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STAFF REPORT

Date: August 26, 2021

To: TRPA Hearings Officer

From: TRPA Staff

Subject: Schutte-Walton Glenbrook LLC Land Capability Challenge, 2059 Pray Meadow Road, Douglas County, NV, APN 1418-10-601-002, TRPA File Number LCAP2021-0188

Staff Recommendation:

Staff recommends the TRPA Hearings Officer approve this land capability challenge which would change the land capability from Class 1a (>30% slopes), Class 3 (JaD, 9 to 20% slopes), and Class 5 (JaC, 0 to 9% slopes) to Class 2 (XXX, >30% slopes), Class 4 (XXX, Slopes 16 to 30%), and Class 6 (XXX, Slopes 0 to 16%).

Required Motions:

In order to approve the proposed land capability challenge, the Hearings Officer must make the following motions, based on the staff report:

- 1) A motion to approve the required findings, including a finding of no significant effect; and
- 2) A motion to approve the proposed land capability challenge.

Staff recommends that the Hearings Officer take the following actions, based on this staff report.

Background:

The subject parcel is shown as Class 5, on TRPA Land Capability Overlay Maps (aka Bailey Land Capability maps, Attachment A). These maps do not identify any Stream Environment Zone (SEZ); however, a wet meadow is mapped immediately to the south and east. The Soil Conservation Service Soil Survey of Tahoe Basin Area, California-Nevada (Rogers, 1974) places the entire parcel within the Jabu coarse sandy loam mapping unit (JaC, 0 to 9% slopes). Jabu soils formed in glacial outwash that may have been reworked as a lake terrace and have a less permeable lacustrine layer deeper in the profile. The soil textures are coarse sandy loam and the subsoil has small accumulation of clay (argillic horizon) and a weak fragipan below 40 inches of the surface. The fragipan may perch infiltrated water for several weeks in spring or soon after snowmelt. While containing gravels, this soil does not have outcrops or surface stones.

The vicinity of this 2.35-acre parcel has a geomorphic mapping of E-2 for Depositional lands: Outwash, till, and lake deposits (low hazard lands).

TRPA conducted a land capability verification (LCV) on November 17, 2020 (LCAP2020-0425). The LCV found onsite soil conditions included a backshore area (Class 1B), a steeper version of the Jabu series (JaD, Class 3), and a steep escarpment parallel to the shoreline (Class 1A). At the direction of the owner's planning consultant (Midkiff & Associates), a detailed soil investigation was conducted for this land capability challenge on June 08, 2021 by consulting soil scientist Sidney W. Davis (Attachment D). A land capability challenge (LCAP2021-0188) was filed with TRPA on June 24, 2021. TRPA's contractor (Terra Science/Phil Scoles) conducted a site visit on July 25, 2021 with the applicant's representative, Gary Midkiff. The TRPA contractor examined the same backhoe pits and auger holes established by Mr. Davis and conducted a walking tour of the property to verify the consultant's field findings.

Findings:

The residence, cabin and carport are situated on a gently sloping lake terrace, with moderate slopes descending down to the lake (2 to 24%, respectively). A steeper slope parallel to the shoreline is a relict wave-cut terrace (escarpment) with slopes 46 to 58%. The land above (east) of the escarpment contains the historical alignment of a railroad grade – no rock ballast or steel rails (minor cut-and-fill terrace). Further, the vicinity of the unpaved driveway may have been historically graded flat (albeit very minor). The parcel has multi-aged trees throughout, with relatively little understory and small amounts of landscaping surrounding the residence. The land east of the residence has a small, mowed lawn, while the south and west sides have attached decks. The remainder of the parcel lacks landscaping, but has several pathways and stairs down to the shoreline of Lake Tahoe.

For the field investigation, the applicant's consulting soil scientist described two backhoe pits, which were located in the east and west centers of the parcel. These backhoe pits are representative of two terraces, which have significantly different soils. The lower pit (Stop #1) is a deep, somewhat excessively drained soil that formed from loamy sand parent material (HSG-A) and has relatively little in-situ soil formation (aka young soil). It has slopes ranging from 5 to 13% (dipping to the west). It is similar to the Gefo series, but it is less gravelly and has a thicker topsoil ("A" horizon); hence it is considered an unnamed soil (XXX-1, 0 to 16% slopes). This soil is dissimilar to other Jabu map units described in the 1974 soil survey, which are older soils and typically have root restricting layers. This terrace was historically used for a railroad route and associated loading facilities (all removed and restored to natural condition).

The upper terrace (Stop #2) is also deep, but well drained soil that formed in older parent material (HSG-B), possibly former dunes that evolved into somewhat convex land surfaces that now have appreciable amounts of clay accumulation from 10 inches down to more than 60 inches. That is, the natural clay accumulation transcends the boundary between dunal parent material and underlying older lake sediments. As explained in the soil consultant's report, this concept is similar to the Jabu soil series, but it lacks a fragipan (root restrictive layer). It is also dissimilar to the Jabu moderately fine subsoil variant (JgC), which has a thinner argillic horizon, more gravels and slower overall permeability.

