Exhibit C-1

RGH CONSULTANTS
Experience is the difference

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December 29, 2022

Rao Meka
4473 Atlas Peak Road
Napa, California
rmeka@protonmail.com

Geologic Study
Meka Vineyard Landslide Study
4473 Atlas Peak Road
Napa, California

Project Number: 7615.01.09.2

INTRODUCTION

This report presents the results of our geologic study of the portions of the property to be planted as a vineyard at 4473 Atlas Peak in Napa, California and is designated as (APN 032-540-034). The proposed vineyards encompass approximately 22.9-acres of the 91-acre parcel lot and are designated as vineyard blocks A, B and C. The services are being performed in accordance with our Professional Services Agreement with you dated August 23, 2022. The project site location is shown on Plate 1.

SCOPE

On October 12, 2022 our Engineering Geologist performed a reconnaissance of the site to map surficial features for the three vineyard blocks. This reconnaissance was performed with the intent to comply with Napa County Code Section 18.108.027 (F). Our reconnaissance revealed the landslide feature discussed herein within planned Vineyard Block A. Following discussions with the project civil engineer and the property owner, it was requested that subsurface exploration of the suspected landslide feature be performed. Based on the geologic analysis of the field and laboratory work, we have provided options to address of the landslide to allow the area to be planted as a vineyard.

Our scope of work was limited to evaluating the subsurface conditions of the landslide by excavating test pits to reveal the depth and lateral extent of the landslide feature, analyzing the field and laboratory data, and preparation of this report.

STUDY

Site Exploration

On November 4, 2022, we performed a geologic reconnaissance of the Vineyard Block A site and explored the subsurface conditions within the suspected landslide by excavating four test pits to depths ranging from about 8½ to 12 feet. The test pits were excavated with a track-mounted excavator at the approximate locations shown on the Exploration Plan, Plate 2. The test pit locations were determined approximately and should be considered accurate only to the degree implied by the method used. Our personnel located and logged the test pits and obtained samples of the materials encountered for visual examination, classification, and laboratory testing. Disturbed "grab" samples were obtained at selected depths from our test pits and placed in plastic bags.

The logs of the test pits showing the materials encountered, groundwater conditions, and sample depths are presented on Plates 4 and 5. The soils and bedrock encountered are described in accordance with the Unified Soil Classification System and Engineering Geology Rock Terms, outlined on Plates 6 and 7.

The samples obtained from the test pits were transported to our office and re-examined to verify soil classifications, evaluate characteristics, and assign tests pertinent to our analysis. A selected sample was laboratory tested to determine its classification (Atterberg Limits, percent of silt and clay) and expansion potential (Expansion Index- EI). Results of classification and expansion potential are presented of the test pit logs and on Plate 8.

The test pit logs show our interpretation of the subsurface soil conditions on the date and at the locations indicated. Subsurface conditions may vary at other locations and times. Our interpretation is based on visual inspection of soil and bedrock samples, laboratory test results, and interpretation of excavation resistance. The location of the soil and bedrock boundaries should be considered approximate. The transition between soil and bedrock types may be gradual.

SITE CONDITIONS

The project site is located southwest of Atlas Peak Road on a moderately sloping eastern facing slope. There are two wetlands areas located near the center of the proposed Vineyard Block A. Setbacks to the wetlands have been established and mapped by the project civil engineer (Applied Civil Engineering, 2022).

Geology and Landslides

Published geologic maps (Bezore et.al, 2005 and Delattre and Sowers, 2006) indicate that the study area is located on Holocene and Pleistocene age large-scale landslide deposits.

Published landslide maps (https://maps.conservation.ca.gov/cgs/lsi/app/, and Dwyer et. al., 1976) indicate the property is located within a probable large-scale landslide block within a definite and dormant larger landslide. This feature is mapped as approximately two miles wide by approximately one mile long and is shown below. These large-scale features were likely the result of geologic conditions different than current conditions, and although smaller active landslides are common within these features, the likelihood of the entire feature becoming reactivated is low. Evaluation of the global stability of this large-scale feature is outside the scope of work for this project.

We mapped the surface expression of the landslide and natural springs within Vineyard Block A, as shown on Plate 2. The landslide was identified using landslide identification nomenclature presented on Plate 3. The landslide in Vineyard Block A was designated as a translational slide with definite certainty, a thickness between 5 and 20 feet deep and dormant state of activity.

Subsurface

Our test pits and laboratory tests indicate that the landslide deposits in the southern portion of Vineyard Block A range in thickness from about 5 to greater than 12 feet. In test pit TP-2 we were unable to reach the bottom of the landslide deposits due to the capabilities of the exploration equipment. We judge that slide plane should be within a few feet of the depth of our exploration based on the depth of the slide plane encountered in test pits TP-1 and TP-4 located immediately upslope and downslope respectively of test pit TP-2. The landslide deposits are generally comprised of a heterogeneous mixture of sandy silt with cobbles and boulders. These deposits exhibit low plasticity (LL=39.8 and PI=11.5) and very low expansion potential (EI=11). A detailed description of the subsurface conditions found in our test pits is given on Plates 4 and 5. Free groundwater was not encountered in our test pits at the time of excavation.

CONCLUSIONS

Based on our reconnaissance of the three vineyard blocks we judge that it is geologically feasible to plant Vineyard Blocks B and C as planned. We did not observe any slope instabilities or wetlands within these blocks. Additionally, we judge that it is feasible to plant Vineyard Block A as planned provided the recommendations presented herein are applied. Setbacks to existing wetlands within Vineyard Block A have already been established by Applied Civil Engineering.

We judge that there are three suitable options for development of the Vineyard Block A that address the landslide: Option 1 includes excavating the landslide deposits and replacing the excavated material as a buttress fill; Option 2 includes installing subsurface drainage and recontouring the slopes to provide positive drainage; Option 3 includes providing a set back from the edges of the slide for vineyard development. There are advantages and disadvantages to each mitigation measure. The potential advantages and disadvantages for each mitigation measure are presented below.

Hillside Buttress Repair

- Advantage: Confidence of performance higher than subsurface drainage and recontour mitigation.
- Disadvantage: Costly and compacted fill generally less suitable for vineyard plantings.

Subsurface Drainage and Recontour Slope to Original Grades

- Advantage: Can recontour slope to original grades and plant. Not engineered fill, so vines can grow unhindered by compacted fill.
- Disadvantage: Confidence of performance lower than hillside buttress repair. May need maintenance over time.

