

CIDH Concrete Piling – Preconstruction Meeting Instructions

Before drilling begins, the [Contract Specifications \(CS\)](#) require the Contractor to schedule, and the Engineer to conduct, a Cast-in-Drilled-Hole (CIDH) preconstruction meeting. The purpose of the preconstruction meeting is to establish contacts and communication protocol for the Contractor, the Engineer and their representatives involved in CIDH concrete pile design and construction, and to afford all parties a common understanding of the construction process, acceptance testing, and mitigation of CIDH concrete piles.

Attendance for the preconstruction meeting is dependent on the size and complexity of the project. In general, for CIDH concrete piles that will be constructed without inspection pipes (the dry construction method), required attendees for the preconstruction meeting include the:

1. Resident Engineer
2. Structure Representative and Assistant Structure Representatives
3. Bridge Design (BD) Structure Project Engineer and Geotechnical Services (GS) Geoprofessional, who will provide construction support for the project
4. Contractor's Project Manager and Project Superintendent
5. Drilling Subcontractor's Project Manager and Superintendent/Foreman
6. Reinforcing Steel Subcontractor's Foreman/Superintendent

For CIDH concrete piles that will be constructed with inspection pipes (the wet construction method), required attendees for the preconstruction meeting also include:

1. [Foundation Testing and Instrumentation Branch Representative](#)
2. [DES Pile Mitigation Committee Chair](#) (SC Substructure Engineer)

For most projects, invitees located far from the preconstruction meeting location can call in to limit travel cost. For complex projects, a face-to-face preconstruction meeting for all involved parties will be required.

Coordinate with Caltrans attendees prior to the preconstruction meeting to identify concerns to present a united front with the Contractor. Discuss with the BD Structure Project Engineer: pile design details, spacing, bundling and splicing of bar reinforcement, inspection pipe clearance to adjacent bar reinforcement, concrete cover, welding issues, and applicability of Cal/OSHA mining and tunneling requirements (see links in Sample Agenda Topic 5.b.). Discuss with the GS Geoprofessional: possible

construction methods and tooling, design requirements (end bearing versus skin friction), corrosion, ground water, drilling slurry, and all applicable construction considerations. Discuss in detail any potential problem areas and associated risks.

General topics to be discussed in the preconstruction meeting should include:

1. Review of the Contractor's pile installation plan.
2. Any recently revised section of the CS.
3. Environmental commitments.
4. The Contract pay limits.
5. The Contractor's planned method of operation and schedule.
6. The equipment to be used.
7. The plan for avoiding existing utilities (if any).
8. Safety precautions to be taken during the work.

A general preconstruction meeting agenda to assist you with understanding the steps involved in conducting the preconstruction meeting is attached below. However, bear in mind that these are reminders only. Review the general preconstruction meeting agenda regarding your specific project and modify the agenda as necessary. Certain topics may or may not be included depending upon their applicability to a specific project.

CIDH Preconstruction Meeting Agenda / Minutes		Date:	Project Stamp:																								
		Time:																									
		Location:																									
Facilitator:	Structure Representative:																										
Invitees:	<table border="0"> <tr> <td>Resident Engineer:</td> <td style="text-align: right;">By phone:</td> </tr> <tr> <td>Assistant Structure Representative:</td> <td></td> </tr> <tr> <td>BD Structure Project Engineer:</td> <td></td> </tr> <tr> <td>GS Geoprofessional:</td> <td></td> </tr> <tr> <td>Contractor's Project Manager:</td> <td></td> </tr> <tr> <td>Project Superintendent:</td> <td></td> </tr> <tr> <td>Drilling Subcontractor's Project Manager:</td> <td></td> </tr> <tr> <td>Drilling Subcontractor's Superintendent/Foreman:</td> <td></td> </tr> <tr> <td>Reinforcing Steel Subcontractor's Superintendent/Foreman:</td> <td></td> </tr> <tr> <td>Foundation Testing and Instrumentation Branch Representative:</td> <td></td> </tr> <tr> <td>DES Pile Mitigation Committee Chair:</td> <td></td> </tr> <tr> <td>Concrete Supplier:</td> <td></td> </tr> </table>			Resident Engineer:	By phone:	Assistant Structure Representative:		BD Structure Project Engineer:		GS Geoprofessional:		Contractor's Project Manager:		Project Superintendent:		Drilling Subcontractor's Project Manager:		Drilling Subcontractor's Superintendent/Foreman:		Reinforcing Steel Subcontractor's Superintendent/Foreman:		Foundation Testing and Instrumentation Branch Representative:		DES Pile Mitigation Committee Chair:		Concrete Supplier:	
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Time	Topic*	Who
	1. Welcome and Self Introductions	
	2. Project Background	
	3. Structural, Geotechnical, and Corrosion Design Requirements	
	4. Submittals	
	5. Safety	
	6. Inspection Pipes	

Time	Topic*	Who
	7. Emergency Plan	
	8. Acceptance Testing	
	9. Rejected Piles	
	10. Pile Mitigation Process	
	11. Timelines and Critical Path Activities	
	12. Future Meetings	
	13. Action Items/Adjourn Meeting	

* These topics are reminders only. Items will or will not be included depending upon their applicability to a specific project.

