MARCH 27, 2018

LADOTD Meeting, Road Design Conference Room no. S603, Baton Rouge, LA

8:00 am-12:00 noon

Dan Eckenrode (PCI Gulf South) welcomed everyone to the meeting; introductions were made.

Dave Tomley (Thompson) welcomed attendees and stated the mission/purpose of the Transportation Committee.

Dan asked to obtain LADOTD’s point-of-contact for their precast reinforced concrete pavement experimental project on-ramp (exit 3) to I-20 west of Shreveport. Dan highlighted that this technology is gaining momentum due to its rapid construction replacement benefits and that projects should include alternative systems and not be limited to a single proprietary system. Dan has been in contact with PCI and will provide additional information to LADOT’s contact person(s).

Dave provided an overview to the agenda topics that have been carried over from the first Transportation Committee meeting during the 2017 PCI Gulf South summer meeting and reiterated the benefits to open communication and collaboration from committee members to advance our knowledge-base related to precast/prestressed concrete transportation products.

Started off covering the various products produced throughout the PCI Gulf South region and Paul Fossier (LADOTD) presented the current status of LADOTDs new LG Girder standards. Highlights included; upper span lengths of 160-165 ft., 28-day f’c up to 10 ksi, stainless steel embed plates to be provided at girder ends, 40 kip load limit on strand hold-down devices, typical end zone reinforcing using either reinforcing steel or WWR, intent is to use LG girders for all new bridge projects and/or widenings where feasible, end diaphragms constructed down to the top of the bottom flange to facilitate future bearing replacements/jacking of girders, have used draped strands primarily in the past but will allow straight strands with debonding, due to large width of bottom flange considering skewing half of the beam end on high skew bridges to avoid very wide beam seats. Location of lifting loops and stability analysis for lifting and transportation to the project site will be the responsibility of the precast/prestressed concrete producer member for longer span girders; for shorter girder lengths the lifting loop location was typically 3 ft. from the beam end. Further discussion occurred regarding the possibility of adding top strand and/or reinforcing for long span girders depending on the lifting and transportation stability analysis and coordination with the engineer of record & LADOTD will be required if revisions are required. For long span girders or off-system bridge locations, verification from the precast producer during preliminary design on whether the girder can be transported to the job site is recommended including obtaining site-specific access profile grades or roadway cross-slopes/super-elevations that could affect the stability of the girders during transportation should be addressed. Permit costs for transporting girders and routing was also discussed. ACTION ITEM: LADOTD to provide current LG Girder standards for review by PCI Gulf South Transportation Committee. (the standards are currently being reviewed by the producers for any comments) ACTION ITEM: PCI Gulf South Producer members to share permit cost and routing information with LADOTD.
Paul also said they are in the process of developing LU Girder standards and will have additional details and span capacity information later this year. A copy of the current dimensions was disseminated for comment. PCI Gulf South producer members suggested eliminating the upper 1-15/16” taper and carry the inside web face all the way up to the top of the top flanges to facilitate forming/production. Section currently has a 11-inch bottom flange and 5-1/2” webs and girder heights ranging from 48-84 inches. Precast deck panels and/or SIP forms will be looked into and considered part of the final standards. Live load distribution factors are also being investigated since AASHTO LRFD bridge design specs developed the live load distribution factors based on shallower height box girders. The use of NEXT beams throughout the United States and PCI Gulf South Region was moved to the end of the meeting with presentation by Dave.

Paul also mentioned an all precast bridge system for short-spans that they have developed and used on several projects. Contractor said it would be less cost to construction the bridges using cast-in-place concrete. Further discussion about strict tolerances for the precast deck panels which drove the cost up.

Had a discussion on piles with input from PCI Gulf South producer members on ALDOT’s Mobile River Bridge & Bayway project test pile program that is investigating using 10 ksi for spun cast cylinder piles.

Discussion on using Self Consolidating Concrete (SCC) to shorten the production cycle and improve final finish of bridge girders. LADOTD currently allows SCC and has a specification for it. PCI Gulf South producer members are currently using SCC and recommend its use due to the production and finishing attributes. The use of SCC for piles has some challenges in and around the chamfer edges but can be used.

Meeting moved into fabrication agenda item.

Although 0.6-inch diameter strand is predominantly used, producer members suggest using 3/8-inch top strand with reduced pull when required to satisfy design stresses during release for the most cost effective girder production.

Producer members have the ability to use either a multi-strand stressing jack or stress strands individually. LADOTD does not prescribe either method. ACTION ITEM: PCI Gulf South producer members to provide a photo of the multi-strand stressing jack. (photo and description of multi-strand stressing jack have been sent to Paul)

Paul mentioned that LADOTD has gone to a high performance concrete (HPC) specification with surface resistivity requirements for all structural concrete classes for durability and have seen good results so far from precast, prestressed products using the HPC/surface resistivity requirements.

The 120-day restriction of when the precast/prestressed concrete girder could be erected is no longer a current LADOTD policy/requirement; rather close coordination between the precast producer and the contractor is required addressing beam camber and construction of beam seats/pedestals. LADOTD
requires camber to be measured 10-18 hours after release and 21-days prior to beam delivery. If the measured beam camber either after release or prior to deck construction is greater than 0.5-inches from the estimated beam camber, LADOTD/Engineer of Record shall be notified. LADOTD currently uses the PCI Multiplier Method for estimating beam camber.

Under the research agenda item, LADOTD has instrumented and is monitoring a full-depth PCI panel project and are looking into splicing strands in precast/prestressed girders for over-height bridge hits.

Paul teaches a bridge design course at LSU and inquired about the PCI Bridge Design Manual (BDM) for the students, Dan said the PCI BDM is available for free electronic download if the students provide their contact information.

Other various agenda item topics included:

Life-cycle costs and industry publications (e.g., LIFE-360) needs more work to bring the topic of service life into practice.

LADOTD may consider providing additional durability protection (e.g., MMFX and/or corrosion resistant reinforcing) for precast/prestressed concrete products used near coastal locations.

Shear blocks are currently being used by LADOTD.

LADOTD does not have a specification for UHPC and may look to use it in the future as its use develops throughout the PCI Gulf South region and Southeast United States.

LADOTD does not have standards for a full-moment connection between the top of the precast/prestressed concrete piles and the pile caps; rather will design/detail this connection on a project-by-project basis.

There is a desire to have additional suppliers of splices for precast/prestressed concrete piles.

Dave ended the meeting with a presentation on the background and use of NEXT beams and UHPC for accelerated bridge construction.
**Meeting adjourned at 11:48 am.

Attendees:
Dan Eckenrode, Executive Director PCI Gulf South
Dave Tomley, Thompson Engineering (Chair)
Paul Fossier, LADOTD Bridge Design
Jenny Fu, LADOTD Bridge Design
Chris Guidry, LADOTD Bridge Design
Adam Lancaster, LADOTD Bridge Design
Kian Yap, LADOTD Bridge Design
Kelly Kemp, LADOTD Bridge Design
Paul Vaught, LADOTD Bridge Design
Alden Allen, LADOTD Construction
Ben Spruill, Gulf Coast Prestress
Mike Spruill, Gulf Coast Prestress (Vice-Chair)
Andrew Levens, Gulf Coast Prestress
Jody Singletary, Dunham Price
Durk Krone, TRC Engineers, Inc.
Brant Richard, Thompson Engineering