

**ASCE – INDOT
STRUCTURAL COMMITTEE
MEETING NO. 93 - MINUTES**

**September 30th, 2021
9:30 am, Webex and BLN Office**

1. Review and approve Meeting 92 minutes.

- a. Approved

2. Bridge Design Conference – Topic list below (McCool)

- a. Target date is February 22, 2022. Backup date is February 24, 2022.
- b. Hybrid format (in-person/virtual). One day long.
- c. McCool will set up recurring task group meeting starting in October. Group to include McCool, Wagner, Lesh, White, Shergalis, Wenning, Schickel, & Swiderski.

3. Concrete mix designs (White, Nelson, Wenning, McCool, Merida)

- a. September 2021 meeting focused on lighter-weight concrete for prestressed beams.
- b. Recurring meetings set.

4. Pile Design for 3-sided structures (White, Schickel, Borcherding, Hunter, Merida)

- a. Real-world example to be studied (HNTB design). Use as case study to develop better guidance on design and standard specifications updates.
- b. McCool sent previous example (BLN project) to task group for review.

5. Semi-integral bent details (Wagner, McCool, White, Schickel, Borcherding, Merida)

- a. CAD detail updates in progress for group review and input.
- b. Recurring meeting October 4, 2021.
- c. Developing list of rehabilitation applications currently.

6. LRFD vs LFD on Rehabilitation Projects (Hunter, McCool, Eichenauer, Wenning, Arnold)

- a. Hunter – Separate groups still working

- b. Hart – (Steel) She & DJ working on steel. Progress made, mostly on rolled beams. Work now starting on plate girders. McCool to set up next meeting.
- c. Arnold (Deck) – Swiderski & Black helping with deck analysis. Biggest conflict is more in loading than reinforcement design.
- d. Hailat (Substructure) – Need more analysis to come to conclusions.
- e. Wenning – (Prestressed Concrete) Need to compare several different cases instead of a direct code comparison. Agrees that applied loading is more of the issue than code checks.

7. Sand Bag Cofferdams (Hunter, Merida, Hailat, Porter)

- a. Met with INDOT Environmental and Construction. Disconnect exists between environmental concepts and contractual obligations which dictate means and methods.
- b. Hunter wants to work with INDOT Bridge Group and develop RSP with more appropriate contract language to accomplish cofferdams and environmental concerns without dictating means and methods.
- c. North Carolina DOT has good stormwater manual. Hunter to review and use as resource to help develop RSP, etc. language.
- d. Challenge is developing routine language and solution that appears to provide project specific solutions. Hopefully RSP will be developed to have a suite of solutions available.
 - i. Schickel – Concerned that suite of solutions would be challenging for environmental agencies to approve. They will likely want a particular option chosen to then be permitted.
 - ii. Hunter – Concur. Is working with agencies to develop the proposed solutions.
 - iii. Wagner – Situation developed as we collectively start putting details for SWQCM in plans.

- iv. Hunter – Approach will be to handle via RSP and Recurring Plan Details in lieu of Standard Drawing(s).

8. PVC Deck Drains on RC Slab Bridges (Shergalis, Wagner, Schickel, Porter, Swiderski)

- a. Shergalis – Guidance document being developed for different scenarios to eliminate PVC drains on slab bridges, different materials other than PVC, and how to retrofit.
- b. Shergalis – Looking into other states to see if solution has already been developed.
- c. McCool – LaPorte district wants to plug every PVC deck drain possible and just use turnouts. Caution should be exercised and give consideration to where the extra discharge would go and what impacts that would have. Different districts currently want different solutions to this problem.
- d. Shergalis – Subcommittee will meet to review draft guidance document.
- e. McCool – Some districts are wanting drains extended farther below slab, but drainage is from above and issues should be addressed above first.

9. Staged Deck Pours and Reinf. Details (McCool, White, Merida, Borcherding, Reilman)

- a. McCool – Group met in August, next meeting in October. Trying to identify all the issues with phased deck pours. Compiling all IDM references on the topic. Really just getting started.
- b. White – Contractors want to pour from one end straight to the other. Trying to determine if transverse cracking at the piers is due to this approach. Cracking issues observed are on prestressed concrete bridges.
 - i. Wenning – Previous versions of IDM gave guidance on where to stop deck pour on steel beam bridges – what were the results? Was it good guidance to bring back? White will investigate

10. NEXT Beams (McCool, Hunter, White, Wenning, Arnold, Wagner)

- a. White – Three active projects are still proceeding with NEXT Beams. INDOT trying to procure forms with one purchase. Details will be coming to INDOT soon.
- b. McCool – Developing pros / cons list for each type of NEXT Beams. There are some skew limitations as well.

11. Steel / ABC (Arnold, Hailat, McCool, White, Eichenauer, Cowan)

- a. Arnold – Will be meeting with INDOT CO to review project specific details. Will schedule group meeting after INDOT feedback on project draft details.
- b. Schickel – We should combine #11 & #14 into a combined ABC group. Will set up meeting after Arnold meets with INDOT.
- c. McCool – We should start combining ABC details and look beyond a singular project.

12. Bearing Pad Standards (Swiderski, White, Wenning, McCool, Schickel, Merida)

- a. Swiderski – Will arrange next meeting soon. Will send out notes and draft details/calcs to task group for review.

