of this manual.

Occasionally, the contractor will list subcontractors that the Act does not require to be listed. In this case, changes require only an updated subcontracting request to identify the new subcontractor. For the process, refer to Section 3-507D, "Procedure for Approval or Acknowledgment of Subcontractors," of this manual. If the subcontractor is a DBE, DVBE, or small business, refer to Section 8-3, "Disadvantaged Business Enterprises and Disabled Veteran Business Enterprises," of this manual for additional requirements.

3-507C (5) Hearing Process for Substitution Violations

Section 4110 of Public Contract Code requires Caltrans to conduct a hearing for violations of the "Subletting and Subcontracting Fair Practices Act." The intent of the violation hearing is to determine whether a penalty should be assessed against the

prime contractor for the violations. Each party is entitled to present its arguments on the alleged violations. The hearing should follow the process outlined below.

3-507C (5a) Before the Violation Hearing

- Retain a neutral decision-maker to be the hearing officer. To keep the process as short as possible, this person would preferably be a Caltrans employee at senior transportation engineer level or above who is completely out of the chain of command for the project at issue.
- Hire a certified court reporter to transcribe the proceedings. Contact the Division of Construction labor compliance program manager for assistance with this process.
- If necessary, subpoena third parties, such as the subcontractor, or supplier. Contact the Division of Construction labor compliance program manager for assistance with this process.

3-507C (5b) During the Violation Hearing

- The resident engineer and district labor compliance officer testify under oath to the facts that led Caltrans to conclude an issue or apparent violation existed. They should be prepared to provide copies of all documents or other evidence, such as correspondence, daily reports, or payroll records used to reach that conclusion. Caltrans should provide the original documents. Conclusions drawn from the documents can be summarized verbally as testimony.
- The hearing officer will conduct direct and cross-examination of witnesses under oath.
- The hearing officer will accept any documents provided by each party and have the court reporter place them into the record as part of the certified transcript. The hearing officer will verbally verify that documents were received by noting what they are and assigning them an exhibit number.
- The hearing officer will make sure that the only issue addressed at the hearing is the violation of the Act (for example, not a DVBE violation or labor compliance issue). For violations of DBE, DVBE, or small business requirements, refer to Section 8-3, "Disadvantaged Business Enterprises and Disabled Veteran Business Enterprises," of this manual.

3-507C (5c) After the Violation Hearing

- The hearing officer must evaluate the evidence provided at the hearing and render a decision on the alleged violation within 10 days of the hearing.
- If the prime contractor is found to be in violation of the Act, the contractor must be assessed a penalty, taken as an administrative deduction, ranging from 0 to 10 percent of the subcontract amount. The hearing officer will determine the penalty amount based on the circumstances involved. The hearing officer's finding is the final Caltrans administrative decision on the application and enforcement of the Act.

- Send the decision to the contractor and, if applicable, the subcontractor. Send a copy to the Division of Construction, which may refer the violation to the Contractors State License Board, in accordance with Section 4111 of the “Subletting and Subcontracting Fair Practices Act.”
- Deduct the penalty amount from the next estimate.

3-507D Procedure for Approval or Acknowledgment of Subcontractors

The resident engineer has the responsibility of approving subcontractors on federally funded projects and acknowledging subcontractors on state-financed projects. In general, approving or acknowledging subcontractors is necessary for only first-tier subcontractors. The contractor must submit Form CEM-1201, “Subcontracting Request,” to request subcontracting of contract work. When the contract is awarded, the contractor receives a blank Form CEM-1201, “Subcontracting Request.” Provide additional blank forms to the contractor when necessary. The last page of the form contains instructions for completing the form.

Upon receipt of Form CEM-1201, and before approving the contractor’s request, do the following:

- Check the contractor’s portion of the form to confirm that the listed subcontractors and work percentages match the bid documents.
- Verify that subcontractors are not on the Department of Industrial Relation’s debarred contractors list available at:
<http://www.dir.ca.gov/dlse/debar.html>
- Complete lines 1 through 9.
- Verify that subcontractors comply with the DBE, DVBE, and small business goals submitted by the contractor before contract award. Verify that no conflict exists between DBE, DVBE, and small business requirements and the listing requirements of the Act.
- If the contractor’s request meets all the requirements, sign, date, and distribute the form.

Process the requests in the order of the request number since lines 2 and 6 contain running balances based on the percentage of work required. Follow the form’s instructions to complete the rest of the form.

3-508 Representative

As required by Section 5-1.16, “Representative,” of the *Standard Specifications*, contractors, including those in a joint venture, must name in writing one authorized representative and provide the representative’s contact information. Resident engineers must insist that contractors meet this requirement promptly. If the contractor’s representatives from a joint venture disagree with each other, the resident engineer can contractually refuse to work with more than one representative.

3-509 Character of Workers

Caltrans policy calls for a work environment with zero tolerance for violence, threats, harassment, and intimidation. This policy also applies to any subcontractor or employee of a contractor in their work with Caltrans personnel. Caltrans may discharge a worker from the project for engaging in any of these actions. Refer to Section 5-1.17, “Character of Workers,” of the *Standard Specifications* for more information.

If possible, notify the worker’s supervisor and discuss the decision to remove a worker before or as soon as possible after issuing the directive. The contractor may request reinstatement of the worker. If so, the resident engineer conducts a meeting with the construction engineer, the contractor’s authorized representative, and—at the contractor’s discretion—the affected worker, to discuss the reason for removing the worker and the contractor’s request for reinstatement.

None of these procedures affect the engineer’s authority to direct the removal of a worker from the project.

3-510 Coordination with Other Entities

Section 5-1.20, “Coordination with Other Entities,” of the *Standard Specifications* requires the contractor to coordinate with other contractors or entities at or near the job site and materials sources to avoid delays.

3-510A Permits, Licenses, Agreements, and Certifications

The contractor is to possess all required permits, licenses, agreements, and certifications (PLACs) before starting the work covered by them. Verify that the contractor maintains a copy of the required PLACs at the job site.

Unless the necessary PLACs needed to enable the contractor to use a possible local material source or disposal site are included in the information handout, the contractor must obtain them at no cost to Caltrans even if the agreement made between Caltrans and the property owner is included in the information handout.

3-510B Contractor-Property Owner Agreement

If the contractor is proposing to use a noncommercial material source or disposal site, verify that the contractor has met the requirements of Sections 5-1.20A, “General,” 5-1.20B, “Permits, Licenses, Agreements, and Certifications,” and 6-1.03, “Local Materials,” of the *Standard Specifications*.

Arrange a joint meeting with the contractor and agencies that have jurisdiction over the use of the site to discuss the work and the required documentation to be submitted. This documentation may include permits, environmental studies, grading plans, a Stormwater Pollution Prevention Plan, local material plan, and testing imported soil from noncommercial sources, for example, for lead and pH levels.

Provide the contractor with a copy of the appropriate sample agreement. The contractor may use one of the sample agreements in this section or provide an equivalent agreement:

- Example 3-5.1, “Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Acquiring Construction-Related Material from Property Owner’s Property”
- Example 3-5.2, “Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Disposing of Construction-Related Material on Property Owner’s Property”

Review Section 7-1.02K(6)(j)(iii) of the special provisions and consult with the district aerially deposited lead coordinator concerning lead level of the existing soils onsite, at:

<https://dot.ca.gov/programs/construction/environmental>

Add the following text to the agreement when applicable:

Owner acknowledges the material being deposited on the property contains lead with concentrations between 80 mg/kg and 320 mg/kg, which is above the residential California human health screening level for lead as determined by the California Environmental Protection Agency. By submission of this agreement, the owner certifies (1) the property is a commercial/industrial property and (2) the property is not and will not be used for any type of housing, including but not limited to, apartment, motel, hotel, farm, ranch, or any other type of property, including but not limited to, day care, park, school, hospital, or university, which could allow occupants to reside on the property now or in the future or would lead to daily, repeated, long term exposure to the material. The property is zoned as _____.

After the contractor and property owner enter into an agreement and obtain all required documentation, the contractor must submit these for approval. After review and verification of the adequacy of the contractor’s submittals, provide written approval to the contractor to use the site. Refer to Examples 3-5.3, “Sample Approval to Acquire Material From Property Owner’s Property Letter,” and 3-5.4, “Sample Approval for Disposal of Material Outside the Highway Right-of-Way Letter,” for approval letter samples.

In those cases in which Caltrans has made prior arrangements by designating a disposal or borrow site and entering into an agreement with a private property owner for disposal, removal, or excavation of material, the designated sites may be made available for contractor use as discussed in Section 7-103H, “Disposal, Staging, and Borrow Sites,” of this manual. In accordance with Section 5-1.20B, “Permits, Licenses, Agreements, and Certifications,” of the *Standard Specifications*, the contractor must comply with the provisions of the Caltrans-owner agreement if the contractor uses the site or the contractor may make a new agreement with the property owner.

When the contractor makes a new agreement with the property owner that revises the terms of the Caltrans-owner agreements, the new agreement supersedes the

Caltrans-owner agreement. Review the new agreement to verify that Caltrans is relieved of its obligations under the terms of the original agreement.

Under some agreements, Caltrans will directly pay the owner of the material or disposal site. Payment must be made to the owner and royalties deducted from payments to the contractor. In the case of county-consummated agreements, royalties usually are deducted in a similar way.

Before contract acceptance, Section 5-1.20B(4), "Contractor-Property Owner Agreement," of the *Standard Specifications* requires the contractor to submit a document signed by the owner of the site indicating that the contractor has satisfactorily complied with the provisions of the agreement. If the owner is not satisfied, determine what additional work is necessary before recommending acceptance of the contract and advise the contractor accordingly. Do not delay recommending acceptance of the contract if you determine that the contractor has complied with the terms of the agreement.

An agreement between the contractor and a property owner is not required for procuring local material from an established commercial source.

For the disposal of waste material in a commercial landfill or treatment facility, verify the types of wastes accepted and the permit status of the landfill or treatment facility at the California Water Resources Control Board, CalRecycle, and Department of Toxic Substances Control websites:

http://www.waterboards.ca.gov/water_issues/programs/land_disposal/walist.shtml

<http://www.calrecycle.ca.gov/DataCentral/Facilities.htm>

<http://www.dtsc.ca.gov/HazardousWaste/>

Alternatively, contact the facility to obtain a copy of the facility's permit.

Example 3-5.1. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Acquiring Construction-Related Material From Property Owner's Property (1 of 2)

MATERIAL ACQUISITION AGREEMENT

Contract No.: _____

County/Route/Mile post: _____

The contractor, _____, ("Contractor") has entered into Contract No. _____ ("Contract"), with the State of California, Department of Transportation ("Department"), for work that is described as follows:

_____ ("Project").

The owner, _____, ("Owner") of the real property ("Property") at

_____ (for example, address, location, county and parcel number(s), project station(s), offsets, and other property location information) agrees to allow the Contractor to remove from the Owner's Property approximately _____ cubic yards of _____ (such as soil, aggregate, asphalt grindings, or other material) ("Material") for use on the Project.

Owner agrees that the Contractor has assumed ownership of the Material once it is removed from the Property.

Contractor and Owner agree to abide by the requirements of Section 5-1.20, "Coordination with Other Entities," of the *Standard Specifications*. The *Standard Specifications* are available at:

<https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>

Contractor and Owner agree to obtain and furnish to the Department's engineer, all necessary permits, licenses, agreements, and clearances prior to removing Material from the Property.

By submission of this agreement to the Department's engineer, Contractor and Owner are acknowledging that they have been informed, or otherwise apprised, of all restrictions, laws and permit requirements associated with the transporting and removal of the Material from the Property and have agreed to abide by the same. These laws include but are not limited to:

- Local Ordinances—Grading permits for the grading, filling, excavation, storage, or disposal of soil or earthen material.
- California Fish and Game Code (Section 1602), "Lake or Stream Bed Alteration Agreement"—A permit required prior to the removal or placement of material in a location where it can pass into waters of the state, directly or indirectly, through causes such as erosion or maintenance.

Example 3-5.1. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Acquiring Construction-Related Material From Property Owner's Property (2 of 2)

- California Fish and Game Code (Section 5650)—A prohibition against the deposition of petroleum products (including asphalt), or any material deleterious to fish, plants, or birds where it can pass into the waters of the state.
- Federal Clean Water Act (Sections 301 and 402), “General Permit for Discharges of Storm Water Associated with Construction Activity”—A permit is required prior to soil disturbance of an area of one acre or more.
- Federal Clean Water Act (Section 404), “Permit for Discharge of Dredged or Fill Material”—A permit from the United States Army Corps of Engineers may be required for the discharge of fill material into waters of the United States including wetlands.
- State Contract Act, aggregate sources must comply with the Surface Mining and Reclamation Act of 1975 (SMARA).

Owner and Contractor agree that the Material will be excavated, removed, and transported, and the Property left in a manner that will not cause injury or harm to any person or property. If an injury or harm does occur to any person or property or should any environmental impacts or litigation arise as a result of the excavation, removal, transportation, deposition, or the final form in which the Property is left, the Contractor agrees to indemnify, defend, protect, and hold harmless the Department in any action in law or equity in accordance with Section 7-1.05, “Indemnification,” of the *Standard Specifications*.

Pursuant to Section 5-1.20B(4), “Contractor-Property Owner Agreement,” of the *Standard Specifications*, Owner acknowledges Contractor will submit this agreement to the Department as evidence that the Owner has authorized the use of the Property as a Material source for the Project. Owner acknowledges that the Contractor is not authorized to make any representations or agreements on behalf of the Department. Contractor and Owner agree that the Department is released from any and all obligations to Owner made by Contractor under this agreement and the Department is released from any and all obligations to Owner under any prior agreement made between the Department and Owner.

Owner and Contractor acknowledge that they have had the opportunity to receive independent legal advice with respect to the meaning, implications, and advisability of entering into and executing this agreement.

Date: _____

(Signature of Property Owner)

Date: _____

(Signature of Contractor's Authorized Representative)

Example 3-5.2. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Disposing of Construction-Related Material on Property Owner's Property (1 of 2)

MATERIAL DISPOSAL AGREEMENT

Contract No.: _____
County/Route/Mile post: _____

The contractor, _____, ("Contractor") has entered into Contract No. _____ ("Contract"), with the State of California, Department of Transportation ("Department"), for work that is described as follows:

_____ ("Project").

The owner, _____, ("Owner") of the real property ("Property")
at _____

_____ (for example, address, location, county and parcel number(s), project station(s), offsets, and other property location information) agrees to allow the Contractor to dispose on the Owner's Property approximately _____ cubic yards of _____ (such as soil, aggregate, asphalt grindings, or other material) ("Material") generated from the Project.

Owner agrees that the Contractor has assumed ownership from the Department of the Material that is being deposited on the Property.

Contractor and Owner agree to abide by the requirements of Section 5-1.20, "Coordination with Other Entities," of the *Standard Specifications*. The *Standard Specifications* are available at:

<https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>

Contractor and Owner agree to obtain and furnish to the Department's engineer, all necessary permits, licenses, agreements, and clearances prior to placing Material on the Property.

By submission of this agreement to the Department's engineer, Contractor and Owner are acknowledging that they have been informed, or otherwise apprised, of all restrictions, laws and permit requirements associated with the transporting and placement of the Material on the Property and have agreed to abide by the same. These laws include but are not limited to:

- Local Ordinances—Grading permits for the grading, filling, excavation, storage, or disposal of soil or earthen material.
- California Fish and Game Code (Section 1602), "Lake or Stream Bed Alteration Agreement"—A permit required prior to the removal or placement of material in a location where it can pass into waters of the state, directly or indirectly, through causes such as erosion or maintenance.

Example 3-5.2. Agreement Between a Contractor Working on State Facilities and a Real Property Owner for Disposing of Construction-Related Material on Property Owner's Property (2 of 2)

- California Fish and Game Code (Section 5650)—A prohibition against the deposition of petroleum products (including asphalt), or any material deleterious to fish, plants, or birds where it can pass into the waters of the state.
- Federal Clean Water Act (Sections 301 and 402), "General Permit for Discharges of Storm Water Associated with Construction Activity"—A permit is required prior to soil disturbance of an area of one acre or more.
- Federal Clean Water Act (Section 404), "Permit for Discharge of Dredged or Fill Material"—A permit from the United States Army Corps of Engineers may be required for the discharge of fill material into waters of the United States including wetlands.

Owner and Contractor agree that the Material will be transported, deposited, and left in a manner that will not cause injury or harm to any person or property. If an injury or harm does occur to any person or property or should any environmental impacts or litigation arise as a result of the excavation, removal, transportation, deposition, or the final form in which the Property is left, the Contractor, agrees to indemnify, defend, protect, and hold harmless the Department in any action in law or equity in accordance with Section 7-1.05, "Indemnification," of the *Standard Specifications* regardless of the manner or form of the action.

Pursuant to Section 5-1.20B(4), "Contractor-Property Owner Agreement," of the *Standard Specifications*, Owner acknowledges Contractor will submit this agreement to the Department as evidence that the Owner has authorized the placement of the Material on the Property. Owner acknowledges that the Contractor is not authorized to make any representations or agreements on behalf of the Department. Contractor and Owner agree that the Department is released from any and all obligations to Owner made by Contractor under this agreement and the Department is released for any and all obligations to Owner under any prior agreement made between the Department and Owner.

Owner and Contractor acknowledge that they have had the opportunity to receive independent legal advice with respect to the meaning, implications, and advisability of entering into and executing this agreement.

Date: _____

(Signature of Property Owner)

Date: _____

(Signature of Contractor's Authorized Representative per Std. Spec 5-1.16)

Example 3-5.3. Sample Approval to Acquire Material From Property Owner's Property Letter

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION
DIVISION OF CONSTRUCTION

[Resident Engineer's Address]
[City, CA ZIP]
[PHONE (Area Code) xxx-xxxx]
[FAX (Area Code) xxx-xxxx]
TTY 711
www.dot.ca.gov



Making Conservation
a California Way of Life.

Date: [Month dd, yyyy]

[Contractor's Name]
[Address]
[City, State ZIP]

Subject: Approval to Acquire Material From [property owner's name and address]

Dear [contractor name]:

In accordance with the provisions of Sections 5-1.20, "Coordination With Other Entities," and 6-1.03, "Local Materials," of the *Standard Specifications*, you are authorized to remove [insert number] cubic yards of [type of material] ("Material") from [property owner name]'s property located at [property address]. According to the submitted agreement, [contractor name] and [property owner] have represented all necessary permits, licenses, and clearances were obtained and submitted before the removal of the Material and have released the Department of Transportation (Department) from any obligations resulting from its removal.

The Department does not warrant or guarantee that the Material is of any particular type or is suitable for any particular purpose.

The agreement also includes [contractor]'s and [property owner]'s promise to hold the Department harmless from all claims for injury to persons or damage to property resulting from its removal. The contractor shall comply with all parts of the contract including Sections 7-1.06, "Insurance," and 7-1.05, "Indemnification," of the *Standard Specifications*. [Contractor name] shall defend, indemnify, and save harmless the state from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity arising out or in connection with [contractor name]'s performance of this contract including acquiring material from [property owner name]'s property.

Sincerely,

[Name of resident engineer]

c:

Example 3-5.4. Sample Approval for Disposal of Material Outside the Highway Right-of-Way Letter

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION

DIVISION OF CONSTRUCTION

[Resident Engineer's Address]

[City, CA ZIP]

[PHONE (Area Code) xxx-xxxx]

[FAX (Area Code) xxx-xxxx]

TTY 711

www.dot.ca.gov



Making Conservation
a California Way of Life.

Date: [Month dd, yyyy]

[Contractor's Name]

[Address]

[City, State ZIP]

Subject: Approval for Disposal of Material Outside the Highway Right-of-Way

Dear [contractor name]:

In accordance with the provisions of Sections 5-1.20, "Coordination With Other Entities," of the *Standard Specifications*, you are authorized to dispose of [insert number] cubic yards of [type of material] ("Material") to [property owner name]'s property. According to the submitted agreement, [contractor name] and [property owner] have represented all necessary permits, licenses, and clearances were obtained and submitted before the disposal of the Material and have released the Department of Transportation (Department) from any obligations from its disposal.

The Department does not warrant or guarantee that the Material is of any particular type or is suitable for any particular purpose.

The contractor shall comply with all parts of the contract including Sections 7-1.06, "Insurance," and 7-1.05, "Indemnification," of the *Standard Specifications*. [Contractor name] shall defend, indemnify, and save harmless the state from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity arising out or in connection with [contractor name]'s performance of this contract including disposing material on [property owner name]'s property.

Sincerely,

[Name of resident engineer]

c:

bc:

*"Provide a safe, sustainable, integrated and efficient transportation system
to enhance California's economy and livability"*

3-511 Submittals

The contract may require that plans, working drawings, or samples be submitted to the engineer for authorization. Submittals are considered either “action submittals” or “informational submittals.”

Action submittals consist of written and graphic information and samples that require the engineer’s response. The engineer reviews the submittals, makes corrections, or sends the submittals back to the contractor for correction.

Informational submittals consist of written information required to be provided before the affected work can start, but they do not require a response from the engineer.

Caltrans has a procedure for authorizing plan submittals for facilities that were designed by Structure Design. Resident engineers should review this procedure if the work includes such facilities. To view this procedure, refer to Section 132, “Miscellaneous Buildings,” of *Bridge Construction Records and Procedures*, Vol. 2. Pumping plants and electrical and mechanical equipment use a similar procedure. Districts must establish procedures for facilities designed by the district.

In addition, the contract may require that plans and calculations be submitted to the resident engineer for review and authorization for falsework, shoring, and bridge demolition. Refer to Sections 120, “Falsework”; 122, “Shoring”; and 124, “Demolition Plan Review,” respectively, of the *Bridge Construction Records and Procedures*, manual Vol. 2, for guidelines for the review and approval process.

3-512 Construction Surveys

Section 5-1.24, “Construction Surveys,” of the special provisions requires Caltrans to place stakes and marks necessary to permit satisfactory completion of the work. For information on construction surveys, refer to Chapter 12, “Construction Surveys,” of the *Caltrans Surveys Manual*.

The district Surveys Unit will set the construction marks and stakes when the area is ready and will start setting marks and stakes within 2 business days of receiving the request for construction stakes.

Contractors have the option of constructing projects with automated machine guidance (AMG) using digital terrain model (DTM) and digital design model (DDM) files provided by Caltrans. Resident engineers should notify district Surveys and the project engineer when a contractor elects to use AMG. Resident engineers need to verify with project engineers that changes to terrain affecting earthwork quantities such as soil erosion or recent improvements are reflected in the current electronic design files.

For projects with more than 5,000 cubic yards of earthwork, the following specifications are included in the contract:

- Caltrans makes the electronic design files available to contractors as supplemental project information in Sections 2-1.06B, “Supplemental Project Information,” of the *Standard Specifications* and special provisions.

- Sections 5-1.24B, “Department Construction Surveys for Automated Machine Guidance”; 5-1.25, “Automated Machine Guidance”; and 5-1.26, “Grade Quality Control,” of the special provisions.

3-513 Before Work Begins

Take the following steps before work begins:

- Consult with the project engineer to confirm that the project site has not significantly changed since the original survey was performed. If there are changes in the project area terrain that could affect earthwork quantities, request that the district Surveys field check the area. Any new data should be added to the existing digital terrain model (DTM). Design should calculate new earthwork quantities based on a revised DTM.
- Consult with the district Surveys regarding the stability of the project control network. Typically, Surveys will check project control and set supplemental control prior to the start of construction activities. Areas with subsidence and other datum instabilities can cause problems in construction using AMG. Inaccurate control coordinates can cause problems if not caught early.
- Project control sheets should be included in the project plans. If a project control sheet is not in the project plans, request from the district Surveys a Project Control Form 4.1, “Project Datums and Control,” which identifies the datum, epoch, and the horizontal and vertical coordinates of the survey control points within the project limits. In the absence of a project control sheet in the project plans, provide the contractor the completed Form 4.1 and required attachments.
- Review the contractor’s AMG quality control plan for compliance with the requirements in Section 5-1.25, “Automated Machine Guidance,” of the special provisions.
- Inform the district Surveys that the contractor intends to use AMG. Request that a representative from the district Surveys attend the preconstruction conference, or separate AMG meeting, to discuss AMG requirements with the contractor.
- At the preconstruction conference, or separate AMG meeting, discuss the following:
 - Contractor’s AMG quality-control plan
 - Global navigation satellite systems (GNSS) rover and just-in-time (JIT) training
 - Project control verification
 - District Surveys’ review of the contractor’s site calibration or localization
 - Project construction staking in accordance with Chapter 12, “Construction Surveys,” of the *Caltrans Surveys Manual*, and 5-1.24B, “Department Construction Surveys for Automated Machine Guidance,” of the special provisions
 - Electronic files

- Areas with questionable GNSS coverage that may require conventional staking
- Areas not covered in the digital design model (DDM), such as some drainage areas, that will require conventional staking
- Shoulder or gore issues
- Determine if a GNSS rover will be supplied by the contractor. See Section 5-1.25, “Automated Machine Guidance,” of the special provisions. If the contract does not require the contractor to provide a GNSS rover, contact Surveys to request a GNSS rover for use on the project site.
- Verify that Construction staff receives GNSS rover, JIT training. If a GNSS rover is contractor-supplied, the contractor must provide the training. Otherwise, request that district Surveys provide a GNSS rover and training for construction staff.
- Request that district Surveys review and comment on the contractor’s site calibration or localization procedures in accordance with the contractor’s quality-control plan. Confirm that the contractor has performed a GNSS site calibration or localization to the adjusted survey control network.
- Determine frequency for the verification of the contractor’s GNSS system. Request maintenance records from the contractor on all GNSS equipment used on the project.

3-514 During the Course of Work

Take the following steps during the course of work:

- Notify the contractor of any errors or revisions in the lines and grades and whether a revised DDM file will be provided, or whether district Surveys will provide conventional staking for the area involved. Notify district Surveys of any changes in construction staking requirements.
- Verify that the contractor’s check testing results are submitted as informational submittals.
- Verify that the contractor is performing quality control grade checking at the minimum frequency specified in Section 5-1.26, “Grade Quality Control,” of the special provisions. Do this by reviewing quality control grade-checking reports submitted by the contractor prior to performing grade-checking verification.
- For grade-checking verification, the proper tools must be used to assure accuracy. Apply the following regarding accuracy and select the appropriate tools:
 - Less than 0.10 foot elevation tolerance, use either:
 - Level for vertical and GNSS rover for horizontal location
 - Total Station

- For 0.10 - 0.50 foot elevation tolerance, normally use a GNSS rover for vertical and horizontal, but any failing grades must be checked with a digital level or Total Station
- Greater than 0.50 foot elevation tolerance, use a GNSS rover
- For projects that require significant grade checking with an elevation tolerance of less than 0.10 foot, contact the district Surveys unit for assistance.
- The district Surveys unit will provide additional stakes to assist the resident engineer in performing grade checking where increased accuracy is needed. The possible need for additional stakes should be discussed at the preconstruction conference.
- In accordance with Section 12.1-6 (j), of the *Caltrans Surveys Manual*, the district Surveys unit, if resourced and requested, will assist the resident engineer with the inspection of line and grade in areas without conventional staking. The district Surveys unit may assist the resident engineer with project inspection using survey equipment, the project model, and survey control.
- Inspect line and grade by performing grade checking verification and documenting results on Form CEM-3810, "Construction Grade Checking Report."

3-515 Records

Section 5-1.27, "Records," of the *Standard Specifications* requires the contractor to retain project records for at least 3 years after final project payment or resolution of any claims, whichever is later.

These records must be available for inspection, copying, and auditing by state representatives, and must be segregated by work cost categories:

- Bid item work
- Change order work that is not extra work
- Extra work
- Work performed under a potential claim record
- Overhead
- Subcontractors, suppliers, owner-operators, and professional services

This section also requires the contractor to use the Caltrans internet change order billing system. Provide training within 30 days of a contractor's request, and help the contractor's representative establish an account after receiving the training. Refer to Section 5-103E, "Change Order Billing," of this manual for additional information.

3-516 Noncompliant and Unauthorized Work

Section 5-1.30, "Noncompliant and Unauthorized Work," of the *Standard Specifications*, specifies the contractor's responsibility for rejected or unauthorized work and for the removal and replacement of material that does not meet specification requirements.

Unauthorized work includes excavation outside planned slopes and below the grading plane. Unless an approved change order authorizes such excavation, do not permit it.

Except for material that is permitted to remain in place under the specifications for “contract compliance” and “operating range,” reject material represented by a test result not meeting the specified requirement.

Make sure the rejected material gets removed and replaced or remedied in some other manner if it is appropriate. When rejected material is remedied, it may remain in place only if the resident engineer gives written approval. In most cases, the approval requires a contractor-requested change order. For example, a change order would be necessary to approve a contractor’s proposal to remedy out-of-specification aggregate base by adding more aggregate to material deposited previously. A change order is necessary in this situation because the remedy requires a change in specifications. However, the resident engineer’s written approval is not required when the remedy is specified, such as the remedy for damaged galvanizing of pipe or guardrail.

For all material used in the work, make the payment in accordance with the specifications. As an alternative to removal and replacement, do not allow noncompliant material to remain in place without contract payment, unless the specifications, in consideration of “operating range” and “contract compliance,” or an approved change order, provide for such action.

3-517 Job Site Appearance

Section 5-1.31, “Job Site Appearance,” of the *Standard Specifications* requires the contractor to keep the job site neat and includes provisions for disposal of debris.

3-518 Areas for Use

Section 5-1.32, “Areas for Use,” of the *Standard Specifications* allows the contractor to occupy the highway only for purposes necessary to perform the work unless arrangements are made with Caltrans for temporary storage. The contractor has no right to make use of the property or to allow others to use it when such use is not reasonably necessary to perform the required work. For example, residency trailers must not be placed within the right-of-way, although one trailer may be allowed for yard security purposes if the engineer approves temporary storage within the right-of-way.

Prohibit any use of a Caltrans right-of-way that conflicts with the above requirements.

When areas for use are specifically described in the contract, verify the contractor is complying with terms of use. For example, where areas for use include bridge locations, the special provisions are to include restrictions, such as limitations on storage material types, permissible physical locations of storage, required access paths, and maintaining drainage system functionality. Review Structure Policy Directive 1-8, “Material Storage Under Bridges,” for additional information.

If a contractor requests the use of the highway for temporary storage or for any unusual or complicated situations, discuss the request with the construction field coordinator.

The contractor may enter into a rental agreement to use state-owned property outside the right-of-way.

Also, usable property under bridges or viaducts or other property that cannot be sold as excess, but can be leased, is classified as nonoperating right-of-way, also known as "airspace." Each district involved with the development of such property has established an inventory. The special provisions will normally cover the use, or prohibit the use, of nonoperating right-of-way by the contractor. When the use of an airspace parcel is not part of the contract and a contractor later requests such use, the contractor must negotiate a lease for the parcel. A standard form is used for the lease and calls for payment based on fair market value. No special consideration will be given because the lessee is performing Caltrans work. Also, all normal provisions requiring insurance and parcel protection will be enforced. Additional requirements will be set forth for parcels that include areas beneath bridges pursuant to Structure Policy Directive 1-8, "Material Storage Under Bridges."

3-519 Equipment

Section 5-1.33, "Equipment," of the *Standard Specifications*, requires each piece of equipment to have a number stamped or stenciled on it. The identifying number should further be referenced to the license plate issued for the piece of equipment. The additional reference is especially important in the case of tractor and trailer combinations where the tractor may pull different trailers on separate occasions.

Use the identifying numbers to keep records of working and idle time for both equipment and operators, including, among other items, contract items, extra work, move in and out, and plant erecting. Some items of work will require more detailed records than other items. Determine which items of work need more detailed records and how much detail will be necessary. Detailed records are also required for costs when the quantity of certain contract items runs over 125 percent or under 75 percent of the estimated quantity.

Do not instruct the contractor's employees in equipment operation, because the contractor may interpret suggestions as the resident engineer's direct orders. Caltrans personnel must also not adjust the contractor's equipment or ride on equipment other than that designed for personnel transportation or as required to inspect specific features of the work.

3-520 Property and Facility Preservation

Section 5-1.36, "Property and Facility Preservation," of the *Standard Specifications* makes the contractor responsible for protecting and preserving all property involved in the project, including underground facilities and other facilities that are not openly visible. The resident engineer must be diligent in determining and pointing out the existence of property Caltrans knows about, especially underground facilities and other facilities that are not openly visible. For information about locating and

protecting underground utilities, refer to Section 3-520C, “Nonhighway Facilities,” of this manual.

Verify that the contractor does everything required under the contract to protect and preserve property. The contractor may be required to install temporary safeguards to protect existing facilities. However, the contractor’s responsibility includes only what is necessary to protect against damage by construction activity.

If a facility was not sufficiently protected and it is damaged, the contractor is responsible for replacing it with material of equal or better quality.

Make sure that the contractor does not begin any excavation without first contacting the regional notification center.

3-520A Landscape

The plans and specifications may require that certain trees, shrubs, and other vegetation are preserved. Make sure the contractor is aware of all plant life to be protected.

If any permanent protection is ordered, pay for this work as for any other ordered additional work.

3-520B Railroad Property

Make sure the contractor’s operations do not interfere with railroad operations. Do not allow the contractor’s operations to encroach on the railroad right-of-way unless it is specifically allowed by the contract. If work is required on or affecting the railroad right-of-way, the railroad requires a railroad flagger be present.

For any excavations on or affecting railroad property, verify that the contractor submits work plans showing the protection system to be used. The district railroad coordinator is Caltrans’ liaison with the railroad and should submit the work plans to the railroad for approval. The review time for these work plans is 65 days.

3-520C Nonhighway Facilities

3-520C (1) General

Some utilities will be relocated or abandoned to clear the right-of-way before construction of a highway project. A utility relocation resident engineer is assigned to coordinate and inspect utility relocation to clear the right-of-way before construction. The resident engineer assigned to a project assumes the responsibility of the utility relocation resident engineer. Make contact with all of the affected utility owners to facilitate the coordination of the work with the contractor’s activities.

The district Right of Way Unit, acting through the district utility coordinator, is responsible for making changes to “notice to owner” forms and right-of-way agreements. The district Right of Way Unit must also make all decisions about financial liability between Caltrans and the owner for utility work. Send change orders involving utility work to the district utility coordinator for concurrence.

3-520C (2) Duties of the Utility Relocation Resident Engineer

The utility relocation resident engineer must perform the following duties:

- Review all documents for the utility relocation work, including the “notice to owner” forms, encroachment permits, special provisions, contract plans, and correspondence about utilities not shown on the plans.
- Check the location of proposed and existing utility installations for possible conflicts with the proposed construction of the highway project.
- Determine whether Caltrans or the utility will establish necessary survey control and establish lines and grades. If Caltrans is responsible for these items, verify that necessary lines and grades are properly established so that relocation crews can efficiently perform the work. For possible conflicts, compare all facilities with available plans. Also, spot-check survey marks at critical locations for possible conflicts. Require changes where necessary.
- If utility relocation or abandonment is to occur before the highway project starts and there is sufficient time for entries to be made before contract advertising, submit to the district utility coordinator any changes or notices of newly discovered facilities and enter them on the contract plans or in the special provisions. Document in the resident engineer’s pending file the changes or new facilities that cannot be included in the contract before advertising.
- If utility relocation or abandonment is concurrent with the highway project, include utility owners and the district utility coordinator in preconstruction conferences with the contractor. On larger projects with a number of utility relocations, it is advisable to schedule a separate meeting for each owner. In these meetings, discuss:
 - Special provision requirements.
 - The contractor’s schedule as it affects relocation work, project safety, and traffic control.
 - Potential problems.

Keep records of such meetings, and restate any decisions made through letters to all parties.

