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STAFF REPORT

Date: October 4, 2018

To: TRPA Hearings Officer

From: TRPA Staff

Subject: Michael D. Preston Trust Land Capability Challenge, 8020 and 8030 North Lake Blvd, Placer County, California; Assessor's Parcel No: 117-180-037 and 117-180-038; TRPA File No: LCAP2018-0225

Proposed Action:
TRPA Hearing's Officer review and approval of the proposed Land Capability Challenge.

Staff Recommendation:
Staff recommends the TRPA Hearings Officer approve the land capability challenge changing the land capability classes as follows: Replace Class 1b-SEZ (19,899 sf.) with Class 1b-Beaches (2,131 sf.), and Class 6 (17,768 sf.). These changes are itemized on the table on Page 3 and on a map included in Attachment B.

Background:
The subject parcels are located at 8020 and 8030 North Lake Boulevard in Kings Beach (Attachment A). The parcels being challenged are mapped as Class 1b, as per TRPA Land Capability Overlay Maps (aka Bailey Land Capability maps, also Attachment A). The Soil Conservation Service Soil Survey of Tahoe Basin Area, California-Nevada (Rogers, 1974) identifies these soils as Beaches (Be). The neighboring soil to the north is Jabu stony sandy loam, moderately fine subsoil variant (JhC, 2 to 9% slopes, Class 5). The Beaches soil unit is composed of unsolidated sands associated with seasonal and annual lake level fluctuations. The Jabu stony sandy loam is derived from glacial outwash and other alluvial materials (mixed mineralogy). The vicinity of the project has a geomorphic mapping of E-2 for Outwash, till and lake deposits (low hazard lands lands).

A TRPA land capability verification (LCV) was completed on June 7, 1989, and verified the property as Class 1b. Per official surveys, parcel 117-180-037 is 9,918 square feet in area and parcel 117-180-038 is 9,981 square feet in area. The total project area evaluated is 19,899 square feet in area, which does not include any submerged land or land below high water (6,229 ft. elevation). A land capability challenge was filed with TRPA on July 27, 2018. A detailed soil investigation was conducted for this land capability challenge by Denny Churchill and Sidney Davis, consulting soil scientists, on June 18, 2018. Mr. Churchill completed the technical report and mapping on July 6, 2018 (included as Attachment C). On behalf of TRPA, Phil Scoles (Terra Science, Inc.) was contracted to review the soil consultant's report and mapping and assist with TRPA's evaluation. On June 19, 2018, the contractor examined the same two soil pits described by the applicant's soil consultants. The contractor reviewed the field soil descriptions prepared by the applicant's soil consultant and engaged in interactive dialogue as part of the technical

review. The contractor conducted a follow-up field visit on August 20, 2018 with another TRPA contractor (Marchel Munnecke) to compare onsite field findings to hand-augered soil borings on the adjacent Secline Beach park property. The TRPA contractors discussed field observations with the applicant's representative, Wyatt Ogilvy, at the end of the follow-up field visit. The TRPA contractor (Phil Scoles) had subsequent discussions with Mr. Ogilvy and Mr. Churchill about the absence of Stream Environment Zone (SEZ) soil, when such conditions exist on the adjacent property to the east (Secline Beach park). A second follow-up site visit occurred on October 03, 2018 to verify the original SEZ fringe has eroded from the subject parcels. This resulted in reduced the amount of unnamed (XXX) Class 6 soil by 723 sf.

Findings:
The subject parcel is mostly developed with two buildings –a beach cabin and a two-unit residence near North Lake Boulevard. The natural landforms for this location were likely a sandy shoreline and a sandy terrace formed by alluvial and dunal activity. The natural landforms have been significantly altered by 1) Lake Tahoe high water levels that have eroded portions of the natural shoreline; 2) channelization and re-alignment of Griff Creek that has constrained creek overflows; 3) high volume foot traffic that has denuded vegetation near the shoreline and accelerated wind-transport of sand from shoreline to the center of the subject parcels; and 4) placement of sandy fill material atop or concurrently with windblown sands. Thus, the field conditions observed for this land capability challenge contain both contemporary and historic elements. The applicant's soil consultant report describes these elements, particularly a detailed account of the Griff Creek re-alignment.

This land capability challenge established two backhoe-dug pits to be representative of the sandy terrace and the soil consultant's report accurately documents the sandy terrace, which comprises the center and north portion of the two parcels. Specifically, these soils have a mantle of windblown sand 12 to 24 inches deep. For the northerly soil pit, there appears a 14-inch layer of slightly compacted soil that has stratified layers that could be placed fill material (also sandy). Below the sandy mantle, there is a buried topsoil as evident by the dark color (natural organic matter stained sands). Further below, the soil consists of relatively unweathered and/or stabilized sands typical of ancient beach deposits (often found above current shorelines).