Topic 1. Welcome and Self Introductions

- a. Pass out attendance sheet
- b. State purpose of this meeting
- c. Self-Introductions: state each person's responsibilities for construction of CIDH concrete piles

Topic 2. Project Background

- a. Discuss project-specific details
- b. Discuss environmental commitments

Topic 3. Structural, Geotechnical, and Corrosion Design Requirements

- a. Discuss design performance requirements
- b. Verify construction methods do not impact performance requirements
- c. Discuss structural considerations:
 - i. Location of construction joint
 - ii. Allowable rebar splice zones
 - iii. Isolation casing
 - iv. Column to shaft connection detail for Type II shaft
 - v. Location of inspection pipes
 - vi. Bundling of longitudinal rebar
 - vii. Concrete cover

- d. Discuss geotechnical considerations:
 - i. End bearing
 - ii. Skin friction
 - iii. Permanent casing
 - iv. Rock socket
- e. Discuss corrosion considerations:
 - i. Corrosive soil
 - ii. Lowest ground water elevation

Topic 4. Submittals

- a. Review the following regarding definitions for dry hole and dewatered hole, and inspection pipe requirements:
 - i. CS, Section 49-1.01B, *Department Acceptance – Piling – General – Definitions*, and
 - ii. CS, Section 49-3.02A(4)(d)(i), *Department Acceptance – General*
 - iii. Inspection pipe requirements are summarized in the Table 1.

Table 1. Inspection pipe requirements.

	Dry Hole	Dewatered Hole	Slurry
No temporary casing used	No Inspection Pipes	No Inspection Pipes	Inspection Pipes required
Temporary casing used	No Inspection Pipes	Not Applicable	Inspection Pipes required

- b. Review CS, Section 49-3.02A(3)(b), *Pile Installation Plan*, requirements and submitted pile installation plan.
- c. Review the following forms completed during construction by the Engineer:
 - i. [Form SC-3802](#), *Drilled Shaft Inspector’s Checklist*
 - ii. [Form SC-3803](#), *Drilled Shaft Excavation Log*
 - iii. [Form SC-3804](#), *Drilled Shaft Excavation Profile*
 - iv. [Form SC-3805](#), *Drilled Shaft Bottom Inspection*
 - v. [Form SC-3806](#), *Slurry Test Record*

- d. Review the following forms completed during construction by the Contractor¹:
 - i. Review CS, Section 49-3.02A(3)(c), *Inspection Pipe and Reinforcing Cage Coupler Log*:
 - 1. [Form SC-3807](#), *Inspection Pipe and Rebar Coupler Log*
 - ii. Review CS, Section 49-3.02A(3)(d), *Concrete Placement Log*:
 - 1. [Form SC-3808](#), *Drilled Shaft Concrete Placement Log*
 - 2. [Form SC-3809](#), *Drilled Shaft Concrete Placement Graph*

Topic 5. Safety

- a. Discuss applicable requirements of Cal/OSHA Title 8, Chapter 4, Subchapter 4, [Construction Safety Orders](#).
- b. Discuss requirements of Cal/OSHA Title 8, Chapter 4, Subchapter 17, [Mine Safety Orders](#), and Cal/OSHA Title 8, Chapter 4, Subchapter 20, [Tunnel Safety Orders](#) (CIDH concrete piles greater than 30" diameter and deeper than 20').
- c. Discuss safety data sheets (SDS) for all drilling slurries and chemical additives.
- d. Discuss day work vs. night work concerns.
- e. Discuss other project safety concerns as applicable.

Topic 6. Inspection Pipes

- a. Review CS, Section 49-3.02C(5), *Vertical Inspection Pipes*:
 - i. Run dummy probe through all inspection pipes prior to requesting acceptance testing.
 - ii. Complete [Form SC-3801](#), *GGL Inspection Pipe Verification*.
 - iii. Blocked inspection pipes and coring:
 - 1. Review CS, Section 49-3.02A(3)(e), *Coring Logs and Concrete Cores*.

Topic 7. Emergency Plan

- a. Discuss handling of the following situations:
 - i. Sidewall sloughing or water inflow during concrete placement.
 - ii. Broken tremie pipe, breach of tremie pipe seal, tremie pipe blockage, tremie removal and reinsertion.
 - iii. Temporary casing removal, breach of casing seal.

¹ The Contractor can use their own forms provided all information contained on the Department's forms is addressed.

- iv. Delay in concrete delivery, loss of concrete workability.
- v. Rebar cage movement.
- vi. Who is authorized to make the decision to abandon concrete placement and remove the rebar cage?