Avoid Planting within 30 feet of Mapped Landslide

- Advantage: Reduces remediation costs
- Disadvantage: Reduces size of vineyard in mapped landslide area.

RECOMMENDATIONS

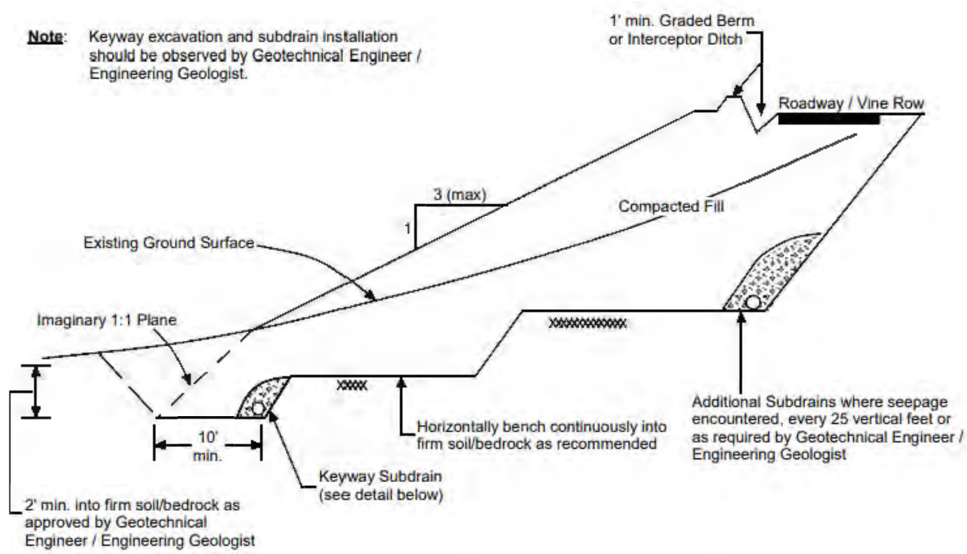
Option 1: Hillside Buttress Repair

Site Preparation - The area to be mitigated should be cleared of vegetation and primary root systems grubbed. Cleared and grubbed material should be removed from the site and disposed of in accordance with County Health Department guidelines. We did not observe septic tanks, leach lines or underground fuel tanks during our study. Any such appurtenances found during grading should be capped and sealed and/or excavated and removed from the site, respectively, in accordance with established guidelines and requirements of the County Health Department. Voids created during clearing should be backfilled with engineered fill as recommended herein.

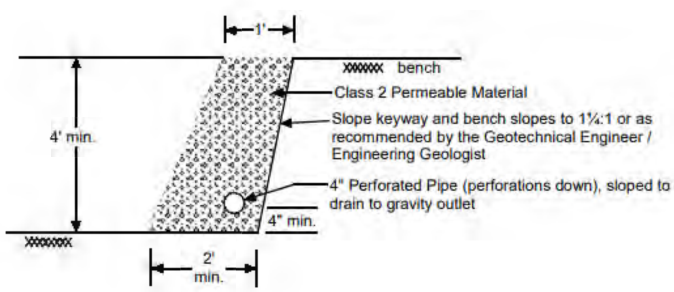
Stripping – Areas to be graded should be stripped of the upper few inches of soil containing organic matter. Soil containing more than two percent by weight of organic matter should be considered organic. Actual stripping depth should be determined by a representative of the engineering geologist in the field at the time of stripping. The strippings should be removed from site, or if suitable, stockpiled for re-use as topsoil in landscaping.

Excavations – Following initial site preparation, excavation should be performed as recommended herein. Excavations for removal of the landslide debris should be backfilled with suitable materials compacted to the requirements given below. The landslide deposits and any weak, porous, surface soils should be excavated to within 6 inches of their entire depth (about 5 to greater than 12 feet in our pits). Fill should be constructed by excavating a level keyway that expose undisturbed bedrock. The keyway should be at least 10 feet wide, extend at least 2 feet below the bedrock or ancient/dormant landslide deposits surface on the downhill side and should be sloped to drain to the rear. The keyway excavation should extend laterally to at least a 1:1 imaginary line extending down from the toe of the fill as shown in illustration below. Keyway subdrains are discussed hereinafter in "Subsurface Drainage."

HILLSIDE GRADING ILLUSTRATION
(Not To Scale)



KEYWAY SUBDRAIN
(Not To Scale)



Excavation of hard resistant bedrock at the site may require heavy ripping and/or jackhammering. The grading contractor should review this report, become familiar with site conditions as they pertain to their operation and draw their own conclusions regarding excavation difficulty and suitable grading equipment. At all times, temporary construction excavations should conform to the regulations of the State of California, Department of Industrial Relations, Division of Industrial Safety or other stricter governing regulations. The stability of temporary cut slopes, such as those constructed during the installation of underground utilities, should be the responsibility of the contractor. Depending on the time of year when grading is performed, and the surface conditions exposed, temporary cut slopes may need to be excavated to 1½:1, or flatter. The tops of the temporary cut slopes should be rounded back to 2:1 in weak soil zones.

Subsurface Drainage - A subdrain should be installed at the rear of the keyways and/or where evidence of seepage is observed, if applicable. The subdrain should consist of a 4-inch diameter (minimum) perforated plastic pipe with SDR 35 or better embedded in Class 2 permeable material. The permeable material should be at least 12 inches thick and extend at least 48 inches above the bottom of the keyway (see illustration above) and/or 12 inches above and below the seepage zone, if encountered.

The depth and extent of subdrains should be determined and approved by the engineering geologist in the field during construction. In addition, subdrains should be installed at a minimum slope of 1 percent and should have cleanouts located at their ends and at turning points. “Sweep” type elbows and wyes should be used at all turning points and cleanouts, respectively. Subdrain outlets and riser cleanouts should be fabricated of the same material as the subdrain pipe as specified herein. Outlet and riser pipe fittings should not be perforated. A licensed land surveyor or civil engineer should provide “record drawings” depicting the locations of subdrains and cleanouts.

Fill Quality - All fill materials should be free of perishable matter and rocks or lumps over 6 inches in diameter and must be approved by the geotechnical engineer prior to use. We judge the on-site soils are generally suitable for use as general fill.