While this unnamed soil (XXX-2, 0 to 16% slopes) also qualifies as Class 6, it is shown as a different map unit than the other Class 6 soil due to significant differences in age and in-situ soil formation characteristics (Attachment C). There is also a small band of similar soil with slopes 19 to 24% that exceed Class 6 limits, so such area qualifies as Class 4. Since the Class 4 unnamed soil (XXX, 16 to 30% slopes) is situated nearby and on the same landform as the XXX-2 soil, it was not necessary to document with a backhoe pit and/or hand auger hole.

In addition, the soil consultant established one hand-dug pit/auger hole near the shoreline, where the ground is stabilized by pine trees, willows and shrubs. It is composed of sand and has excessive soil drainage (HSG-A). This soil also qualifies as Class 6 due to its high rate of permeability and lack of seasonal ground water in the upper part. It is unlike Gefo and Elmira soils (which are also deep and very sandy) due to minimal organic matter accumulation, lack of gravels, and formation from wave and wind deposited sand. These unnamed soils (XXX-3, 0 to 16% slopes) are less than 200 years old, which makes them akin to an undifferentiated map unit of riverwash or an excessively drained version of loamy alluvial land.

Three areas were not formally described with a soil pit or auger: The steep escarpment parallel to the shoreline; the backshore area along the shoreline; and small area of SEZ in the southeast corner of the parcel. The steep escarpment has slopes ranging from 46 to 58% and it is composed of the same sandy deposit as the unnamed soil described at Stop #1 (XXX-1). Due to this slope and lack of bedrock, it is considered Class 2 soil. It is more sparsely vegetated due to steep slope, but it has a top layer of pine needle duff. The backshore area consists of beach sands (Be map unit), which are unstabilized sand deposits subject to wave and/or wind relocation. These are unvegetated and transient soil materials that meet a primary (key) indicator of SEZ; hence, they are Class 1B soils.

The small area of SEZ in the southeast corner is the edge of a much larger, wet meadow to the south and east. This area has somewhat poorly drained soils, as apparent by Type 2: Wet marsh and Wet mesic meadow vegetation. Specifically, the SEZ supports rushes, sedge, grasses and willows (primary SEZ vegetation), which qualifies for Class 1B. This area lacks typical upland plants like Jeffrey pine, sagebrush, bitterbrush and greenleaf manzanita, which do not have tolerance for poorly to somewhat poorly drained soils. See Attachment B for site photographs.

In accordance with Table 4 of Land-Capability Classification of Lake Tahoe Basin, California-Nevada (Bailey, R.G., 1974), the unnamed soils (designated XXX-1, XXX-2 and XXX-3) qualify as Class 6 for slopes 0 to 16%. In addition, Class 4 is assigned for a small band of soil having slopes 16 to 30%. This small band extends to the north and was differentiated as unnamed (XXX) in a 2009 land capability challenge for the neighboring Steyer-Taylor parcel at 2065 Pray Meadow Drive (TRPA file LCAP2008-0401). For the deep and sandy, unnamed soils having slopes 30 to >50%, such lands are determined to be Class 2, as per Table 4. The unnamed soils on the upper terrace examined by this field investigation are mostly consistent with the 2006 soil survey that identified the parcel having Kingsbeach stony sandy loam, 2 to 15% slopes (mapping unit 7161). The lower terrace soils are similar to the Gefo soils in the 2006 soil survey, except for some taxonomy differences due to the overthickened "A" horizon.

The table below summarizes the changes in land capability and allowable land coverage as concluded by this land capability challenge.

Land Capability District, Slope Range	2029 TRPA Land Capability Verification; Area (sq. ft.)	2021 Land Capability Challenge; Area (sq. ft.)	Net Change (sq. ft.)
Class 1a (undefined), 30-50% sl.	13,339	0	-13,339
Class 1b, Backshore and Be SEZ	3,100	4,253	+1,153
Class 1b, SEZ (SE corner)	0	3,226	+3,229
Class 2 (XXX), 30-50% sl.	0	10,319	+10,319
Class 3 (JaD), 9-15% sl.	43,241	0	-43,241
Class 4 (XXX), 16-30% sl.	0	4,984	+4,984
Class 5 (JaC), 0-9% sl.	42,686	0	-42,686
Class 6 (XXX-1), 0-16% sl.	0	39,603	+39,603
Class 6 (XXX-2), 0-16% sl.	0	38,205	+38,205
Class 6 (XXX-3), 0-16% sl.	0	1,776	+1,776
Total Parcel Area	102,366*	102,366*	

* Area from Resource Concepts, Inc. topographic survey (October 22, 2020).

Contact Information:

This staff report 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 or jroll@trpa.gov.

