Attachment 8
to RFP for Design Build Entity Firm

JUDICIAL COUNCIL OF CALIFORNIA

DESIGN BUILD PROJECT DOCUMENTS - ADDENDUM 5

PROJECT: New Lakeport Courthouse
PROJECT NO: 0000084

DATE: 8.25.2022

JUDICIAL COUNCIL
OF CALIFORNIA

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DESIGN BUILD

The Judicial Council is authorized to utilize the design-build delivery method pursuant to Government Code section 70398, et seq. These are the Project Documents for the Judicial Council of California's ("Judicial Council") project to design and construct the New Lakeport Courthouse] for Lake County ,delivered utilizing the design-build delivery method.

EXPLANATION OF PROJECT DOCUMENTS & DISCLAIMER

These Project Documents are intended only to identify and organize certain documents for the Project. The Project documents will identify and provide documents pertaining to the project for informational purposes or for use as references. The Project Documents shall not serve as a listing of contract documents or an order of precedence for the interpretation of the Contract Documents. The listing of Contract Documents and the order of precedence for interpreting the Contract Documents is set forth in the Design Build Agreement. The Project Documents may be expanded to incorporate additional documents and informational items as the Project progresses if warranted.

The Project Documents is organized into three sections: **Section A)** intended to identify those documents considered **Contract Documents**; **Section B)** intended to identify informational documents that are provided to Design Build Entity by Judicial Council for technical reference; and **Section C**) intended to provide other informational items or administrative documents that may be pertinent to the Project.

SECTION A - CONTRACT DOCUMENTS

The documents considered in this **Section A** of the Project Documents are "Contract Documents" and consist of those documents as identified in Article 6.2 of the Agreement and should be interpreted consistent with the order of precedence therein.

SECTION B – JUDICIAL COUNCIL PROVIDED INFORMATION

The Documents included in this Section B of the Project Documents are provided by the Judicial Council for informational purposes only. These documents are made available for the convenience of Design Build Entity **for reference only** and are not considered part of the Contract Documents. The information is provided subject to the provisions of the General Conditions (**Exhibit A** to the Agreement).

1. Preliminary Title Report
2. Preliminary Geotechnical Report
3. Supplemental Geotechnical Reconnaissance
4. Topographic Survey
5. *Design Review Table [Revised]*
6. Judicial Council's OSFM Code Checklist ,JC+OSFM Trial Court Occupant Load Calculation Method, Phased Permit Buildings Submittal Guide
7. Cone of Vision Easement
8. Memorandum of Understanding Between the Judicial Council of California, Administrative Office of the Courts; City of Lakeport; and the Redevelopment Agency of the City of Lakeport Regarding the Proposed New Lakeport Courthouse
9. Memorandum of Understanding Between the Judicial Council of California, Administrative Office of the Courts; City of Lakeport; and the City of Lakeport Regarding Right of Way Access
10. New Lakeport Courthouse, MND and City of Lakeport MOU Meeting Minutes
11. Capital Project Asbestos Specification
12. *City of Lakeport Response Regarding Adequacy of Existing Water and Sewer Lines [Added]*

1. PRELIMINARY TITLE REPORT

March 31, 2022

VIA E-MAIL AND FEDERAL EXPRESS

Koreen van Ravenhorst
Principal Program Budget Analyst
Department of Finance
915 L Street, 9th Floor
Sacramento, CA 95814

Re: Title Evaluation – New Lakeport Courthouse Project (the "Project")

Dear Ms. van Ravenhorst:

It is my understanding that the Judicial Council of California (the "Department") Project Management Unit is planning to submit a package to Department of Finance for financing for the above referenced Project. The purpose of this letter is to provide our due diligence analysis of the condition of title for the Project site (the "Site"). For purposes of our due diligence analysis, we use the phrase "quiet enjoyment and beneficial use of the Site" to mean the State of California ("State") has fee simple interest in the Site and the right to possess and use the Site for its intended purpose, senior to all competing claims, and includes the right of entry, access and use of utilities.

I. SCOPE OF EVALUATION

In connection with our due diligence evaluation, we have reviewed the following documents (collectively the "Due Diligence Documents"):

1. Grant Deed from Mary Paveloff Seregow, et al., to the State, acting by and through the Department, dated October 26, 2011, recorded October 27, 2011 as Document No. 2011-015431 of Official Records (the "Grant Deed").

2. Stewart Title Company's Preliminary Title Report No. 1583845, effective date November 18, 2021 (the "PTR"), which covers the Site and shows the fee estate in the Site vested in the State, subject to the exceptions described in Schedule B.

3. Parcel Map recorded July 18, 1973 in Book 6, Page 37 of Official Records.

4. Irrevocable Offer to Dedicate Public Right of Way and Acceptance by the City of Lakeport, dated April 9, 1990, recorded July 3, 1990 in Book 1532, Pages 162-164 of Official Records.

5. County of Lake Assessor's Map Book 5, Page 033.

6. Metes and bounds legal description of the Site.

7. Project Location and Unrecorded Rights Certification ("Unrecorded Rights Certification"), executed by Mary Bustamante, Manager, Real Estate, dated March 24, 2022, which is enclosed.

8. Memorandum Of Understanding ("RDA MOU") between the Judicial Council of California, Administrative Office of the Courts; City of Lakeport; and the Redevelopment Agency of the City of Lakeport Regarding the Proposed New Lakeport Courthouse, dated January 11, 2011.

9. FEMA Flood Insurance Rate Map 06033C0491D, effective September 30, 2005.

10. California Office of Emergency Services CalMyHazards property report (http://myhazards.caloes.ca.gov/).

11. California Department of Conservation EQ Zapp: California Earthquake Hazard Zone Application (https://www.conservation.ca.gov/cgs/geohazards/eq-zapp).

12. California Department of Forestry and Fire Protection ("Cal Fire") Fire Hazard Severity Zone Viewer (https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414).

II. SITE AND PROJECT OVERVIEW

The Site is located in downtown Lakeport, California and is approximately 5.74 acres and has a common street address 675 Lakeport Boulevard, Lakeport, CA. The Site will be the location of the new Lakeport Courthouse project and is intended to provide a new 4-courtroom courthouse of approximately 46,000 square feet (the "Project"). The Project includes secured parking for judicial officers and approximately 100 surface parking spaces for jurors and the public, with solar power generation capability.

The Site is bounded by an unimproved section of Lakeport Boulevard to the north (the "Access Area"). Lakeport Boulevard is a public City of Lakeport street and the Site has access to the improved portion of Lakeport Boulevard by virtue of a grant of right of way access easement by the City of Lakeport, as grantor, to the Department, as grantee, as memorialized in the Memorandum of Understanding between the Judicial Council of California, Administrative Office of the Courts and the City of Lakeport Regarding Right of Way Access (the "Access Easement"), dated August 23, 2011 and recorded August 23, 2011 as Document No. 2011-015433 of Official Records. The Access Easements provides that the Department shall have the right to construct any roadway and parking improvements which the Department deems necessary in order to utilize the easement area for purposes of access and other allowed uses as set forth in the Access Easement, including any hardscaped and landscaped surfaces, lighting and other utilities, fencing, fixtures, and other improvements related to the Department's use of the easement area. The Access Easement requires the Department to perform, or cause to be performed all maintenance, repairs, and replacement of any roadway/parking improvements constructed by the Department in the easement area.

The Site is located within an area designated by the Federal Emergency Management Agency as "Zone X", area of minimal flood hazard risk. The Site is not located within an area designated "Earthquake Fault Zone" by the California Department of Conservation. The Site is located within two miles of an area designated "Fire Hazard Severity Zone" by Cal Fire.

III. CONDITION OF TITLE

A. Title Vesting

The State is the fee simple owner of the Site by virtue of delivery of the Grant Deed. The Grant Deed does not reserve or exception any interests.

B. Condition of Title and Title Exceptions

We have listed below each of the exceptions in Schedule B of the PTR followed by a narrative explanation of the scope and effect of such exception. None of the exceptions listed and discussed below materially impair the State's quiet enjoyment and beneficial use of the Site.

Taxes:

A. *Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes, to be levied for the fiscal year 2022-2023.*

The State is exempt from Lake County real property secured taxes, except when property is leased to a taxable third party. The State does not intend to terminate its tax exempt status.

B. *General and special city and/or county taxes, including any personal property taxes, and any assessments collected with taxes, for the fiscal year 2020-2021:*

1st Installment :	*No taxes due*
2nd Installment:	*No taxes due*
Parcel No.:	*025-521-410*
Code Area/Tracer No.:	*001-028*

Prior to recording, the final amount due for taxes must be confirmed with tax collector.

The State is exempt from Lake County real property secured taxes, except when property is leased to a taxable third party. The State does not intend to terminate its tax exempt status. The State may pay special assessments pursuant to Chapter 38 of Statutes of 1997 (SB 919-Prop 218).

C. *The lien of supplemental taxes, if any, assessed pursuant to the provisions of Chapter 3.5 (commencing with Section 75) of the Revenue and Taxation Code of the State of California.*

This exception allows the title company to not insure against tax assessments that are not of record when the title policy is generated. Since the State is exempt from property taxes, the improvements and renovations to facilities located within the Site, including the Project, would not result in a property tax obligation.

D. *Taxes and/or assessments affecting the Land, if any, for community facility districts, including Mello Roos, which may exist by virtue of assessment maps or filed notices. These taxes and/or assessments are typically collected with the county taxes; however, sometimes they're removed and assessed and collected separately.*

This exception is informational. The Due Diligence Documents do not show the Site is subject to taxes and/or assessments for community facility districts.

Exceptions:

1. *Taxes or assessments which are not shown as existing liens by the records of the taxing authority that levies taxes or assessments on real property or by the public records.*

Proceeding by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

This exception is informational. The Due Diligence Documents do not show the Site is subject to taxes and/or assessments by local taxing authorities.

2. *Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.*

This is a standard title company exception and is intended to protect the title company in lieu of a field survey with regard to rights arising from inquiry notice or parties in possession; i.e., liens and encumbrances that are not of record. The Department, through the Unrecorded Rights Certification, has certified after due diligence investigation and inquiry that there are no unrecorded rights that affect the Site other than the document identified therein, and for the reasons stated in Section C. below, such document does not materially impair the State's quiet enjoyment and beneficial use of the Site.

3. *Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.*

   This exception is a standard title company disclaimer concerning unrecorded easements. The Department has certified in the Unrecord Rights Certification that there are no such unrecorded easement rights affecting the Site.

4. *Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or other facts which a correct survey would disclose, and which are not shown by the public records.*

   This is a standard title company exception and is intended to protect the title company in lieu of a field survey. The Department, through the Unrecorded Rights Certification, has certified after due diligence investigation and inquiry that there are no unrecorded rights that affect the Site other than the document identified therein, and for the reasons stated in Section C. below, such document does not materially impair the State's quiet enjoyment and beneficial use of the Site.

5. *(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.*

   This exception is informational and evidences title to the Site is likely derived from a land patent issued by the Unites States which reserved vested and accrued water rights as recognized by local custom.

6. *Any lien or right to a lien for services, labor or material unless such lien is shown by the public records at Date of Policy.*

   This exception is informational and is intended to disclaim title company liability for mechanics' liens. The Site is not subject to such liens.

7. *Water rights, claims or title to water in, on or under the Land, whether or not shown by the public records.*

   This exception is a standard title company disclaimer for properties in rural Northern California where water rights may not be reflected in recorded documents. The Department has certified in the Unrecord Rights Certification that there are no such unrecorded rights affecting the Site.

8. *Ownership of, or rights to, minerals or other substances, subsurface and surface, of whatsoever kind, including, but not limited to coal, ores, metals, lignite, oil, gas, geothermal resources, brine, uranium, clay, rock, sand and gravel in, on, under and that may be produced from the Land, together with all rights, privileges, and immunities relating thereto, whether the ownership or rights arise by lease, grant, exception, conveyance, reservation or otherwise, and whether or not appearing in the public records or listed in Schedule B. Stewart Title Guaranty Company and its issuing agent make no representation as to the present ownership of any such interests. There may be leases, grants, exceptions, or reservations of interests that are not listed.*

   This exception is informational. The Due Diligence Documents do not show any reserved or excepted surface or subsurface mineral, oil, or gas rights. The Department has certified in the Unrecord Rights Certification that there are no such unrecorded rights affecting the Site.

9. *Easement and rights incidental thereto for cone of vision easement to The City of Lakeport, a municipal corporation, as set forth in a document recorded August 11, 1971 in Book 672, Page 37, of Official Records.*

   This exception evidences the City of Lakeport established a "cone of vision" easement to provide view protection for properties in the Lakeport Boulevard corridor, which includes the Site. Further to the RDA MOU, the Department agreed to construct the Project in a manner consistent with the "cone of vision" easement. The RDA MOU further provides that the City of Lakeport and Redevelopment Agency (now the City of Lakeport as successor agency) relinquish any rights they may have regarding the imposition and enforcement of planning and design controls on the Site and Project.

10. *Rights of the successor agency(ies) as to matters contained in the project plan recorded June 8, 1999 as Instrument No. 99-9719, of Official Records.*

    This exception evidences adoption of a redevelopment plan by the Redevelopment Agency of the City of Lakeport (the "Redevelopment Agency"). Further to the December 29, 2011 California Supreme Court decision in *California Redevelopment Association v. Matosantos*, No. S19486, largely upholding Assembly Bill No. X1 26 (Chapter 5, Statutes of 2011-12, First Extraordinary Session) ("AB 26"), invalidating AB X1 27, and holding that AB 26 may be severed from AB X1 27 and enforced independently, the Redevelopment Agency has been dissolved and the City of Lakeport is the successor agency to the Redevelopment Agency.

    The Due Diligence Documents do not evidence any action by the Redevelopment Agency with respect to the disclosed Redevelopment Plan prior to dissolution that materially impairs the State's quiet enjoyment and beneficial use of the Site. In addition, the RDA MOU establishes that the City of Lakeport and Redevelopment Agency (now the City of Lakeport as successor agency as noted above) relinquished any rights they may have regarding the imposition and enforcement of planning and design controls on the Site and Project.

11. *Matters contained in document entitled Memorandum of Understanding between the Judicial Council of California, Administrative Office of the Courts and the City of Lakeport Regarding Rights of Way Access by and between City of Lakeport, a California municipal corporation and the State of California, acting by and through the Judicial Council of California, Administrative Office of the Courts, recorded October 27, 2011, as Instrument No. 2011015432, of Official Records.*

    This exception evidences the Access Easement, which provides access to the Site and other benefits to the State, as discussed more fully above in Section II.

12. *Please be advised that the search did not disclose any open deeds of trust. If you have knowledge of any outstanding obligations, please contact your title officer immediately for further review.*

    This exception is informational and concerns potential open deeds of trust encumbering the Site.

13. *Any facts, rights, interests or claims which would be disclosed by an inspection of the Land.*

    This is a standard title company exception and is intended to protect the title company in lieu of a field inspection of the Site with regard to rights arising from inquiry notice; i.e., liens and encumbrances that are not of record. The Department, through the Unrecorded Rights Certification, has certified after due diligence investigation and inquiry that there are no unrecorded rights that affect the Site other than the document identified therein, and for the reasons stated in Section C. below, such document does not materially impair the State's quiet enjoyment and beneficial use of the Site.

14. *Rights of parties in possession whether or not recorded in the public records.*

    This is a standard title company exception and is intended to protect the title company in lieu of a field inspection of the Site with regard to rights arising from person in possession of the Site; i.e., liens and encumbrances that are not of record. The Department, through the Unrecorded Rights Certification, has certified after due diligence investigation and inquiry that there are no unrecorded rights that affect the Site other than the document identified therein, and for the reasons stated in Section

C. below, such document does not materially impair the State's quiet enjoyment and beneficial use of the Site.

C. Unrecorded Rights Certification

The Department has certified in the Unrecorded Rights Certification that the Project is located on the Site. The Department has also identified in the Unrecorded Rights Certification the RDA MOU. For the reasons stated above in Section III.C (with respect to Exceptions 9 and 10), the RDA MOU does not materially impair the State's quiet enjoyment and beneficial use of the Site.

VI. CONCLUSION

Based on our review of the Due Diligence Documents, we believe the condition of title of the Site provides for the State's quiet enjoyment and beneficial use of the Site.

Please let me know if you require further information regarding this analysis.

Very truly yours,

STRADLING YOCCA CARLSON & RAUTH

Sean B. Absher

enc.
cc: Kenny Louie, Senior Staff Counsel, Department of Finance
Robert J. Whalen, Esq., Stradling Yocca Carlson & Rauth

2. PRELIMINARY GEOTECHNICAL REPORT

DRAFT
GEOTECHNICAL INVESTIGATION
LAKEPORT COURTHOUSE
675 Lakeport Boulevard
Lakeport,California

Prepared For:

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1045 Sansome Street, Suite 200
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5 March 2014
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GEOTECHNICAL INVESTIGATION
LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

1.0 INTRODUCTION

This report presents the results of the geotechnical investigation performed by Langan Treadwell Rollo, for the planned Lakeport Courthouse at 675 Lakeport Boulevard in Lakeport, California. This investigation was performed in accordance with our proposal dated 20 January 2015. Previously, we performed a geotechnical investigation for the project and submitted the results in a report dated 10 February 2012. Since that time, the location of the building has been modified and additional information was requested for design of the building foundations. This report supersedes the 2012 report.

The site is irregularly shaped and is bound by Lakeport Boulevard on the north, retail buildings and parking lots on the east, the Lake County Chamber of Commerce visitor center and vista point on the west, and undeveloped property and businesses on the south, as shown on Figure 1. The western shoreline of Clear Lake is approximately 1/2 mile to the east. The site has maximum plan dimensions of approximately 520 by 560 feet, and is currently vegetated with low weeds and grass. The ground surface elevation at the site ranges from about 1343 to 1413 feet.[1] The western two-thirds of the site is relatively level, with ground surface elevations generally between approximately 1392 and 1395 feet, except near the western boundary, where the site slopes up to Elevation 1413 feet. The eastern one-third of the site slopes down toward the north and east at a maximum inclination of about 1.8:1 (horizontal to vertical) to approximate Elevation 1343 feet.

We understand the courthouse will be two stories. The lower level will be cut into the north and east slopes with a finished floor elevation at Elevation 1380 feet. The upper level will have a finished floor at Elevation 1394 feet. A parking lot will be located south of the courthouse.

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[1] Elevations discussed in this report are based on National Geodetic Vertical Datum of 1929.

Additional improvements will include a new access road from Lakeport Boulevard, a driveway to access lower-level of the building from the north side of the courthouse, an equipment enclosure, hardscaping, and landscaping. Retaining walls will be required to support portions of the eastern and northern edges of the building and the north side of the driveway. The approximate locations of the planned improvements are shown on Figure 2.

Based on information provided by the project structural engineer, Forell/Elsesser Engineers, Inc., we anticipate dead plus live column loads will be on the order of 376 kips if the building is framed using steel or 548 kips for concrete construction.

2.0 SCOPE OF SERVICES

Our scope of services, as outlined in our proposal dated 20 January 2015, consisted of further exploring the subsurface conditions at the site and performing supplemental engineering analyses to develop geotechnical conclusions and recommendations regarding:

- soil, rock, and groundwater conditions at the site
- site seismicity and seismic hazards
- site geology and geologic hazards
- presence of naturally-occurring asbestos in bedrock
- the most appropriate foundation type(s) for the proposed courthouse
- design criteria for the recommended foundation type(s), including vertical and lateral capacities
- estimates of building settlement, including total and differential settlements
- excavation
- cut slopes and temporary shoring
- basement and retaining walls

- concrete flatwork and flexible pavement
- site grading, including criteria for fill quality, fill placement, and compaction
- slope stability
- subgrade preparation and moisture protection for floor slabs
- corrosion potential of near-surface soil
- underground utilities
- seismic design parameters in accordance with the 2013 California Building Code
- construction considerations.

3.0 FIELD INVESTIGATION

3.1 Previous Investigation

In 2011, we investigated the site by drilling six borings and excavating three test pits at the site. The approximate locations of the borings and test pits are presented on Figure 2. Prior to performing the field investigation permits were obtained from Lake County Health Services Department and Lake County Air Quality Management District, and Underground Service Alert was notified to check that the locations of exploratory points were clear of existing utilities.

The borings, designated B-1 through B-6, were drilled on 28 and 29 November 2011 by Clear Heart Drilling of Santa Rosa, California using a truck-mounted drill rig equipped with hollow-stem augers. Three of borings, B-1 through B-3, were drilled at the location of the planned courthouse to depths ranging from about 40-1/2 to 60-1/2 feet below the existing ground surface (bgs). The remaining three borings, B-4 through B-6, were drilled in the planned parking lot to depths ranging from 5-1/2 to 6-1/2 feet bgs. The test pits, designated TP-1 through TP-3, were excavated on 28 and 29 November 2011 using a backhoe by Ryan Villanueva Construction of Lakeport, California. The test pits were excavated to depths of approximately 2-1/2 to 17 feet bgs. Our geologists logged the borings and test pits and obtained representative samples of the soil and rock encountered for classification and laboratory testing. The boring logs are presented in Appendix A on Figures A-1 through A-6. The test pit logs are presented in Appendix A on Figures A-7 through A-9. The soil and rock encountered during our investigation were classified in accordance with the classification systems presented on Figures A-10 and A-11, respectively.

Soil samples were obtained during drilling of the borings using the following sampler types:

- Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch-outside diameter and a 1.5-inch-inside diameter, without liners
- Sprague and Henwood (S&H) split-barrel sampler with a 3.0-inch-outside diameter and a 2.5-inch-inside diameter lined with brass or stainless steel tubes with an inside diameter of 2.43 inches.

The samplers were driven with a 140-pound automatic hammer falling 30 inches. The samplers were driven up to 18 inches and the hammer blows required to drive the samplers every six inches of penetration were recorded and are presented on the boring logs. A "blow count" is defined as the number of hammer blows per six inches of penetration or 50 blows for six inches or less of penetration. The driving of samplers was discontinued if the observed (recorded) blow count was 50 for six inches or less of penetration. The blow counts required to drive the S&H and SPT samplers were converted to approximate SPT N-values using factors of 0.7 and 1.2, respectively, to account for sampler type and hammer energy and are shown on the boring logs. The blow counts used for this conversion were: 1) the last two blow counts if the sampler was driven more than 12 inches, 2) the last one blow count if the sampler was driven more than six inches but less than 12 inches, and 3) the only blow count if the sampler was driven six inches or less.

Upon completion of the field investigation, the boreholes were backfilled with cement grout in accordance with Lake County requirements. Soil cuttings generated from the borings were scattered onsite adjacent to each borehole. The test pits were backfilled with the excavated material, which was tamped in place using the backhoe bucket. The disturbed soil surfaces were misted with water and covered with hay to control dust.

3.2 Supplemental Investigation

To further evaluate the depths of bedrock and develop bedrock elevation contours, we retained Norcal Geophysical Consultants Incorporated (NCGI) to perform six seismic refraction surveys at the site. At one of the seismic lines, a multichannel analysis of surface waves (MASW) evaluation was also performed to measure shear wave velocities of the subsurface strata. The locations of the seismic lines were determined at the site by our geologist and are shown on Figure 2. The surveys were performed on 28 and 29 January 2015. The methodology and results of the surveys are presented in the NGCI report in Appendix B.

4.0 LABORATORY TESTING

4.1 Geotechnical Laboratory Testing

The soil and rock samples obtained from the borings and test pits were re-examined in our office to confirm the field classifications and to select representative samples for geotechnical laboratory testing. Soil samples were tested to measure moisture content, Atterberg limits, resistance value (R-value), and corrosion potential. The geotechnical laboratory test results are presented on the boring logs and in Appendix C.

4.2 Analytical Laboratory Testing for Asbestos

Four samples of fill, soil, and serpentinite-type rock collected from the test pits were submitted to an analytical laboratory for evaluation of naturally-occurring asbestos content. The test results are presented in Appendix D. The samples were analyzed using the Polarized Light Microscopy method, with sample preparation in accordance with California Air Resources Board Method 435, to evaluate the presence and quantity of asbestos (particularly chrysotile-type fibers) for the purpose of disposal. The laboratory results indicated that asbestos fibers were detected in one of the samples; however, the concentration was less than 0.25 percent chrysotile fibers by weight, as shown in Appendix D. Serpentinite material with less than 0.25 percent chrysotile fibers may be disposed offsite or used onsite as backfill without restriction.

5.0 SITE AND SUBSURFACE CONDITIONS

5.1 Site Conditions

The site is located on the northeast flank of a northwest-southeast trending, serpentinite bedrock ridge. The site is characterized by relatively steep, north-, east- and south-facing slopes throughout most of the site, with relatively level topography within the vicinity of the planned parking area and adjacent portions of the new courthouse, as shown on Figure 2. Based on subsurface information and observations made during the 2011 field investigation, it appears that previous grading activities have resulted in an extensive cut/fill pad at the top of the site. Slopes associated with the fill prism underlying the pad extend radially from the pad from the northeast to the south, with inclinations of approximately 1.8:1 (horizontal to vertical). A cut at the same approximate inclination was excavated into the slope below the Lakeport Community Center property, located immediately west of the planned site improvements. Steep cuts were also made downslope to the north of the planned development, most likely in association with Lakeport Boulevard construction. Along the eastern and southern edges of the site, cuts were graded at the base of the fill prism to create an unpaved access road from Lakeport Boulevard to the top of the fill pad. It appears that the access road is supported on the outboard edge by fill throughout its length. A new access road is depicted as being roughly within the same alignment of the existing road, as shown on Figure 2.

5.2 Site Geology and Subsurface Conditions

According to published geologic maps of the area (Regional Geologic Map, Figure 3), the site is underlain at depth by serpentinite bedrock materials of the Franciscan Assemblage. An engineering geologic map of the site is shown on Figure 4. Our generalized interpretations of the subsurface conditions at the site are depicted on Figures 5 and 6, Idealized Subsurface Profiles A-A' and B-B', respectively.

