

## DRAFT PROBLEM STATEMENT

### Engineer of Record <sup>1</sup>Requirement during Bridge Removal

#### **Problem Statement:**

Current bridge removal standard specification<sup>2</sup> (SS) requires the Engineer of Record to be present during bridge removal. However, it has been brought to our attention that this requirement is not being met consistently.

#### **Background:**

This specification was put into place as a means to ensure structures are removed safely and minimize any unplanned event from occurring.

Cal/OSHA requires that (1) demolition work shall at all times be under the immediate supervision of a qualified person with the authority to secure maximum safety for employees engaged in demolition work, and (2) during demolition, continuing inspections shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material. A qualified person is defined by Cal/OSHA as a person designated by the employer who by reason of training, experience or instruction has demonstrated the ability to safely perform all assigned duties and, when required, is properly licensed in accordance with federal, state, or local laws and regulations (Cal/OSHA - Title 8 regulations - sections §1734, §1735 & §1504 .)

Cal/OSHA requires a qualified person during demolition work whereas Caltrans requires the EOR.

Caltrans believes that the EOR's role is to:

1. Ensure authorized plan is followed
2. Provide quality control and assurance
3. Identify unknown hazards prior to or during removal activities

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<sup>1</sup> As used here Engineer of Record is the engineer that signs the bridge removal work plan.

<sup>2</sup> **SS15-4.01(2)** Submittal , ... Submit a bridge removal work plan for each structure... if protective covers are required or superstructure removal work is performed, bridge removal work plans must be (1) accompanied by substantiating calculations and (2) signed by the engineer who is registered as a civil engineer in the State.

SS 15-4.01A(3) Quality Control and Assurance sub section 15-4.01A(3) (a) General, For bridge removal work plans signed by a registered engineer, the engineer signing the work plan must:

- a) Be present at all times during bridge removal activities
- b) Prepare a daily inspection report for removal activities. The daily inspection report must describe work activities for each day and the condition of the remaining structure. A copy of the report must be available at the job site at all times.
- c) Immediately submit a work plan for deviations from the authorized plan or unplanned events.

4. Ensure stability in the remaining structure prior to opening roadway
5. Prepare a daily inspection report describing removal activities
6. Submit a revised work plan immediately for deviations from authorized plan or unplanned events

**Objective for the requirement for EOR's presence is as follows:**

1. Best qualified person to perform above listed role is EOR who is intimately familiar with structures' stability especially when an unplanned event or accident occurs.
2. When EOR performs the function of quality control and assurance with the standard of care expected of licensed civil engineer, it enhances health and safety of the public, state and contractor's employees during bridge removal activities.
3. It reduces the risk of roadway closure beyond the lane closure time allowed.
4. In case of an unplanned event or accident occurs, immediately emergency plan can be developed to ensure that roadway can be opened to traffic safely, in time or depending on the situation with minimal delay.

**EOR's has expressed concerns with the specification:**

The following issues have come to light based on the input received in the Caltrans/Industry Falsework Advisory Team meetings from the small sampling of consulting engineers who prepare bridge removal work plans for contractors:

1. EORs are not able to perform the quality control and assurance role.
2. Consultant EOR believes they do not have control of the contractor's operation.
3. Consultant believes his insurance does not cover liability for the contractors operation if he direct the operation
4. Specification does not allow delegation responsibilities during bridge removal operation
5. EOR may not be available due to various reasons e.g. sickness, vacation etc.
6. Consultant EOR believes it is superintendent's role to ensure authorized plan is followed

**Discussion:**

1. How do prime contractor ensures that the specification requirements are being met to the level anticipated by Caltrans?
2. Are the requirements of the specifications overly restrictive?