



Mitigation of CIDH Piling

A rejected pile is only required to be mitigated to the extent needed for the pile to perform as intended by the design requirements. The CIDH Pile Mitigation Committee, BCM [130-8.0](#), *CIDH Pile Mitigation Committee*, will provide technical support to the Structure Representative, and assist in the review of submittals for repair, so that mitigation work is appropriate for the design, and administered consistently statewide. Common anomalies and mitigation measures are included in the Foundation Manual, [Chapter 9](#), *Slurry Displacement Piles*. If the contractor proposes to do the anomaly investigation, immediately consult with the CIDH Pile Mitigation Committee.

As presented in Bridge Construction Memo (BCM) [130-10.0](#), the *Pile Design Data Form* will indicate whether the rejected pile requires mitigation and facilitates determining the feasibility of using a grouting repair method to mitigate the pile. Grouting repair cannot be expected to restore cross sections in zones of high moment demand.

Mitigation of a defective CIDH pile can be grouped into four methodologies:

Standard Repair Methodology:

1. Unearth and Recast (Basic Repair).
2. Pressure Grout (Grouting Repair).

Non-Standard Repair Methodology:

3. Structural Bridging.
4. Replacement/Supplement.

The first two methods are considered *standard repair methods* and are covered by the [Association of Drilled Shaft Contractors \(ADSC\) Standard Mitigation Plan](#). *Standard Mitigation Plan* refers to the fact that the plan is of an established procedure; it does not endorse that method to address a particular anomaly repair. The latest version of this plan can be accessed through the Foundation Testing and Instrumentation Branch.

If it is feasible, an anomaly can be mitigated with repairs (basic, grouting, structural bridging). If it is not feasible to repair the anomaly, then the pile has to be replaced or supplemented with additional piling. The repair strategy is at the option of the contractor, and subject to Caltrans approval. No additional payment is made for any type of mitigation of rejected piling.

For anomalies that require a non-standard mitigation plan (i.e. basic repair or grouting repair are not feasible/acceptable), the contractor is required to schedule a CIDH Pile

Non-Standard Mitigation Meeting, per the specifications,¹ to address a viable non-standard mitigation plan (structural bridging and replacement/supplement) in a timely manner. [BCM 130-21](#), *CIDH Pile Non-Standard Mitigation Meeting*, provides guidance for conducting this meeting.

The contractor must have a pile mitigation plan submitted to the Structure Representative, and the Structure Representative must approve it before the mitigation work begins. A list of the plan requirements is in the specifications². When a contractor selects the ADSC Standard Mitigation Plan, all applicable contractual elements of the mitigation plan, as presented in the specifications, need to accompany the ADSC Standard Mitigation Plan.

Review the mitigation plan to ensure it is complete. Call the [CIDH Pile Mitigation Committee Chair](#) if there are questions. Send copies of the plan to the CIDH Pile Mitigation Committee. The mitigation plan will be reviewed by the Foundation Testing and Instrumentation Branch. Consensus from the committee is required before the plan can be accepted. The committee chair will send the consensus with written recommendations to the Structure Representative.

Notify the contractor if the plan is rejected (typically due to insufficient detail or inappropriate procedures). A sample letter for approval of the pile mitigation plan submitted to the Contractor is shown in Attachment No. 1.

Generally, the pile can be accepted if the mitigation work is performed in accordance with the provisions of the approved pile mitigation plan. However, there are circumstances when the pile must be retested. Acceptance criteria of a mitigated pile (i.e. retesting, coring) will be provided in the mitigation plan review report. The acceptance criteria must be included in the pile mitigation plan approval letter (Attachment No. 1).

After the repair, supplemental, or replacement work is complete and approved, the contractor submits a post mitigation report per the specifications³. Send a copy of the post mitigation report to the CIDH Pile Mitigation Committee. Upon completion of the piling work, submit the CIDH Pile Information (see [BCM 130-13.0](#), *CIDH Pile Information Submittal*) to the CIDH Pile Mitigation Committee Chair.

¹ [2015 SS](#), Section 49-3.02A(4)(d)(iii), *Rejected Piles*.

² 2015 SS, Section 49-3.02A(3)(g), *Mitigation Plans*.

³ 2015 SS, Section 49-3.02A(3)(h), *Mitigation Report*.

DEPARTMENT OF TRANSPORTATION

<Your Office Address>

<Your Office Phone>



*Making Conservation
a California Way of
Life..*

Month day, year

File: <Project Name>
<Co/Rte./Pm>
<Job EA>

<Contractor Name>
<Contractor Address>

Dear : <Responsible Person>,

The CIDH pile mitigation plan, dated <date>, submitted for pile <abutment/bent number, pile number> at the <bridge name, bridge number> has been reviewed and is satisfactory.

<CONTINGENCIES PARAGRAPH- If the mitigation plan is approved. Contingent upon anything, list it here.>

<CRITERIA FOR PILE ACCEPTANCE PARAGRAPH- Certain criteria might be required after the mitigation work is completed to show the mitigation was successful (i.e. additional Gamma-Gamma testing, Cross-hole Sonic Logging or coring). List it here.>

You are reminded of your responsibilities¹, which require: *For each rejected pile, submit a mitigation plan for repair, supplementation, or replacement. The mitigation plan must..*

Sincerely,

Resident Engineer

¹ [2015 SS](#), Section 49-3.02A(3)(g), *Mitigation Plans*.

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