Attachments:

- A. Vicinity Map and TRPA Land Capability Maps
- B. Site Photographs (July 25, 2021)
- C. Site Plan
- D. Applicant's Soil Consultant Land Capability Soil Report (2 backhoe pits, 2 hand auger holes)

BAILEY LAND CAPABILITY CHALLENGE FINDINGS

Site Information	
Assessor's Parcel Numbers: (APN)	1418-10-601-002 (102,366 sf., 2.35 acres)
TRPA File No. / Submittal Date:	LCAP2021-0188 / June 24, 2021
Owner or Applicant:	Schutte-Walton Glenbrook LLC; c/o William R. Schutte; 2445 Pacific Avenue, San Francisco, CA 94115-1237
Address:	2059 Pray Meadow Road, Glenbrook; Douglas County, NV

Environmental Setting	
Bailey Soil Mapping Unit¹ / Hydrologic Soil Group (HSG) / Land Class / Geomorphic Hazard Unit	From 2020 LCV: Jabu coarse sandy loam, 0 to 9% slopes (JaC, Class 5) and Jabu coarse sandy loam, 9 to 20% slopes (JaD, Class 3). Both map units are HSG-B / E-2 Depositional lands: Outwash, till, and lake deposits (low hazard lands).
Soil Parent Material	Lake terrace alluvium and sediments, beach sand deposits.
Slopes and Aspect	5 to 24% for the lower and upper terraces, which dip to the west. 46 to 58% for the escarpment parallel to the shoreline. Slopes typically less than 6% for SEZ and backshore.
Elevation and Datum	6229 to 6272 ft. elev. (from Resource Concepts, Inc. topography survey, October 22, 2020).
Rock Outcrops and Surface Configuration	No outcrops of bedrock. No surface stones.
SEZ and Hydrology Source	Yes, small area south of residence; sustained by upgradient wet meadow lateral flow. Also, Beach SEZ along shoreline.
Vegetation	Jeffrey pine, bitterbrush, sagebrush, greenleaf manzanita, grasses and forbs, plus landscaping (lawn, ornamental shrubs, etc.). SEZ supports lodgepole pine, willows, rushes, sedges, wild rose, field daisy, grasses and forbs.
Ground Cover Condition	Good (herbaceous/shrubs 5 to 10%, duff 90 to 95%); typically less than 10% bare ground.
Site Features	Residence, cabin, carport, unpaved driveway, pathways, stairs, decks, landscaping and open space.

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.

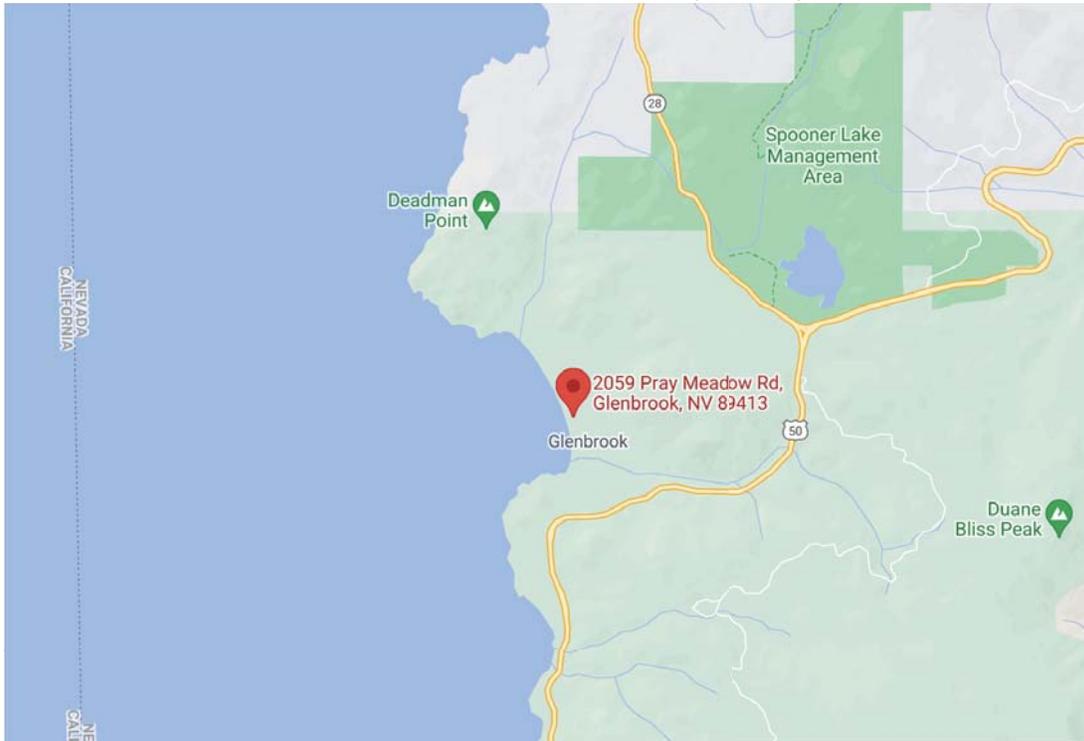
Field Investigation and Procedures	
Consultant and Address	Sid Davis, Davis2 Consulting Earth Scientists; Post Office Box 734, Georgetown, CA 95634 (530) 559-1405; sid@davis2consult.com
Consultant Field Date	June 08, 2021
SEZ Mapping / NRCS Hydric Soil	No prior mapping of SEZ or hydric soil onsite. SEZ and Beach soil identified during field study.
Number of Soil Pits or Auger Holes and Description Depth	2 backhoe pits dug to 60+ inches, plus 1 hand-dug soil pits/hand auger hole to 40 inches.
Additional or Repetitive TRPA Sample Locations	TRPA contractor Phil Scoles examined same backhoe and auger hole as applicant's soil consultant on July 25, 2021. No confirmatory soil auger holes necessary.
Areas Not Examined	Residence, cabin, carport, stairs, decks, unpaved driveway and landscaping.