- Before allowing any change in the planned location of a utility facility or any excavation to determine the location of underground utility facilities, verify that such action complies with Chapter 17, “Encroachments and Utilities,” of the *Project Development Procedures Manual*.
- The district utility coordinator will advise the resident engineer when utility relocation work warrants full-time inspection. Keep records of utility relocation work on Form CEM-4601, “Assistant Resident Engineer’s Daily Report.” When inspection is full time, keep records for the following as complete as possible:
 1. Number of workers
 2. Equipment description

3. Hours worked

4. Materials salvaged

- When inspection is part-time, record all detail consistent with observed activity. At a later date, the district Right of Way Unit will request these records to verify the utility owner's final bill.
- Keep the contractor advised of any utility work that will require a change in the contractor's work activities. Keep detailed records of any alleged or actual right-of-way delays related to utilities. Make recommendations to the district on any requests for time adjustments resulting from such delays. Refer to Section 3-804A (2), "Change Order Time Adjustments (Center Block)," of this manual for procedures for time extensions.
- The contractor is required to notify the resident engineer in writing of discovery of an underground facility not indicated on the plans or in the special provisions. In the absence of written notification from the contractor, document the location of the underground facility and include this documentation in a written confirmation sent to the contractor.
- Whenever the contractor has not received prior indication of an existing facility, change orders, including the repair of any damage, will be considered for approval. However, Caltrans will not pay for the repair of damage caused by negligence after the contractor was notified of the existence of a utility facility.
- Whenever underground facilities are discovered and they are not shown in the plans or the special provisions, notify the district utility coordinator. Instead of relocating the underground facility, the parties involved may reach an agreement with the utility owner about satisfactory protection of the facility before the contractor begins any physical work. If the contractor must protect the utility facility, prepare a change order to cover the payment for such work. The term "protection work," as used in contract administration, must include any work necessary to assure the utility's service, reliability, and ability to operate at approximately the same level as before any disturbance from construction activities. This work may include exploration to find exact locations, placement of barricades or warning devices, shoring, or even temporary bypass facilities or permanent relocation. However, this protection work will not include facility repairs for damage resulting from negligent equipment operation around properly protected facilities.
- Notify the district utility coordinator immediately when a utility facility is in conflict with the planned work. Follow up the notification in writing. Include drawings or plan sheets showing the location of the existing facility, the affected work, recommended action, and the estimated date when the conflict will begin to affect the contractor's work activities and time of completion. The district utility coordinator must arrange relocation work necessary to resolve the conflict.
- Determine whether facilities shown on the plans or specifications are being adequately protected from damage as required by the contract. Notify the contractor in writing of any inadequacies.

- When judging the extent of compliance required by the specifications, take into account the type of facility involved. Consider such things as the consequences of a potential accident. When consequences involve life and limb, do not permit work in such areas unless the contractor has made physical checks of the facility location. When working around hazardous facilities, do not assume calculations made from plans are accurate whether the plans were prepared by Caltrans or the utility owner.

3-521 Maintenance and Protection

3-521A General

Section 5-1.37, "Maintenance and Protection," of the *Standard Specifications* requires the contractor to maintain and protect the work until Caltrans has granted maintenance and protection relief or has accepted the contract. This section also requires the contractor to prevent construction equipment that exceeds legal maximum weight limits from operating on completed or existing treated base, pavement, or structures.

If the highway in question is a state highway, Caltrans' maintenance forces will maintain the part of the existing highway outside of the limits necessary to construct the bid item work. If the highway in question (or highway part) is under the control of a local authority, either the local authority or Caltrans maintenance forces will maintain the part of the existing highway outside the limits necessary to construct the bid item work in accordance with the maintenance agreement between Caltrans and the local authority.

The maintenance superintendent, and the resident engineer must have a clear understanding of which portions of the highway Caltrans maintenance forces will continue to maintain during the project's construction. The following guidelines should be used when discussing roadway maintenance:

- If new work is required on an existing highway, the owner (Caltrans or the local authority) will continue to maintain the highway or portions of it until the contractor takes possession by erecting signs or begins bid item work. The owner will resume maintaining the highway or portions of it when the contractor is relieved from maintenance responsibility under Section 5-1.38, "Maintenance and Protection Relief," of the *Standard Specifications*.
- Often, on widening or improvement projects, existing highway facilities will be located outside the areas of work where no alterations, modifications, or replacements are planned. In these cases, except for repair of damage because of the contractor's operations, the owner will maintain the highway facility. If the new work consists of widening the existing highway's pavement or roadbed and the contractor's operations are restricted to a portion of the width of the roadway, the owner will continue maintaining the balance of the width.
- If damage caused by the public occurs to an existing facility within the construction limits and the work required to repair the damage is similar to the work being done by the contractor, the contractor may do the repairs.

- In case of emergency conditions within construction limits, the maintenance superintendent and the resident engineer should determine how to address the condition quickly and safely.
- Pay as extra work any work done by the contractor to maintain and repair damage to existing facilities, except for damage the contractor caused.

3-521B Load Limits

Except for special conditions described in Section 5-1.37, "Maintenance and Protection," of the *Standard Specifications*, all equipment hauling material over roads or streets open to public traffic to, from, or within the project must comply with weight limitations required by the California Vehicle Code Division 15. If the contractor wishes to move equipment that exceeds the size or weight limits, the contractor must provide necessary protective measures and repair any damage resulting from those overloads.

Refer to *Bridge Construction Records and Procedures*, Vol. 2, when the contractor requests moving or placing overloads on structures.

To enforce weight limitations for overloads hauled over public roads and streets, follow the procedure outlined below:

- Make sure contractors do not place or move equipment that exceeds the weight limits on or across a structure without written authorization.
- Coordinate with the project's structure representative on the review of all submittals requesting authorization to place on, or cross a structure with equipment that exceeds the weight limits. If a structure representative has not been assigned, coordinate the review through the bridge construction engineer. Structure Construction personnel will review the overload proposal in accordance with *Bridge Construction Records and Procedures* Vol. 2, Bridge Construction Memo 150-1.0, "Weight Overload Guidelines for Bridges on Construction Projects." After written authorization is provided, coordinate with the structures representative or bridge construction engineer to verify that the contractor's plan to move the overload on or across the structure is implemented in accordance with the authorized plan.
- Recognize that the most commonly used material transfer vehicles have axle loadings double the legal limit when empty, and triple the legal limit when loaded. When the contract requires the use of transfer vehicles or other types of heavy paving equipment, or the contractor at their option has determined they will use a material transfer vehicle, discuss at the prepaving and preconstruction conferences the contractor's plans to conform to the load limitation requirements.
- The assistant resident engineer receiving a weighmaster certificate indicating an overload may accept a load that is not more than 200 pounds over the legal gross weight. However, advise the contractor immediately that if the violation continues, Caltrans will refuse to accept such loads and will notify the California Highway Patrol.

- When a weighmaster certificate indicates that a load is more than 200 pounds over the legal gross weight, reject the load and notify the California Highway Patrol that overloads are being hauled.
- Prohibit rejected material from being used in the work unless the load is reduced and is again weighed to adhere to the legal gross vehicle weight.
- Record the identification of rejected weighmaster certificates in the daily report.

3-521C Damage by Public Traffic

Only in some cases will Caltrans pay to repair damage to completed permanent facilities caused by public traffic. Completed permanent facilities are any features constructed by the contractor that will become a permanent part of the project. Unless specifically provided for, Caltrans will not pay for damage to temporary facilities such as falsework and forms.

The facility need not be 100 percent complete for the contractor to be compensated, but it must be functional. Caltrans must not pay for damage from public traffic to facilities that are not considered functional yet. For example, guardrail posts or guide marker posts or a bridge still supported by falsework would not be considered functional. However, for a concrete barrier that only requires a specified light abrasive blast finish, Caltrans may pay for damage caused by public traffic because the barrier is functional.

Following are guidelines for determining payment for damage by public traffic:

- Whenever the resident engineer orders the pavement or deck of a structure opened to public traffic, the contractor is relieved of responsibility for damage to the completed permanent facilities caused by public traffic. The contractor will be relieved of responsibility whether the opening to public traffic occurs before the scheduled opening time, occurs as the natural sequence of events, or occurs as the result of a contract specification. The contractor will be relieved of responsibility for damage to completed permanent facilities caused by public traffic whether traffic is placed on new alignment not previously used by traffic or traffic is placed on new resurfacing opened after daily closures. Compensation for damage caused by public traffic is appropriate if the completed surfacing consists of an asphalt concrete base or leveling course.
- If the contractor requests an opening ahead of the normal schedule, the following applies:
 - When the opening does not conform to the specified or shown order of work, it must be covered by a change order approved by headquarters, in accordance with Section 5-3, "Change Orders," of this manual. If Caltrans will not compensate the contractor for damage to completed permanent facilities, the change order must state this fact.
 - When the opening does not conform to the specified or shown order of work, the resident engineer will normally base approval or disapproval of the change order on an evaluation of the benefit to public traffic. If the benefit is substantial, it is appropriate to approve the change order and compensation

in accordance with Sections 5-1.38, “Maintenance and Protection Relief,” 5-1.39, “Damage Repair and Restoration,” and 7-1.03, “Public Convenience,” of the *Standard Specifications*. If measurable benefits accrue to the contractor, make sure the change order provides a credit to Caltrans.

- If the benefits to public traffic are borderline or negligible, it is appropriate to approve the change order under the condition that the contractor be responsible for damage caused by public traffic. The contractor must acknowledge the condition in writing. Again, if measurable benefits accrue to the contractor, include a credit to Caltrans in the change order.
- If good reason exists for doing so, the resident engineer can refuse to approve a proposed opening.

When the contract temporarily routes public traffic closer to the facilities than the traffic will be after completion of the work, the contractor will be relieved of responsibility for damage to the completed permanent facilities caused by public traffic. For example, Caltrans will relieve the contractor of responsibility if damage occurs to a completed guardrail at the edge of the shoulder when the plans or special provisions require public traffic to be temporarily placed on the shoulder to facilitate construction.

3-522 Maintenance and Protection Relief

The contractor may be relieved from maintaining and protecting certain completed portions or sections of the work under conditions specified in Section 5-1.38, “Maintenance and Protection Relief,” of the *Standard Specifications*.

Caltrans policy recommends relief for only those portions of the work specifically mentioned in the specifications unless a request for relief fully justifies exceptions.

For completed roadways, the specified length of 0.3 miles is the minimum practical length of completed main roadway on which to recommend relief from maintenance and protection. However, shorter units of completed work, such as on-ramps, off-ramps, frontage roads, or approaches to under-crossings and overcrossings, may also be eligible for maintenance and protection relief.

Do not recommend relief from maintenance and protection on a 0.3-mile section with exceptions within that length unless you provide a valid reason to support the recommendation. Exceptions must be defined in terms of longitudinal sections of highway or certain specified areas. For example, it is unacceptable to recommend maintenance and protection relief for a total project except for the inlet ditch to the right of stations 20+00 to 25+00. It is acceptable to recommend relief for the total project except for stations 15+00 to 27+00 (the section of highway that could be affected by the uncompleted ditch to the right of stations 20+00 to 25+00).

Completed bridges or other major structures may also receive maintenance and protection relief. For purposes of relief from maintenance and protection, the following describes what constitutes a “bridge or other major structure:”

- Section 1-1.07, “Definitions,” of the *Standard Specifications* indicates a structure will be considered a bridge if the plans or other portions of the contract so identify it.
- Other structures to be considered of major importance are culverts in excess of 6.5 feet in diameter or of approximate equivalent area.
- A facility not meeting the above criteria will be considered of major importance only if its final cost exceeds 5 percent of the original total bid for all of the bid items (including mobilization).
- Projects with noncontiguous locations may be accepted location by location, provided the work at each requested location is complete. Noncontiguous areas of work outside the right-of-way on major projects may also be accepted if the procedures outlined in Section 3-523C, “Work for Other Agencies or Owners,” of this manual have been followed.

Maintenance and protection relief excuses the contractor from responsibility for repair of damage from causes other than those resulting from the contractor’s own operations or from the contractor’s negligence. Before recommending a request for maintenance and protection relief, determine that the requested work will not be damaged as a result of incomplete adjoining work. For example, a roadway section may be complete while an upstream culvert remains incomplete. Water flowing past the uncompleted culvert may damage a portion of the requested roadway section.

Before recommending maintenance and protection relief, analyze each situation critically to determine if it qualifies in all respects. Indiscriminate recommendations for relief from maintenance and protection must not jeopardize the project’s proper completion. Once the contractor is relieved from maintaining and protecting a portion of the work, the contractor cannot be required to do more work on it except by agreement or to remedy defective work or materials.

If the engineer has any doubts about the requested area’s eligibility, deny the contractor’s request for relief from maintenance and protection. Inform the contractor in writing so no doubt exists as to the status of the contractor’s request and the nature of uncompleted work. Section 5-1.38, “Maintenance and Protection Relief,” of the *Standard Specifications* states that the portion of work must have been completed under the contract and to the engineer’s satisfaction before it becomes eligible for maintenance and protection relief.

For landscape projects, the contract usually includes a special provision to allow granting relief from maintenance and protection for items not directly connected with plant establishment work or highway planting and irrigation systems. The special provisions could grant relief from maintenance and protection for typical items of work, such as asphalt concrete placed as island paving or sidewalks and seal coats placed on islands, curbs, and fences. Such items may not have a direct bearing on the success or failure of plant establishment, and it is unreasonable to require the contractor to maintain them.

However, to be consistent with the policy for nonlandscape contracts, this type of relief from maintenance and protection responsibility will be granted for an entire

group of items, not item by item. An item that protects the planting or is involved in plant establishment should not be submitted for maintenance and protection relief. This category typically includes planter boxes, sprinkler systems, header boards, or mesh.

Safety roadside rest areas will not be accepted item by item but may be recommended as completed units.

Maintenance and protection relief denotes recognition of completed work. Therefore, the resident engineer must conduct a maintenance review of areas that will be granted maintenance and protection relief. Also, recommendations for this action on work for other public agencies or owners require the concurrence of these agencies and owners. Before recommending relief from maintenance and protection on such portions of the work, complete the procedures outlined in Sections 3-525C, "Work for Other Agencies or Owners," 5-006C, "90 Percent Review," and 5-006D, "Final Inspection Review," of this manual. In the communication recommending relief, include a statement that the agency authorities concur or, in the absence of such concurrence, include justification for relief.

For requests for relief from maintenance and protection, use Form CEM-0501, "Relief from Maintenance."

3-523 Requests for Information and Potential Claim Records

3-523A General

During the course of the project, and up to receiving the proposed final estimate, the contractor must submit a contract dispute or protest in the form of a request for information. If the request for information leads to a dispute, the contractor must follow the three-part potential claim process specified in the contract. The three parts of the potential claim process are the initial potential claim record, the supplemental potential claim record, and the full and final potential claim record.

Verify that on all potential claims-related documents, the date and time of receipt, and the name of the person who received it are noted.

Verify that the request for information and potential claim documents are complete and timely. If the information is incomplete, notify the contractor of the deficiencies and request that the contractor resubmit the document with the complete information. If the contractor failed to submit the request for information or potential claim record within the specified time, notify the contractor that the submittal was not timely and state that this failure to comply with the procedure provided for in the contract is a waiver of the potential claim, a waiver of the right to a corresponding claim for the disputed work, and a bar to arbitration.

Some sample dispute response clauses are in Section 3-523E, "Sample Dispute Response Clauses," of this manual.

3-523B Requests for Information

The contractor may submit a request for information at any time to clarify contract provisions, notify the resident engineer of a change in condition, or file a protest. The request for information must be in writing and delivered to the resident engineer (in person, by mail, or by email) by the contractor.

Using a request for information, the contractor may protest an approved change order not executed by the contractor, compensation for work specified in the change order, adjustment of contract time, Weekly Statement of Working Days, progress payment, delays, liquidated damages, or any decision by the resident engineer.

Note that not all requests for information will result in a potential claim.

Upon receipt of a request for information used as a protest, however, the resident engineer starts a section in Category 62, "Disputes," of the project records. Additional information, including related documents and correspondence will be included in this section.

The resident engineer references the contractor's request for information and must respond in writing within the time specified in the contract. A response should include acknowledgment that the request for information was received and may include the information requested, an invitation for further discussion, a request for clarification, or the anticipated date for a complete response.

3-523C Potential Claim Records

The contractor submits a written potential claim record when the contractor believes additional compensation is due in accordance with Section 5-1.43, "Potential Claims and Dispute Resolution," of the *Standard Specifications*. Follow the potential claim record process when protested issues and disputes are not resolved.

The contractor provides a unique identification number for each potential claim submitted. For supplemental potential claim records and full and final potential claim records, the contractor must certify each form with reference to California Government Code, Title 2, Sections 12650–12655, "False Claims Actions."

If a supplemental potential claim record or a full and final potential claim record is received without this certification or is otherwise incomplete or incorrectly filled out, notify the contractor in writing that it was not submitted in accordance with Section 5-1.43, "Potential Claims and Dispute Resolution," of the *Standard Specifications* and that the contractor is allowed 15 days to correct the deficiencies or withdraw the potential claim. If the corrected record is not provided in the required time, notify the contractor in writing that Caltrans will not consider the potential claim. Discuss this latter notification with the construction engineer.

If the nature, circumstances, or basis of the claim differs from the prior potential claim record, reject the record and return it with a letter indicating which component has changed.

3-523C (1) Form CEM-6201D, Initial Potential Claim Record

The initial potential claim record provides a notification to Caltrans of a disputed issue. This record provides the nature and circumstances of the dispute and gives the parties the opportunity to mitigate the associated costs with the goal of an early resolution.

When the contractor's initial potential claim record is not timely, Caltrans may be disadvantaged by limiting available corrective actions. The timeliness of the original initial potential claim record is one of the many considerations in evaluating a contractor's protest, especially when quantifying the contractor's damages and compensation requests.

3-523C (1a) Resident Engineer's Response to the Initial Potential Claim Record

The resident engineer's response to the initial potential claim record acknowledges the dispute, directs the contractor on how to proceed with the disputed issue, and informs the contractor of the contractual time requirements to submit the supplemental and full and final potential claim records.

The resident engineer must determine if the contractor's dispute has merit. If the dispute does have merit, the resident engineer must take appropriate action within the scope of the contract and within the resident engineer's authority to resolve the dispute. If the resident engineer cannot resolve the dispute or lacks the authority to act, the resident engineer should discuss the issue with the construction engineer and the structure construction engineer, if appropriate.

3-523C (2) Form CEM-6201E, Supplemental Potential Claim Record

The supplemental potential claim record provides justification for additional compensation and adjustments with references to the appropriate provisions of the contract. The record must also include the estimated costs and impacts to the schedule. The contractor must update the cost estimate or the impact to the schedule as soon as a change is recognized.

Upon receipt of Form CEM-6201E, "Supplemental Potential Claim Record," analyze the contractor's potential claim. This may involve discussing the potential claim with peers, subject matter experts, and district management.

Potential claims involving differing site conditions that lack merit must also include an internal review by a management review committee as referenced in Section 3-404, "Differing Site Conditions," of this manual.

3-523C (2a) Resident Engineer's Response to the Supplemental Potential Claim Record

Make sure the supplemental potential claim record is timely and is submitted on Form CEM-6201E, "Supplemental Potential Claim Record."

Once you receive a complete potential claim record submittal, evaluate it and provide a detailed response letter to the contractor within the time specified in the contract. The response letter must include the following sections:

- **Background**—Explain the circumstances that led to the dispute. Include only information such as events, dates, discussions, meetings, memos, and letters.
- **Contractor’s Position**—Base the position on the information provided in the contractor’s supplemental potential claim record. Use direct quotes from the information provided by the contractor without attempting to interpret or clarify them.
- **Resident Engineer’s Position**—State the merits of the potential claim clearly and concisely. Fully document the contract requirements such as permits, plans, specifications, and other requirements supporting the findings.
- If the potential claim is determined to have no merit, remind the contractor of the option to further pursue the potential claim as specified in the contract. Inform the contractor of the contractual time requirements for the alternative dispute resolution procedures and for submitting the full and final potential claim record.

When properly prepared, the response letter serves as the basis for the preliminary construction claim findings.

Follow the guidelines in Section 3-523D, “Documentation Guidelines for Disputes,” in this manual.

3-523C (3) Form CEM-6201F, Full and Final Potential Claim Record

Upon receipt of Form CEM-6201F, “Full and Final Potential Claim Record,” evaluate it and respond within the time specified in the contract. Do not respond to the contractor if the full and final potential claim record is submitted after contract acceptance. Review and consider the information before processing the proposed final estimate.

3-523C (3a) Resident Engineer’s Response to the Full and Final Potential Claim Record

The requirements and format for the resident engineer’s response to the full and final potential claim record are the same as outlined in Section 3-523C (2a), “Resident Engineer’s Response to the Supplemental Potential Claim Record.” Refer also to Section 3-523D, “Documentation Guidelines for Disputes,” later in this section.

3-523D Documentation Guidelines for Disputes

The following are guidelines for keeping records and responding to requests for information and potential claim records:

- Check that reports and documents are factual and accurate. Use specific statements in daily reports. An entry such as, “Told the contractor that . . .” is not satisfactory, whereas “I told Foreperson Smith that . . .” is satisfactory. A general conclusion about the effect of a conversation is not helpful; a statement of the conversation is better.

- Answer letters containing questionable or erroneous statements made by the contractor in writing by refuting or correcting the contractor's statement.
- Put orders and decisions in writing. Confirm any important statement about the unacceptability of the work in writing. Before ordering the contractor to proceed with extra or additional work, obtain approval. If the contractor verbally informs you of a dispute, advise the contractor to comply with the applicable requirements of the *Standard Specifications*. Include notes on verbal discussion in the resident engineer's daily report.
- Identify the issue and try to come to agreement with the contractor on a brief description of the dispute. Identify areas of agreement and disagreement within the issue. This will help to minimize the peripheral items that could cloud the dispute.
- The engineer's response to the contractor's supplemental potential claim record will serve as the basis for the Caltrans position paper in alternative dispute resolution proceedings.
- Focus on costs specific to the dispute, but do not discuss any funding availability, such as project contingency balance, with the contractor.
- If a dispute arises during the work's progress, keep accurate records of the operations to eliminate subsequent arguments related to work costs. During the progress of the disputed work, make regular tentative agreements for the labor, equipment, or material quantities involved.
- Take preconstruction and project progress photographs. Photographs and videos are valuable in confirming job conditions at a particular point in time. Dated pictures of areas where work is not underway may be as important as pictures of construction operations or completed work.
- Record the full names of all of the contractor's personnel involved in any dispute. These individuals may need to be located later. Information such as full names and addresses of the contractor's personnel are contained in the certified payrolls.
- Record equipment information such as description, model number, contractor's equipment number, size, and capacity to help calculate and confirm costs associated with disputes.

Category 62, "Disputes," of the project records must contain copies of all documents related to every dispute on the project including progress schedules. This information provides the basis for preparing the preliminary construction claim findings. Follow the procedures outlined in Section 5-102, "Organization of Project Documents," of this manual to provide a good basis for documenting claims.

3-523E Sample Dispute Response Clauses

Use the following sample clauses in responses to requests for information and potential claim records. Edit the clauses to fit the specific situation.

3-523E (1) Request for Information for Notification of a Possible Differing Site Condition

3-523E (1a) General

“I have received your request for information dated *[insert date]* providing notification of a possible differing site condition encountered at *[give location]*. It is my understanding that you believe the material encountered differs materially from that shown on the plans or is considered to be of an unusual nature . . .”

3-523E (1b) If No Merit

“I have investigated the material and the contract documents *[specify which documents]*, and have found that the material does not vary from that shown on the contract documents. Therefore, no additional cost or extension of contract time is warranted to complete the work.

“If you still believe a differing site condition exists, follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*.”

3-523E (1c) If Merit

“I have investigated the material and the contract documents *[specify which documents]*, and have found that the material does vary from that shown on the contract documents. Therefore, additional cost or extension of contract time may be warranted to complete the work.

“Please furnish me with the additional costs that may result from the increased work as a result of this differing site condition.”

3-523E (1d) If Partial Merit

“I have investigated the material and the contract documents *[specify which documents]*, and have found that the material from *[specify locations or stations]* does not vary from that shown on the contract documents and the material from *[specify locations or stations]* does vary from that shown on the contract documents. Therefore, additional cost or extension of contract time may be warranted to complete the work from *[specify locations or stations]*.”

“Please furnish me with the additional costs for the work from *[specify locations or stations]* that may result from the increased work as a result of this differing site condition.”

3-523E (2) Requests for Information to Protest a Time Adjustment Determination in a Change Order

Use the following clauses in your response to a protest of time determination in a change order:

3-523E (2a) General

“I have received your request for information dated [*insert date*] to protest the time adjustment under Change Order No. [x]. I understand that you are protesting the determination of a time extension of [y] working days for this change and you believe you are entitled to a time extension of [z] working days.”

3-523E (2b) If No Merit

“My review of Change Order No. [x], anticipated work, and the progress schedule indicates that the work required by the change order does not affect the controlling operation [*if a critical path method (CPM) review was performed substitute “critical path” for “controlling operation”*]. Therefore, you are not entitled to an extension of contract time.

“If you still believe that a time extension is warranted, please provide documentation to support your position, either in narrative form or an analysis showing the effect of this work on the completion date of the project. Continue to follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*.”

3-523E (2c) If Merit

“My review of Change Order No. [x], anticipated work, and the progress schedule indicates that the work required by the change order affects the controlling operation [*if a CPM review was performed, substitute “critical path” for “controlling operation”*]. I have determined a time extension of [y] days associated with the work.

“Change Order No. [x] will be revised to reflect this adjustment of contract time. Please review and sign the revised change order if you agree with the change.”

3-523E (2d) If Partial Merit

“My review of Change Order No. [x], anticipated work, and the progress schedule indicates that the work required by the change order does not alter the controlling operation [*if a CPM review was performed substitute “critical path” for “controlling operation”*] as you have indicated. My review indicates that the timeline for the controlling operation [*if a CPM review was performed substitute “critical path” for “controlling operation”*] was lengthened by [*number of days or dates*]. Therefore, you are entitled to an extension of contract time by [y] days. Change Order No. [x] will be issued to provide an adjustment of contract time for [*number of days or dates*].

“If you still believe that an additional time extension is warranted, please provide documentation to support your position, either in narrative form or an analysis showing the effect of this work on the completion date of the project. Continue to follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*.”

3-523E (3) *Requests for Information to Protest a Weekly Statement of Working Days*

Use the following clauses in your response to a request for information to protest the determination of contract time in a Weekly Statement of Working Days:

3-523E (3a) General

“I have received your request for information dated [*insert date*], to protest the Weekly Statement of Working Days No. [x]. It is my understanding that you are protesting the charging of [*specify day or days protested*] as a working day because [*specify the contractor’s reasons for protesting the days in question*].”

3-523E (3b) If No Merit

“The Weekly Statement of Working Days was completed in accordance with Section 8-1.05, ‘Time,’ of the *Standard Specifications*. Our records indicate that you were working on the controlling operation more than 50 percent of the scheduled work shift in question. This constitutes a working day as defined in Section 1-1.07, ‘Definitions,’ of the *Standard Specifications*. If you believe that the day(s) in question should be considered nonworking days, please submit documentation in support of your protest. In the absence of such documentation, the Weekly Statement of Working Days No. [x] will remain unchanged.

“If you decide to pursue this as a potential claim, follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*.”

3-523E (3c) If Merit

“I have reviewed the project records and have determined that [*insert date*] should be revised to indicate a nonworking day. Attached is the revised weekly statement of working days no. [x].”

3-523E (3d) If Partial Merit

“Our records indicate that you were working on the controlling operation for the entire day on [*insert dates*] but not on [*insert dates*]. [*insert dates*] should be revised to indicate a nonworking day. Attached is the revised Weekly Statement of Working Days No. [x].

“The Weekly Statement of Working Days was completed in accordance with Section 8-1.05, ‘Time,’ of the *Standard Specifications*. Our records indicate that you were working on the controlling operation more than 50 percent of the scheduled work shift in question. This constitutes a working day as defined in Section 1-1.07, ‘Definitions,’ of the *Standard Specifications*. If you believe that the days in question should be considered nonworking days, please submit documentation in support of your protest. In the absence of such documentation, the revised Weekly Statement of Working Days No. [x] will remain unchanged.

“If you decide to pursue this as a potential claim, follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*.”

3-523E (4) *Potential Claim Record*

Use the detailed format and response guidelines in Section 3-523C, “Potential Claim Records,” of this manual in conjunction with the following clauses to respond to a potential claim record. Also, refer to Section 3-523C (1a), “Resident Engineer’s Response to the Initial Potential Claim Record,” 3-523C (2a), “Resident Engineer’s Response to the Supplemental Potential Claim Record,” and 3-523C (3a), “Resident Engineer’s Response to the Full and Final Potential Claim Record,” of this manual.

3-523E (4a) General

“I have received your [*state initial, supplemental, or full and final*] potential claim record dated [*insert date*], regarding [*state the issue*]. It is my understanding that this potential claim is the result of a dispute over [*state the dispute and give background of the dispute*].

“I understand your position to be [*quote the contractor’s position as described in the potential claim record*].”

3-523E (4b) If No Merit

“I have reviewed your [*state initial, supplemental, or full and final*] potential claim and based on the information you provided I find that it has no merit. [*Explain why in detail.*]

“If you decide to pursue this as a potential claim, follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*.”

3-523E (4c) If Merit

“I have reviewed your [*state initial, supplemental, or full and final*] potential claim and based on the information you provided I find that it has merit. [*Explain why.*] Change Order No. [x] will be issued to address the points that have merit. Please provide me with the cost associated with your notice of potential claim for review and determination of compensation.”

3-523E (4d) If Partial Merit

“I have reviewed your [*state initial, supplemental, or full and final*] potential claim and based on the information you provided I find that the following points have merit: [*List points and explain why in detail.*] The following points do not: [*List points and explain why in detail.*]

“If you decide to pursue this as a potential claim, follow the procedures and processes described in Sections 5-1.42, ‘Requests for Information,’ and 5-1.43, ‘Potential Claims and Dispute Resolution,’ of the *Standard Specifications*. Change

Order No. [x] will be issued to address the points that have merit. Please provide me with the cost associated with your notice of potential claim for review and determination of compensation.”

3-523E (4e) Request Additional Information

“I have reviewed your [*state initial, supplemental, or full and final*] potential claim record [*or request for information*]; however, I am unable to make a determination based on the information you provided. Please provide me with the following information so I can make a determination regarding your potential claim.”

3-524 Alternative Dispute Resolution Processes

Alternative dispute resolution helps resolve disputes and potential claims, mitigate damages, and maintain project schedules.

The alternative dispute resolution processes are partnering, dispute resolution ladders, (DRL), dispute resolution advisor (DRA), and dispute resolution board (DRB). Their use is based on the size and duration of the contract. Refer to the special provisions and Sections 5-1.09, “Partnering,” and 5-1.43E, “Alternative Dispute Resolution,” of the *Standard Specifications* to determine which alternative dispute resolution process is appropriate for the contract.

In order for the alternative dispute resolution processes to be most effective, they must be set up and used in accordance with the applicable provisions. Set up partnering, the DRL, the DRA, or the DRB as quickly as possible within the time specified to assure timely referral and aid in resolution of dispute issues.

3-524A Partnering-Facilitated Dispute Resolution

As one of the alternative dispute resolution processes, partnering is used to develop and maintain trust and collaboration among project team members. Using partnering best practices provides a process for the project team to resolve project issues and prevent them from becoming disputes. Refer to Section 5-1.09, “Partnering,” of the *Standard Specifications*, and Section 3-504, “Partnering,” of this manual for further guidance.

If facilitated dispute resolution is included in the partnering charter for the project and the project team is no longer having a productive dialogue regarding a dispute, discuss with the contractor the use of facilitated dispute resolution as a way to reestablish productive dialogue. Schedule facilitated dispute resolution within the timelines provided in Section 5-1.43E(3)(d), “DRB Traditional Dispute Meeting,” of the *Standard Specifications*. Partnering-facilitated dispute resolution is not a substitute for any other contract requirement or administrative claims procedure or provision. Refer to Chapter 7, “Resolving Disputes,” of the *Field Guide to Partnering on Caltrans Construction Projects* for further direction and guidance.

3-524B Dispute Resolution Ladder

Projects with bids less than \$3 million may use the partnering dispute resolution ladder (DRL). The optional DRL process will be included in the special provisions or can be added with a no cost change order.

The DRL is an optional part of the alternative dispute resolution process. If used, the DRL runs concurrently with requests for information and potential claim records. It is not a substitute for any other contract requirement or administrative claims procedure or provision.

3-524B (1) Dispute Resolution Ladder—Establishment

- At the preconstruction conference, kickoff partnering workshop, or any time before contract acceptance, the resident engineer offers the contractor the option of using a DRL as an alternative dispute resolution process. When accepted by the contractor, the resident engineer should document the DRL by filling out Form CEM-6208, “Dispute Resolution Ladder Establishment,” which lists the names, titles, and contact information for Caltrans and contractor personnel. Caltrans’ dispute resolution ladder, in ascending order, is as follows:
 - Field Level—Inspector
 - Level 1—Resident Engineer
 - Level 2—Construction Engineer
 - Level 3—Construction Manager, Office Chief, or Deputy District Director of Construction, as designated by the Deputy District Director of Construction.

The resident engineer and the contractor’s representative may use Form CEM-6209, “Elevation of a Dispute,” to define the dispute before elevating it.

The resident engineer does not pay the contractor’s costs for participating in the DRL process.

3-524B (2) Dispute Resolution Ladder—Operation

A dispute will be advanced up the ladder when an agreement between the parties on a defined level cannot be reached within the time specified. A dispute can be elevated sooner if both representatives on the defined level agree and the representatives at the next higher level concur.

3-524C Dispute Resolution Advisor and Dispute Resolution Board

A DRA or a DRB is used on a project with at least 100 working days. A DRA is an experienced neutral party that Caltrans and its contractor use to help resolve disputes on contracts with a total bid of \$3 million to \$10 million. A DRB is a three-member board of knowledgeable neutral parties that Caltrans and the contractor use to resolve disputes on contracts with a total bid of more than \$10 million.

Use of a DRA or DRB allows knowledgeable and experienced board members who are not directly involved with the contract to review and analyze a dispute and provide their recommendations. Although these recommendations are not binding,

they are valuable in helping to resolve disputes before disputes become claims. These recommendations become important if the dispute is carried over to arbitration.

Disputes are documented in a potential claim record. They must be referred to the DRA or DRB, and a dispute meeting must be held within the timelines specified. Generally, it is not in Caltrans' best interest to wait to have a dispute heard. Rarely do disputes get smaller as time passes. Furthermore, memories fade with time, and project personnel often move on. Adhering to the timelines is key to resolving disputes as quickly and as fairly as possible. For DRA and DRB suggested operating procedures and traditional dispute meeting timelines, refer to:

<https://dot.ca.gov/programs/construction/dra-information-and-candidate-list>

<https://dot.ca.gov/programs/construction/drb-information-and-candidate-list>

If a contractor is not adhering to the specified timelines for referring a dispute to the DRA or DRB, remind the contractor, in writing, of the contractual requirement to do so. If a contractor indicates a wish to defer having the dispute meeting, a new date can be arranged if the resident engineer agrees to the request. If not, remind the contractor of the contractual requirements regarding the timelines for having a dispute meeting.

The Division of Construction's alternative dispute resolution (ADR) engineer maintains the DRA and DRB websites and a list of prequalified member candidates.

3-524C (1) Establishment

When contractually required, the parties establish and use the DRA or DRB as part of the administrative dispute resolution and potential claims process. Early establishment of the DRA and DRB is important for resolving disputes as they occur. Delays may affect the ability of the DRA or DRB to accurately analyze disputes without a baseline reference.

Use the following procedure to select the best candidates from the prequalified lists. Links to the lists can be found under "Dispute Resolution" at the Division of Construction's internet website.

1. Review the list of names and associated summaries of experience to find the most qualified candidates for the particular project.
2. Select a candidate with the knowledge and work history that best match the type of project.
3. Select a candidate with dispute resolution experience in the areas with the largest potential for dispute.
4. Contact the Division of Construction field coordinator and ADR engineer for guidance and additional information about the prospective candidates.
5. Contact the candidates, provide them with the project information, and determine their desire and availability to serve. If a candidate is willing and available to serve, request a disclosure statement with an updated résumé.