In addition, TRPA's contractors received permission from California State Parks to hand-auger several soil borings on the adjacent parcel to the east. Such borings helped illuminate that on the Secline Beach parcel 1) the Griff Creek re-alignment also involved fill placement across the floodplain, which accentuated the channelization effect on creek flows; 2) some of the old fill material has buried SEZ conditions between the shoreline (beach) and the natural alluvial terrace immediately to the north; and 3) small unfilled areas of SEZ conditions support a mixture of willow, cottonwood, Jeffrey pine (only on outer edge), rushes and grasses. From aerial analysis and professional experience, SEZ conditions were likely widest in the vicinity of Griff Creek (original alignment – east of current channel) and tapered to a narrower band further east and west. Typical SEZ soils at this location have dark surface layers due to higher than average organic matter accumulation, and redoximorphic features within the sandy matrix (aka iron staining or mottles). The underlying sand material is typically dark gray since those sands are saturated for long periods. The band of SEZ soil is shown on the amended site map (magenta lines on map in Attachment B). For the subject parcels, it appears the original SEZ soil has completely eroded and now replaced by beach sand (magenta line on map in Attachment B).

The investigation differed from the LCV in the north part of both parcels (vicinity of both residences and driveway), which were identified as Class 1b. This vicinity does not have soil types described in the 1974

Soil Survey of the Lake Tahoe Basin. Instead, the soils are a combination of a buried alluvial soil and windblown surface soil. It cannot be determined if the windblown material is human-induced, because there are natural dune-like deposits in this vicinity. This unnamed sandy soil (XXX) does not have a root-restricting layer in the upper part and they are considered excessively drained. This XXX soil qualifies as Class 6 (see map included in Attachment B). Along the south edge of both parcels, the soils are old and newer sands reworked by wave action, wind transport, and foot traffic – This is typical of the Beaches (Be) map unit. The land capability classes for the XXX soils were determined from Page 20, Table 4 of Land-Capability Classification of the Lake Tahoe Basin, California-Nevada (Bailey, 1974). The table on the following page summarizes the changes in land capability and allowable land coverage as concluded by this land capability challenge.

Land Capability District	**Slope Class (Range)**	**1989 Land Capability Verification Area (sq. ft.)**	**2018 LCC Area (sq. ft.)**	**Net Change Total Area (sq. ft.)**
Class 1b (Be)	Any	0	2,131	+2,131
Class 1b (SEZ)	Any	19,899[1]	0	-19,899
Class 6 (XXX)	0 to 16%	0	17,768	+17,768
Total Parcel Area		**19,899**	**19,899**	**0**

[1]The Be soil extends below 6,229.1 ft. elevation; however, the property line for both APNs is situated at approximately 6,230 to 6,231 ft. elevation.

This memorandum was jointly prepared by TRPA contractor Phil Scoles (Terra Science, Inc.) and TRPA Senior Planner, Julie Roll. If you have questions on this Hearings Officer item, please contact Julie Roll at 775-589-5247 (jroll@trpa.org).

BAILEY LAND CAPABILITY CHALLENGE FINDINGS

Site Information	
Assessor's Parcel No. (APN):	117-180-037 and 117-180-038
TRPA File No. / Submittal Date:	LCAP2018-0225 / August 07, 2018
Owner or Applicant:	Michael D. Preston Trust; 133 Bothelo Avenue; Milpitas, CA 95035
Site Address:	8020 and 8030 North Lake Boulevard; Kings Beach, CA

Environmental Setting	
Bailey Soil Mapping Unit / Hydrologic Soil Group (HSG) / Land Class / Geomorphic Hazard Unit	Beaches (Be / HSG A); nearby soil to north mapped as Jabu stony sandy loam, moderately fine subsoil variant, 2 to 9% slopes (JhC / HSG C), / E-2 Outwash, till and lake deposits (low hazard lands as per 1974 Bailey LC Report)
Landform and Soil Parent Material	Lake Tahoe shoreline (sandy) and mixed alluvium and glacial deposition associated with historic flows of Griff Creek (now channelized).
Slopes and Aspect	1 to 28% slopes / South by southwest
Elevation and Datum	6229 (Lake Tahoe) to 6243 feet (from Sage Land Surveying topographic survey, April 30, 2018).
Rock Outcrops and Surface Configuration	No rock outcrops; soil surface reflects past deposition of windblown sand, urban fill, foot traffic between house and beach, and sidecast spoils from nearby (offsite) creek channelization.
SEZ and Hydrology Source	Yes (south portion of each parcel). Shoreline composed of Be soil type, which is listed as a primary (key) SEZ indicator. Water source is combination of seasonal high groundwater and/or lake levels.
Vegetation	Jeffrey pine, black cottonwood, serviceberry, wild rose, grasses and forbs. In Be (SEZ) map unit, scattered horsetail and Baltic rush. Similar elevation to east also contains willows and black cottonwood.
Ground Cover Condition	Good (vegetation 70 to 80%, duff 20 to 30%). High traffic areas are mostly sand soil surface.
Site Features	Two residences, decks/patios, paved driveway, landscaping, beach / open space.

Field Investigation and Procedures	
Consultant and Address	Denny M. Churchill, Consulting Soil Scientist 145 Cottonwood Court, Quincy, CA 95971 (530) 283-1271; dennychurchill@sbcglobal.net , and Sidney W. Davis, Soil Scientist (Davis2 Consulting Earth Scientists Inc.).
TRPA Contractor Field Dates	June 19, 2018 (same time as soil consultant work) and follow-up visits on August 20 and October 03, 2018 (TRPA contractor Marchel Munnecke participated in field investigation and deliberations).
SEZ Mapping / NRCS Hydric Soil	Yes, Be soil unit (SEZ) soil, which is also mapped as Beaches in 2006 soil survey.
Number of Soil Pits or Auger Holes and Description Depth	Two backhoe dug pits dug to 60 to 65 inches.
Additional or Repetitive TRPA Sample Locations	Several hand-augured holes in Secline Beach park property and in south portion of subject parcels by TRPA contractors (Phil Scoles and Marchel Munnecke).
Areas Not Examined	Residence, decks/patios and paved driveway.