Fill Placement -The surface exposed by stripping and removal of the landslide deposits, should be scarified to a depth of at least 6 inches, uniformly moisture-conditioned to near optimum to at least 3 percent above optimum and compacted to at least 90 percent of the maximum dry density of the materials as determined by ASTM Test Method D-1557. Approved fill material should then be spread in thin lifts, uniformly moisture-conditioned to at least 3 percent above optimum and properly compacted. All structural fills, including those placed to establish site surface drainage, should be compacted to at least 90 percent relative compaction. Fills should be continually keyed and benched into firm, undisturbed bedrock or ancient/dormant landslide materials.

Permanent Cut and Fill Slopes - In general, the buttress fill slope should be designed and constructed at slope gradient of 2:1 (horizontal to vertical) or flatter. Fill should be constructed by overfilling and cutting the slope to final grade. “Track walking” of a slope to achieve slope compaction is not an acceptable procedure for slope construction. The engineering geologist is not responsible for measuring the angles of these slopes. Denuded slopes should be planted with fast-growing, deep-rooted groundcover to reduce sloughing or erosion. The cut and fill slope inclinations recommended herein address only the stability of the slopes. It should not be inferred that they address the feasibility of landscaping and weed control. Where these are concerns, the slopes should be flattened accordingly.

Wet Weather Grading - Generally, grading is performed more economically during the summer months when the on-site soil is usually dry of optimum moisture content. Delays should be anticipated in site grading performed during the rainy season or early spring due to excessive moisture in on-site soil. Special and relatively expensive construction procedures, including dewatering of excavations and importing granular soil, should be anticipated if grading must be completed during the winter and early spring or if localized areas of soft saturated soil are found during grading in the summer and fall.

Open excavations also tend to be more unstable during wet weather as groundwater seeps towards the exposed cut slope. Severe sloughing and occasional slope failures should be anticipated. The occurrence of these events will require extensive clean up and the installation of slope protection measures, thus delaying projects. The general contractor is responsible for the performance, maintenance, and repair of temporary cut slopes.

Surface Drainage – Surface water should be diverted away from the landslide. This water should be collected and diverted into erosion resistant drainages well away from the project site.

Option 2: Subsurface Drainage and Recontour Slope

Site Preparation-The area to be mitigated should be cleared of vegetation and debris. The slide surface should be recontoured to prevent surface water from ponding or connecting with subsurface water. Any depressions that might retain water should be removed. Infilling and sealing large cracks in the soil surface should be performed to prevent surface water from reaching the failure plane.

Subsurface Drainage-Subsurface drainage should be installed extending to the base of the recent landslide plane (about 5 to greater than 12 feet in our pits). Drainage should consist of a 4-inch diameter (minimum) perforated plastic pipe with SDR 35 or better embedded in Class 2 permeable material. The Class 2 permeable material should extend to within 2 feet of the surface. The upper 2 feet should be backfilled with compacted soil to exclude surface water.

The depth and extent of subdrains should be determined and approved by the geotechnical engineer in the field during construction. In addition, subdrains should be installed at a minimum slope of 1 percent and should have cleanouts located at their ends and at turning points. “Sweep” type elbows and wyes should be used at all turning points and cleanouts, respectively. Subdrain outlets and riser cleanouts should be fabricated of the same material as the subdrain pipe as specified herein. Outlet and riser pipe fittings should not be perforated. A licensed land surveyor or civil engineer should provide “record drawings” depicting the locations of subdrains and cleanouts.

Surface Drainage – Surface water should be diverted away from the landslide. This water should be collected and diverted into erosion resistant drainages well away from the project site.

Option 3: Avoid Planting in Mapped Landslide Area

Provided mitigation of the landslide is not performed, setbacks for vineyard plantings and avenues should be maintained at 30 feet or greater from the mapped perimeter of the landslide shown on Plate 2.

Maintenance - Periodic land maintenance, especially on hillsides, will be required. Surface and subsurface drainage facilities should be checked frequently, cleaned and maintained as necessary or at least annually. A dense growth of deep-rooted ground cover must be maintained on all slopes to reduce sloughing and erosion. Sloughing and erosion that occurs must be repaired promptly before it can enlarge.

SUPPLEMENTAL SERVICES

Pre-Bid Meeting

It has been our experience that contractors bidding on the project often contact us to discuss the geotechnical aspects. Informal contacts between RGH Consultants (RGH) and an individual contractor could result in incomplete or misinterpreted information being provided to the contractor. Therefore, we recommend a pre-bid meeting be held to answer any questions about the report prior to submittal of bids. If this is not possible, questions or clarifications regarding this report should be directed to the project owner or their designated representative. After consultation with RGH, the project owner or their representative should provide clarifications or additional information to all contractors bidding the job.

Plan and Specifications Review

Coordination between the design team and the geotechnical engineer is recommended to assure that the design is compatible with the soil, geologic and groundwater conditions encountered during our study. RGH recommends that we be retained to review the project plans and specifications to determine if they are consistent with our recommendations. In the event we are not retained to perform this recommended review, we will assume no responsibility for misinterpretation of our recommendations.

Construction Observation and Testing

Prior to construction, a meeting should be held at the site that includes, but is not limited to, the owner or owner's representative, the general contractor, the grading contractor, any specialty contractors, the project civil engineer, other members of the project design team and RGH. This meeting should serve as a time to discuss and answer questions regarding the recommendations presented herein and to establish the coordination procedure between the contractors and RGH.

In addition, we should be retained to monitor all soil related work during construction, including:

- Site stripping, over-excavation, grading, and compaction of near surface soil;
- Placement of all engineered fill with verification field and laboratory testing;
- Observation of all excavations; and
- Observation of subdrain installations.

If, during construction, we observe subsurface conditions different from those encountered during the explorations, we should be allowed to amend our recommendations accordingly. If different conditions are observed by others, or appear to be present beneath excavations, RGH should be advised at once so that these conditions may be evaluated and our recommendations reviewed and updated, if warranted. The validity of recommendations made in this report is contingent upon our being notified and retained to review the changed conditions.

If more than 18 months have elapsed between the submission of this report and the start of work at the site, or if conditions have changed because of natural causes or construction operations at, or adjacent to, the site, the recommendations made in this report may no longer be valid or appropriate. In such case, we recommend that we be retained to review this report and verify the applicability of the conclusions and recommendations or modify the same considering the time lapsed or changed conditions. The validity of recommendations made in this report is contingent upon such review.

These supplemental services are performed on an as-requested basis and are in addition to this geotechnical study. We cannot accept responsibility for items that we are not notified to observe or for changed conditions we are not allowed to review.

