Cullinan Ranch Restoration, Phase III

Application

More than 15,000 cubic yards of Foam-Control® EPS29 Geofoam was used as a lightweight structural fill on a roadway embankment project in a national wildlife refuge in Vallejo, California.

Project Details

Phase III of the Cullinan Ranch restoration is part of a multi-dimensional effort to restore more than 1,500 acres of tidal wetlands in the San Pablo Bay National Wildlife Refuge. This involved reinforcing a roadway levee along two miles of Highway 37 running through the refuge. A key to success was to gradually slope the steep levee embankment to mimic a natural transitional zone between the wetlands and the roadway so that it is inviting to fowl and other wildlife.

Due to the very soft soils in the area, known locally as “Bay Mud,” CalTrans had two major concerns. First, adding a significant volume of weight to the embankment (in the form of soil or lightweight concrete) could cause roadway settling and potentially damage the levee over time. Second, a soil slope would likely be adversely affected by erosion from roadway run off, eventually requiring additional soil to maintain the desired slope.

ACH Foam Technologies’ Foam-Control® EPS29 Geofoam was selected as a structural fill because of its high compressive strength and extremely light weight. The contractor worked closely with ACH Foam to map out the configuration of each section of Geofoam fill along the two-mile roadway. During construction, the existing drainage ditch was scraped and compacted and the trench was lined with a gas-resistant membrane. The Geofoam blocks were configured in the trench as designed and sealed within the protective membrane. The entire slope was then covered with an 18” layer of soil.