As much as 18 feet of fill overlying serpentinite bedrock was encountered in boring B-2, located on the northeastern crest of the fill pad. Fill up to 15-1/2 feet thick was encountered in test pit TP-2, located approximately 50 feet downslope of boring B-2. A small wedge of fill was identified in boring B-5 underlying the southwestern section of the pad, within the vicinity of the planned parking lot. Fill in this area is at least six feet thick; drilling was not advanced to bedrock in this boring. The fill is generally comprised of cobble- to boulder-sized serpentinite clasts, loose to dense clayey gravel to gravel with sand, stiff to very stiff clay with variable sand and gravel content, and hard sandy silt with gravel. Approximately two to three feet of fill, consisting of sandy to silty clay with gravel, appears to have been placed on the pad to the west of the main fill prism, likely to construct a level pad. Based on the results of an Atterberg limits test, the fill at the site has a high expansion potential.[2]

In general, the cut and fill slopes at the site appear to be in good condition. However, the existence of a buried topsoil layer under the fill in test pit TP-1 indicates that it is unlikely that the fill was placed in accordance with accepted engineering standards. During our site visit to conduct subsurface exploration activities, we noted several areas of topographic depressions on the fill pad, potentially resulting from fill settlement.

The fill is underlain by bedrock that consists of serpentinite. The condition of the serpentinite bedrock encountered during the field investigation was observed to be variable throughout the site and within the individual borings and test pits. Bedrock conditions are characterized as ranging from soft and deeply weathered to very hard with little weathering, with areas intact (few fractures) to intensely crushed. Bedrock was well-exposed in site cuts. The approximate depth to the top of the bedrock, as measured from the existing ground surface in our borings and test pits, and the corresponding elevation are summarized in Table 1. Bedrock was not

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[2] Highly expansive soil undergoes large volume changes with changes in moisture content.

encountered in borings B-5 and B-6. Top of bedrock contours based on the results of the Norcal seismic refraction surveys are presented on Figure 7.

TABLE 1

Approximate Depths and Elevations of Bedrock

Boring/ Test Pit No.	Approximate Depth to Bedrock (feet bgs)	Approximate Bedrock Elevation (feet)
B-1	2.75	1388
B-2	18	1376
B-3	17.5	1378
B-4	2.5	1390
TP-1	1.5	1368
TP-2	16	1365
TP-3	1	1350

Groundwater was encountered in borings B-1 and B-3 at approximately 60 feet below ground surface, corresponding to Elevations 1331 feet and 1335 feet, respectively. The groundwater level at the site is expected to vary with seasonal rainfall.

6.0 REGIONAL GEOLOGY

The site is approximately 1/2 mile west of Clear Lake. The property is located within the Geysers-Clear Lake geologic region, within the northern California Coast Ranges geomorphic province. The Geysers-Clear Lake region lies within the Maacamas Mountains, between the San Andreas fault system to the southwest and the Coast Range thrust system to the northeast. The Coast Range thrust fault system offsets accretionary wedge rocks of the Franciscan assemblage from rocks of the Great Valley Sequence. The regional geology of the site vicinity is shown on Figure 3.

The Franciscan assemblage is a heterogeneous assemblage that consists largely of dismembered sequences of greywacke, shale, and lesser amounts of mafic volcanic rocks, thinly-bedded chert, and limestone. These rocks also occur with serpentinite and tectonic pods of blueschist in localized areas. The assemblage also contains many areas of sheared heterogenous mixes of these rocks, classified as mélange. The sedimentary and volcanic Franciscan rocks were formed in a marine environment, as attested by the abundance of foraminifers in the limestone and by radiolarians in the chert. Most of these rocks are probably Late Jurassic and Cretaceous in age (Bailey and others, 1964), but some of the chert and associated volcanic rocks are as old as Early Jurassic (Irwin and others, 1977; Blome and Irwin, 1983). In the northern Coast Ranges, some of the rocks assigned to the coastal belt of the Franciscan assemblage are as young as late Tertiary and are thought to have accreted to North America during post-middle Miocene time (McLaughlin and others, 1982). The Franciscan assemblage consists of mélange units and less disturbed sedimentary, meta-sedimentary, and meta-volcanic rocks that were scraped off the subducting plate in the Jurassic and Cretaceous time.

The Great Valley sequence consists of interbedded marine mudstone, sandstone, and conglomerate that range from Late Jurassic to Cretaceous in age (Bailey and others, 1964). It crops out as thick, monotonously bedded sections of strata that generally are markedly less deformed and more coherent than sedimentary sections of the Franciscan and also have greater lateral continuity. Where most fully developed, such as along the west side of the northern Great Valley, the aggregate stratigraphic thickness of Great Valley sequence is at least 12 kilometers (km). The strata normally lie depositionally on Coast Range ophiolite, except where disrupted by faults, but at the north end and along the east side of the Great Valley they overlie the Nevadan and older basement terranes of the Klamath Mountains and Sierra Nevada. This enormous thickness of clastic detrital material probably represents submarine fans and turbidity deposits that formed as a result of rapid erosion of the ancestral Klamath Mountains and Sierra Nevada.

Overlying the Franciscan assemblage within the site vicinity are localized younger deposits comprised of the early Holocene to late Pliocene (approximately 10,000 to 2.25 million years old) Clear Lake Volcanic rocks. The Clear Lake Volcanics are mostly silica-rich volcanic rocks (such as obsidian) located in and around Clear Lake, but also include some basaltic rocks. For the past million years or so, the main center of volcanic activity has been south and east of Clear Lake. Interbedded with the Clear Lake Volcanics is a Pliocene-Pleistocene sequence of lake and stream bed deposits up to approximately 2 km thick.

7.0 REGIONAL SEISMICITY AND FAULTING

The western margin of California is recognized by geologists and seismologists as one of the most active seismic regions in the United States. The three major faults that pass through the region, trending northwest-southeast, have produced approximately 12 earthquakes per century strong enough to cause structural damage. The faults causing such earthquakes are part of the San Andreas and Coast Range thrust fault systems. The major active fault systems in the vicinity of the project site are the Collayomi, Maacama-Garberville, Bartlett Springs and Huntington Creek-Berryessa fault zones. These and other faults of the region are shown on Figure 8. For each of the active faults within 100 kilometers of the particular site, the distance from the site and estimated mean characteristic Moment magnitude[3] event [2007 Working Group on California Earthquake Probabilities (WGCEP) (2008) and Cao et al. (2003)] are summarized in Table 2.

TABLE 2

Regional Faults and Seismicity

Fault Segment	Approx. Distance from fault (km)	Direction from Site	Mean Characteristic Moment Magnitude
Collayomi	6.8	Southeast	6.70
Maacama-Garberville	15	West	7.40
Bartlett Springs	24	Northeast	7.30
Hunting Creek-Berryessa	38	East	7.10
Rodgers Creek	52	South	7.07

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[3] Moment magnitude is an energy-based scale and provides a physically meaningful measure of the size of a faulting event. Moment magnitude is directly related to average slip and fault rupture area.

Fault Segment	Approx. Distance from fault (km)	Direction from Site	Mean Characteristic Moment Magnitude
Total Hayward-Rodgers Creek	52	South	7.33
Great Valley 2	55	East	6.50
N. San Andreas - North Coast	55	Southwest	7.51
N. San Andreas (1906 event)	55	Southwest	8.05
Great Valley 3, Mysterious Ridge	56	East	7.10
Great Valley 1	62	East	6.80
N. San Andreas - Offshore	81	West	7.37
Great Valley 4a, Trout Creek	81	East	6.60
West Napa	84	Southeast	6.70

Figure 8 also shows the earthquake epicenters for events with magnitude greater than 5.0 from January 1800 through December 2000. Since 1800, four major earthquakes have been recorded on the San Andreas Fault. In 1836, an earthquake with an estimated maximum intensity of VII on the Modified Mercalli (MM) scale (Figure 9) occurred east of Monterey Bay on the San Andreas Fault (Toppozada and Borchardt 1998). The estimated Moment magnitude, M_w, for this earthquake is about 6.25. In 1838, an earthquake occurred with an estimated intensity of about VIII-IX (MM), corresponding to a M_w of about 7.5. The San Francisco Earthquake of 1906 caused the most significant damage in the history of the Bay Area in terms of loss of lives and property damage. This earthquake created a surface rupture along the San Andreas Fault from Shelter Cove to San Juan Bautista approximately 470 kilometers in length. It had a maximum intensity of XI (MM), a M_w of about 7.9, and was felt 560 kilometers away in Oregon, Nevada, and Los Angeles. The Loma Prieta Earthquake of 17 October 1989, in the Santa Cruz Mountains with a M_w of 6.9, approximately 240 kilometers from the site.

In 1868, an earthquake with an estimated maximum intensity of X on the MM scale occurred on the southern segment (between San Leandro and Fremont) of the Hayward Fault. The estimated M_w for the earthquake is 7.0. In 1861, an earthquake of unknown magnitude (probably a M_w of about 6.5) was reported on the Calaveras Fault. The most recent significant earthquake on this fault was the 1984 Morgan Hill earthquake (M_w = 6.2). The most recent earthquake felt in the vicinity of the site occurred on 24 August 2014 and was located on the West Napa Fault, approximately 100 kilometers southeast of the site, with a M_W of 6.0.

The 2007 WGCEP at the U.S. Geologic Survey (USGS) predicted a 30-year probability of a Magnitude 6.7 or greater earthquake on one of the active faults in the San Francisco Bay Area to be about 63 percent. The Hayward-Rodgers Creek and North San Andreas faults are estimated to have 30-year probabilities of a magnitude 6.7 or greater earthquake of 31 percent and 21 percent, respectively (WGCEP, 2008).

In addition to the active faults listed in Table 2, the site is mapped as being located within close proximity of two potentially active fault traces, as discussed in a geological hazards screening evaluation performed by Fugro-William Lettis & Associates (FWLA), dated 19 May 2010. The West Margin fault is located approximately 0.8 miles to the west of the site and is considered to be active within the Quaternary period, 1.8 million years ago to present). The western trace of the Big Valley fault is mapped approximately 700 feet east of the site. Portions of this fault located east/southeast of the site exhibited displacement within the Late Quaternary period (about 700,000 years ago to present). Based on our review of the Lake County General Plan Background Report, dated February 2003, we understand that Lake County considers faults with Quaternary displacement as potentially active. These faults are not considered to be potential seismic sources for large earthquakes; however fault rupture on these faults could occur as sympathetic movement during a large earthquake on one of the other fault traces in the region.

8.0 DISCUSSION AND CONCLUSIONS

On the basis of the results of our subsurface investigation and geologic reconnaissance, we conclude that from a geotechnical engineering standpoint, the site can be developed as planned. The primary geotechnical concerns for the project include:

- the presence of variable subsurface conditions, including shallow bedrock in the western portion of the site, highly expansive soil, and up to 18 feet of fill in the eastern portion of the site
- support of the planned courthouse on the existing fill
- proper design and construction of below-grade and/or retaining walls to support the existing fill slopes, new fill, and rock.

These and other geotechnical concerns, and their impact on foundation design, excavation, and construction, are discussed in the following sections.

8.1 Seismic and Geologic Hazards

During a major earthquake on a segment of one of the nearby faults, strong to very strong shaking is expected to occur at the project site. Very strong shaking during an earthquake can result in ground deformation associated with seismically-induced slope instability, soil liquefaction[4], lateral spreading[5], and cyclic densification[6]. Soil most susceptible to liquefaction, lateral spreading, and cyclic densification is loose, clean, uniformly graded sand and silt of low plasticity that is relatively free of clay.

We conclude the primary geologic hazards that may affect the site are the potential for strong to very strong shaking associated with a large-magnitude earthquake on a major active fault in the region and ground deformation associated with sympathetic movement of a nearby

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[4] Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits.

[5] Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial blocks are transported downslope or in the direction of a free face by earthquake and gravitational forces.

[6] Cyclic densification is a phenomenon in which non-saturated, cohesionless soil is compacted by earthquake vibrations, causing differential settlement.

potentially-active fault during such an event. These and other geologic hazards are discussed in the following sections.

8.1.1 Strong Ground Shaking

The intensity of the earthquake ground motion at the site will depend upon the type of source fault (i.e. reverse, strike-slip), distance of the earthquake epicenter, magnitude and duration, as well as site geologic conditions. We conclude that the site will be subjected to strong to very strong ground shaking from a major earthquake on at least one of the nearby active faults during the design life of courthouse.

8.1.2 Surface Fault Rupture

Historically, ground surface ruptures closely follow the traces of geologically young faults. The property is not mapped as being within an Alquist-Priolo Zone and no known active or potentially active faults exist on the site. In their fault rupture hazard evaluation, FWLA concluded a moderate potential for fault rupture exists for the site, likely associated with the potentially active, western trace of the Big Valley fault or a potentially unknown, active fault trace.

Based on our review of the FWLA report, and the California Fault Activity Map (Figure 7) and associated report (Jennings and Bryant, 2010), we understand that ground ruptures were mapped approximately one mile southeast of the site on the Big Valley fault following the 1906 earthquake, possibly as a result of sympathetic fault movement with the San Andreas fault.

We did not observe evidence for faulting in the borings or test pits; however, our field investigation did not include a specific geologic hazards evaluation for fault rupture potential, which would include continuous fault trenching and/or seismic refraction surveys across the entire site.

On the basis of our review of the regional geologic map of the area, it appears that the serpentinite outcrops that penetrate up through the overlying younger lake and terrace deposits within this area are part of a north to northwest trending, steeply dipping bed of serpentinite. The serpentinite all appears to be located west of the western trace of the Big Valley fault, and the eastern edge of the serpentinite may actually lie in faulted contact (along the western trace of the Big Valley Fault) with the underlying basement rock beneath the Tertiary lake deposits. Thus, areas such as our site which appears to be entirely underlain by serpentinite would be located west of the western trace of the Big Valley fault.

On the basis of our not observing any fault features in our test pits or borings, and our observations of continuity of bedrock (serpentinite) across the site, we conclude that the potential for surface fault rupture at the site is low, but not negligible. We recommend that our geologist observe the foundation excavations for the building during construction to confirm our conclusions that that no active faulting is observed beneath the structure.

8.1.3 Liquefaction and Lateral Spreading

Groundwater was encountered at approximately 60 feet bgs in bedrock, between Elevations 1331 and 1335 feet. Based on our observations of the subsurface conditions, we conclude that the potential for seismically-induced liquefaction and liquefaction-induced ground failures such as lateral spreading at the site is very low.

8.1.4 Cyclic Densification

Seismically-induced compaction or cyclic densification of non-saturated cohesionless soil (sand, silt, and gravel above the groundwater table) caused by earthquake vibrations may result in settlement. Approximately 2-1/2 to 3-1/2 feet of loose gravel with sand and medium dense gravel with clay were encountered above the groundwater in borings B-2 and B-3. We compute that shallow foundations and surface improvements bearing within these non-saturated granular layers may settle as much as 1/4 inch due to strong shaking from a large earthquake, with a possibility of abrupt differential settlements of as much as 1/4 inch.

8.1.5 Landslides and Slope Stability

On the basis of our observations, we conclude the existing fill slopes at the site are stable and the potential for deep-seated landslides to develop at the site is low. However, we conclude there is a moderate potential for sloughing or raveling of the fill on the surfaces of the slopes, especially when subjected to prolonged wet weather. Where not retained by new walls, a possibility exists that the fill slopes may creep. The risks associated with these hazards can be reduced by flattening slopes, implementing proper drainage control, and maintaining vegetation on the slopes.

We anticipate site grades will generally be maintained in their current condition, except where retaining walls are planned and where a cut on the order of 15 feet will be excavated into the slope to accommodate the lower level of the courthouse. We conclude the planned development should not adversely affect the stability of the slopes, provided the proposed grading, fill placement, retaining walls, and drainage are designed and constructed in accordance with our recommendations.

8.1.6 Subsidence

Subsidence typically occurs as a result of subsurface fluid extraction (e.g. groundwater, petroleum) or compression of soft, geologically young sediments from vertical loads. Groundwater extraction for municipal and agricultural use has the potential to cause ground subsidence. The groundwater at the site was encountered within bedrock. Based on our observations, we judge the potential for subsidence at the site due to groundwater extraction to be low. We expect that subsidence resulting from future extraction of groundwater would be negligible.

8.1.7 Expansive Soil

Expansive soils are those that shrink or swell significantly with changes in moisture content. The clay content and porosity of the soil also influence the change in volume. The shrinking and swelling caused by expansive clay-rich soil often results in damage to overlying structures. Based on the field observation and test results, it appears that fill materials encountered on the pad are highly expansive with a plasticity index (PI) of 32.

8.1.8 Flood Inundation

Our review of Lake County Special Flood Hazard Area Maps and FEMA Digital Flood Insurance Rate Maps indicate that the site is not located within an area subject to flooding.

8.1.9 Seiches

Seiches are large waves that occur within enclosed bodies of water as a result of ground shaking caused by seismic activity. Seiches can cause damage by flooding caused by wave run-up on the shore, or if they overtop a dam or berm. The site is located approximately 1/2 mile inland of the western shore of Clear Lake, with an elevation difference of approximately 14 feet between the lake and lowest point of the property. The elevation difference between the lake and the proposed development at the top of the site is 51 feet; consequently, we conclude that the potential for damage to site improvements as a result of a seiche from Clear Lake is negligible.

8.2 Corrosion Potential

We performed corrosivity tests on soil samples collected from boring B-3 at depths of 3 and 16 feet bgs. The soil samples were tested in accordance with Caltrans and ASTM protocols by Environmental Technical Services (ETS) of Petaluma, California. The corrosivity test results are presented on Figure C-4 in Appendix C.

8.3 Settlement of Existing and New Fill

As much as 18 feet of fill is present at the site, and we anticipate on the order of 5 to 10 feet of new engineered fill will be placed at the northeast corner of the building pad and for the planned driveway, where retaining walls are planned. It is not known whether the existing fill at the site was placed in a controlled manner. SPT blowcounts recorded during our field investigation indicate the fill is generally stiff to very stiff (for clays and silts) and loose to dense (for gravels), as discussed in Section 5.2. Based on the extent and variability of the fill at the site, as well as topographic depressions observed on the fill pad, we conclude that settlement of the existing fill may occur under new loads.

We estimate that near-surface site improvements supported on fill may experience erratic settlements on the order of 1-1/2 percent of the total thickness of existing fill and on the order of 1/2 percent of the total thickness of proposed fill, resulting in settlements of about 3-1/4 inches for the 18 feet of existing fill and between about ¼ and ¾ inch for the 5 to 10 feet of planned engineered fill.

8.4 Foundation Support and Settlement

The proposed building location is underlain by:

- variable subsurface conditions, with as much as 18 feet of existing hetergeneous fill at the eastern portion of the site and bedrock depths ranging from about 3 to 15 feet bgs within the planned building footprint
- highly expansive near-surface fill.

Expansive soil is subject to high volume changes during seasonal fluctuations in moisture content, which can cause cracking of foundations and floor slabs. \The detrimental effects of near-surface expansive soil can be mitigated by moisture-conditioning the expansive soil below slabs, placing non-expansive fill below slabs, supporting foundations below the zone of severe moisture change, and/or designing foundations to resist the movements associated with the volume changes.

The variable depth to bedrock and thickness of existing fill within the building footprint can result in differential settlement of soil underlying the planned building; the settlement is expected to be erratic. To reduce the potential for differential movement of foundations resulting from fill settlement and expansive soil, we conclude foundations for the proposed courthouse should gain support in the bedrock underlying the fill. Where rock is encountered at or near the subgrade level, the structure can be supported on spread footings. Where shallow rock is encountered on the lower portions of the existing slopes at the northern and eastern edges of the building (below the existing fill prism), we conclude spread footings can be used provided that adequate vertical and lateral support on the slopes can be achieved. Where bedrock depth or slope renders footings impractical, drilled piers bearing in rock may be used to support the structure. We anticipate that footings and drilled piers bottomed in rock will settle less than an inch.

Approximate top of bedrock contours were developed using the results of our field investigation and our supplemental investigation and are shown on Figure 7. Additional investigation consisting of exploratory pits, borings, or piers can be performed during the initial stages of construction to further confirm the depths to bedrock. It is therefore important that the foundation design and construction documents allow for switching from one foundation type to the other as field conditions dictate.

Where the northern and eastern edges of the building will extend over the existing fill slopes, we have assumed that drilled piers or footings installed on the slope will be capped with a continuous grade beam supporting a formed wall backfilled with engineered fill to support the building slab. Footings behind retaining walls will need to be deepened below the zone of influence of the wall, or drilled piers be used, to reduce the potential for surcharging the wall.

8.5 Floor Slabs

The floor slab will be underlain by bedrock or fill consisting of very stiff sandy clay, hard sandy silt, or medium dense clayey gravel, and we conclude the floor slab will need to be designed as a structural slab to span between footings and piers and not rely on the ground for support. For the upper level floor slab, if movement of water vapor through the slab is undesirable, a capillary moisture break and water vapor retarder (recommended in Section 9.3) can be installed beneath the slab to reduce water vapor transmission through the slab. We conclude the lower level floor slab will need to be waterproofed.

8.6 Excavation and Shoring

We understand the lower level of the courthouse will be cut into the fill slope with a finished floor elevation at 1380 feet, approximately 15 feet below the existing grade at the top of the slope. Additional excavations are planned to be cut into the existing bedrock and fill slopes to construct the driveway along the northern side of the courthouse; these excavations will be up to approximately 6 feet deep. The excavations at the site will need to be permanently retained.

The soil to be excavated consists predominantly of clay, sand, silt, and gravel, which can be excavated with conventional earth-moving equipment such as loaders and backhoes. We anticipate that bedrock will be encountered within the excavations, especially at the western portion of the site outside the zones of existing fill. Where bedrock is present within the planned depth of excavation, the contractor will need to select equipment that is capable of excavating and removing rock from the site. Excavations deeper than five feet that will be entered by workers should be shored or sloped in accordance with the Occupational Safety and Health Administration (OSHA) standards (29 CFR Part 1926).

If there is insufficient space to slope the sides of the excavations, shoring will be required. Considering the anticipated excavation depths and the expected soil/rock conditions, we conclude that soldier-pile-and-lagging shoring systems are suitable for this project. A soldier-pile-and-lagging system consists of steel soldier beams placed in vertical predrilled holes that are backfilled with concrete and wood lagging between the soldier beams as the excavation proceeds.

Depending on the height of the shoring system, lateral restraint such as tiebacks may be required. Tiebacks will extend significant distances into the soil and rock behind the wall, and if they will be incorporated into a permanent retention system, use of deep foundations, utilities, and trees may need to be restricted or used cautiously in areas behind the wall. For permanent retention systems, double-corrosion protection will be required for tiebacks and all other system components.

9.0 RECOMMENDATIONS

Our recommendations regarding earthwork, foundations, basement and retaining walls, pavement design, and other geotechnical aspects of this project are presented in this section.

9.1 Earthwork

9.1.1 Site Preparation

Any vegetation and organic topsoil should be stripped in areas to receive new fill or site improvements. Voids resulting from demolition activities should be properly backfilled with engineered fill as described in Section 9.1.3. Topsoil with an organic content greater than three percent should not be reused as compacted fill; however, this material may be stockpiled onsite and reused in landscaped areas if approved by the project architect.

9.1.2 Subgrade Preparation

In areas to receive fill or near-surface site improvements, the exposed subgrade soil should be properly scarified, moisture-conditioned, and recompacted. Expansive subgrade soil should be scarified to a depth of at least eight inches, moisture-conditioned to at least three percent above optimum moisture content, and compacted to at least 90 percent relative compaction.

Where lean clay, granular soil, or rock with a low to moderate expansion potential (defined as material with a plasticity index less than 25) is exposed during the subgrade preparation process, the scarified surface should be moisture-conditioned to above the optimum moisture content and compacted to at least 90 percent relative compaction. The soil subgrade should be kept moist prior to placing new fills, pavements, or near-surface improvements. An exception to this general procedure occurs within the proposed pavement areas, where the upper six inches of low to moderately expansive pavement subgrade soil should be compacted to at least 95 percent relative compaction.

If areas of weak soil are encountered during subgrade preparation, we recommend the areas be repaired by either: 1) removing and replacing the weak soil with engineered fill, 2) over-excavating the weak material and filling the excavation with a reinforcing geotextile (Mirafi 500X or equivalent) overlain by granular fill, or 3) using lime- or cement-based admixtures to strengthen the weak soil.

9.1.3 General Fill Placement and Compaction

We anticipate fill placement during construction of the planned courthouse will consist primarily of backfill behind and around retaining walls and for utility trenches. The soil excavated during construction will be acceptable for use as general site fill and backfill provided it is free of organic material, is non-hazardous, and contains no rocks or lumps larger than three inches in greatest dimension. If the onsite expansive clay is to be used as fill or backfill, it should be moisture-conditioned to at least three percent above optimum moisture content, placed in lifts not exceeding eight inches in uncompacted thickness, and compacted to between 88 and 92 percent relative compaction for fill thickness equal to or less than five feet and 92 percent relative compaction for fill thickness greater than five feet. Granular soil used as fill should be moisture-conditioned to above optimum moisture content, placed in horizontal lifts not exceeding eight inches in uncompacted thickness, and compacted to at least 90 percent relative compaction for fill thickness equal to or less than five feet and 95 percent compaction for fill thickness greater than five feet. Clean sand or gravel (defined as soil with less than

10 percent fines by weight) used as backfill should be compacted to at least 95 percent relative compaction.

All fill material should be submitted to the Geotechnical Engineer for approval at least 72 hours before it is to be used on site. Where imported fill is required, the grading subcontractor should provide analytical test results or other suitable environmental documentation at least three days before use at the site indicating that the proposed fill material is free of hazardous materials. If this data is not provided, up to two weeks may be required to perform any required analytical testing on proposed import soil.

9.1.4 Fill Slopes

Where fill is planned along existing slopes, such as behind and around new retaining walls, the fill should be keyed and benched into the slope to reduce the potential for differential settlement and movement of the fill. Prior to placement of fill, the exposed subgrade should be scarified, moisture-conditioned, and compacted as previously discussed in Section 9.1.2. If the final fill surface will be sloped, we recommend the fill slope be overbuilt by placing and compacting horizontal lifts of fill as described in Section 9.1.3. Subsequently, the fill slope should be cut back to achieve the proper slope inclination.

We recommend that fill slopes be designed to have a maximum slope inclination of 2:1 (horizontal to vertical). At the toe of the proposed fill slope, a keyway should be installed to interconnect the new fill material into the existing strata. The keyway should be at least five feet wide at the base and extend at least two feet into competent soil or rock or at least 15 percent of the overall slope height, whichever is greater. The side slopes of the keyways should not be steeper than 1:1.

Where new fill is placed over existing slopes that are steeper than 5:1, the fill should be benched as the fill operation proceeds upslope. These benches will provide horizontal surfaces for the placement and compaction of the fill and reduce the effects of downward creeping of the soil. Benches should be a maximum of five feet high and should expose competent soil or rock along the base of the bench.

