

AquaBlok®

Installation Summary

Objective: Basin Construction

Location: Portage, Ohio

Setting: Retention Basin

Project Status: Completed December 2010



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Photo 1. AquaBlok placement from a shore-based stone slinger truck (radial conveyor mounted to the back of a live-box hopper truck) – maximum reach typically ~75' from back of truck. Note snow in upper right corner of basin

Project Objective: Reduce permeability of an existing soil liner by adding a thin cap of AquaBlok over the entire floor of the basin prior to initial filling.

Background: Constructed to handle surface water associated with a new commercial development, this ~1-acre basin was excavated into soils that the engineer originally felt confident would be sufficient to reliably hold water. Based on boring data, permeability was anticipated to fall within an acceptable range. However, as the basin took shape, confidence waned to the point that an amendment was deemed necessary to lower the permeability of the native soils.

Technical Challenges: Deteriorating weather (note snow in photos) and a lack of suitable on-site or near-site clay complicated the solution. The volume of clay needed (even if readily available) and the time/cost associated with the material handling, placement, and compaction did not make importing clay an attractive alternative. With temperatures consistently below freezing, achieving proper moistures and compaction would also have been difficult. The owner of the facility preferred not to use a synthetic liner, and even if deemed an option, sourcing the material would have been difficult under the timeline.

AquaBlok Solution: 125 tons (6 truckloads) of AquaBlok® 2080FW#8 (PONDSEAL™) were staged on-site in 2,700-lb bulk bags and were transloaded into a stone slinger truck. The product was conveyed in six installments over discrete areas of the basin floor. The dry bentonite-coated aggregate was broadcast at 7-lbs/SF (1" nominal dry material thickness) over 35,000 square feet (0.8 acre).

Equipment Used: Vans (covered semis) and flatbeds for material delivery; excavator for material transloading from shipping units (2,700-lb bulk bags); remote operated stone slinger truck for dry material conveyance; manual labor (equipped with steel rake to float material and insure uniform coverage).

Timeline: All materials were shipped, received, transloaded into the slinger, and placed within a single day. The actual slinging (and associated manual labor) was all completed in approximately six hours.

Results: A significant portion of the basin filled over a three to four week period following the AquaBlok application from rain, snow, and associated run-off. Spring rains increased the volume to the intended high water elevation and the basin has been functioning as designed since.



Photo 2. Transloading of AquaBlok from a bulk bag (standard shipping unit) to the bed/hopper of the application equipment - a stone slinger



Photo 3. The slinger truck bed/hopper fully loaded with product; capacity typically ranges from 15 to 18 cubic yards (18-22 tons of AquaBlok)



Photo 4. AquaBlok placement from a shore-based stone slinger truck. Note dusting of snow on sides of slope and top of bank, as well as the remote-controlled operator standing in basin



Photo 5. Shore-based stone slinger truck being controlled by operator (left). As product is placed, fine adjustments in material thickness can be easily achieved using a concrete float or rake



Photo 6. Delivery of a flatbed carrying ~22 tons of AquaBlok packaged in bulk bags. Note tarp has been removed to facilitate transloading into the slinger truck



Photo 7. 35,000 square feet (0.8 acre) of basin floor newly lined with AquaBlok at 7lbs/SF (nominal 1" dry thickness). Note pooling water caused by hydration of bentonite (darkened product at center)



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