

Summary and Conclusions

Even with a record hurricane impacting the site resulting in major design changes the project was quite successful. The work was done on budget and completed ahead of schedule. Even the lane closures that required traffic detours were completed ahead of schedule in both instances. Everyone on the project team should be commended for working together to achieve this level of success under such challenging circumstances. Our conclusions are as follows:

- An innovative retaining wall design consisting of tangent drilled shafts with supplementary seal piles was used to limit continuing bank erosion along the Brazos River in Southeast Texas. The riverbank erosion had progressed to where it was threatening the stability of both the bridge abutment and corresponding approach embankment of the heavily travelled Highway 99 bridge at this location.
- The tangent pile with seal pile retaining wall system selected for this project was not only more cost effective and faster to install than secant shafts, it also allowed for better flexibility in design, which ended up being needed due to design changes resulting from Hurricane Harvey.
- The Owner's selection of the entire project team prior to final design proved to be very prudent in this case. It allowed both the designers and contractors to develop a more effective design by putting together the best ideas from all parties.
- This excellent working environment between the project team created from the very beginning of the project continued throughout the entire project and was equally useful in quickly coming up with the required re-design.

Acknowledgments

The following main project team members were involved with the project.

- Fort Bend Grand Parkway Toll Road Authority (Owner)
- BGE, Inc. (General Engineering Consultant, Project Designer Post Harvey)
- NBG Constructors (General Contractor)
- A.H. Beck Foundation Company (Specialty Deep Foundation Contractor)