13. STM for End Bents (Arnold, Hailat, Hunter, Schickel, White)

- a. Arnold – Waiting on final version of end bent spreadsheet from INDOT. White to follow up with Purdue.

14. ABC Worksheet (Schickel, Hunter, McCool, Arnold, White, Cowan, Wagner)

- a. Schickel – Will work with Arnold to arrange joint ABC meeting after Arnold meets with INDOT CO for his project.

15. Standard Beam Detail Sheets (Lesh, Wenning, Hart, Wagner)

- a. Lesh – INDOT to work on updating details for using WWR as an option.

16. Sample Plans Steel Bridges (Wagner, McCool, Lesh, Schickel, Cowan)

- a. Wagner to arrange meeting to establish goals – example rehab plans, new steel details, etc.

17. Prestressed Beam Lifting loop locations (Wenning, Reilman, Shergalis, Hailat, White)

- a. Wenning will arrange task group meeting soon.
- b. White – Made some draft changes to standard specs and provisions on this topic. Will present to group for review. Goal is to make plan notes consistent with INDOT Standard Specifications and to keep responsibilities for EOR to review lifting loop design in accordance with the Standard Specs.
- c. McCool – Structures Committee should provide a list of required beam details notes for design community to put on plans. It should be in accordance with the Standard Specs.
- d. Cowan – Fabricators are checking lifting loop design.

18. New Business

- a. Arnold – Epoxy anchors (Arnold, Hailat, White, Shaw)
 - i. Arnold – Concern that design community is applying IDM Fig. 412-3B and IDM §412-3.01(08) without proper consideration for edge distance, spacing, embedment depth relative to bar size, etc. Guidance to contractors provided on plans is limited. As such, they often default to epoxy manufacturer's recommendations for embedment depth, etc. but don't consider edge distance, etc.
 - ii. Task group formed to investigate and provide better guidance.
- b. McCool – New RC Slab Edge Beam Replacement Detail needs to get finished and published. (McCool, White, Shergalis) Task group formed to review and publish guidance.
- c. Schickel – Soils map plan sheet does not seem to provide value. IDM section 205-2.02 #4. Can they be eliminated? Conversation will continue offline.
- d. McCool – Wants next meeting to be early December. Group agreed on December 9, 2021.

Recurring Business

- Bridge Practice Pointers Update (Hunter, Wagner)
- Standards Committee Updates (Phillips)
- Overlay Types (Hunter, White)
- Link Slab Design and Details (Wagner, Wenning, Schickel)
- Research Needs and Innovative Ideas Update (Wagner)

Bridge Design Conference Topics

- US 52 over Mud Creek (ABC) project presentation (P.White)
- Current Research Projects Overview (M.Wenning)

Concrete Mix Designs

- E5 / internally cured concrete
- semi-lightweight
- lightweight
- rapid curing concrete in RCBA (currently a RSP)
- UHPC (nonproprietary)

Research Projects

- Fire Damage on Concrete Bridges
- Seismic Assessment Design and Retrofit
- ABC Guide
- Strut-and-Tie Modeling
 - Pack Rust - Mitigation Strategy Effectiveness
 - Repair and Strengthening of Bridge using FRP
 - A New Approach to Accelerated Fabrication of Steel Bridges: Design, Optimization, and Demonstration
 - Evaluating Reserve Strength of Girder Bridges due to Bridge Rail Load Shedding
 - Pedestrian Bridges -- Development of New Criteria for Design & Construction
 - Seismic Evaluation of Indiana Bridge Network and Current Bridge Database for Asset Management
 - Self Healing Concrete
 - BIM for Bridge and Structures
 - Development of Protocols for Reuse Assessment of Existing Foundations in Bridge Rehabilitation and Replacement Projects
 - Pile Stability Analysis in Soft Soils
 - Legal and Permit Loads Evaluation for Indiana Bridges
 - Use of LRFR Methodology for Load Rating of INDOT Steel Bridges
 - Improved Live Load Lateral Distribution Factors for us in Load Rating of Older Continuous and T-Beam Reinforced Concrete Bridges
 - Shear and Bearing Capacity of Corroded Steel Beam Bridges and Effects on Load Rating
 - Civil Infrastructure Systems Open Knowledge Network (CIS-OKN)
 - Implementation Study: Continuous, Wireless Data Collection and Monitoring of the Sagamore Parkway Bridge

Parking Lot

- Long term deflections in prestressed beams
- Special provision for high strength concrete
- Mild reinforcement in prestressed beams (particularly 401 bars)
- Post Tensioning Specs
- Terminal Joint Details
- Alternate Structure Types
- Continuity of Prestress Concrete Beams ([Heidenreich](#))(**TRB Research**)
- Hydro-demolition ([Wagner](#))
- Fiber Wrap (Jessop)
- High Early Strength Concrete (Nelson)
- Expansion Joints Options ([Wagner](#), White, Eichenauer) (**PP**)
- Load Rating Policy and Procedures ([Hunter](#))
- Approach Slabs ([Hailat](#))
- Bridge Deck Overhang Design ([Wagner](#), McCool, Hunter, Eichenauer)
- Pile Driving Recommendations
- SIP Forms (Hunter)
- Girder Stability ([McCool](#), Arnold, Porter, Eichenauer, White)
- TS-1 Railing ([White](#), McCool)
- Clear Deck Forms (Schickel)