LIMITATIONS

This report has been prepared by RGH for the exclusive use of Rao Meka and his consultants to evaluate the geotechnical feasibility of vineyard development within the property.

The validity of the recommendations contained in this report depends upon an adequate testing and monitoring program during the construction phase. Unless the construction monitoring and testing program is provided by our firm, we will not be held responsible for compliance with design recommendations presented in this report and other addendum submitted as part of this report.

Our services consist of professional opinions and conclusions developed in accordance with generally accepted geotechnical engineering principles and practices. We provide no warranty, either expressed or implied. Our conclusions and recommendations are based on the information provided to us regarding the proposed construction, the results of our field exploration, laboratory testing program, and professional judgment. Verification of our conclusions and recommendations is subject to our review of the project plans and specifications, and our observation of construction.

The test pits represent the subsurface conditions at the locations and on the date indicated. It is not warranted that they are representative of such conditions elsewhere or at other times. Site conditions and cultural features described in the text of this report are those existing at the time of our field exploration and may not necessarily be the same or comparable at other times.

It should be understood that slope failures including landslides, debris flows and erosion are on-going natural processes which gradually wear away the landscape. Residual soil and weathered bedrock can be susceptible to downslope movement, even on apparently stable sites. Such inherent hillside and slope risks are generally more prevalent during periods of intense and prolonged rainfall, which occasionally occur, in northern California and/or during earthquakes. Therefore, it must be accepted that occasional, unpredictable slope failure and erosion and deposition of the residual soil and weathered bedrock materials are irreducible risks and hazards of building upon or near the base of any hillside or any steeper slope area throughout northern California. By accepting this report, the client and other recipients acknowledge their understanding and acceptance of these risks and hazards, and the terms and conditions herein.

The scope of our services did not include an environmental assessment or a study of the presence or absence of hazardous, toxic or corrosive materials in the soil, surface water, groundwater or air on, below, or around this site, nor did it include an evaluation or study for the presence or absence of wetlands. These studies should be conducted under separate cover, scope and fee and should be provided by a qualified expert in those fields.

We trust this provides the information you require at this time. We are available to provide additional evaluation during your planning phase and can present a proposal for the recommended supplemental services, as appropriate. If you have questions or wish to discuss this further, please call.

Very truly yours,
RGH Consultants

CERTIFIED ENGINEERING GEOLOGIST
RYAN ERIC PADGETT
No. 2620
STATE OF CALIFORNIA

Ryan E. Padgett
Project Manager
Senior Engineering Geologist

cc: Mike Muelrath
mike@appliedcivil.com

CERTIFIED ENGINEERING GEOLOGIST
JARED JACKSON PRATT
No. 2453
STATE OF CALIFORNIA

Jared J. Pratt
Principal Engineering Geologist

REP:JJP:jml:brw

https://rghgeo.sharepoint.com/sites/shared/shared documents/project files/7501-7750/7615/7615.01.09.2 meka vineyard landslide hazard evaluation/7615.01.09.2 geologic report.docx

Attachments: Plate 1 Site Location Map
Plate 2 Exploration Plan
Plate 3 Landslide Identification Nomenclature
Plate 4 Log of Test Pits TP-1 and TP-2
Plate 5 Log of Test Pits TP-3 and TP-4
Plate 6 Soil Classification and Key to Test Data
Plate 7 Engineering Geology Rock Terms
Plate 8 Classification Test Data

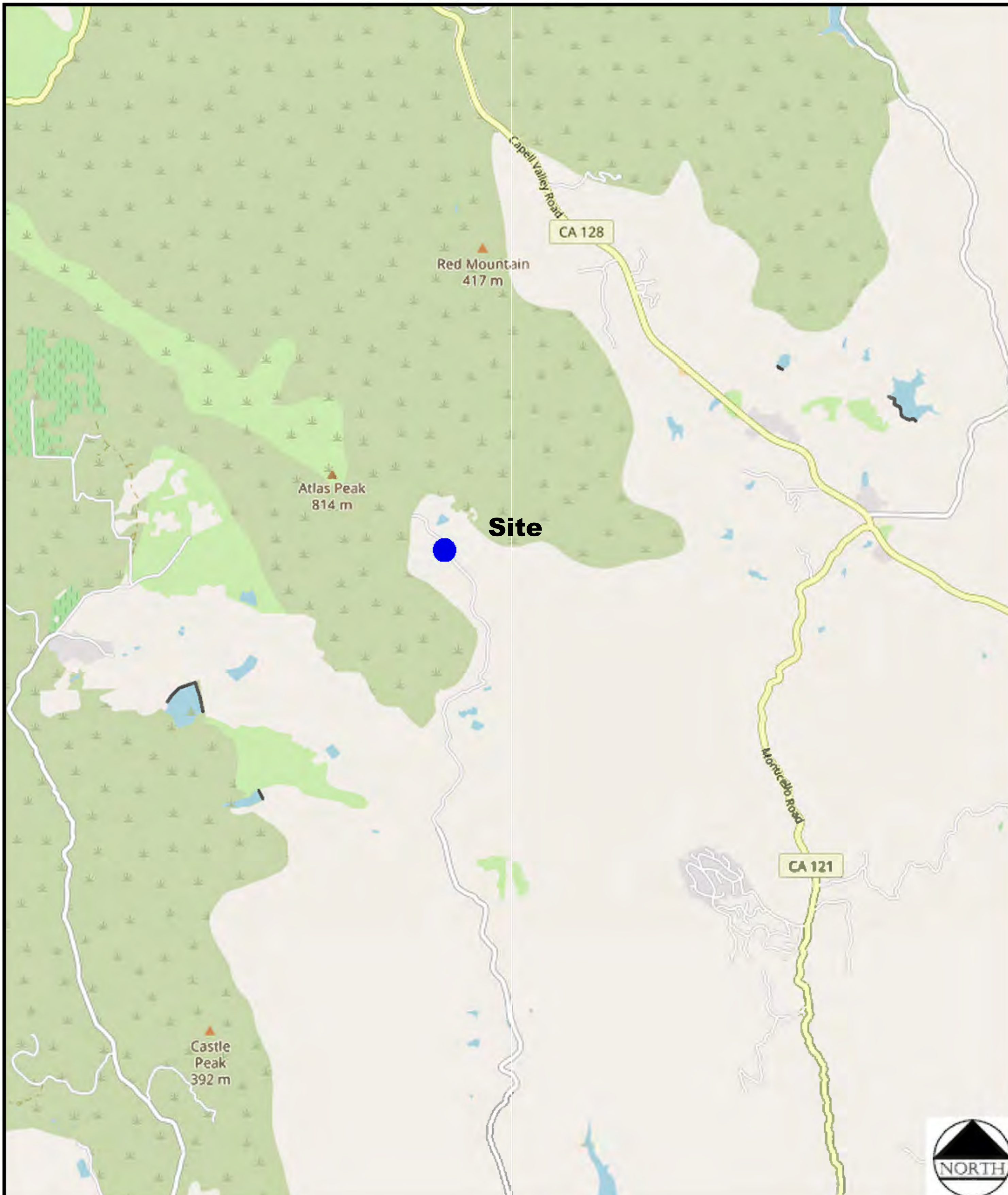
References:

Applied Civil Engineering, July 2022, Meka Vineyard, Vineyard Planning Exhibits

Bezore, S.P., Clahan, K.B., Sowers, J.M., and Witter, R.C., 2005, Geologic Map of the Yountville 7.5' Quadrangle, Napa County, California: A Digital Database: California Geological Survey.

Dwyer, M.J., Noguchi, N., and O'Rourke, J., 1976, Reconnaissance Photo-Interpretation Map of Landslides in 24 Selected 7.5-Minute Quadrangles in Lake, Napa, Solano, and Sonoma Counties, California: U.S. Geological Survey OFR 76-74, 25 Plates, Scale 1:24,000.

Delattre, M.P. and Sowers, J.M., 2006, Geologic Map of the Capell Valley 7.5' Quadrangle, Napa County, California: A Digital Database: California Geological Survey.



Reference: Mapline

Scale: 1" = 5000'

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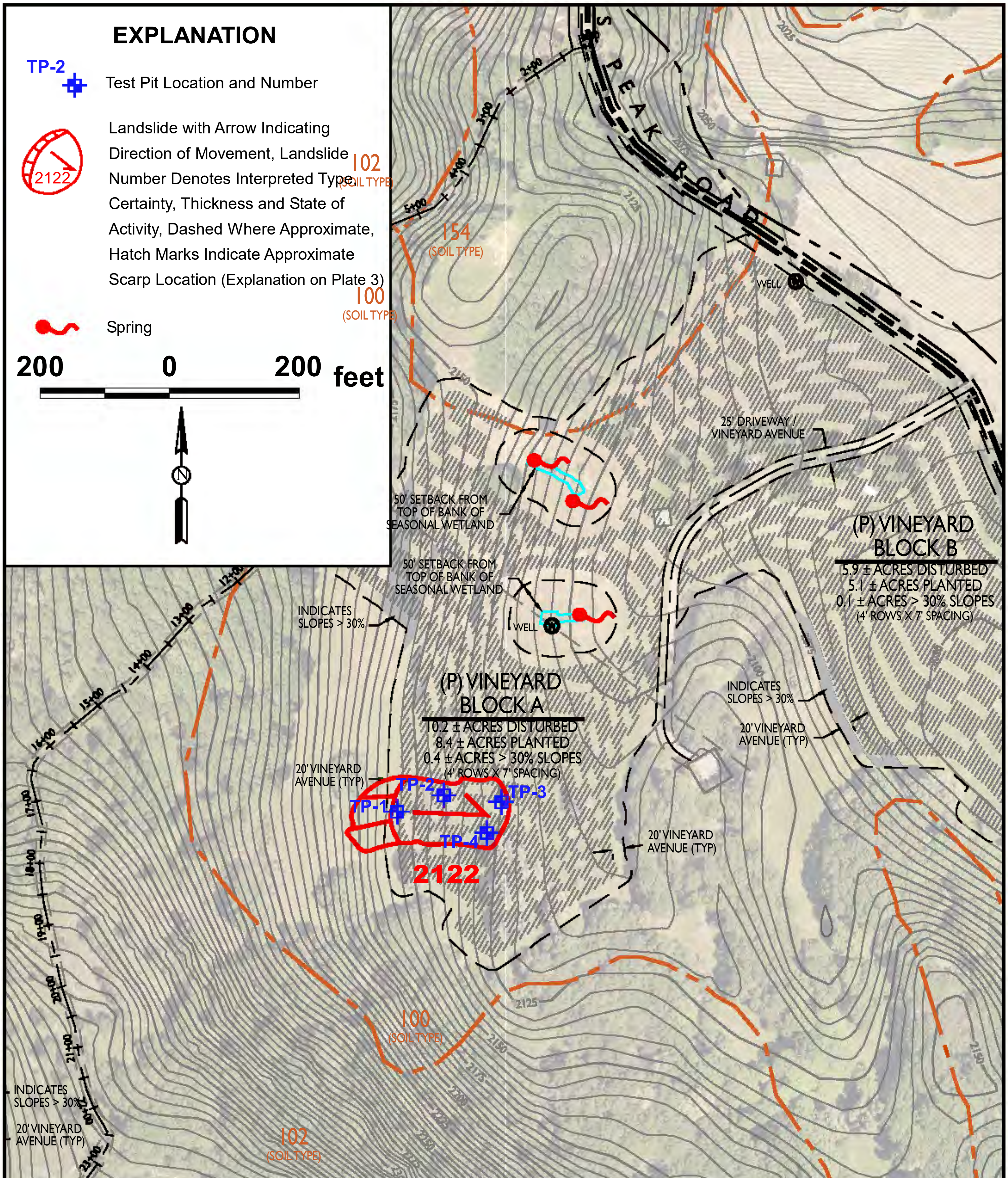
SITE LOCATION MAP
Meka Vineyard Landslide Hazard Evaluation
4473 Atlas Peak Road
Napa, California

PLATE 1

Job No: 7615.01.09.2 | Date: DEC 2022



102 (SOIL TYPE)

Reference: Overall Site Plan Titled Meka Vineyard by Applied Civil Engineering, Sheet 3 Scale: 1" = 200'

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152 (SOIL TYPE)

Job No: 7615.01.09.2 | Date: DEC 2022

EXPLORATION PLAN
Meka Vineyard Landslide Hazard Evaluation
4473 Atlas Peak Road
Napa, California

