

# Bridge Contractors / Caltrans Liaison Committee Meeting Minutes

**Friday, March 22, 2013**

**TIME:** 10 a.m. to 1 p.m.  
**LOCATION:** California Department of Transportation  
 Transportation Laboratory  
 5900 Folsom Blvd, Sacramento, CA



**COMMITTEE PURPOSE:** *To establish a liaison between Caltrans and the California bridge contracting community focused on structure related items of mutual interest. To maintain an on-going dialogue on pertinent issues and pursue action items in a collaborative effort to improve bridge construction in California.*

**COMMITTEE MEMBERS:** Industry Members identified by the AGC, SCCA and UCON

**MEETING CALLED BY:** Rob Stott **TYPE OF MEETING:** Committee Meeting

**FACILITATORS:** Steve Altman/Clinton Myers **NOTE TAKER:** John Babcock

**ATTENDEES:** See attached list

**HANDOUTS PROVIDED:** Draft Standard Specification for Section 48 and proposed modifications to Section 50.

**MINUTES POSTED AT:** [http://www.dot.ca.gov/hq/esc/construction/br\\_contractor\\_outreach/Mar2013/MtgMin.pdf](http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/MtgMin.pdf)

#	TOPIC	PRESENTER	PURPOSE
1.	<b><u>Welcome and Self Introductions</u></b> Group went around the room and introduced themselves and affiliated organization – see attached attendee list (16 contractors, 1 association, and 27 Caltrans attended)	Steve Altman/ Clinton Myers	
2.	<b><u>Opening Remarks and purpose for meeting</u></b> The meetings will be co-chaired by industry and Caltrans –Structure Construction. This is an opportunity for us to discuss topics of mutual interest and concern. Looking at maintaining twice a year meetings and perhaps supplement with focus groups for specific areas.	Rob Stott	Background on past efforts; Current objective
3.	<b><u>Caltrans use of CIDH piles</u></b> Presentation available at: <a href="http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/CIDH_Piles.pdf">http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/CIDH_Piles.pdf</a> Many considerations go into the foundation design. There are design considerations such as for seismic, scour, and soil conditions. There are construction considerations such as noise, vibration, fabrication, and	Tom Ostrom	Provide pile design background as to why CT uses CIDH piles

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	<p>how to verify pile capacity. The condition after a seismic event of a column shaft is much easier to evaluate than a pile group under a pile cap.</p> <p>Questions/Comments:</p> <ul style="list-style-type: none"> <li>• What is LRFD? Load and Resistance Factor Design</li> <li>• Basic difference between a Type I and Type II Shaft? – Type I damage below ground, Type II damage can be inspected.</li> <li>• Type I, why so rigorous on the placement? Place splices outside the plastic hinge zone, reviewing demands and may reduce the length of “no splice zones.”</li> <li>• Using pipe to support cage during construction? In the center would be best, the void would have to be filled.</li> <li>• Cages inside CIDH shafts, difficulty in setting cage and supporting, would it be possible to splice an upper cage to the pile cage or a stub of a column cage coming out of the pile? An increase in radial cracking. – Research looking at plastic hinge zone and possibly putting fuses into the columns.</li> <li>• Economies should be considered but also impacts on construction schedule and possible movement away from wet shafts.</li> </ul>		
4.	<p><b><u>Falsework Presentation</u></b> Presentation available at:  <a href="http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/Falsework.pdf">http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/Falsework.pdf</a></p> <p>A. Use of Winches – (Draft specification handout) Currently there is no guidance or specifications for the use of winches to remove falsework. Specification is needed to ensure safe falsework removal using winches. The Falsework Advisory Team also recommended that a specification be written and that sample calculations be developed. Although it is referred to as the winch spec, it will also include removal that includes the use of prestressed strand jacks, high strength rod, and cranes. Specification will require:</p> <ol style="list-style-type: none"> <li>a. Independent support system and the design code used for the analysis. This will provide the redundancy should something happen to the main device being used for removal.</li> <li>b. Provisions for complying with Cal/OSHA requirements.</li> <li>c. Load tests for strand jacks and winches.</li> <li>d. Location of winches etc. on deck.</li> <li>e. Analysis showing deck and overhang are capable of supporting the load.</li> <li>f. Analysis to show winches will not overturn or slide. The load used will be 150% of the design load.</li> <li>g. Deck and soffit openings if required and method of repair.</li> </ol> <p>Questions/comments:</p> <ul style="list-style-type: none"> <li>• The independent support system needs to provide redundancy to ensure it will stay up when it is not being actively removed.</li> <li>• What kind of horizontal loads are being considered?</li> <li>• Define what horizontal load CT is looking for since if it is just</li> </ul>	Ajay Sehgal	Address current topics related to Falsework issues.

