

FEATURED PROJECT

River Wall Design

Braddock Lock and Dam #2, Pittsburgh, PA

US Army Corp of Engineers

Overview: To complete the design, AWK developed a Quality Control Plan, developed recommendations for selection of design criteria, selected soil and rock design parameters, evaluated the impact of new loads on the internal and external stability of the existing diaphragm cells, and assessed seepage control and wall rebound effects on water-tightness with the new float-in dam structure. AWK used the results of the evaluations to develop design alternatives and make recommendations for the new structure. AWK developed a three-dimensional model to complete a space frame analysis with STAAD3 based on normal, loss of pool, and barge impact loading conditions. AWK used the results from the space frame analyses to complete the structural design. AWK also developed an instrumentation plan for long-term monitoring of the structure. The instrumentation system was remote sensing and generally included alignment pins, electrolytic in-place slope inclinometers, vibrating-strip piezometers, vibrating-wire strain gages, electro-barometers, load cells, and data loggers.

Services provided: AWK, as the prime consultant, was responsible for preparation of contract drawings (MicroStation), specifications (SPECSINTACT), design analyses, and an MCACES cost estimate for construction of a new wall at the Upper Guard Wall for the Monongahela River Locks and Dam 2. The new wall was used to strengthen and support the existing Upper Guard Wall against additional loads resulting from the construction of a new dam.