The face of fill slopes should be planted with deep-rooted vegetation and covered by an erosion control blanket to reduce the potential for surface erosion. We recommend using a biodegradable erosion control blanket (North American Green SC150 or equivalent erosion control material that is acceptable to the Geotechnical Engineer) on the slope face that has been disturbed by grading. The biodegrable erosion control blanket should be installed in accordance with the manufacturer's specifications.

To limit the concentration of surface water on slopes, areas upslope of the cut or fill slope should be graded to drain away from these slopes. As an alternative, V-ditches or curbs and gutters should be placed at the crest of these slopes to capture and control surface water and re-direct it away from the slope.

9.1.5 Cut Slopes

We recommend that temporary cut slopes in fill or native soil over five feet high be graded no steeper than 1:1. Temporary cuts in bedrock may be made vertical; however, the height of any vertical segment should not exceed six feet unless shoring is used. If poor rock quality or adverse bedding is present, cuts in rock should be flattened and/or retained using temporary shoring. The safety of workers and equipment in or near excavations is the responsibility of the contractor. The contractor should be familiar with the most recent OSHA Trench and Excavation Safety standards.

If cut slopes will be permanent, the fill and native soil should be graded no steeper than 2.5:1 (horizontal to vertical). Unretained cuts in bedrock may be graded as steep as 1:1, depending on the rock fracturing, hardness, and weathering. If poor rock quality or adverse bedding is present, rock slopes should be flattened and/or retained using rock bolts.

We should review plans for temporary and permanent cut slopes prior to construction. During construction, we should observe cut slopes to verify the inclinations are appropriate for the conditions encountered. It is the responsibility of the contractor to maintain safe and stable slopes during construction. During wet weather, runoff should be prevented from running across slopes and from entering excavations.

9.1.6 Utility Trenches

Excavations for utility trenches in clay, sand, silt, and gravel can be readily made with a backhoe. Where bedrock is present within utility trenches, the contractor should select equipment that is capable of excavating and removing rock. All trenches should conform to the current CAL-OSHA requirements for slopes, shoring, and other safety concerns.

To provide uniform support, pipes or conduits should be bedded on a minimum of four inches of sand or fine gravel. After the pipes and conduits are tested, inspected (if required), and approved, they should be covered to a depth of six inches with sand or fine gravel, which should be mechanically tamped. Backfill for utility trenches is also considered fill, and should be placed and compacted according to the recommendations previously presented. Jetting of trench backfill should not be permitted. Special care should be taken when backfilling utility trenches in pavement areas. Poor compaction may cause excessive settlements, resulting in damage to the pavement section.

Where utility trenches enter the building pad, an impermeable plug consisting of lean concrete, at least five feet in length, should be installed where the trenches enter the building footprint. Furthermore, where sand- or gravel-backfilled trenches cross planter areas and pass below asphalt or concrete pavements, a similar plug should be placed at the edge of the pavement. The plug should extend from the bottom of the trench to the subgrade elevation. The purpose of these recommendations is to reduce the potential for water to become trapped in trenches beneath the building or pavements. This trapped water can cause heaving of soils beneath slabs and softening of subgrade soil beneath pavements.

9.2 Foundation Support

We recommend the proposed courthouse be supported on spread footings where bedrock is encountered at or near the subgrade level, and on drilled piers extending into bedrock where bedrock is too deep to be practically reached by the footings. The following sections present our recommendations for footing and pier foundations.

9.2.1 Spread Footings

Where it is practical to reach bedrock by excavating for the footings (we estimate this to be a depth of up to about 5 feet), the proposed structure can be supported on spread footings. Footings should be embedded at least three feet below the lowest adjacent grade where fill or soil are present and a minimum of one foot into bedrock. Footings bearing on bedrock may be designed for a maximum allowable bearing pressure of 10,000 pounds per square foot (psf) for dead plus live loads, which can be increased by one-third for total loads, including wind and/or seismic loads. These values include factors of safety of at least 2.0 and 1.5 for dead plus live loads and total loads, respectively.

To design footings using the modulus of subgrade reaction method, we recommend a modulus of 240 kips per cubic foot (kcf) be used. This modulus is representative of the anticipated settlement under the building loads provided.

Lateral loads on footings can be resisted by a combination of passive resistance acting against the vertical faces of the footings and friction along the bases of the footings. Passive resistance may be calculated using uniform pressures of 1,800 psf for fill and 6,000 psf for bedrock. The upper foot of soil or rock should be ignored unless it is confined by slabs or pavement. Frictional resistance at the base of the footings should be computed using a friction coefficient of 0.4. These values include a factor of safety of about 1.5. Passive resistance should not be used for foundation elements on the existing slope unless the face of the footing is at least 7 feet from the slope face, measured horizontally.

Uplift loads may be resisted by the weight of the footing and any overlying soil. If footings are inadequate to provide the necessary uplift resistance, drilled piers or tiedowns may be used. Recommendations for design of drilled piers are provided in the following section; recommendations for tiedowns can be provided upon request.

The footing excavations should be free of standing water, debris, and disturbed materials prior to placing concrete. If disturbed, highly weathered, or decomposed bedrock is encountered at the bottom of footing excavations, the excavations should be deepened to expose more competent bedrock, as determined by the geotechnical engineer. We should check foundation excavations prior to placement of reinforcing steel to confirm suitable bearing material is present.

If overexcavation is required to reach bedrock or to remove unsuitable rock, the overexcavation may be backfilled to the design bottom of footing using lean concrete. The lean concrete should have a minimum unconfined compressive strength of 50 pounds per square inch.

9.2.2 Drilled Piers

Drilled piers bottomed in bedrock should be designed to derive their axial capacity from end bearing and skin friction. To compute the axial compressive capacity of drilled piers, we recommend using an allowable end bearing of 17,000 psf (provided the bottoms of the pier shafts can be cleaned) and allowable skin friction values of 375 psf for dead plus live loads in fill and 1,200 psf for dead plus live loads in bedrock. The allowable skin friction values may also be used to resist temporary uplift loads. For temporary compressive total loads, including wind and/or seismic loads, these values can be increased by one third. For design of the drilled piers using the subgrade modulus method, we recommend using spring constants of 255 kips/inch for 22-inch-diameter piers and 395 kips/inch for 30-inch-diameter piers. Piers installed in a group should be spaced at least three diameters on center.

Piers will provide lateral resistance from passive pressure acting on the upper portion of the piers and from their structural rigidity. Lateral resistance of piers will depend on the pier diameter, pier head condition (restrained or unrestrained), allowable deflection of the pier top, and the bending moment resistance of the piers. We have performed lateral load analyses for isolated, 22- and 30-inch-diameter piers for a deflection of 0.5 inch at the pier head. We assumed a cracked section at the pier head and used 30 percent of the elastic modulus for concrete in our analyses, based on discussion with the project structural engineer. In addition, we assumed that the pier head is at the ground surface and considered both a level ground surface and a ground surface inclined at approximately 1.8:1 (horizontal to vertical) for piers on the existing fill slope. The results of our analyses are presented in Tables 3 and 4 for level and sloped ground surface conditions, respectively. Plots of deflection and bending moment versus depth are presented on Figures 10 and 11.

TABLE 3

Results of Lateral Load Analyses
Drilled Pier, Level Ground Surface

Pile Diameter (inches)	Pile Top Condition	Pile Head Deflection (inches)	Applied Lateral Load (kips)	Computed Maximum Bending Moment (kip-feet)	Depth to Maximum Bending Moment (feet)
22	Unrestrained	0.5	24.7	78.1	5.8
22	Restrained	0.5	50.4	196	0
30	Unrestrained	0.5	41.6	163	7.3
30	Restrained	0.5	83.3	411	0

TABLE 4

Results of Lateral Load Analyses Drilled Pier, Ground Surface Sloped at 1.8:1 (Horizontal to Vertical)

Pile Diameter (inches)	Pile Top Condition	Pile Head Deflection (inches)	Applied Lateral Load (kips)	Computed Maximum Bending Moment (kip-feet)	Depth to Maximum Bending Moment (feet)
22	Unrestrained	0.5	17.9	64.4	6.2
22	Restrained	0.5	37.0	160	0
30	Unrestrained	0.5	30.4	134	8.1
30	Restrained	0.5	61.4	337	0

The lateral resistances tabulated in Tables 3 and 4 are for piers with a spacing of at least six pier diameters. If piers are installed in a group of two with a spacing of three pier diameters, the lateral capacities should be reduced by 15 percent. However, the design bending moments should be taken as the same as those for single piers. If larger pier groups are needed to support the building, we should be contacted to provide the reduction factors for these groups.

Additional lateral load resistance can be obtained by passive resistance acting against the face of pier caps and grade beams. To calculate passive resistance, we recommend using an allowable uniform pressure of 1,800 psf in fill. The upper foot of soil should be ignored unless it is confined by slabs or pavement. Passive resistance should not be used for foundation elements on the existing slope unless the face of the footing is at least 7 feet from the slope face, measured horizontally.

Drilled piers should be installed by a qualified contractor with demonstrated experience in this type of foundation. It is likely that pier shafts will need to be cased during construction to prevent caving and to allow for inspection of the bottoms. Any water present at the bottom of the pier should be removed by pumping. Loose soil and rock encountered at the bottom of the pier should also be removed; if proper clean-out is not possible, the piers will need to be deepened and their end-bearing capacity ignored. Steel and concrete placement should start immediately upon completion of inspection and clean-out.

9.3 Concrete Floor Slabs

The floor slab will be underlain by fill, and we anticipate settlement of the fill will occur. Therefore, the floor slab should be designed to span between footings or piers and not rely on the ground for support. The subgrade soil should be scarified, moisture-conditioned, and recompacted to reduce the potential for detrimental effects of highly expansive soil, as discussed in Section 9.1.2. If the previously compacted soil subgrade is disturbed during foundation and utility excavation, the subgrade should be scarified, moisture-conditioned, and rerolled to provide a firm, unyielding surface prior to construction of the floor slab.

Because it will be below the ground surface, we recommend the lower level floor of the building be waterproofed. For the upper level of the building, where moisture on the floor slab is undesirable, we recommend installing a capillary moisture break and water vapor retarder beneath the floor to reduce water vapor transmission through floor slabs. A capillary moisture break consists of at least four inches of clean, free-draining gravel or crushed rock. The vapor retarder should meet the requirements for Class C vapor retarders stated in ASTM E1745-97. The vapor retarder should be placed in accordance with the requirements of ASTM E1643-98. These requirements include overlapping seams by six inches, taping seams, and sealing penetrations in the vapor retarder. The vapor retarder should be covered with two inches of sand to aid in curing the concrete and to protect the vapor retarder during slab construction. The particle size of the gravel/crushed rock and sand should meet the gradation requirements presented in Table 5.

TABLE 5

Gradation Requirements for Capillary Moisture Break

Sieve Size	Percentage Passing Sieve
Gravel or Crushed Rock	
1 inch	90 – 100
3/4 inch	30 – 100
1/2 inch	5 – 25
3/8 inch	0 – 6
Sand	
No. 4	100
No. 200	0 – 5

The sand overlying the membrane should be moist at the time concrete is placed; however, there should be no free water present in the sand. Excess water trapped in the sand could eventually be transmitted as vapor through the slab. If rain is forecast prior to pouring the slab, the sand should be covered with plastic sheeting to avoid wetting. If the sand becomes wet, concrete should not be placed until the sand has been dried or replaced.

Concrete mixes with high water/cement (w/c) ratios result in excess water in the concrete, which increases the cure time and results in excessive vapor transmission through the slab. Therefore, concrete for the floor slab should have a low w/c ratio – less than 0.50. If approved by the project structural engineer, the sand can be eliminated and the concrete can be placed directly over the vapor retarder, provided the w/c ratio of the concrete does not exceed 0.45 and water is not added in the field. If necessary, workability should be increased by adding plasticizers. In addition, the slab should be properly cured. Before the floor covering is placed, the contractor should check that the concrete surface and the moisture emission levels (if emission testing is required) meet the manufacturer's requirements.

9.4 Temporary Shoring

If the planned excavations cannot be sloped because of space limitations, shoring will be required to retain the excavation sides. We estimate excavations for the planned courthouse may be as deep as about 15 feet. If the shoring will be used as part of a permanent retention system, all system components should be double-corrosion protected and the shoring design should incorporate a factor of safety consistent with permanent structures.

Cantilevered shoring should be designed for an active earth pressure defined as an equivalent fluid weight of 42 pounds per cubic foot (pcf). This value is considered appropriate for an active condition, which assumes that some movement of the supported soil is tolerable. If movement of the soil is not acceptable, an at-rest pressure of 63 pcf should be considered. For shoring consisting of soldier beams and lagging, the active and at-rest earth pressures should be assumed to act over the full width of the shoring above the excavation and over one soldier beam width below the excavation. The foregoing earth pressures assume the ground surface at the top of the shoring wall will be level; if sloping ground surface conditions are anticipated, we should be contacted to provide additional recommendations.

If traffic is anticipated within a distance equal to the shoring depth, a uniform surcharge load of 100 pounds per square foot (psf) acting on the upper 10 feet should be used in the design. An increase in lateral design pressure for the shoring may be required where heavy construction equipment or stockpiled materials will be within a distance equal to the shoring depth. The increase in pressure should be determined after the surcharge loads are known. If this condition exists, we should be consulted and the additional pressure increment can be computed on a case-by-case basis.

Passive resistance can be computed using a uniform pressure of 1,800 psf plus an equivalent fluid weight of 80 pcf. This passive pressure value includes a factor of safety of about 1.5 for temporary shoring design. For beams spaced at least three shaft diameters, center-to-center, the passive resistances can be assumed to act over three soldier beam[7] widths.

The shoring designer should evaluate the required penetration depth of the soldier piles. The soldier piles should have sufficient axial capacity to support the vertical load component of the tiebacks and the vertical load acting on the piles, if any. To compute the axial capacity of the piles, we recommend using an allowable friction of 500 psf on the perimeter of the piles below the excavation level, which includes a factor of safety of 1.5. Vertical support from end bearing is neglected.

Where excavation depths exceed approximately 12 feet, tiebacks or internal bracing will likely be required. Figure 12 presents the lateral pressures we recommend for design of a tied-back or internally-braced soldier beam and lagging wall. Design criteria for tiebacks are also presented on Figure 12. As shown, tiebacks should derive their load-carrying capacity from the soil behind an imaginary line sloping upward from a point H/5 feet away from the bottom of the excavation at an angle of 60 degrees from horizontal, where H is the wall height in feet. The minimum stressing and bond lengths should be 15 feet each.

Tiebacks will generally be installed in fill consisting of cobble-to boulder-sized serpentinite clasts, loose to dense clayey gravel to gravel with sand, stiff to very stiff clay with variable sand and gravel content, and hard sandy silt with gravel. Allowable capacities of the tiebacks will depend upon the drilling method, shaft diameter, grout pressure, and workmanship. Because of the tendency of granular soil layers to cave, augers should not be used in these materials. We recommend a smooth-cased method (such as a Klemm rig) be used to install tiebacks in these materials. For estimating purposes, we recommend using the skin friction value for pressure-grouted tiebacks given on Figure 12.

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[7] The soldier beam width is defined as the diameter of the drilled hole for beams backfilled with structural concrete with an unconfined compressive strength of at least 50 pounds per square inch (psi).

The shoring designer should be responsible for determining the actual length of tieback required.

The determination should be based on the designer's familiarity with the installation method to be used. The computed bond length should be confirmed by a performance- and proof-testing program. The first two production tiebacks and two percent of the remaining tiebacks should be performance-tested to 1.5 times the design load for the proposed temporary shoring system. The remaining tiebacks should be confirmed by a proof-test to 1.25 times the design load for the proposed temporary shoring system. If any tiebacks fail to meet the proof-testing requirements, additional tiebacks should be added to compensate for the deficiency, as required by the shoring designer. We should review the shoring design prior to issuing bid documents for construction.

The movement of each tieback should be monitored with a free-standing, tripod-mounted dial gauge during proof and performance testing. The maximum test load should be held for a minimum of 10 minutes, with readings taken at 0, 1, 3, 6, and 10 minutes. If the difference between the 1- and 10-minute readings is more than 0.04 inches, the load should be held for an additional 50 minutes. If the deflection is more than 0.08 inches between the 6- and 60-minute readings, the tieback design loading should be re-evaluated. If any tieback fails to meet the performance- and proof-testing requirements, additional tiebacks should be added to compensate for the deficiency, as directed by the shoring designer. After testing, the tiebacks should be loaded to the design load (less if specified by the shoring designer) and locked off. The tiebacks should be checked 24 hours after initial lock off to ensure that stress relaxation has not occurred. The bottom of the excavation should not extend more than two feet below a row of unsecured tiebacks.

The anticipated deflections of the shoring system should be estimated to check if they are acceptable. The shoring system should be sufficiently rigid to prevent detrimental movement of the temporary shoring and possible damage to improvements adjacent to the site. In our experience, the deflection of a properly designed shoring system should generally be held to one inch or less. The shoring system should be designed so that it does not conflict with nor damage planned project improvements, such as underground utilities or deep foundations.

The shoring system should be installed by an experienced shoring specialty contractor The contractor should be familiar with applicable local, state, and federal regulations for temporary shoring, including the current OSHA Excavation and Trench Safety Standards. The contractor should be solely responsible for the design of temporary shoring. We should review the final shoring plans to check that they are consistent with the recommendations presented in this report. In addition, we recommend a representative from our office observe the installation of the temporary shoring system as part of our special inspection services.

9.5 Basement and Retaining Walls

The below-grade walls and any retaining walls planned for the site should be designed to resist lateral pressures imposed by the soil and any adjacent surcharges. In addition, because the site is in a seismically active area, all below-grade walls and retaining walls should be designed to resist pressures associated with seismic forces. For walls free to deflect (unrestrained) and restrained walls, we recommend the lateral pressures be calculated using the parameters shown in Table 6. Restrained walls should be designed for the more critical of the static and seismic loading conditions.

TABLE 6

Lateral Earth Pressures (Fully Drained Walls)

Loading Condition	Backfill Material	Unrestrained Walls	Restrained Walls
Static	Fill	Active pressure corresponding to equivalent fluid weight of 42 pcf for level backfill and 78 pcf for backfill sloped at 1.8H:1V	At-rest pressure corresponding to equivalent fluid weight of 63 pcf for level backfill and 85 pcf for backfill sloped at 1.8H:1V
Seismic	Fill	Active pressure plus an equivalent fluid weight of 5 pcf for seismic load	Active pressure plus an equivalent fluid weight of 5 pcf for seismic load
Static	Bedrock	Active pressure corresponding to equivalent fluid weight of 24 pcf for level rock behind wall and 32 pcf for rock sloped at 1.8H:1V	At-rest pressure corresponding to equivalent fluid weight of 41 pcf for level rock behind wall and 66 pcf for rock sloped at 1.8H:1V
Seismic	Bedrock	Active pressure plus an equivalent fluid weight of 5 pcf for seismic loading	Active pressure plus an equivalent fluid weight of 5 pcf for seismic loading

Lateral pressures from traffic or surcharges should be added to the static design pressures. If traffic loads are expected within 10 feet of the walls, an additional design load of 100 psf (rectangular distribution) should be applied over the full height of the wall. Footings adjacent to walls should be bottomed below an imaginary line drawn upward at an inclination of 1.5:1 (horizontal to vertical) from the base of the wall. Adjacent piers, if located within 10 feet of the wall, may impose a surcharge pressure on the wall. We should evaluate potential surcharge pressures if this occurs.

The recommended design pressures are for fully drained walls; hydrostatic pressures are not included. One acceptable method of backdraining below-grade walls is to place a prefabricated drainage panel against the back of the wall. Where shoring is used, the drainage panel may be attached to the shoring and the wall cast directly against it. The panel should extend down to a perforated PVC collector pipe at the base of the wall. The perforated pipe should be bedded on and covered by at least four inches of Class 2 permeable material (per Caltrans Standard Specifications) or by drain rock that is surrounded by filter fabric (Mirafi 140NC or equivalent). An acceptable alternative is to backdrain the wall with Caltrans Class 2 permeable material at least one foot wide, extending down to the base of the wall. A perforated PVC pipe should be placed at the bottom of the gravel, as described for the first alternative. The perforated collection pipe in either alternative should redirect the water to a solid pipe that is sloped to drain to a suitable outlet.

If moisture migration through the walls or effervescence is a concern, the walls should be waterproofed and water stops should be placed at all construction joints. Foundations for basement and retaining walls can be designed using the recommendations presented in Section 9.2. During placement of backfill behind basement and retaining walls, the walls should be braced, or hand compaction equipment should be used, to prevent unwanted surcharges on the walls or foundations (as determined by the structural engineer).

9.6 Asphalt Concrete Pavement Design

The State of California resistance value (R-value) method for flexible pavement design was used to develop recommendations for asphalt concrete pavement sections. We anticipate the final soil subgrade in areas to receive asphalt concrete pavement will generally consist of clay with varying amounts of sand and silt. Based on R-value test results, the clayey and silty soil at the site has approximate R-values ranging from 28 to 43. For our calculations, we used an R-value of 28.

We assumed traffic indices (TI) of 5.0, 6.0, and 7.0 for our calculations; these TIs should be confirmed by the project civil engineer. We can provide pavement section recommendations for other TIs upon request. Table 7 presents our recommendations for asphalt pavement sections.

TABLE 7

Asphaltic Concrete Pavement Section Design
Design R-Value of Subgrade Soil = 28

TI	Asphaltic Concrete (inches)	Class 2 Aggregate Base (inches)
5.0	3.0	6.0
6.0	3.5	8.0
7.0	4.0	10.0

Pavement components should conform to the current Caltrans Standard Specifications. The soil subgrade should be prepared as discussed in Section 9.1.2. The soil subgrade should be kept moist until it is covered with AB. Class 2 AB should be compacted to at least 95 percent relative compaction.

9.7 Concrete Flatwork

Exterior concrete flatwork that will not receive vehicular traffic (i.e., sidewalks) should be underlain by at least four inches of Class 2 AB compacted to at least 95 percent relative compaction. Prior to placement of the aggregate base, the upper six inches of subgrade soil should be scarified, moisture-conditioned to above the optimum moisture content (or at least three percent above the optimum moisture content for expansive soil), and compacted to at least 90 percent relative compaction. Within decorative concrete flatwork areas, 12 inches of aggregate base should be used beneath the exterior slabs to further reduce the potential for cracking due to shrinking and swelling of the underlying expansive soil. Thickening the slabs and adding reinforcement will also control cracking to some degree. The soil subgrade beneath the 12 inches of Class 2 AB should be prepared as discussed in Section 9.1.2.

9.8 Seismic Design

The closest active fault to the site is the Collayomi Fault, which is about 6.8 kilometers from the site. The foundation of the courthouse will bear on weak to moderately hard bedrock and we conclude that site class B (as defined by the 2013 CBC) is appropriate for the site on the basis of the results of the geophysical studies performed at the site. For design in accordance with the 2013 CBC, we recommend the following parameters be used:

- site class B
- site coefficient values F_a and F_v of 1.0 and 1.0, respectively
- mapped site class D short (S_s) and one-second (S_1) spectral acceleration values for the Risk Targeted Maximum Considered Earthquake (MCE_R) of 1.500g and 0.600g, respectively
- spectral acceleration values S_{Ms} and S_{M1} for the MCE_R of 1.500g and 0.600g, respectively
- spectral acceleration values for the Design Earthquake (DE) of S_{Ds} and S_{D1} of 1.000g and 0.400g, respectively.

10.0 ADDITIONAL GEOTECHNICAL SERVICES

Prior to construction, Langan Treadwell Rollo should review the project plans and specifications to check their conformance with the intent of our recommendations. During construction, our field engineer should provide on-site observation and testing services during excavation, installation of temporary shoring, fill and backfill placement and compaction, subgrade preparation, permanent wall construction, and footing and drilled pier installation. These observations will allow us to compare the actual with the anticipated soil conditions and to check that the contractor’s work conforms with the geotechnical aspects of the plans and specifications.

11.0 LIMITATIONS

The conclusions and recommendations presented in this report result from limited engineering studies based on our interpretation of the geotechnical conditions existing at the time of the investigation. Actual subsurface conditions may vary. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that described in this report, Langan Treadwell Rollo should be notified to make supplemental recommendations, if necessary.

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FIGURES

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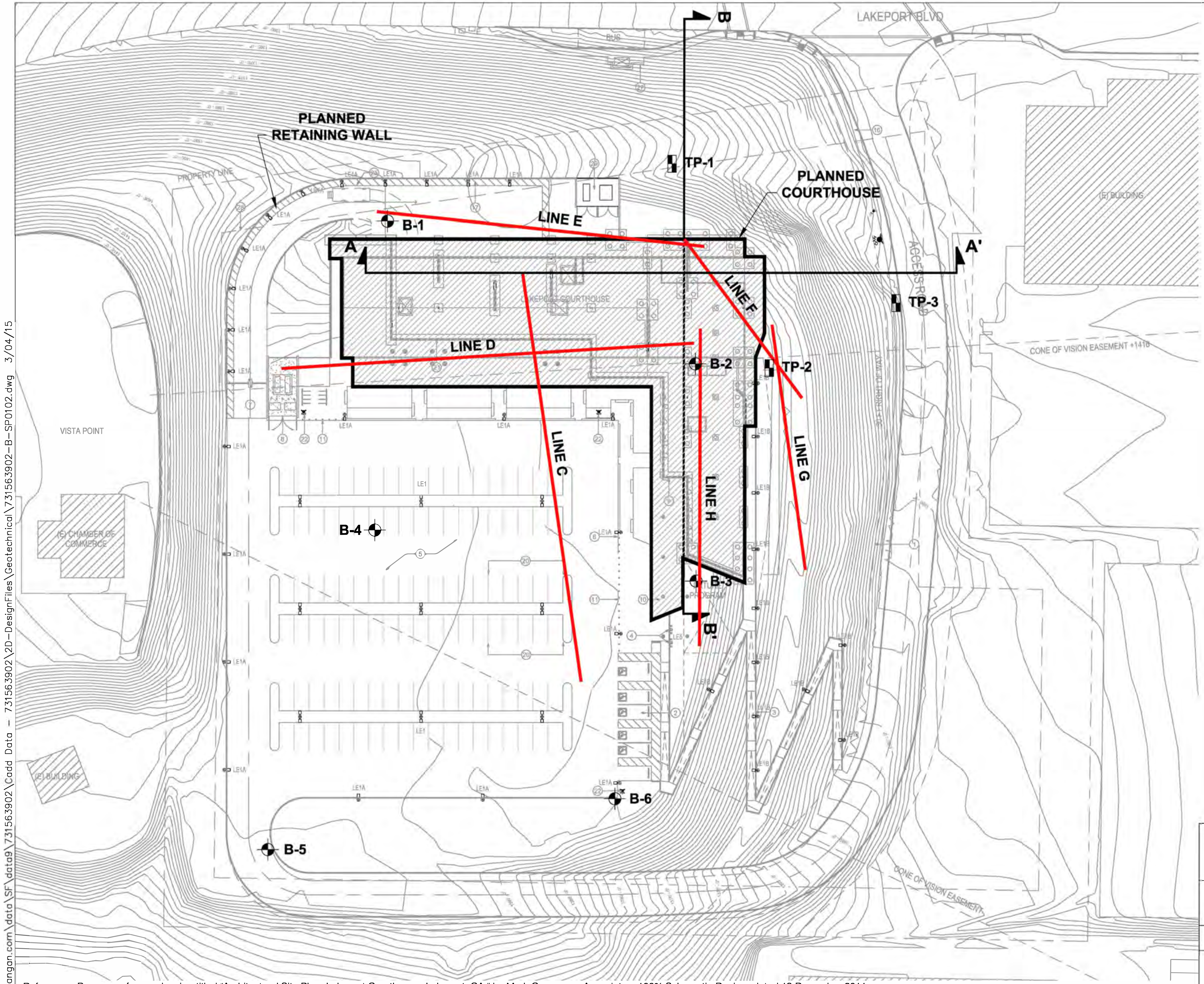
Reference: Google Earth Pro, 2011.