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	<p>left as horizontal load it may be interpreted as 2% of the dead load which would be huge considering there is no structure load on the falsework at this point.</p> <p>B. Falsework Traffic Openings – Can structures be built higher to help accommodate temporary clearances on future widenings? Not usually unless there are specific reasons and FHWA agrees with those reasons.</p> <p>C. Sand jacks – Sand jacks have been used for a long time without any known testing or criteria, their size (length and depth) was increasing without any backup as to whether they would be able to support the load being imposed. There were instances of poorly constructed (use of particle board, sitting on rounded corbels etc.) sand jacks failing. Falsework Memo C-18 allows contractors two options:</p> <ol style="list-style-type: none"> <li>a. Pre-approved wood sand jack (55 kips) based upon research by UC San Diego</li> <li>b. Proof testing their own designs with guidelines within the memo. Failure is defined as the load at which the settlement equals ¾". This accounts for a portion of the total 1" the falsework is allowed to settle.</li> </ol> <p>Under consideration is:</p> <ul style="list-style-type: none"> <li>Redefine sand jack failure to 1" settlement</li> <li>Review the requirement that the sand jack must be able to maintain the design load with less than 1/16" increase of vertical displacement over 20 minutes.</li> <li>Revisit the requirement to line the sand jack with plastic.</li> </ul> <p>Questions:</p> <p>Did UCSD recommend a testing protocol? Yes, on page 48 of the Full Scale Load Testing of Sand-Jacks by Paul Travis Sanders, Scott A. Ashford which is available at:  <a href="http://www.dot.ca.gov/hq/esc/earthquake_engineering/Research_Reports/vendor/uc_san_diego/2005-06/SSRP.05-06.pdf">http://www.dot.ca.gov/hq/esc/earthquake_engineering/Research_Reports/vendor/uc_san_diego/2005-06/SSRP.05-06.pdf</a></p> <p>Comments:</p> <ul style="list-style-type: none"> <li>• UCSD recommendations not properly implemented.</li> <li>• Revise C-18 and have it properly vetted through the falsework advisory team.</li> </ul> <p>D. Falsework Jacking Operations – What is being done to better ensure stability of falsework system when jacking? Depending upon the contractor there are brackets that restrain the bottom cap during jacking or some strut between sills of adjacent bents to provide stability. Erection and removal over traffic not allowed by specifications. (Erection includes grade adjustment or removal of falsework component that provides horizontal stability. Removal is lowering, releasing, adjusting after concrete hardens.</p> <p>E. Closure windows – Caltrans Traffic Operations provides the basis of setting time limits for lane closures. The Highway Design Manual provides instructions to the project engineer to make provision of adequate clearance between public traffic and work areas, work periods, and lane closures based on careful consideration of</p>		

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	<p>anticipated vehicle traffic volumes, and minimum exposure time of workers through simplified design and methods.</p> <p>F. Guidelines for lane closure charts are set by Traffic Operations and are based upon traffic counts and time delay studies.</p> <p><b>Questions/comments:</b></p> <ul style="list-style-type: none"> <li>• Will the Falsework Industry Advisory Team meetings continue? Yes, some of the primary topics for this team will be to resolve sand jack issues and attempt to define Best General Practice. Next scheduled meeting is June 14<sup>th</sup>.</li> <li>• Falsework manual is being revised, what revisions are being made and can the industry have input on it? Yes, names were collected by Clinton and will be added to the Falsework Industry Advisory Team.</li> </ul>		
5.	<p><b><u>Prestressing Presentation</u></b> – Presentation available at: <a href="http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/PS_Mod.pdf">http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/PS_Mod.pdf</a></p> <p>(Handout provided) Proposed modifications to <i>Standard Specifications Section 50 Prestressing Concrete</i> are being considered for the following reasons:</p> <ul style="list-style-type: none"> <li>• PTI M55.1-12 - Post-Tensioning Institute’s <i>Specification for Grouting of Post-Tensioned Structures</i>.</li> <li>• Voids in ducts</li> <li>• Excessive bleed</li> <li>• Improved corrosion protection</li> <li>• Less room for error</li> <li>• Consistency with other DOT’s</li> <li>• Ensuring bonding of the strand within the duct to ensure integral behavior.</li> <li>• Use of a prepackaged grout would ensure test samples from each project comply with the Authorized Material List (AML). The AML is used as a means to ensure quality assurance.</li> </ul> <p>Modifications being considered:</p> <ul style="list-style-type: none"> <li>• Require minimum personnel qualifications – at least one PTI Level 2 bonded PT field specialist present at all times.</li> <li>• Require a grouting plan as part of the QA/QC process.</li> <li>• Provide criteria for rejection of strand based on observation of rust.</li> <li>• Establish grout material criteria that would include prepackaged grout with thixotropic properties to reduce bleed and provide a better flow within the duct. These grouts would require the use of a high shear colloidal mixer.</li> <li>• Limit grout temperature.</li> <li>• Require the use of additional larger diameter vents to prevent voids.</li> <li>• Not allow flushing.</li> </ul>	Ken Bocchicchio	Look at grouting of ducts and proposed specification to require air testing of ducts.