[continued on following page]

TRPA Findings	
2006 Soil Survey Map Unit[1]	South half of parcels mapped as Beaches, north half as Kingsbeach stony sandy loam, 2 to 15% (map units 7161, Class 6). Beaches map unit is 7011, Class 1b).
Consultant Soil Mapping Determination and Rationale	Soils in the center and north parts of the study area do not match any soils described in the 1974 soil survey, hence they are unnamed (XXX). These terrace soils are deep, somewhat to excessive drained, coarse sand textures, and lacking any root-restricting layers within 60+ in. (such as fragipan or silica cemented layer). There is a segment of beach (Be soil) conditions at the south edge of the terrace that extends down to Lake Tahoe water line. The Be soil is contemporary feature that is the product of constant disturbance (foot traffic) and an eroding shoreline. This vicinity historically contained SEZ, but that soil has been eroded and the resultant condition is capped with windblown sand.
Slope Determination	0 to 7% for terrace area (center and north portion of study area). No slope limitations within unnamed Beach map unit. See Sage Land Surveying, Inc. topographic survey, April 30, 2018, Attachment B).
TRPA Conclusion(s)	Class 1b, Beaches (Be, any slope); Class 6 unnamed soil (XXX) for 0 to 16% slopes.
Applicable Area	Entire site (see map, Attachment B, April, 2018)

Attachments:

A. Vicinity map and TRPA land capability map
B. TRPA Land Capability Challenge Recommendation map
C. Applicant's soil consultant land capability soil report (2 backhoe pits)

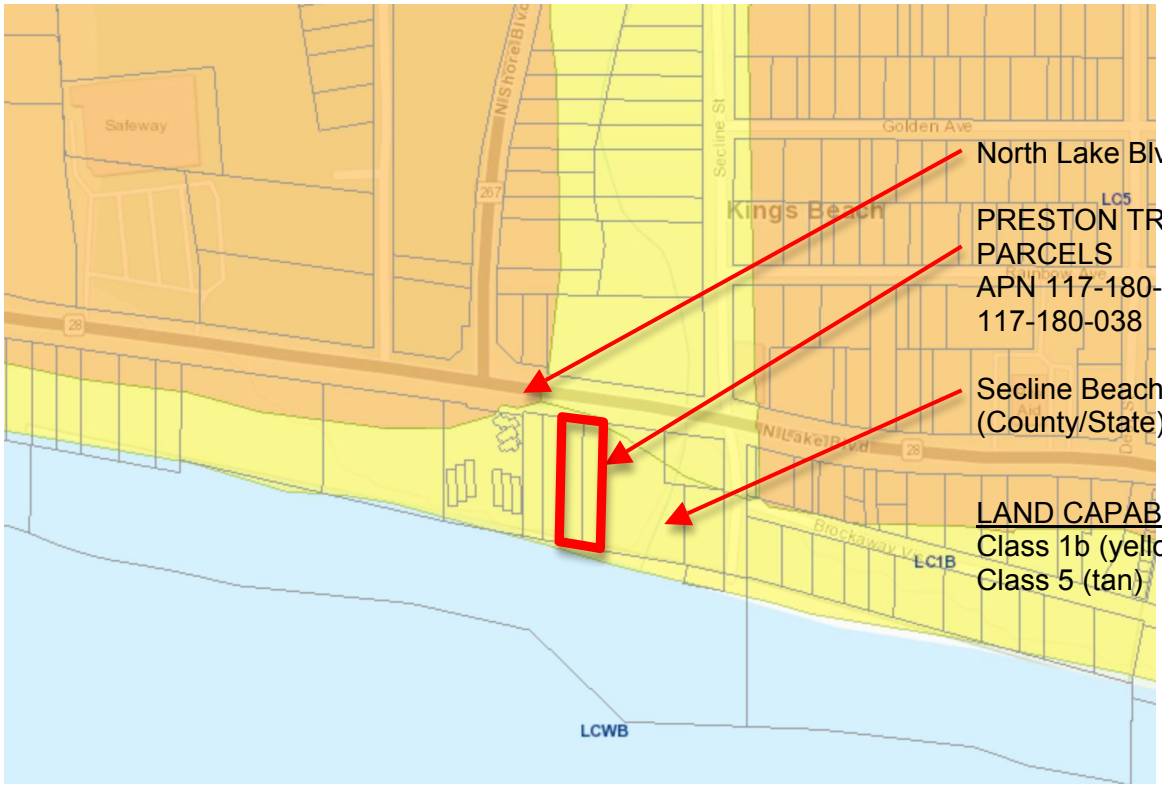
[1] TRPA currently relies upon the Soil Survey of Tahoe Basin, California-Nevada (Rogers and Soil Conservation Service, 1974), which the Bailey Land Capability system is predicated upon. The 2006 soil survey update has not yet been formally adopted by TRPA for use with land capability matters.