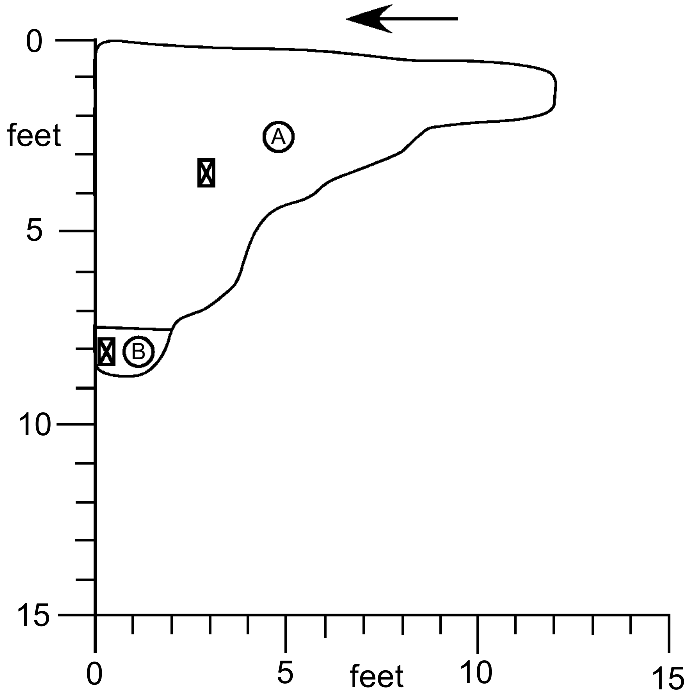
PLATE
2

APN 032-540-042
LANDS OF FLOYD
4377 ATLAS PEAK ROAD

Landslide Identification Nomenclature *		
Type of Landslide Movement		
1	Rotational (Earth Slump)	Movement due to forces that cause a turning moment about a point above the center of gravity of the unit.
2	Translational	Movement predominantly along more or less planar or gently undulatory surfaces.
3	Debris Flow	Rapid movement (50 to 80 kph) within displaced mass such that the form taken by moving material or the apparent distribution of velocities and displacements resemble those of viscous fluids.
4	Earth Flow	Downslope viscous flow of fine grained materials that have been saturated and moves under the pull of gravity. Typically slow moving (a few meters per day or less).
5	Debris Slide	Unconsolidated rock and soil moved downslope along a relatively shallow failure plane
6	Rock Fall	Fragments of rock detached by toppling or falling that falls along a vertical or sub-vertical cliff.
C	Many landslides consist of one or more type of movement. The listed type of movement is modified with a “C” to indicate a Complex of landslides.	
Certainty of Landslide Identification		
1	Definite	
2	Probable	
3	Questionable	
Estimated Thickness of Landslide Deposits		
1	Less than 5 feet	
2	5 to 20 feet	
3	20 to 50 feet	
4	Greater than 50 feet	
State of Landslide Activity		
1	Recently Active	Currently moving or estimated movement within recent years.
2	Dormant	Marginally stable with mature and subdued expression of the landslide. Mostly re-vegetated.
3	Ancient	Most landslide features are eroded. Heavily vegetated.

* The landslide identification mapping is designed for planning purposes only and should not be used in lieu of a detailed site specific investigation. Our mapping should be considered preliminary and for feasibility and planning purposes only. A subsurface study may reveal conditions different from those inferred by surface observations and data review only. Such subsurface study may warrant a revision to our preliminary mapping.

TP-1
W 255°



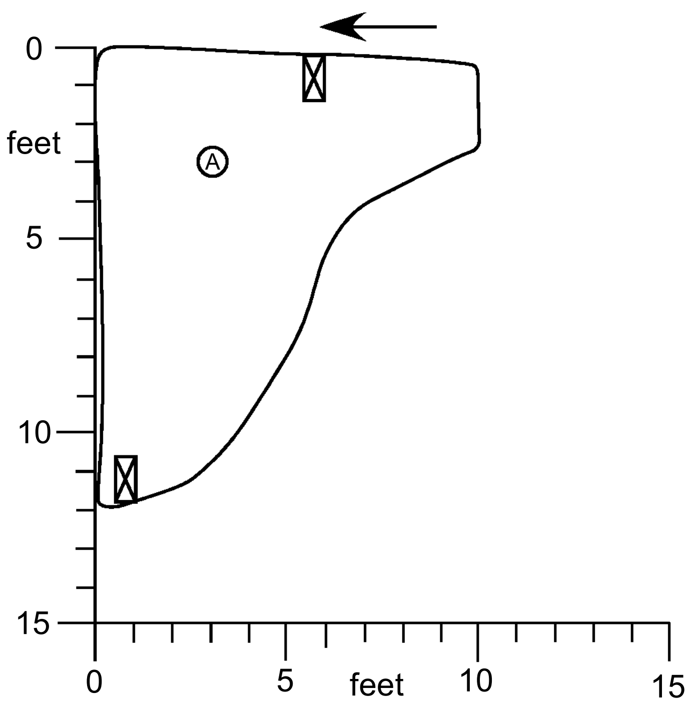
Ⓐ REDDISH BROWN SANDY SILT WITH COBBLES AND BOULDERS (ML), stiff, dry, porous in upper 1/2 foot, abundant fine rootlets, tree roots to 7-1/2 feet, matrix supported with cobble sized sunrounded to subangular volcanic clasts scattered, picks up subangular boulders towards bottom (Landslide Deposits)

LL=39.8, PI=11.5, %<#200=54.8, EI=11(very low)

Ⓑ REDDISH BROWN AGGLOMERATE, massive, firm to moderately hard, moderately strong, moderately to highly weathered, resistant, subrounded volcanic cobbles and boulders within a weathered matrix

