

REPRESENTATIVE SLOPE STABILITY PROJECTS

DICALITE MINE SLOPE STABILITY ASSESSMENT

Geotechnical Engineering

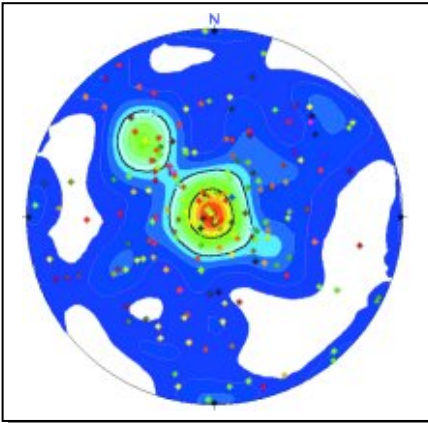
CGI was retained to assess the existing and proposed slope stability of the open-pit diatomite mine located near Lake Britton in Shasta County. Because of the nature of the diatomaceous materials, both conventional limit-equilibrium and rock kinematic analyses were required for the 280-foot tall slopes. CGI performed a detailed mapping and sampling program for the mine and performed numerous laboratory tests to estimate material strengths. Slope stability analyses were performed on a number of cross sections developed through the existing and proposed mine slopes. In addition, discontinuity data were analyzed to identify



likely rock planar and wedge failures and those potential failures analyzed using limit-equilibrium methods. Based on our study, reasonable recommendations were developed in a team environment, which included the operator and agency representative, for expansion of the mine.

DEER CREEK MANOR ROCK SLOPE STABILITY ASSESSMENT

Geotechnical Engineering



CGI was retained to assess the stability of cut slopes within rock materials and to recommend the maximum safe rock cut slope inclination for the project site. Geotechnical services for the project site had been provided by another geotechnical consultant that lacked the experience and knowledge to assess stability of rock cut slopes. CGI mapped the proposed cuts, gathered discontinuity (fracture, joint, etc.) orientations, tested rock materials to evaluate strength and unit weight, estimated the geological strength index of those materials, and performed kinematic and limit-equilibrium evaluations to estimate slope stability. Based on our results, rock cut slopes were graded and the site developed.

BLACKHAWK SUBDIVISION ROCK SLOPE STABILITY ASSESSMENT

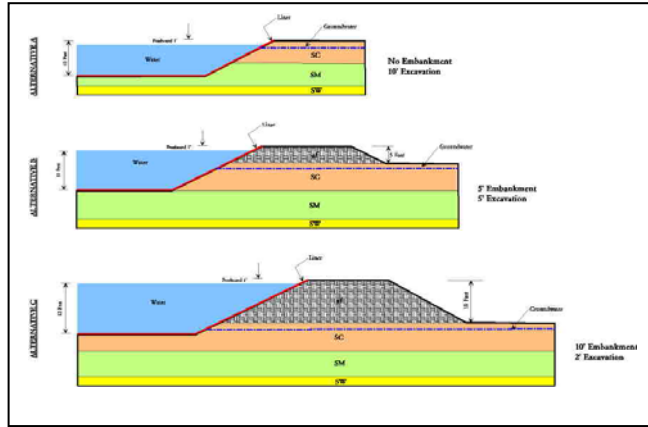
Geotechnical Engineering

CGI was retained to assess the stability of a cut slope along Highway 70 in Plumas County. The proposed 500-foot-long, 40-foot tall cut slope was required to increase viewshed for an access road leading into a proposed subdivision boarding this main highway. CGI mapped the cut slope, which was composed of phyllite, measured discontinuity (fracture, joint, etc.) orientations, tested rock materials to evaluate strength and unit weight, estimated the geological strength index of those materials, and performed kinematic and limit-equilibrium evaluations to estimate slope stability. Based on our results, maximum cut slope inclinations were recommended for the project, which were reviewed and accepted by Caltrans. In addition, CGI provided recommendations for a 180-foot-long, up to 20-foot-high concrete cantilever retaining wall within the subdivision.

NEWMAN GULCH RESERVOIR FEASIBILITY STUDY

Geotechnical Engineering

CGI was retained by the City of Ft Bragg to evaluate the feasibility of constructing an open, earthen, lined, 45-acre-foot raw-water reservoir on a sloping 8-acre parcel. We identified three construction scenarios for the proposed reservoir and evaluated the feasibility of each scenario. For the study, we advanced three relatively deep drill holes and explored the site using backhoe test pits. An elaborate laboratory testing program was performed to characterize underlying soils and to estimate critical strength criteria. Limit-equilibrium slope stability analyses were performed to confirm that the scenario reservoir slopes would meet acceptable criteria. Based on our study, advantages and risks were identified for each reservoir development scenario. Each scenario was impacted by shallow groundwater and liquefaction potential; however, each scenario had strengths and weaknesses. The City then retained CGI to develop planning-level costs for each scenario so that a cost-benefit evaluation could be made. CGI developed those costs and made a development recommendation to the city.



MOORE'S GRAVEL SLOPE STABILITY ASSESSMENT

Geotechnical Engineering

CGI was retained to assess slope stability of existing and proposed excavations and stockpiles at Moore's Gravel in Callahan, California. The client proposed to expand his mining operation and, in accordance with SMARA requirements, was conditioned to provide a slope stability assessment within existing and proposed operational areas. CGI performed site mapping, sampled critical earth materials, performed laboratory testing, and performed extensive slope stability analyses to estimate if the reclamation plan would meet currently accepted standards. CGI's studies concluded that the proposed excavation and stockpile slopes were conservatively design and that the materials on site could support steeper slopes, thus, allowing our client to extract more materials then planned.