TRPA Findings	
2006 Soil Survey Map Unit	Kingsbeach stony sandy loam, 2 to 15% slopes (map unit 7161). This map unit would qualify as Class 6. Inclusions of Beaches and poorly drained Tahoe complex, 0 to 2% slopes (map unit 7041) would qualify as Class 1B.
Consultant Soil Mapping Determination and Rationale	Lower terrace soil (XXX-1, Class 6) is deep, sandy, but dissimilar to Gefo series. Upper terrace soil (XXX-2, Class 6) is deep, weathered, but lacks root restricting layer of the mapped Jabu soil. Small area of stabilized beach sand at base of steep escarpment qualifies as Class 6 due to higher permeability and lack of seasonal water table near surface. The steep escarpment with slopes 30 to >50% is Class 2. The backshore area and SEZ in the southeast corner qualify as Class 1B. Additional detail in staff report narrative and soil consultant's report (Attachment D).
Slope Determination	0 to 16% for Class 6; 16 to 30% for Class 4; 30 to >50% for Class 2; any slope for backshore and SEZ (Class 1B).
TRPA Conclusion(s)	Majority of site consists of unnamed soil (XXX-1, XXX-2), HSG A, Class 6 (0-16% slopes), and Unnamed soil (XXX) with 16 to 30% slopes (HSG A, Class 4). Smaller areas of stabilized beach sands (XXX-3, Class 6), steep escarpment of 30 to >50% slope (HSG A, Class 2); SEZ (HSG D, Class 1B) and Backshore (Class 1B).
Applicable Area	Entire parcel. 2.35 acres – See map (Attachment C, June 22, 2022)

Attachment A

Vicinity Map and TRPA Land Capability Maps

VICINITY MAP – GLENBROOK, NV (no scale)



TRPA LAND CAPABILITY MAP (no scale)



Attachment B

Site Photographs (July 25, 2021)



SCHUTTE-WALTON PARCEL, 2059 PRAY MEADOW RD., GLENBROOK, NEV. SITE PHOTOS (APN 1418-10-601-002)



Photo 1 – View north (left) to northeast (right) of center of property. The lower terrace in foreground has slopes ranging from 5 to 16%. Small area of disturbance in center-left is the covered backhoe pit for Stop #1. Soil profile described by Davis2 Consulting Earth Scientists in June, 2021.



Photo 2 – View northeast (left) to east (right) of the northeast portion of the subject parcel. Backhoe pit for this upper terrace is beyond the left edge of photo and about 1 foot lower. The unpaved driveway is covered with wood chips – no tire ruts due to sufficient permeability and lack of seasonal high water table.



Photo 3 – View of the east edge of the subject parcel. The adjacent parcel to the south includes a wet meadow that drains runoff from the east to Lake Tahoe (opposite direction of photo). A small portion of this wetland extends into the southeast corner of the parcel. Upland to SEZ transition is mostly abrupt.



Photo 4 – View northwest (left) to north (right) along upper edge of the escarpment that parallels the shoreline. The property owner has consolidated downed branches and recent pine needles as part of their defensible space actions. The land surface still consists of an organic layer of partially decomposed pine needles, except for walking paths or areas of recent disturbance.



Photo 5 – Soil profile for lower terrace (Stop 1). Topsoil layer is 28 in thick and composed of loamy sand likely deposited as a dune, as apparent by the lack of gravels. Underlying parent material is 32+ inches thick and lacks in-situ soil development. Profile lacks root-restricting layer (such as a seasonal high water table or dense fragipan). While similar to Gefo series, this unnamed soil (XXX, Class 6) has substantially thicker “A” horizon, less gravels, and less soil development than that series. As per Table 4 of Land-Capability Classification of the Lake Tahoe Basin, California-Nevada, A Guide for Planning (Rbt. Bailey, 1974). There is also a small band of Class 4 soil with same conditions, but 16 to 30% slopes.



Photo 6 – Soil profile for upper terrace (Stop 2). The topsoil layer is 10 inches thick and composed of loam to sandy loam. The underlying layers to 60+ inches have increasing amounts of clay that formed in-situ. The clay naturally migrated from the upper layer down to the middle and lower layer over tens of thousands of years. Consequently, the lower layers have variegated matrix. The upper 16 inches consists of glacial outwash, while the underlying material is old lake sediments (finer texture). This soil is dissimilar from the mapped Jabu soil due to fewer gravels and lack of a root-restricting layer (such as a seasonal high water table or dense fragipan). This soil occurs on 0 to 16% slopes, hence, it qualifies as Class 6 (as per Table 4 of Land-Capability Classification (Bailey, 1974).