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

LANGAN TREADWELL ROLLO

SITE LOCATION MAP

Date 03/04/15	Project No. 731563902	Figure 1



Reference: Base map from a drawing titled "Architectural Site Plan, Lakeport Courthouse, Lakeport, CA," by Mark Cavagnero Associates, 100% Schematic Design, dated 19 December 2011.

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EXPLANATION

B-1 ⌖	Approximate location of boring by Treadwell & Rollo, November 2011
TP-1 ▚	Approximate location of test pit by Treadwell & Rollo, November 2011
🟥	Seismic refraction line by Langan Treadwell Rollo, January 2015
A A'	Idealized subsurface profile

0 60 Feet

Approximate scale

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

SITE PLAN

Date 03/04/15 | Project No. 731563901 | Figure 2

LANGAN TREADWELL ROLLO

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Reference: MS-010, "Geology of Lakeport Quadrangle, Lake County, California," California Division of Mines and Geology, 1;62,000, by James R. McNitt, 1967.

0 3,000 6,000 Feet

Approximate scale

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

LANGAN TREADWELL ROLLO

REGIONAL GEOLOGIC MAP

Date 03/04/15 | Project No. 731563902 | Figure 3

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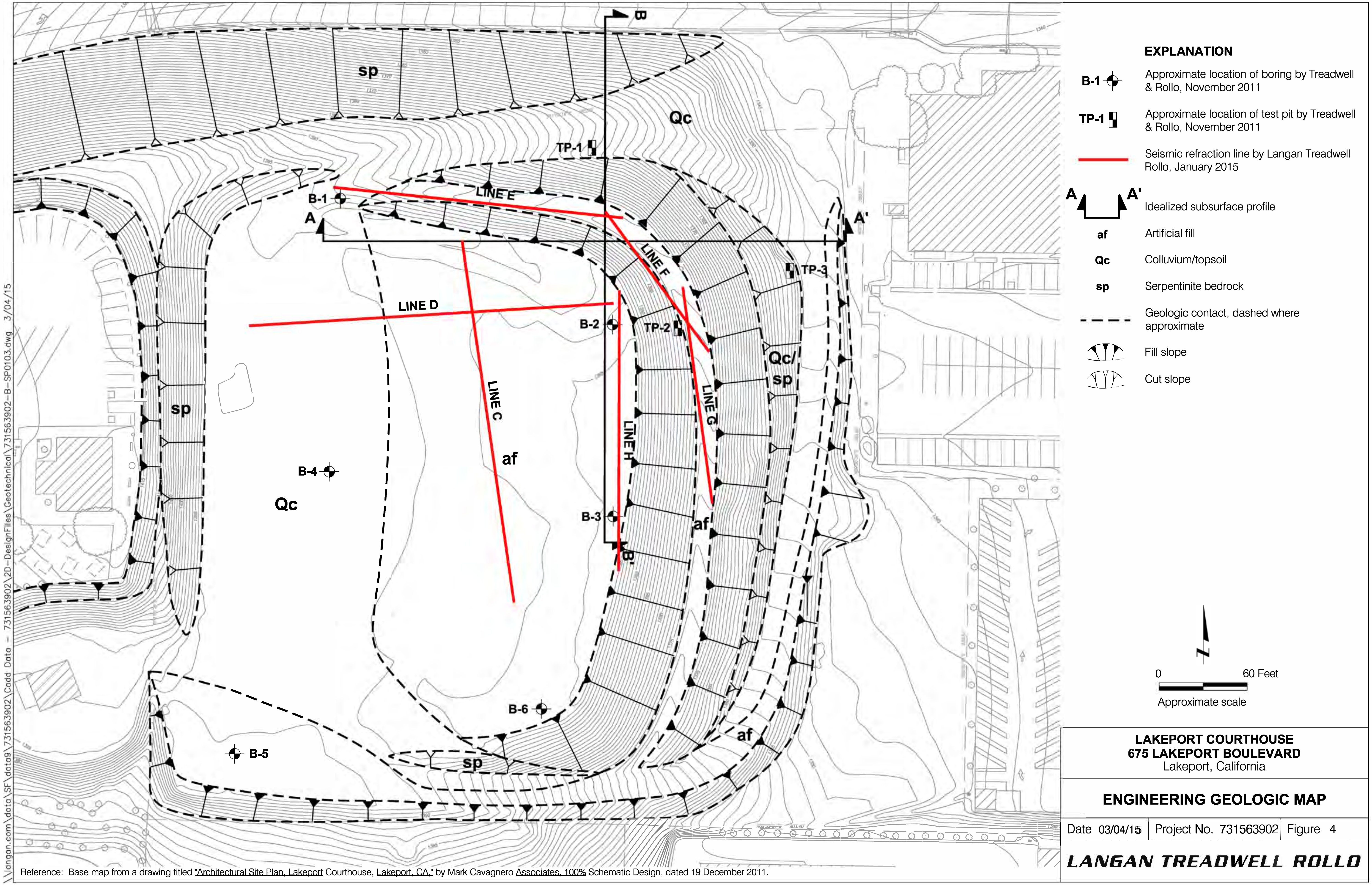


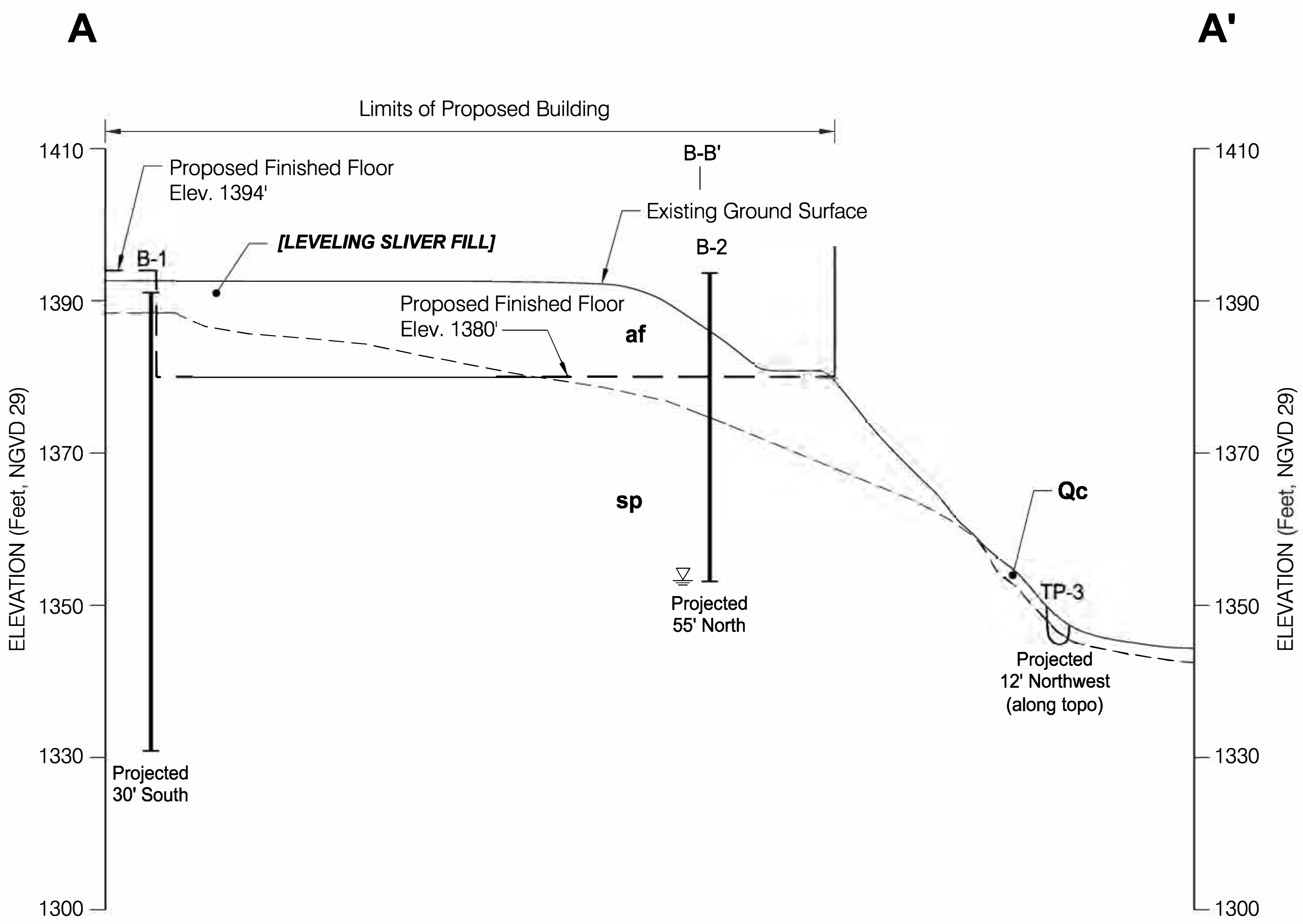
Reference: Base map from a drawing titled "Architectural Site Plan, Lakeport Courthouse, Lakeport, CA." by Mark Cavagnero Associates, 100% Schematic Design, dated 19 December 2011.

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

ENGINEERING GEOLOGIC MAP

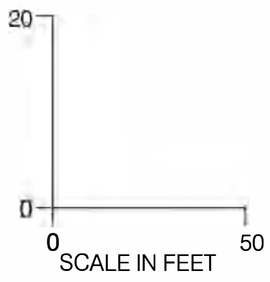
Date 03/04/15	Project No. 731563902	Figure 4

LANGAN TREADWELL ROLLO



EXPLANATION

af	Artificial fill (CLAYEY GRAVEL (GC), GRAVEL with SAND (GP), and GRAVEL with CLAY (GP-GC), loose to dense, SANDY CLAY (CL), SANDY CLAY with GRAVEL (CL), GRAVELLY CLAY (CL), CLAY with GRAVEL (CL), SANDY SILT (ML), and SANDY SILT with GRAVEL (MH), stiff to hard)
Qc	Colluvium/topsoil (SANDY CLAY (CL) and SANDY SILT (ML), stiff)
sp	Serpentinite bedrock
– – – –	Geologic contact; solid where certain, dashed where approximate
B-2 I	Approximate location of boring by Treadwell & Rollo, November 2011
TP-3 U	Approximate location of test pit by Treadwell & Rollo, November 2011



Notes:
1. The above profile represents a generalized cross section interpreted from widely spaced borings. Earth materials may vary in type, strength, and other important properties between points of exploration.

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

IDEALIZED SUBSURFACE PROFILE
A-A'

Date 03/04/15	Project No. 731563902	Figure 5

LANGAN TREADWELL ROLLO

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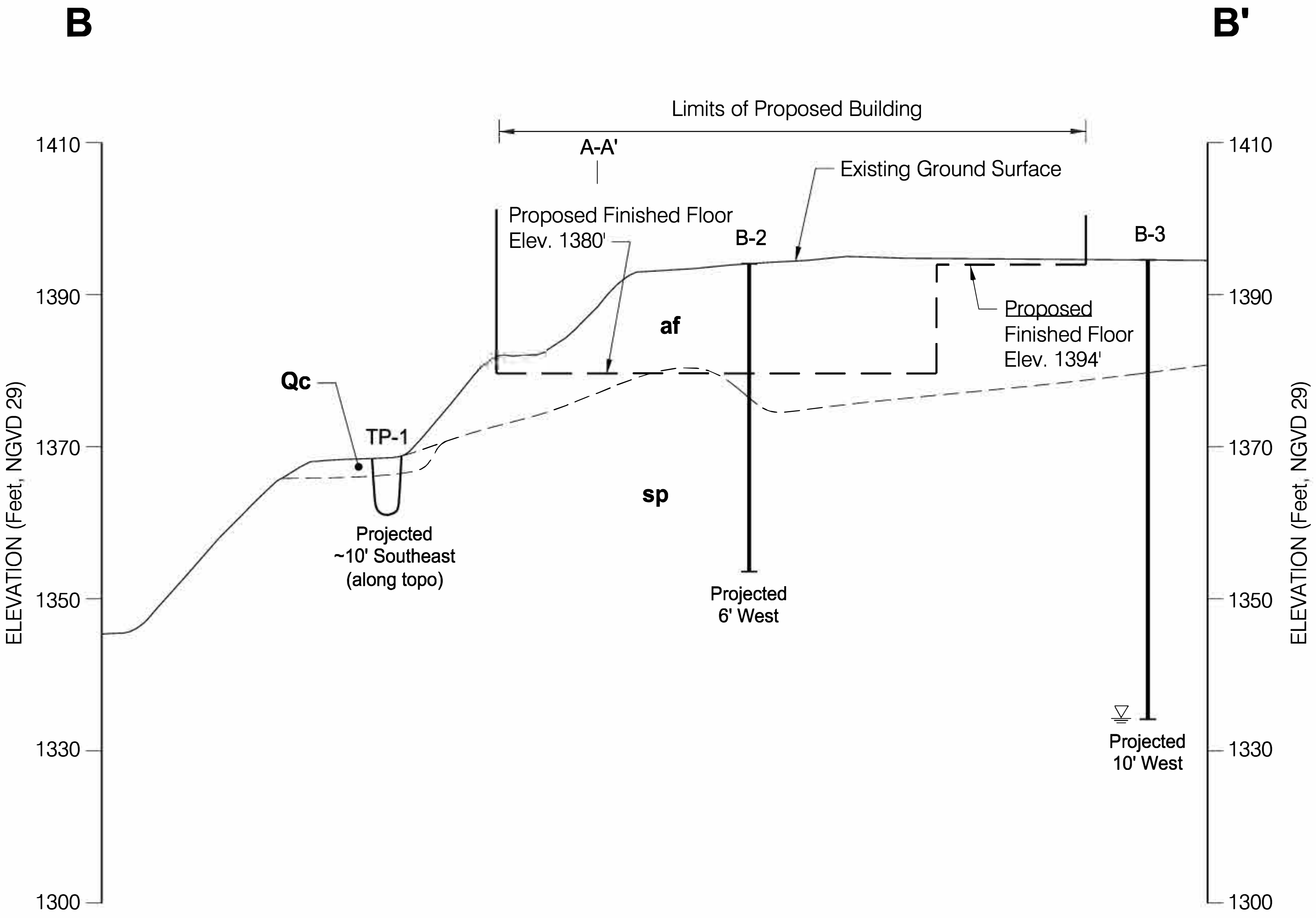
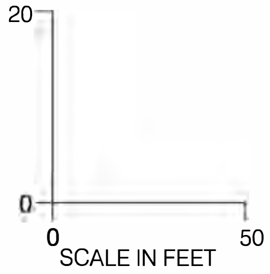


EXPLANATION

af	Artificial fill (CLAYEY GRAVEL (GC), GRAVEL with SAND (GP), and GRAVEL with CLAY (GP-GC), loose to dense, SANDY CLAY (CL), SANDY CLAY with GRAVEL (CL), GRAVELLY CLAY (CL), CLAY with GRAVEL (CL), SANDY SILT (ML), and SANDY SILT with GRAVEL (MH), stiff to hard)
Qc	Colluvium/topsoil (SANDY CLAY (CL) and SANDY SILT (ML), stiff)
sp	Serpentinite bedrock
— — — —	Geologic contact; solid where certain, dashed where approximate
B-2 I	Approximate location of boring by Treadwell & Rollo, November 2011
TP-1	Approximate location of test pit by Treadwell & Rollo, November 2011



Notes:
1. The above profile represents a generalized cross section interpreted from widely spaced borings. Earth materials may vary in type, strength, and other important properties between points of exploration.

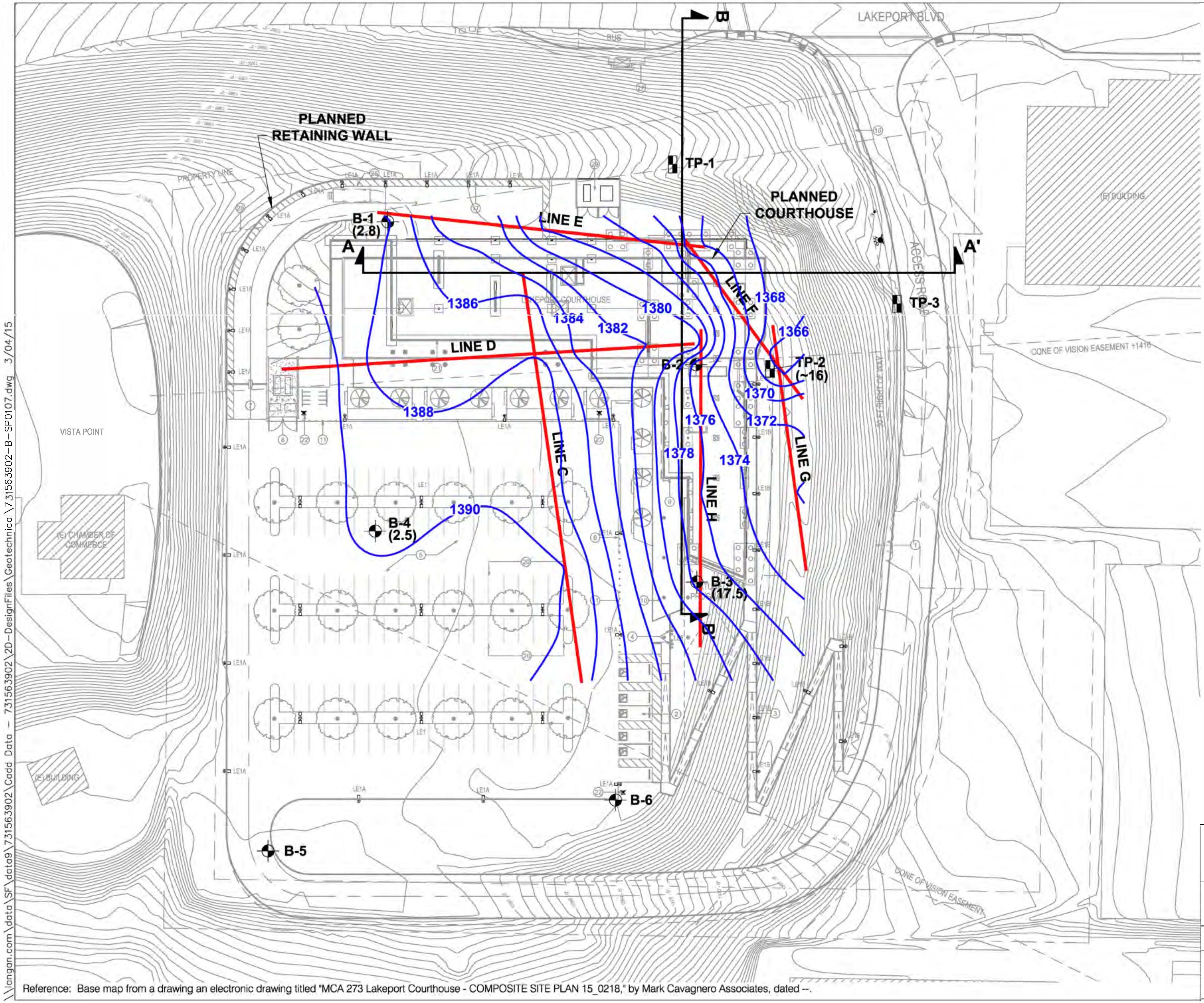
LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

IDEALIZED SUBSURFACE PROFILE
B-B'

Date 03/04/15	Project No. 731563902	Figure 6

LANGAN TREADWELL ROLLO

\\langan.com\data\SF\data9\731563902\Cadd Data - 731563902\2D-DesignFiles\Geotechnical\731563902-B-XS0102.dwg 3/05/15



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Reference: Base map from a drawing an electronic drawing titled "MCA 273 Lakeport Courthouse - COMPOSITE SITE PLAN 15_0218," by Mark Cavagnero Associates, dated --.

EXPLANATION

B-1 ⊕	Approximate location of boring by Treadwell & Rollo, November 2011
TP-1 ▚	Approximate location of test pit by Treadwell & Rollo, November 2011
🟥	Seismic refraction line by Langan Treadwell Rollo, January 2015
A A'	Idealized subsurface profile
—1390—	Top of bedrock contour elevation (feet, NGVD 29 datum)
(2.5)	Depth to bedrock (feet)

N

0 60 Feet

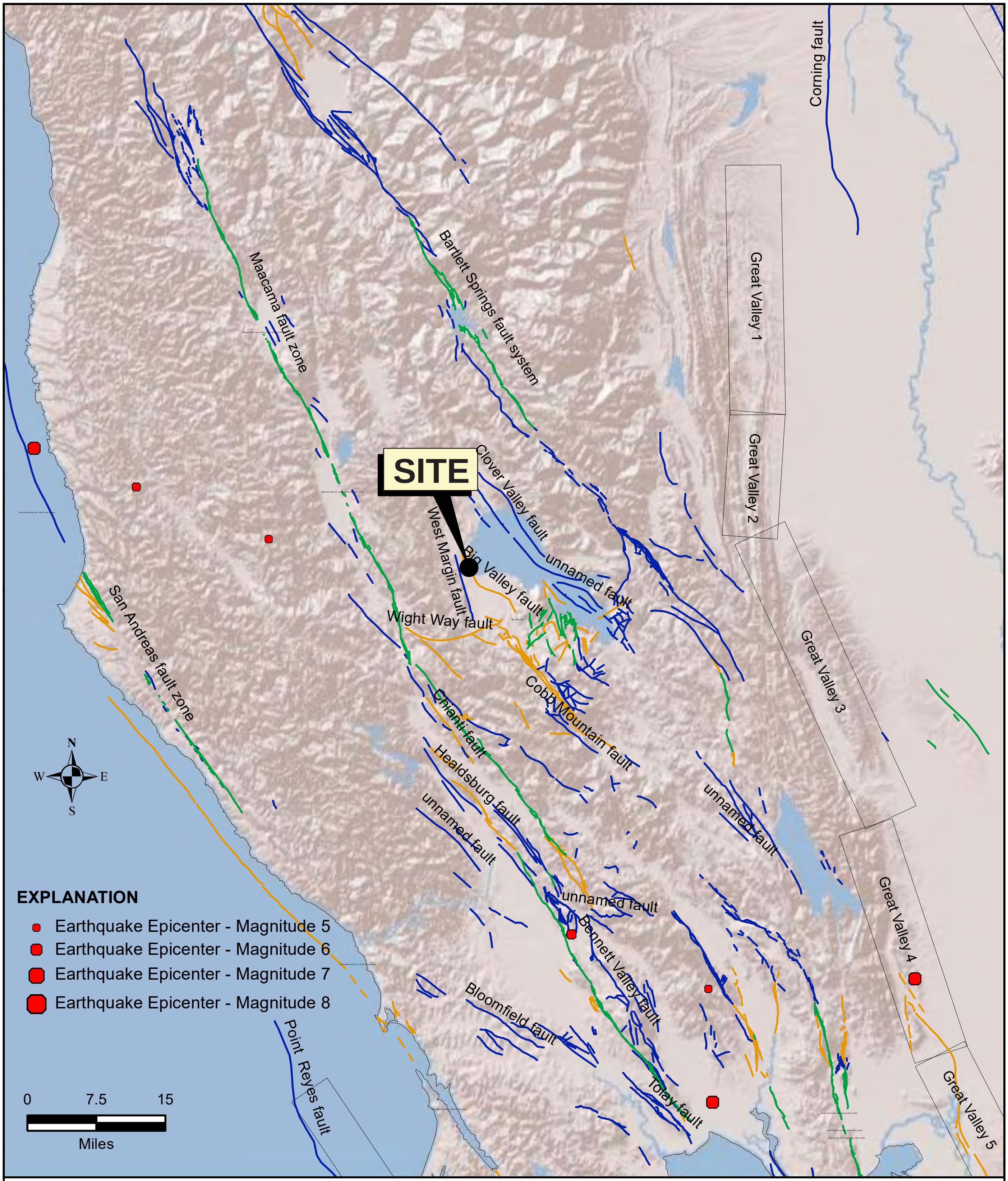
Approximate scale

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

TOP OF BEDROCK CONTOURS

Date 02/19/15	Project No. 731563902	Figure 7

LANGAN TREADWELL ROLLO



NOTES:
Digitized data for fault coordinates and earthquake catalog was developed by the California Geological Survey.
The historic earthquake catalog includes events from January 1800 to December 2000.

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LANGAN TREADWELL ROLLO

MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS IN THE SAN FRANCISCO BAY AREA

Date 03/04/15	Project No. 731563902	Figure 8

I **Not felt by people, except under especially favorable circumstances. However, dizziness or nausea may be experienced.**
Sometimes birds and animals are uneasy or disturbed. Trees, structures, liquids, bodies of water may sway gently, and doors may swing very slowly.

