



CASE STUDY

Canyon Stabilization

DESCRIPTION

This Southern California property located close to residential areas on a steep canyon hillside presented significant slope stability issues. Property development & associated grading was constructed without permits in the 1950s. In the 1980s, a fire destroyed residential structures and surrounding vegetation. A damage assessment with geotechnical investigation determined the housing pad and access roadway were constructed without proper compaction. In addition, spoils from the previous grading had been pushed down-slope and were left uncompacted. As a result, stormwater drainage created “piping” throughout the site. These adverse conditions presented the potential for slope failure and significant risks to adjoining and down-slope properties. E&E was contracted to implement a remedial grading plan, utilizing existing site material only, to mitigate the risk of slope failure & eliminate the transport of the un-compacted fill. The successful execution of the project returned the Property to its pre-development condition in terms of both topography and vegetation.

MAIN TASKS

- Install ingress/egress controls.
- Clear and grub Property.
- Locate and remove all subsurface utilities and structures.
- Excavate overburden, build fill key.
- Excavate and stockpile all undocumented fill.
- Excavate any surficial failures.
- Excavate, rip and re-compact all fill keys.
- Prepare grade to receive the re-compacted fill.
- Backfill/replace material including moisture conditioning.
- Backfill and compact slope face consistent with the final grading plan

and as necessary to establish pre-development contours.

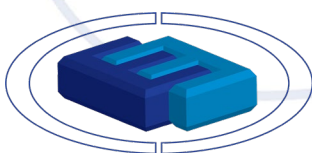
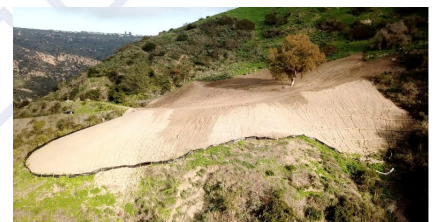
- Install and continuously maintain storm-water mitigation and Best Management Practices (BMP's) throughout the Property.

CHALLENGES

The Client was highly concerned about the potential impact on adjoining properties downslope of the construction area. Above-normal amounts of rainfall occurred during construction. Due to potential slope stability risks, the project required E&E to construct mitigation measures utilizing basic design plans in conjunction with a field engineering and construction process. The site was highly vulnerable to sheet flow of storm water across unconsolidated soils. Equipment that could be used was limited due to site access by a narrow private road.

INTERESTING POINTS

During the extraordinary rainfall that occurred, only minimal debris was seen to surface at the downslope properties. To mitigate surface water impacts, E&E built and maintained check dams, straw wattle, and silt fence that withstood the torrents. Access to the site required the delivery of heavy equipment on residential neighborhood roads. This was a very sensitive issue with closely located neighbors of the property. E&E actively participated in city meetings to help alleviate concerns and E&E staff walked all equipment up the road on plywood sheeting to avoid any damage to the existing road.



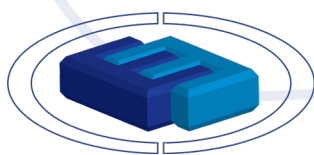
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