Attachment A

Vicinity Map and TRPA Land Capability Maps

VICINITY MAP (no scale)

TRPA LAND CAPABILITY MAP



Attachment B

TRPA Recommended Land Capability Challenge for
LCAP2018-0225 (8020 and 8030 N. Lake Boulevard; Kings Beach, CA)

Figure 1

LEGEND

- Found Nail & Tag, Stamped P.L.S. 8828
- Found 5/8" Rebar, W/Plastic Cap P.L.S. 8828
- 6238 Elevation & Contour Line
- EP Edge Of Pavement
- TBC Top Back of Curb
- 12"P Tree Size & Type (P = Pine, CW = Cottonwood, C = Cedar, LP = Lodgepole Pine, A = Aspen)
- Stump
- Boulder
- Bush Or Shrub
- Topography Point
- FH Fire Hydrant
- TBM Temporary Elevation Benchmark
- SD Storm Drain Manhole
- DI Drain Inlet
- WS Water Service
- WV Water Valve
- SB Sewer Clean-Out Box
- LB Street Light Box
- TB Telephone Box
- CB Cable Box
- SGB Traffic Signal Box
- Flow Line
- Wood Fence Line
- 6238x0 Spot Elevation
- FF Finish Floor
- Concrete
- Rocks
- Ornamental Tree

SURVEYORS NOTES

1. Contour Interval equals 1'.
2. The elevation datum for this survey was taken from existing lake level on 4/24/18.
   Benchmark = Lake Tahoe, U.S. Bureau of Reclamation
   Elevation = 6,228.64'
   Temporary Benchmark = Top of Nail & Tag in Concrete sidewalk @Northwest Corner of Lot 14.
   Elevation = 6,239.92'
3. Spot elevations are accurate to 0.2'± Scaled feature locations are accurate to 0.5'±.
4. This map ("Work Product") is for the sole and exclusive use of client named in the title block shown hereon. The Work Product shall be deemed protected as if such Work Product was within the protections against third-party use and disclosure of the general copyright law.
5. Except as specifically stated or shown on this map , this survey does not purport to reflect any of the following which may be applicable to the subject real estate: easements; building setback lines; restrictive covenants; subdivision restrictions; zoning or other land use regulations; and any other facts that an accurate and current title search may disclose.
6. Easement purpose and ownership uncertain.
7. Legend is general. Some symbols may not be applicable to this survey map.

LICENSED LAND SURVEYOR — ERIC C. SAGE — P.L.S. 8828 — EXPIRES DEC. 31, 2019 — STATE OF CALIFORNIA

FEE AREA LOT 14 BLOCK "S"
9,981± SQUARE FEET

PRELIMINARY COVERAGE W/ 3:1 HEIGHT REDUCTION WHERE APPLICABLE

DESCRIPTION	AREA (SQUARE FEET)
EXISTING HOUSE	1,411 S.F.
CONCRETE/PAVER PATIOS	685 S.F.
ASPHALT DRIVEWAY	1,927 S.F.
METAL STORAGE CONTAINER	59 S.F.
TRASH SHED	10 S.F.
TOTAL COVERAGE	4,092 S.F. (41%)

(To be verified by TRPA)

PRELIMINARY ESTIMATED OFFSITE COVERAGE

DESCRIPTION	AREA (SQUARE FEET)
PAVER PATIO	34 S.F.
METAL STORAGE CONTAINER	20 S.F.
TOTAL COVERAGE	54 S.F.

(To be verified by TRPA)

FEE AREA LOT 13 BLOCK "S"
9,918± SQUARE FEET

PRELIMINARY COVERAGE W/ 3:1 HEIGHT REDUCTION WHERE APPLICABLE

DESCRIPTION	AREA (SQUARE FEET)
EXISTING HOUSE	1,150 S.F.
CONCRETE PATIOS	118 S.F.
ASPHALT DRIVEWAY	3,135 S.F.
DECK AND STAIRS	439 S.F.
TRASH SHED	10 S.F.
TOTAL COVERAGE	4,852 S.F. (48.9%)

(To be verified by TRPA)

PRELIMINARY ESTIMATED OFFSITE COVERAGE

DESCRIPTION	AREA (SQUARE FEET)
CONCRETE PATIO, LOT 14	345 S.F.
EXISTING HOUSE, LOT 14	113 S.F.
DECK AND STAIRS, LOT 14	58 S.F.
CONCRETE PAD ON LOT12	63 S.F.
TOTAL COVERAGE	579 S.F.

(To be verified by TRPA)

Land Capability Assessment
For
Placer APN 117-180-037, -038
8020 & 8030 N. Lake Blvd, Placer County, California

July 6, 2018

Land Capability Assessment For
Ogilvy Consulting
850 N. Lake Blvd.
POB 6315
Tahoe City, Calif

Land Capability Assessment By
Denny M. Churchill
Consulting Soil Scientist, CPSS, CPESC
145 Cottonwood Court
Quincy, Calif

TRPA Land Capability Challenge for APN 117-180-037 and 117-180-038; LCAP2018-0225
8020 and 8030 North Lake Boulevard; Kings Beach, Placer County, CA.