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	<ul style="list-style-type: none"> <li>• Enhanced QC on tying duct ties to prevent duct movement during concrete placement.</li> <li>• Strand insertion methods will be considered.</li> <li>• Limit pump pressures to reduce risk of blow outs in addition to requiring a procedure for handling blockages.</li> </ul> <p>Questions/comments:</p> <ul style="list-style-type: none"> <li>• What about pressure testing ducts after stressing and prior to grouting?</li> <li>• Temperature restriction, ambient air? Yes</li> <li>• Any feedback from prestressers on air testing? Yes, they seem to be in favor; don't know how specific subcontracts are written between the General and Subcontractor though. CT has heard that Swagger Davis has refused to go forward with work without a pressure test after discovering grout leaks.</li> <li>• Pilot program on amount of pressure before initiating air testing?</li> <li>• Prime contractors would like to see the prestresser perform the testing. Prestressers seem to be satisfied with this requirement, may see a 10% increase in bid price.</li> <li>• Will air testing move the duct prior to concrete placement?</li> <li>• Spiral ducts with taped joints may not be air tight.</li> <li>• Duct material may have to change.</li> <li>• Possibly test some bridges that are already being constructed.</li> </ul> <p>Any interest in doing this? Chuck Kemp expressed an interest.</p>		
6.	<p><b>Structure Aesthetics</b> Presentation available at:  <a href="http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/Aesthetics.pdf">http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/Aesthetics.pdf</a></p> <p>A number of issues were discussed as they pertain to the application of aesthetics on structures and particularly regarding walls. Issues discussed included: Forming materials, Using 8' layout, Repetitive vs. non repetitive patterns , Footing step heights, Inward vs. outward treatments, Horizontal vs. vertical patterns, Horizontal wall angle points, Shop plan process, Pattern relief depth, and Bid time sample. At the meeting were representatives of Caltrans Office of Transportation Architecture – Structures Aesthetics and the Landscape Architecture Program(HQ).</p> <p>Comments:</p> <ul style="list-style-type: none"> <li>• DES is opposed to inward details. – Does not want to affect structural section. – Can wall be thickened to account for the pattern? Need a common definition of what an inward or an outward treatment is. Don't want to cut the form liner. Javier from Bridge Aesthetics will get together to discuss.</li> <li>• Share list of issues and economical approach to the use of form liners that can be shared with Bridge aesthetics and also HQ Landscape Architecture. Local agencies are injecting a lot as to what the pattern should be.</li> <li>• Establish a guideline that can be shared during project development.</li> </ul>	Henry Kirzhner	Overview of Caltrans use and application of aesthetics on structures.

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	<ul style="list-style-type: none"> <li>• Alternating patterns on a project drove taller forms that caused problems with power lines and crane loads. Tall panels were used in order to “flip” the panel to align the pattern correctly.</li> <li>• DES needs to provide further guidance and training to the Districts how to design walls to ensure steps are correct etc.</li> <li>• Always can entertain a change during construction stage with the Value Engineering Change Proposal (VECP).</li> </ul>		
7.	<p><b>Bridge Column Sizes</b> Presentation available at:  <a href="http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/Column_Size.pdf">http://www.dot.ca.gov/hq/esc/construction/br_contractor_outreach/Mar2013/Column_Size.pdf</a></p> <p>a. Provided a wide variety of various column shapes used throughout the state to illustrate Caltrans’ attempts to maintain some consistency within corridor themes, there are no set standards.</p>	Samad Hamoud	Overview of various column geometry used
8.	<p><b>Open forum</b></p> <p>a. Rich Hebert – updating falsework manual. Can the industry committee meet to comment on the changes? Has the list from Ed Dunn been incorporated? Better to have a face to face meeting. Some sample calculations are confusing. Same with revisions to shoring manual. Hard to provide comments on something we have not seen. Provide input to Ajay beforehand so it can be researched before the meeting. Come up with practical ways to get something that is workable.</p> <p>b. 2010 specs, CT and AGC joint training. Good that it gave them a feel for general changes. What are the differences between the 2006 and 2010’s related to bridge construction. Perhaps a presentation at the next meeting, but also a forum for our people. Talk about how it affects constructability and pricing. There should not have been any changes between the two. The old specs had some “unenforceable” language. One sample is the log of test borings.</p>	open	
9.	<b>Conclude and set next meeting for September 20<sup>th</sup> at the Southern Regional Lab.</b>		
10.	<p><b>Potential Topics for next meeting:</b></p> <p>2010 Standard Specifications; an overview.  Aesthetic guidance  Falsework update      Sandjacks      Winch      Falsework Advisory Team meeting  Prestress update  QC/QA concrete update</p>		

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	Friction / IRI update Quality Control requirements on items of work.		