II **Felt indoors by a few people, especially on upper floors of multi-story buildings, and by sensitive or nervous persons.**
As in Grade I, birds and animals are disturbed, and trees, structures, liquids and bodies of water may sway. Hanging objects swing, especially if they are delicately suspended.

III **Felt indoors by several people, usually as a rapid vibration that may not be recognized as an earthquake at first. Vibration is similar to that of a light, or lightly loaded trucks, or heavy trucks some distance away. Duration may be estimated in some cases.**
Movements may be appreciable on upper levels of tall structures. Standing motor cars may rock slightly.

IV **Felt indoors by many, outdoors by a few. Awakens a few individuals, particularly light sleepers, but frightens no one except those apprehensive from previous experience. Vibration like that due to passing of heavy, or heavily loaded trucks. Sensation like a heavy body striking building, or the falling of heavy objects inside.**
Dishes, windows and doors rattle; glassware and crockery clink and clash. Walls and house frames creak, especially if intensity is in the upper range of this grade. Hanging objects often swing. Liquids in open vessels are disturbed slightly. Stationary automobiles rock noticeably.

V **Felt indoors by practically everyone, outdoors by most people. Direction can often be estimated by those outdoors. Awakens many, or most sleepers. Frightens a few people, with slight excitement; some persons run outdoors.**
Buildings tremble throughout. Dishes and glassware break to some extent. Windows crack in some cases, but not generally. Vases and small or unstable objects overturn in many instances, and a few fall. Hanging objects and doors swing generally or considerably. Pictures knock against walls, or swing out of place. Doors and shutters open or close abruptly. Pendulum clocks stop, or run fast or slow. Small objects move, and furnishings may shift to a slight extent. Small amounts of liquids spill from well-filled open containers. Trees and bushes shake slightly.

VI **Felt by everyone, indoors and outdoors. Awakens all sleepers. Frightens many people; general excitement, and some persons run outdoors.**
Persons move unsteadily. Trees and bushes shake slightly to moderately. Liquids are set in strong motion. Small bells in churches and schools ring. Poorly built buildings may be damaged. Plaster falls in small amounts. Other plaster cracks somewhat. Many dishes and glasses, and a few windows break. Knickknacks, books and pictures fall. Furniture overturns in many instances. Heavy furnishings move.

VII **Frightens everyone. General alarm, and everyone runs outdoors.**
People find it difficult to stand. Persons driving cars notice shaking. Trees and bushes shake moderately to strongly. Waves form on ponds, lakes and streams. Water is muddied. Gravel or sand stream banks cave in. Large church bells ring. Suspended objects quiver. Damage is negligible in buildings of good design and construction; slight to moderate in well-built ordinary buildings; considerable in poorly built or badly designed buildings, adobe houses, old walls (especially where laid up without mortar), spires, etc. Plaster and some stucco fall. Many windows and some furniture break. Loosened brickwork and tiles shake down. Weak chimneys break at the roofline. Cornices fall from towers and high buildings. Bricks and stones are dislodged. Heavy furniture overturns. Concrete irrigation ditches are considerably damaged.

VIII **General fright, and alarm approaches panic.**
Persons driving cars are disturbed. Trees shake strongly, and branches and trunks break off (especially palm trees). Sand and mud erupts in small amounts. Flow of springs and wells is temporarily and sometimes permanently changed. Dry wells renew flow. Temperatures of spring and well waters varies. Damage slight in brick structures built especially to withstand earthquakes; considerable in ordinary substantial buildings, with some partial collapse; heavy in some wooden houses, with some tumbling down. Panel walls break away in frame structures. Decayed pilings break off. Walls fall. Solid stone walls crack and break seriously. Wet grounds and steep slopes crack to some extent. Chimneys, columns, monuments and factory stacks and towers twist and fall. Very heavy furniture moves conspicuously or overturns.

IX **Panic is general.**
Ground cracks conspicuously. Damage is considerable in masonry structures built especially to withstand earthquakes; great in other masonry buildings - some collapse in large part. Some wood frame houses built especially to withstand earthquakes are thrown out of plumb, others are shifted wholly off foundations. Reservoirs are seriously damaged and underground pipes sometimes break.

X **Panic is general.**
Ground, especially when loose and wet, cracks up to widths of several inches; fissures up to a yard in width run parallel to canal and stream banks. Landsliding is considerable from river banks and steep coasts. Sand and mud shifts horizontally on beaches and flat land. Water level changes in wells. Water is thrown on banks of canals, lakes, rivers, etc. Dams, dikes, embankments are seriously damaged. Well-built wooden structures and bridges are severely damaged, and some collapse. Dangerous cracks develop in excellent brick walls. Most masonry and frame structures, and their foundations are destroyed. Railroad rails bend slightly. Pipe lines buried in earth tear apart or are crushed endwise. Open cracks and broad wavy folds open in cement pavements and asphalt road surfaces.

XI **Panic is general.**
Disturbances in ground are many and widespread, varying with the ground material. Broad fissures, earth slumps, and land slips develop in soft, wet ground. Water charged with sand and mud is ejected in large amounts. Sea waves of significant magnitude may develop. Damage is severe to wood frame structures, especially near shock centers, great to dams, dikes and embankments, even at long distances. Few if any masonry structures remain standing. Supporting piers or pillars of large, well-built bridges are wrecked. Wooden bridges that "give" are less affected. Railroad rails bend greatly and some thrust endwise. Pipe lines buried in earth are put completely out of service.

XII **Panic is general.**
Damage is total, and practically all works of construction are damaged greatly or destroyed. Disturbances in the ground are great and varied, and numerous shearing cracks develop. Landslides, rock falls, and slumps in river banks are numerous and extensive. Large rock masses are wrenched loose and torn off. Fault slips develop in firm rock, and horizontal and vertical offset displacements are notable. Water channels, both surface and underground, are disturbed and modified greatly. Lakes are dammed, new waterfalls are produced, rivers are deflected, etc. Surface waves are seen on ground surfaces. Lines of sight and level are distorted. Objects are thrown upward into the air.

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Lakeport, California

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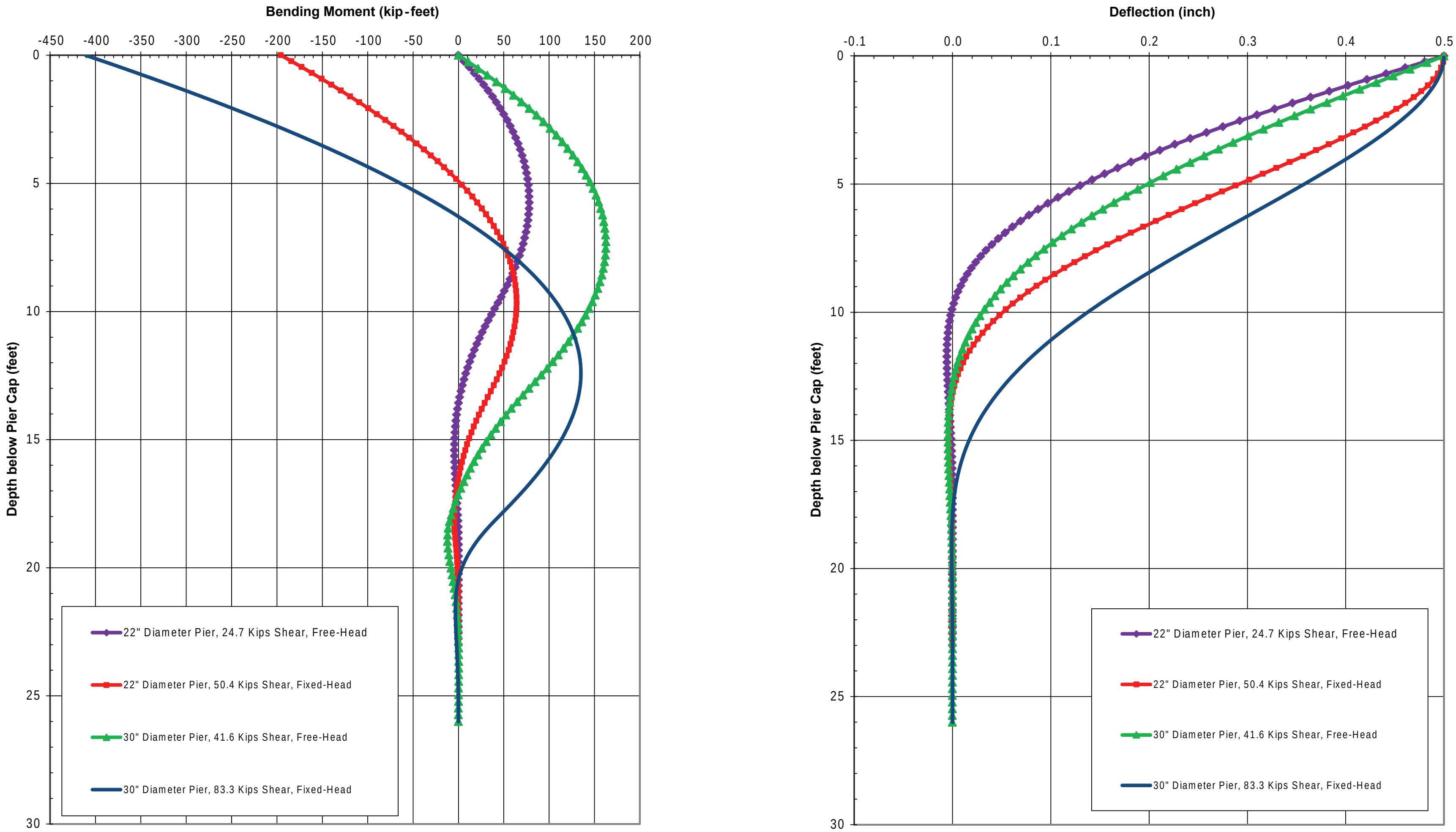
MODIFIED MERCALLI INTENSITY SCALE

Date 03/04/15 | Project No. 731563902 | Figure 9



Notes:
1. The profiles shown are for a single pier with an axial compressive load of 275 kips.
2. To account for group effects, the lateral load capacity of pier groups should be multiplied by a reduction factor. However, moment profile used to check individual piers in a group should be for the unfactored load.
3. Assumes there is no applied moment at the pier head.
4. Passive resistance of pier caps has not been included.

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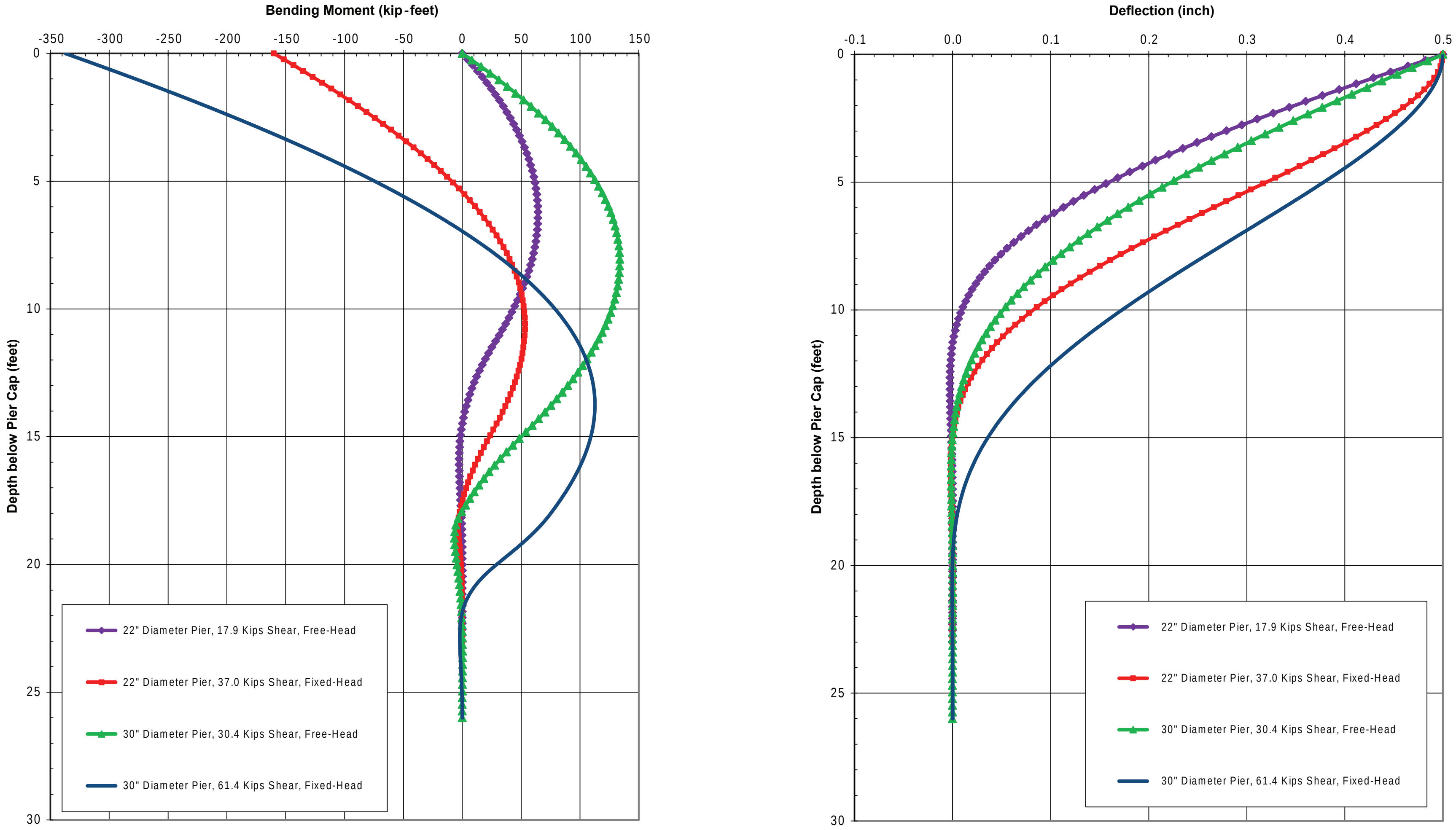
Lakeport, California

MOMENT AND DEFLECTION PROFILES
DRILLED PIER
LEVEL GROUND SURFACE

Date 03/04/15 | Project No. 731563902 | Figure 10

LANGAN TREADWELL ROLLO



Notes:

1. The profiles shown are for a single pier with an axial compressive load of 275 kips.
2. To account for group effects, the lateral load capacity of pier groups should be multiplied by a reduction factor. However, moment profile used to check individual piers in a group should be for the unfactored load.
3. Assumes there is no applied moment at the pier head.
4. Passive resistance of pier caps has not been included.

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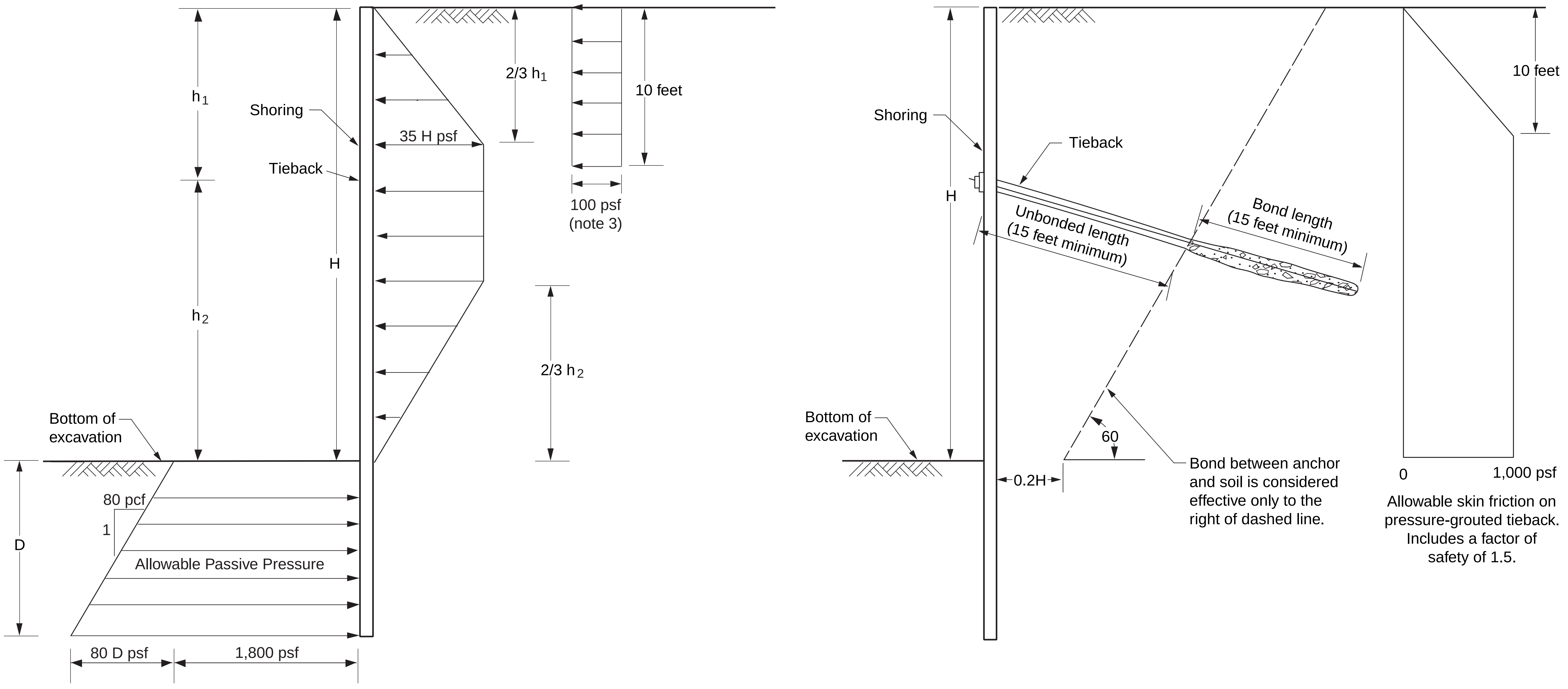
MOMENT AND DEFLECTION PROFILES
DRILLED PIER
SLOPED GROUND SURFACE

Date 03/04/15	Project No. 731563902	Figure 11

LANGAN TREADWELL ROLLO



Notes:
1. The above pressure diagram assumes that the shoring walls consist of pervious soldier-pile-and-lagging system.
2. Passive pressure values include a factor of safety of about 1.5 and can be applied over a width of three soldier pile diameters or pile spacing, whichever is smaller.
3. Pressure due to vehicle surcharge (heavy equipment should come no closer than 5 feet to face of excavation).
4. D and H in feet.

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TYPICAL LATERAL EARTH PRESSURES
AND TIEBACK CRITERIA FOR
TEMPORARY SHORING SYSTEM

Date 03/04/15 | Project No. 731563902 | Figure 12

LANGAN TREADWELL ROLLO

APPENDIX A

LOGS OF BORINGS AND TEST PITS

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-1

PAGE 1 OF 3

Boring location: See Site Plan, Figure 2

Date started: 11/29/11 | Date finished: 11/29/11

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: M. Mascorro

LABORATORY TEST DATA

Ground Surface Elevation: 1391 feet^2

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value^1	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1	BULK	☒			CL	SANDY CLAY with GRAVEL (CL) dark reddish-brown, moist, with roots, abundant serpentinite rock fragments LEVELING SLIVER FILL						
2												
3	S&H	■	50/ 5"	35/ 5"		SERPENTINITE BEDROCK olive-gray to black, very hard, weak to moderately strong, little weathered, moist						
4												
5	S&H SPT	▭ ▨	50/ 3" 50/ 3"	60/ 3" 60/ 3"								
6												
7												
8	SPT	▨	50/ 2.5"	60/ 2.5"		dark green to black, very hard, fresh fracture surfaces						
9												
10	SPT	▨	50/ 3"	60/ 3"								
11						green and yellow-brown to black, hard with fragments of moderately hard rock, weak, foliated, soapy fracture surfaces						
12												
13												
14												
15	SPT	▨	50/ 2"	60/ 2"								
16						moisture on fracture surfaces, some oxidation, in foliated fragments						
17												
18						increased moisture content in cuttings from 15 to 18 feet						
19												
20	SPT	▨	50/ 4"	60/ 4"		green-gray to black, very hard, weak to moderately strong, foliated						
21												
22												
23												
24												
25	SPT	▨	50/ 2"	60/ 2"		black, moderately hard, moderately strong, blocky and foliated fracturing						
26												
27												
28												
29												
30												

LANGAN TREADWELL ROLLO

Project No.: 731563902

Figure: A-1a

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-1

PAGE 2 OF 3

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
	SPT	▬	50/ 1"	50/ 1"		SERPENTINITE BEDROCK (continued) dark green to black, very hard, with thin veins of low hardness, foliated fracturing, primarily along vein planes						
31												
32												
33												
34												
35												
36												
37												
38												
39												
40	SPT	▨	50/ 6"	60/6"		blue-green to black, low hardness to moderately hard, weak, soapy fracture surfaces, highly foliated						
41												
42												
43												
44												
45												
46												
47												
48												
49												
50	SPT	▨	50/ 6"	60/ 6"		dark green to black, low hardness to very hard, friable to moderately strong, angular fracturing, fresh, polished fracture surfaces						
51												
52												
53												
54												
55												
56												
57												
58												
59												
60						∇						

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

LANGAN TREADWELL ROLLO

Project No.: 731563902
Figure: A-1b

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-1

PAGE 3 OF 3

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	SPT	▨	50/ 3"	50/ 3"		SERPENTINIITE BEDROCK (continued)						
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												

Boring terminated at a depth of 60.25 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 60 feet below ground surface during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on National Geodetic Vertical Datum 1929.

LANGAN TREADWELL ROLLO

Project No.: 731563902

Figure: A-1c

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-2

PAGE 1 OF 2

Boring location: See Site Plan, Figure 2
Logged by: M. Mascorro
Date started: 11/28/11
Date finished: 11/28/11
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Ground Surface Elevation: 1394 feet[2]

	SAMPLES					MATERIAL DESCRIPTION	LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/6"	SPT N-Value[1]	LITHOLOGY		Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						CLAYEY GRAVEL (GC) dark brown, medium dense, moist, black to brown to bluish-green angular serpentinite gravel, abundant cobble- to boulder-sized clasts in fill						
2												
3	S&H		14 18 21	27								
4												
5												
6	S&H		13 17 22	27		reddish-brown sandy clay, increased moisture content, serpentinite rock fragments friable to moderately strong and deeply weathered (with iron staining)						
7					GC							
8	S&H		10 20 22	29								
9						FILL						
10												
11	S&H		23 20 18	27								
12												
13												
14												
15						GRAVEL with SAND (GP) greenish-black to black gravel, olive sand, loose, moist						
16	S&H		9 6 5	8	GP							
17												
18												
19						SERPENTINITE BEDROCK olive-brown to dark gray, intensely fractured, soft to hard, weak to strong, moderately weathered						
20												
21	S&H		22 43 50	65								
22												
23												
24												
25	S&H SPT		50/ 2" 50/ 2"	35/ 2" 60/ 2"								
26						black to bluish-green, seam of soft deeply weathered (oxidized) rock						
27												
28												
29												
30												

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

LANGAN TREADWELL ROLLO

Project No.: 731563902
Figure: A-2a

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-2

PAGE 2 OF 2

DEPTH (feet)	SAMPLES				LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA					
	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]			Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	SPT	◪	50/ 5"	60/ 5"		SERPENTINITE BEDROCK (continued) increased rock hardness, fresh fractures, fractures into angular fragments						
31												
32												
33												
34												
35												
36												
37												
38												
39												
40	SPT	◪	50/ 5"	60/ 5"		intensely crushed, soft to moderately hard, friable to weak, deeply weathered (oxidized fracture surfaces)						
41												
42												
43												
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

Boring terminated at a depth of 40.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

---

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on National Geodetic Vertical Datum 1929.

LANGAN TREADWELL ROLLO

Project No.: 731563902
Figure: A-2b

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-3

PAGE 1 OF 3

Boring location: See Site Plan, Figure 2
Date started: 11/28/11
Date finished: 11/28/11
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches
Hammer type: Automatic
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)
Logged by: M. Mascorro

Ground Surface Elevation: 1395 feet²

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value¹	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1				CL	SANDY CLAY with GRAVEL (CL) dark brown mottled with yellow, very stiff, moist						
3	S&H	17 20 23	30		very stiff to hard, decreased clay content, increased sand content, with abundant fragments of serpentinite Corrosion Test, see Figure B-4						
6	S&H	12 20 35	39	GP-GC	GRAVEL with CLAY (GP-GC) reddish-brown clay, olive-gray and brown serpentinite fragments, dense, moist						
8	S&H	16 10 7	12		dark gray serpentinite fragments, medium dense, decreased clay content FILL						
11	S&H	4 7 8	11	CL	GRAVELLY CLAY (CL) reddish-brown clay, stiff, moist, gravel consists of serpentinite fragments						
16	S&H	6 9 11	14	CL	CLAY with GRAVEL (CL) dark reddish-brown, gray gravel mottled with reddish-orange iron staining, stiff, moist to wet, friable to strong angular serpentinite gravel increase in moisture content Corrosion Test, see Figure B-4						
18					SERPENTINITE BEDROCK mottled olive-gray and black, moderately hard, little to moderately weathered, weak to moderately strong, moderately foliated, polished fractured surfaces, moist						
20	S&H	50/ 2"	60/ 2"								
21	SPT	50/ 2"	60/ 2"								
25	SPT	50/ 2"	60/ 2"								
30											

LANGAN TREADWELL ROLLO

Project No.: 731563902
Figure: A-3a

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-3

PAGE 2 OF 3

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	LABORATORY TEST DATA: Confining Pressure Lbs/Sq Ft	LABORATORY TEST DATA: Shear Strength Lbs/Sq Ft	LABORATORY TEST DATA: Fines %	LABORATORY TEST DATA: Natural Moisture Content, %	LABORATORY TEST DATA: Dry Density Lbs/Cu Ft
	SPT	▨	50/ 4"	60/ 4"		SERPENTINITE BEDROCK (continued) black to dark green, soft to hard, friable to weak, moist						
31												
32												
33												
34												
35												
36												
37												
38												
39												
40	SPT	▨	50/ 6"	60/ 6"		black, polished fractured surfaces, fresh, some slickenside, foliated, variable hardness and strength, moist						
41												
42												
43												
44												
45												
46												
47												
48												
49												
50	SPT	▨	50/ 3"	60/ 3"								
51												
52												
53												
54												
55												
56												
57												
58												
59												
60						∇						

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

LANGAN TREADWELL ROLLO

Project No.:	Figure:
731563902	A-3b

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-3

PAGE 3 OF 3

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
	SPT	◪	50/ 5"	60/ 5"		SERPENTINITE BEDROCK (continued) hard, fresh, wet, foliated fracturing						
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
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88												
89												
90												

Boring terminated at a depth of 60.4 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 60 feet below ground surface during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on National Geodetic Vertical Datum 1929.