Field Investigation: June 19 and August 20, 2018
Data Analysis: October 04, 2018 (updated)
Conducted By: P.Scoles (Soil Scientist)

Soil Test Pit Location (Churchill Pit no. 6/18/18-2) Backhoe dug to 65 inches. Terrace composed of windblown sands and buried sandy alluvial soil. Slope is 4 to 7 percent toward the south by southwest. Deep, coarse sand soil that has root penetration to 65+ inches and no indication of seasonal water table. HSG-A. This soil lacks the root-restricting layers associated with the Jabu soil (mapped nearby). See Churchill soil report for detailed profile description.

Artificial slopes are excluded from slope analysis and historical conditions utilized for land capability evaluation. The slope in this vicinity has been altered by high amount of foot traffic between residence and beach.

Artificial slopes from fill placement are excluded from slope analysis and historical conditions utilized for land capability evaluation. Based on the natural terrace in this vicinity, the historic slope was likely 1 to 3%.

Artificial slopes from fill placement are excluded from slope analysis and historical conditions utilized for land capability evaluation. Based on the natural terrace in this vicinity, the historic slope was likely 1 to 3%.

Soil Test Pit Location (Churchill Pit no. 6/18/18-1) Backhoe dug to 60 inches. Terrace composed of windblown sands and buried sandy alluvial soil. Slope is 1 to 3 percent toward the south by southwest. Deep, coarse sand soil that has root penetration to 60+ inches and no indication of seasonal water table. HSG-A. This soil lacks the root-restricting layers associated with the Jabu soil (mapped nearby). See Churchill soil report for detailed profile description.

CLASS 6
Unnamed coarse sand (XXX);
0 to 16% slopes; 17,768 sf.;
30% allowable base coverage

CLASS 1b
Beaches map unit (Be); any slope; 2,131 sf.;
1% allowable base coverage

XXX-7 15,963 Sq — Slope: 2%
XXX-7 15,963 Sq — Slope: 7%
XXX-6 2,528 Sq Ft — Slope: 28%
Be-1b 1,408 Sq Ft

Site 6/18/18-1
Site 6/18/18-2

Wave Runup @ 6230' Elevation
Approximate Backshore Location

HIGH WATER LINE LAKE TAHOE ELEVATION =6228.64' U.S. BUREAU OF RECLAMATION DATUM)

EDGE OF WATER LAKE TAHOE FIELD LOCATED ON 4/24/18 ELEVATION=6228.64' (U.S. BUREAU OF RECLAMATION DATUM)

LAKE TAHOE

NORTH LAKE BLVD. (HIGHWAY NO. 28)

LOT 14 — LOT 15 — LOT 12

Pine Stump Est. Age 150+ Years

EASEMENT #5 BK2325 PG468 P.C.O.R. SEE NOTE:6
EASEMENT #4 BK2325 PG468 P.C.O.R. SEE NOTE:6
EASEMENT #6 BK2325 PG468 P.C.O.R. SEE NOTE:6
EASEMENT #2 BK2325 PG468 P.C.O.R. SEE NOTE:6

Sage Land Surveying Inc.
10049 Martis Valley Rd. Unit A
Truckee, CA 96161
(530) 550-8006

BOUNDARY & TOPO LOT 13 & 14 BLOCK "S" WOODVISTA SUBD.
FOR MIKE PRESTON (8020 & 8030 N. LAKE BLVD.) (APN: 117-180-037, 038)
PLACER COUNTY CALIFORNIA

DATE	30 APR 2018
SCALE	1 inch = 10 Feet
DRAWN	E. SAGE
JOB	17118
SHEET	1 OF 1 SHEETS

AGENDA ITEM NO. V.A.

Attachment C

Applicant's Soil Consultant Land Capability Soil Report

Land Capability Assessment
For
Placer Parcels APN 117-180-037,-038

July 6, 2018

INTRODUCTION

A soil investigation was conducted on Placer County parcels APN 117-180-037, -038 by Denny M. Churchill, consulting soil scientist, and Sidney W. Davis (Davis^2 Consulting Earth Scientists Inc.) on June 18, 2018. Also present on site was consulting soil scientist Phil Scoles (Terra Science Inc.), private contractor representing TRPA. The objective of the study was to identify soils and other features and relate them to Land Capability which is administered by the Tahoe Regional Planning Agency (TRPA) for the purpose of impervious coverage regulation under Chapter 30 of the Code of Ordinances (effective March 1, 2012).

The project area are developed parcels located in a mixed residential setting at 8020 and 8030 North Lake Blvd., Kings Beach, California on approximately 0.46 acres. This work is advanced at the request of Mr. Wyatt Ogilvy, principle for Ogilvy Consulting, agents for Mr. Michael Preston.

Soil information contained in this report is for the strict use of land capability and it should not be used for building foundation design, slope stability or seismic analysis.

ENVIRONMENTAL SETTING

The site is located at T16N, R17E, the south east corner of section 13. Vegetation consists of sparse Jeffery pine, cottonwoods, service berry and mixed grasses. The site is located on a stable lake terrace/dune complex. There is a stream environment zone (SEZ) influencing the parcel in the form of map unit Be-Beach soils, as well as a backshore zone.