The Division of Construction field coordinator must approve the candidates nominated by Caltrans and the third DRB candidate. The division field coordinator must also approve candidates not on the Caltrans prequalified list.

Nominating a DRA or DRB candidate not on the prequalified list requires that the candidate has completed training by the Dispute Resolution Board Foundation. In addition, the candidate needs to have a minimum of 10 years of experience in or directly related to public works, heavy-highway construction projects with, or on behalf of, federal, state (particularly Caltrans), or local government agencies. The experience must be any combination of the following:

1. Supervisor, manager, or executive in public-works heavy-highway construction contracts with emphasis in resolving disputes arising out of those contracts.
2. Attorney representing parties in litigating or arbitrating public-works, heavy-highway construction contract claims.
3. Judge or arbitrator adjudicating or otherwise resolving public-works, heavy-highway construction contract claims.

Require the candidate to submit a candidate application and send the application to the ADR engineer who processes it. A link to the application can be found at the Division of Construction website. If the candidate is approved and agrees, the candidate is added to the prequalified list by the ADR engineer.

Submit the names, disclosure statements, and résumés of the dispute resolution candidates to the contractor at the preconstruction conference, and ask the contractor to do the same. Jointly with the contractor, review the disclosure statements and résumés of the potential DRA or DRB candidates for qualifications and possible conflicts of interest. Jointly select the most qualified candidates as the DRA or DRB members in accordance with the specifications.

Upon selection, promptly notify the DRA or DRB member in writing, with a courtesy copy to the contractor. Notify the candidates not selected that they are no longer under consideration for the project.

For the DRA, complete Form CEM-6206, “Dispute Resolution Advisor (DRA) — Establishment Report,” and send it to the ADR engineer. For the DRB, require the first two approved members to nominate the third member and provide the appropriate documentation for the third member’s approval. Once there is approval of all three members, complete Form CEM 6202, “Dispute Resolution Board (DRB) — Establishment Report,” and send it to the ADR engineer.

Sign the DRA or DRB agreement as soon as you have established the members. The *Dispute Resolution Advisor Agreement* and the *Dispute Resolution Board Agreement* are available through the Division of Construction website.

3-524C (2) DRA or DRB Member Replacement

With 15 days’ notice, a DRA or DRB member may be replaced, or the member may voluntarily resign. Caltrans or the contractor may terminate the service of a member

who fails to comply fully with all required employment and financial disclosure conditions of the DRA or DRB membership.

If Caltrans wants to replace the DRA or Caltrans-nominated DRB member, the resident engineer discusses the proposal with district management. If district management concurs, the district submits its recommendation to the Division of Construction's field coordinator for approval before notifying the advisor or board member and the contractor.

When the need arises, a replacement member is nominated and approved using the appropriate contractual selection process. In the case of a board member, if the previous member was the chair, the new board must agree on a new chair. In the case of an impasse, the two original DRB members may select the chair by blind draw. Caltrans, the contractor, and the DRA or DRB members sign a revised agreement. The replacement process begins immediately upon receiving a notice of termination and is completed within 15 days.

3-524C (3) Operation

Alternative dispute resolution is for the benefit of both parties to the contract, so either party may refer a dispute to the DRA or DRB.

As a complement to the agreement, the DRA or DRB chair may produce operating procedures with details for conducting meetings. Work with the DRA or DRB and the contractor to reach an equitable agreement on the meeting process for the individual project circumstances. Verify that the operating procedures comply with all the contract requirements and the DRA or DRB agreement before approving them.

For projects with federal funding, notify the Federal Highway Administration (FHWA) representative when an issue is referred to the DRA or DRB. Coordinate with the FHWA representative on full-oversight projects to assure that the agency participates in any related change order. Give the FHWA representative the date of dispute resolution meetings, information regarding the dispute, and the DRA's or DRB's recommendation.

3-524C (3a) Informal Dispute Meetings

The informal meeting is meant for small, uncomplicated disputes. The informal meeting is optional and is meant to reduce the duration and effort needed to hear a dispute. All parties must agree that the informal process is appropriate for resolving the dispute. The informal dispute process parallels the traditional process.

Typically, very little documentation is provided at an informal dispute meeting. The parties generally just tell their story to the DRA or DRB members and await the recommendation, which should come the same day as the meeting. Use of the informal process must not delay the hearing of a dispute using the traditional process.

3-524C (3b) Traditional Dispute Meetings

The traditional dispute meeting must be used for more complex issues or those issues that were not resolved informally. A traditional dispute meeting is mandatory if the contractor wishes to pursue the dispute.

The contractual time period for submitting the position paper and having a dispute meeting is in the specifications and agreements. Remind the contractor of the contractual time period for referring disputes to the DRA or DRB when responding to the supplemental potential claim record.

When a dispute is referred to a DRA or DRB, prepare the position paper for submittal to the contractor and the DRA or DRB in advance of the oral presentation at the meeting. Present an effective position paper, because the recommendation may be introduced in arbitration proceedings. Remember, the purpose of the position paper is to persuade the DRA or DRB that your position complies with the contract.

Use the following format for the position paper:

- Table of Contents.
- Description of the dispute—A summary paragraph defining both the nature of the dispute, as agreed upon with the contractor, and the clearly defined basis for denying compensation.
- Background or chronology of the dispute—The history of the issue in a narrative format including the facts, presented in a nonjudgmental manner. This section must include a description of any partial or attempted resolutions.
- Contractor's stated position—As stated in the contractor's potential claim records, other written materials, or oral communications. Quoted segments are most effective when supplemented by exhibits. Present this section in a nonjudgmental manner and do not elaborate on the contractor's previously stated position.
- Caltrans' position—State the logical flow of information and the relevant contractual requirements that resulted in the determination of no merit. All supporting information must be referenced within this section and included in the exhibit section.
- Summary—A concluding paragraph stating why contractually and factually there is no merit to the contractor's dispute. The summary must be a strong absolute statement of Caltrans' position requesting that the DRA or DRB find in Caltrans' favor. Avoid expressing feelings or beliefs within this section.
- Exhibits—A number of exhibits for illustrating and clarifying the contractual and technical requirements. Number and tab exhibits. When compiling the written position paper, provide complete information related to the dispute including those exhibits used within the oral presentation at the dispute meeting. Failure to provide certain exhibits will likely result in the DRA or DRB disallowing related items within the oral presentation. Distribute written position papers in accordance with the contract.

Submit a draft written position paper to the construction engineer and peers for review and comment in advance of the formal dispute meeting. These internal reviews provide an opportunity to improve the position paper and benefit Caltrans by informing management of dispute issues.

The oral presentation given during the dispute meeting is important to effectively put forward Caltrans' position. Begin preparing for the presentation well in advance of the dispute meeting. Hold a mock presentation at least a week in advance of the dispute meeting to allow incorporation of comments from attendees. Attendees at the mock presentation should include the resident engineer, construction engineer, structure representative, bridge engineer, and construction field personnel. Other attendees may include technical experts, district construction claims engineer, construction manager, Division of Construction field coordinator, and others with dispute resolution board experience, depending on the size and complexity of the issue under consideration.

The objective of the mock presentation is to further examine the contractor's position, to review the basis of Caltrans' determination of no merit, and to rehearse Caltrans' presentation including potential rebuttal statements. During the mock presentation, it is advisable that an experienced participant, not directly involved in the contract, provides constructive criticism of Caltrans' position and the rebuttal of the contractor's position.

Typically, either the resident engineer or structure representative gives the presentation to the DRA or DRB depending on the dispute issue. Other personnel associated with the project may provide additional evidence. Use of experts not associated with the contract is not allowed unless requested by the DRA or DRB. All parties must agree to the use of a technical specialist in advance.

The dispute meeting will follow the procedure outlined in the dispute resolution agreement and any operating procedures agreed to by all of the parties involved.

3-524C (3c) Dispute Resolution Board Progress Meetings

In addition to the specific dispute meetings, there are mandatory initial and follow up progress meetings. The DRB progress meetings give members the opportunity to gain knowledge of the progress of work. Hold the first meeting at the start of the project. Each progress meeting must include a site visit allowing the DRB members to view construction operations, construction work completed, and areas where construction work must begin before the next meeting. A representative from both the contractor and Caltrans must attend all progress meetings. The minimum frequency of the progress meetings is stated in the *Standard Specifications* and in the DRB agreement; however, the frequency of meetings may be increased if the work is proceeding quickly. The agenda of a typical progress meeting is contained within the DRB agreement. At a minimum, the agenda should include a discussion of the following:

- Status of change orders
- Status of the work in terms of expended time and dollars

- Summary of potential claims

Promptly prepare and circulate progress meeting minutes to the parties for revision and approval.

3-524C (4) DRA or DRB Recommendations and Responses

Upon receiving a DRA's or DRB's recommendation regarding a dispute, provide a copy to the Division of Construction's field coordinator and ADR engineer.

Discuss the recommendation with the construction engineer and begin preparing the Caltrans response once the DRA or DRB issues its recommendation to the parties.

Although the recommendation is nonbinding, the parties must respond to the DRA or DRB and the other party within the time specified so it is clear if the dispute is resolved or remains unresolved. Accept or reject a recommendation in accordance with the following:

1. Acceptance of a recommendation that finds in favor of Caltrans is delegated to the district.
2. Acceptance of a recommendation in the contractor's favor or rejecting a DRA or DRB recommendation will require approval from the Division of Construction's field coordinator. The deputy district director of construction and the field coordinator will review and discuss the reasoning for the proposed response before sending it to the DRA or DRB and the contractor.

Complete Form CEM-6207, "Dispute Resolution Advisor (DRA)—Dispute Meeting Report," or Form CEM-6204, "Dispute Resolution Board (DRB)—Dispute Meeting Report," to notify the Division of Construction's ADR engineer of the dispute meeting and each party's acceptance or rejection of the recommendation.

A request for clarification of the recommendation will only be considered if made within the time specified in the contract. Any request for clarification of a DRA or DRB recommendation needs to be discussed with the Division of Construction's field coordinator before its submittal. Requests for clarification are warranted when the recommendation fails to thoroughly explain the rationale for the recommendation, when the DRA or DRB has not stated Caltrans' position accurately, or when the contractual provisions have been disregarded.

A request for reconsideration of an issue may be made, and will only be considered, if new evidence concerning the dispute is provided and the request is made within the time specified. Reconsideration requests must be discussed with the Division of Construction's field coordinator before submittal.

3-525 Final Inspection and Contract Acceptance

3-525A General

As a project's completion approaches, schedule appropriate reviews with maintenance, traffic, and safety personnel. Before the final inspection, give the contractor a written list of items needing attention.

To resolve any potential problems on interstate projects, request that a field engineer from the FHWA review the project before the day of final inspection. The objective is to prevent last-minute delays in contract acceptance.

In accordance with Section 5-1.46, "Final Inspection and Contract Acceptance," of the *Standard Specifications*, the resident engineer must do a final inspection of the contract work.

Maintain a record of the final inspection in the resident engineer's daily report. The record should include a statement similar to the following:

"I made a final inspection of the project today and determined that all contract work has been completed."

Or

"[Name] made the final inspection today and agreed that all contract work has been completed."

Time the final inspection so that the recommendation for contract acceptance will not be delayed pending the inspection.

3-525B Contract Acceptance

On the day project work is completed in accordance with the requirements of the *Standard Specifications*, special provisions, plans, and approved change orders, notify the district construction office recommending district acceptance of the contract. Refer to Section 5-1.46, "Final Inspection and Contract Acceptance," of the *Standard Specifications*.

For recommendations of acceptance, use Form CEM-6301, "Contract Acceptance." Follow the same procedure for accepting emergency contracts.

3-525C Work for Other Agencies or Owners

As a courtesy, when any work performed under the contract is for other agencies or owners, ask for the concurrence of these entities in the acceptability of the work. Include the concurrence of others such as local agencies, other state agencies, utility companies, and school districts.

Also, ask for concurrence from another party or agency if it finances a state highway project or a portion of the project. The district must arrange a joint field inspection with the owner or agency. In writing and in advance (usually 30 days), notify the owner or agency when the facility will be ready for final inspection. Time the inspection so that concurrence for acceptance is available at the time of recommending the acceptance of the contract or relief from maintenance and protection to the director. However, do not withhold recommendations for acceptance or relief merely because an outside agency will not concur.

The letter notifying the owner or agency of readiness for inspection should include:

- A reference to the cooperative agreement or other agreement.

- A statement that the inspection is to determine whether work is in compliance with plans, the agreement, or both.
- The date of the inspection.
- A request that, when an inspection reveals no deficiencies, the agency's authorized representative responsible for performing the inspection will confirm in writing that the agency agrees to accept the work.
- A statement that failure by the agency to inspect or confirm acceptance in writing will be deemed acceptance of the work as constructed.

If the size or complexity of the work warrants such an action, the resident engineer and an agency representative should make a preliminary joint inspection to correct minor deficiencies before the final inspection described above.

Write a record of the preliminary and final joint field inspections. Note what actions were necessary to complete the work to the agency representative's satisfaction. Record if the agency representative is satisfied with the completeness of the work but declines to concur in writing.

3-526 Guarantee

3-526A General

The contractor must perform corrective work because of a substantial defect as part of the guarantee if all of the following can be demonstrated:

1. The substantial defect existed in the contractor's work based on the specifications.
2. The substantial defect existed when the contract work was accepted.
3. A reasonable inspection by the resident engineer during construction would not have revealed the defect.

If the resident engineer cannot demonstrate the substantial defect is the responsibility of the contractor, the corrective work cannot be completed as part of the contract.

If a substantial defect is identified, the resident engineer will discuss the substantial defect with district management and the Division of Construction field coordinator. Send a letter to the contractor describing the substantial defect to be remedied. Any correspondence with the contractor regarding corrective work and the substantial defect must include the following language:

"Your refusal may result in a review of your responsibility to perform future work with Caltrans."

The contractor can perform corrective work without obtaining an encroachment permit.

The contractor may dispute the need for the corrective work but is nevertheless contractually bound to perform the necessary repairs. If the proposed final estimate has not been issued, the contractor can file an exception in response to the

proposed final estimate once it is issued. Otherwise, the contractor must file for arbitration pursuant to Section 10240.1 of the Public Contract Code. The contractor has 90 days from the completion of the corrective work or the end of the guarantee period, whichever is later, to file for arbitration.

The end of the guarantee period is 1 year from contract acceptance and will not be suspended or extended based on any corrective work being required or performed.

3-526B Work Not Completed by Contractor

If the contractor refuses to perform the corrective work or if the corrective work requires an immediate response, Caltrans will perform the corrective work. The district may complete the corrective work with its own forces, day labor, by informal contract or by director's order. Discuss this process with district management and the Division of Construction field coordinator.

The contractor is liable to the state for the costs to Caltrans resulting from the contractor's failure to complete the corrective work. The resident engineer will need to maintain records on corrective work expenditures to expedite billing.

The resident engineer will send the detailed billing to the Division of Accounting, abatements section, with instructions to prepare the accounts receivable bill and to mail it to the contractor. If the contractor is not available, the bill should be mailed to the surety.

Section 8 Prosecution and Progress

3-801 Schedule

3-802 Preconstruction Conference

3-803 Start of Job Site Activities

3-803A Work Before Contract Approval

3-803B Flexible Start

3-803C Potential Budget Impasse Start

3-803D Delayed Start

3-803E Next-Day Start

3-804 Time

3-804A Weekly Statement of Working Days

3-804A (1) The Record Section (Upper Block)

3-804A (2) Change Order Time Adjustments (Center Block)

3-804A (3) Computation of Extended Date for Completion (Lower Block)

3-804A (4) Final Weekly Statement of Working Days

3-804A (5) Examples

3-805 Suspensions

3-805A Suspensions Related to Contractor Performance

3-805B Suspensions Unrelated to Contractor Performance

3-806 Delays

3-806A Time or Payment Adjustments and Nonworking Days

3-806B Material Shortage

3-807 Liquidated Damages

3-807A Failure to Complete Work Parts Within Specified Times

3-807A (1) Case 1

3-807A (2) Case 2

3-807A (3) Case 3

3-807A (4) Case 4

3-808 Contractor's Control Termination

3-808A Work Completed by the Surety

3-808B Work Not Completed by the Surety

3-808B (1) Section 1

3-808B (2) Section 2

3-808B (3) Section 3

3-808B (4) Section 4

3-808B (5) Section 5

3-808C Billing

3-809 Contract Termination

3-809A Federal-Aid Contracts on the National Highway System

Section 8 Prosecution and Progress

3-801 Schedule

Three levels of critical path method schedules are defined in Section 8-1.02, “Schedule,” of the *Standard Specifications*. The level is determined by the number of working days and the total bid amount.

Make every effort to obtain a reasonable baseline schedule at the beginning of the contract. Record in a daily report any communication regarding the schedule. Notify the contractor in advance if a progress payment will be withheld for failure to submit a satisfactory schedule.

In general, schedules should:

- Separate contract items into activities to show controlling activities as well as non-controlling activities.
- Be used by the resident engineer and the contractor to monitor and evaluate progress, determine controlling activities of work, and analyze time consequences from changes or work delays.
- Be consistent with all contract time requirements.
- Display internal milestones and other time constraints, such as placing traffic on detours or new pavement, and beginning new phases of the work in staged construction.

The contractor is required to submit a revised schedule monthly to evaluate alterations to the critical path or an adjustment to the completion date. For Levels 1 and 2, the revised schedule may be used instead of a time impact analysis. Also refer to critical path method training publications *Advanced CPM Scheduling* and *Project Scheduling with Primavera P6* at:

<https://dot.ca.gov/programs/construction/publications>

3-802 Preconstruction Conference

Schedule a preconstruction conference as soon as is practical after a contractor has been selected for a project. Be prepared to discuss with the contractor the items in Section 8-1.03, “Preconstruction Conference,” of the *Standard Specifications*.

Refer to Section 5-003, “Preconstruction Conference with the Contractor,” of this manual for additional guidance. Review the job with Caltrans personnel before the start of job site activities, and refer to Section 5-002, “Preconstruction Conference with Caltrans Personnel,” of this manual.

3-803 Start of Job Site Activities

This section covers the subject of when the contractor begins work. Do not confuse the beginning of work with the beginning of contract time, which is specified in

Section 8-1.05, “Time,” of the *Standard Specifications*, and the date used on Form CEM-2701, “Weekly Statement of Working Days.” For additional information, refer to Section 3-804, “Time,” of this manual.

Section 8-1.04, “Start of Job Site Activities,” of the *Standard Specifications* requires the contractor to begin work on a project within 15 calendar days after receiving notice of contract approval. The special provisions may modify the 15-day requirement for some projects including:

- Flexible start
- Delayed start
- Potential budget impasse start
- Next-day start

The start of job site activities may not coincide with the first chargeable working day. The contractor is required to submit a 72-hour notice before the start of job site activities. If the project has work at more than one location, require submittal of a separate notice for each location.

Determine when to record the beginning of job site activities based on judgment and experience. For example, setting up construction area signs might be the only work underway. If conversations with the contractor indicate movement toward pursuing the work, the setting up of signs is sufficient to indicate the beginning of job site activities. Record the date the contractor begins job site activities on Form CEM-2701, “Weekly Statement of Working Days,” on the resident engineer’s daily report, and on the original or supplemental Form CEM-6003, “Progress Pay-Estimate Project Initiation or Update.” For more information, refer to Section 5-103B (3), “Completing Form CEM-6003, ‘Progress Pay-Estimate Project Initiation or Update,’ ” of this manual.

Record the district’s actions toward encouraging the contractor to begin work. Notes of discussions from the preconstruction conference or other conversations with the contractor provide the necessary records. If a contractor fails to begin work by the specified time, remind the contractor of this failure under “Remarks” on Form CEM-2701.

Send a separate letter with an additional reminder with notice that, according to Section 8-1.05 “Time,” of the *Standard Specifications*, the contract time starts on the day specified in Section 8-1.04 “Start of Job Site Activities,” of the *Standard Specifications* or on the day job site activities are started, whichever occurs first.

If you determine that the contractor’s failure to begin work will result in unsatisfactory progress, discuss the situation with district management.

3-803A Work Before Contract Approval

After the contractor has executed and returned the contract to Caltrans, the contractor, after submitting the specified notice, may enter the site and begin job site activities.

When a contractor wants to start work before contract approval, call the Office Engineer, Construction Contract Awards, to determine whether Caltrans has received the executed contract documents. If the office has received the documents, proceed as set forth in Section 8-1.04, "Start of Job Site Activities," of the *Standard Specifications*. Executed contracts are listed at the Division of Engineering Services' intranet website:

<http://des.onramp.dot.ca.gov/office-engineer/construction-contract-awards>

If a contractor wants to begin work before contract documents have been delivered to Caltrans, the contractor must obtain an encroachment permit from the district. The permit must incorporate the same terms stated in Section 8-1.04, "Start of Job Site Activities," of the *Standard Specifications*, that apply after the contractor has returned the executed contract documents to Caltrans but before the time of the contract's approval. In addition, the permit must include the following:

- A statement that the contractor is responsible and liable for any personal injury or property damage resulting from the work.
- The requirements for cooperation contained in the special provisions and in Section 5-1.20, "Coordination with Other Entities," of the *Standard Specifications*. The terms of the permit should include notice that the contractor may be working on the site concurrently with others performing utility relocation, right-of-way clearance work, or other construction activities and that the work of the others will take precedence over the contractor's job site activities. When obvious conflicts are apparent, a permit should not be issued.
- The limits of the area in which work will be performed.
- The activity or activities to be performed.
- A statement that the contractor will comply with the requirements of the contract plans, the *Standard Specifications*, the project's special provisions, and any order of work specified in these documents.
- A statement that the contractor's job site activities will not deprive property owners of access.
- A requirement to provide an adequate bond (or cash deposit) to cover the work contemplated before starting any work. The amount should be the same as for other types of work, as covered in the *Encroachment Permits* manual:

<https://dot.ca.gov/programs/traffic-operations/ep/ep-manual>

- A reference to the contract's water pollution control requirements.

When extra work must be a first order of work, it should be performed under a "prior authorization," as covered in Section 5-3, "Change Orders," of this manual. After the executed contract documents have been delivered as specified, change orders may be approved in accordance with Section 5-3. The district must not process requests for maintenance and protection relief or contract acceptance until after the contract's approval.

3-803B Flexible Start

Flexible start is a beginning-of-work specification that allows a contractor to choose the first working day based on conditions defined by the district before advertising. This section applies in cases in which the standard 15-day start has been modified to a flexible start in the special provisions.

The contractor must submit a request for authorization to establish the first working day within 10 days after contract approval. If the contractor does not submit the request for authorization to begin work within 10 days after contract approval, the first working day will be 15 days after contract approval.

3-803C Potential Budget Impasse Start

Minor A or highway maintenance program projects advertised before the fiscal year in which the project is budgeted may include additional contract language restricting the start of work date to begin after the State of California budget becomes law.

3-803D Delayed Start

This section applies when the standard 15-day start has been modified to a delayed start. For example, the special provisions may allow a 55-day delayed start.

Work should not be started at the job site until the resident engineer approves the submittals listed in the special provisions. Work may be started at the job site before the time specified in the delayed start if the submittals are approved and the resident engineer authorizes the start in writing. The beginning of work provision allows adequate time for contractors to prepare, and for the resident engineer to approve, specified submittals before job site activities begin. Review and approve satisfactory contractor submittals or return insufficient submittals within contractually required time frames.

3-803E Next-Day Start

Informal-bid contracts may be used after a catastrophic incident or after a notification of a threat of future significant damage. The special provisions for these types of projects require that the start of job site activities begin the next business day after contract approval.

3-804 Time

Section 8-1.05, "Time," of the *Standard Specifications* discusses the use of the Form CEM-2701, "Weekly Statement of Working Days," as the method of tracking contract time. Issue this statement to the contractor weekly until the contract is accepted. To determine if the progress of the work may require a withholding, refer to Section 3-906F (1), "Progress Withholds," of this manual.

Section 1-1.07, "Definitions," of the *Standard Specifications*, defines the terms "day," "working day," and "controlling activity." Days during the contract are either a working day or a nonworking day. However, the contract's special provisions may modify the definition of working days.

The total time allowed for completion of a contract is a specified number of working days. The “computed date for completion” of a contract is the date of the last working day, based on the number of working days specified in the original contract. On most projects, situations arise that extend the date for completion beyond the “computed date for completion.” The “computed date for completion” will be extended by either charging a nonworking day or by writing a change order that adds working days to the contract.

3-804A Weekly Statement of Working Days

Use Form CEM-2701, “Weekly Statement of Working Days,” to report the status of contract time to the contractor.

As soon as possible and no later than the end of the following week, forward the original statement to the contractor. Send one copy to the district construction office for review, and file another copy with the project records. Form CEM-2701 consists of three sections.

3-804A (1) The Record Section (Upper Block)

This section is used to record all working days, nonworking days as defined in Section 1-1.07, “Definitions,” of the *Standard Specifications*; and working days on which no productive work was performed on the controlling activity. In this section, tabulate each elapsed working and nonworking day during the life of the project.

Each day, determine whether to charge a working day and, if necessary, discuss the decision with the contractor. The “current controlling activity” is the basis of this determination; therefore, the resident engineer must base the decision on conditions effective on the day under consideration. If the progress schedule does not accurately represent conditions effective on that day, request that the contractor update the next progress schedule to provide an accurate representation. Note on Form CEM-2701 the activity that, in your opinion, is currently controlling. If the contractor does not concur, the entry will give the contractor an opportunity to protest formally.

If the controlling activity is not dependent upon weather, such as concrete curing or an embankment settlement period, a working day must be charged during adverse weather.

When determining nonworking days, loss of time because of adverse weather may extend beyond the period of actual adverse weather. Situations occur where there is no progress toward contract completion though the full crew might have worked the entire day. This may be because of the grade being too wet to work, access to the work needing to be reestablished, or saturated material needing to be removed from the tops of slopes.

Adverse weather can be other than wet or cold weather. For example, it may be too hot to produce concrete that meets specified temperatures. If all specified precautions have been complied with and the concrete work is the controlling activity, a weather nonworking day should be granted.

If a nonworking day is granted because of requirements in Section 12, “Temporary Traffic Control,” of the *Standard Specifications*, state the reason as “traffic restriction” in the “Remarks” section of Form CEM-2701.

In the column “Working Day No Work Done on Controlling Activity,” record any working day on which no work is done on the project or on the controlling activities. If the reasons are known for lack of work, note them in the “Remarks” section and on the daily report.

3-804A (2) Change Order Time Adjustments (Center Block)

This section is used for recording adjustments of time as a result of approved change orders. In the column under “Change Order Days Approved,” record working days granted for approved change orders during the week. In the column under “Change Order Number,” list the approved change order numbers corresponding to the working days granted during the week. In considering a time adjustment, deduct all nonworking days within the adjustment period, and make sure that the adjustment is made only for the working days charged to the contract during the adjustment period. For additional information on time adjustments after contract completion, refer to Section 3-807, “Liquidated Damages,” of this manual.

3-804A (3) Computation of Extended Date for Completion (Lower Block)

In the lower section of Form CEM-2701, summarize the information the contractor will receive. The “first working day” is the calendar day specified in Section 8-1.05, “Time,” of the *Standard Specifications*. This day is usually the 15th day after contract approval. If the contractor starts job site activities before the 15th day after contract approval, the first working day is the day the contractor starts job site activities.

Several methods are used to specify the first working day. Read and understand the contract’s specifications and correctly record the date of the first working day.

Use the Construction Working Days Calendar to determine the correct values to place in the “Numbered Day” column on Form CEM-2701 for the first working day, the computed date for completion, and the extended date for completion. Standard 5-day and 7-day calendars are available online:

<https://dot.ca.gov/programs/construction/contract-time>

The number shown on the calendar on a particular date is that date’s numbered day.

Refer to Section 4-2002C (8), “Plant Establishment Work,” of this manual for guidelines on plant establishment time requirements and computation of the extended date for completion.

3-804A (4) Final Weekly Statement of Working Days

Designate the Form CEM-2701 that is used for the week when a contract is accepted as the “Final Weekly Statement of Working Days.” Prepare this statement on the day the district accepts the contract and verify that the statement reflects the “approved status of time” on this date. For revising the status of time from that

shown on the final Weekly Statement of Working Days, refer to Section 3-807, “Liquidated Damages,” later in this section.

3-804A (5) Examples

Examples of typical entries for Form CEM-2701, “Weekly Statement of Working Days,” are available at:

<https://dot.ca.gov/programs/construction/contract-time#example>

3-805 Suspensions

Temporary suspension of work is covered under Section 8-1.06, “Suspensions,” of the *Standard Specifications* and gives the resident engineer the authority to suspend work. The two general categories of suspensions are described below.

In areas subject to adverse weather, it is permissible to suspend an entire project if this action is considered to be in the best interest of Caltrans. However, authority to suspend work is limited to the reasons stated in Section 8-1.06. Prior to ordering such a suspension, review the project with the maintenance superintendent, discuss work that must be completed prior to maintenance assuming interim responsibility and provide written notification to maintenance in advance of the suspension. When an entire project is suspended for reasons that do not fall under the scope of Section 8-1.06, the suspension must have the contractor’s concurrence. Mutually agreed-upon suspensions are covered under Section 1-1.07 “Definitions,” of the *Standard Specifications*.

A suspension does not always affect the entire project; it might only affect some items. Usually a suspension is used when either the work or the public will be affected adversely by continued work activity. Although a temporary suspension is an option available only to the resident engineer, consider the contractor’s opinion on such a suspension.

3-805A Suspensions Related to Contractor Performance

Any letter that orders such a suspension must include references to applicable sections of the specifications and, if possible, state the conditions under which work may be resumed. Such action is taken only after careful consideration of all aspects of the problem.

3-805B Suspensions Unrelated to Contractor Performance

A suspension may result from any condition unfavorable for the prosecution of the work, including anticipated heavy traffic because of a holiday or a special event, or a winter suspension.

During any suspension, advise the contractor of the conditions under which maintenance will be performed. Preferably use the contractor to perform work necessary to provide for public convenience or public safety. If Caltrans must perform such work, the district will request a director’s order, financed from the

contract allotment, which allows the district to hire a contractor to perform the work at force account.

When the reason for a suspension no longer exists, or when favorable conditions for resuming work are expected, notify the contractor in writing. The letter must state the date when working days will resume and must allow sufficient time to permit the contractor to remobilize the necessary labor and equipment. A period of 10 working days is generally considered reasonable.

When an ordered suspension occurs without mutual agreement, the contractor may be due additional compensation, contract time, both, or neither, depending on whether the delay is a critical delay, excusable delay, or concurrent delay.

3-806 Delays

3-806A Time or Payment Adjustments and Nonworking Days

Section 8-1.07, "Delays," of the *Standard Specifications* covers provisions for delay-related time or payment adjustments. Section 1-1.07, "Definitions" of the *Standard Specifications* covers nonworking day provisions for concurrent delays under the "Working Day" definition. No time or payment adjustment is allowed for concurrent delays.

The resident engineer must monitor issues that may affect progress of the work and may result in an excusable delay or critical delay. To avoid or mitigate the effects of delays, initiate action such as the following:

- Initiate requests to the district utility coordinator to modify agreements that would allow the contractor's forces to perform work under change order. Section 5-1.36C, "Nonhighway Facilities," of the *Standard Specifications* covers such work by the contractor.
- Initiate any changes in the order of work that would eliminate or mitigate an excusable delay or critical delay, provided that any cost involved would not exceed the estimated cost resulting from a delay.

If an excusable delay or critical delay occurs, take the following actions:

- Determine the length of the delay.
- Make a list of the equipment that will be affected by the delay. Attempt to get agreement from the contractor regarding the list's accuracy.
- Estimate the cost of the delay using the method specified in Section 8-1.07C, "Payment Adjustments," of the *Standard Specifications*.
- Estimate the cost of removing the affected equipment from the project and returning it when the delay is over.
- Compare the costs and choose the most cost-effective option. If the contractor removes the equipment, but the cost for doing so is higher than leaving the equipment on the project, pay only the delay cost for idle equipment.

- If the contractor does not remove the equipment, attempt to determine how the contractor intended to use the delayed equipment. Review the progress schedule to determine if the contractor intended to use the delayed equipment full time or if the contractor intended some idle time. Use this estimate of time when determining delay costs.

3-806B Material Shortage

Material shortage is defined in Section 1-1.07, “Definitions,” of the *Standard Specifications*. Do not make a time adjustment for a material shortage. Days during a material shortage are considered nonworking days. Before a determination of nonworking days can be made, several conditions must be satisfied:

- A request for information for the delay exists.
- The contractor’s request for information must be received no later than 15 days after the material shortage first caused the work delay.
- The delay must affect the controlling activity.
- If the delay does not affect the controlling activity, advise the contractor accordingly in writing. If the contractor asks to be allowed to substitute the unavailable material with available material, the resident engineer must seek assistance from those responsible for the design. Change orders are to be processed as contractor-requested changes.
- The materials, articles, parts, or equipment are standard items.

Standard items are produced to meet the specifications of such industry-wide organizations as the American Association of State Highway and Transportation Officials, the American Society for Testing and Materials International, the American Wood Protection Association, the American Institute of Steel Construction (AISC), and the U.S. Department of Agriculture (USDA). The fact that Caltrans specifications refer to these standards does not alter the item’s status.

Standard items include those that are listed in a catalog and are available for immediate delivery, and items that are normally available for purchase at supply houses. Items that are manufactured only upon order are not standard items, even if included in a catalog.

Examples of materials that are usually considered standard items:

1. Commercial fertilizer (industry specification)
2. Soil amendment (industry specification)
3. Iron sulfate (USDA)
4. Straw (USDA)
5. Seed (USDA)
6. Lumber (industry specification)
7. Plants (USDA)

8. Pipes and conduit, except cast-in-place (industry specification)
9. Backflow preventers (industry specification or catalog item)
10. Lime (industry specification or shelf item)
11. Asphalt (industry specification or shelf item)
12. Timber piles (industry specification)
13. Steel plates or shapes shown in the AISC handbook (shelf item)
14. Prestressing steel (industry specification)
15. Expansion joint materials (industry specification)
16. Elastomeric bearing pads (industry specification)
17. Steel bars for reinforcement—the material, not the bending and cutting (shelf or catalog item)
18. Bolts (industry specification)
19. Pumping plant equipment, components only (catalog items)
20. Miscellaneous metal, material, not fabrication (industry specification)
21. Fence posts, wire, fabric, hardware (industry specification)
22. Guide marker posts, plates, reflectors, hardware (industry specification)
23. Metal beam guard railing (industry specification)
24. Metal beam barrier (industry specification)
25. Type 1 lighting standards (industry specification)
26. Electrical conductors (industry specification)
27. Controller components (industry-wide catalogs)
28. Traffic signals and fittings (proprietary item)
29. Lamps for luminaires (proprietary item)
30. Ballasts (proprietary item)
31. Cement (industry specification or shelf item)
32. Pavement markers (proprietary item)

Items not on the above list and that are produced to meet the requirements of Caltrans plans and specifications are not standard items. The following are examples of nonstandard items:

1. Processed structure backfill material
2. Pervious backfill material
3. Aggregates for bases and subbases
4. Aggregates for cement-treated base, hot mix asphalt, concrete, rock slope protection, and screenings

5. Wood chips
6. Concrete
7. Traffic signal and lighting standards (except Type 1)
8. Controller assembly
9. All material manufactured to meet a state specification such as curing compound, paint, or epoxy
10. Concrete piling

The nonstandard items listed above may contain components that are in short supply. They may then be eligible for consideration in a material shortage situation if the component is a standard item.

- If a “physical shortage” exists.

The term “physical shortage” means that the standard item or component of a standard item is not available at the time it is required for work on a controlling activity. However, do not consider a time adjustment if the “physical shortage” results from any of the following:

1. Untimely ordering of material
2. Failure to make a requested down payment
3. Lack of credit

Presume that a contractor, when submitting a bid, thoroughly considers all aspects of procuring materials and bids accordingly. This thorough consideration can include timely delivery commitments, price, and responsibility for meeting specifications.