LANGAN TREADWELL ROLLO

Project No.: 731563902

Figure: A-3c

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-4

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: M. Mascorro

Date started: 11/29/11

Date finished: 11/29/11

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches

Hammer type: Automatic

Sampler: Sprague & Henwood (S&H)

LABORATORY TEST DATA

MATERIAL DESCRIPTION

Ground Surface Elevation: 1392 feet[2]

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1					CL	SANDY CLAY with GRAVEL (CL) dark reddish-brown, moist, abundant angular serpentinite gravel LEVELING SLIVER FILL						
2												
3	S&H	▨	50/ 6"	35/ 6"		SERPENTINITE BEDROCK olive and dark yellowish-brown to black, highly mottled, intensely crushed, soft to low hardness, very weak, weathered to soil-like consistency, seam of highly plastic red clay						
4												
5	S&H	▨	50/ 6"	35/ 6"								
6												
7												
8												
9												
10												
11												
12												
13												
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28												
29												
30												

Boring terminated at a depth of 5.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.7, to account for sampler type and hammer energy.

[2] Elevations based on National Geodetic Vertical Datum 1929.

LANGAN TREADWELL ROLLO

Project No.: 731563902

Figure: A-4

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

PROJECT:	**LAKEPORT COURTHOUSE** **675 LAKEPORT BOULEVARD** Lakeport, California	**Log of Boring B-5** PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: M. Mascorro

Date started: 11/28/11

Date finished: 11/28/11

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches

Hammer type: Automatic

Sampler: Sprague & Henwood (S&H)

LABORATORY TEST DATA

Ground Surface Elevation: 1393 feet[2]

DEPTH (feet)	SAMPLES Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1	BULK	☒				SANDY SILT with GRAVEL (MH) dark reddish-brown, hard, moist, serpentinite cobbles yellowish-brown to dark greenish black, intensely crushed, soft to moderately hard, very weak, deeply weathered LL = 66, PI = 32, see Figure B-1 Resistance Value Test, see Figure B-2					10.1	
2												
3	S&H	■	35 50/ 5"	35/ 5"	MH	FILL						
4												
5	S&H	■	30 50/ 5"	35/ 5"		yellowish-brown						
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
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27												
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29												
30												

Boring terminated at a depth of 5.9 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

---

[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.7, to account for sampler type and hammer energy.

[2] Elevations based on National Geodetic Vertical Datum 1929.

LANGAN TREADWELL ROLLO

Project No.: 731563902

Figure: A-5

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15

PROJECT: **LAKEPORT COURTHOUSE**
675 LAKEPORT BOULEVARD
Lakeport, California

Log of Boring B-6

PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: M. Mascorro

Date started: 11/28/11 | Date finished: 11/28/11

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Sprague & Henwood (S&H)

Ground Surface Elevation: 1394.5 feet[2]

	SAMPLES						LABORATORY TEST DATA					
DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1	BULK	☒			CL	SANDY CLAY with GRAVEL (CL) dark reddish-brown clay, stiff, moist, abundant yellowish-brown to greenish-brown and black serpentinite gravel and cobbles of variable strength, hardness, and weathering Resistance Value Test, see Figure B-3 FILL						
2												
3	S&H	▨	11 9 6	11								
4												
5												
6	S&H	▨	12 16 23	27		very stiff						
7												
8												
9												
10												
11												
12												
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28												
29												
30												

Boring terminated at a depth of 6.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

---

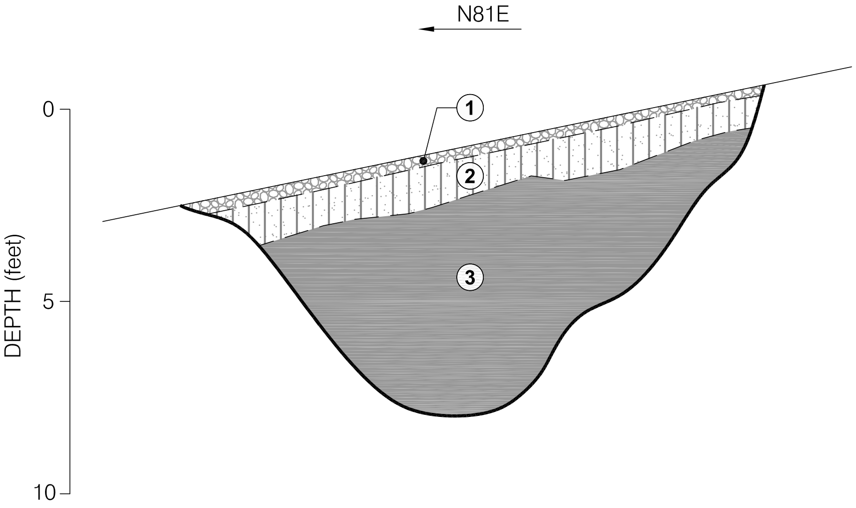
[1] S&H blow counts for the last two increments were converted to SPT N-Values using a factor of 0.7, to account for sampler type and hammer energy.

[2] Elevations based on National Geodetic Vertical Datum 1929.

LANGAN TREADWELL ROLLO

Project No.: 731563902 | Figure: A-6

TEST GEOTECH LOG 731563901 FOR 102.GPJ TR.GDT 3/4/15



① GRAVEL (GP)
gray to greenish-gray, loose, angular to subangular, poorly sorted, 1/4-inch to 1 1/2-inch, scattered grass and organics *[FILL]*

② SANDY CLAY (CL)
very dark brown, stiff, moist, moderately plastic, poorly sorted, 20-25% fine- to coarse-grained subrounded to subangular sand and scattered gravel to 1/2-inch in diameter, scattered roots and organics *[BURIED TOPSOIL]*

③ SERPENTINITE
white to dark gray, very strong, slightly weathered, angular fractures, fractures lithified/cemented, hard, moist *[BEDROCK]*

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
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LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-1

Date 12/13/11 | Project No. 731563902 | Figure A-7

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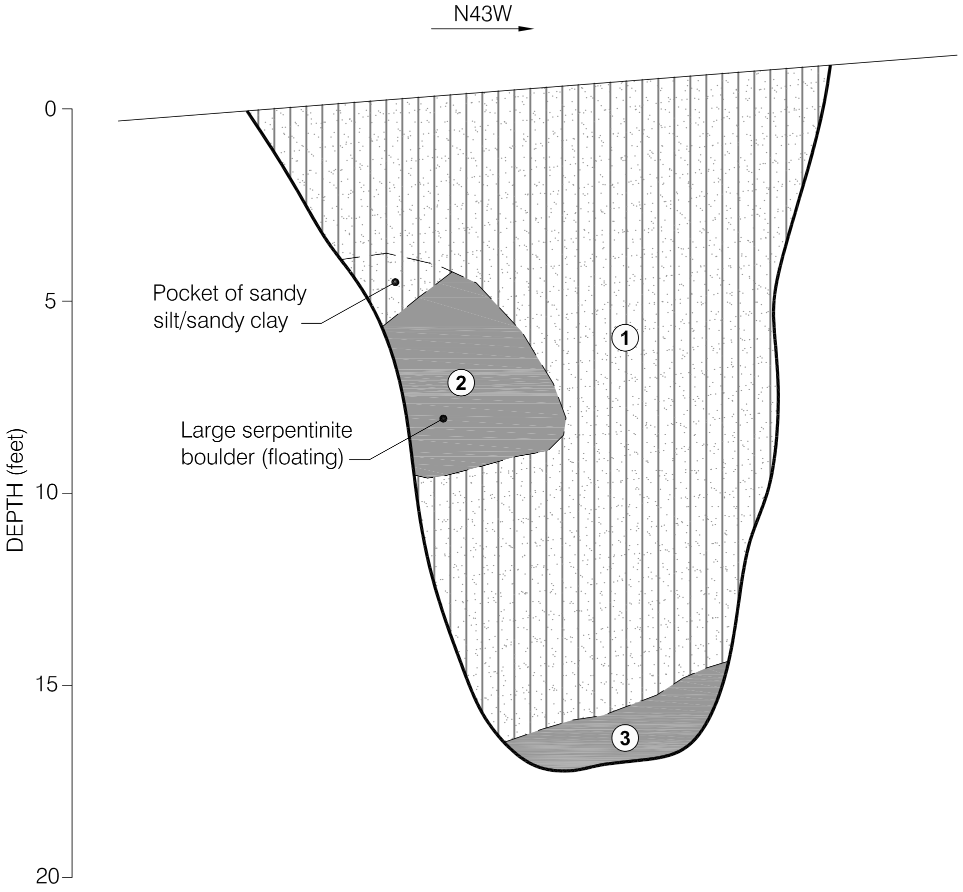

① SILTY SAND with GRAVEL (SM)
dark brown, medium dense to dense, moist, poorly sorted, fine- to coarse-grained, with 10-15% angular to subangular gravels to 1-inch in diameter, slightly to moderately oxidized *[FILL]*

② SERPENTINITE
white with brown oxidation staining, moderately weathered, hard, subrounded to subangular fractures, highly fractured, moist
[DISPLACED BEDROCK BOULDER]

③ SERPENTINITE
olive, olive-yellow, and black, slightly weathered, oxidation staining along fracture surfaces, moist, very hard, slightly fractured
[*BEDROCK]*

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LAKEPORT COURTHOUSE
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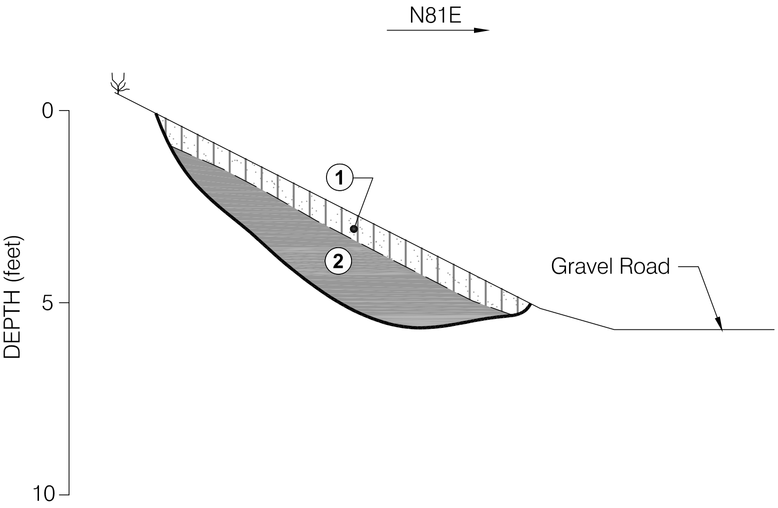
LOG OF TEST PIT
TP-2

Date 12/13/11	Project No. 731563902	Figure A-8



① SANDY SILT (ML) to SANDY CLAY (CL)
dark reddish-brown, moist, 10-20% very fine- to medium-grained sand with scattered gravel, scattered roots and decaying organics *[TOPSOIL]*

② SERPENTINITE
gray to black, slightly weathered, very hard, slightly fractured, moist, oxidized, angular fractures [*BEDROCK]*

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LOG OF TEST PIT
TP-3

Date 12/13/11 | Project No. 731563902 | Figure A-9

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size	**Gravels** (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	**Silts and Clays** LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	**Range of Grain Sizes**	
	U.S. Standard Sieve Size	**Grain Size in Millimeters**
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

▽	Unstabilized groundwater level
▼	Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

⬒	Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered
◩	Classification sample taken with Standard Penetration Test sampler
◨	Undisturbed sample taken with thin-walled tube
☒	Disturbed sample
⊡	Sampling attempted with no recovery
◫	Core sample
▣	Analytical laboratory sample
▥	Sample taken with Direct Push sampler

SAMPLER TYPE

C	Core barrel
CA	California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
D&M	Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
O	Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
PT	Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
S&H	Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
SPT	Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
ST	Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

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CLASSIFICATION CHART

Date 12/13/11 | Project No. 731563902 | Figure A-10

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. **Deep** - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
M. **Moderate** - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
L. **Little** - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.
F. **Fresh** - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V **CONSOLIDATION OF SEDIMENTARY ROCKS:** usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

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PHYSICAL PROPERTIES CRITERIA FOR ROCK DESCRIPTIONS

Date 12/13/11 | Project No. 731563902 | Figure A-11

APPENDIX B

RESULTS OF GEOPHYSICAL SURVEYS

NORCAL GEOPHYSICAL CONSULTANTS, INC.

February 24, 2015

Langan Treadwell Rollo
555 Montgomery Street, Suite 1300
San Francisco, California 94111

Subject: Seismic Refraction Investigation
675 Lakeport Boulevard
Lakeport, California

NORCAL Job No: 15-243.110

Attention: Ms. Marina Mascorro

This report presents the findings of a seismic refraction (SR) investigation performed by NORCAL Geophysical Consultants at the subject address. This investigation is in conjunction with the planned improvements to the site and the construction of the proposed Lakeport Courthouse. The survey was performed on January 28th and 29th, 2015 by NORCAL Professional Geophysicist David T. Hagin PGp 1033 and Staff Geophysicist Hunter S. Philson. Logistical support and safety information were provided onsite by Ms. Jane Elliot of Langan Treadwell Rollo.

1.0 SITE DESCRIPTION and PURPOSE

The site is composed of an approximate 320 X 280 ft empty building pad with large fill slopes on the northern and eastern sides, where a descending access road is located (Plate 1, base map supplied by Langan Treadwell Rollo). Based on the fill slopes and the surrounding terrain, we expect the fill to be thickest on the eastern portion of the pad. As the building pad is visible in an aerial photograph taken in 1993, it was constructed over 20 years ago. The site is accessed via a small gravel paved road off of Bevins Street. At the time of the survey the ground was dry and the weather fair.

The purpose of this investigation was to evaluate the shallow sub-surface conditions in the location of the planned structure by measuring the seismic p-wave velocity values using the seismic refraction (SR) method. These data are used to evaluate the thickness of the fill and possible underlying colluvium over serpentinite bedrock. Additionally, an MASW (Multichannel Analysis of Surface Waves) sounding was performed to measure s-wave velocities and aid in the evaluation of ground stiffness.

321A BLODGETT STREET • COTATI, CA 94931 • TELEPHONE (707) 796-7170 • FAX (707) 796-7175
www.norcalgeophysical.com

2.0 METHODOLOGY

2.1 Seismic Refraction

The SR method is used to determine the compressional acoustic primary wave velocity (seismic velocity) of subsurface materials. The seismic velocity of fill, sediments, and rock are dependent on physical properties such as compaction, density, and induration (hardness). However, other factors such as bedding, fracturing, and saturation also affect seismic velocity. Typically, low velocities are indicative of loose, dry soils, poorly compacted fill material, poorly to semi-consolidated sediments, or alternatively, deeply weathered and/or highly fractured rock. Moderate velocities usually indicate dense and highly compacted or saturated sedimentary deposits or fill, and/or moderately weathered and fractured rock. High velocities typically represent slightly weathered to unweathered (fresh) rock with little fracturing. A more detailed description of the SR methodology is provided in Appendix A.

2.2 MASW

When seismic waves are generated at or near the ground surface, both body and surface waves are generated; these are commonly referred to as ground roll in seismic surveys. Surface waves have dispersion properties that body waves lack. By analyzing the dispersion of surface waves it is possible to obtain a near-surface s-wave velocity profile. A more detailed description of the MASW methodology is provided in Appendix B.

3.0 FIELD SURVEY AND DATA PROCESSING

3.1 Data Acquisition

The geophysical survey entailed the acquisition of six SR lines extending over the surface of the pad and along the descending access road near the area of the planned structure, as shown on Plate 1; the placement of the lines was determined by Langan Treadwell Rollo personnel. The seismic lines each consisted of a single geophone spread comprised of 24 geophones and 7 shot points distributed in a collinear array. The geophones were coupled to the ground surface at 5 to 10 foot intervals for total line lengths between 125 and 250 feet. The two end shot points were located one or one-half station beyond each end of the geophone spread and the remaining shot points were evenly spaced within the spread.

The MASW sounding was performed in the location of SR Line II. The sounding employed 24 geophones coupled to the ground at 6-ft intervals. Shot points were located at 12, 24 and 36 feet off of each end of the line.

3.2 Instrumentation

The SR data were recorded using a ***Geometrics Geode***, 24-bit digital seismic recording system and ***Oyo Geospace*** digital-grade geophones with a natural frequency of 10 Hz. We produced seismic energy at each shot point by striking an aluminum plate placed on the ground surface with a 16-pound sledge hammer. An accelerometer attached to the hammer transmitted a triggering pulse to the seismograph to begin recording each time the plate was struck. Several strikes were performed and stacked at each shot point to ensure an acceptable signal to noise ratio. The locations and elevations of the geophones and shot-points were determined using GPS locating and the topographic map supplied by Langan Treadwell Rollo.

3.3 Data Processing

The refraction data were processed in-house using ***SeisImager***, specialized software developed by Geometrics, Inc. of San Jose, California. We then used the program ***Surfer 12*** by Golden Software to graphically illustrate the subsurface distribution of seismic velocities. This consisted of generating a color-contoured seismic velocity cross-section (profile) for each seismic line, as shown on Plates 2, 3 and 4.

The MASW data were also processed in-house using ***SurfSeis 3***, dispersion-curve inversion software developed by the Kansas Geological Survey. The resulting model is a one dimensional sounding; depth intervals and their associated s-wave velocity values are presented in Table A.

4.0 RESULTS AND INTERPRETATIONS

The results of the seismic refraction survey are illustrated by the seismic velocity profiles shown on Plates 2, 3 and 4. The vertical axes represent elevation in feet (above mean sea level) and the horizontal axes represent survey stationing in feet (distance along the line). The profiles show the ground surface and color contours representing the distribution of seismic velocity values according to the color scale shown at the bottom of each plate.

4.1 Seismic Velocities

Low seismic velocity values of less than about 4,500 feet per second (ft/s) are generally interpreted to represent the overburden, consisting of fill and/or underlying colluvial material (brown, yellow). Moderate seismic velocity values ranging from 4,500 to 6,000 ft/s are interpreted to likely represent a transition zone to moderately weathered and/or fractured rock (green, blue). High seismic velocity values are greater than 6,000 ft/s; they are interpreted to represent less weathered and/or fractured rock (maroon). The maximum seismic velocity values measured were under 8,000 ft/s.

4.2 Seismic Refraction Profiles

The SR profiles provide a general characterization of the fill/colluvium over bedrock. Inspection of the SR lines reveals undulating contours on many of the profiles, suggesting that the original ground surface may have been tortuous. On the building pad, SR line D suggests a wedge of fill material on the building pad thickening toward the east, as expected. Line C indicates only five or six feet of overburden, whereas Line H shows nearly 20 feet of overburden. The lines correlate well at the tie points and maximum velocity values are similar on all of the profiles.

On the access road, Lines E and F indicate a wedge of overburden that thickens toward the east to approximately 12 feet; however, Line G shows the low velocity wedge pinching out against higher velocities below at the southern end of the line. This is in agreement with the observation of a rising "knob" of bedrock visible in the cut/fill slope below the southern portion of the line (also visible in the aerial photographs). Again, the lines correlate well at the tie points and maximum velocity values are comparable on all of the profiles.

4.3 SR Limitations

It should be noted that the seismic refraction technique is based on the assumption that seismic velocity increases with depth. Any layers representing a decrease in velocity with depth, otherwise known as a velocity inversion, will not be defined and will result in the over-estimation of the depth of deeper, higher velocity layers. In addition, relatively thin layers might not be individually resolved and might, instead, be lumped together with other layers. Hard and soft zones within a given seismic layer will tend to be averaged into the velocity of that layer. Finally, there is not necessarily a one-to-one relationship between lithologic layers and seismic layers. It is entirely possible that two different types of material could have the same seismic velocity. Alternatively, a change in velocity can occur within a single lithologic unit. A more detailed discussion of the limitations with regard to the seismic refraction method is presented in Appendix A.

4.4 MASW Sounding

We acquired a single MASW sounding located at the center of Line H, where the SR profiles indicate that fill extends to a depth of approximately 20 feet. The results of the sounding are presented by Table A, providing depth intervals and their associated s-wave velocity values.

Table A

DEPTH INTERVAL (FT)	S-WAVE VELOCITY (FT/S)
0 – 2.5	1448
2.5 - 5	1444
5 - 10	1448
10 - 15	855
15 - 20	1158
20 - 25	2082
25 - 35	2564
35 - 45	2917
45 - 60	3425
60 - 75	5583

We interpret the sharp rise in the s-wave velocity values in the 20-25 ft depth interval to indicate the presence of bedrock; this correlates well with the results of Line II. The s-wave velocity values associated with the interpreted bedrock are greater than 2,000 ft/s.

5.0 STANDARD OF CARE

The scope of NORCAL's services for this project consisted of using geophysical methods to characterize the subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the standard of care ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

Thank you for the opportunity to participate on this project.

Sincerely,

NORCAL Geophysical Consultants, Inc.

David Hagin

David T. Hagin
Professional Geophysicist PGp 1033

DTH/KGB/tt
Enclosures: Plates 1 through 4
Appendix A - Seismic Refraction Survey
Appendix B - MASW Survey

Appendix A

SEISMIC REFRACTION SURVEY

Appendix A

SEISMIC REFRACTION (SR)

METHODOLOGY

The seismic refraction method provides information regarding the seismic velocity structure of the subsurface. An impulsive (mechanical or explosive) source is used to produce compressional (P) wave seismic energy. The P-waves propagate into the earth and are refracted along interfaces caused by an increase in velocity. A portion of the P-wave energy is refracted back to the surface where it is detected by sensors (geophones) that are coupled to the ground surface in a collinear array (spread). The detected signals are recorded on a multi-channel seismograph and are analyzed to determine the shot point-to-geophone travel times. These data can be used along with the corresponding shot point-to-geophone distances to determine the depth, thickness, and velocity of subsurface seismic layers.

The seismic refraction technique is based on several assumptions. Paramount among these are:

- seismic velocity increases with depth, and,
- the velocity of each seismic layer is uniform over the length of the given spread.

In cases where these assumptions do not hold, the accuracy of the technique decreases. For example, if a low velocity layer occurs between two layers of higher velocity, the low velocity layer will not be detected and the depth to the underlying high velocity layer will be erroneously large. Also, if the velocity of a seismic layer varies laterally within a spread, those variations will be interpreted as fluctuations in the elevation of the underlying seismic layer.

It should be noted that apparent velocities can be affected by the orientation of bedding planes with respect to the direction of the seismic profile. Apparent velocities of rock are typically slower when measured along lines oriented perpendicular to bedding planes of steeply dipping rock than those measured along lines oriented parallel.

INSTRUMENTATION

Data acquisition is initiated along each SR line by producing seismic energy using a mechanical source. Mechanical sources produce energy by impacting a metal strike plate on the ground surface with either a 12-16 pound sledge hammer or an elastic-band driven weight drop. The resulting seismic wave forms are recorded using a Geometrics 24-channel engineering seismograph and Mark Products geophones with a natural frequency of 10 Hz. The data are recorded on hard copy records (seismograms) as well as on computer disks for future processing. The seismograms display the amount of time it takes for a compression (P) wave to travel from a given shot point to each geophone in a spread.

DATA ANALYSIS

The seismic data are downloaded to a computer and processed using the software ***Seisimager*** by Geometrics, Inc. This is an interactive program that is used to determine the shot point to geophone travel times, and to compute a 2D model based on those times. Once the travel times for a given line are determined, the programs time-term algorithm is used to compute a preliminary 2D seismic model. This model is then used as input for the programs tomographic routine. Using this procedure, the program divides the starting model into a network of cells and assigns velocities to those cells based on the starting model. The program then traces the refracted seismic travel paths through those cells and computes the associated travel times. It then compares the computed travel times with the measured times and adjusts the velocities of the appropriate cells to improve the fit. The software is programmed to continue this procedure for twenty iterations. Typically, at the end of the twenty iterations the travel times associated with the computed model match the observed travel times to an accuracy of one milli-second (mS) or better. Once a satisfactory model is computed, the software contours the model velocities to produce seismic velocity vs. depth and distance cross-sections (profiles).

LIMITATIONS

In general, there are limitations unique to the SR method. These limitations are primarily based on assumptions that are made by the data analysis routine. First, the data analysis routine assumes that the velocities along the length of each spread are uniform. If there are localized zones within each layer where the velocities are higher or lower than indicated, the analysis routine will interpret these zones as changes in the surface topography of the underlying layer. A zone of higher velocity material would be interpreted as a low in the surface of the underlying layer. Zones of lower velocity material would be interpreted as a high in the underlying layer.

Second, the data analysis routine assumes that the velocity of subsurface materials increase with depth. Therefore, if a layer exhibits velocities that are slower than those of the material above it, the slower layer will not be resolved. Also, a velocity layer may simply be too thin to be detected. Due to these and other limitations inherent to the SR method, the results of the SR survey should be considered only as approximations of the subsurface conditions. The actual conditions may vary locally.

Appendix B

MASW SURVEY

Appendix B

1-D MULTI-CHANNEL ANALYSIS OF SURFACE WAVES (MASW)

Methodology

When seismic waves are generated at or near the ground surface, both body and surface waves are generated. Body waves consist of both compressional (P) and shear (S) waves. Surface waves (e.g., Rayleigh, Love, etc.) propagate at velocities that are proportional to shear wave velocity (Vs). If a vertical energy source is used, Rayleigh type surface waves are produced. These are commonly referred to as ground roll in seismic surveys. Rayleigh waves are retrograde elliptical and travel at approximately 0.9 times the velocity of S-waves.