Soils are shown on the TRPA GIS Data Base (http://gis.trpa.org/datadownloader/) as Be-Beach soils (a miscellaneous land type). Geology (Saucedo, 2002) is characterized as Qb-Beach deposits. Bailey's (1974) geomorphic unit analysis shows the parcel within E2: Outwash, till, and lake deposits (low hazard lands).

METHODOLOGY

The parcel was surveyed based on slope delineations and landscape position. Two sites considered representative of the land form were chosen and excavations were placed to open and examine the soil profile in detail. A third "spot" location was hand augered lake ward on the slope break below the deck of the cottage on 8020 N. Lake Blvd. Standards of the National Cooperative Soil Survey were used to describe and interpret soil physical properties. Information gathered at the site was compared to the *Soil Survey of the Lake Tahoe Basin, California-Nevada* (Rogers et al, 1974) and to the *Land-Capability*

Classification of the Lake Tahoe Basin, California-Nevada (Bailey, 1974) for proper placement in the appropriate land capability class. A detailed topographic base map supplied by Sage Land Surveying Inc. (April, 2018) was available in the field for ground control and slope analysis. Information pertaining to land capability districts is shown on the attached Figure 1.

FINDINGS

Referring to the Figure 1 attached site map, soils at site 6/18/18-1 are found to be deep, excessively drained, and members of Soil Hydrologic Group A. They are characterized as having a light yellowish brown coarse sand top soil approximately 10 inches thick, over a dark yellowish brown gravelly loamy coarse sand mixed human transported material to 24 inches, and a buried brown sand subsoil to a depth of 60+ inches. Vegetation at this site is sparse but under natural conditions most likely was representative of Type 17- Mixed conifer. Soils were moist throughout at the time of excavation, with no evidence of ground water intrusion observed. These soils are dissimilar to the Beach soils as mapped because of the presence of a buried diagnostic surface horizon with darker colors and moderate structure.

Soils at site 6/18/18-2 are found to be deep, excessively drained, and members of Soil Hydrologic Group A. They are characterized as having a light yellowish brown coarse sand top soil approximately 24 inches thick, a buried brown sand to a depth of 36 inches, and a yellowish brown sand subsoil to 65 inches. Vegetation at this site is sparse but under natural conditions most likely was representative of Type 17- Mixed conifer and Type 9- Broadleaf.. Soils were moist throughout at the time of excavation, with no evidence of ground water intrusion observed. These soils are dissimilar to the Beach soils as mapped because of the presence of a buried diagnostic surface horizon with darker colors and moderate to strong structure.

The "spot" location was sandy throughout with a weak buried horizon at around 24 inches and areas of oxidized iron stains on sand grains (non-redox) at depth. The following table summarizes the proposed changes:

Land Capability District	Slope Class (Range)	1989 TRPA Determination Area (sq. ft.)[1/]	2018 LCC Area (sq. ft.)	Net Change Total Area (sq. ft.)
Class 1b (Be)	-	19,899	1,408	-18,491
Class 6 (XXX)	0 to 16%	0	2,528	2,528
Class 7 (XXX)	0 to 5%	0	15,963	15,963
Total Parcel Area		19,899	19,899	19,899

1/ Verification done for Placer APN 117-180-026 on 6/7/1989, carried over after the parcel was split.

During the field investigation, discussion revolved around the potential of the study area to have been a historic or relic riparian complex. This was based on the present position of Griff Creek, as well as the landform of the adjacent parcel to the east (Placer County open area). This eastward parcel presently has a mix of Type 17-Mixed conifer overstory,

Type 7-Herbaceous understory and Type 9-Broadleaf along the shore zone. The area also resides in a designated flood plain (a secondary indicator). There is some physical evidence (braided flow incisement and sheet erosion) that flood stage flows have occurred in recent times, but only east of the assessment area.

It is evident that Griff Creek has been channelized to accommodate development in the greater urban area, as well as protection for existing infrastructure. In fact, review of the 1932 and 1955 USGS topographic maps clearly shows Griff Creek several hundred feet to the east of it's present position. The 1966 aerial base photo for the Lake Tahoe Basin Soil Survey delineated Griff Creek east of it's present position almost paralleling Secline Street. A large relic depositional fan extending several hundred feet lake ward is evident on Google Earth images dating back to 1969 and is much further east of the present Griff Creek location. A much smaller fan is situated at the outlet of the current discharge location of the channel. Based on the site descriptions for 8020 and 8030 N. Lake Blvd., on 6/18/18, no evidence of any fluvial processes were observed (stratified horizons, discontinuities, variegated colors etc) that would support the influence of Griff Creek, present or historic, on the project parcels. Secondly, if the study parcels were part of a broader riparian landform, some evidence of prolonged saturation in the form of redox concentrations, depleted matrix, or buried dense organic strata should be present. A better comparison of the landform would be in a westerly direction through Tahoe Vista

Work by Adams and Minor (2001) and Adams et al (2004) discuss at length prehistoric, historic and contemporary shore line elevations (these studies led to the development of the wave runup methodology for backshore delineation). Prior to 1909 the spillway elevation of Lake Tahoe was 6,223' at Tahoe City. It is that portion of the shoreline between 6,223' and 6,229' that is currently seeking equilibrium. If there was a 'prehistoric' riparian complex along the shoreline, it is now most likely under water.