Photo 7 – View north along west edge of property. The backshore area encompasses the Beach soil (Be), upper edge of the wave run-up, and a 10-foot setback. The wave run-up area is evident by the exposed sand with only leaf litter atop the beach sand.



Photo 8 – View north at base of the escarpment between the backshore and low terrace (beyond right edge of photo). The soil here is a discontinuous band of stabilized sand that is deep, excessively drained. The upright wood marks soil sample location (Stop #3) . It supports Jeffrey pine, willow, rose, bitterbrush, scattered grasses and forbs.

Attachment C

Site Plan

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS IDENTICAL TO PARCEL C OF PARCEL MAP FOR GLENBROOK COMPANY, FILED FOR RECORD FEBRUARY 19, 1980 AS DOCUMENT NO. 41653 IN THE OFFICE OF THE DOUGLAS COUNTY RECORDER.

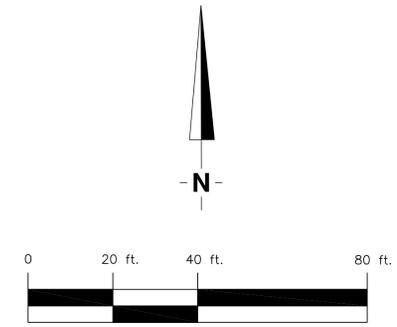
BASIS OF ELEVATIONS

THE BASIS OF ELEVATIONS FOR THIS SURVEY IS THE DATUM OF LAKE TAHOE AS PUBLISHED BY THE USGS FOR THE LAKE TAHOE GAUGE ON SEPTEMBER 30, 2020 (6226.4).

REFERENCE DOCUMENTS

(1) PARCEL MAP FOR GLENBROOK COMPANY, FILED FOR RECORD FEBRUARY 19, 1980 AS DOCUMENT NO. 41653 IN THE OFFICE OF THE DOUGLAS COUNTY RECORDER.

Steeper slopes align with LCAP2008-0401 (Steyer-Taylor Parcel, 2065 Pray Meadow Rd.



Land Capability Summary	
Class 1B (Backshore)	4,253 sf.
Class 1B (SEZ)	3,226 sf.
Class 2, 30-50% sl.	10,319 sf.
Class 4, 16-30% sl.	4,984 sf.
Class 6, 0-16%	79,584 sf.
Total	102,366 sf.

Backshore Area (incl. 10 ft. setback) Class 1B, 4,253 sf.

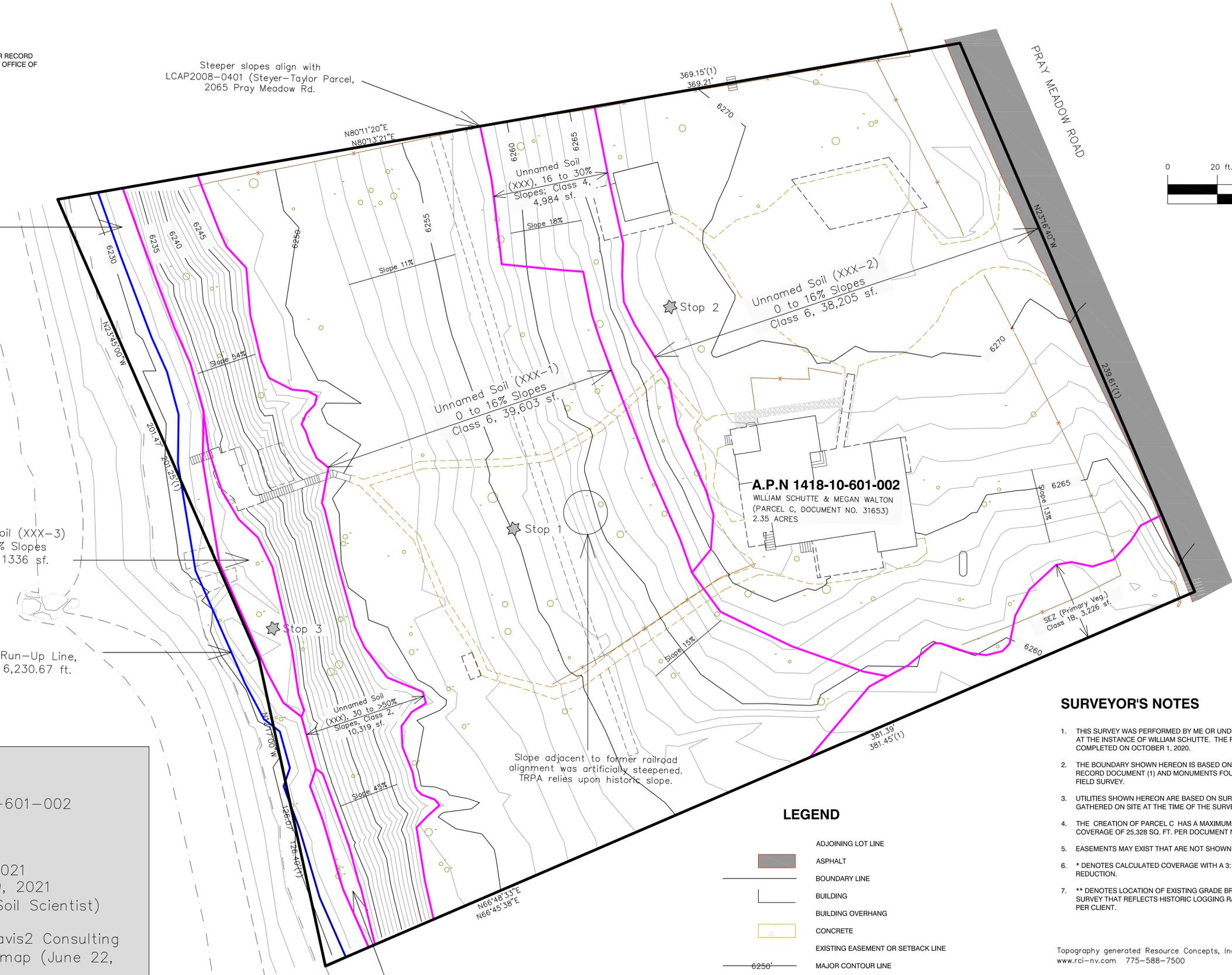
Unnamed Soil (XXX-3) 0 to 16% Slopes Class 6, 1336 sf.

