TECHNICAL MEMORANDUM

GLENN LUKOS ASSOCIATES

Regulatory Services

PROJECT NUMBER: 11150006WOOD

TO: Joan P. Kelly, AICP, Principal-in-Charge
Jennifer Marks, Senior Project Manager
BONTERRA PSOMAS
225 South Lake Avenue, Suite 1000
Pasadena, California 91101

FROM: Tony Bomkamp

DATE: July 01, 2021

SUBJECT: Biological Conditions Associated with Grasshopper Creek Avoidance Alternative, NorthLake Project, Castaic, Los Angeles County

---

I have reviewed various documents[1] that address the Grasshopper Creek Avoidance Alternative for the NorthLake Project, comparing existing conditions and the expected hydrological conditions within Grasshopper Creek in the post-project condition. The Grasshopper Creek Avoidance Alternative includes establishment of a development on the east side setback approximately 300 feet from Grasshopper Creek and requires remediation of the upper landslides with engineered compacted fills and associated underground back drains while leaving the lower landslides in place within the 300± feet set back zone. Most of the tributaries to the east which contribute both water and sediment to Grasshopper Creek will be eliminated and/or redirected toward storm drain systems where the earthwork assemblies are constructed. Even though development, grading, and placement of fill within Grasshopper Creek has been eliminated under this Alternative, the hydrologic and associated biological conditions associated with Grasshopper Creek habitat will be substantially modified by the proposed development. The modification of the easterly tributaries with geotechnically-required buttressing systems required to stabilize the slopes will result in the loss of up to two-thirds of Grasshopper Creek's current tributary water. Not only will the surface flows be affected, but subsurface water (a major contributor during normal and drought conditions) that contributes to the creek through landslide deposits and, to a lesser extent, through bedding planes on the easterly flank will be reduced and likely eliminated. This significant reduction in subsurface and surface water will negatively impact / reduce habitat productivity. Even with Grasshopper Creek preserved in place, the surface and subsurface water sources that contribute to it will no longer be available to maintain the existing conditions.

---

[1] Those documents include the Sikland Memo *Creek Avoidance Alternative Assessment* dated June __, 2021 and the G3Soils Geotechnical / Hydrogeologic Review of Creek Avoidance Alternative Design, dated June__, 2021(G3Soils Memo), as well as the Trial Court's January 11, 2021 Ruling in the matter *Center for Biological Diversity v. County of Los Angeles, et al.,* Case No. 19STCPO1610 and the 2019 NorthLake Supplemental Environmental Impact Report.

EXISTING CONDITIONS

Grasshopper Creek flows from north to south and is an ephemeral drainage, with localized areas of seasonal groundwater discharge due to the water-holding capacity of landslides and bedding planes that provide for the discharge of subsurface water. In other areas, which do not exhibit discharge of subsurface water, shallow groundwater lenses support phreatophytes (plants with roots that are capable of reaching shallow groundwater typically at depths between three to 20 feet).[2] Where subsurface water occurs, Grasshopper Creek supports a mix of phreatophytes such as willows (*Salix* spp.), mulefat (*Baccharis salicifolia*), saltgrass (*Distichlis spicata*), and spiny rush (*Juncus acutus leopoldii*), a California Native Plant Society List 4 species[3]. Thus, while Grasshopper Creek appears dry for most of the year and surface water is not usually present except during storm events, portions of the creek support phreatophytic vegetation, due to shallow groundwater, including areas densely vegetated with species such as spiny rush, which are supported by the subsurface water that is directly dependent on the geological conditions.

AVOIDANCE ALTERNATIVE POST-PROJECT CONDITIONS

Under the post project conditions for the Grasshopper Creek Avoidance Alternative in addition to elimination of a significant portion of the surface tributary discharge, subsurface water will also be eliminated. This will occur as a result of the remedial grading needed to remove the landslide areas that will eliminate the landslide debris and bedding planes that store and transmit the groundwater[4], such that the groundwater that currently supports the phreatophytes will be, "by design" eliminated. The stress on "by design" is important because the very conditions that create the potential unstable geotechnical conditions are the very conditions that provide for the presence of the subsurface water. Elimination of this subsurface water will result in the elimination of the phreatophytic vegetation, which contributes to the conditions within Grasshopper Creek that are associated with the biological values. In short, the very conditions that contribute to the important biological functions in Grasshopper Creek will be eliminated and the creek would fail to function as it currently does.

CONCLUSIONS

The Grasshopper Creek Avoidance Alternative, while avoiding direct grading impacts to the drainage would, nevertheless, result in elimination of the hydrological conditions (*i.e.*, near surface or shallow ground water) that supports a special-status plant (spiny rush) and the suite of other riparian phreatophytes. Even with establishment of a 300-foot setback, it would not be possible to construct a geotechnically sound development and maintain Grasshopper Creek in its current biological condition.

---

[2] T.W. Robinson. *Phreatophytes: Geological Survey Water-Supply Paper 1423*. Washington D.C. 1958.
[3] See GLA Rare Plant Memo dated July 2021.
[4] See G3Soils Memo.