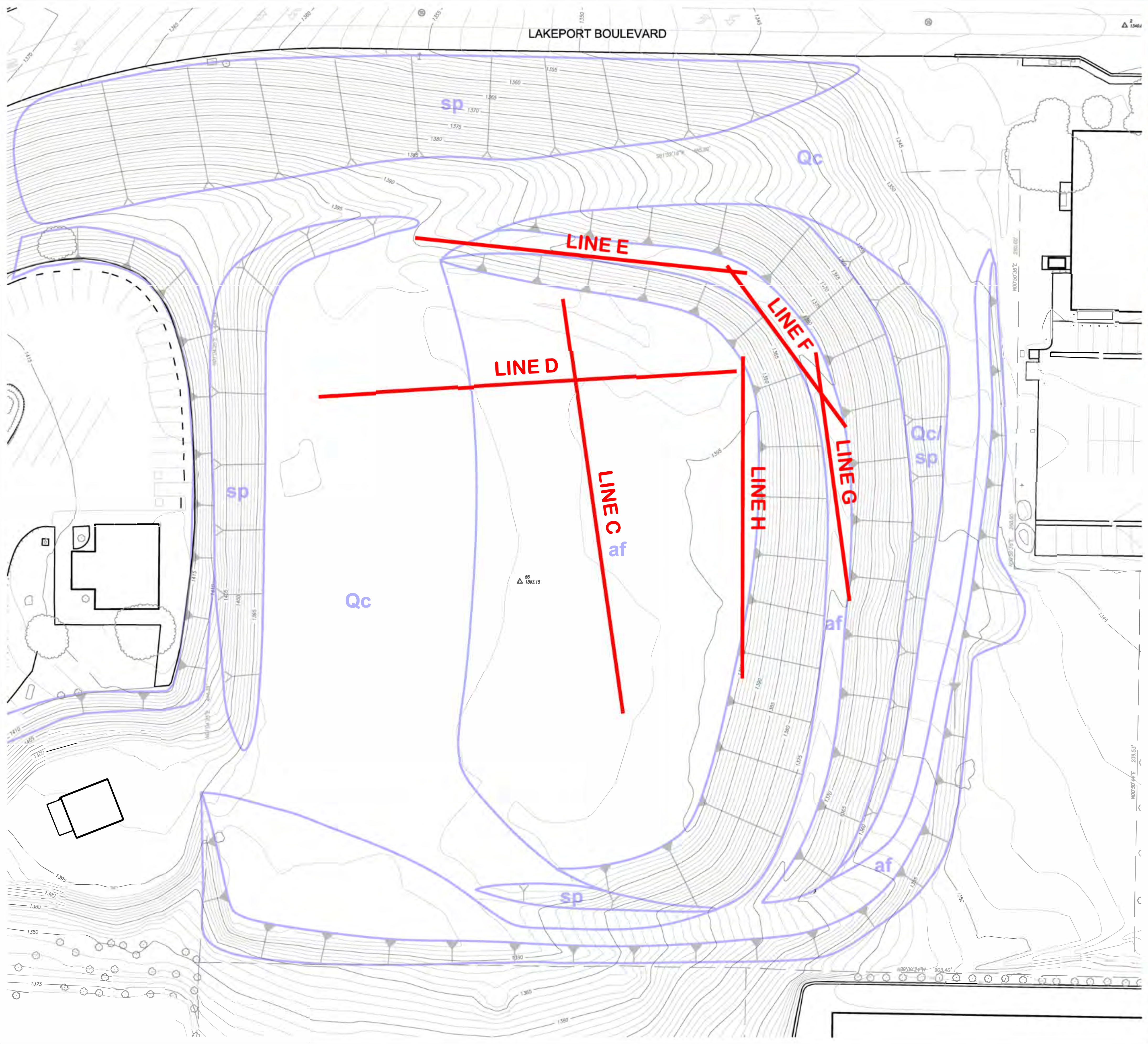
MASW data are gathered in much the same way as high-resolution reflection data. Seismic energy - generated by vertical impacts on the ground surface - is detected by an array of closely spaced geophones. The primary differences are that the surface wave technique requires an energy source that is capable of producing ground roll and geophones that are capable of detecting low frequency (<10 Hz) signals.

Surface waves account for more than two-thirds of the energy produced by vertical seismic energy sources. As a result, surface waves are the most prominent signal on multi-channel seismic records. In addition, surface waves have dispersion properties that body waves lack. That is, different wavelengths have different penetration depths and, therefore, propagate at different velocities. By analyzing the dispersion of surface waves it is possible to obtain a near-surface S-wave velocity profile. Since s-wave velocity is directly proportional to shear modulus, this provides a direct indication in the variation of stiffness (or rigidity) of subsurface materials.

Data Acquisition and Analysis

The MASW data are recorded using a Geometrics Geode 24-channel seismograph and 24 8-Hz geophones. Typically, the geophones are distributed at 6-ft intervals along the seismic line, and shot points are located at 12, 24 and 36 feet off each end of the active geophone spread. Seismic energy is typically produced at each shot point using a 16-pound sledgehammer striking a metal plate on the ground surface: and excellent source of surface wave energy.

The surface wave measurements were converted to Vs versus depth models using a technique known as multi-channel analysis of surface waves (MASW). The raw seismic wave-traces (shot gathers) produced at the near and far offset shot points were input to the computer program ***SURFSEIS*** developed by the Kansas Geological Survey (Version 2.0, 2007). This program analyzes the data by identifying the ground-roll portion of the seismic wave traces, computing the frequency and velocity of the wavelets, and constructing a dispersion curve representing the variation in surface wave velocity versus frequency. The program then inverts the dispersion curve to compute a one-dimensional (1D) layered model indicating shear-wave velocity (Vs) versus depth beneath the center of the geophone array for each shot gather. In all cases the MASW modeling was iterated until the dispersion curve generated from the S-wave velocity model closely matched that calculated from the shot gathers. The 1D models inverted from all four shot gathers were then entered into a spread sheet which computed average Vs versus depth values. Since the inversion of the dispersion curve into a shear wave velocity profile is a non-unique process, the software will produce a shear wave profile containing 10 distinct subsurface velocity intervals at various depths.



VICINITY MAP

SCALE

0 60 120

(1 inch = 60 feet)

LEGEND

🟥	SEISMIC REFRACTION LINE
af	ARTIFICIAL FILL
Qc	COLLUVIUM/TOPSOIL
sp	SERPENTINE BEDROCK

NOTE: BASE MAP PROVIDED BY LANGAN TREADWELL ROLLO

NORCAL

SITE LOCATION MAP
SEISMIC REFRACTION SURVEY
LAKEPORT COURTHOUSE

LOCATION: 675 LAKEPORT BOULEVARD, LAKEPORT, CALIFORNIA

CLIENT: LANGAN TREADWELL ROLLO

NORCAL GEOPHYSICAL CONSULTANTS INC.

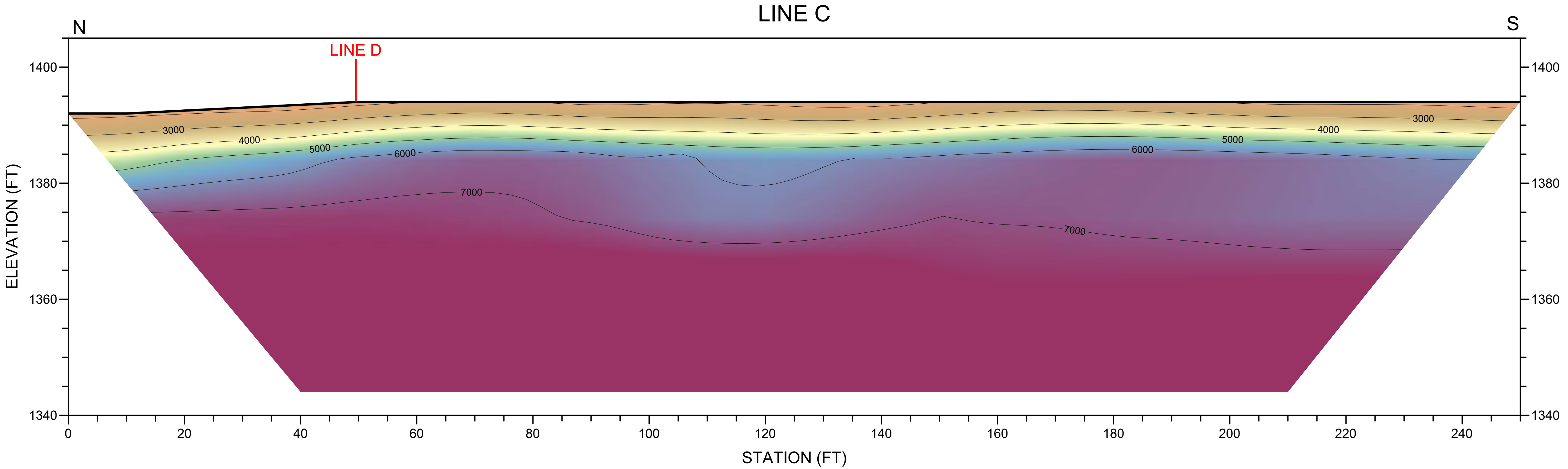
JOB #: 15-243.110

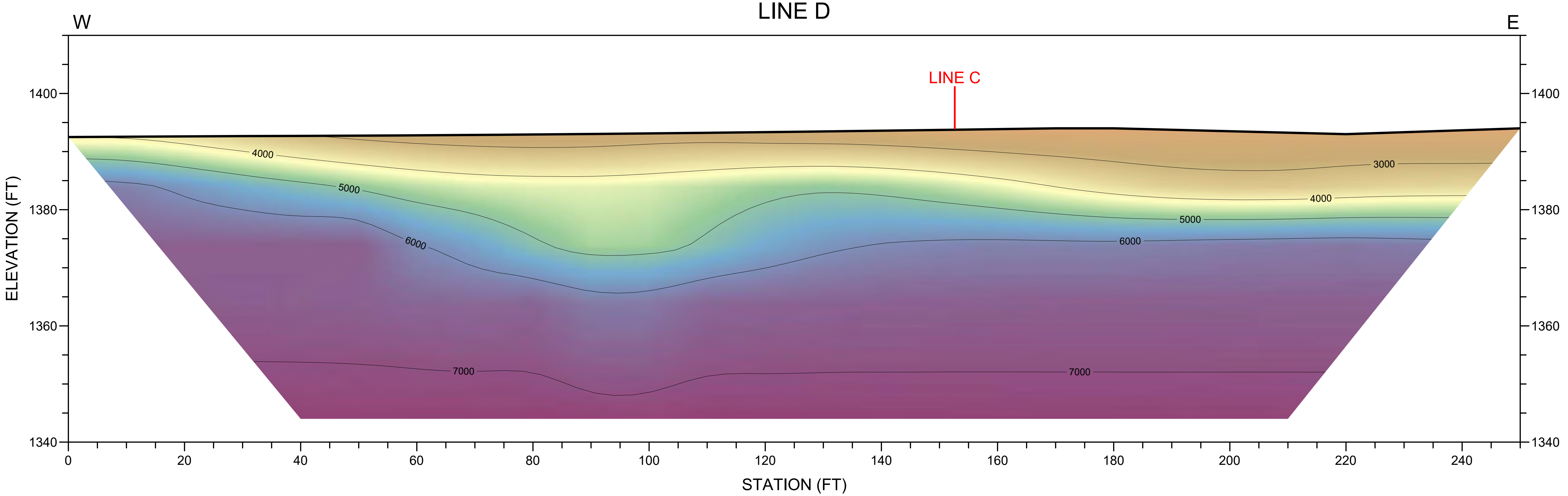
DATE: FEB. 2015

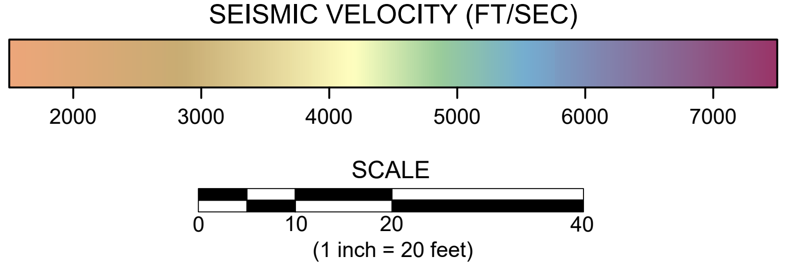
DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE
1





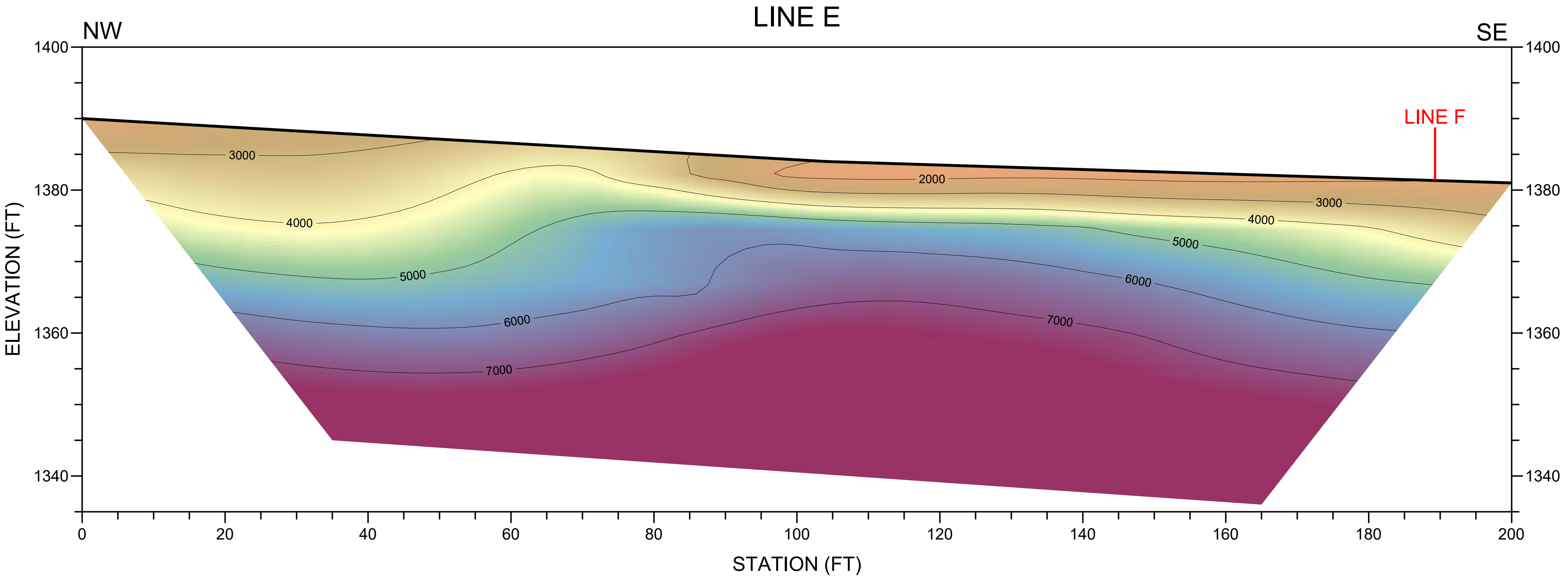


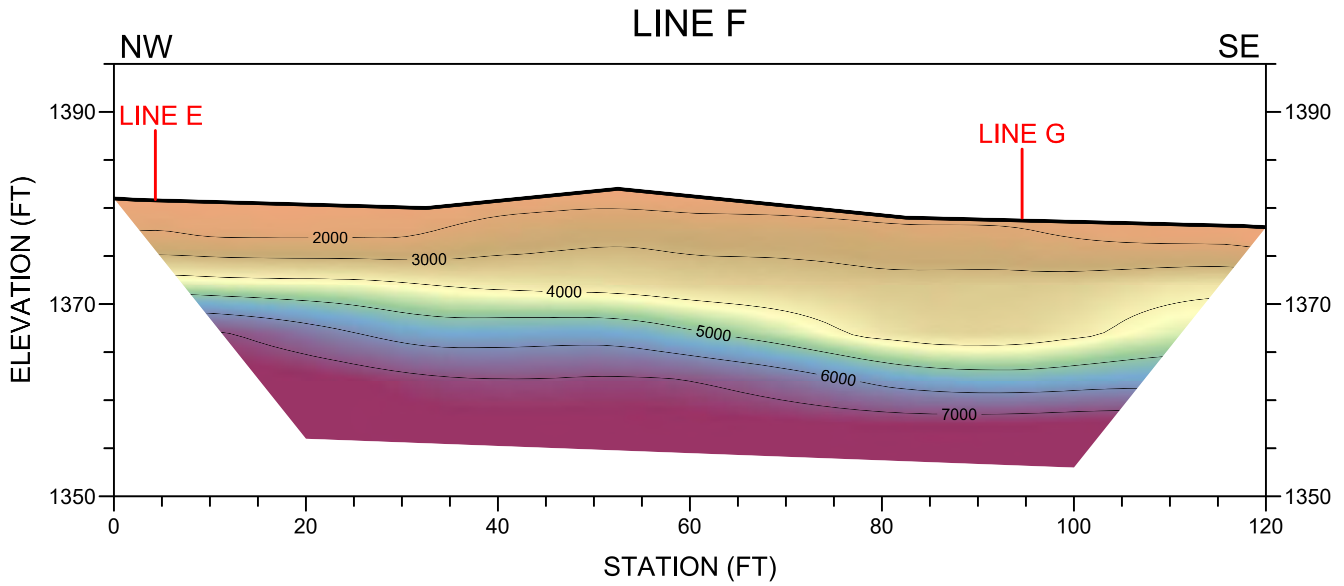
NORCAL

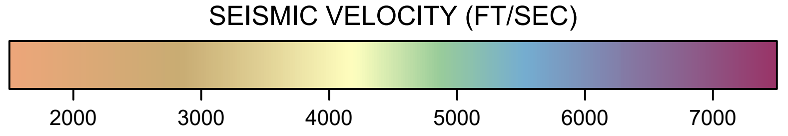
SEISMIC REFRACTION PROFILES
LINES C & D
LAKEPORT COURTHOUSE

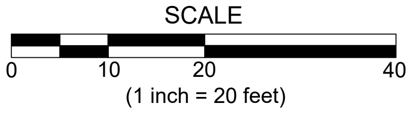
LOCATION: 675 LAKEPORT BOULEVARD, LAKEPORT, CALIFORNIA
CLIENT: LANGAN TREADWELL ROLLO
JOB #: 15-243.110
NORCAL GEOPHYSICAL CONSULTANTS INC.
DATE: FEB. 2015
DRAWN BY: G.RANDALL
APPROVED BY: DTH

PLATE
2







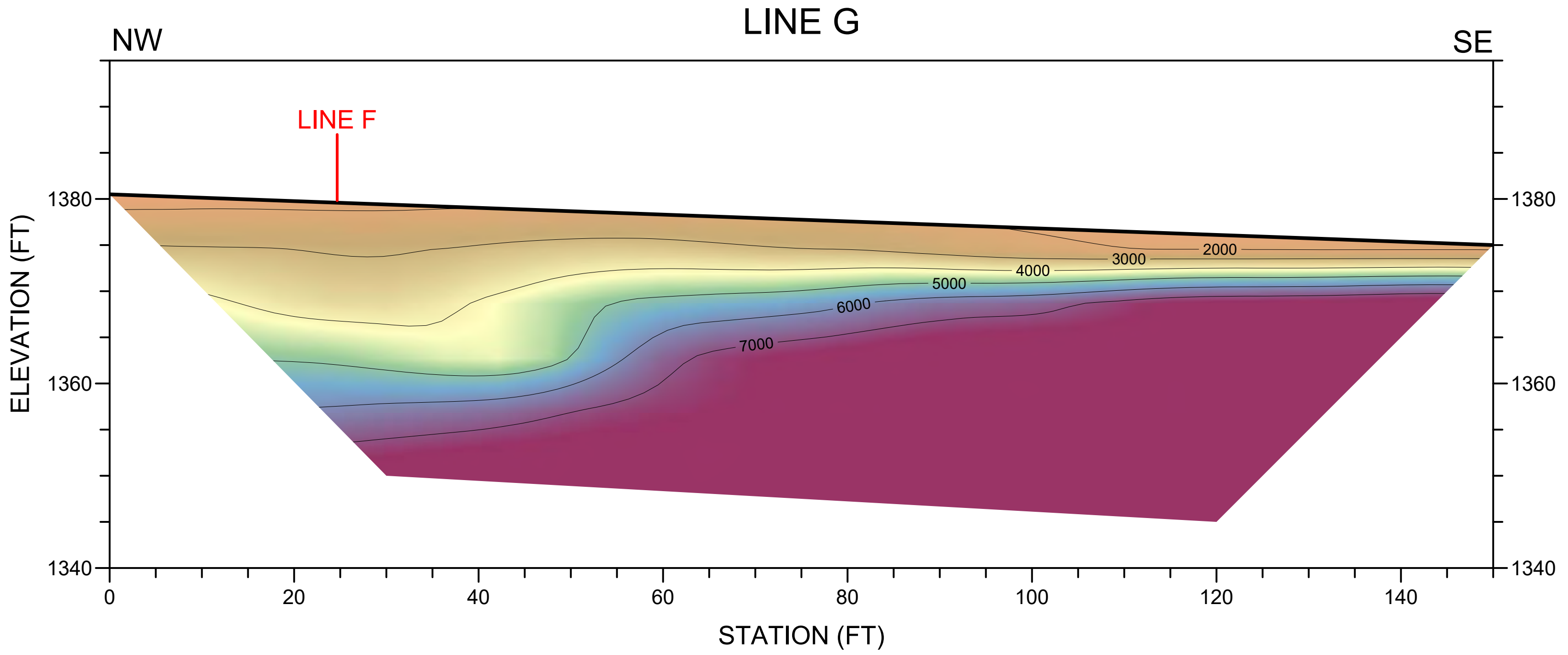


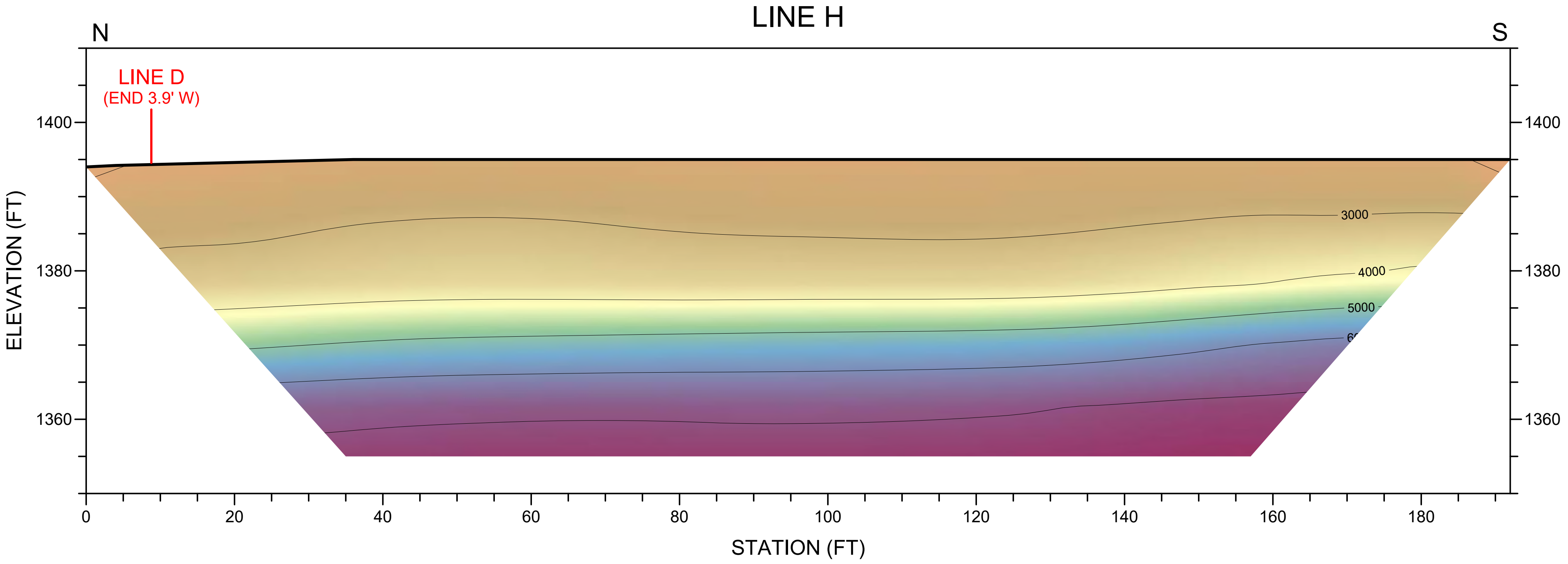
NORCAL

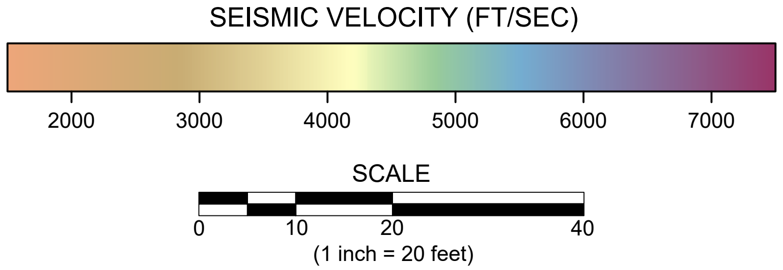
SEISMIC REFRACTION PROFILES
LINES E & F
LAKEPORT COURTHOUSE

LOCATION: 675 LAKEPORT BOULEVARD, LAKEPORT, CALIFORNIA
CLIENT: LANGAN TREADWELL ROLLO
JOB #: 15-243.110
NORCAL GEOPHYSICAL CONSULTANTS INC.
DATE: FEB. 2015
DRAWN BY: G.RANDALL
APPROVED BY: DTH

PLATE
3







Attachment 8 to RFP Number: RFP-FS-2022-03-MB, Project Documents
For DBE Firm –Judicial Council – New Lakeport Courthouse