Wave Run-Up Line, Elev. 6,230.67 ft.

Land Capability Challenge for LCAP2021-0188; APN 1418-10-601-002 2059 Pray Meadow Road Glenbrook, Douglas County, Nev.

Field Investigation: July 27, 2021
 Data Analysis: August 19, 2021
 Conducted By: P.Scoles (Soil Scientist)

NOTE: This map supercedes Davis2 Consulting Earth Scientists land capability map (June 22, 2021).



Slope adjacent to former railroad alignment was artificially steepened. TRPA relies upon historic slope.

LEGEND

	ADJOINING LOT LINE
	ASPHALT
	BOUNDARY LINE
	BUILDING
	BUILDING OVERHANG
	CONCRETE
	EXISTING EASEMENT OR SETBACK LINE
	MAJOR CONTOUR LINE
	MINOR CONTOUR LINE
	RIGHT OF WAY LINE
	COMPACTED DIRT PATHS & PARKING

SURVEYOR'S NOTES

1. THIS SURVEY WAS PERFORMED BY ME OR UNDER MY DIRECTION AT THE INSTANCE OF WILLIAM SCHUTTE. THE FIELD WORK WAS COMPLETED ON OCTOBER 1, 2020.
2. THE BOUNDARY SHOWN HEREON IS BASED ON A BEST FIT OF RECORD DOCUMENT (1) AND MONUMENTS FOUND DURING THE FIELD SURVEY.
3. UTILITIES SHOWN HEREON ARE BASED ON SURFACE EVIDENCE GATHERED ON SITE AT THE TIME OF THE SURVEY.
4. THE CREATION OF PARCEL C HAS A MAXIMUM ALLOWABLE COVERAGE OF 25,328 SQ. FT. PER DOCUMENT NO. 41653.
5. EASEMENTS MAY EXIST THAT ARE NOT SHOWN HEREON.
6. * DENOTES CALCULATED COVERAGE WITH A 3:1 HEIGHT REDUCTION.
7. ** DENOTES LOCATION OF EXISTING GRADE BREAK AT TIME OF SURVEY THAT REFLECTS HISTORIC LOGGING RAIL ROAD TRACKS PER CLIENT.

Topography generated Resource Concepts, Inc. www.rci-nv.com 775-588-7500

RCI Job no. 20-239.02; 10-22-2020, Drawn by JS; Checked by TAE

AutoCAD file provided to TRPA contractor to show land capability map units. No changes to topography contours, buildings, property lines, or tree locations.

Attachment D

Applicant's Soil Consultant Land Capability Soil Report (2 backhoe pits, 2 hand auger holes)

DAVIS²

CONSULTING EARTH SCIENTISTS

P.O. Box 734 · Georgetown, CA 95634 · Tel. (530) 559-1405; davis2consulting@sbcglobal.net

Schutte Land Capability Challenge

**2059 Pray Meadow Road, Glenbrook, Douglas County, Nevada
(APN 1418-10-601-002)**

June 22, 2021

INTRODUCTION

A soil investigation was conducted on the parcel on June 8, 2021. 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, by Chapter 30 of the Code of Ordinances.

The parcel supports an existing single-family residential dwelling on 2.35 acres of land, located at 2059 Pray Meadow Road, Glenbrook, Nevada. This work is advanced at the request of Mr. William Schutte.

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, hazardous waste assessment or seismic analyses.

ENVIRONMENTAL SETTING

The site is located at 2059 Pray Meadow Road, Douglas County, Nevada. Vegetation consists of Jeffrey pine, basin sagebrush, bitterbrush, annual grasses and forbs. Slopes range between 2 and 8 percent on a southwestern aspect. This parcel fronts Lake Tahoe where a stable, well vegetated escarpment of greater than 30 percent slope separates the main body of the parcel from a thin area of vegetated terrace just above the wave-worked portion of the beach. There is a small area of stream environment zones (SEZ) influencing this parcel along a portion of the southerly property, supporting dominantly perennial grasses.

