Appendix: Post-tensioned splice system for precast, prestressed concrete piles: Part 3, capacity verification from laboratory and full-scale testing

Zhongxin Wu, Kevin Johnson, Gray Mullins, and Rajan Sen

This appendix contains additional figures for "Post-tensioned Splice System for Precast, Prestressed Concrete Piles: Part 3, Capacity Verification from Laboratory and Full-Scale Testing" by Zhongxin Wu, Kevin Johnson, Gray Mullins, and Rajan Sen, which appears on pages 19–35 in the September–October 2018 issue of *PCI Journal*.

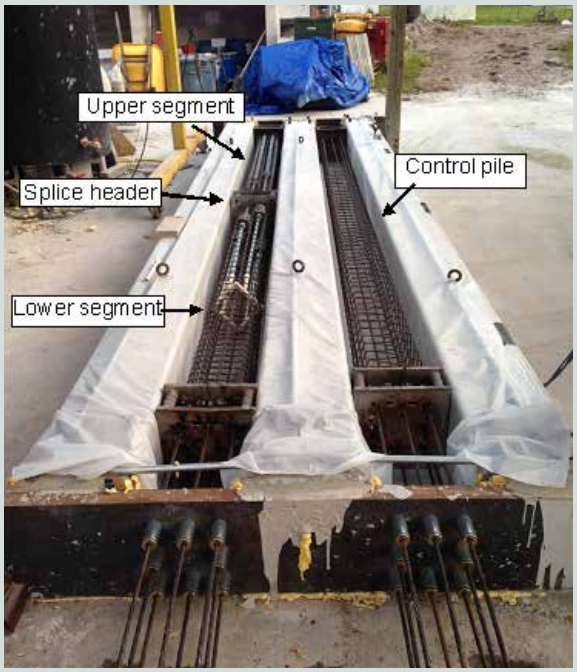


Figure A1. Fully stressed bed: spliced pile (left) and control pile (right).

Figure A2. Confinement coils (left) and staggered anchorages (right).

Figure A3. Borescope with 360-degree articulating viewing head.

Figure A4. Wedge movement checked by compressing wedge spring.

Figure A5. Weight of moving segment held by overhead crane while forklift pushed the segments together and strands were sequentially inserted into the lower segment.

