



Petaluma Bridge Construction Project

Volume 325

September, 2013

Objective

During construction of a new bridge footing in the Petaluma River, a slurry seal was poured into a caisson and did not properly set. The contractor was required to dredge out the slurry seal prior to attempting another pour and sufficiently dewater the slurry so it could be hauled off-site. The contractor first attempted to settle the material in a series of roll off containers and then decant the water off the top. The process was extremely slow and risked delaying other aspects of the bridge construction. After contacting Watersolve, LLC, the contractor decided that Geotube® Dewatering Containers could provide a quick and effective dewatering solution to meet the project demands.

Conditioning Chemical

Watersolve, LLC technicians completed on-site bench tests to evaluate what polymer provided the most effective water release rate, water clarity and flocculent appearance. Solve 163 exhibited excellent results and would meet or exceed the site objectives. Since the filtrate coming out of the Geotube® container would be discharged directly back into the caisson, controlled and managed feed of the chemical was critical to ensure limited residual polymer returning to the river. Throughout the 48 hours of dredging, WaterSolve technicians ran china clay test on the filtrate water to determine if any residual polymer existed. Of the 30 tests run, all results showed undetectable residual polymer levels.

Geotube® Container Sizing

Geotube® containers are manufactured from high strength polypropylene fabric and designed to allow effluent water to escape through the pores of the fabric while retaining the chemically-conditioned solids. For this particular site, operational aspects and space were the determining factors for sizing the Geotube® container. It was critical to have a single Geotube® container that would allow for continuous dredging for up to 48 hours. One 75' x 120' Geotube® container was deployed which was folded over to a length of 60'. This allowed for a maximum fill height of 7.5' and 30% more solid capacity than would ultimately be required.

The Result

Commercial divers were hired to dredge the slurry seal out of the caisson, and in just under 48 hours all of the material was removed from the caisson. The contractor waited an additional 24 hours for the solids in the Geotube® container to dewater and cut the Geotube® container open, excavated the material out and hauled everything off-site for disposal.



Lay-down area with chemical feed unit and mixing manifold.



Geotube® container being filled.



Filtrate water gravity fed back into the caisson. Samples were collected here for China Clay Testing.