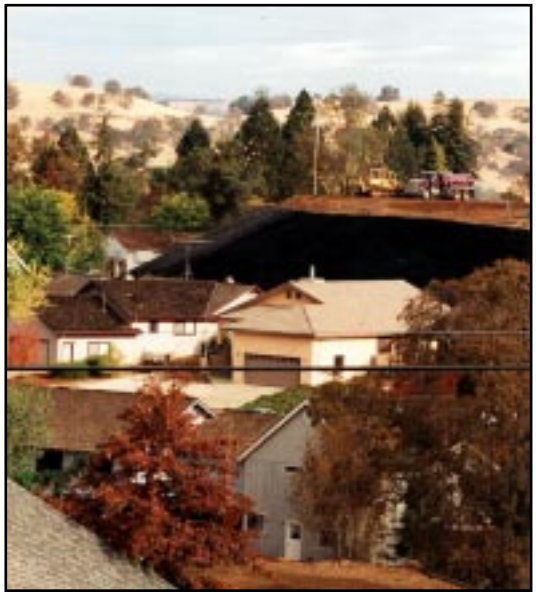
RCRA Site Slope Stabilization

Sutter Creek, California



In a residential community which had sprung up in the northern California foothills where mines once produced fortunes in gold for lucky miners, a man-made mesa, constructed from the tailings of one of those mines, added significantly to the unique topography of this residential area. However, the mesa was designated by the US Environmental Protection Agency (EPA) as a RCRA Superfund site due to the presence of arsenic in the mine tailings. The problem facing developers was to effectively cap the mesa in an aesthetically pleasing way. All designs and remediation work were subject to US EPA review and approval.

The engineering design firm, Erler & Kalinowski Inc of San Mateo, developed a topsoil cover design which retained the existing mesa profile, provided for full vegetative cover, and protected the 1.8:1 side slopes from erosion. The design featured the GEOWEB® System, manufactured by Presto Products Company, with eight inches of topsoil infill and a geotextile underlayer.

The GEOWEB Cellular Confinement System is a honeycomb-like structure, manufactured of HDPE plastic, a highly inert and UV resistant plastic typically used in the flexible membrane liners (FML) used for long term encapsulation of toxic and hazardous waste materials. The system is flexible and conforms easily to variations in topography. Adjacent panels are stapled together, staked in place and infilled with a selected soil or aggregate material. When infilled with topsoil, the cells provide a protective environment for plant growth, while the whole system provides invisible skeletal support for the confined soil. The GEOWEB sections enabled the placement and retention of a controlled depth of soil over the soil liner encapsulating the hazardous tailings materials. This reinforced soil zone is an exclusive feature of the GEOWEB technology. Mat, grid and "wrapped" systems cannot retain topsoil layers as required for this type project. The Presto GEOWEB System was chosen as the only viable solution.

Construction, November 1995

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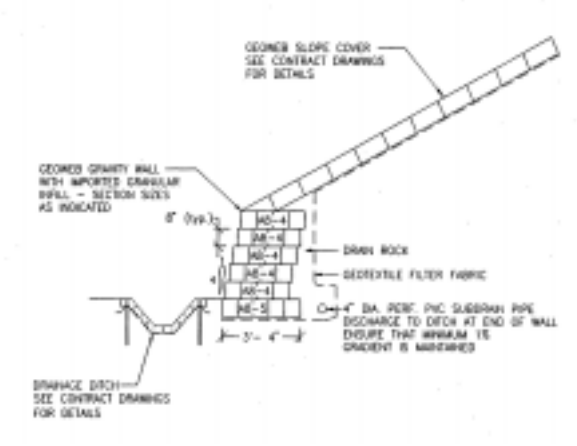
The encroachment of new homes at the bottom of the mesa on the eastern limits of the project was an additional problem. The slopes at this point had to be over-steepened to accommodate tight space requirements. This problem was solved with a 250 foot long GEOWEB® gravity wall system (see drawing following). The wall was placed at the toe of the slope and joined the slope system above. Brow ditches were placed above the walls, below them, and at strategic points on the site to capture and control excess runoff water. Sub-surface seep age was accommodated by infilling cells in the affected areas with stone rather than topsoil. The GEOWEB System provided the design flexibility to produce a single fully vegetated solution that protected the encapsulated mine tailings and addressed concerns regarding water erosion.



The RCRA closure requirements mandated a solution that would last for many years. The ISO certified quality control of the Presto GEOWEB System, beginning with base resins and continuing through the shrink wrapping of the product pallets at shipment, gave project engineers and owners the assurance they needed that the product would meet product performance specifications.

The Sutter Creek slope cover has been in place for 5 years and continues to protect the mesa slopes from erosion. The protected area has totally vegetated and the lush grassed slopes are now an enhancement to the community's varied topography.

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