Whenever it has been determined that an industry-wide shortage exists, the Division of Construction will advise all districts.

A “physical shortage” will not be considered to exist if either the contractor or a subcontractor has failed to perform any required fabrication or processing.

- Whether the contractor diligently tried to obtain the material.

Require the contractor to furnish proof of dates that material was ordered and confirmed. The orders must have been placed sufficiently in advance of the desired delivery to cover a normal lapse time in the particular industry. However, you cannot expect the contractor to have placed orders before contract approval.

If the contractor’s order was timely, request proof of efforts to obtain material from alternate sources that normally supply such materials to projects in the area. Alternate sources include, when possible, production of an item using the contractor’s own forces.

If written proof is unavailable from an alternate source, the resident engineer may accept a verbal confirmation from a supplier. Record such confirmation in the daily report. When no alternate source exists or when procurement from an

alternate source may delay delivery even longer than procurement from the original source, also record confirmation of this situation.

3-807 Liquidated Damages

Section 8-1.10A, "General," of the *Standard Specifications* lists the daily rate to be charged for damages related to a contract time overrun.

3-807A Failure to Complete Work Parts Within Specified Times

If the "Extended Date for Completion" on the final "Weekly Statement of Working Days" contains a date before the date of the contract's completion, an apparent overrun has occurred. Proceed as follows:

3-807A (1) Case 1

The district intends to assess liquidated damages for the overrun shown on the final "Weekly Statement of Working Days." Enter the deduction for liquidated damages into the project records, and proceed with the proposed final estimate.

3-807A (2) Case 2

The district intends to change the status of time from that shown on the final "Weekly Statement of Working Days" by time due on change orders. Time adjustments resulting from change orders should have been resolved before the contract's acceptance in accordance with Section 5-3, "Change Orders," of this manual. When extenuating circumstances result in unresolved time for change orders after completion, complete all deferred-time change orders, enter the data into the project records, enter any remaining deductions for liquidated damages into the records, and proceed with the proposed final estimate.

3-807A (3) Case 3

The district intends to change the status of time from that shown on the final "Weekly Statement of Working Days" by changing working days to nonworking days. Obtain concurrence for making such changes from the Division of Construction. Report the recommended disposition of each item of unresolved time so no further explanation is needed. Upon receipt of the recommendations, the division will advise the district of what action to take.

Include a status of contract time in a form similar to the following:

Contract Milestone	Date	Working Days or Numbered Day
Date attorney general approved contract	3/06/2012	744
First working day	3/21/2012	755
Working days specified in contract		40
Computed date for completion	5/15/2012	794
Total change order time adjustments, final Form CEM-2701		5
Nonworking days, final Form CEM-2701		75
Additional change order days (if applicable)		14
Additional working days recommended (if applicable)		10
Extended date for completion	10/12/2012	898
Date contract completed	10/12/2012	898
Remaining overrun		0

After the disposition of overruns has been determined, the district will advise the contractor directly. Place copies of all memorandums in the project files as the record of final disposition of overruns. For any unresolved overrun in time, show a deduction to assess liquidated damages on the proposed final estimate. If the contractor objects to this assessment, follow the claim procedures outlined in Section 5-4, "Disputes," of this manual.

3-807A (4) Case 4

When the final quantities of individual contract items have exceeded 125 percent of the engineer's estimate, not as a result of ordered changes, the district may recommend the director's approval of a commensurate time extension. Such a recommendation is subject to all of the following provisions:

- Time is allowable only to the extent that each item was considered controlling.
- Any time extension is applicable only to the excess above 125 percent of the engineer's estimate.
- The maximum allowable time extension for each item cannot exceed the amount of time determined by applying normal production rates to the increased quantity of the item involved.

3-808 Contractor's Control Termination

Section 8-1.13, "Contractor's Control Termination," of the *Standard Specifications* explains the contractual requirements for terminating the contractor's control of the

work. Sections 10253 through 10260 of the Public Contract Code cover defaulted contracts.

Termination of control may occur only when a contractor fails to supply an adequate work force, fails to supply material of proper quality, fails to make proper and timely payments to subcontractors, or fails in any other respect to perform the work with the diligence and force specified by the contract. Normally, when Caltrans terminates the contractor's control, the surety (bonding company) assumes responsibility for completing the contract. The following are guidelines for determining if the contractor may be failing to supply an adequate workforce:

- If the "percent completed" of the contract is more than 25 percent behind the "percent time elapsed." These percentages can be found in the project status report.
- Complete cessation of the work.
- The work has not started within a period equal to 10 percent of the original working days or 50 working days, whichever is less.

If the resident engineer suspects termination of control may be necessary, the resident engineer must immediately notify the construction engineer and construction manager.

With agreement from the construction engineer, the Division of Construction field coordinator, and the structure construction engineer, if applicable, the resident engineer sends a letter to the contractor that describes the defaults to be remedied. The letter also specifies the amount of time allowed to remedy the defaults and states that, in accordance with Section 8-1.13, "Contractor's Control Termination," of the *Standard Specifications*, Caltrans will start the termination of control process if the defaults are not remedied. A copy of this letter is sent to the contractor's surety. Typically, Caltrans allows 5 business days to remedy either failure to supply an adequate work force or failure to supply proper quality material. Generally, 15 days are allowed to remedy failure to pay subcontractors.

If the contractor fails to promptly remedy the defaults outlined in the resident engineer's letter, the district construction deputy director will send a request to the Division of Construction chief to start the termination of control process. The request must include:

- The defaults to be remedied
- Current status of the contract, including dates the contractor last performed work
- Any other information considered pertinent

To determine what action is necessary, the Division of Construction chief may call a conference with the contractor's representatives, its surety, the Division of Construction field coordinator, and the district. If terminating the contractor's control is necessary, the Division of Construction chief will send a letter to the contractor, with a copy to the surety, giving the contractor 5 business days to remedy the defaults or Caltrans will terminate the contractor's control of the work. The contractor and surety will be responsible for any costs Caltrans incurs to complete the work.

If available, the contractor must be personally served with the 5-day notice letter. If both the contractor and its representative are unavailable and their addresses are known, send the letter by registered mail. If both the contractor and its representative cannot be located and their addresses are unknown, post the 5-day notice letter in the most conspicuous place within the project limits. If the contractor does not remedy the defaults within the time required, the Division of Construction chief will send a letter to the contractor stating that the contractor's control of the work has been terminated. The Division of Construction field coordinator will notify the district of the effective starting date of the notice and will transmit any further instructions deemed necessary.

All 5-day notices and termination of control letters must include the following language:

“Your default may result in a review of your responsibility to perform future work with Caltrans.”

Once the contractor's control has been terminated, the Division of Construction field coordinator will notify the arbitration engineer in the Division of Construction by forwarding a copy of the termination letter. The arbitration engineer will update and maintain the termination database.

The district will maintain a file that can be used as evidence to defend the termination or in a future responsibility hearing for the terminated contractor. The file should remain in the district for a minimum of three years.

The Division of Construction chief will send a letter to the surety requesting the surety to fulfill its obligations under the bond to complete the work with other forces. Because it is typically preferred that the surety proceed with the contractual work, the resident engineer should assist the surety in its efforts to complete the work. The resident engineer will determine and resolve with the surety the precise quantities and costs necessary to complete the work.

For additional information, refer to the *Construction Field Coordinator's Termination Desk Guide* on the Division of Construction's intranet:

<http://construction.onramp.dot.ca.gov/field-coordinators>

The following two sections describe the process to complete the contract after the contractor's control has been terminated.

3-808A Work Completed by the Surety

As requested by the surety, the Division of Construction field coordinator, with the assistance of the district, negotiates a takeover agreement or a tender-and-release agreement with the surety. A takeover agreement is an agreement between Caltrans and the surety outlining terms and conditions for the remaining contract work to be performed by the surety or a contractor hired by the surety. The surety is not released from contract responsibility until the contract is accepted. A tender-and-release agreement is an agreement between Caltrans and the surety outlining the terms and conditions for the remaining work to be performed by a contractor recommended by the surety. The recommended contractor agrees to do the

remaining work and provides new bonds, and the surety pays the additional contract costs. The surety is then released from any further contractual responsibility.

Once the Division of Construction field coordinator has negotiated an agreement with the surety, the coordinator sends a draft copy of the appropriate agreement to the surety and requests that the surety make project specific revisions as needed. The Division of Construction field coordinator will review the agreement and forward it to the Legal Division. Both the Division of Construction field coordinator and the Legal Division recommend approval. The Division of Construction chief approves either agreement.

In the interim between the termination of the contractor's control of the work and completion by other forces, the district must take all necessary steps to preserve any completed work. The district may use a separate work order for interim maintenance work by "day labor." Day labor may be obtained by entering into a service contract with another contractor to perform the contract work. To use day labor, a director's order is necessary.

3-808B Work Not Completed by the Surety

If time or circumstance does not permit the surety to complete the work, Caltrans may elect to complete the work with its own forces. If the surety elects not to complete the contract after termination of the contractor's control over the work, the district may complete the work by day labor or by informal contract. The district will determine the amount of completed work, the amount of work remaining to be performed, materials on hand, and extra work authorized. In the interim between the termination of the contractor's control of the work and completion by other forces, the district must take all necessary steps to preserve any completed work. The district may use a separate work order for interim maintenance work by day labor.

An informal contract permits a short advertising period. If the work will be completed by informal contract, the resident engineer, with the assistance of the district office engineer, will put together plans and specifications to complete the work, select three to five bidders, and take informal bids for the work. The informal bids must be sent to the contractor and the surety 3 days before the informal contract proceeds. In some cases, additional funds will be needed to complete the work. The resident engineer must request that the surety provide these funds although, under the Public Contract Code, the surety is allowed to wait until completion of the work to make payment. If the surety does not immediately provide these funds, the resident engineer may use available contingency funds or submit a supplemental funds request, if needed.

If either the surety asks Caltrans to complete the work or Caltrans elects to complete the work, the surety and the original contractor are liable to the state for the costs to Caltrans resulting from the original contractor's failure to complete the work. These costs include:

- The sum paid to the completion contractor to complete the various items to the extent it exceeds the sum that would have been payable to the original contractor.

- The sum of all costs to protect the work during the period between the original contractor leaving and the completion contractor arriving (usually day labor costs).
- The sum of all costs related to corrective change order work required to bring the original contractor's work into contract compliance and Caltrans' engineering costs to develop a completion contract and administer it. If appropriate, liquidated damages may be used to estimate these costs.

During completion of the work, the resident engineer must maintain current contract records to expedite billing. The project files must show the following:

- Segregated quantities of work performed under the original contract and under the day labor or informal contract for completion
- Overruns and underruns greater than 25 percent requiring adjustment
- Change orders
- All other pertinent information

When the surety does not complete the work, the resident engineer must prepare a bill for the original contractor and surety and break down the billing into the following five sections.

3-808B (1) Section 1

Subsection A—This subsection lists the amount Caltrans paid for the entire contract item work. This amount would be equal to the sum of the amount paid to the original contractor for item work before the termination plus the amount paid to the completion contractor to complete the item work.

Subsection B—This subsection shows the amount that would have been paid for the item work assuming the original contractor had not defaulted on the contract.

Subsection C—This subsection lists the amount billable to the original contractor or surety under Section 1 of the billing. This amount would be the difference between Subsection A and Subsection B. If Subsection A is less than Subsection B, the original contractor must not be credited with this amount; instead, a zero balance will apply.

3-808B (2) Section 2

This section lists the costs Caltrans incurred to maintain the contract during the period between the original contractor's departure and the arrival of the completion contractor. These costs are usually day labor costs but may include costs incurred by the Caltrans maintenance forces.

3-808B (3) Section 3

This section lists the change orders and related costs to correct any defects left in the original work by the original contractor.

3-808B (4) Section 4

This section lists the engineering costs Caltrans incurred to develop, implement, and administer the completion contract. Separate the administrative costs from the development and implementation costs. Compare the total administrative engineering costs with the liquidated damages costs incurred in the original contract, assuming the original contract was not complete until the completion contractor finished its contract.

3-808B (5) Section 5

This section shows the amounts determined in Sections 1, 2, 3, and 4, and adds them together. List the penal sum of the bond, along with the bond number. The penal sum of a performance bond limits the responsibility of the surety. The original contractor may be billed for the full cost of completion even when that cost exceeds the penal sum of the bond.

3-808C Billing

The resident engineer sends the detailed billing, as described above, to the Division of Accounting abatements section, with instructions to prepare the accounts receivable bill and to mail it to the contractor. If the contractor is not available, the resident engineer should mail it to the surety. After payment is received, the abatements section will credit the payment to a specific expenditure authorization.

If payment is not received within 45 calendar days, the abatements section will inform the district construction deputy director that payment has not been received. Representatives of district construction, the Division of Construction, and the Legal Division will meet to discuss alternate courses of action and choose the appropriate one. The abatements section must not submit the billing to a collection agency unless the meeting participants have agreed to this action.

Keep backup documents in the project files and make them available to the surety upon request. To safeguard special handling of defaulted contracts, identify all related internal correspondence with the words "Defaulted Contract" under the job's file reference.

3-809 Contract Termination

Section 8-1.14, "Contract Termination," of the *Standard Specifications* specifies the contractual requirements for termination when the district director determines and the deputy director of Project Delivery approves that it is not in the best interest of Caltrans to continue with the project.

When the majority of the contract work has been completed, it is preferred to delete the remaining work by change order, accept the contract, and provide additional payment to the contractor, if necessary, in accordance with Section 9-1.17C, "Proposed Final Estimate," of the *Standard Specifications*.

Termination of contracts is rare. The Division of Construction must make sure that all necessary steps are taken in handling contracts terminated for the best interests of

Caltrans. To assure special handling of these types of terminated contracts, identify all internal correspondence related to them with the words “Convenience Termination” under the job’s file reference.

To initiate contract termination, the district director must write a letter to the Division of Construction chief stating the reasons for requesting the termination. The letter should include:

- Reasons for the termination
- Work performed
- Work yet to be performed
- Any information pertaining to the advertisement date of the new contract

If the Division Construction chief concurs, the Division of Construction will prepare a letter to the deputy director of Project Delivery to reiterate the relevant points from the district’s letter and recommend approval for terminating the contract. If appropriate, the deputy director of Project Delivery approves the termination.

Upon approval, the Division of Construction chief will issue a letter to the contractor, signed by the deputy director of Project Delivery, notifying the contractor that Caltrans will terminate the contract as soon as any work the resident engineer requested is complete. When all work is complete, the district must accept the project.

The contractor will be paid all reasonable costs as computed in accordance with Section 8-1.14, “Contract Termination,” of the *Standard Specifications*. An audit of the contractor’s cost records is normally required to resolve compensation issues. After contract acceptance, payments can be made in accordance with Section 9-1.17D, “Final Payment and Claims,” of the *Standard Specifications*.

For additional information, refer to the *Construction Field Coordinator’s Termination Desk Guide* on the Division of Construction’s intranet website.

3-809A Federal-Aid Contracts on the National Highway System

For federal-aid contracts, the resident engineer or construction engineer must contact the Division of Construction field coordinator to obtain concurrence from the Federal Highway Administration’s engineer on the termination of a contract. Refer to the Code of Federal Regulations, Title 23, Section 635.125 (23 CFR 635.125), “Termination of Contract.”

Section 0 Conduct of the Work

- 5-001 Resident Engineer’s Pending File**
- 5-002 Preconstruction Conference With Caltrans Personnel**
- 5-003 Preconstruction Conference With the Contractor**
- 5-004 Resident Engineer’s Daily Report**
- 5-005 Assistant Resident Engineer’s Daily Report**
- 5-006 Maintenance Reviews**
 - 5-006A Start of Work Review
 - 5-006B 50 Percent Review
 - 5-006C 90 Percent Review
 - 5-006D Final Inspection Review
- 5-007 Federal Highway Administration Involvement in Contract Administration**
 - 5-007A Federal Highway Administration Involvement on Projects of Division Interest—N
 - 5-007B Federal Highway Administration Involvement on Delegated Projects—E

Section 0 Conduct of the Work

5-001 Resident Engineer's Pending File

For guidance and information, the project engineer assembles and forwards to the resident engineer a set of letters, memorandums, and other data titled "resident engineer's pending file." This file must contain all pertinent information, comments, and advice that may be useful on the specific project to which the resident engineer is assigned. A detailed list of the information that should be included in the resident engineer's pending file is contained in Chapter 15, "Final Project Development Procedures," of the *Project Development Procedures Manual*. The file typically includes the following:

- Memorandums between programs, service centers, and districts, especially comments about preliminary reports and dummy special provisions.
- Special requirements that are enumerated in the freeway agreement and that may require action by the resident engineer. For instance, a special requirement may be notification of the date work begins on locally owned facilities.
- Memorandums about materials from the Materials Engineering and Testing Services (METS) or the district Materials Unit.
- Copies of right-of-way agreements that require work to be done under the contract or that affect the project's construction.
- Copies of Form RW 13-04, "Notice to Owner," which covers utilities and their completion status.
- Copies of the partially completed Form FA-2134, "Utility Account Action Request," which the resident engineer will use for the installation and coordination of utility services. Forward this form to the Division of Accounting and the district signals and lighting coordinator. If there is no form, and the plans have utilities, contact the district signals and lighting coordinator to assure proper procedures are followed. This form is available at:
<http://cefs2.dot.ca.gov/jsp/forms.jsp>
- Copies of correspondence giving the background of any unusual project features.
- All pertinent engineering data previously prepared in connection with the project. This data should include the project engineer's quantity calculations.
- Copies of the project report, preliminary report, and materials reports.
- A copy of the "materials information" as given to prospective bidders.
- A copy of the environmental document, including any permits, agreements, and commitments.

- A separate summary of all environmental commitments, as well as any special instructions or explanations for meeting permit and other legal requirements and commitments to other agencies.
- A copy of the risk register that documents possible construction issues. More information can be obtained from the *Project Risk Management Handbook: A Scalable Approach*, located at:

<https://dot.ca.gov/programs/project-management/reports-guidance>

- The resident engineer must consult with the project engineer who forwarded the file, if the file has any of the following problems:
 1. Information appears to conflict
 2. Information appears to be missing
 3. Additional details or explanations are required

5-002 Preconstruction Conference With Caltrans Personnel

Before the start of construction, the resident engineer should review the job with relevant staff and stakeholders such as:

- Project manager
- Project engineer
- Right-of-way agent
- Hydraulics engineer
- Traffic engineer
- Materials engineer
- Maintenance superintendent
- Maintenance engineer
- Environmental construction liaison
- Construction stormwater coordinator
- Environmental planner
- Public information officer
- Landscape architect
- Local agencies and communities
- Affected utility companies
- Federal Highway Administration (FHWA) transportation engineer (for projects of division interest)
- Others who may have a direct interest in the project

At this preconstruction stage, such a review will significantly aid in explaining the reasons for certain design features such as the following:

- Right-of-way obligations
- Signings and traffic handling difficulties
- Materials sites
- Selected material
- Foundation treatment
- Potential slides
- Environmental commitments
- Potential drainage and maintenance problems, including erosion control and water pollution

The resident engineer must verify implementation of environmental mitigation measures included in the project approval. To be fully informed of the environmental mitigation measures, commitments, or concerns on projects that are related to environmental commitments, the resident engineer must review the environmental commitment record and meet with the assigned environmental staff. At the same time, the resident engineer can reach agreement on both the assistance required from environmental specialists, and the tentative schedule and plan for environmental monitoring.

On projects involving structure construction personnel, preconstruction conferences are mandatory and should be held as soon as possible after bids are opened. The conferences should include structure and construction engineers, the resident engineer, and the structure representative. These personnel should reach agreement regarding the following items:

- Office facilities. The district must provide suitable office space and furniture for both district and structure field personnel. When the office facilities are trailers, the resident engineer and structure representative should occupy the same trailer. When the office facilities are in a building, the engineer and the representative should occupy adjacent rooms. This arrangement facilitates the assignment of the structure representative as acting resident engineer during extended absences of the assigned resident engineer.
- Personnel for the total work. Conference participants must discuss the total work, including road work and structure work, and take advantage of instances in which people could be used interchangeably to reduce the number of people on the project. When the contractor's schedule is available, meeting participants must review the personnel required.
- Division of the work. The items should be categorized as road work and structure work. In some cases, the item may be divided by portions of items or by phases of the work. Before the start of work, Structure Construction requires from the structure representative a written report on this categorization of the work.

5-003 Preconstruction Conference With the Contractor

Before the start of work, a conference must be held. Depending on the project's complexity, more than one conference may be desirable to limit the scope and the number of individuals attending. The conferences must include the resident engineer and structure representative and may include principal assistants, the construction engineer, the district construction deputy director, the contractor's superintendent, and other key personnel. Specialists should be included, too, such as the district labor compliance officer and the district safety coordinator. Alternatively, the resident engineer may cover the respective responsibilities.

When environmental commitments have been made that affect or constrain the contractor's operations, the environmental-construction liaison and other appropriate environmental specialists should attend the preconstruction conference with the contractor.

Meeting participants should discuss, among other items, the following:

- Work plans
- Contingency plans
- Equipment to be used
- Progress schedule
- Layout of job
- Labor compliance
- Equal employment opportunity
- Safety requirements
- Temporary pedestrian access routes
- Americans with Disabilities Act (ADA) requirements for permanent pedestrian facilities
- Environmental commitments and permits
- Water pollution control requirements
- Job-produced materials quality control and acceptance testing
- Buy America requirements
- Buy Clean California Act requirements
- Progress payment process

This discussion affords both parties a common understanding of the proposed work and the problems and possible solutions that may be expected during the life of the contract.

The contractor should receive notice of the items that will be discussed. Among other documents, the contractor must bring a copy of the contractor's Code of Safe Practices and a water pollution control plan. The project file must contain a record of the conferences or the reason for omitting a conference. Depending on the

conference's complexity, the record can be a relatively complete set of minutes or a copy of the resident engineer's daily report.

The police, fire department, public transportation agency, schools, and other affected agencies should receive any information developed from the meetings that will affect these agencies' operations.

The list below presents guidelines for the preconstruction conference. These are reminders only. Items will be included if applicable to a specific project. Also consider any previous experience of a particular contractor with Caltrans projects when providing details on these topics. Further, the district construction office may have completed some of the items; therefore, those items need not be included at the conference.

- Introduce all participants, including in your introduction statements about each person's responsibilities for the project.
- Discuss superintendence as well as lines of authority for both contractors and California Department of Transportation (Caltrans) personnel. If you have not yet received it, request the written information required by Section 5-1.16 "Representative," of the *Standard Specifications*.
- Discuss the subcontracting requirements covered in Section 5-1.13, "Subcontracting," of the *Standard Specifications*.
- When required by the special provisions, discuss railroad insurance.
- Discuss requirements related to labor compliance and equal employment opportunity. Advise the contractor of the deadlines for submitting payrolls and other required documents. Also advise the contractor of the contractual and administrative deductions that will be applied for noncompliance. Provide the necessary Department-furnished forms and posters.
- Review the contract's safety requirements.
- Discuss the requirements that pedestrian access must be provided when construction activities require the closure of an existing pedestrian route. The contractor must provide notice 5 business days prior to closing an existing pedestrian route, and the temporary pedestrian access route must be inspected for compliance with ADA standards prior to allowing use. If the contract does not have a bid item for a temporary pedestrian access route, and existing pedestrian routes must be closed to perform the work, the contractor must submit a work plan for a temporary pedestrian access route.
- For pedestrian facilities, discuss that every pedestrian facility constructed on the project will be inspected and that dimensions and slopes of the completed facilities must meet those specified or the work may have to be removed and replaced. Also discuss the pre- and post-construction survey requirements for pedestrian facilities when identified in the contract by a survey bid item.
- Advise the contractor that contract administration forms are available on the Division of Construction website.

- Discuss the procedure for inspecting materials, particularly the early submittal of Form CEM-3101, “Notice of Materials to Be Used.”
- When the contract requires, discuss the contractor’s quality control plans.
- Discuss the communication of job-produced materials quality-control testing and acceptance testing, including identification of high-priority tests, shipping of samples, lines of communication for test results, timeframes for reporting quality control and acceptance test results, and any contractual testing dispute resolution processes.
- Discuss the requirements for submitting working drawings.
- Discuss the progress schedule requirements including provisions for submitting, reviewing, updating, and revising schedules. Refer to Section 3-801, “Schedule,” of this manual.
- Discuss weighing procedures, weight limitations, and the Caltrans policy on overloads. For more information, refer to Section 3-521B, “Load Limits,” of this manual.
- Discuss the progress payment process. Advise the contractor of administrative procedures and deadlines for payment for material on hand, which must be submitted on Form CEM-5101, “Request for Payment for Materials on Hand.” Discuss specification requirements for force account, contractor force account work report documentation, and submittal of change order bills on or before the 15th day of the month. Discuss the resident engineer’s role in (1) submitting change order bills for extra work at agreed price and payment adjustments, (2) reviewing contractor’s submitted change order bills, (3) revision of bills to match Caltrans records, if necessary, and (4) approval of both undisputed and revised bills by the 20th of the month. Also discuss withholds for progress, performance failure, stop notice, or penalty and deductions for administrative, equal employment opportunity, labor compliance violation, or liquidated damages.
- Discuss the optional collaborative progress payment process in Section 3-906, “Progress Payments,” of this manual, and determine if the contractor will participate. Share the location of the progress payment schedule cut-off date table at:
<http://www.dot.ca.gov/accounting/paysch.html>
- Discuss the requirements for submitting survey requests and any significant survey issues.
- Review the contract provisions about water pollution control. Discuss the contractor’s water pollution control plan.
- Review the contract provisions and the environmental commitments record for environmental permits and agreements. Discuss the contractor’s plan for implementing environmental commitments and environmental work windows.
- Remind the contractor to submit a program to control water pollution before beginning work.

- Discuss the requirements for handling public traffic.
- Discuss any unusual project features, including safety issues such as public health conditions you or the contractor may be aware of.
- Remind the contractor of the contractual procedures to follow in the event of disagreements. Emphasize the necessity for timely written notices and required submittal of completed CEM-6201D, “Initial Potential Claim Record”; CEM-6201E, “Supplemental Potential Claim Record”; and CEM-6201F, “Full and Final Potential Claim Record.”
- Discuss the scheduling of utility work. For a discussion of utility preconstruction conferences, refer to Section 3-520C, “Nonhighway Facilities,” of this manual.

5-004 Resident Engineer’s Daily Report

The following instructions are directed to the resident engineer:

- For each day during the project’s life, make a daily report on Form CEM-4501, “Resident Engineer’s Daily Report or Assistant Resident Engineer’s Daily Report.”
- Include any information that may be pertinent even though no activity may have occurred. For example, such information could include support for determining working or nonworking days. Include the following in the daily report:
 1. Important discussions and agreements with the contractor. Record these on the day discussed. Give the names of specific persons to whom instructions were given or with whom agreements were made. If the contractor objects or comments, note these items, too. Actual quotations on significant discussion points can be useful. Through letters to the contractor, confirm important verbal instructions. Also refer to Section 5-4, “Disputes,” of this manual.
 2. A general statement about the type of work done. Include the controlling operation and any facts concerning the work’s progress.
 3. Weather conditions such as maximum and minimum temperatures and precipitation, among other items. Expand on exceptional weather conditions.
 4. Statements of any other important facts pertaining to the contract that are not specifically covered elsewhere in the contract records.
- Keep the report concise, yet include any important information. The report should not contain routine matters, such as quantities placed, that can be found in other records.
- Promptly send one copy of the daily report to the construction engineer, who will review the copy. After the review, the construction engineer may discard the copy or file it until the project’s completion, in accordance with district policy. Retain the original document with the project records.

5-005 Assistant Resident Engineer’s Daily Report

To report the activity for a contract item, assistant resident engineers must submit a report for each contract day. Complete the report on Form CEM-4601, “Assistant

Resident Engineer's Daily Report." Also, use this form for reporting extra work and for labor compliance. The form contains a narrative portion and a tabular portion.

The narrative portion of the assistant resident engineer's report should include statements about the contractor's operation and the activities of the individual preparing the report. The description of the contractor's operation should include the following:

- The location where the work was performed
- A brief description of the operation
- The quantities placed or the amount of work completed for the day
- Significant statements by the contractor

The statement of the assistant resident engineer's activities should be sufficient to demonstrate the performance of duties such as those outlined in Chapter 4, "Construction Details," of this manual. Record observations of contractor compliance or noncompliance, actions taken, statements made to the contractor, and approvals given.

Use the tabular portion of Form CEM-4601, to report the following:

- Extra work. For details, refer to Section 3-906C, "Extra Work," of this manual.
- Hours worked by labor and equipment. Provide sufficient detail to permit a review of the contractor's costs in a manner similar to force account. Using the publication titled *Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership)*, sufficiently identify equipment to enable the determination of applicable rental rates. Sufficiently identify the labor classification to enable determination of the appropriate wage rate. Also record the equipment's arrival and departure dates, as well as idle time for breakdowns or other reasons. This information can be used to make a possible adjustment of compensation because of an overrun or an underrun of quantities, a change in character, a protest, or a potential claim. The *Labor Surcharge and Equipment Rental Rates* book is available at:

<https://dot.ca.gov/programs/construction/equipment-rental-rates-and-labor-surcharge>

- The name of the contractor or subcontractor performing the work. When the report will be used to determine compliance with the contract's labor provisions, you must include the names or identification numbers of the contractor's personnel or report these separately. However, if the report is not for determining compliance with the contract's labor provisions, you only need to include in the tabular portion of the daily report the respective classifications of the work being performed and the number of hours worked on the date the report covers.

Distribute the assistant resident engineer's reports as follows:

- Retain the original of all reports in the project files in the field office.

- File reports covering extra work according to Section 5-102, “Organization of Project Documents,” of this manual.
- Distribute all other copies in accordance with district policy.

Refer to Section 5-102 for details to consider when establishing a system for filing assistant resident engineer’s reports on a specific project.

5-006 Maintenance Reviews

The resident engineer must conduct reviews with maintenance during a project. The reviews should be scheduled at the start of work, at 50 percent, at 90 percent, and at final inspection. Document these reviews in the Resident Engineer’s Daily Report.

5-006A Start of Work Review

Before the start of construction, send a copy of Form CEM-0101, “Resident Engineer’s Report of Assignment,” to the maintenance superintendent. Provide the maintenance superintendent(s) an opportunity to review the contract with the resident engineer within the first 2 weeks of construction. The intent of this field review is to:

Review the “Resident Engineer’s Report of Assignment”

- Review the site
- Discuss the scope of the project
- Identify locations of existing Caltrans irrigation, electrical and other underground facilities
- Discuss contingency planning for traffic management
- Discuss Caltrans’ maintenance responsibility as described in Section 3-519, “Maintenance and Protection,” of this manual
- Discuss construction activities that could affect adjacent maintenance operations
- Discuss possible winter or long-term suspensions and the conditions under which Caltrans maintenance forces will assume responsibility. For more information, refer to Section 3-805, “Suspensions,” of this manual.

5-006B 50 Percent Review

When the contract work is about 50 percent complete, schedule a maintenance review, unless both construction and maintenance representatives agree the review is unnecessary.

5-006C 90 Percent Review

When the contract work is about 90 percent complete, invite the maintenance superintendent for a complete field review of the project. The intent of this field review is to:

- Identify items that are not complete or changes that maintenance requests. The resident engineer should work closely with the district maintenance personnel to make minor field adjustments to the project. The project manager must approve

any changes to the contract plans or specifications that significantly affect project cost, scope, or schedule.

- Identify items necessary to comply with the construction National Pollutant Discharge Elimination System permit. A copy of the permit is available at the State Water Resources Control Board website:

https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

- Complete, by the resident engineer and maintenance superintendent or the district maintenance stormwater coordinator, Form MTCE-0023, "Construction to Maintenance 90% BMP Completion Walkthrough." Using this form will assist in identifying, discussing, and documenting the project elements such as structural treatment best management practices (BMP), drainage systems, and permanent erosion and sediment controls, while noting their functionality and communicating any specific instruction related to maintaining them. Form MTCE-0023 is available on Caltrans' Electronic Forms System website:

<http://cefs2.dot.ca.gov/jsp/forms.jsp>

This review should provide the resident engineer sufficient time to correct deficiencies prior to contract acceptance and verify that elements such as structural treatment BMP, drainage systems, and permanent erosion and sediment controls are constructed in accordance with the project's plans and specifications.

5-006D Final Inspection Review

Just prior to construction contract acceptance and in accordance with Section 3-525, "Final Inspection and Contract Acceptance," of this manual, the resident engineer must schedule a final inspection with maintenance.

The intent of this review is to:

- Make sure that issues identified in the 90 Percent Review are complete.
- Update Form MTCE-0023 to reflect changes and corrective actions implemented since the 90 Percent Review.
- Facilitate the transfer of maintenance responsibility from the contractor to Caltrans maintenance forces.
- Discuss new or modified maintenance requirements.
- Discuss features requiring special attention.
- Discuss manufacturers' warranties and service instructions.
- Discuss guarantee provisions of the contract. See Section 3-526, "Guarantee," of this manual.
- Discuss the transfer of utility service payment to Maintenance.

Both the resident engineer and the maintenance representative must sign Form MTCE-0023 when they have completed their final inspection. File a copy of the form in Category 63, "Project Completion Documents," and send copies to the district

pollutant discharge coordinator, district design stormwater coordinator, and district construction stormwater coordinator. The maintenance representative will maintain the original and is responsible for sending a copy to the maintenance region manager.

5-007 Federal Highway Administration Involvement in Contract Administration

When assigned the responsibility for a construction contract, the resident engineer first must determine if it is a federal-aid contract and, if so, the federal-aid classification for the contract. The resident engineer should review the construction contract and the resident engineer's pending file, and talk to the project manager to determine the project's federal-aid classification.

FHWA -funded projects are classified as either Projects of Division Interest (PoDI) or delegated projects to indicate their involvement in the project as stated in the Stewardship and Oversight Agreement between FHWA and Caltrans. Information on this stewardship agreement can be found on the Division of Budgets website:

<https://budgets.onramp.dot.ca.gov/fhwa-oversight>

Caltrans assigns project numbers to federally funded projects, and Caltrans and FHWA jointly determine project classifications. Caltrans then adds a suffix "N" or "E" to the end of the project number. Projects with the suffix "N" are PoDI. Projects with the suffix "E" are delegated projects.

5-007A Federal Highway Administration Involvement on Projects of Division Interest—N

Caltrans and FHWA will jointly determine PoDI responsibilities on a project-by-project basis and usually as part of the project development team process. They will establish which project responsibilities will be retained by FHWA and which will be delegated to Caltrans in a Project Oversight Agreement (POA). The resident engineer should receive a copy of the agreement in the resident engineer's pending file or from the project manager. Before the start of construction, the construction senior engineer must review the agreement with the FHWA transportation engineer and discuss FHWA's involvement on the project.

The resident engineer is required to submit a copy of the CEM-6303, "Final Acceptance Checklist for Federal-Aid Projects of Division Interest (PODI)," to the FHWA transportation engineer along with a copy of the proposed final estimate. FHWA will document the project status and final voucher the project with these documents.

5-007B Federal Highway Administration Involvement on Delegated Projects—E

Caltrans is responsible for all federal approvals and oversight requirements on delegated projects. Resident engineers are not formally required to communicate with the FHWA transportation engineer except for Buy America requirements. FHWA has delegated to Caltrans some of FHWA's authority and responsibility for compliance with National Environmental Policy Act and other environmental laws.

Resident engineers should review the project environmental documents and discuss with the district environmental-construction liaison, to determine if FHWA involvement is necessary when there are changes to the environmental requirements for the project. Information on Buy America requirements and FHWA involvement can be found in Section 3-604, "Buy America," of this manual. Informal discussions with FHWA for technical guidance are encouraged.

Caltrans receives federal-aid funds indirectly from the California Office of Traffic Safety. Construction projects with a federal-aid number and Office of Traffic Safety designation contain the same special provisions as delegated projects. The same procedures apply to traffic safety projects as delegated projects.