Soils are shown on TRPA map sheet H-10 as JaC (Jabu coarse sandy loam, 0 to 9 percent slopes). Geology (Bennett, 1968) is characterized as R1 (Recent Lake Beds). Bailey's (1974) geomorphic analysis shows the parcel within E₂ (Outwash, till and lake deposits).

Schutte Project Site



Figure 1 - Project Area (in blue)

METHODOLOGY

The parcel was surveyed as well as areas nearby. Sites considered representative of the landforms were chosen and an excavation was placed in each that are considered higher land capability to open and examine the soil profile in detail. SEZ areas supporting primary indicators and slopes exceeding 30 percent were not evaluated for soil

characteristics. 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 Resource Concepts Incorporated was available in the field for ground control and slope analysis. Information pertaining to land capability districts is shown on the attached base map.

FINDINGS

The parcel has a history of industrial usage and disturbance. Logging operations were centered here as part of the D. L. Bliss enterprises at the turn of the 19th century. As a result there are features such as mechanical terracing, remnant foundations at the shore line and some rubble from kilns. None of these features impact land use function.



Figure 2- Landform

Vegetation is dominantly mature Jeffrey pine with a somewhat clear understory of sagebrush, bitter brush and annual grasses. The landform is also dominantly convex, sloping gently to the southwest. Where slopes break to slightly concave on the south perennial grasses dominate.

Soils are found to be deep and well or excessively drained across the site where slopes are less than 16 percent. Soils viewed place in Soil Hydrologic Group A and B. Three separate terraces are present: a high elevation terrace supporting well developed soils in the Alfisol Order of Soil Taxonomy; two lower terraces display lesser developed soils in the Inceptisol or Entisol Orders. None of the soils viewed are within the range and characteristics of any soil mapped in the Lake Tahoe Basin.

Soils found on the upper terrace (Stop 2) are generally in the concept of the Jabu series except they lack fragipan morphology or a root restrictive layer in the profile. The topsoil is dark grayish brown loam or sandy loam to approximately 10 inches over yellowish brown heavy sandy loam or light sandy clay loam at 16 inches, underlain at 32 inches by

variegated dark yellowish brown and yellowish brown coarse sandy loam and sandy loam. Color variegation is attributable to presence of clay films and is not interpreted to be associated with a seasonally fluctuating groundwater table. Roots explore to 60 inches depth, common fine and medium tubular pores are visible throughout, and the soil is interpreted to be in Hydrologic Soil Group B.



Figure 3- Stop 2, upper terrace profile

The intermediate lake terrace (Stop 1) displays a coarse grained, deep and weakly developed soil with a very thick, very dark brown, dark grayish brown and dark brown topsoil of loamy sand to approximately 28 inches, underlain by dark yellowish brown loamy sand and gravelly loamy sand at 52 inches to greater than 60 inches depth. These soils place in Hydrologic Soil Group A. Soils found differ from the Elmira and Gefo series soils because of epipedon thickness.



Figure 4- Stop 1, intermediate terrace

A terrace just above the backshore and the swash zone of the beach supports a mixture of Jeffrey pine, bitterbrush, gooseberry, rabbit brush, and scattered Scouler's willow. This has a dark brown topsoil of sand and granular structure about 4 inches thick over single grain dark yellowish brown sand, abruptly over a buried surface of very dark grayish brown sand, root laden with granular structure, and underlain by dark yellowish brown sand to 40 inches where refusal with coarse fragments was met. This area shows disturbance from prior industrial usage. These soils are unnamed and place in HSG A.



Figure 5- Stop 3, low terrace.

The backshore is determined to be at the edge of permanent vegetation along the shoreline. Above that permanent vegetation line, the landforms are stable. About half of the backshore is lakeward of the westerly property boundary.

CONCLUSIONS AND RECOMMENDATIONS

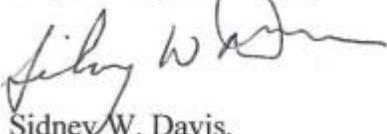
Soils found where slopes are in the 0 to 16 percent range with HSG A and B place in Land Capability Class 6 according to the criteria found in Bailey’s (1974) Land Capability Classification system. Class 6 is awarded 30 percent impervious coverage. Soils greater than 30 percent slope on the lake terrace apron place in Class 2 with 1 percent allowable coverage. Soils supporting perennial grasses are identified as SEZ and represent Mesic meadow characteristics, Class 1b, with 1 percent impervious coverage. Lands in the lake swash zone are Be (beaches), Class 1b, with 1 percent coverage.

Table 1 – Allowable Coverage

Lot Area	102366	Allowable Coverage	Total Coverage
XXX6	84666	25399.8	
XXX2	10445	104.45	
Be	967	9.67	
Backshore	2839	28.39	
SEZ	3449	34.49	
			25576.8

Please refer to the following soil profile descriptions that support the findings and the attached map showing the spatial distribution of the appropriate land capability classes on the parcel.