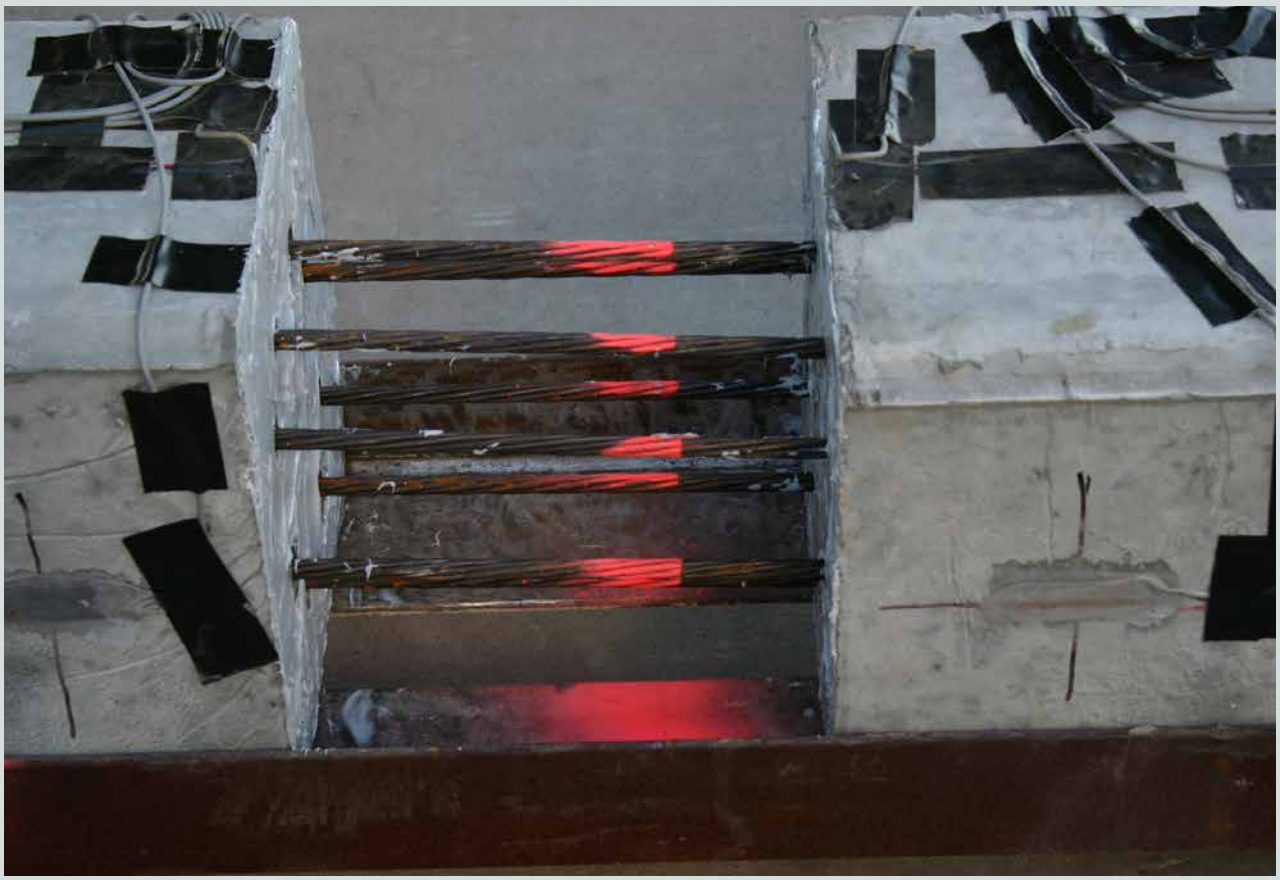


Figure A6. The restrictive wedge assemblies in upper segment (from double washer inserts) provided resistance to sliding, and therefore, all movement from this point forward was into the lower pile segment (to the right).

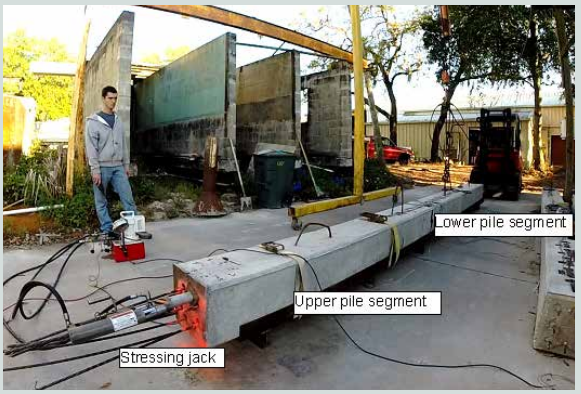


Figure A7. Post-tensioning prototype spliced pile specimens.

Figure A8. Deformed ducts bolted to jacking and header plates.

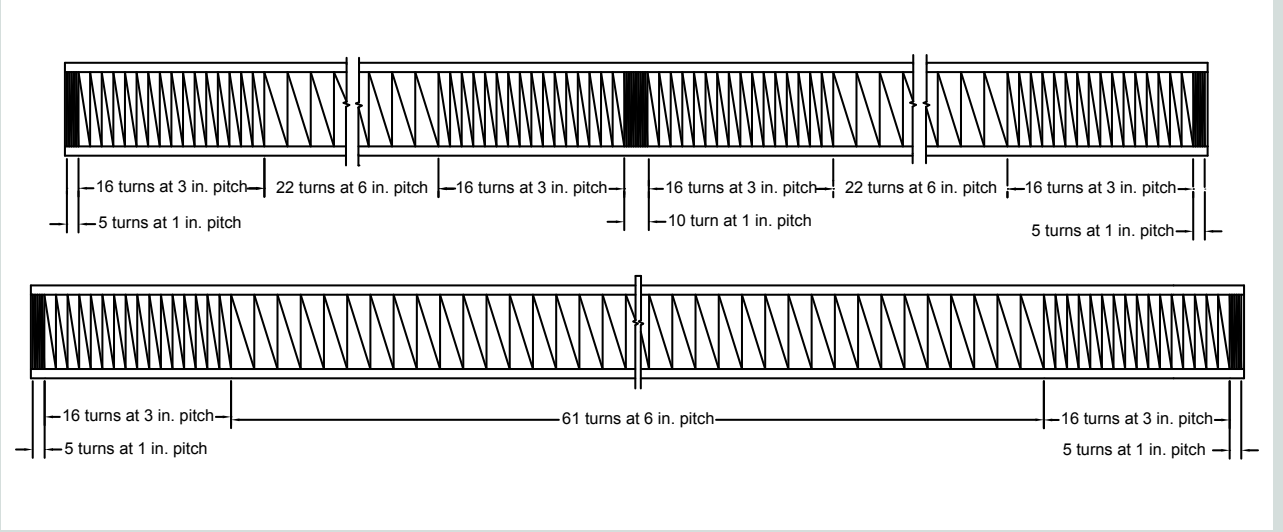


Figure A9. Pile spiral layout of tight (top) and standard (bottom) design. Note: 1 in. = 25.4 mm.