Excavator refusal at 8-1/2 feet
No groundwater encountered

TP-2
W 248°

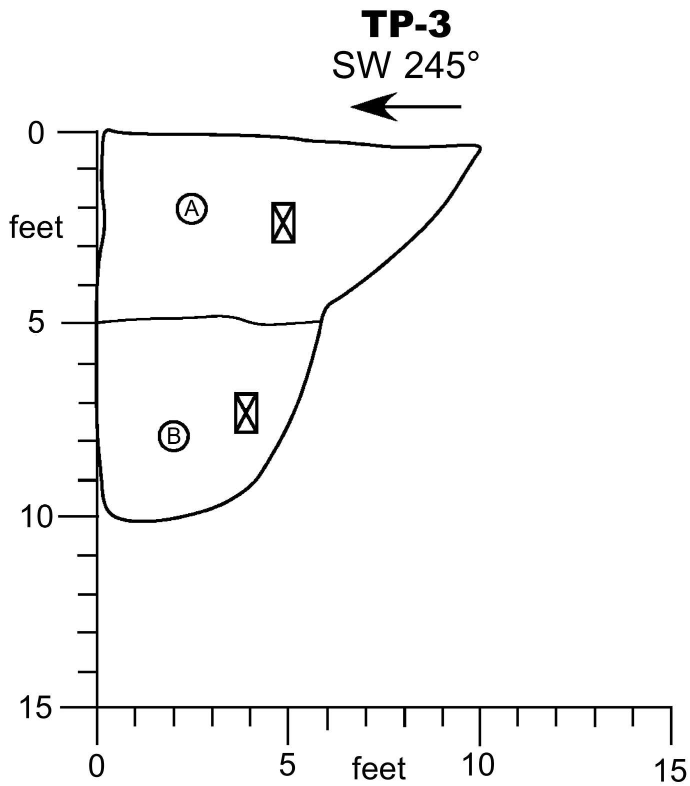


Ⓐ REDDISH BROWN SANDY SILT WITH COBBLES AND BOULDERS (ML), stiff, dry, porous in upper 1/2 foot, abundant fine rootlets, tree roots to 7-1/2 feet, matrix supported with minor subrounded cobbles, scattered, subangular boulders towards bottom (Landslide Deposits)

No Groundwater encountered

Scale: 1" = 5'

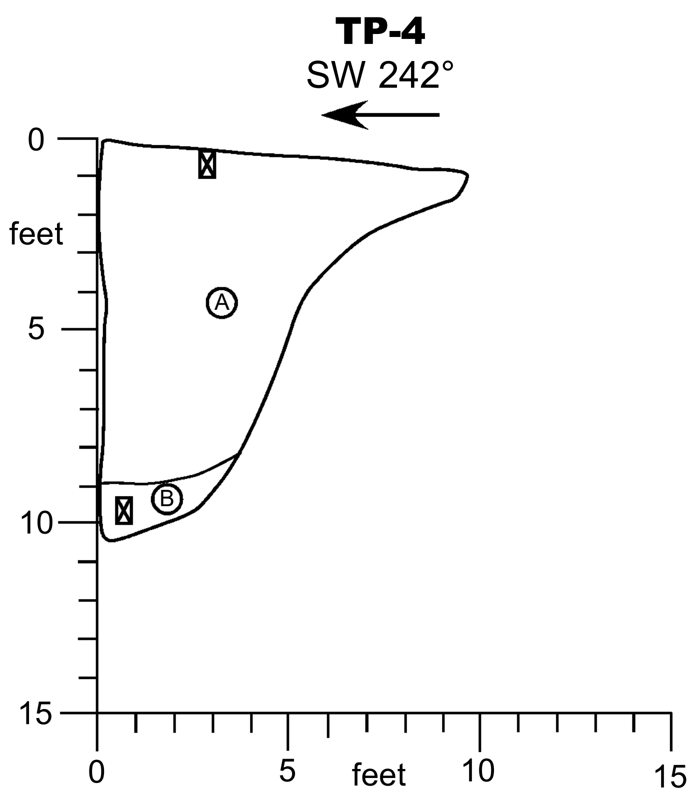
RGH CONSULTANTS	**LOGS OF TEST PITS TP-1 AND TP-2** Meka Vineyard Landslide Hazard Evaluation 4473 Atlas Peak Road Napa, California	PLATE **4**
Job No: 7615.01.09.2 / Date: DEC 2022		



Ⓐ REDDISH BROWN BOULDERS AND COBBLES WITH SILT AND SAND, loose in upper 1 foot, dry, porous in upper 1 foot, rootlets, matrix supported, subangular to subrounded cobbles and boulders, boulders up to 3 feet long and 2 feet wide (Landslide Deposit)

Ⓑ YELLOW BROWN TUFFACEOUS AGGLOMERATE, massive, firm to moderately hard, moderately strong, moderately to highly weathered, basaltic andesite clasts in SILTY/SAND matrix

No groundwater encountered



Ⓐ REDDISH BROWN BOULDERS AND COBBLES WITH SILT AND SAND, loose in upper 1 foot, dry and porous in upper 2 feet, rootlets, matrix supported, subangular to subrounded cobbles and boulders, boulders up to 3 feet long and 2 feet wide (Landslide Deposit)

Ⓑ YELLOW / BROWN LITHIC TUFF, massive, firm to moderately hard, weak to moderately strong, highly weathered

Excavator refusal at 10-1/2 feet
No groundwater encountered

Scale: 1" = 5'

RGH CONSULTANTS	**LOGS OF TEST PITS TP-3 AND TP-4** Meka Vineyard Landslide Hazard Evaluation 4473 Atlas Peak Road Napa, California	PLATE **5**
Job No: 7615.01.09.2 Date: DEC 2022		

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOLS: GRAPH	SYMBOLS: LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR FINES)		GW	WELL-GRADED GRAVEL GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVEL, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVEL WITH FINES (OVER 12% OF FINES)		GM	WELL-GRADED GRAVEL, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GC	CLAYEY GRAVEL, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SAND, GRAVELLY SAND, LITTLE OR NO FINES
				SP	POORLY-GRADED SAND, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (OVER 12% OF FINES)		SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
				SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANICS SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	ORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS AND OTHER SOILS WITH HIGH ORGANIC-CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

KEY TO TEST DATA

Consol - Consolidation
Gs - Specific Gravity
SA - Sieve Analysis
■ - "Undisturbed" Sample
☒ - Bulk or Disturbed Sample
◪ - Standard Penetration Test
⧄ - Sample Attempt With No Recovery
☐ - Sample Recovered But Not Retained

	Shear Strength, psf	Confining Pressure, psf	
Tx	320	(2600)	- Unconsolidated Undrained Traixial
TxCU	320	(2600)	- Consolidated Undrained Triaxial
DS	2750	(2600)	- Consolidated Drained Direct Shear
UC	2000		- Unconfined Compression
FVS	470		- Field Vane Shear
LVS	700		- Laboratory Vane Shear
SS			- Shrink Swell
EXP			- Expansion
P			- Permeability

Note: All strength tests on 2.8-in. or 2.4-in. diameter sample, unless otherwise indicated.