Section 3 Change Orders

5-301 General

5-302 Change Order Policy

5-303 Purpose of Change Orders

5-304 Initiation of Change Orders

5-305 Preliminary Considerations

5-306 Change Order Content

5-306A Specifications

5-306B Description of Work

5-306C Methods of Payment

5-306C (1) Increases and Decreases in Bid Items at Bid Item Unit Prices

5-306C (2) Payment Adjustment

5-306C (2a) Adjustments for Increased or Decreased Quantities

5-306C (2b) Deferred Bid Item Adjustments

5-306C (2c) Exemption from Adjustment

5-306C (2d) Adjustments for Work-Character Changes

5-306C (3) Extra Work

5-306C (3a) Extra Work at Agreed Prices

5-306C (3b) Extra Work at Force Account

5-306D Adjustments to Time of Completion

5-306E Change Order Standard Clauses

5-306F Work Designated as Extra Work in the Specifications

5-306G Change Order Format

5-307 Change Order Memorandum

5-307A Contents of the Memorandum

5-307B Change Order Category Codes

Table 5-3.1. Change Order Type (Character 1)(1 of 2)

Table 5-3.1. Change Order Type (Character 1)(2 of 2)

Table 5-3.2. Specification or Physical Asset (Character 2) (1 of 2)

Table 5-3.2. Specification or Physical Asset (Character 2) (2 of 2)

Table 5-3.3. Source Document (Characters 3 and 4) (1 of 2)

(Use **Table 5-3.3** only when the first character code is *C* or *D* from **Table 5-3.1**)

Table 5-3.3. Source Document (Characters 3 and 4) (2 of 2)

Table 5-3.4. Dispute Disposition (Characters 3 and 4)

(Use **Table 5-3.4** only when the first character code is *E*, *F*, *G*, or *H*, from **Table 5-3.1**, representing a Dispute Resolution)

5-307C Coordination and Concurrence by Others

5-307C (1) Project Development

- 5-307C (2) Project Management
- 5-307C (3) Structures
- 5-307C (4) Materials
- 5-307C (5) Traffic
- 5-307C (6) Maintenance
- 5-307C (7) Right of Way
- 5-307C (8) Environmental
- 5-307C (9) Locally Funded Projects
- 5-308 Federal Highway Administration Change Order Requirements**
 - 5-308A Projects of Division Interest
 - 5-308A (1) Federal Highway Administration Approval Requirements – Major Change Orders
 - 5-308A (2) Federal Highway Administration Approval Requirements–Minor Change Orders
 - 5-308A (3) FHWA Denial
 - 5-308B Delegated Projects
 - 5-308C FHWA Major Change Order Approval Process
- 5-309 Federal Segregation Determination on Change Orders**
- 5-310 Locally Funded State Highway Projects**
- 5-311 Change Order Approval Process**
 - 5-311A Division of Construction Approval
 - 5-311A (1) Change Order Determinations
 - Table 5-3.5. Division of Construction’s Change Order Direction (1 of 2)
 - Table 5-3.5. Division of Construction’s Change Order Direction (2 of 2)
 - 5-311B District Approval Limitations
 - 5-311C Prior Authorization to Proceed
- 5-312 Substantiation**
 - 5-312A Engineering Analysis
 - 5-312B Contractual Analysis
 - 5-312C Cost Analysis
 - 5-312D Time Impact Analysis
- 5-313 Executed Change Order Copy Distribution**
- 5-314 Value Engineering Change Proposals**
 - Figure 5-3.1 Change Order Decision-Making Flowchart

Section 3 Change Orders

5-301 General

A change order is a legally binding document used to make changes to the contract. Form CEM-4900, "Change Order," is used for change orders. Form CEM-4903, "Change Order Memorandum," must be prepared for each change order.

This section describes the use of Forms CEM-4900 and CEM-4903, describes California Department of Transportation (Caltrans) policies for change orders, and provides guidelines for writing change orders and memorandums.

5-302 Change Order Policy

The authority for Caltrans to make changes to a contract is in Section 3-403, "Changes and Extra Work," of this manual. Work that is outside the scope of an existing contract should be done in a separate contract. However, in special situations it may be added to an existing contract if:

- A director's order has been approved for the new work in accordance with Deputy Directive 26-R2, "Use of Director's Orders," dated July 2009, available at:
<https://admin.onramp.dot.ca.gov/deputy-directives>
- The Division of Construction chief concurs with adding new work to the existing contract by co-signing the director's order.
- On Projects of Division Interest (PoDI) where the major contract change order approval has been retained by the Federal Highway Administration (FHWA), the FHWA transportation engineer approves the change as outlined in Section 5-308, "Federal Highway Administration Change Order Requirements," of this manual.
- On locally funded state highway projects, the contributing agency agrees to the change as outlined in Section 5-310, "Locally Funded State Highway Projects," of this manual.
- The contractor agrees to the change.

District construction personnel should consider the following in determining if the proposed change is within the scope of the original contract. Answering "yes" to any of the following questions indicates that the new work may be outside the scope of the original contract:

- Is the type of work for the proposed change significantly different from other types of work within the original contract?
- Is it necessary for the prime contractor or a subcontractor to mobilize specialized forces and equipment to perform the work of the proposed change?

- Will the estimated cost of the proposed work, when combined with all other changes, be outside the approved contract allotment?
- Does the proposed change represent a significant deletion to the original contract?
- Does the proposed change significantly delay completion of the contract when compared to the number of original contract working days?
- Is the proposed change outside the original contract limits?
- Can the project be completed as contemplated at the time of bid without the proposed change?

Answering the previous questions assists in determining if a proposal is within the scope of the existing contract. However, analysis of all the facts and circumstances of the proposed change or new work is required to make a final determination. When district construction is uncertain if the new work is within the scope of the original contract, the district construction deputy director must consult the appropriate Division of Construction field coordinator for determination.

When new work resulting from the director's order may be accomplished best by adding to an existing contract, the district submits a request to the Division of Construction chief to co-sign the order. After the director's order is approved, district personnel may process a change order incorporating the new work, in accordance with the procedures described in Section 5-311, "Change Order Approval Process," of this manual.

Effective with this manual update, increased change order delegation applies only to districts with a Division of Construction approved district change order quality control plan. Any district without the approved district quality control plan, must follow *Construction Manual* delegations in the previous edition.

With increased change order delegation, the Division of Construction takes on the role of performing quality assurance on all change orders.

5-303 Purpose of Change Orders

Use change orders to change any part of the original contract. In addition, change orders are used for administrative and other purposes. The following are some of the reasons for writing change orders:

- To change contract plans, specifications, or both.
- To describe the work and method of payment for work stipulated in the contract to be paid as extra work.
- To authorize an increase in extra work funds necessary to complete a previously authorized change.
- To make payment adjustments.
- To implement a value engineering change proposal or a construction evaluated research proposal. Refer to Section 3-5, "Control of Work," of this manual for a discussion of value engineering change proposals.

- To clarify terms of the contract.
- To resolve disputes or potential claims prior to the proposed final estimate, or exceptions (claims) after the proposed final estimate, and to pay for contract claim determinations. For the use of change orders in the dispute resolution process, refer to Section 5-4, “Disputes,” of this manual.

5-304 Initiation of Change Orders

The resident engineer usually determines the need for and initiates a change order. However, the contractor, other Caltrans units, or outside agencies or individuals may request changes. Other Caltrans units requesting a change order must clearly document the need for the change and provide information sufficient to demonstrate that the requested change meets Caltrans policy for making changes to the contract. For all changes requested by any person except the contractor, indicate “Change Requested by Engineer” on Form CEM-4900, “Change Order.”

5-305 Preliminary Considerations

When preparing to write a change order, consider the following:

- Is the proposed change order necessary to complete the work as contemplated at the time the plans and specifications were approved?
- What is the overall effect on the planned work?
- Are there sufficient unobligated contingency funds? If additional funds are required, can they be obtained soon enough to prevent delays? Refer to Section 5-2, “Funds,” of this manual for the procedure for obtaining additional funds.
- Will the contract time be affected?
- What are the effects of adjusting contract time?
- When a project is nearing completion, give careful consideration to the effect the change will have on the time of completion. Changes near the end of a contract tend to extend the time of completion more than changes made earlier. Late changes may adversely affect the contractor’s schedule, delay public use of the facility, and disrupt the planned use of Caltrans personnel.
- If the adjustment of time of completion is deferred, how will the adjustment be determined?
- Will the proposed change order affect or change the contractor’s planned method of performing the work?
- Is the proposed work already covered in the contract?
- Will the ordered change cause a work-character change?
- If a payment adjustment resulting from a work-character change is deferred, how will the adjustment be determined?
- Is timely coordination with other affected Caltrans units possible? Does the proposed change adhere to existing permit conditions, environmental mitigation requirements,

local agency and utility obligations, and right-of-way agreements? Does the proposed change require new coordination, permits, or agreements?

- Will the proposed change affect maintenance operations? Does the maintenance superintendent have concerns with the proposed change?
- Will the contractor cooperate in providing timely cost estimates for extra work at agreed price and cost information for payment adjustments? Should you make cost estimates and determinations and present them to the contractor?
- Will the ordered change require a Cost Effectiveness/Public Interest Finding for the use of patented or proprietary materials or equipment; or mandatory use of a borrow or disposal site?
- What methods of payment should be used?

To avoid misunderstanding and obtain full agreement, discuss with the contractor all elements of a change, including the method of compensation and the effect on time. Failure to identify elements requiring consideration may lead to protest.

5-306 Change Order Content

The change order must be clear, concise, and explicit. When appropriate, it must include the following:

- What is to be done
- Location and limits of proposed work
- Applicable specification changes and references to specifications
- The proposed change order's effect on time of completion
- Method and amount of compensation

5-306A Specifications

The specifications for bid item work already included in the contract will apply to added bid item work. You do not need to repeat or reference specifications for added work that is clearly shown to be bid item work.

In the change order, completely describe extra work. Include directly or by reference the specifications for extra work, whether paid for at agreed price or at force account. The contractor must complete this extra work exactly as it is specified in the change order.

The contract may include some supplemental work specifically designated as extra work. For an example, refer to Sections 12-1.01, "General,"; 12-1.03, "Construction,"; and 12-1.04, "Payment," of the *Standard Specifications*.

5-306B Description of Work

The change order must clearly describe added work or other changes to the contract. Include appropriate references to special provisions, contract plans, *Standard Plans*, or *Standard Specifications*. Decide whether a written statement clearly defines the proposed change or if plans or drawings need to be included.

The contractor normally chooses the method of performing extra work, subject to the resident engineer's approval for labor, equipment, and materials for force account work. If, for any reason, the engineer wants to control the method of performing the work, the method must be specified in the change order.

On plans attached to a change order, show pertinent dimensions and the scale or label the plans "not to scale." Plainly mark reduced reproductions "Reduced Plans, Scales Reduced Accordingly." When using existing plan sheets, clearly show the difference between new work, work already included in the contract, and changed or eliminated work. A simple sketch on a letter-sized sheet will more clearly depict the change than an obscure revision to an existing sheet of the original plans. An 8.5-by-11 inch attachment is always preferable to a full-size contract plan sheet.

Section 6735, "Preparation, signing, and sealing of civil engineering documents," of California's Professional Engineers Act, requires that all civil engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final civil engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping. Plans or specifications attached to a proposed change order must meet this requirement, with the exception that a licensed civil engineer does not need to sign revisions already covered by *Standard Plans*, *Standard Specifications*, standard special provisions, previously engineered drawings, or minor changes not requiring calculations or determinations by a licensed engineer.

Show the Caltrans contract number, sheet number, and change order number on plans or other documents made a part of a change order. Include all attachments with each distributed copy of a change order.

5-306C Methods of Payment

When writing a change order, the resident engineer often can choose the payment method for added or changed work. The following lists, in order of preference, the payment methods:

1. Bid item unit prices; refer to Section 5-306G, "Change Order Format," of this manual.
2. Bid item unit prices with a payment adjustment at agreed unit price or lump sum; refer to Sections 5-306C (2), "Payment Adjustment"; 5-306C (2a), "Adjustments for Increased or Decreased Quantities"; and 5-306C (2b), "Deferred Bid Item Adjustments," of this manual.
3. Payment at agreed unit price or lump sum; refer to Sections 5-306C (2d), "Adjustments for Work-Character Changes"; 5-306C (3), "Extra Work"; and 5-306C (3a), "Extra Work at Agreed Prices," of this manual.
4. Force account; refer to Section 5-306C (3b), "Extra Work at Force Account," of this manual.

When a bid item has a work-character change, the resident engineer may delete the entire bid item, or the portion of it affected by the change, and pay for the entire work at force account. A preferred choice is to determine a correct and equitable payment

adjustment to the bid item unit price. A payment adjustment providing for increased or decreased costs because of the work-character change allows the contract price to remain unchanged. Before resorting to force account payment, resident engineers must make every effort to make payment adjustments or negotiate agreed prices.

Refer to Section 3-901, "General," of this manual for methods of payment. Section 3-904, "Payment Adjustments," of this manual describes how the various methods of payment are used in change orders.

5-306C (1) Increases and Decreases in Bid Items at Bid Item Unit Prices

Changes in planned work or adding or decreasing work will often result in increases or decreases in bid item quantities. Except for bid items designated in the Bid Item List as final pay quantities, show changes in bid item quantities as estimates on a change order. Calculate the estimated increases or decreases that will result from the work as changed by the change order. The actual quantity paid for each bid item will be determined by the method specified for measuring each bid item quantity. For guidelines on measuring bid item quantities, refer to Section 3-9, "Payment," of this manual.

Show changes in the quantity of bid items that are designated as final pay quantities as fixed amounts added to the quantity shown in the Bid Item List. If a portion of a final pay item quantity is eliminated, the final pay quantity will be revised in the amount represented by the eliminated portion of the item of work quantity. For a standard clause for revised final pay quantities, refer to "Change Order Standard Clauses" at:

<https://dot.ca.gov/programs/construction/change-order-information>

For the method of indicating changes in bid item quantities, refer to Section 5-306G, "Change Order Format," of this manual and the change order examples at:

<https://dot.ca.gov/programs/construction/change-order-information>

Increases and decreases or estimated increases or decreases in bid items at contract prices may be executed unilaterally or with the contractor's agreement.

5-306C (2) Payment Adjustment

For the definition of payment adjustments, refer to Section 3-904, "Payment Adjustments," of this manual. Section 3-4, "Scope of Work," of this manual discusses payment adjustments for increased or decreased quantities and for work-character changes.

Payment adjustments usually involve estimating the cost of work or determining the actual cost of work performed. The following explains how to estimate or determine such costs.

Verify the contractor's records of item cost by comparing labor and equipment charged to the item by the contractor to the labor and equipment shown on the daily reports. Charge equipment to the item cost in accordance with the force account method. Exclude down time, and apply the correct force account rental rates. Exclude any overhead costs and any items that should be charged to other work.

Sometimes a contractor may submit cost estimates based on the billing from a specialist plus a markup. When the work is of such a nature that it would qualify under Section 9-1.05, "Extra Work Performed by Specialists," of the *Standard Specifications*, calculate the adjustment on this basis. Check that the specialist rate or billing is in line with the firm's usual charges.

For bid item overrun and underrun adjustments, when the contractor does not furnish sufficient and timely cost information, issue a unilaterally approved change order adjusting the item. Base the adjustment on your cost determination. This approved change order establishes the time allowed for protest and helps avoid delays.

Even though the contractor may have agreed to pay a fixed price to others for an item of work, use a force account based adjustment of the item price. Use a force account cost determination even when the work is subcontracted unless the item of work was performed by a specialist, as defined in Section 9-1.05, "Extra Work Performed by Specialists," of the *Standard Specifications*.

For large and complex adjustments, request auditing assistance from the Independent Office of Audits and Investigations through the Division of Construction. Refer to procedures in Section 5-410, "Audits," of this manual.

5-306C (2a) Adjustments for Increased or Decreased Quantities

As soon as it is known that a bid item quantity will vary from the Bid Item List by more than 25 percent, consider the method of adjustment that will be used. Make daily reports for the item with the same degree of detail used in force account daily reports. Doing so will identify any necessary adjustment. When required, make payment adjustments for increased or decreased quantities as soon as the contractor completes work on a bid item. Refer to Section 3-904, "Payment Adjustments," of this manual.

You may calculate adjustments by analyzing the performance of a portion of an item, provided the portion is typical of the item as a whole.

Verify a contractor's records by comparing them with Caltrans records. Where more extensive auditing is required, request the assistance of the Independent Office of Audits and Investigations. When examining the contractor's records to determine the cost of equipment used, consider only the hours worked. Force account equipment rental rates must be used regardless of what rate the contractor may have used. When verifying the contractor's records, eliminate supervision and overhead costs and any costs properly chargeable to other work.

When making adjustments, use Caltrans records to determine the amounts of labor, equipment, and materials. The verified contractor's records may supplement the Caltrans records, or in some instances, you may need to use only the verified contractor's records. The resident engineer must use good judgment when reconciling differences between the contractor's and the engineer's records to arrive at a reasonable and equitable adjustment.

An item that has been adjusted under the provisions of Section 4-1.05B, "Work-Character Changes," of the *Standard Specifications*, may later become eligible for further adjustment under Section 9-1.06, "Changed Quantity Payment Adjustments," of the

Standard Specifications. In making the quantity payment adjustment, deduct or add payments made for work-character change adjustment to determine the contractor's total cost of the work.

5-306C (2b) Deferred Bid Item Adjustments

Upon completion of the changed work, promptly resolve all deferred item adjustments.

If a bid item adjustment will not be made, you do not need to write a supplemental change order. In this case, a letter from the contractor is sufficient. File a copy of the contractor's letter with the original change order that deferred the adjustment.

5-306C (2c) Exemption from Adjustment

Unless requested in writing by the contractor, do not adjust a bid item when the total pay quantity is less than 75 percent of the Bid Item List. You also do not need to adjust, unless requested in writing by the contractor, if the value based on the contract price for the units of work in excess of 125 percent is less than \$5,000, as shown in Section 9-1.06B, "Increases of More than 25 Percent," of the *Standard Specifications*. As soon as a final bid item quantity is known, decide whether to make the adjustment. Unless an obvious imbalance exists between the bid item unit price and actual cost, do not make the adjustment. Inform the contractor in writing whether Caltrans will adjust the bid item price.

5-306C (2d) Adjustments for Work-Character Changes

Section 3-403A, "Work-Character Changes" of this manual defines work-character changes.

Payment adjustments for work-character changes may be unit or lump sum adjustments. Normally, a lump sum adjustment is only applied to a lump sum bid item.

A work-character change payment adjustment requires a force account determination of the cost of an entire item as changed and a force account estimate of the cost of the work as planned.

When only a portion of the work has changed, separate the changed portion of the work from the unchanged portion. Perform a force account analysis of the cost of the changed portion, and make payment at the contract price plus a separate payment for the added work or credit for any deleted work.

Do not eliminate a bid item and pay for the work at agreed price or force account unless the change is so extensive that the original item no longer applies.

There can be no work-character change unless there was an executed change order. At times, it will not be possible to come to an immediate agreement with the contractor regarding an adjustment in compensation. You may need to complete the entire item before adjusted costs can be determined. In such cases, provide for payment at bid item prices, and defer adjustment in the initial change order. Include an appropriate deferment clause.

5-306C (3) *Extra Work*

For the definition of extra work and guidelines for using extra work in change orders, refer to Section 3-4, “Scope of Work,” of this manual. Before designating additional work as extra work, make sure that it cannot be paid for as a bid item, a combination of bid items, or a bid item with a payment adjustment.

5-306C (3a) *Extra Work at Agreed Prices*

For guidelines for determining and paying for extra work at agreed price, refer to Section 3-9, “Payment” of this manual.

File with the contract records any calculations made to determine extra work at agreed price. These calculations are subject to audit and must be in such a form that they clearly substantiate and justify the amount paid for extra work. Instead of showing all the calculations necessary to substantiate extra work at agreed price in the change order memorandum, you may include a statement that such calculations are on file in the project records.

When a subcontractor is to perform extra work at agreed price, include the subcontractor markup in the agreed price calculations. For subcontractor markup guidelines, refer to Section 3-9, “Payment,” of this manual.

Agreed prices may be unit prices or lump sum. Before an agreed price may be used to pay for extra work, the resident engineer and the contractor must agree on compensation. The contractor must execute the change order providing for extra work at agreed price.

After the extent of extra work has been determined, ask the contractor to submit a proposed agreed price. Analyze the contractor’s proposed price using the force account method. You may also initially determine a proposed agreed price based on a force account analysis and present it to the contractor. When you have reached agreement, process the change order and retain in the project files the records fully justifying the agreed price.

Verify that payments of agreed lump sum prices do not exceed the amount authorized on the change order. Agreed unit prices can be applied to an estimated number of units in the change order. Although the unit price remains fixed, the number of units paid may vary from the estimated number.

When extra work consists entirely of work that neither the contractor nor any of the subcontractors would normally perform, the work is considered “specialist work,” and the contractor should obtain three bids for the extra work. Determine the agreed price by taking the lowest bid and adding the markup, as described in Section 9-1.05, “Extra Work Performed by Specialists,” of the *Standard Specifications*.

When this method is used, verify that the work is accurately and completely described when bids are solicited. The same description of the work must be used in the change order. If the contractor or a subcontractor includes a bid along with independent firms, you must make an analysis using the force account method. The contractor’s or subcontractor’s bid will be acceptable only if the analysis can justify it. If the contractor or a subcontractor is capable of performing the extra work, the work is not considered “specialist work.”

For examples of change orders with extra work at agreed price, refer to the change order examples at:

<https://dot.ca.gov/programs/construction/change-order-information>

5-306C (3b) Extra Work at Force Account

Pay for extra work at force account under the following conditions:

- When the work cannot be estimated within reasonable limits of accuracy.
- When the resident engineer and the contractor are unable to agree on a unit or lump sum price for the work.
- When the contractor refuses to sign a change order.

For guidelines for paying for extra work at force account, refer to Section 3-9, “Payment,” of this manual. For examples of change orders with extra work paid for on a force account basis, refer to the change order templates at:

<https://dot.ca.gov/programs/construction/change-order-information>

5-306D Adjustments to Time of Completion

For a discussion of time of completion and adjustments to time, refer to Section 3-804, “Time,” of this manual.

A change order may specify a positive, negative, or no adjustment to time of completion.

Whenever you can estimate an adjustment to time with reasonable accuracy, try to reach agreement with the contractor. Enter the amount of the time adjustment on the change order, including when there is no adjustment. Regardless of the amount of time actually required to perform the changed work, the agreed adjustment becomes binding on both parties. File with the contract records the calculations and other data used to determine adjustments to time.

If you cannot determine or agree on an adjustment of time in the initial change order, you may defer the adjustment. When doing so, write “deferred” on the time adjustment line and include a time adjustment deferred clause in the change order.

As soon as the change order work is completed, determine the appropriate time adjustment. If you cannot reach agreement with the contractor, issue a unilaterally approved supplemental change order adjusting time.

On contracts with internal time limits or multiple time limits, make sure that any change order that includes a time adjustment contains a statement that identifies the applicable time limits of the adjustment. If an internal milestone date will change, but total time remains unaffected, specify the new date in the change order and indicate there is no time adjustment because of the change.

Periodically during the progress of the change order work, resolve deferred time adjustments. Do so by issuing a supplemental change order covering time allowable. If it is an extensive deferment, resolve the time allowed to a current date, with part of the

deferral continued for subsequent work. Your objective is to resolve deferred time adjustments as soon as possible. Timely resolution of time deferrals allows the contractor to efficiently schedule remaining work to complete the project within the time limits.

The resident engineer may not unilaterally decrease time unless this is permitted by the specifications. Otherwise, the contractor must agree to changes that reduce time. Without this agreement, you can do one of two things:

1. Do not recommend approval of the change if no benefit exists for Caltrans.
2. If substantial benefits exist for Caltrans, issue a unilaterally approved change order with no time adjustment.

5-306E Change Order Standard Clauses

Information on change order standard clauses is available at:

<https://dot.ca.gov/programs/construction/change-order-information>

The examples show standard clauses for situations found in change orders. Customize standard clauses to reflect what is appropriate for the change order being written.

5-306F Work Designated as Extra Work in the Specifications

The *Standard Specifications* and the special provisions describe certain work and specify that it is to be paid for as extra work. In some cases, supplemental funds are set aside to pay for this extra work. Make an independent cost estimate of the work for which the supplemental funds were provided. This estimate must be as accurate as possible.

Refer to the specific section of the specifications that identifies the extra work for the change order. Also, describe the exact work to be performed.

Traditionally, Change Order No. 1 provides for extra work specified for public traffic and public convenience. This change order must be limited to the following:

- Work designated as extra work in the specifications
- Work related to the needs of public traffic or for public convenience

Refer to the change order template "Maintain Traffic" at:

<https://dot.ca.gov/programs/construction/change-order-information/change-order-templates>

This change order indicates the method for incorporating specified extra work into a change order. Note that the change order template is written as extra work at force account. You may also pay for specified extra work as extra work at agreed price if the extent of the work can be accurately determined. This approach is illustrated in the change order template, "Flaggers," which provides for payment for flaggers at an agreed unit price. Payment for flaggers at an agreed price may be written as a separate change order or combined with the other traffic related work paid for as extra work at force account.

5-306G Change Order Format

The example change orders at the Division of Construction's website follow the generally accepted format for writing change orders. The following describes the format:

- Describe the work or change that will cause increases and decreases to bid item quantities. Refer to any attached drawings or documents (sheets __ and __ of __). If the bid item work cannot be described separately from other work, describe the entire work at this stage. Describe work paid for by other methods in the appropriate sections of the change order. The intent is that the change order clearly specifies the work paid for by each payment method.
- Show the increases and decreases in bid item quantities. Include the percent of the Bid Item List represented by this change. Also show the accumulated percent change to date from the original quantity in the Bid Item List.
- Write clauses for situations resulting from increases or decreases or estimated increases or decreases in bid item quantities, including deferred adjustments or actual payment adjustments for overruns or underruns.
- Write clauses for adjustments or deferred payment adjustments because of any cause. Describe the work or change causing the adjustment or deferred adjustment. Show the amounts of adjustments if not deferred.
- Describe work to be paid for as extra work at agreed price. Show the price as agreed. Agreed prices may be fixed unit prices and an estimated or actual number of units, or agreed prices may be fixed lump sums.
- Describe the work to be paid for as extra work at force account. Show the estimated cost of the extra work.
- Write time deferment or time adjustment clauses.

5-307 Change Order Memorandum

Include with all change orders sufficient documentation of the scope and reasons for the change. For this purpose, use Form CEM-4903, "Change Order Memorandum," with any necessary attachments. The memorandum is intended for interdepartmental use only. Do not send the memorandum to the contractor.

The memorandum must be sufficiently complete to enable a person unfamiliar with the details of the project to review the change order and understand the justification for the work, the reasonableness of the compensation, and the time adjustment provisions.

5-307A Contents of the Memorandum

The memorandum must:

- State what the change order provides. Supplemental change orders should also include a description of the original change order.
- Explain the need for the change, including the contractual basis of the change. When a different Caltrans unit requests a change, the correspondence requesting the

change should also justify the need for the change. Attach supporting letters to the memorandum.

- State the reasons a particular method of payment was chosen. Include a complete cost analysis, or state that the cost analysis is on file with the project records. The statement should include the method used in making the cost analysis.
- Explain the reasons the ordered change causes any change in the character of the work. To substantiate any additional compensation due, you may need to provide a summary of events leading up to the change.
- State the extent of coordination and concurrence. If agreement with any district unit cannot be obtained, then indicate specific discussions that would influence a decision for approval. Refer to Section 5-307C, "Coordination and Concurrence by Others," of this manual.
- If prior approval of the change order has been obtained, state the name of the person who granted prior approval and the date.
- Show the unobligated balance of funds available to finance the change order. The resident engineer must verify that available funds are not exceeded. For obtaining additional funds, refer to Section 5-2, "Funds," of this manual.
- Show the total authorized funds to date, as well as the dollar amount of a supplemental change order.
- Indicate when funds for supplemental work shown in the detail estimate of job cost are used in the change order.
- For major changes on federal PoDI, indicate the name and date of discussion and concurrence, if any, by the FHWA transportation engineer. Refer to Section 5-308, "Federal Highway Administration Change Order Requirements," of this manual. For details relating to federal funding to be shown on the change order memorandum, refer to Section 5-309, "Federal Segregation Determination on Change Orders," of this manual.
- For change orders involving participation by local agencies, identify the portion of the work that is applicable to the contributing agency.
- For a change order that is to be unilaterally approved, explain why the contractor will not sign or why the contractor's signature is not required. Attach a copy of any correspondence from the contractor regarding the change order.
- Include justification for a time adjustment. Describe the method used to determine time adjustments. State the controlling activity during the delay period. Whenever possible, and when resolving a previously deferred time adjustment, indicate the specific working days in which there were delays and represent the period of the time adjustment. By indicating the specific working days, you make sure other time adjustments do not cover the same time period.
- Indicate the cumulative time adjustments and total number of change orders with unreconciled deferred time.

5-307B Change Order Category Codes

The resident engineer is responsible for assigning a four-letter code to every change order to indicate the main reason for the change. Preferably, there should only be one issue per change order. For change orders with multiple distinct issues, assign the coding based on the one issue that has the greatest effect on the project. Assign the coding according to the reason for the change, not according to how the problem was corrected. To determine the code, the resident engineer may use the change order code generator from:

<https://dot.ca.gov/programs/construction/change-order-information>

The resident engineer should enter this code on Forms CEM-4903, “Change Order Memorandum,” and CEM-4901, “Change Order Input.”

The change order code will identify one or more discrete pieces of information about the change:

1. The type of change order (first character).
2. The specification that authorizes the change, or the physical asset affected by the change (second character).
3. The source document that led to the need for a change (third and fourth characters).
4. The disposition of a dispute resolution (third and fourth characters).

Administrative change orders, such as accelerations, and changes that are anticipated and authorized by existing administrative specifications, require only minimal coding information. Consequently, extra coding positions will be assigned a default character placeholder, the letter Z. Assign characters from left to right, as subsequent character code selection is dependent on the preceding characters.

Character 1: Change Order Type:

Use the codes in Table 5-3.1, “Change Order Type (Character 1),” to categorize the change order according to its general type; for example, administrative or dispute resolution. Coding for dispute resolution takes precedence over coding for any other potential scenario. After selecting the first character code, use the corresponding directions on Table 5-3.1 to complete the coding for the remaining three characters.

Character 2: Specification or Physical Asset:

Next, based on your selection for the first character code, and using the directions within Table 5-3.2, “Specification or Physical Asset (Character 2),” select the code that most accurately identifies the appropriate administrative specification, or the affected physical asset. Enter this code as the second character. In the case of a change order that is strictly for acceleration, with no physical change in the planned work (the first character code is a B); then the second character code is defaulted to a placeholder Z character.

Characters 3 and 4: Source Document or Dispute Disposition:

If the change order is needed to bring about a plan or specification change (the first character code is C or D), use Table 5-3.3, “Source Document (Characters 3 and 4),” to

identify the pair of character codes that together best describe the original document that created the need for the change order. The reason for the change may be from:

- Constructability issues, errors, conflicts, or inconsistencies.
- The introduction of improved products, means, or methods.
- Any other reason, provided that the change will affect some physical aspect of the planned work.

If the change order is for a dispute resolution (first character code from Table 5-3.1 is E, F, G, or H), use Table 5-3.4, "Dispute Disposition (Characters 3 and 4)," to assign the third and fourth characters. Begin by selecting the code for the third character that most closely identifies the time frame before the dispute was resolved. The milestones for the third character are listed chronologically. For the fourth character, choose a code from Table 5-3.4 that most accurately explains how the dispute was resolved, such as entitlement, negotiated settlement, and arbitration award, full or partial resolution.

If the change order type was administrative (first character code is either A or B), then the third and fourth character codes are defaulted to Zs.

General Examples:

Change orders that are strictly for constructive accelerations when there is no change to the final configuration of a planned permanent physical asset are all coded "BZZZ." No additional coding information is necessary.

When a change order resolves a dispute based on contract administration, and there was no change to the planned work on some permanent physical asset:

1. The first character will be either E or G (refer to Table 5-3.1).
2. The second character represents the disputed administrative specification. Choose this character from the upper portion of Table 5-3.2.
3. The third and fourth coding characters are selected depending on when and how the dispute was resolved. Choose these characters from Table 5-3.4, "Dispute Disposition."

When a change order is authorized by an administrative specification and there is no formalized dispute involved:

1. The first character will be A (refer to Table 5-3.1).
2. Select the second character from the upper portion of Table 5-3.2.
3. The third and fourth characters will both default to the placeholder letter Z. No other coding information is necessary in this particular example.