Topic 8. Acceptance Testing

- a. Caltrans performs acceptance testing using Gamma-Gamma Logging (GGL) to test the concrete density of the pile for homogeneity.
- b. [CIDH Pile Acceptance Test Request Form](#): Discuss time requirements for submission of this form.
- c. Review CS, Section 49-3.02A(4)(d)(ii), *Gamma-Gamma Logging*:
 - i. Acceptance test report from Foundation Testing and Instrumentation Branch (FTI) (distribution list – emails).
 - ii. Discuss time allowance for [California Test 233](#), *Method of Ascertaining the Homogeneity of Concrete in Cast-in-Drilled-Hole (CIDH) Piles Using the Gamma-Gamma Test Method*.
 - iii. Discuss exclusion zone around pile during testing operations.

Topic 9. Rejected Piles

- a. Review CS, Section 49-3.02A(4)(d)(iii), *Rejected piles*:
 - i. If pile is rejected, suspend concrete placement until revised pile installation plan is authorized.
 - ii. Discuss time allowance for additional testing:
 - 1. Acceptance test report will address any additional testing, such as Cross-Hole Sonic Logging (CSL), to be performed by FTI.
 - 2. Contractor may also do their own testing when FTI elects not to do so.
- b. Review CS, Section 49-3.02A(3)(f), *Testing Report*.
- c. Review CS, Section 49-3.02A(4)(d)(iii), *Rejected Piles*. Determine whether pile mitigation is required:
 - i. Discuss time allowance for determining whether rejected piles require mitigation.
- d. Review CS, Section 49-3.02A(4)(d)(iii), *Rejected Piles*. If mitigation of a rejected pile is required, to what extent?
 - i. Use of the [Pile Design Data Form](#) (PDDF)
 - 1. The PDDF is part of the acceptance test report

2. The PDDF is used:
 - a. To collect information from the CIDH concrete pile designers to determine if the anomaly requires mitigation.
 - b. To determine the type of mitigation that can be performed.
 - c. For the development and evaluation of a pile mitigation plan.
3. Required sections of the PDDF and distribution:
 - a. Section 1 of the PDDF is completed by FTI and provided in the acceptance test report.
 - b. The Structure Representative distributes the PDDF and receives the completed PDDF from the following parties:
 - i. Section 2 of the PDDF is completed by the GS Geoprofessional.
 - ii. Section 3 of the PDDF is completed by the BD Structure Project Engineer.
 - iii. Section 4 of the PDDF is completed by the Materials Engineering and Testing Services (METS) Corrosion Engineer.
 - c. Upon return of the PDDF with Sections 2-4 completed, Section 5 of the PDDF is completed by the Structure Representative.
- ii. For piles that require mitigation that can be repaired using the [Caltrans Authorized - ADSC Standard Mitigation Plans](#):
 1. Engineer determines rejected pile can be repaired using basic or grouting repair method.
 2. Contractor chooses *ADSC Standard Mitigation Plan 'A' - Basic Repair*, or *ADSC Standard Mitigation Plan 'B' - Grouting Repair*.
- iii. For piles that require mitigation that cannot be repaired using the *Caltrans Authorized – ADSC Standard Mitigation Plans*:
 1. Engineer determines rejected pile cannot be repaired using basic or grouting repair method.
 2. Engineer determines rejected pile requires structural bridging, replacement, or supplementation.
 3. Discuss CIDH Pile Nonstandard Mitigation Meeting.
 4. Discuss CIDH Pile Mitigation Plan Review Meeting.
- e. Review CS, Section 49-3.02A(4)(d)(iii), *Rejected Piles*. If mitigation of a rejected pile is not required, what then?
 - i. Discuss use of administrative deduction.

Topic 10. Pile Mitigation Process

- a. Review [Form SC-3810](#), *Pile Mitigation Flowchart*
- b. Review CS, Section 49-3.02A(3)(g), *Mitigation Plans*:
 - i. Basic repair within the upper five feet of the CIDH concrete pile – repair requirements.
 - ii. Basic repair below the upper five feet of the CIDH concrete pile – repair requirements.
 - iii. [Caltrans Authorized - ADSC Standard Mitigation Plan](#):
 1. Basic repair requirements
 2. Grouting repair requirements
 - iv. Nonstandard mitigation plan:
 1. Structural bridging requirements
 2. Supplement/replacement requirements
- c. Review CS, Section 49-3.02A(3)(h), *Mitigation Report*:
 - i. Mitigation report submitted after completion of repair work.

Topic 11. Timelines – Critical Path Activities

- a. Review [Form SC-3811](#), *Mitigation Timeline*.

Topic 12. Future Meetings

- a. Discuss requirements of CS, Section 49-3.02A(4)(d)(iii), *Rejected Piles*:
 - i. CIDH Pile Nonstandard Mitigation Meeting per [Attachment 4](#), *CIDH Pile Nonstandard Mitigation Meeting*.
 - ii. CIDH Pile Mitigation Plan Review Meeting.

Topic 13. Action Items / Adjourn

- a. List action items, responsible parties, and due dates.
- b. Adjourn meeting.