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Job No: 7615.01.09.2 | Date: DEC 2022

SOIL CLASSIFICATION AND KEY TO TEST DATA
Meka Vineyard Landslide Hazard Evaluation
4473 Atlas Peak Road
Napa, California

PLATE 6

LAYERING

MASSIVE	Greater than 6 feet
THICKLY BEDDED	2 to 6 feet
MEDIUM BEDDED	8 to 24 inches
THINLY BEDDED	2½ to 8 inches
VERY THINLY BEDDED	¾ to 2½ inches
CLOSELY LAMINATED	¼ to ¾ inches
VERY CLOSELY LAMINATED	Less than ¼ inch

JOINT, FRACTURE, OR SHEAR SPACING

VERY WIDELY SPACED	Greater than 6 feet
WIDELY SPACED	2 to 6 feet
MODERATELY SPACED	8 to 24 inches
CLOSELY SPACED	2½ to 8 inches
VERY CLOSELY SPACED	¾ to 2½ inches
EXTREMELY CLOSELY SPACED	Less than ¼ inch

HARDNESS

Soft - pliable; can be dug by hand
Firm - can be gouged deeply or carved with a pocket knife
Moderately Hard - can be readily scratched by a knife blade; scratch leaves heavy trace of dust and is readily visible after the powder has been blown away
Hard - can be scratched with difficulty; scratch produces little powder and is often faintly visible
Very Hard - cannot be scratched with pocket knife, leaves a metallic streak

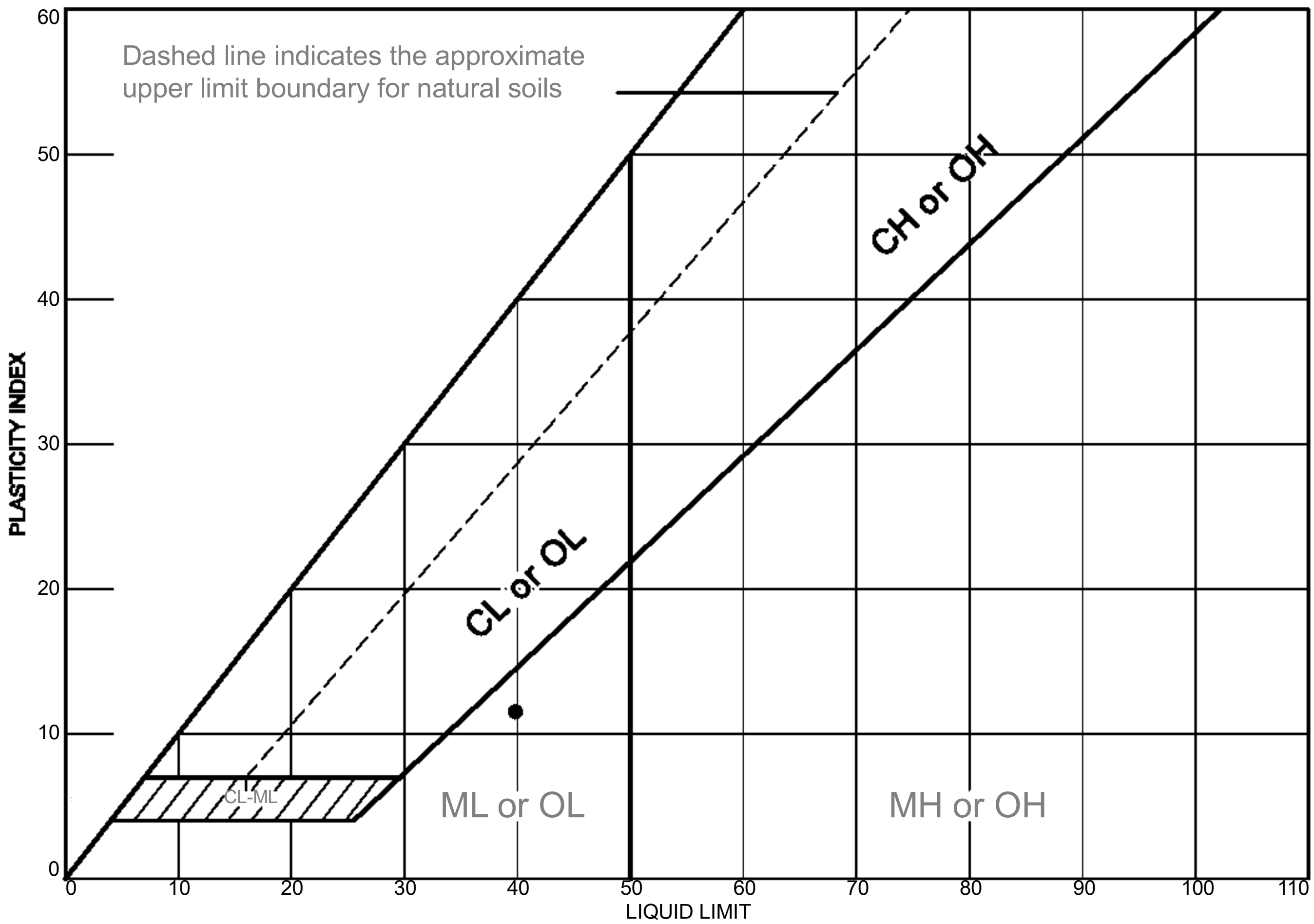
STRENGTH

Plastic - capable of being molded by hand
Friable - crumbles by rubbing with fingers
Weak - an unfractured specimen of such material will crumble under light hammer blows
Moderately Strong - specimen will withstand a few heavy hammer blows before breaking
Strong - specimen will withstand a few heavy ringing hammer blows and usually yields large fragments
Very Strong - rock will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

DEGREE OF WEATHERING

Highly Weathered - abundant fractures coated with oxides, carbonates, sulphates, mud, etc., thorough discoloration, rock disintegration, mineral decomposition
Moderately Weathered - some fracture coating, moderate or localized discoloration, little to no effect on cementation, slight mineral decomposition
Slightly Weathered - a few stained fractures, slight discoloration, little or no effect on cementation, no mineral composition
Fresh - unaffected by weathering agents; no appreciable change with depth

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Sandy Silt (ML)	39.8	28.3	11.5		54.8	ML

Project No. 7615.01.09.2

Project: Meka Vineyard Landslide Hazard Evaluation

● Source of Sample: TP-2 Depth: 0.0'-1.0'

Remarks:

● Expansion Index= 11 (Very Low)

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Figure

Tested By: SCW Checked By: SEF

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CLASSIFICATION TEST DATA

Meka Vineyard Landslide Hazard Evaluation
4473 Atlas Peak Road
Napa, California

PLATE

8

Job No: 7615.01.09.2 Date: DEC 2022