Table 5-3.1. Change Order Type (Character 1)(1 of 2)

Reason for Change Order	Type of Change Order	Code	Description
Administrative	Contract or Supplemental Work	A	<p>Change order used to pay for work or adjustments already authorized by specifications (supplemental work, quantity adjustments, and other).</p> <p>(Use only the specification codes from the upper portion of Table 5-3.2 for the second character, and Zs for the third and fourth characters.)</p>
Administrative	Acceleration	B	<p>Change order used to accelerate certain planned work. Describe the reason for acceleration in the transmittal memo (public convenience, staging coordination, delay mitigation, and other).</p> <p>(Use only Zs for subsequent code characters 2, 3, and 4.)</p>
Plan or Specification Change	Non-VECP	C	<p>Change order needed to change plans or specifications for reasons unrelated to a value engineering change proposal (VECP).</p> <p>(Use only the physical asset codes from Table 5-3.2 for the second character, and Table 5-3.3 for the third and fourth characters.)</p>
Plan or Specification Change	VECP-Related	D	<p>Change order needed to change plans or specifications because of a VECP.</p> <p>(Use only the physical asset codes from Table 5-3.2 for the second character, and Table 5-3.3 for the third and fourth characters.)</p>
Dispute Resolution	Potential Claim	E	<p>Change order either fully or partially resolves certain potential claim records because of some dispute over contract administration.</p> <p>(Use the specification codes from the upper portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)</p>

Table 5-3.1. Change Order Type (Character 1)(2 of 2)

Reason for Change Order	Type of Change Order	Code	Description
Dispute Resolution	Potential Claim	F	<p>Change order either fully or partially resolves certain potential claim records because of a dispute over an ordered change that affected some physical asset.</p> <p>(Use either the physical asset codes from the lower portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)</p>
Dispute Resolution	Claim	G	<p>Change order either fully or partially resolves certain contract claims because of some dispute over contract administration.</p> <p>(Use the specification codes from the upper portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)</p>
Dispute Resolution	Claim	H	<p>Change order either fully or partially resolves certain contract claims because of a dispute over an ordered change that affected some physical asset.</p> <p>(Use the physical asset codes from the lower portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)</p>

Table 5-3.2. Specification or Physical Asset (Character 2) (1 of 2)

Code	Section (only when the first character code is A, E, or G)	Section Name
A	9-1.06	Changed Quantity Payment Adjustments
B	7-1.04	Public Safety
C	4-1.06	Differing Site Conditions (23 CFR 635.109)
D	7-1.02K	Labor Code
E	7-1.03	Public Convenience
F	8-1.10	Liquidated Damages
G	8-1.07	Delays
H	5-1.36C	Nonhighway Facilities
I	9-1.17C	Proposed Final Estimate
J	12-1	Temporary Traffic Control - General
K	80-15.02,83-11.03B	Reconstruct Fences, Reconstruct Metal Bridge Railings
L	4-1.05B	Work-Character Changes
M	19-1.03B	Unsuitable Material
N	19-2.03F	Slides and Slipouts
O	20-1.03C	Roadside Clearing
P	10-6, 87-21.03B	Watering, Maintaining Existing Electrical Systems
Q	9-1.07	Payment Adjustments for Price Index Fluctuations
R	5-1.43E(1)	Alternative Dispute Resolution—General
S	9-1.03	Payment Scope
T	4-1.07C	Value Analysis Workshop
U	5-1.09	Partnering
V	6-2 and 6-2.02	Quality Assurance, Quality Control
W	Special Provision	Other listed Supplemental Work (Describe in transmittal memo) (Use only if no other code describes this supplemental work)
X	Other	Other (Describe the “other” specification in transmittal memo)
Z	Default	(Use only when the first character is B)

Table 5-3.2. Specification of Physical Asset (Character 2) (2 of 2)

Code	Affected Permanent Physical Asset (use this portion of Table 5-3.2 only when the first character code is C, D, F, or H)
A	Building (such as maintenance facilities, pump stations)
B	Electrical (such as signals, lighting, communications, electrical systems)
C	Drainage (such as culvert, subsurface, roadway drainage, gutters, lined ditches)
D	Earthwork (such as excavation, embankment, soil stabilization, slope protection, erosion control)
E	Landscaping (such as plants, irrigation)
F	Materials (such as borrow or disposal sites, surplus, salvage)
G	Property (such as fence, survey monument, easements, right-of-way obligations)
H	Structure (vehicle or pedestrian)
I	Base, subbase, shoulder backing
J	Surfacing (pavement, pavement reinforcing, shoulders, sidewalks)
K	Traffic control devices (such as barriers, railing, signing, delineation)
L	Utility
M	Wall (such as retaining, sound, aesthetic)
X	Other (Describe the "other" affected permanent physical asset in transmittal memo)
Z	Default (Use only when the first character is B)

Table 5-3.3. Source Document (Characters 3 and 4) (1 of 2)
 (Use **Table 5-3.3** only when the first character code is *C* or *D* from **Table 5-3.1**)

Characters 3 and 4	Type	Purpose
AA	Agreement	Cooperative
AB	Agreement	Permit
AC	Agreement	Right-of-way obligation
CA	Certificate	Environmental clearance
CB	Certificate	Right-of-way clearance
GA	Survey	Data/control
GB	Survey	Detailed cross-sections
MA	Materials	Log of test borings
MB	Materials	Information handout, brochure
PA	Plan	Construction detail
PB	Plan	Contour grading
PC	Plan	Electrical
PD	Plan	Elevation view
PE	Plan	Environmental mitigation
PF	Plan	Erosion control
PG	Plan	Foundation
PH	Plan	General cross-sections
PI	Plan	Irrigation
PJ	Plan	Layout/plan view
PK	Plan	Mechanical
PL	Plan	Pavement delineation
PM	Plan	Planting
PN	Plan	Profile
PO	Plan	Schedule of materials
PP	Plan	Signage
PQ	Plan	Standard Plans
PR	Plan	Substructure
PS	Plan	Superelevation
PT	Plan	Superstructure

Table 5-3.3. Source Document (Characters 3 and 4) (2 of 2)

Characters 3 and 4	Type	Purpose
PU	Plan	Typical section
PV	Plan	Utilities
SA	Specification	Special Provision
SB	Specification	Standard Specifications
TA	Temporary Plan	Construction area signs
TB	Temporary Plan	Construction easements
TC	Temporary Plan	Construction staging
TD	Temporary Plan	Electrical
TE	Temporary Plan	Erosion control
TF	Temporary Plan	Environmentally sensitive area
TG	Temporary Plan	Lane closure chart
TH	Temporary Plan	Standard Plans
TI	Temporary Plan	Water pollution control or prevention
TJ	Temporary Plan	Traffic handling
TK	Temporary Plan	Traffic management plan
AX	Any of Above	Other specific document (describe in transmittal memo)
CX	Any of Above	Other specific document (describe in transmittal memo)
GX	Any of Above	Other specific document (describe in transmittal memo)
MX	Any of Above	Other specific document (describe in transmittal memo)
PX	Any of Above	Other specific document (describe in transmittal memo)
SX	Any of Above	Other specific document (describe in transmittal memo)
TX	Any of Above	Other specific document (describe in transmittal memo)
XX	Other	Other (describe in transmittal memo)
ZZ	Default	When the first character is either A or B

Table 5-3.4. Dispute Disposition (Characters 3 and 4)
 (Use **Table 5-3.4** only when the first character code is *E, F, G, or H*, from **Table 5-3.1**,
 representing a Dispute Resolution)

Character 3 Potential Claims, Claims	When Character 1 is	Chronological Milestone
A	E or F	Prior to a Differing Site Condition Management Review Committee hearing
B	E or F	Prior to a Dispute Resolution Board hearing
C	E or F	Prior to the Construction Contract Acceptance date
D	E or F	Prior to the Proposed Final Estimate date
E	G or H	Prior to a Board of Review hearing
F	G or H	Prior to an Arbitration Filing
G	G or H	Prior to the Arbitration Hearing
H	G or H	Prior to the Arbitrator's Decision
I	G or H	After the Arbitrator's Decision

Character 4 Resolution Authority	Description
A	Entitlement, Partial Resolution (Describe unresolved issues in transmittal memo)
B	Entitlement, Full Resolution
C	Negotiated Settlement, Partial Resolution (Describe unresolved issues in transmittal memo)
D	Negotiated Settlement, Full Resolution
E	Arbitration Award, Partial Resolution (Describe unresolved issues in transmittal memo) (Use only when first character code from Table 5-3.1 is <i>G or H</i>)
F	Arbitration Award, Full Resolution (Use only when first character code from Table 5-3.1 is <i>G or H</i>)
X	Other (Describe in transmittal memo)

5-307C Coordination and Concurrence by Others

Secure recommendation or concurrence from affected functional units and other agencies. Concurrence is evidence of agreement but does not constitute approval of a change order. Process all change orders for approval as described in Section 5-311, “Change Order Approval Process,” of this manual.

Use district procedures for circulating change orders for concurrence. If contacted parties are unresponsive, in the change order memorandum, state the facts of the circulation process to assure the proposed change is appropriate. Obtaining concurrence should not delay the project.

The following lists some of the Caltrans functional units and reasons for seeking their concurrence.

5-307C (1) Project Development

The project engineer must concur with all design-related change orders, including plan or specification changes and value engineering change proposals. You may obtain design assistance from the project engineer on some of the more complex design changes. Remember that the project engineer is the engineer of record, and unless the project engineer is consulted, the resident engineer may not know why some design decisions were made.

By coordinating with the project engineer on all design and specification change orders, a continuous and informal “constructability review” process develops. Cooperation between design and construction personnel will result in better plans and specifications and fewer change orders. Cooperation may also reduce potential for construction delays, effects on the contractor, and claims.

5-307C (2) Project Management

For change orders with the following conditions, obtain concurrence from the project manager:

- Potential for significant delays to the planned work.
- Unanticipated large project cost increases, including those requiring a request for additional funds.
- Changes that may be considered outside the scope or intent of the planned work.
- Changes that may require a Cost Effectiveness/Public Interest Finding.

The project manager’s duties relating to change orders include the following:

- Monitoring project costs.
- Expediting decisions by functional units as needed, so there is no delay or other adverse effect on the contractor’s activities.

5-307C (3) Structures

Where changes are to be made that involve structures, Structure Construction determines the need for the change, the intent or content of the change order, and any methods or restrictions in doing the work. The resident engineer is responsible for administration, including processing the change order for approval. The structure construction engineer and other personnel in the Division of Engineering Services may need to concur. For procedures for obtaining concurrence for structure change orders, refer to Section 7-0.0, "Contract Change Orders," of the *Bridge Construction Records and Procedures* manual, Vol. 1.

5-307C (4) Materials

The district materials engineer, as well as the project engineer, must concur with all change orders that change or modify material specifications. Also, seek concurrence from the district materials engineer for proposed changes in structural section, slope rates, installation of subsurface drains, removal of unsuitable material, erosion control, and repair of slides and slipouts.

5-307C (5) Traffic

Obtain concurrence from the appropriate traffic engineer in the district for change orders affecting traffic management plans, hours of work, detours, signing, delineation, highway lighting, traffic signals, illuminated signs, guardrail, barriers, or any other traffic control device or facility. Clear any proposed special sign with the district traffic design engineer.

5-307C (6) Maintenance

Obtain written concurrence from the appropriate maintenance region manager for changes affecting maintenance facilities, lands and buildings, and maintenance activities. Written concurrence from the appropriate maintenance engineer is required for all change orders affecting the use of maintenance funds.

5-307C (7) Right of Way

Obtain concurrence from the district Right of Way Unit for any changes to right-of-way contracts or agreements, right-of-way fencing or alignment, or gates.

Contact the district Right of Way Unit for assistance with any required rights-of-entry permits, permanent or temporary construction easements, or agreements.

The district utility coordinator must concur with all changes involving utility work. The district utility coordinator must also make proposed revisions to Right of Way Form RW 13-04, "Notice to Owner." For information about coordinating utility work, refer to Section 3-520C, "Nonhighway Facilities," of this manual.

5-307C (8) Environmental

For environmental concerns and requirements, refer to Chapter 7, "Environmental Stewardship," of this manual. Contact the district environmental unit for assistance and concurrence with any change affecting environmental considerations or requirements or affecting obligations or commitments to other agencies.

The environmental document on any project is valid only for the work described by the document and shown on the plans submitted for environmental approval. For any work proposed in addition to or as a deviation from the approved work, consult with the district Environmental Unit. Significant changes may require amended or additional environmental approval or permits. The types of changes that may require additional consultation and approval include the following:

- New materials sites
- New haul or access roads
- Previously unidentified clearing and grubbing and hazardous materials
- Increases in earthwork
- Unforeseen utility relocation
- Diversion or extraction of water from a stream not covered by a Lake and Streambed Alteration Agreement, more commonly known as a “1602 permit,” from the California Department of Fish and Wildlife
- Use of disposal sites not specified in the contract
- Revision to allowable work windows

5-307C (9) Locally Funded Projects

For guidelines for processing change orders on locally funded projects, refer to Section 5-310, “Locally Funded State Highway Projects,” of this manual.

5-308 Federal Highway Administration Change Order Requirements

Change orders written for projects with federal funding participation must comply with the Code of Federal Regulations and FHWA contracting requirements.

5-308A Projects of Division Interest

Projects of Division Interest (PoDI) are subject to FHWA oversight requirements. Oversight requirements are determined on a project-by-project basis and are documented in the Project Oversight Agreement (POA). Refer to California’s *Stewardship and Oversight Agreement*, available at:

<https://www.fhwa.dot.gov/federalaid/stewardship/>

Early and frequent communication with the FHWA transportation engineer is essential to ensure full compliance with all federal requirements.

5-308A (1) Federal Highway Administration Approval Requirements – Major Change Orders

As documented in the POA, major change orders may require FHWA approval. If required, the resident engineer must obtain approval before proceeding with a proposed change. If the total extent of the change order work cannot be determined prior to work commencing, FHWA may give a conditional approval via form FHWA CA-358(c). For

additional information on the change order approval process, see Section 5-308(C), “FHWA Major Change Order Approval Process,” of this manual.

Written and signed FHWA approval is required for any of the following major change orders:

- Any change order that has a total absolute value exceeding \$500,000, including supplemental work items.

Example:

A change order containing a \$150,000 decrease of items, a \$120,000 increase of items, and \$250,000 of extra work at force account would require FHWA approval:

$$|-\$150,000| + |\$120,000| + |\$250,000| = |\$520,000|$$

- Change in project limits beyond the limits set in the environmental document.
- Change that may be considered outside the scope of work or intent of the planned work (same requirement as in Section 5-302, “Change Order Policy,” and criterion requiring Project Management concurrence in Section 5-307C (2), “Project Management,” of this manual).
- Change resulting in a time adjustment of 30 or more working days. Additionally, if time is increased by more than 20 percent of the original working days, then that change and each subsequent change order that increases time must be approved.

In addition, pursuant to 23 CFR 635.120(f), proposed changes and extra work involved in federally non-participating operations that may affect the design or participating construction features of a project requires FHWA concurrence. For a list of change order items that are, in general, federally non-participating, refer to the Division of Construction website.

5-308A (2) Federal Highway Administration Approval Requirements—Minor Change Orders

Change orders other than those listed above are considered minor. Approvals for all minor change orders are delegated to Caltrans, even on PoDI projects.

5-308A (3) FHWA Denial

When FHWA declines participation in a change order, the district can proceed with the change order by justifying it in the change order memorandum. The project manager must concur with the change in funding.

5-308B Delegated Projects

Projects not meeting criteria for PoDI are considered delegated projects from FHWA. Caltrans is delegated the authority to administer these contracts. Resident engineers are not required to coordinate with the FHWA transportation engineer. However, discussions for technical guidance are encouraged. For delegated projects, FHWA will verify compliance with federal regulations with program and process reviews.

5-308C FHWA Major Change Order Approval Process

For each criterion listed in Sections 5-308A (1), “Federal Highway Administration Approval Requirements—Major Change Orders” of this manual, the resident engineer contacts the FHWA transportation engineer and provides documents as necessary.

The resident engineer shall submit both Form CEM-4900 and Form CEM-4903 to the FHWA transportation engineer for approval of the change order. For a change order that affects contract time, the FHWA transportation engineer may ask for the time impact analysis. The FHWA transportation engineer will indicate approval on Form CEM-4903, “Change Order Memorandum,” by signature in the appropriate box in the “Concurred By” section of the form. In the “Federal Participation” section, check the appropriate box and provide an explanation when required:

- Participating: Full federal participation.
- Participating in Part: Partial federal participation; provide explanation for this decision.
- None: No federal participation provided; not a federally funded project.
- Nonparticipating (Maintenance): Project Funded by Caltrans Maintenance; no federal participation provided.
- Nonparticipating: FHWA will not participate in the change order; provide explanation for this decision.

FHWA approval is required before the change order work begins. If there is an urgent need to start the work, a two-step approval process can be used.

Step 1: Form FHWA CA-358, “Record of Prior Approval for Major Contract Change Order,” will be submitted and approved by FHWA prior to starting the work.

Step 2: CEM-4900 and CEM-4903 will be submitted and approved by FHWA as soon as possible after the work has started.

5-309 Federal Segregation Determination on Change Orders

The resident engineer is responsible for managing project construction costs within the current construction allotment. Funds for a project may come from more than one source, such as from state highway funds, local funds, and federal funds. For a change order, the resident engineer must identify and segregate the funds required from each source. Show the proper distribution of change order funding on Form CEM-4903, “Change Order Memorandum.” For more information on project funding, refer to Section 5-2, “Funds,” of this manual.

At the beginning of the project, the resident engineer should receive the federal detail estimate with an estimate for each category of funds and the applicable limits of federal eligibility. If you do not receive this detail estimate, contact the project manager. In some cases, the FHWA transportation engineer has a color-coded plan title sheet for more complex multiple-funded projects.

Funding sources for a change order may be different from the funding sources indicated in the detail estimate for a particular project. If the change order funding percentages are

the same as the detail estimate, simply mark the “Change Order Funded Per Contract” in the “Federal Segregation” section on Form CEM-4903.

A change order may not be eligible for participation from one or more of the funding sources, depending upon the location and the work to be performed. In this case, mark the “Change Order Funded as Follows” box and indicate the percentage of each funding source’s participation in the appropriate box. If this box is left blank or is incorrect, Caltrans may lose federal funds that should have been secured on this project. For additional information on nonparticipating cost items refer to FHWA Nonparticipating Cost Items at:

<https://dot.ca.gov/programs/construction/change-order-information>

For example, a change order written for a project funded from both federal and other sources may not be eligible for federal participation. In this case, the cost of the change order must be distributed between the other funding sources. In the box in the lower right-hand corner of Form CEM-4903, show the percentage of participation by each funding source.

5-310 Locally Funded State Highway Projects

Generally, participation will be based on Caltrans’ original agreement with the contributing agency.

Before making changes that affect work for contributing agencies, verify that such changes are within the scope of the agreement. If not, take action (usually through the district local project’s unit) to have the agreement modified.

In the margin of the headquarters and district copies of change orders covering the work, obtain the signature of an authorized representative of the affected agency.

Include in the change order memorandum sufficient information to identify the portion of the work that is applicable to the contributing agency. As soon as the change order and memorandum are approved, send the Division of Accounting, Accounts Receivable and Program Accounting sections a copy.

5-311 Change Order Approval Process

Caltrans must approve a change order, and whenever possible, the contractor should sign it. When the contractor signs a change order, it is referred to as “executed.” If the contractor declines to sign the change order, then Caltrans may, in some cases, approve it unilaterally.

So that the contractor will execute the change order, make every effort possible to reach agreement. However, do not delay the work by waiting for the contractor to respond. If necessary, submit the change order for unilateral approval. Receipt by the contractor of an approved change order establishes a time for protest.

When the contractor does not agree with the method or amount of the payment and time adjustment, the resident engineer processes the change order using extra work at force account.

If the contractor disagrees with extra work at unit price, extra work at lump sum, or increase in contract items with a payment adjustment, the resident engineer writes the change order using extra work at force account. If the contractor declines to accept the change order within 7 working days, draft and process it unilaterally.

If the contractor agrees with the extra work unit of measurement and method of payment but disagrees with the effect on time proposed by the resident engineer, execute the change order using deferred time.

Deferred time change orders are to be closed out within 21 working days of the completed change order work. If the contractor does not execute the change order to resolve deferred time, a unilateral change order must be processed within an additional 7 working days to close out the deferred time change order.

If the change order is not protested within the specified time, it is considered an executed change order. Refer to Section 5-1.06, "Protests," of the *Standard Specifications* and Section 3-403, "Changes and Extra Work," of this manual.

You may routinely submit for approval without the contractor's signature any supplemental change orders written solely to increase force account funds. However, should the extent or type of work covered in the supplemental change order differ from that included in the original, consider writing a separate change order instead of a supplemental change order. If it is decided to write a supplemental change order, submit it to the contractor for acceptance.

On sensitive or complex change orders, districts are encouraged to submit a draft copy to the Division of Construction for review and recommendation before preparing the final version of the change order. In following this practice, also discuss the work with the contractor.

Before issuance of the proposed final estimate, resolving entitlement for potential claims is delegated according to Table 5-4.2, "Claims Resolution Authority—Entitlement," of this manual.

5-311A Division of Construction Approval

District construction personnel may approve all change orders, except those requiring Division of Construction approval. Division of Construction approval is required on any change order that has a total absolute value exceeding \$500,000.

Example:

A change order containing a \$150,000 decrease of items, a \$120,000 increase of items, and \$250,000 of extra work at force account would require Division of Construction approval:

$$|-\$150,000| + |\$120,000| + |\$250,000| = |\$520,000|$$

When the original change order plus supplements to the original change order have a total absolute value exceeding \$500,000 Division of Construction approval is required on the supplement exceeding the limit.

Before the contractor is allowed to commence work included in a nondelegated change order, the Division of Construction must approve the change order or grant prior authorization to proceed with the associated work.

5-311A (1) Change Order Determinations

The Division of Construction sometimes receives requests from the districts to review and approve change orders that contradict policy, delegation, and change order approval criteria. These requests are sometimes received after the district has approved the change order and the contractor has performed the work or the contract has been accepted. In each situation, the Division of Construction change order engineer issues a review determination. Additional criteria include:

1. Change order work started without the Division of Construction's authorization to proceed.
2. Change order not initiated by the district before the work has been completed.
3. Deferred time change orders not processed in a timely manner.

The Division of Construction will track these change orders and report performance to the Division of Construction chief. This information may be used to re-evaluate the appropriate level of change order delegation of authority to the district.

These change orders are divided into two categories: "ratify post performance" and "unauthorized direction," and are shown in Table 5-3.5, "Division of Construction's Change Order Direction." This table explains scope and subsequent actions for change orders that require Division of Construction approval. This direction is communicated in a written Division of Construction fax or email addressed to the district change order desk: CCO.Desk.HQ@dot.ca.gov.

Table 5-3.5. Division of Construction's Change Order Direction (1 of 2)

Direction	Direction Scope	District Action
To Proceed with the Work	Division of Construction authorization to proceed is required for change order work authorized prior to full execution of the change order. This written work authorization by the engineer is to be used only in an extenuating circumstance exception basis. The authorization is complete and satisfactorily prepared by the district.	Authorize the change order work in writing in accordance with Section 4-1.05, "Changes and Extra Work," of the <i>Standard Specifications</i> . Prepare change order and obtain Division of Construction's issue and approve direction within 7 working days. Execute the change order as soon as possible; no later than 21 working days.
To Issue and Approve	Division of Construction approval granted on the basis of a satisfactorily prepared change order and change order transmittal memorandum.	Approve the change order in accordance with Division of Construction direction including any required minor revisions or conditions designated by the Division of Construction fax or email.
To Revise - Not Authorized	Changes are required before Division of Construction approval will be granted.	Revise the change order in accordance with the Division of Construction direction. Submit for reconsideration or elevate the issue for resolution to the district construction division chief and the assistant Division of Construction chief.
To Process in the District	Division of Construction approval for this change order is not required. Authority to approve the change order has been delegated to the district.	Approve the change order in the district.
Ratify Post Performance	District administration of the change order committed the Division of Construction to a course of action without required approvals.	Review internal change order procedures and implement measures to assure future transgressions are prevented.

Table 5-3.5. Division of Construction's Change Order Direction (2 of 2)

Direction	Direction Scope	District Action
Request for Information	Additional information is required for the Division of Construction to evaluate the change order.	Collect the requested information and transmit it to the Division of Construction. The district may elect to revise the change order and resubmit it when the additional information is provided.
Void	Changes that are authorized or executed by the district outside their delegated authority and that are fatally flawed; including provisions that violate state law or federal law.	Void the change order.
Change Order Approved in Headquarters	Division of Construction originated and approved a change order without district involvement. Often used to expedite arbitration or other payments to the contractor.	Process the change order by entering it in the contract administration system and flagging the change order for payment.
Unauthorized	The district exercised authority outside of policy or delegation. The change order contradicts policy, delegation, or approval criteria. The contractor may have performed the work without authorization to proceed. The district may not have initiated the change order before the work was completed.	Review internal change order procedures and implement measures to prevent future transgressions.
Other	Category used for all situations that cannot be classified above.	Division of Construction approval is not granted. District complies with instructions provided by the Division of Construction fax or email.

5-311B District Approval Limitations

Districts may not delegate below the level of region construction division chief or district construction deputy director the “Approval Recommended” signatures on Division of Construction-approved change orders.

Only a region construction division chief or district construction deputy director may approve change orders for value engineering change proposals. Approval authority is determined by considering each element of the value engineering change proposal in the context of the delegation criteria listed above. Project engineer concurrence for all revisions of standard or project specific design elements is required prior to approving change orders to implement all value engineering change proposals.

District approval of the following types of change orders may not be delegated below the level of a region construction division chief or district construction deputy director:

- Project limit modifications
- Acceleration of the contract work through a decrease of contract time
- Order of work revisions
- Revision of the contract staging requirements

District approval of the following types of change orders may not be delegated below the level of construction manager:

- Those that include deferred time
- “Lane Requirements and Hours of Work” charts
- Addition of approved standard special provisions
- Any editing of an approved standard special provision, in accordance with its instructions

District approval of other types of change orders may not be delegated below the level of senior-level resident engineer or construction engineer. Within this delegation, senior-level resident engineers or construction engineers may be given written authority to approve change orders that increase the contract cost or approved supplemental work by up to \$50,000.

5-311C Prior Authorization to Proceed

A “prior authorization to proceed” with change order work should be issued only as an exception because of extenuating circumstances.

Whoever holds change order delegated authority as stated in this section must recommend approval for all change orders requiring prior authorization to proceed.

In addition to writing and dating the prior authorization to proceed, the engineer must include the following information:

- Change order number reserved for the work
- Estimated value of the work

- Proposed method of payment
- Estimated duration of the work
- Estimated contract time adjustment needed to perform the work
- Estimated time required to execute the associated change order

Document in the resident engineer's daily report the date, time, and name of the division change order engineer or whoever holds the district delegated authority who provided advance approval to issue the prior authorization to proceed. The change order that received the prior authorization to proceed should be submitted to the contractor for approval within 7 working days of the date of the prior authorization to proceed. If the contractor does not execute the change order within an additional 7 working days, a unilateral change order must be processed within 21 working days of the prior authorization to proceed.

The district should have procedures for prior authorization to proceed actions in accordance with this section. The district procedures should clearly designate the roles and responsibilities of the staff involved in preparing and approving change orders.

5-312 Substantiation

Each change order must be carefully considered, analyzed, and documented in the project records. For things to consider when preparing to write a change order, refer to Section 5-305, "Preliminary Considerations," of this manual.

5-312A Engineering Analysis

Conduct an engineering analysis for each change to the contract plans and specifications. Consider the impact of each change on the entire project and related facilities.

Change orders must meet all engineering and design standards unless a design exception is approved by the Division of Design. The project engineer who stamped the project plans is the engineer of record for the project and must concur with all engineered changes.

5-312B Contractual Analysis

Determine the contractual basis and authority to issue each change order. Include this information in the transmittal memorandum and change order. Use Figure 5-3.1, "Change Order Decision-Making Concept Flowchart," at the end of this section, to assist you in this determination.

5-312C Cost Analysis

Prepare an independent force account or bid item cost analysis for comparison with the contractor's estimated cost. Accept the contractor's estimated cost only if it is justified by this analysis. Do not include costs for disputed work. Include subcontractor markups in the cost estimate when a subcontractor will be performing extra work paid for by unit price, payment adjustment, or lump sum. For subcontractor markup guidelines, refer to Section 3-9, "Payment," of this manual.

File in the project records any calculations made to determine extra work at unit price, payment adjustment, or lump sum. These calculations substantiate and justify the amount paid for extra work and are therefore subject to audit. Either show these calculations in the change order memorandum or include a statement that the calculations are on file in the project records.

5-312D Time Impact Analysis

A time impact analysis (TIA) illustrates the impact of each change on the scheduled completion date or an internal milestone. The contractor submits a written TIA to the resident engineer with each time adjustment request. Review the TIA for logic and duration impacts to determine the time adjustment or construct an independent TIA to determine the time adjustment. Refer to Section 8-1.02D (8), "Time Impact Analysis," of the *Standard Specifications* for more information regarding TIA submittals. For an example of a TIA reference on a Change Order Memorandum, refer to the example "Compensation for Critical Delay (Payment Adjustment)" at:

<https://dot.ca.gov/programs/construction/change-order-information>

5-313 Executed Change Order Copy Distribution

For all contracts, one copy of each executed authorization to proceed, change order, and corresponding memorandum is electronically scanned and transmitted to the Division of Construction file server.

Combine each executed authorization to proceed or change order and change order memorandum for each contract change, supplemental change, and authorization to proceed into a single Adobe Acrobat file using the following filename convention:

Contract No. CCO No. or ATP No. Supplemental No. Approval Date

Examples:

04-012024 ATP 002 S00 11-20-06.pdf

04-012024 CCO 002 S02 11-27-06.pdf

Transmit the file directly to the Division of Construction file server using the centralized access provided to each district. Transmit approved change orders at least once a week. This is part of the Division of Construction Quality Assurance Plan process.

Send an email notification to the change order engineer upon transfer of any information to the Division of Construction file server.

The *Desk Guide for the Electronic Distribution of Approved Contract Change Orders* to assist districts with this process is available on Division of Construction's intranet page:

<https://construction.onramp.dot.ca.gov/contract-administration-information>

For PoDI, districts are delegated authority to send one copy of each approved change order and corresponding change order memorandum directly to the FHWA transportation engineer assigned to the district or program administering the contract. The method of document transfer to the FHWA transportation engineer will be negotiated between the district and the FHWA transportation engineer on a case-by-case basis.

The FHWA transportation engineer:

- May issue a determination of funding ineligibility or modify the level of funding participation for any reviewed change order.
- Will communicate all funding eligibility findings and will return the change order to the district.
- Will notify districts of all changes in federal participation prior to issuance of a final voucher.

Districts are responsible for updating CAS for federal participation information on change orders.

5-314 Value Engineering Change Proposals

For procedures for a value engineering change proposal, refer to Section 3-405, "Value Engineering," of this manual.

Prepare value engineering change proposal change orders as a complete package, with no deferred time or deferred cost considerations.

Give careful attention to the clauses in the change order covering payment. Value engineering change proposal change orders may involve any combination of bid item work, payment adjustments, and extra work at agreed price.

Prices for bid items might not represent the costs of doing either the planned or changed work as computed on a force account basis. In this case, in addition to increases and decreases at contract prices, include payment adjustments to reflect the actual force account cost of increases and decreases in bid item quantities. Also, in the analysis of cost savings, consider adjustments based on a 25 percent overrun or underrun.

Value engineering change proposal change orders must include a payment adjustment that supplements other payments to result in a net return of either 50 or 60 percent of the net savings to the contractor. Determine the adjustment in the following manner:

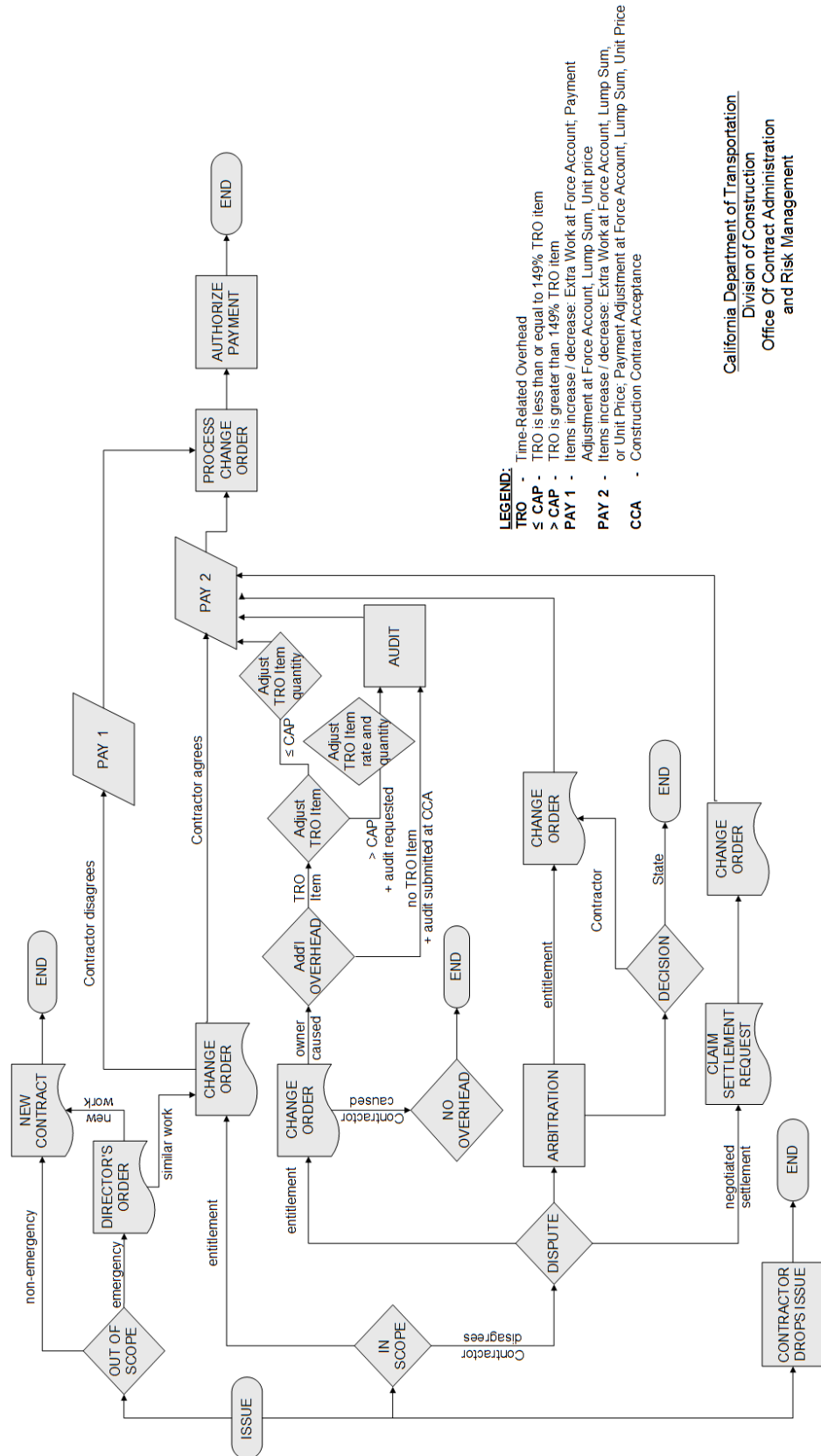
- Determine the total decrease in construction cost. This decrease will be the sum of increases and decreases in bid items at bid item unit prices, payment adjustments including work-character change adjustments, and extra work at agreed price.
- Provide for a payment adjustment that results in a credit from the contractor for either 40 or 50 percent of the net savings as allowed by the specifications.

Time adjustments associated with a value engineering change proposal are shared equally, including any time-related overhead item values. Exclude these dollar values in determining the net savings.

For examples of value engineering change proposal change orders, refer to the examples at:

<https://dot.ca.gov/programs/construction/change-order-information/change-order-examples>

Figure 5-3.1 Change Order Decision-Making Flowchart



California Department of Transportation
 Division of Construction
 Office of Contract Administration
 and Risk Management

Chapter 6

Sampling and Testing

Section 2 Acceptance of Manufactured or Fabricated Materials and Products

6-201 General

6-201A References

6-202 Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products

6-202A Contractor

6-202A (1) Notice of Materials to Be Used

6-202A (2) Certificates of Compliance, Mill Test Reports, Buy America and Buy Clean California Act Requirements

6-202A (3) Shop Drawings

6-202A (4) Quality Control Plans

6-202B Resident Engineer

6-202B (1) Notice of Materials to be Used

6-202B (2) Job Site Materials Inspection

6-202B (3) Authorized Facilities Audit List

6-202B (4) Materials Production Plants

6-202C Materials Engineering and Testing Services

Figure 6-2.1 Inspection and Release Flowchart—Source Inspection

6-202C (1) Processing Form CEM-3101

6-202C (2) Form TL-0028, “Notice of Materials to Be Inspected at Job Site”

6-202C (3) Form TL-0608, “Notice Of Materials to Be Furnished”

6-202C (4) Form TL-0038, “Inspection Request”

6-202D Assignment to Resident Engineer

6-203 Manufactured or Fabricated Materials and Products Acceptance

6-203A Source Inspection

Figure 6-2.2. Source Inspection Flowchart

- 6-203A (1) Inspection Requests and Dispatching
- 6-203A (2) Material Inspection—Sampling and Release
- 6-203A (3) Nonconforming Materials at the Source
- 6-203A (4) Source Inspection Expense Deductions
- 6-203A (5) Source Inspected Materials Acceptance
 - Table 6-2.1. Inspection of Fabricated and Manufactured Materials (1 of 5)
 - Table 6-2.1. Inspection of Fabricated and Manufactured Materials (2 of 5)
 - Table 6-2.1. Inspection of Fabricated and Manufactured Materials (3 of 5)
 - Table 6-2.1. Inspection of Fabricated and Manufactured Materials (4 of 5)
 - Table 6-2.1. Inspection of Fabricated and Manufactured Materials (5 of 5)
- 6-203A (6) Materials Manufactured to Caltrans-Specified Formulation
- 6-203B Materials Accepted on the Basis of Authorized Material List
 - Table 6-2.2. Materials Acceptance Based on Authorized Material List (1 of 3)
 - Table 6-2.2. Materials Acceptance Based on Authorized Material List (2 of 3)
 - Table 6-2.2. Materials Acceptance Based on Authorized Material List (3 of 3)
- 6-203C Materials Accepted on the Basis of a Certificate of Compliance
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (1 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (2 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (3 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (4 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (5 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (6 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (7 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (8 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (9 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (10 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (11 of 12)
 - Table 6-2.3. Materials Accepted by Certificate of Compliance (12 of 12)
- 6-203C (1) Asphalt
- 6-203C (2) Asphalt Rubber Latex Joint Filler

- 6-203C (3) Two-Component Joint Sealing Compounds
 - 6-203C (4) Cement
 - 6-203C (5) Paint
 - 6-203C (6) Pavement Traffic Stripe and Marking Materials
 - 6-203C (7) Reinforcement
 - 6-203D Field Inspection and Release by the Resident Engineer
- Figure 6-2.3. Inspection and Release Flowchart—Inspection at Job Site

Section 2 Acceptance of Manufactured or Fabricated Materials and Products

6-201 General

This section describes procedures for acceptance of manufactured or fabricated materials and products. This section also describes the types of materials that are considered manufactured materials and provides guidelines for sampling these materials.

