

Lessons Learned Chester-Chester

- We need to be prepared to provide engineering support during all hours of the closure period. A person with decision-making abilities has to be available in order to maintain schedule.
- Clarify the finish on the top of the NEXT beams. This is a Type D and will have membrane and pavement on it. Refer to 519.04 for surface preparation.
- Consider or at least be aware of the weights of the units that will be transported and erected on the site. Depending on crane location and weight, it may be difficult to get a crane big enough. It seems that 110,000 pounds is a weight that they tried to keep under on this project.
- The curtain wall that we asked to have attached to the end of the NEXT beam has a portion of concrete that extends below the bridge seat (bottom of stem). There were lots of problems the fabricator had with this since it is difficult to raise the beam and cast this below. If the beam and curtain wall are connected during transportation (which we expected) there were questions about how to support this without cracking at the joint interface.
- We showed an L bar coming out of the NEXT beam and this can't be since it won't fit in the bed. You can have a straight bar extending out from the end or cast in a mechanical connector.
- Standard chamfers for precast concrete are $\frac{3}{4}$ " x $\frac{3}{4}$ ". Historically and now in SD 501.00 we require a 1"x 1" chamfer. Is there a reason for the extra $\frac{1}{4}$ " inch? Changing to $\frac{3}{4}$ " x $\frac{3}{4}$ " would simplify the issue.
- SD 501.00 should specify the orientation of the roughened surface. Transverse is preferred by the precaster/contractor. Longitudinal is better for design.
- Precast Abutments are not on the list of structure types for required tolerances in PCI. Need to specify in the Plans on future projects.
- Precast concrete curb which is part of the approach rail section is up against the precast concrete approach slabs. Curb face is battered so there's a gap between them and don't know how to fill it. *Solution may be to use CIP curb instead.*
- When you are doing a membrane/paved bridge deck and precast approach slabs you should continue the membrane over the approach slabs to help seal the joint between the deck and approach slabs. Even with good precision, there is still going to be a joint there that will leak. Even worse when it is skewed or banked, etc. The normal details do not show membrane over the approach slabs so this should be changed for this case.
- We used the SCC spec for the bridge rails since we thought we would get better finish without the need to vibrate. Our spec called for a minimum spread of 20".

Bridge 9 left railing was cast first and did not have a good appearance. They used a 20" spread and around the max air (7.5%?). Our concrete inspector said (after-the-fact) that our spread was WAY TOO small and suggested around a 25" min. This was the same spec that was used on a previous Johnson project and the rail came out beautiful.

- There is a noticeable difference between CIP concrete and precast. Suggest requiring steel forms in the future for a better match in areas where aesthetics is an issue.
- Do not use 42" high "Texas rail" as we did. Instead use 32" high "Texas rail" on top of 10" curb. This will give plows a straight edge to plow against.
- Add note on steel tube/concrete bridge rail detail sheet indicating that holes in steel rail may be field drilled. Fab. Drawings should show hole locations or have note stating "drilled by others."
- Add note or add to Special Provision that steel plate and pipes cast into end section of concrete rail be included in the bridge rail fab. drawings.