CONCLUSIONS AND RECOMMENDATIONS

Site 6/18/18-1 is located on an outwash terrace and has been influenced by wind action. Soils are deep, excessively drained, and place in Hydrologic Soil Group A. These soil are dissimilar from the presently mapped Be-Beach soils because they have buried diagnostic horizons indicative of stable and less transient land forms, and are not influenced by wave action. They are unnamed inclusions within the Be map unit and would place in land capability class 7.

Site 6/18/18-2 is located on a outwash terrace/barrier beach complex, and is measurably influenced by wind action. Soils are deep, excessively drained, and place in Hydrologic Soil Group A. These soil are dissimilar from the presently mapped Be-Beach soils because they have buried diagnostic horizons indicative of stable and less transient land forms, and are not influenced by wave action. They are unnamed inclusions within the Be map unit and would place in land capability class 6.

Respectfully submitted,

Denny Churchill

Digitally signed by Denny Churchill
DN: cn=Denny Churchill, o, ou, email=dennychurchill@sbcglobal.net, c=US
Date: 2018.07.03 11:34:24 -07'00'

Denny M. Churchill
Certified Professional Soil Scientist, No. 0755

Representative Soil Profile Description

Site 6/18/18-1: Machine excavated pit to 65 inches. When described the soil was moist throughout with no visible ground water intrusion.
Location: 39° 14' 14.33" N. Latitude; 120° 01' 51.60" W. Longitude (WG84 datum)
Elevation: 6239 feet (from Sage Land Surveying Inc., April 30, 2018)
Landform: Outwash terrace (slopes to the south west).
Vegetation: Jeffery pine, blue wild rye and adjacent cottonwoods (likely ornamentals).
Pre-development vegetation was most likely mixed conifer.

A 0 to 10 inches, light yellowish brown (10YR 6/4) coarse sand, dark yellowish brown (10YR 4/4) moist; single grained to weak fine granular structure; loose, loose, nonsticky and nonplastic; few to common fine roots throughout; common fine interstitial pores; slightly acid (pH 6.5); <5 percent gravels; clear smooth boundary.
(recent wind deposited sands over-topping older wind deposited material).

^A 10 to 24 inches, dark yellowish brown (10YR 4/4) gravelly loamy coarse sand, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; many fine to medium and few coarse roots throughout; many fine interstitial pores; slightly acid (pH 6.5); 15 percent small subrounded gravels; clear smooth boundary.
(human transported materials with horizontal stratified layers and slightly compacted; not root restrictive)

2Ab1 24 to 36 inches, brown (7.5YR 4/4) coarse sand, dark brown (7.5YR 3/3) moist; medium fine granular structure; loose, loose; nonsticky and nonplastic; few fine to medium and few coarse roots; many fine interstitial pores; slightly acid (pH 6.5); 10 percent small subrounded gravels; clear smooth boundary.

2Ab2 36 to 52 inches, brown (7.5YR 4/4) coarse sand, dark brown (7.5YR 3/3) moist; medium fine granular structure; loose, loose; nonsticky and nonplastic; many fine to medium and few coarse roots; many fine interstitial pores; slightly acid (pH 6.5); 10 percent small subrounded gravels; clear smooth boundary.

C1 52 to 60+ inches, reddish brown (5YR 5/4) coarse sand, dark reddish brown (5YR 3/4) moist; single grained; soft, loose, nonsticky and nonplastic; common fine to medium and few coarse roots; many fine interstitial pores; slightly acid (pH 6.5); 5 percent gravels, 5 percent subangular stones; clear smooth boundary.

Parent material: Outwash and wind deposited mixed alluvium.
Drainage class: Excessively drained, very rapid permeability, and no evidence of redoximorphic features.

Slope: 2 percent sloping south 10 degrees west.
1974 soil series: Similar to Gefo and Elmira but both soils lack the definitive buried horizons and are more gravelly.
2006 soil series: Similar to Gefo but Gefo soils lack the definitive buried horizons and are more gravelly.
Soil classification: Mixed, frigid, Dystric Xeropsamments
Hydrologic Soil Group: A

Site 6/18/18-2: Machine excavated pit to 70 inches. When described the soil was moist throughout with no visible ground water intrusion.
Location: 39° 14' 13.84" N. Latitude; 120° 01' 50.74" W. Longitude (WG84 datum)
Elevation: 6236 feet (from Sage Land Surveying Inc., April 30, 2018)
Landform: Outwash terrace/barrier beach (slopes to the south west).
Vegetation: Jeffery pine (stump), adjacent cottonwoods. Pre-development vegetation was most likely a mixed conifer/broadleaf complex.

A1 0 to 8 inches, light yellowish brown (10YR 6/4) coarse sand, dark yellowish brown (10YR 4/4) moist; single grained; loose, loose, nonsticky and nonplastic; few fine roots throughout; many fine interstitial pores; slightly acid (pH 6.5); <5 percent gravels; clear smooth boundary.
(recent wind deposited sands over-topping older wind deposited material).

A2 8 to 24 inches, olive brown (2.5Y 4/4) coarse sand, dark olive brown (2.5Y 3/3) moist; weak fine granular structure; few fine to medium roots throughout; many fine interstitial pores; slightly acid (pH 6.5); <5 percent small subrounded gravels; clear smooth boundary.