Sampling and testing materials and products must be done in accordance with contract specifications. Sampling and testing are of equal importance for assuring materials and products meet acceptance specifications.

The contractor is responsible for notifying the resident engineer of the need for inspection and acceptance testing of manufactured materials and products by submitting Form CEM-3101, "Notice of Materials to Be Used," early in the project. Refer to Section 6-202, "Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products," of this manual for details on completing and submitting this form.

The resident engineer needs to be knowledgeable about acceptance methods used for different manufactured or fabricated materials and products, including:

- Source inspection and testing
- Manufacturer certificate of compliance
- Manufacturer certificate of compliance with additional attachments
- Field release of material
- Field samples of manufactured materials or products

When field sampling of manufactured or fabricated materials or products is required, the resident engineer is responsible for the "chain of custody" for material and product acceptance samples. Material acceptance samples must be under the control of Caltrans from the sampling point to when the sample is tested. The chain of custody for material and product samples is an important part of the Caltrans quality assurance program.

6-201A References

- *Independent Assurance Manual*, Materials Engineering and Testing Services (METS), Caltrans:
<https://dot.ca.gov/programs/engineering-services/caltrans-engineering-manuals>
- *Bridge Construction Records and Procedures* manual, Vol. 2, Structure Construction:
<https://dot.ca.gov/programs/engineering-services/caltrans-engineering-manuals>

- California Test Methods, METS, Caltrans:
<https://dot.ca.gov/programs/engineering-services/california-test-methods>
- AASHTO, ASTM, and other test methods are available at IHS Standards Expert website (by clicking on Material Standards (ASTM/AASHTO) to get IHS Specs and Standards Search), accessible by Caltrans staff at:
<https://global.ihs.com/standards.cfm?publisher>
- J2 Database, METS, Structural Materials electronic materials management database where each project's test results and CEM-3101 responses are captured along with other METS project-related information and accessible by Caltrans staff:
<https://j2.dot.ca.gov/#>
- Material Plant Quality Program (MPQP), Division of Construction:
<https://dot.ca.gov/programs/construction/material-plant-quality-program>
- *Quality Manual*, METS, Structural Materials, methods and procedures to provide consistent quality assurance and source inspection:
<https://j2.dot.ca.gov/gs/?tab=2&sdiv=METS&off=OSM>
- *Overhead Sign Structures Guide*, Design and Technical Services, accessible to Caltrans staff:
<https://des.onramp.dot.ca.gov/structure-policy-innovation/signs-overhead-structures>

6-202 Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products

The following describe the responsibilities for acceptance of manufactured or fabricated materials and products.

6-202A Contractor

The contractor is responsible for providing materials that comply with the contract specifications. The contractor is responsible for the quality of materials and, where required by the specifications, must provide a notice of materials to be used, shop drawings, certificates of compliance, mill test reports, environmental product declarations when specified, quality control plans, and quality control test results. The contractor must use materials from the Authorized Material List, provide fabricated materials from audited facilities, and use materials that comply with Buy America and specified Buy Clean California Act requirements.

6-202A (1) Notice of Materials to Be Used

The contractor is responsible for submitting Form CEM-3101, "Notice of Materials to Be Used," to the resident engineer for all materials to be used on the project. The contractor must provide sufficient notification to the resident engineer on the source, location, and quantity of materials to be inspected and tested so that the work will

not be delayed. Section 6, “Control of Materials,” of the *Standard Specifications* requires the contractor to list on Form CEM-3101 all sources of materials and locations where these materials are available for inspection. Receiving this form in a timely manner is critical to the success of the materials management process.

Form CEM-3101, which includes detailed instructions, is available at:

<https://dot.ca.gov/programs/construction/forms>

6-202A (2) Certificates of Compliance, Mill Test Reports, Buy America and Buy Clean California Act Requirements

The *Standard Specifications* requires the contractor to submit a certificate of compliance for various materials before they are incorporated into the work. Section 6-2.03C, “Certificates of Compliance,” of the *Standard Specifications* states that when a certificate of compliance is required it must be:

- Submitted for each lot of material and clearly indicate which lot is included in the certificate.
- Signed by the producer of the material stating that it complies with the contract.

The intent of the certificate of compliance is to communicate to Caltrans that the contractor has accepted the material and is confident that it complies with the contract specifications. The contractor is responsible for providing the certificate of compliance prior to incorporating material into the project. The certificate of compliance and any supporting documentation must accompany the material to the job site when materials are delivered.

Table 6-2.3, “Materials Accepted by Certificate of Compliance,” in Section 6-203C, “Materials Accepted on the Basis of a Certificate of Compliance,” of this manual provides a list of materials requiring a certificate of compliance, as well as any additional documents.

The *Standard Specifications* requires the contractor to provide certified test reports along with the certificate of compliance for various materials. For steel, this test data is commonly known as a mill test report. A certified mill test report is required for each heat and must contain physical and chemical analysis of the material. The requirements for the mill test report vary depending on the section of the *Standard Specifications* the material falls under.

Section 6-1.04, “Buy America,” of the *Standard Specifications* provides detailed information on Buy America requirements. Refer to Section 3-604, “Buy America,” of this manual for additional information. The following are examples of acceptable language included in the certificate of compliance to verify Buy America compliance:

“All melting and manufacturing processes for the product occurred in U.S.”

“100 percent melted and manufactured in the U.S.A.”

Section 6-1.06, “Buy Clean California Act,” of the special provisions provides detailed information on Buy Clean California Act requirements including

environmental product declarations. Refer to Section 3-606, “Buy Clean California Act,” of this manual for additional information.

6-202A (3) Shop Drawings

The *Standard Specifications* requires the contractor to submit shop drawings for review by Caltrans for certain structures such as structural steel and structural precast concrete. The shop drawings must include both shop details and erection plans. For more information on submittal and authorization of shop details and erection plans, refer to the *Standard Specifications*.

Contractors must submit shop drawings for overhead sign structures. For more information on submittal and authorization of shop drawings, refer to the *Overhead Sign Structures Guide*. Section 4-56, “Overhead Sign Structures, Standards, and Poles,” of this manual contains additional information.

Prior to Caltrans performing any source inspection, the contractor is required to have a copy of the authorized shop drawings at the location of inspection.

6-202A (4) Quality Control Plans

The *Standard Specifications* requires the contractor to submit a quality control plan for certain types of production. Information on quality control plans for those production types is provided in the *Standard Specifications*:

- Section 11-2, “Welding Quality Control.”
- Section 39-2: “Hot Mix Asphalt.”
- Section 40: “Concrete Pavement”
- Section 41-9: “Individual Slab Replacement with Rapid Strength Concrete”
- Section 56-2: “Overhead Sign Structures”
- Section 59-2: “Painting Structural Steel”
- Section 59-5: “Thermal Spray Coat Structural Steel”
- Section 90-4: “Precast Concrete”

The resident engineer does not allow work to begin until the quality control plan is authorized for that production. For more information on the contents of quality control plans, refer to the *Standard Specifications*.

Specifications for welded products usually require the contractor to submit the fabricator’s welding quality control plan to the resident engineer for authorization prior to manufacturing any products for Caltrans. For details on quality control plans for welding, refer to Section 180, “Welding,” of *Bridge Construction Records and Procedures*, Vol. 2:

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

6-202B Resident Engineer

The resident engineer must verify that materials entering the work comply with the requirements in the contract specifications.

6-202B (1) Notice of Materials to be Used

The resident engineer must verify that the contractor submits Form CEM-3101, "Notice of Materials to Be Used," for all materials. If the contractor does not submit Form CEM-3101 before the preconstruction conference, provide a list to the contractor during the preconstruction meeting of materials required to be listed on Form CEM-3101.

If the sources of all materials are not known, the contractor may submit a partial list of materials sources on Form CEM-3101 and submit Form CEM-3101 supplements as soon as other sources are known.

METS developed the J2 database for tracking project materials requirements, Form CEM-3101 processing, materials test results, and source inspection. Entering the contract number at the top of the database in the "Projects" box opens that project's main page. Clicking on the "3101 Report" tab opens a list of all the bid items requiring CEM-3101s for the project and which CEM-3101s have been received. The list shows the name and address of the supplier and the date the CEM-3101 was received.

Assistance in developing a list of project materials that require Form CEM-3101 and in navigating the J2 database is available from the Materials Engineering and Testing Services (METS) representative for the project:

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

The contractor's submitted Form CEM-3101 must include the following information:

- The contract number and the contract items for which the material will be used. If the contractor uses a project number different from the Caltrans contract number, include that number.
- The item component name and quantity.
- The name, address, and telephone number of the manufacturer.
- The name, address, and telephone number of the supplier or manufacturer where the material can be inspected.
- If the source of material is outside California, also include the name, address, and telephone number of the contractor or subcontractor placing the order and the order number.

Check Form CEM-3101 for the required information and for completeness. To make sure that all structural materials are listed, a list of materials necessary based on contract bid item is available at:

https://mets.dot.ca.gov/j2_item_categories.php

If the contractor's Form CEM-3101 is incomplete or incorrect, require the contractor to complete the form. When the contractor's Form CEM-3101 has been reviewed and is complete, promptly distribute Form CEM-3101 copies, including one to METS. The resident engineer sends Form CEM-3101 to the materials administrator using one of the following methods:

- Email: MaterialsAdministratorMETS@dot.ca.gov
- Fax: (916) 227-7084
- Postal mail:

Materials Administrator, Mail Station #5
Materials Engineering and Testing Services
5900 Folsom Blvd, Room 517
Sacramento, CA 95819

METS will make required assignments for sampling, testing, and inspection of materials as noted in Section 6-202C, "Materials Engineering and Testing Services," of this manual.

6-202B (2) Job Site Materials Inspection

Based on assignment of materials inspection from METS to the resident engineer and the information shown on Form CEM-3101, the resident engineer must identify the appropriate district samplers, testers, and inspectors. Following is a partial list of those who may need to be notified to perform material acceptance:

- District staff who will be obtaining samples and tests on each material
- District staff who will be obtaining samples for each material accepted on the basis of a certificate of compliance. Testing is normally done by METS
- Structure Construction for reviewing and authorizing shop drawings for overhead sign structures
- District weights and measures coordinator for inspecting materials plants in accordance with the *MPQP*

6-202B (3) Authorized Facilities Audit List

Some structural materials such as structural precast concrete, overhead signs and poles, and steel pipe piling must be fabricated at a facility on the authorized facility audit list of fabricators who have successfully completed Caltrans' facility audit. If these materials are included in the scope of work, make sure that the contractor is aware of these requirements. Information on the authorized facility audit list is available at:

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

6-202B (4) Materials Production Plants

The resident engineer must assure materials production plants meet specifications prior to producing material for Caltrans. Request assistance from the district weights and measures coordinator for inspecting materials plants including:

- Hot mix asphalt plants
- Concrete plants
- Volumetric proportioning plants (rapid strength concrete, polyester concrete, and pavement seal coats)

Section 9-1.02, "Measurement," of the *Standard Specifications* indicates the general requirements for weighing, measuring, or metering devices and the requirement to place security seals on material plant controllers. The district weights and measures coordinator will follow the *MPQP* and the contract specifications for material plant authorization.

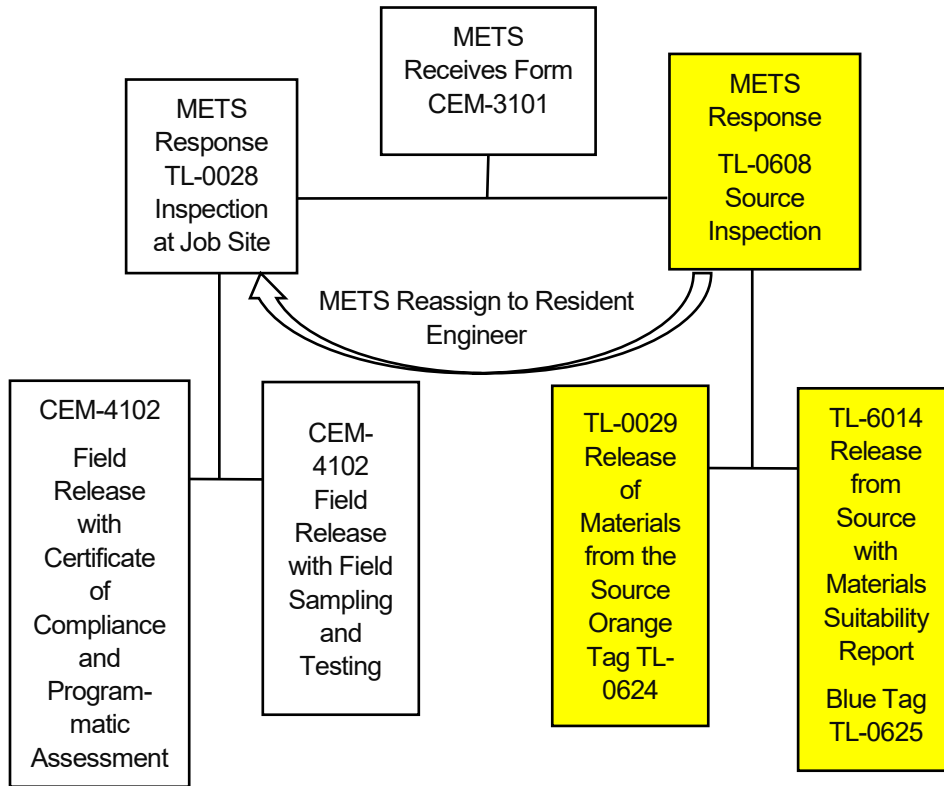
6-202C Materials Engineering and Testing Services

METS assigns personnel for sampling, testing, and inspecting manufactured materials and products, usually at the source of supply. Manufactured materials and products shown in Table 6-2.3, "Materials Accepted by Certificate of Compliance," in Section 6-203C, "Materials Accepted on the Basis of a Certificate of Compliance," of this manual, are the responsibility of METS but have been delegated to the resident engineer for inspection.

METS assigns the responsibility for sampling, testing, and inspecting manufactured materials and products based on the information submitted on Form CEM-3101. METS offices in Sacramento, the San Francisco Bay Area, or Los Angeles conduct most of the inspections. METS may assign sampling, testing, and inspecting of manufactured materials and products to the district materials engineer, resident engineer, or a commercial laboratory.

The METS process for inspecting and releasing manufactured or fabricated materials or products is shown in Figure 6-2.1, "Inspection and Release Flowchart—Source Inspection."

Figure 6-2.1 Inspection and Release Flowchart—Source Inspection



6-202C (1) Processing Form CEM-3101

Once Form CEM-3101 is received by the materials administrator, it is routed to the appropriate METS office for processing. Any questions regarding Form CEM-3101 processing by METS may be routed to the project METS representative. Structural materials listed on Form CEM-3101 are processed by the quality assurance and source inspection (QASI) office assigned to that project.

6-202C (2) Form TL-0028, “Notice of Materials to Be Inspected at Job Site”

If it is determined that the material does not require source inspection, METS will assign inspection to the job site by completing Form TL-0028 for that material item. This form indicates that the material item does not require source inspection from Caltrans at this time. METS will send Form TL-0028 to the resident engineer, prime contractor, and suppliers to inform them that source inspection is not required prior to shipment to the job site.

The resident engineer will release these materials at the job site using Form CEM-4102, “Materials Inspected and Released on Job.” Section 6-3, “Field Tests,” of this

manual contains details on testing that occurs at the job site. Depending on the material, the resident engineer bases the field material acceptance on various methods. Refer to Section 6-203D, "Field Inspection and Release by the Resident Engineer," of this manual for the field inspection and release procedures.

6-202C (3) Form TL-0608, "Notice Of Materials to Be Furnished"

If it is determined that the material requires source inspection prior to shipment to the job site, METS will issue Form TL-0608 to the resident engineer, contractor, and supplier. A hard copy of Form TL-0038, "Inspection Request," is mailed with Form TL-0608 to the supplier. The inspection request form is to be used by the contractor or any subcontractors to inform METS when the material is ready for inspection.

Source inspection by Caltrans is described in Section 6-202C, "Materials Engineering and Testing Services," of this manual and is detailed in the *QAS/Manual*:

<https://j2.dot.ca.gov/gs/?tab=2&sdiv=METS&off=OSM>

6-202C (4) Form TL-0038, "Inspection Request"

Form TL-0038 is used by the contractor or supplier to inform Caltrans that material located away from the job site is ready for inspection. If the contractor has received a Form TL-0608 for an item, Caltrans will be expecting a Form TL-0038 to initiate the source inspection.

Form TL-0038 and instructions for submitting the request are available at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbforms.htm>

<https://j2.dot.ca.gov/gs/?tab=2&sdiv=METS&off=OSM>

It is important to remind the contractor that, in accordance with Section 6-2.01E, "Material Source Inspection and Testing," of the *Standard Specifications*, the inspection request must be submitted:

- At least 3 business days before the requested inspection date for a material source within California.
- At least 5 business days before the requested inspection date for a material source outside California but within the U.S.
- Fifty days before the planned production start for a material source outside the U.S. and notify the resident engineer at least 20 days before the actual start.

The resident engineer may also use Form TL-0038 to request field inspection by METS for structural items such as field welding.

6-202D Assignment to Resident Engineer

METS may assign inspection of manufactured or fabricated materials and products for which they have acceptance responsibility back to the resident engineer. Refer to Section 6-203D, "Field Inspection and Release by the Resident Engineer," of this manual for details on inspection and release.

6-203 Manufactured or Fabricated Materials and Products Acceptance

The resident engineer must verify that materials entering the work meet the contract specifications acceptance criteria. Materials acceptance can be based on:

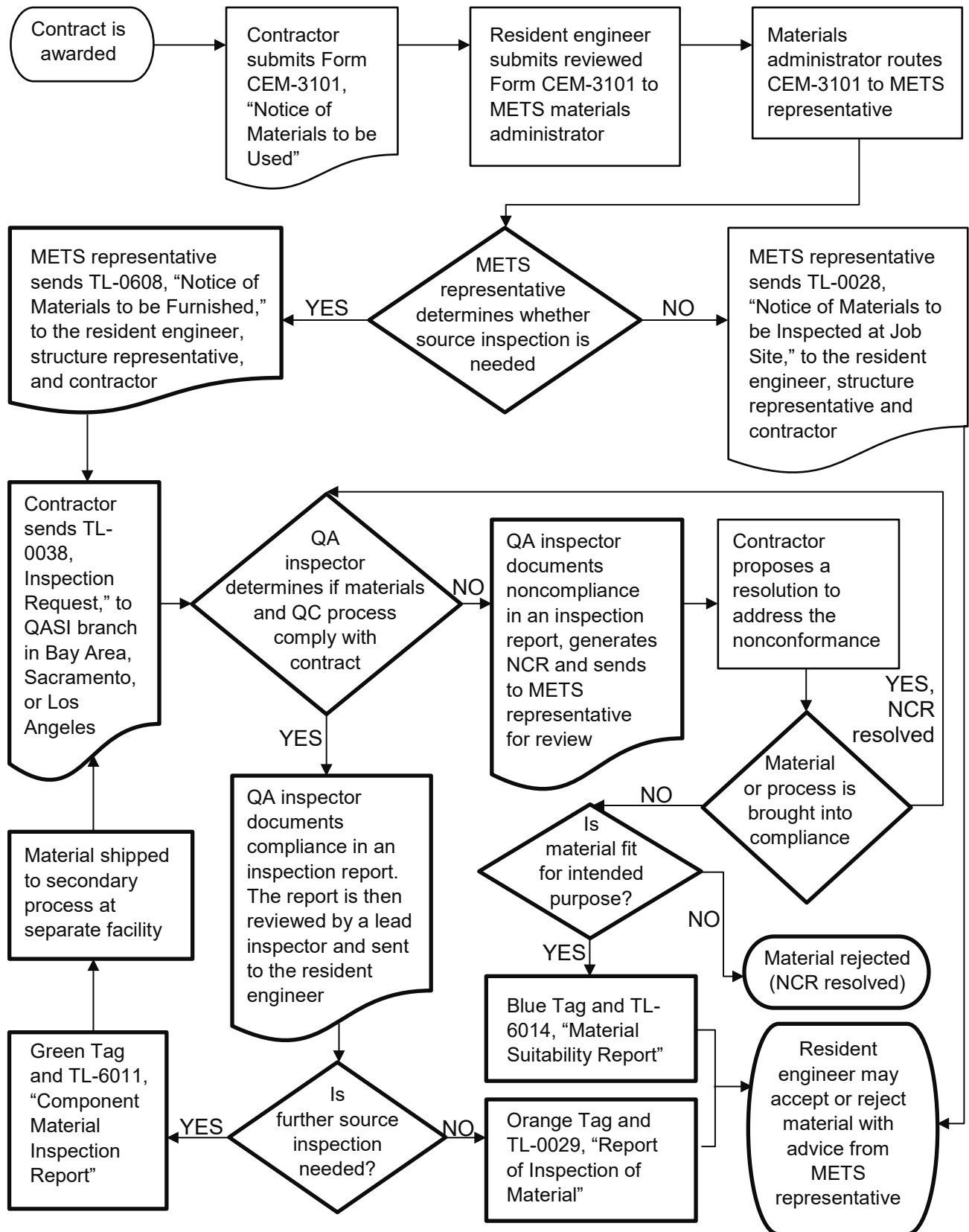
- Source inspection.
- Product on Authorized Material List.
- Certificate of compliance.
- Certificate of compliance with accompanying documents.
- Field inspection and release by the resident engineer.

If the material delivered to the job site lacks proper identification, the report of inspection is unconfirmed, or the acceptability of the material is questionable, do not allow materials to be incorporated in the work until they have been found to comply with the specifications. Contact the assigned inspection unit to verify testing or submit samples for new acceptance tests.

6-203A Source Inspection

METS is responsible for the source inspection process shown in Figure 6-2.2, “Source Inspection Flowchart.” The flowchart includes information on what happens when a material is not in compliance with the specifications, prompting use of a TL-0015, “Quality Assurance Nonconformance Report.”

Figure 6-2.2. Source Inspection Flowchart



When a material listed on Form CEM-3101 is assigned a Form TL-0608, source inspection is required prior to shipment of the material to the job site and final acceptance. Table 6-2.1, “Inspection of Fabricated and Manufactured Materials,” provides a list of common materials on Caltrans projects and some of the primary source inspection activities. Table 6-2.1 follows Section 6-203A (5), “Source Inspected Materials Acceptance,” of this manual.

A METS inspector will travel to the source of the material and perform inspection, sampling, verification testing, and material release as necessary. Complex fabrication, such as with precast prestressed concrete members and structural steel, typically requires inspection during fabrication (in-process inspection).

METS must receive all information that could affect materials that are source inspected. Forward all copies of authorized shop drawings as well as notification of approved change orders to the METS representative for the project. Forward to METS copies of approved shop drawings without established distributions (for example, buildings or small structures) and notification of approvals (such as paint color) or change orders. METS should receive copies of all correspondence with contractors or suppliers that may affect the fabrication.

Some inspections require out-of-state travel. It is important for METS to receive all documents before travel to assure timely inspection and release. For instance, light poles are manufactured at suppliers throughout the U.S.; therefore, it is crucial that authorized shop drawings are available for the METS inspector in time for inspection and release. The travel time for such inspections is significant. Coordination between resident engineer and METS is crucial for timely release of the poles.

In addition to source inspection, METS performs sampling and testing for certain materials for conformance with associated standards as a part of the quality assurance program. The list of additional tests performed by METS is available in detail in the *QASI Manual*.

The main point of contact for the resident engineer for anything related to source inspection is the METS representative assigned to the project. A list of METS representatives is available at:

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

6-203A (1) Inspection Requests and Dispatching

The contractor is responsible for submitting Form TL-0038, “Inspection Request,” to the appropriate METS QASI office with sufficient notice as described in Section 6-2.01E, “Material Source Inspection and Testing,” of the *Standard Specifications*. The appropriate office to send Form TL-0038 is available at the METS website:

<https://j2.dot.ca.gov/#>

This website allows the contractor to determine the appropriate QASI office by district. The TL-0038 can come from the contractor or subcontractors.

Each QASI office has a dispatcher who receives the TL-0038s and schedules inspections accordingly.

6-203A (2) *Material Inspection—Sampling and Release*

The METS representative assists the resident engineer with management of source-inspected materials. The METS inspector acts as the eyes and ears of the METS representative and resident engineer at the material's source. Inspected materials are identified with a unique inspector lot number that correlates the material with reports and release tags.

The METS inspector assesses the source's quality control methods and reviews the certificates of compliance and any additional documentation such as mill test reports. The METS inspector also performs random visual inspection of the material and any other required inspections such as nondestructive testing. For more information on the types of inspection required for common materials, refer to Table 6-2.1, "Inspection of Fabricated and Manufactured Materials," of this manual and the *QASI Manual*.

If sampling of the material is required at the source, the METS inspector will randomly sample the material at the required frequency and fill out a TL-0101, "Sample Identification Card," to accompany the material to the Transportation Laboratory. Sampling may be performed in the field by either the METS inspector or field construction staff. The material's certificate of compliance and any additional documents must be sent with the material to the lab as well. If the material is undergoing mechanical testing, the resident engineer can track the testing progress by using the J2 database and clicking on the "SMTL Test Reports" tab for the project.

If the material is found to be acceptable, the inspector identifies it with Form TL-0624, "Inspection Release Tag," commonly known as an orange tag. METS inspectors will not necessarily tag every bundle and piece in a shipment. If there are many components going out in one shipment, it is common that a single orange tag will be placed on the load. The orange tag will correlate to the certificate of compliance and bill of materials with the inspector's unique lot number. This tells the resident engineer what material the tag covers.

After the material is orange-tagged for release, the METS inspector enters the lot number, a description, and quantity of materials inspected on Form TL-0029, "Report of Inspection of Material." A completed copy of Form TL-0029 is sent to the resident engineer for the project records.

Certain materials are included in the METS authorization-to-deliver program. Source inspection for these materials is different from typical procedures in that it includes a recurring audit at a prescribed frequency, with material sampling and testing. If the facility is approved to be in the authorization-to-deliver program, it is authorized to ship material to the job site without receiving a physical tag for the material. A TL-0029AD, "Report of Inspection of Material (Authorization to Deliver)," is produced by METS and sent to the resident engineer and the supplier notifying them that the material is acceptable to be shipped. The resident engineer should not expect to obtain a tag from the material if a TL-0029AD report was received. However, the resident engineer should match the TL-0029AD report with the actual shipped

material quantities and certificate of compliance to verify that the material arrives within a reasonable timeframe.

When source-inspected materials arrive on the job site, the attached Form TL-0624 informs the resident engineer to permit use of the materials. The attached form shows the identifying lot number, the inspector's initials, and the date of inspection. If the item does not lend itself to attaching of tags, such as reinforced concrete pipe, the inspector marks the lot number on each separate piece. In some instances, when there is a possibility of losing tags, the inspector both attaches tags and marks a lot number on the pieces. METS inspectors will not necessarily tag every bundle and piece in a shipment (with the exception of reinforced concrete pipe).

It is important to note that the resident engineer must inspect the materials for damage that may have occurred during shipping or storage and for general workmanship and conformance to planned shape or dimensions. Table 6-2.1, "Inspection of Fabricated and Manufactured Materials," of this manual provides examples of types of field inspections for common materials.

The resident engineer may not receive the completed Form TL-0029, "Report of Inspection of Material," until after the materials have arrived at the job site. The resident engineer must check that the correct material was shipped to the job site by verifying that the lot number and quantity of material shown on Form TL-0029 matches the identifying information, such as Form TL-0624, that was attached to or marked on the materials. Notify the project METS representative of any discrepancies so that an investigation can be conducted.

The resident engineer must inform the assigned METS inspection office if Form TL-0029 is not received within 15 days after receipt of materials.

For in-process inspections, METS will produce an inspection report, unique to the type of inspection, and distribute it to the resident engineer for review and incorporation into the project files. More information on the various types of inspection reports is in the *QASI Manual*.

6-203A (3) Nonconforming Materials at the Source

If the inspector observes that the material does not comply with the specifications at the requested time of release, the manufacturer or fabricator is notified and allowed one work shift to correct. If the material cannot be brought into conformance within the time period, METS will send a TL-0015, "Quality Assurance Nonconformance Report," (NCR) to the resident engineer within 24 hours of the observation. The resident engineer then notifies, in writing, the contractor of the NCR and requests a written response to resolve the issue.

The purpose of the NCR is to formally document the reason the material does not meet the specifications and to prompt the contractor to propose resolution and prevention measures in the response letter. This report is entered into the J2 database under the "Issues" tab so that the information is available to Caltrans staff outside the project to help avoid future issues statewide.

When the resolution letter is submitted by the contractor, the resident engineer and METS will perform a review. If the resolution is insufficient, the contractor will be notified and allowed to revise the letter and resubmit. If the resident engineer decides that the material is not suitable for the project, it will be rejected and prohibited from incorporation into the project.

If the letter is found to be acceptable, METS will issue a TL-0016, "Quality Assurance-Nonconformance Resolution," to the resident engineer recommending a resolution and closure of the issue. In some cases, the material is found to be suitable for the intended purpose by the resident engineer, METS, and the engineer of record for project design, but it does not meet the contract specifications. In this case, METS will produce a TL-6013, "Material Suitability Documentation Report," to document the engineering judgment used to determine the material to be suitable and concurrence from the resident engineer, METS, and engineer of record for project design. Once authorized, the material can be released by the inspector by placing a TL-0625, "Material Suitability Tag," (blue tag) onto the material in a similar fashion as with an orange tag. A TL-6014, "Material Suitability Report," is written in place of a TL-0029, "Report of Inspection of Materials," and sent to the resident engineer.

- When METS and the resident engineer disagree about whether the material is suitable or unsuitable, the METS Structural Materials senior engineer and the construction engineer discuss and resolve the disagreement. When consensus is not achieved at this level, the issue must be elevated to the appropriate supervisors and a mutual solution reached.
- The blue tag is only a release of the material from the source. The resident engineer may need to prepare a change order to address acceptance of the material. Section 5-303, "Purpose of Change Orders," of this manual includes guidance for deciding whether a change order is needed. When a change order is needed, it must be approved prior to incorporating the material into the work. The resident engineer sends METS copies of approved change orders addressing blue tag issues. The project's materials certification memorandum must include material that is approved for use but does not meet original contract specifications.

6-203A (4) Source Inspection Expense Deductions

Because of costs incurred by Caltrans when traveling for source inspection to material sources that are far from the job site, Section 6-2.01E, "Material Source Inspection and Testing," of the *Standard Specifications* provides the details for deductions to be taken when applicable. To determine where inspections have taken place for a project, the resident engineer can review the inspection reports that provide inspection locations.

6-203A (5) Source Inspected Materials Acceptance

The resident engineer and METS share the responsibility for inspection of materials at the source. The resident engineer has the sole responsibility for acceptance of

material and may determine that materials are not acceptable for a project based on any of the following reasons:

- Damaged materials: The material may be damaged in shipment or installation.
- Material defects: It is not always practical for METS to make a 100 percent piece-by-piece inspection. The inspection is usually random sampling. The resident engineer or assistant resident engineer should check for visually detectable defects or damage.
- Incorrect wall thickness of metal culvert pipe: A given size of metal culvert pipe may vary in required thickness at various locations with different fill heights. METS inspectors cannot guarantee that a given piece of pipe will be placed at the proper location. They can only check the pipe for specified markings and determine that the measurement is within tolerance for the indicated thickness. Fit of band couplers should also be checked at the job site.
- Incorrect reinforced concrete pipe wall thickness: Some contracts require special wall thickness of reinforced concrete pipe at certain locations in the project, and the METS inspector would not know the specific job site location of that particular pipe when the pipe is released. The inspector can only determine that it fits one of the types specified.
- Specifications and change orders: The specifications may be difficult to interpret or the source inspector is not aware of a change order.

Another situation not controllable by inspection at the source is the transfer of materials from one contract to another. The inspector can confirm (by a copy of the original inspection report) that a given amount of material with a given lot number was inspected for the first contract. Identifying the material as that received on the first job under the original inspection report and monitoring its transfer from one job to another are responsibilities of the resident engineers involved. Such transfers should not be allowed unless the material is positively identified or is of a type (such as fencing or reinforcing steel) that can be resampled and retested in the event identification is lost or is questionable.

Table 6-2.1 lists manufactured or fabricated materials and products that are usually inspected at the site of manufacture or fabrication and indicates items that are checked by the inspector at the source. Table 6-2.1 also includes items that must be checked or rechecked at the job site to assure that the materials are acceptable. The table does not cover all manufactured or fabricated materials and products but provides typical examples. Verification at the source of fabrication does not preclude acceptance by the resident engineer at the job site. For more details on the inspection procedures, refer to Section 6-3, "Field Tests," of this manual, and the *QASI Manual*.

Table 6-2.1. Inspection of Fabricated and Manufactured Materials (1 of 5)

Product	Items Inspected and Tested by METS	Items to Check at Job Site
Bolts, nuts, and washers	Material sampling and testing including galvanizing, visual inspection.	Visible defects, dimensions, threads, galvanizing, marking for correct type fit of nuts. Make sure high-strength bolts and nuts are used where specified and nuts are lubricated properly. (Refer to <i>Bridge Construction Records and Procedures</i> .)
Curing compound (chlorinated rubber type)	Material tests by batch or lot, check marking. (Other types accepted at job site if properly packaged and labeled.)	Proper mixing, marking, check sample. Check for specified type of container and correct marking.
Bearing, elastomeric bearing pads - steel reinforced, PTFE bearing	Material sampling and specified tests, visual and dimensional inspection certification.	Damage, defects, uniformity, dimensions.
Electrical items: controllers, luminaires, signal heads, conductors	Controllers: complete tests and inspection. Luminaires: random tests, visual inspection. Signal heads, switches; visual inspection plans, type, operational check. Conductors: random tests.	Shipping damage, defects, conformance to plans, type, operational check. Check loop detectors for operation under field conditions inspection. See that all conductors are correct type and size.
Epoxy	Materials sampling and specified tests, markings, packaging.	Proper material for intended use, excessive thickening or crystallization, proper mixing.
Forgings, steel	METS inspection and tests upon request from resident engineer. Material tests, visual and dimensional inspection.	Size, uniformity, surface defects, warping (permit no repairs).
Girders, precast prestressed concrete	Material verification, in-process inspection of fabrication (such as forms, steel placement, stressing, concrete) workmanship, dimensions, conformance to plans.	Damage, workmanship, exposed steel dimensions, finish, cracks, or other defects.

Table 6-2.1. Inspection of Fabricated and Manufactured Materials (2 of 5)

Product	Items Inspected and Tested by METS	Items to Check at Job Site
Girders, structural steel	Material verification, check sample testing, qualifications of welders, inspection during fabrication, nondestructive testing, preparation and painting in the shop, conformance to plans and authorized shop drawings, proper joint preparation for shop-bolted connections.	Damage to members or paint: defects in steel, camber condition of paint, dimensions, condition of holes, straightness and squareness of members.
Joint sealant, Type A field mixed polyurethane or silicone sealant	Material sampling and testing by batch or lot.	Proper components, proper mixing, marking. Damage, workmanship, correct movement rating (from test report), size and type, lot and batch identification. (Refer to <i>Bridge Construction Records and Procedures</i> .)
Joint seal, Type B preformed elastomeric joint seal	Material sampling and testing.	Damage, workmanship, correct movement rating (from test report), size and type.
Markers, pavement	Tests of each batch or lot, random inspection.	Damage, surface defects.
Mechanical equipment, scales, pump truck inspection stations, roadside rests	Inspection usually assigned to resident engineer. Consult with Structure Design, Office of Electrical, Mechanical, Water and Wastewater Engineering, for assistance if required. http://des.onramp.dot.ca.gov/structure-design/office-electrical-mechanical-water-and-wastewater-engineering-emww	Damage, installation details, workmanship.