Figure A10. Splice header for 24 in. (610 mm) piles.

Figure A11. Five-duct interchangeable panel completed with staggered anchorages and deformed ducts.

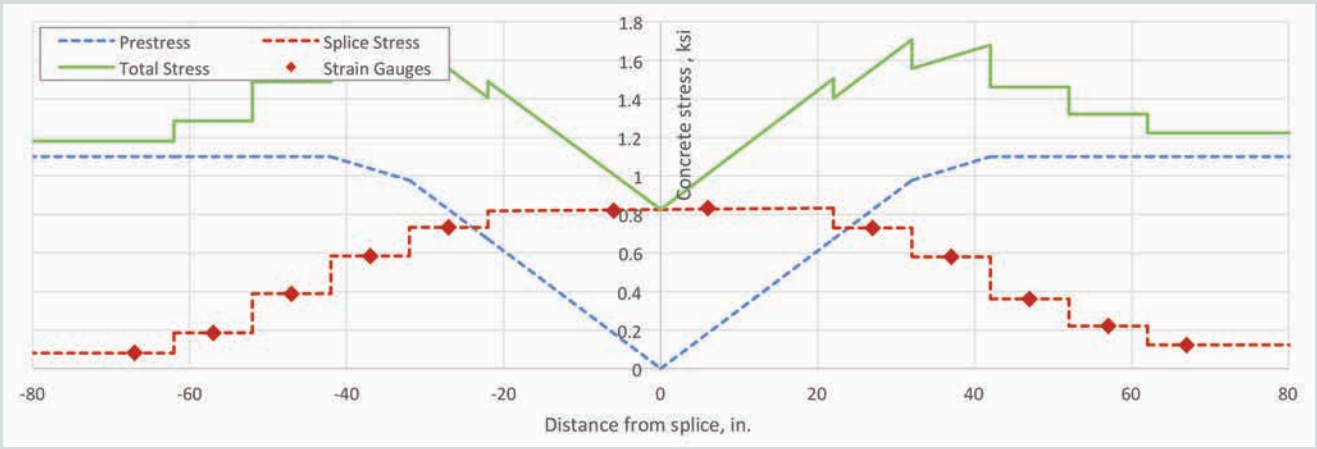
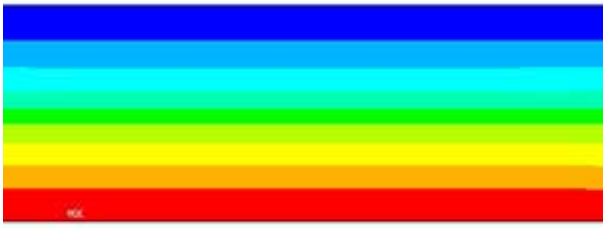


Figure A12. Stress distribution at the conclusion of splicing on both sides of the splice interface computed from strains. Note: 1 in. = 25.4 mm; 1 ksi = 6.895 MPa.

Figure A13. Grouting post-tensioned strand ducts.



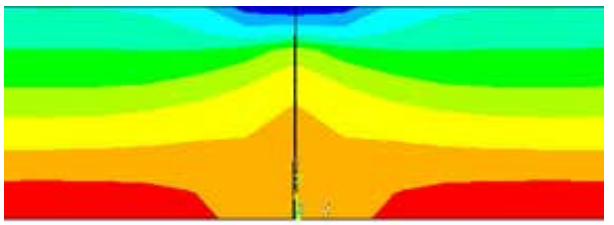


Figure A14. Longitudinal stress in control (left) and splice (right) for 24 in. (610 mm) piles at ultimate stage with highest compression stress (blue) and tension (red).

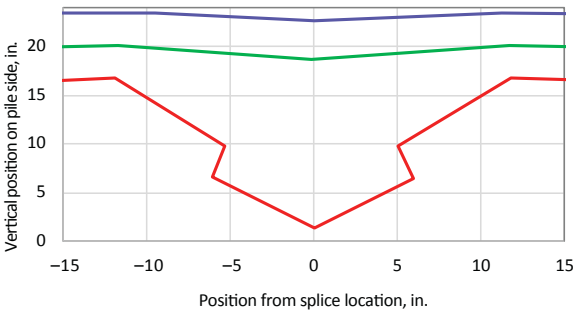


Figure A15. Cracking patterns at splicing joint, experimental (left) and modeled (right). Note: 1 in. = 25.4 mm.