Respectfully submitted,



Sidney W. Davis,
CPSS /SC No. 1031

Representative Soil Profile Descriptions

Stop No. 1

A1 0 – 4 inches, very dark grayish brown (10YR 3/2) moist; loamy sand; strong fine granular and moderate medium platy structure; soft, loose, nonsticky and nonplastic; many fine medium and few coarse roots; five percent gravel; clear smooth boundary.

A2 4– 16 inches, very dark grayish brown (10YR 3/2) moist; loamy sand; weak fine granular structure; soft, loose, nonsticky and nonplastic; many fine medium and coarse roots; five percent gravel; gradual smooth boundary.

A3 16 – 28 inches, dark brown (10YR 3/3) moist; loamy sand; weak fine granular structure; soft, loose, nonsticky and nonplastic; many fine medium and coarse roots; five percent gravel; gradual wavy boundary.

C1 28 – 52 inches, brown (10YR 4/3) moist; loamy sand; single grain; slightly hard, very friable, nonsticky and nonplastic; common fine medium and few coarse roots; five percent gravel; gradual wavy boundary.

C2 52 – 60+ inches, dark yellowish brown (10YR 4/4) moist; granular loamy coarse sand; single grain; slightly hard, very friable, nonsticky and nonplastic; few fine medium coarse roots; twenty percent gravel.

Notes: Fine gravel to 52 inches. Rounded coarse gravel in C2. Thick dark A horizon.
Not Gefo.

Soil Series: Unnamed (XXX)

Soil Classification: Sandy, mixed, frigid, Cumulic Humixerepts

Drainage Class: Somewhat excessive

Hydrologic Soil Group: A

Stop No. 2

A1 0 – 4 inches, dark grayish brown (10YR 4/2) loam and very dark brown (10YR 2/2) moist; strong fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine medium and few coarse roots; many very fine and fine interstitial pores; clear smooth boundary.

A2 4 – 10 inches, grayish brown (10YR 5/2) sandy loam and very dark grayish brown (10YR 3/2) moist; moderate fine granular and few medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine medium and common coarse roots; common fine medium tubular pores; clear wavy boundary.

Bt1 10 – 16 inches, pale brown (10YR 6/3) sandy clay loam and brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common fine medium and common coarse roots; common fine medium tubular pores; many moderately thick clay films on face of peds and line pores; gradual wavy boundary.

2Bt2 16 – 32 inches, light yellowish brown (10YR 6/4) coarse sandy loam and dark yellowish brown (10YR 4/4) moist; massive in place, breaking to strong coarse angular blocky structure; hard, friable, sticky and plastic; common fine medium and coarse roots; common fine medium tubular pores; many moderately thick clay films on face of peds and line pores; gradual wavy boundary.

2Bt3 32 – 54 inches, yellowish brown (10YR 5/8) variegated with brownish yellow (10YR 6/6) sandy loam near loam and yellowish brown (10 YR 5/8) variegated with dark yellowish brown (10YR 4/6) moist; massive in place, breaking to strong coarse angular blocky structure; hard, friable, sticky and plastic; common fine, medium and coarse roots; common fine and medium tubular pores; many moderately thick clay films as bridges, on face of peds and line pores; gradual wavy boundary.

2BCt 54 – 60 inches, yellowish brown (10YR 5/8) variegated with brownish yellow (10YR 6/6) sandy loam and yellowish brown (10 YR 5/8) variegated with dark yellowish brown (10YR 4/6) moist; massive; hard, friable, sticky and plastic; few fine medium roots; common fine medium tubular pores, common thin clay films bridging sand grains.

Notes: Variegated colors are clay films. Old stable land form. Roots and tubular pores throughout. Base is eolain sand.

Soil Series: Unnamed (XXX)

Soil Classification: Fine-loamy, mixed, frigid, Ultic Haploxeralfs

Soil Drainage Class: Well drained

Hydrologic Soil Group: B

Stop No. 3

Oi 0 – 4 inches, conifer needles and sticks

A 4 – 10 inches, dark brown (10YR 3/3) moist, sand; weak fine granular structure; soft, loose, nonsticky and nonplastic; common fine medium roots; many very fine and fine interstitial pores; clear smooth boundary.

C 10 – 24 inches, brown (10YR 4/3) moist; sand; single grain; soft, loose, nonsticky and nonplastic; common fine medium roots; many very fine and fine interstitial pores; abrupt smooth boundary.

2Ab 24 – 30 inches, very dark grayish brown (10YR 3/2) moist; sand; weak fine granular structure; soft, loose, nonsticky and nonplastic; many medium coarse roots; many very fine and fine interstitial pores; abrupt smooth boundary.

2C1 30 – 40 inches, brown (10YR 4/3) moist; sand; single grain; soft, loose, nonsticky and nonplastic; common fine and few medium roots; many very fine and fine interstitial pores.

Notes: Stopped by coarse frags at 40 inches. Near shore deposit. Masonry bricks on surface and some buried at 40 inches.

Soil Series: Unnamed (XXX)

Soil Classification: Mixed, frigid, Typic Xerofluvents

Soil Drainage Class: Excessive

Hydrologic Soil Group: A