Table 6-2.1. Inspection of Fabricated and Manufactured Materials (3 of 5)

Product	Items Inspected and Tested by METS	Items to Check at Job Site
Metal beam guard rail	METS inspection and testing of galvanizing upon request by resident engineer.	Damage to rail or galvanizing, workmanship of rail and galvanizing, dimensions, conditions of holes, for example.
Metal crib wall	METS inspection and testing of galvanizing upon request by resident engineer.	Dimensions, workmanship, galvanizing, specified bolts.
Miscellaneous iron and steel, miscellaneous bridge metal, bearing assemblies, rings and covers, frames and grates	Materials sampling and testing as specified, qualification of welders, inspection of fabrication, galvanizing, dimensions.	Damage, welding or fabrication defects, conformance to drawings, galvanizing defects, grinding specified coating.
Paint	Materials sampling and testing by batch or lot.	Lumps, hard setting, color, marking of cans, adherence, surface preparation, lot numbers (same as on inspection report).
Piling, precast prestressed concrete	Material verification, in-process inspection of fabrication (such as forms, steel placement, stressing, concrete) workmanship, dimensions, conformance to plans.	Damage, workmanship (such as cracks, spalling), painting of strand ends, straightness.
Piling, steel pipe	Material verification, weld inspection of welding if field splices are necessary.	Damage to members, overlooked fabrication details, dimensions.
Pipe, galvanized	Material sampling and testing. Check galvanizing thickness.	Size, uniformity, surface defects (permit no repairs).
Poles, lighting	Material verification, inspection and review of welding and galvanizing, visual and dimensional inspection.	Dimensions, welds, workmanship, galvanizing type.

Table 6-2.1. Inspection of Fabricated and Manufactured Materials (4 of 5)

Product	Items Inspected and Tested by METS	Items to Check at Job Site
Prestressing strand	Material sampling and testing, package and storage, visual inspection when possible.	Check strand for rust, damage, surface defects. Check tags for stressing information.
Product	Items Inspected and Tested by METS	Items to Check at Job Site
Reinforced concrete pipe	Material verification, witness testing, visual inspection, dimensions, elliptical steel markings. Only for reinforced concrete pipe with diameter greater than 60 inches, unless requested by resident engineer.	Damage, defects, exposed steel, dimensions (specific locations per plans), straightness, concentricity.
Railings, barriers Bridge railing, barrier	Material tests, welder qualifications, welding and fabrication, galvanizing.	Damage to rail or galvanizing; fabrication or galvanizing defect, fit of sleeves, dimensions; types of bolts or nuts furnished.
Reinforcement splices: welded or mechanical couplers	METS sampling and testing, material verification.	Refer to Bridge Construction Records and Procedures.
Sign structures	Material verification, qualification of welders, inspection during and after fabrication, dimensions, cleaning and painting or galvanizing.	Damage, general workmanship, general conformance to requirements, position of sign panels, final check of electrical equipment for illuminated signs, proper nuts and bolts, properly torqued.
Signs, changeable message	Fabrication, operation, workmanship.	Refer to Section 4-56, "Overhead Sign Structures, Standards, and Poles" of this manual.

Table 6-2.1. Inspection of Fabricated and Manufactured Materials (5 of 5)

Product	Items Inspected and Tested by METS	Items to Check at Job Site
Steel flooring and grating	METS inspection and tests upon request from resident engineer.	Workmanship, dimensions.
Structural steel	Material verification, qualifications of welders, inspection during fabrication, nondestructive testing, preparation and painting in the shop, conformance to plans and authorized shop drawings, proper joint preparation for shop-bolted connections.	Damage to members or paint: defects in steel or in welds; overlooked fabrication details; camber condition of paint; dimensions; condition of holes; proper bolts and nut markings; proper torquing; straightness and squareness of members.

6-203A (6) Materials Manufactured to Caltrans-Specified Formulation

The *Standard Specifications* requires that certain products be manufactured to state specifications. Occasionally, composition of the specified formulation is changed and the newer specification results in an equal or better product. Materials manufactured under specifications newer than those that apply to a particular project are acceptable for use. METS inspectors release such materials, and resident engineers may permit use of such materials without change orders unless specifically advised to the contrary. State specification numbers for manufacturer materials are shown in the *Standard Specifications* or special provisions.

Paint manufactured under state specifications is sampled at the factory, tested by METS, and identified by lot numbers before shipment to the project.

6-203B Materials Accepted on the Basis of Authorized Material List

The *Standard Specifications* identifies materials that must be on an Authorized Material List. The list is available at:

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

The engineer must make sure materials or products listed in Table 6-2.2, “Materials Acceptance Based on Authorized Material List,” are shown on the appropriate Authorized Material List before the material is used on the project. Materials shown on the Authorized Material List may also require a certificate of compliance or sampling and testing for acceptance.

Table 6-2.2. Materials Acceptance Based on Authorized Material List (1 of 3)

Material or Product	Authorized Material List
Alternative sound wall system	
Channelizers	Signing and delineation materials
Chemical adhesive Drilling and bonding dowels	Chemical adhesives / cartridge epoxies
Crack sealant	Flexible pavement crack treatment material
Concrete admixtures	Chemical admixtures for concrete
Concrete Cementitious material	Cementitious material
Concrete Innocuous aggregate	Innocuous aggregates for concrete
Concrete anchorage devices	Concrete inserts
Corrosion protection system	Corrosion protective coverings
Corrosion protection covering for splices	Corrosion protective coverings
Delineators	Signing and delineation materials
Detectable warning surface	Detectable warning surface
Earth retaining system	Earth retaining systems
Electrical Battery backup external cabinet	External battery backup system cabinet
Electrical LED signal modules	LED traffic signals
Epoxy powder	Fusion-bonded epoxy powder
Markers	Signing and delineation materials
Mechanical couplers	Steel reinforcing couplers
Organic zinc-rich primer	Organic zinc-rich primer list
Pavement markers	Signing and delineation materials
Pavement traffic stripe and marking tape	Signing and delineation materials
Plastic blocks	

Table 6-2.2. Materials Acceptance Based on Authorized Material List (2 of 3)

Material or Product	Authorized Material List
Post-tensioning prestressing system	Pre-approved systems (full list and details)
Precast portland-cement-based repair material	Precast portland-cement-based repair material
Reflectors	Signing and delineation materials
Reinforcement Headed bar	Headed bar reinforcement
Reinforcement Resistance-butt-welded splices	
Retroreflective <ul style="list-style-type: none"> • Retroreflective sheeting for barricades • Retroreflective bands for portable delineators • Retroreflective sheeting for construction area signs • Retroreflective sheeting for channelizers • Reflectors for Type K temporary railing • Retroreflective cone sleeves • White and orange-colored retroreflective stripes for plastic traffic drums • Portable signs Type VI, retroreflective, elastomeric roll-up fabric 	Signing and delineation materials
Signs Retroreflective sheeting	Signing and delineation materials
Signs Fiberglass-reinforced plastic panels	Signing and delineation materials
Silane waterproofing	Silane reactive penetrating sealers
Temporary crash cushion Sand-filled	Highway safety features

Table 6-2.2. Materials Acceptance Based on Authorized Material List (3 of 3)

Material or Product	Authorized Material List
Temporary traffic control devices Category 2	Acceptable, crashworthy Category 2 hardware for work zones
Temporary traffic control devices Category 3	Highway safety features
Thread locking systems	Anaerobic thread locking systems
Undercoating for ungalvanized sign structures	
Warm mix asphalt	Warm mix asphalt—approved technologies

6-203C Materials Accepted on the Basis of a Certificate of Compliance

In accordance with Section 6-2.03C, “Certificates of Compliance,” of the *Standard Specifications*, the engineer may permit the use of certain materials before sampling and testing if accompanied by a certificate of compliance.

Acceptance based on certificates of compliance is used for products for which the industry has demonstrated a high degree of reliability in meeting specifications. METS performs a programmatic assessment on a periodic basis of materials that do not receive source inspection.

METS notifies the resident engineer when material from any producer is not acceptable on the basis of a certificate of compliance. The resident engineer must notify the contractor when material cannot be accepted based on a certificate of compliance and require submittal of samples for testing prior to use on the project.

Certificates of compliance should contain the following information:

- Name of company.
- Lot number traceable to a specific lot.
- A statement naming the applicable type and brand, and that the materials meet the requirements of the *Standard Specifications*, the special provisions, or both.
- Contract number.
- Signature of responsible officer of the company.

Materials accepted based on a certificate of compliance arrive on the job site without inspection by METS and Form TL-0029, “Report of Inspection of Material.” When required by the *Standard Specifications* or the special provisions, verify that these materials have a certificate of compliance and any required additional backup documentation, such as mill test reports for steel, pressure treating reports for timber, and concrete test reports, to show that the materials comply with the specifications. Table 6-2.3, “Materials Accepted by Certificate of Compliance,”

shows materials in the *Standard Specifications* that are accepted based on a certificate of compliance.

In addition to the materials listed in Table 6-2.3, in accordance with Section 6-2.03C, "Certificates of Compliance," of the *Standard Specifications*, a certificate of compliance is required for material produced outside the United States.

Contact the project METS representative regarding any feedback or additional detail for programmatic assessment or systematic concerns regarding certain materials types.

Table 6-2.3. Materials Accepted by Certificate of Compliance (1 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Alternative earth retaining systems	Must state that the supplied material complies with the index criteria for the system at the time of prequalification.
Asphalt	<p>Certificates of compliance must include the following:</p> <ol style="list-style-type: none"> 1. Name and location of the supplier. 2. Grade of the asphalt. 3. The date and time of shipment. 4. A unique shipment number, such as a bill of lading number or manifest number. 5. A statement confirming that the transport vehicle was checked before loading and was found acceptable for the asphalt shipped. 6. The following wording: "<i>(Supplier name) hereby certifies that the asphalt product accompanying this certification was produced in accordance with the California Department of Transportation's Certification Program for Suppliers of Asphalt, and that this product complies in all respects with the requirements of the applicable specifications for the asphalt product identified on this document.</i> <p><i>I hereby certify by my signature that I have the authority to represent the supplier providing the accompanying asphalt product.</i>"</p>
Asphaltic emulsion	<p>Certificate of compliance must include the following:</p> <ol style="list-style-type: none"> 1. Shipment number and shipment date. 2. Source refinery, consignee, and destination. 3. Type and description of material with specific gravity and quantity. 4. Contract or purchase order number. 5. Signature by the manufacturer of the material and a statement that the material complies with the contract.
Asbestos cement pipe	
Asbestos sheet packing	
Asphalt modifier	Test results required with each truckload.
Asphalt rubber joint sealant	A certified test report of the results for the required tests performed within 12 months before the proposed use.
Backer rods	Must include manufacturer's statement of compatibility with the joint sealant to be used.
Barbed wire	

Table 6-2.3. Materials Accepted by Certificate of Compliance (2 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Blast cleaning material	
Bonding agent for repairing spalled surface area	Submittal of certificate of compliance required for contracts of less than 60 working days.
Bonding material	
Brick	
Cable-type restrainers Lock nuts	Certificate of compliance must be submitted with a copy of each required test report.
Cast iron pipe	
Cast iron manhole rings and covers	
Chemical adhesive for bonding tie bars and dowel bars in concrete pavement	
Chemical adhesive for structures	Certificate of compliance must state compliance with ICBO AC58 and Caltrans. Augmentation/Revisions to ICBO AC58.
Concrete Admixture	Certificate of compliance from the manufacturer must certify that the admixture furnished is the same as that previously authorized for the Authorized Material List.
Concrete Cementitious material	<p>Certificate of compliance must include the source name and location.</p> <p>If the cementitious material is delivered directly to the job site, the certificate of compliance must be signed by the cementitious material supplier.</p> <p>If the cementitious material is used in ready-mixed concrete, the certificate of compliance must be signed by the concrete manufacturer.</p> <p>If blended cement is used, the certificate of compliance must include a statement signed by the blended cement supplier that shows the actual percentage of supplementary cementitious material, by weight, in the blend.</p>
Concrete Curing compound	<p>Certificate of compliance must include:</p> <ol style="list-style-type: none"> 1. Test results for the tests specified in Section 90-1.01D(6), "Curing Compound," of the <i>Standard Specifications</i>. 2. Certification that the material was tested within 12 months before use.

Table 6-2.3. Materials Accepted by Certificate of Compliance (3 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Concrete Minor concrete	Before placing minor concrete from a source not previously used on the contract, a certificate of compliance stating that the minor concrete to be furnished complies with the contract requirements, including the specified minimum cementitious material content.
Ceramic tile	
Chain link fencing and railing	Certificate required for protective coating system.
Concrete anchorage devices	
Concrete pipe Circular reinforced direct design method, less than 60 inches in diameter	Certificate of compliance must: 1. Be signed by the manufacturer's quality control representative. 2. State that all materials and workmanship comply with the specifications and authorized shop drawings.
Copper pipe	
Corrugated metal pipe	
Crack sealant	Certificate of compliance must include: 1. Manufacturer's name 2. Production location 3. Product brand or trade name 4. Product designation 5. Batch or lot number 6. Crack treatment material type 7. Contractor or subcontractor name 8. Contract number 9. Lot size 10. Shipment date 11. Manufacturer's signature
Crash cushions	
Crumb rubber modifier	Test results required with each truckload.
Culvert markers	
Delineators	Certificate of compliance required for: • Metal target plates • Enamel coating • Retroreflective sheeting

Table 6-2.3. Materials Accepted by Certificate of Compliance (4 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Dowel bar baskets	
Drop inlet grates and frames	
Drain tile	
Drip irrigation line	
Elastomeric bearing pads Plain	Certified test results for the elastomer. METS samples and tests bearing pads.
Elastomeric bearing pads Steel-reinforced	Certified test results. METS samples and tests bearing pads.
Electrical Battery backup system	Certificates of compliance are required for: <ul style="list-style-type: none"> • External cabinet • Batteries
Electrical Conductor	
Electrical Conduit (galvanized and plastic)	
Electrical Equipment	
Electrical Pull boxes (concrete and plastic)	
Electrical Service cabinets	
Epoxy	
Epoxy powder coating for dowel bars and tie bars	METS samples and tests epoxy coating.
Erosion control	Certificate of compliance is required for: <ul style="list-style-type: none"> • Straw • Fiber • Rolled erosion control product • Fasteners

Table 6-2.3. Materials Accepted by Certificate of Compliance (5 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Erosion control (continued)	<p>Certificate of compliance with attachments is required for:</p> <ul style="list-style-type: none"> • Tackifier • Bonded fiber matrix <p>Polymer-stabilized fiber matrix</p> <p>Certificates of compliance attachments include:</p> <ol style="list-style-type: none"> 1. Safety data sheet 2. Product label 3. List of applicable, nonvisible pollutant indicators for soil amendment and stabilization products as shown in the table "Pollutant Testing Guidance Table" in the Caltrans <i>Construction Site Monitoring Program Guidance Manual</i> 4. Report of acute and chronic toxicity tests on aquatic organisms conforming to EPA methods 5. List of ingredients, including chemical formulation 6. Properties of polyacrylamide in tackifier including: (1) percent purity by weight, (2) percent active content, (3) average molecular weight, and (4) charge density.
Expansion joint filler	
Fiberglass pipe	Certificate of compliance must be submitted with laboratory test results.
Filler material for repairing spalled surface areas	<p>Submittal of certificate of compliance required for contracts of less than</p> <p>60 working days.</p>
Gabions	If PVC coating is shown, a suitable UV resistant additive must be blended with the PVC and the additive must be shown on the certificate of compliance.
Geocomposite drain	<p>Certificate of compliance must certify that the drain produces the specified flow rate. The certificate must be accompanied by a flow capability graph for the geocomposite drain showing flow rates and the externally applied pressures and hydraulic gradients. Verification must be by an authorized laboratory for the flow capability graph.</p>
Geosynthetics	Test sample representing each lot and minimum average roll value.

Table 6-2.3. Materials Accepted by Certificate of Compliance (6 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Glass beads	Certificate of compliance by lot or batch and test data from an independent laboratory.
Glue laminated timbers and decking	
Guide markers	
Irrigation hose	
Irrigation pipe	Certificate of compliance required for: <ul style="list-style-type: none"> • Polyethylene pipe Plastic pipe supply line for pipe with wall thickness of the bell less than the specified minimum wall thickness of the pipe
Joint filler material	
Joint seals (Type A and AL)	Certified test report for each batch of sealant.
Joint seal (Type B)	Certificate of compliance required for: <ul style="list-style-type: none"> • Elastomeric joint seal • Lubricant-adhesive Certificate of compliance must be submitted with certified test report for each lot of elastomeric joint seal and lubricant-adhesive. Test reports must include the seal movement rating, the manufacturer's minimum uncompressed width, and test results. METS samples and tests joint seal.
Joint seal Alternate joint seal assemblies	For alternative joint seal assemblies, a certificate of compliance must be submitted for each shipment of joint seal materials. The certificate must state that the materials and fabrication involved comply with the specifications and the data submitted in obtaining the authorization for the alternative joint seal assembly. METS samples and tests joint seal assemblies.
Joint seal Joint seal assemblies	METS samples and tests joint seal assemblies.
Lime	Certificate of compliance must include a statement certifying the lime furnished is the same as on the Authorized Material List.

Table 6-2.3. Materials Accepted by Certificate of Compliance (7 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Machine spiral wound PVC pipeliners	Certificate of compliance for each reel of PVC strip must include: <ol style="list-style-type: none"> 1. Name of manufacturer 2. Plant location 3. Date of manufacture and shift 4. Cell classification 5. Unit mass 6. Average pipeliner stiffness and profile type
Markers	Certificate of compliance required for: <ul style="list-style-type: none"> • Metal target plates • Enamel coating • Retroreflective sheeting
Masonry block	Certificate of compliance required for: <ul style="list-style-type: none"> • Concrete masonry units • Aggregate for grout • Grout
Micro surfacing emulsion	
Mulch	
Open steel flooring and grating	
Overside drains	Certificate of compliance based on steel materials, aluminum materials or plastic materials.
Parking area seal material	
Pavement markers	
Plastic lumber	Certificate of compliance for each shipment of plastic lumber, that must be accompanied by a laboratory test report.
Plastic traffic drums	
Plastic pipe for drainage	Certificate of compliance must include average pipe stiffness, resin material cell classification, and date of manufacture. For corrugated polyethylene pipe, manufacturer's copy of plant audits and test results from the National Transportation Products Evaluation Program for the current cycle of testing for each pipe diameter furnished.

Table 6-2.3. Materials Accepted by Certificate of Compliance (8 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Portable changeable message sign	
Precast concrete Cementitious material used in precast concrete products	Certificate of compliance must be signed by the precast concrete product manufacturer.
Precast concrete Box culverts	Certificate of compliance must signed by the manufacturer's quality control representative for each shipment.
Precast concrete members	Certificate of compliance is for materials and workmanship incorporated in the work, and for testing and inspections that have been performed.
Precast raised traffic bars	
Preformed compression seal for concrete pavement	
Preformed membrane sheet	Must include type of sheet and the conditioner or primer application rates.
PTFE bearing materials	
Rapid strength concrete	Certificate of compliance is required for each delivery of aggregate, cementitious material, and admixtures used for calibration tests. The certificate of compliance must state that the source of the materials used for the calibration tests is the same source as to be used for the planned work.
Reinforcement	You may request that the contractor submits with certificate of compliance: 1. Copy of the certified mill test report for each heat and size of reinforcing steel showing physical and chemical analysis. 2. Two copies of a list of all reinforcement before starting reinforcement placement.
Reinforcement Epoxy-coated	Certificate of compliance for each shipment of epoxy-coated reinforcement must be submitted with: 1. Certification that the coated reinforcement complies with ASTM A 775/A 775M for bar reinforcement or ASTM A 884/A 884M, Class A, Type 1, for wire reinforcement. 2. All certifications specified in ASTM A 775/A 775M for bar reinforcement or ASTM A 884/A 884M for wire reinforcement. METS samples and tests epoxy coating.

Table 6-2.3. Materials Accepted by Certificate of Compliance (9 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Reinforcement Epoxy-coated prefabricated reinforcement	<p>Certificate of compliance for each shipment of epoxy-coated prefabricated reinforcement must be submitted with:</p> <ol style="list-style-type: none"> 1. Certification that the coated reinforcement complies with ASTM A 934/A 934M for bar reinforcement or ASTM A 884/A 884M Class A, Type 2 for wire reinforcement. 2. All certifications specified in ASTM A 934/A 934M for bar reinforcement or ASTM A 884/A 884M for wire reinforcement. <p>METS samples and tests epoxy coating.</p>
Reinforcement Epoxy-coating patching materials	<p>Certificate of compliance for the patching material must include certification that the patching material is compatible with the epoxy powder to be used.</p>
Reinforcement Headed bar	<p>Certificate of compliance for each shipment of headed bar reinforcement must be submitted with:</p> <ol style="list-style-type: none"> 1. Mill test reports for the: <ol style="list-style-type: none"> 1.1. Bar reinforcement 1.2. Head material 2. Production test reports 3. Daily production logs <p>METS samples and tests headed bar.</p>
Reinforcement Splice material	<p>Certificate of compliance for each shipment of splice material must be submitted with:</p> <ol style="list-style-type: none"> 1. Type or series identification of the splice material, including tracking information for traceability. 2. Grade and size number of reinforcement to be spliced. 3. Statement that the splice material complies with the type of mechanical splice on the Authorized Material List. 4. For resistance-butt-welded material: <ol style="list-style-type: none"> 4.1. Heat number 4.2. Lot number 4.3. Mill certificates <p>METS samples and tests reinforcement splices.</p>
Sheet metal	

Table 6-2.3. Materials Accepted by Certificate of Compliance (10 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Sign panels	Certificates of compliance required for: <ul style="list-style-type: none"> • Aluminum sheeting • Retroreflective sheeting • Screened-process colors • Nonreflective, opaque, black film • Protective-overlay film
Silicone joint sealant	A certified test report of the results for the required tests performed within 12 months before the proposed use.
Slotted edge drain	
Snow poles	
Snow plow deflectors polyethylene material	
Soil amendment	
Steel crib wall	
Steel pipe piles	The certificate of compliance must be signed by the plant's quality control representative. The quality control representative must be on record with Structural Materials. Certificate of compliance must include: <ol style="list-style-type: none"> 1. Statement that all materials and workmanship incorporated in the work and all required tests and inspections of this work have been performed as described. 2. Certified mill test reports for each heat number of steel used in pipe piles being furnished. 3. Test reports for tensile, chemical, and any specified nondestructive test must be based on test samples taken from the base metal, steel, coil, or from the manufactured or fabricated piles. 4. Calculated carbon equivalent. The carbon equivalent may be shown on the mill test report.
Structural plate culverts	Certificate of compliance required for: <ul style="list-style-type: none"> • Structural metal plate pipe • Arches • Pipe arches Metal liner plate pipe

Table 6-2.3. Materials Accepted by Certificate of Compliance (11 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Structural shape steel piles	Certificate of compliance must include a statement that all materials and workmanship incorporated in the work and all required tests and inspections of this work have been performed as described.
Structural composite lumber used in falsework	
Structural steel thermal spray coat Wire feedstock	
Styrofoam filler	
Subsurface drain	
Temporary concrete washout	Certificate of compliance required for: <ul style="list-style-type: none"> • Gravel-filled bag • Plastic liner
Temporary fence (Type ESA)	Certificate of compliance required for: <ul style="list-style-type: none"> • High visibility fabric • Safety caps for metal posts
Temporary linear sediment barrier	Certificate of compliance required for: <ul style="list-style-type: none"> • Fiber roll • Safety cap for metal posts • Silt fence fabric • Sediment filter bag • Foam barrier • Gravel-filled bag fabric
Temporary railing (Type K)	
Thermoplastic traffic stripes and pavement markings	Certificate of compliance by lot of batch and test data report from an independent laboratory. Obtain a minimum 1-foot length of stripe test sample.
Tie bars	METS samples and tests epoxy coating.
Tie bar baskets	METS samples and tests epoxy coating.
Timber products (treated and untreated)	Certificate of compliance for timber and lumber must state the species of the material to be shipped and include a certified grading report. If treated, certified treating report.
Threaded tie bar splice couplers	

Table 6-2.3. Materials Accepted by Certificate of Compliance (12 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Turf sod	
Two-component paint traffic stripes and pavement markings	Certificate of compliance by lot or batch. Obtain a 50-foot test section before application of paint.
Underdrains	Certificate of compliance required for: <ul style="list-style-type: none"> • Type of pipe • Tubing • Fitting
Waterproofing fabric	
Waterstop	Certificate of compliance for waterstop material must state compliance with paragraph 6 of Army Corps of Engineers CRD-C 572.
Welded wire fabric	
Wire mesh fencing	
Wood Structures	Certificate of compliance for timber and lumber stating the species of the material to be shipped and including a certified grading report. If timber is treated, include a certified treating report. Certificate of compliance for glued laminated timbers and decking.

When material delivered with a certificate of compliance is improperly certified, or any part of it is found not to comply with specifications, reject the entire shipment and notify METS immediately.

Procedures for sampling and testing materials accepted by certificate of compliance vary depending on the material. Following are some details covering the sampling of materials accepted by certificate of compliance.

6-203C (1) Asphalt

Certification for asphalt must comply with Caltrans' *Certification Program for Suppliers of Asphalt*. Program requirements, procedures, and a list of approved suppliers, are available on the METS website:

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

When asphalt arrives at the job site or at the plant accompanied by a certificate of compliance, accept the shipment for use and sample and test for acceptance during use. When shipments of asphalt arrive without certificates of compliance, sample the asphalt and do not allow use prior to receiving acceptance test results.

All samples of asphalt, along with the necessary forms and tickets, are sent to METS at Engineering Services. Ship sample cans two at a time, in the cardboard cartons used for shipping samples of the completed mix. Take samples in the amount and frequency shown in the tables in Section 6-1, "Sample Types and Frequencies," of this manual.

Asphalt is very hot; therefore, for safety reasons, the acceptance samples must be sampled by the contractor. The resident engineer must witness the contractor taking acceptance samples. The resident engineer must determine when the sample is to be taken and then observe that the sample is taken in accordance with California Test 125, "Methods of Test for Sampling Highway Materials and Products Used in the Roadway Pavement Structure Sections," or sampling requirements specified in contract special provisions. Take possession of the sample from the contractor and transport it to a Caltrans office or the testing laboratory.

After obtaining a sample from a plant storage tank, write the shipment number on Form TL-0101, "Sample Identification Card."

METS sends test results to the district materials engineer and to the resident engineer.

6-203C (2) Asphalt Rubber Latex Joint Filler

Submit samples in 1-quart friction-top cans. Sample after the contents of the drum have been stirred thoroughly and brought to a uniform consistency and before the setting powder has been added. Note the batch number and the shipment number on Form TL-0101.

6-203C (3) Two-Component Joint Sealing Compounds

This material is usually in 2-gallon pails. Each pail requires a manufacturer's lot number. Before sampling, stir thoroughly. Samples should be taken in the amount and frequency shown in the tables in Section 6-1, "Sample Types and Frequencies," of this manual.

6-203C (4) Cement

For cement delivered directly to the job site by the manufacturer, require one certificate of compliance for each shipment.

A single certificate for each brand may certify the cement used in ready-mixed concrete by the vendor of the concrete, to cover all deliveries in a single day. It must show:

- The name or brand of cement.
- Mill source.
- The total number of cubic yards of concrete delivered under the certificate.
- A complete list of individual deliveries, identified by delivery slip number or other suitable identification.

A single certificate may cover all deliveries of precast products in a single lot. It must show the name or brand of cement and the length of each size of pipe or the number of precast units of other types represented.

METS inspects precast products, including pipe, made at a plant other than that of the contractors at the job site. When such inspection is complete, the resident engineer is relieved of responsibility for obtaining certificates of compliance and sampling of cement. The inspector at the precast product plant will handle cement inspection approximately as outlined for ready-mixed concrete.

Certificates of compliance for cement are inspected and filed by the resident engineer. In the event of a cement test failure, forward copies of certificates to METS.

Sample cement in accordance with the frequencies shown in Section 6-1, "Sample Types and Frequencies," of this manual, and in accordance with California Test 125, "Methods of Test for Sampling Highway Materials and Products Used in the Roadway Pavement Structure Sections."

Where plant facilities include a cement auger, the cement samples may be obtained by a pipe-sleeve sampling device or by any other convenient method.

A full 8 pounds is sampled at one time, not in smaller increments. Close the bag immediately, leaving room for the cement to shift. Place the sealed bag in a second plastic bag with the white copy of Form MR-0518, "Job Cement Samples Record." Form MR-0518 should show the certificate of compliance serial number, cement brand and type, name of mill or vendor, date, time sampled, and contract number.

After identification, box the cement samples in corrugated cartons designed to hold single, 8-pound samples or in concrete cylinder cartons, which will hold six samples. Ship no more than six samples in any one container.

Mark the shipping carton "Cement Sample," and ship it to METS.

Test reports of cement are issued by METS. Acceptability of current shipments from the mill will be shown on the report, but the reports may not actually include results of samples taken from a specific project. The test reports, however, are applicable to each contract identified on a test report. When a project has special requirements for cement, or if there are other nonroutine conditions, submit special samples with instructions that they be tested and reported for the specific project.

6-203C (5) Paint

Sample all paint in the field, except paint specified as commercial quality, and send the samples to METS for testing in accordance with the frequency shown in Section 6-1, "Sample Types and Frequencies," of this manual.

For bridges and other major structures, do not allow the paint to be used until the test results of field samples are available. For other miscellaneous painting, properly inspected and identified paint may be used pending test results.

Send paint samples from the field to METS as soon as it is received on the project. During the progress of the job, take special check samples when the paint exhibits hard settling or potential contamination of paint is suspected.

Proper sampling to obtain a representative portion of the paint is mandatory.

Use the following sampling methods:

- For bridges and other major structures, or whenever large quantities are involved, send an unopened 5-gallon bucket to METS. METS will return unused portions to the job.
- For smaller samples:
 1. Pour the top liquid into a clean container as large as the one being sampled.
 2. Stir the settled portion of the paint with a paddle, gradually reincorporating the decanted liquid until all has been added.
 3. "Box" the paint by pouring it back and forth between the two containers at least five or six times or until the paint is mixed thoroughly.
 4. Take a gallon sample immediately.

Send all samples to METS, along with all pertinent information. Use Form TL-0101, "Sample Identification Card."

When the paint is Department-furnished, check samples will not be required.

6-203C (6) Pavement Traffic Stripe and Marking Materials

California Test 406, "Method of Test for Field-Sampling of Pavement Marking Materials," describes procedures for obtaining samples of pavement-marking

materials from a factory-sealed bag, bulk container, or stripe-application equipment. Circumstances at the job site often affect where to gather the sample. Field-striping inspectors must follow the procedures in California Test 406 to assure that representative samples are taken of pavement-marking materials.

Field sampling must be initiated by the striping inspector or the resident engineer under the following conditions:

- The material is more than 1 year old (based on the date of manufacture).
- Product tampering or adulteration is suspected.
- Adequate proof that the product has been pretested and approved is not provided (for example, missing batch approval paperwork or other product/batch number discrepancies on containers or paperwork).

Where large quantities of pavement-marking materials are being applied, random quality assurance sampling of these materials is advisable.

Samples of pavement-marking materials in unopened factory-sealed bags are preferred. Factory-sealed bags are labeled with the manufacturer's name and batch number, which makes identification easier. When sampling glass beads and thermoplastic, collect the following sample quantity to assure a representative sample:

- One unopened 50-pound bag of glass beads of the same manufacturer and lot number being used in the striping operation.
- One unopened 50-pound bag of thermoplastic of the same manufacturer and lot number being used in the striping operation.

For paint, bulk containers can be sampled only when the material is first homogeneously mixed using appropriately sized mixing equipment. For bulk containers of paint, obtain a 1-quart sample. Multiple samples are necessary when sampling paint directly from the application equipment to ensure that the product is homogeneously mixed. Each grab sample must be approximately 1 quart and submitted separately.

Label samples of pavement-marking materials according to where and how they were gathered at the job site. Include pertinent information on Form TL-0101, "Sample Identification Card," and send samples to METS for testing.

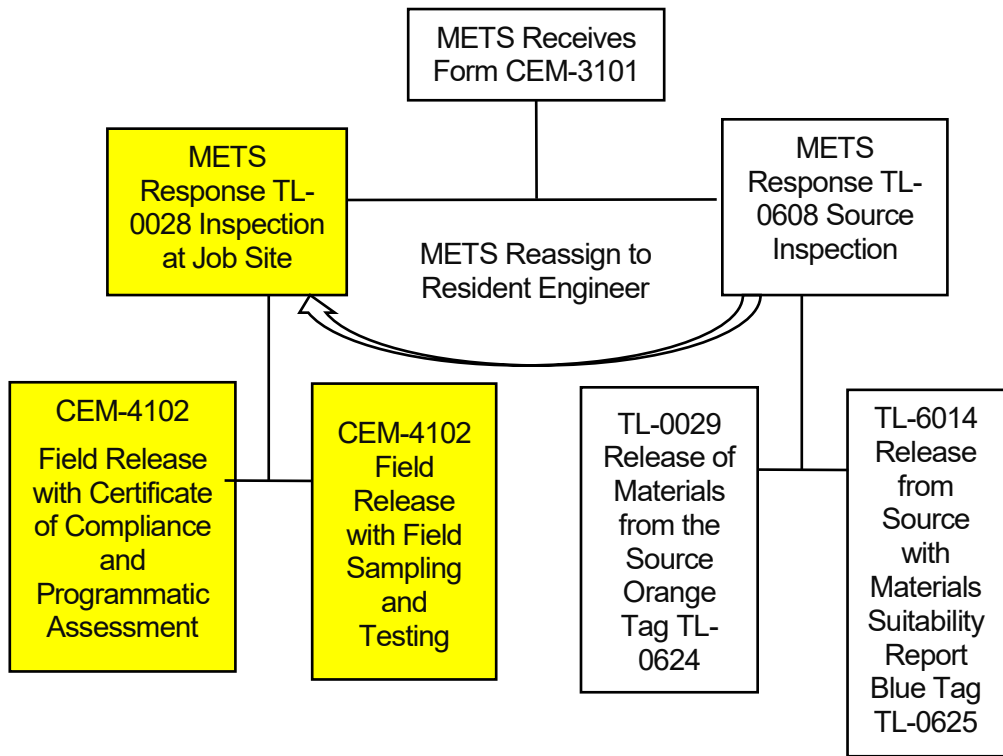
6-203C (7) Reinforcement

Refer to Section 4-52, "Reinforcement," of this manual for details.

6-203D Field Inspection and Release by the Resident Engineer

METS may assign inspection of manufactured or fabricated materials and products for which they have acceptance responsibility back to the resident engineer. The process to be followed for inspection at the job site is shown in Figure 6-2.3, "Inspection and Release Flowchart—Inspection at Job Site."

Figure 6-2.3. Inspection and Release Flowchart—Inspection at Job Site



METS assigns inspection responsibility to the resident engineer using Form TL-0028, “Notice of Materials to Be Inspected at Job Site.”

Upon receipt of Form TL-0028, the resident engineer should inform the contractor that the material will be inspected, and if required, sampled, on the job site. When testing of material is required, inform the contractor of the approximate testing turnaround time so that the contractor can obtain the material to allow for sampling and testing before the work begins.

Materials may be accepted based on required certificates of compliance or sampling and testing and visual inspection. When material will be accepted and released at the job site by use of a certificate of compliance, the required certificate of compliance should accompany the material to the job site and be retained in the project files. Sample materials in accordance with the tables at the end of Section 6-1, “Sample Types and Frequencies,” of this manual, or as requested by METS.

Field inspect and release materials assigned by METS at the job site using Form CEM-4102, “Materials Inspected and Released on Job.” Refer to Section 6-3, “Field Tests,” of this manual for details.