2Ab1 24 to 40 inches, dark yellowish brown (10YR 4/4) coarse sand, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure; slightly hard; very friable, nonsticky and nonplastic; common fine to medium and few coarse roots; many fine interstitial pores; neutral (pH 7.0); 10 percent small subrounded gravels; clear smooth boundary.

2Ab2 40 to 52 inches, brown (10YR 4/4) coarse sand, dark brown (10YR 3/3) moist; strong coarse subangular structure; slightly hard, very friable; nonsticky and nonplastic; many fine to medium and few coarse roots; many fine interstitial pores; neutral (pH 7.0); 10 percent small subrounded gravels; gradual wavy boundary.

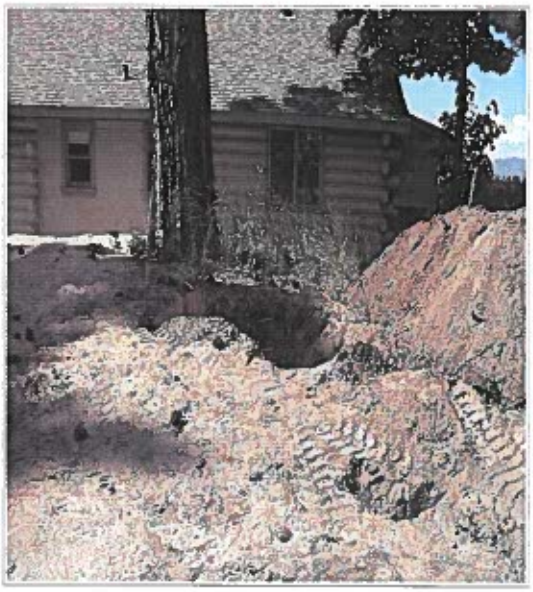
C1 52 to 65+ inches, yellowish brown (10YR 5/4) coarse sand, dark yellowish brown (10YR 3/4) moist; single grained; soft, loose, nonsticky and nonplastic; common fine to medium and few coarse roots; many fine interstitial pores; slightly acid (pH 6.5); 5 percent gravels; gradual wavy boundary.

(structure in the buried horizons most likely due to traffic, possible occupation site)

Parent material: Outwash and wind deposited mixed alluvium.
Drainage class: Excessively drained, very rapid permeability, and no evidence of redoximorphic features.
Slope: 3-6 percent sloping south 10 degrees west.
1974 soil series: Similar to Gefo and Elmira but both soils lack the definitive buried horizons and are more gravelly.
2006 soil series: Similar to Gefo but Gefo lacks the buried horizons and is more gravelly throughout.
Soil classification: Mixed, frigid, Dystric Xeropsamments
Hydrologic Soil Group: A

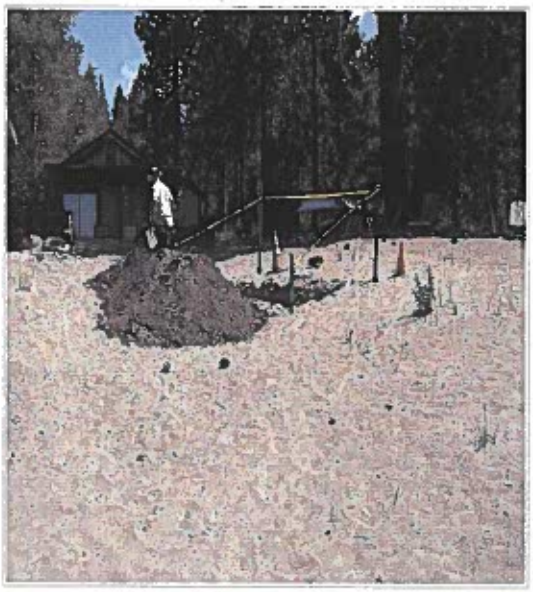
Photo Series

Looking North Towards CA Route 28

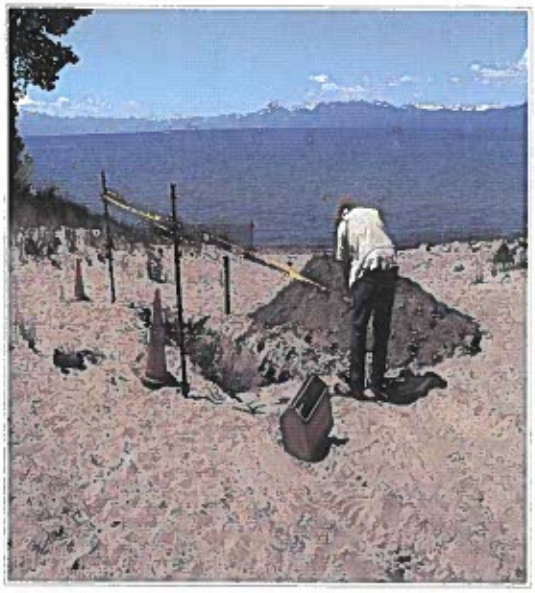


Looking South Lakeward

Site 6/18/18-1



Looking North From Shoreline



Looking South Lakeward

Site 6/18/18-2