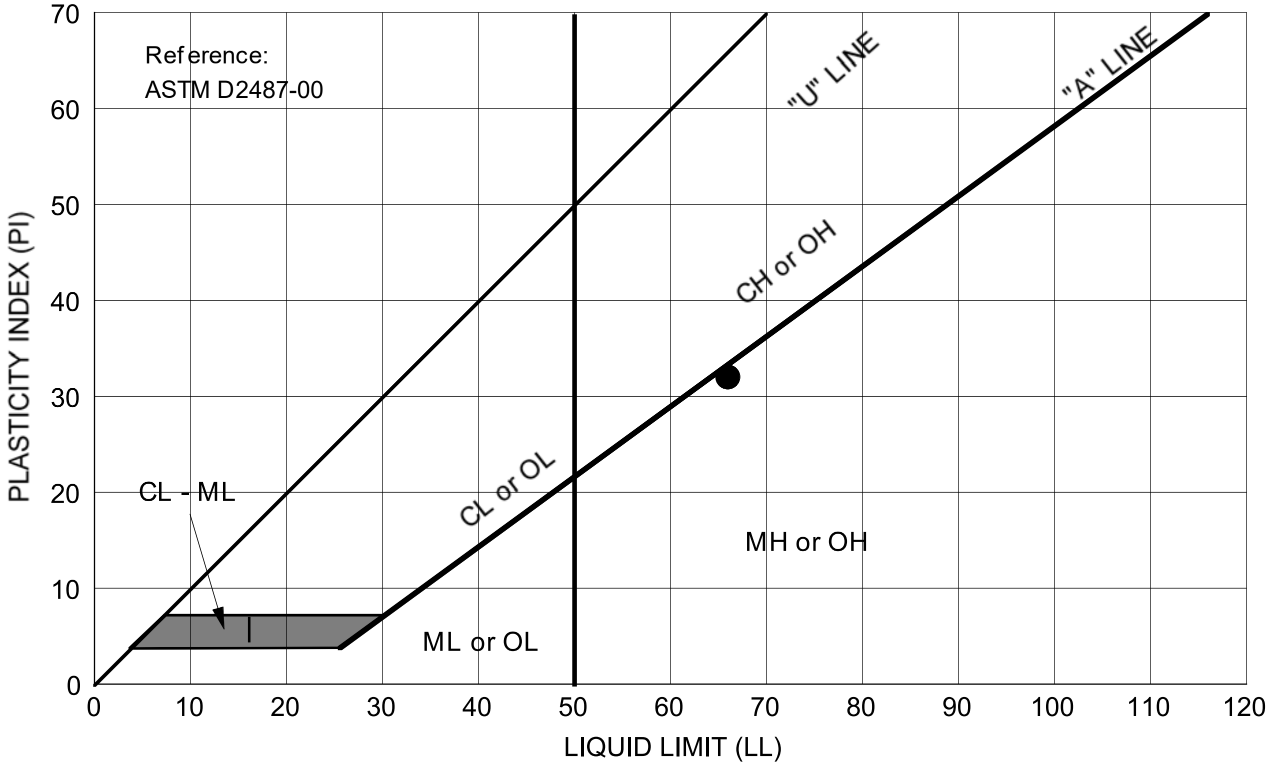
NORCAL

SEISMIC REFRACTION PROFILES
LINES G & H
LAKEPORT COURTHOUSE

LOCATION: 675 LAKEPORT BOULEVARD, LAKEPORT, CALIFORNIA
CLIENT: LANGAN TREADWELL ROLLO
JOB #: 15-243.110
NORCAL GEOPHYSICAL CONSULTANTS INC.
DATE: FEB. 2015
DRAWN BY: G.RANDALL
APPROVED BY: DTH
PLATE
4

APPENDIX C

GEOTECHNICAL LABORATORY TEST RESULTS



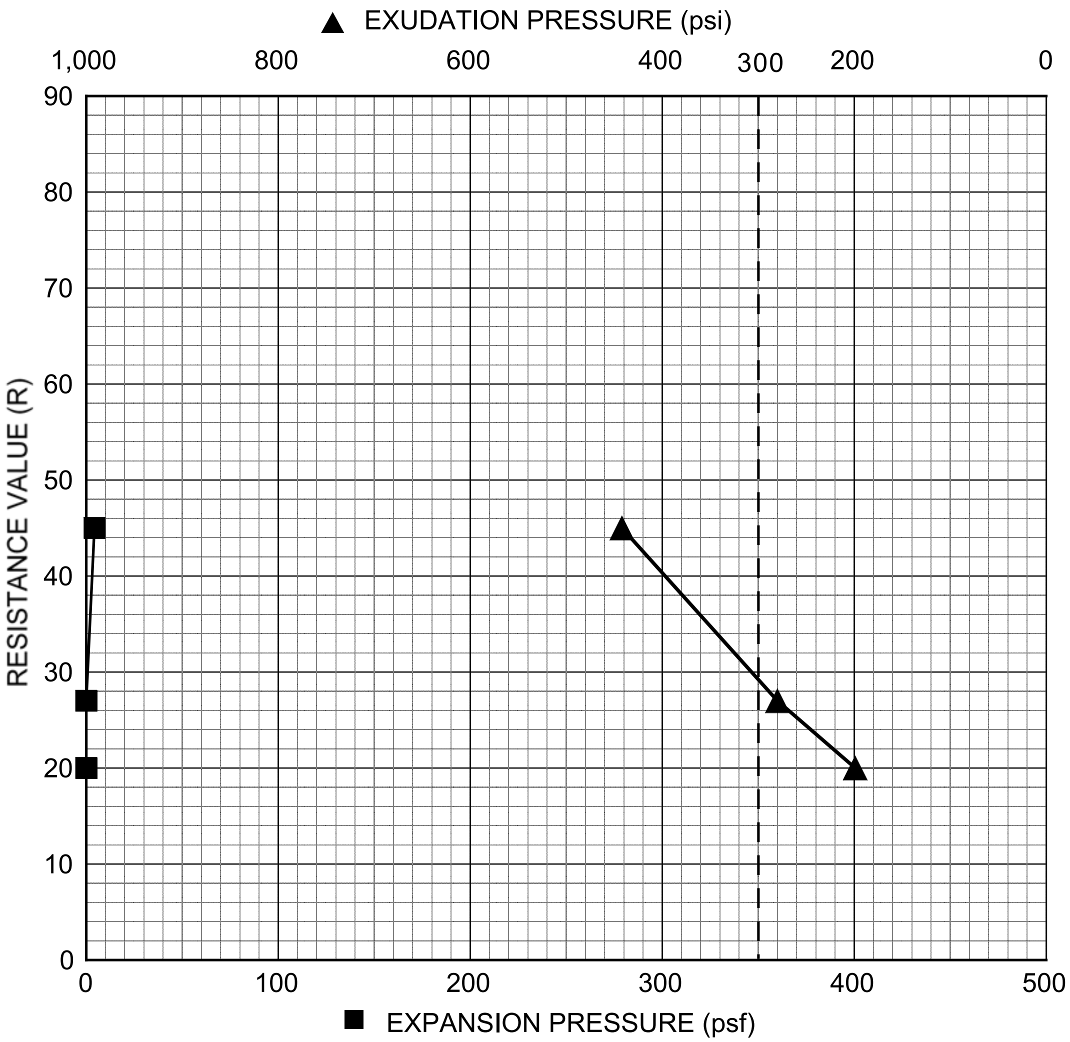
Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-5 at 0 to 5 feet	SANDY SILT with GRAVEL (MH), dark reddish-brown	10.1	66	32	--

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

LANGAN TREADWELL ROLLO

PLASTICITY CHART

Date 03/04/15 | Project No. 731563902 | Figure C-1



Specimen ID:	A	B	C	D
Water Content (%)	24.0	22.2	23.1	--
Dry Density (pcf)	95.2	98.0	96.2	--
Exudation Pressure (psi)	199	442	280	--
Expansion Pressure (psf)	0	4.3	0	--
Resistance Value (R)	20	45	27	--

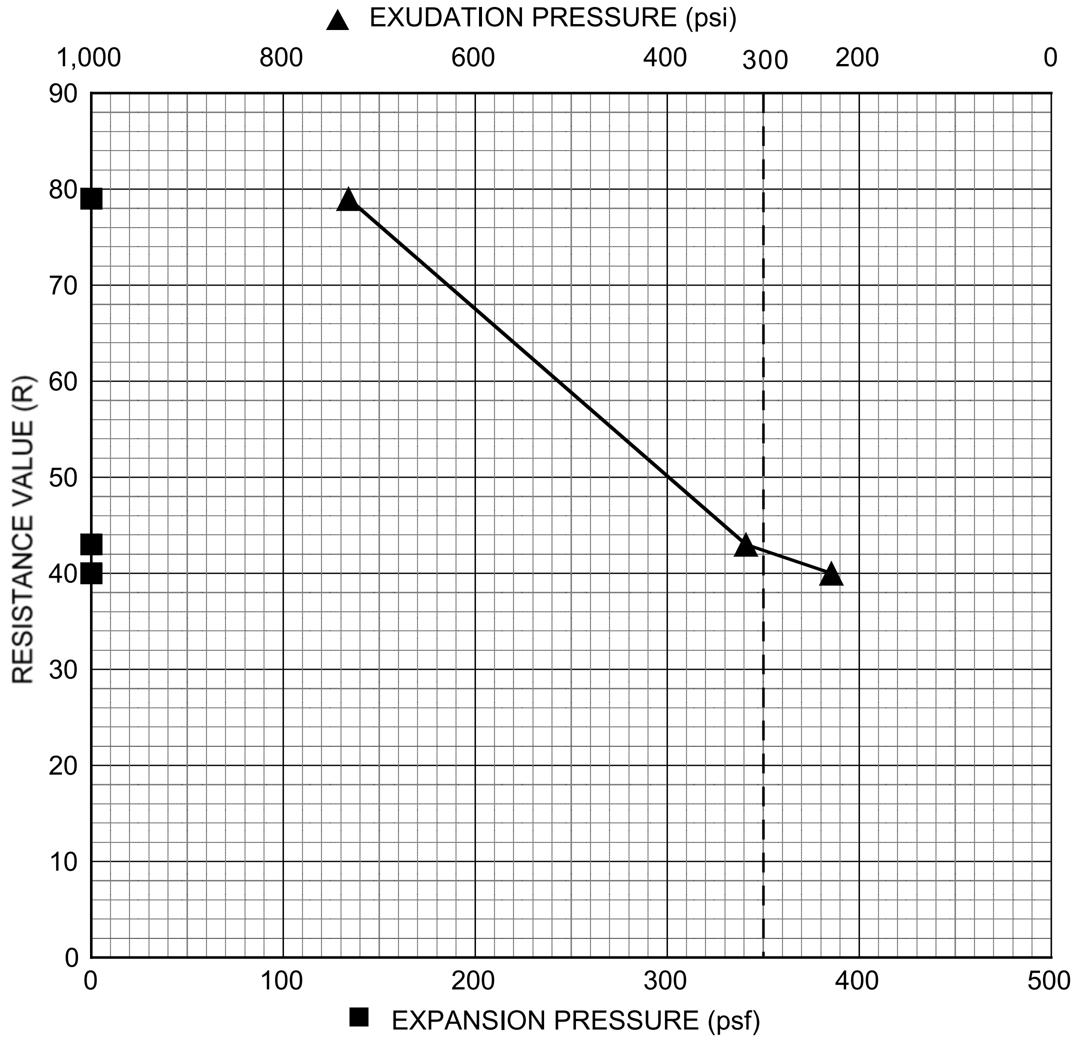
Sample Source	Sample Description	Sand Equivalent	Expansion Pressure	R value
B-5 at 0 to 2.5 feet	SANDY SILT with GRAVEL (MH), dark reddish-brown	--	--	28

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

LANGAN TREADWELL ROLLO

RESISTANCE VALUE TEST DATA

Date 03/04/15 | Project No. 731563902 | Figure C-2



Specimen ID:	A	B	C	D
Water Content (%)	16.3	18.0	18.5	--
Dry Density (pcf)	109.1	106.3	105.1	--
Exudation Pressure (psi)	732	318	229	--
Expansion Pressure (psf)	0	0	0	--
Resistance Value (R)	79	43	40	--

Sample Source	Sample Description	Sand Equivalent	Expansion Pressure	R value
B-6 at 0 to 2.5 feet	SANDY CLAY with GRAVEL (CL), dark reddish-brown	--	--	43

LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
Lakeport, California

LANGAN TREADWELL ROLLO

RESISTANCE VALUE TEST DATA

Date 03/04/15 | Project No. 731563902 | Figure C-3

E T S

975 Transport Way, Suite 2
Petaluma, CA 94954
(707) 778-9605/FAX 778-9612
e-mail: entech@pacbell.net

Environmental Technical Services

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-Analytical Labs
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COMPANY: Treadwell & Rollo, 501 14th Street, 3rd Floor, Oakland, CA 94612
ATTN: Elena Ayers
JOB SITE: Lakeport Courthouse, Lakeport, California
JOB #: 731563901

DATE RECEIVED 12/7/2011
DATE of COMPLETION 12/15/2011
ANALYST(S) D. Salinas S. Santos
SUPERVISOR D. Jacobson
LAB DIRECTOR G.S. Conrad PhD

LAB SAMPLE NUMBER	SAMPLE ID	DESCRIPTION of SOIL and/or SEDIMENT	SOIL pH -log[H+]	NOMINAL RESISTIVITY ohm-cm	ELECTRICAL CONDUCTIVITY µmhos/cm	SULFATE SO4 ppm	CHLORIDE Cl ppm
04716-1	LPC1/L	B-3-1 @ 3.0'	**7.83**	**3,680**	**[272]**	**9**	**18**
04716-2	LPC2/L	B-3-10 @ 16.0'	**7.10**	**409**	**[2445]**	**111**	**36**
Method	Detection	Limits —>	---	1	0.1	1	1

LAB SAMPLE NUMBER	SAMPLE ID	DESCRIPTION of SOIL and/or SEDIMENT	SALINITY ECe mmhos/cm	SOLUBLE SULFIDES (S=) ppm	SOLUBLE CYANIDES (CN=) ppm	REDOX mV	PERCENT MOISTURE %
04716-1	LPC1/L	B-3-1 @ 3.0'				**+281.3**	
04716-2	LPC2/L	B-3-10 @ 16.0'				**+296.8**	
Method	Detection	Limits —>	—	0.1	0.1	-400 -> +800	0.1

** COMMENTS **

Resistivities are well above and below 1,000 ohm-cm, i.e., fair and poor; soil reactions (i.e., pHs) are mildly to very mildly alkaline; sulfates and chlorides are low enough; soils are only mildly reduced. The standard CalTrans times to perforation for these soils are as follows: for LPC1 and 18 ga steel the time is >43 yrs, and for 12 ga it goes up to >93 yrs; and for LPC2 perf times are only <14 yrs for 18 ga, and just ≈30.5 yrs for 12 ga. For gray/ductile/mild steel & cast iron a calculated average pitting rate for LPC1 is at ≈0.045 mm/yr, thus pitting to 2 mm depth is >44 yrs, and to a 4 mm depth is >88 yrs; but for LPC2 the pitting rate is at 0.37 mm/yr putting the 2 mm depth time at ≈5.4 yrs, and the 4 mm depth time is <11 yrs. Chloride levels are very low thus there would be no adverse impact on steel reinforcement; likewise, sulfates are both low enough that there should be no significant adverse impact on concrete, cements, grouts and mortars. Soil redoxes do not appear to be an issue. In principle, the LPC2 soil could benefit from alkaline treatment in that raising its pH to the 7.5-8.5 range would increase the 18 ga time to 17 yrs, but this increase is quite minimal; and the improvement in pitting rate would be completely negligible. Therefore, this would not be a practical approach. On the other hand, metals longevity in these soils can be improved by upgrading (e.g. increased gauge or more resistant steels, etc.). Indeed, often times structural strength considerations will require much thicker steel than used in the presented examples such that perf & pitting times would be well beyond specified life span. On the other hand, cathodic protection along with coating or wrapping steel pipe can be of use where this is not true (requiring very different numbers and/or sizes of sacrificial anodes and little to no impressed current). Other alternatives include increased or specialized engineering fill, and/or use of plastic, fiberglass or concrete pipe, etc. Last, standard concrete mixes should be fine in both of these soils based on these results

\\\\NOTES: Methods are from following sources: extractions by Cal Trans protocols as per Cal Test 417 (SO4), 422 (Cl), and 532/643 (pH & resistivity); &/or by ASTM Vol. 4.08 & ASTM Vol. 11.01 (=EPA Methods of Chemical Analysis, or Standard Methods); pH - ASTM G 51; Spec. Cond. - ASTM D 1125; resistivity - ASTM G 57; redox - Pt probe/ISE; sulfate - extraction Title 22, detection ASTM D 516 (=EPA 375.4); chloride - extraction Title 22, detection ASTM D 512 (=EPA 325.3); sulfides - extraction by Title 22, and detection EPA 376.2 (= SMEWW 4500-S D); cyanides - extraction by Title 22, and detection by ASTM D 4374 (=EPA 335.2).

APPENDIX D

ANALYTICAL LABORATORY TEST RESULTS

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone: (510) 895-3675 Fax: (510) 895-3680 Email: sanleandrolab@emsl.com

Attn: **Elena Ayers**
Treadwell & Rollo
501 14th Street
3rd Floor
Oakland, Ca 94612

Fax: (510) 874-4507 Phone: (510) 874-4500
Project: **731563901 / Lakeport Courthouse, Lakeport, CA**

Customer ID: TREAD80
Customer PO: 731563901
Received: 12/07/11 9:00 AM
EMSL Order: 091113755

EMSL Proj:
Analysis Date: 12/20/2011

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos				Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**%**	**Type**
1 *091113755-0001*	Test pit TP-1 : Serpentinite rock	Brown Non-Fibrous Homogeneous			100.00%	Non-fibrous (other)	**None Detected**	
2 *091113755-0002*	Test pit TP-2 : Fill	Brown Non-Fibrous Homogeneous			100.00%	Non-fibrous (other)	**<0.25%**	**Chrysotile**
3 *091113755-0003*	Test pit TP-3 : Soil	Brown Non-Fibrous Homogeneous			100.00%	Non-fibrous (other)	**None Detected**	
4 *091113755-0004*	Test pit TP-3 : Serpentinite rock	Brown Non-Fibrous Homogeneous			100.00%	Non-fibrous (other)	**None Detected**	

Initial report from 12/20/2011 16:51:21

Analyst(s)
Rui Cindy Geng (4)

Baojia Ke, Laboratory Manager
or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

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Mark Cavagnero Associates
1045 Sansome Street, Suite 200
San Francisco, California 94111

QUALITY CONTROL REVIEWER:

DRAFT

Lori A. Simpson
Geotechnical Engineer

3. SUPPLEMENTAL GEOTECHNICAL RECONNAISSANCE

LANGAN

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Practical Experience
Client Responsiveness

14 January 2022

Mr. Bob Dolbinski
Moore Ruble Yudell Architects & Planners
933 Pico Boulevard
Santa Monica, California 90405

Re: Supplemental Geologic Reconnaissance
Lakeport Courthouse
675 Lakeport Boulevard
Lakeport, California
Langan Project No. 731563903

Dear Mr. Dolbinski,

This letter presents the results of our supplemental geologic reconnaissance of the proposed Lakeport Courthouse site at 675 Lakeport Boulevard in Lakeport, California. Our services were performed in general accordance with our executed agreement dated 26 December 2021. Previously, we performed a geotechnical investigation for the project and submitted our findings in a draft report dated 5 March 2015. The project described in our 2015 report has not been constructed, and we understand the location and design of the proposed building could change. A design-build team that has not yet been selected will perform final design of the project.

The location of the site is shown on Figure 1. It appears that previous grading activities have resulted in an extensive cut/fill pad at the top of the site. The ground surface elevation at the site ranges from about 1343 to 1413[1] feet, as shown on Figure 2. The western two-thirds of the site is relatively level, with ground surface elevations generally between approximately 1392 and 1395 feet, except near the western boundary, where the site slopes up to Elevation 1413 feet. The eastern one-third of the site slopes down toward the north and east at a maximum inclination of about 1.8:1 (horizontal to vertical) to approximate Elevation 1343 feet. We refer you to the draft geotechnical report for other details regarding the current condition of the site.

The subsurface conditions generally consist of a variable thickness of undocumented fill over serpentinite bedrock. The fill thickness generally increases toward the eastern and southern edges of the cut/fill pad. Our scope of services for the supplemental reconnaissance consisted of performing two seismic refraction survey lines to further evaluate depth to bedrock beneath the fill in the southern and western portions of the site, which were outside of the area previously evaluated for building development. The survey lines were performed on 30 December 2021 by NORCAL Geophysical Consultants Incorporated (NORCAL) under the direction of our field geologist. The locations of the seismic lines are shown on Figure 2. The methodology and results of the surveys are presented in the NORCAL report in Appendix A.

Our field geologist also performed a site reconnaissance to augment the draft engineering geologic map of the site that was included in our 2015 draft report. The updated engineering geologic map with interpreted top of bedrock elevation contours based on the results of the

---

[1] Elevations discussed in this report are based on National Geodetic Vertical Datum of 1929.

NORCAL seismic refraction surveys and previous exploration is presented on Figure 2. Figure 2 can be used to estimate the thickness of fill at the site by comparing the ground surface elevation contours, shown as gray lines, with the top of bedrock elevation contours, shown as blue lines.

Because the site is underlain by serpentinite bedrock and is greater than one acre in size, an asbestos dust monitoring plan (ADMP) will be required to be submitted to and approved by the Lake County Air Quality Management District prior to construction or grading operations at the site, in accordance with California Code of Regulations, Title 17, Section 93105.

During final design, we should be retained to finalize the project geotechnical report and consult with the design team as geotechnical questions arise. The conclusions and recommendations provided in this letter result from our interpretation of the geotechnical conditions near the site inferred from a limited number of borings, test pits, and seismic refraction surveys. Actual subsurface conditions could vary.

We appreciate the opportunity to work with you and the project team on this project. Should you have any questions, please contact us.

Sincerely,
Langan Engineering and Environmental Services, Inc.

Elena M. Ayers

Elena M. Ayers, PE, GE
Associate

ELENA M. AYERS
NO. GE2916
Exp. 9/30/22

Richard D. Rodgers

Richard D. Rodgers, PE, GE
Senior Consultant

RICHARD D. RODGERS
NO. 732
EXP. 12/31/23

Lori A Simpson

Lori A. Simpson, PE, GE
Senior Principal/Senior Vice President

LORI A. SIMPSON
No. GE 2396
Exp. 9/30/2022

Attachments: Figure 1 – Site Location Map
Figure 2 – Engineering Geologic Map and Top of Bedrock Elevation Contours
Appendix A: NORCAL Report

FIGURES

Reference: Google Earth.

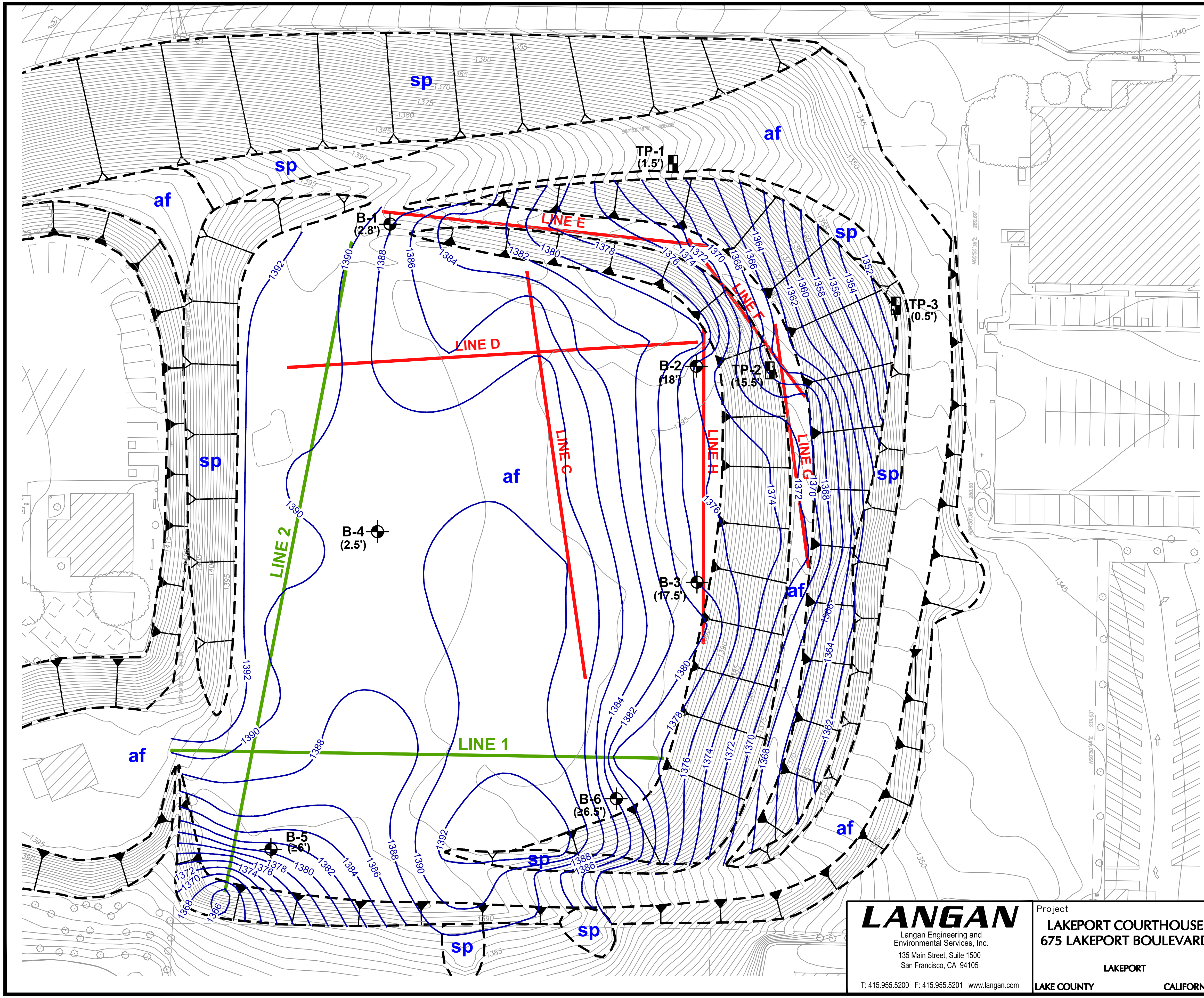
LANGAN

Langan Engineering and Environmental Services, Inc.
1 Almaden Boulevard, Suite 590
San Jose, CA 95113

T: 408.283.3600 F: 408.283.3601 www.langan.com

Project	Figure Title	Project No.	Figure
LAKEPORT COURTHOUSE 675 LAKEPORT BOULEVARD LAKEPORT CONTRA COSTA COUNTY CALIFORNIA	SITE LOCATION MAP	731563903 Date 01/07/2022 Drawn By AG Checked By EA	1

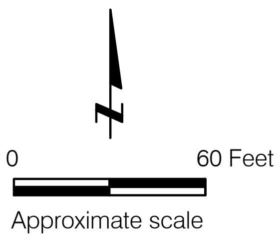
Filename: C:\bms\langan-pw-01\d0118550\FG01-731563903-B-GI0101.dwg Date: 1/7/2022 Time: 18:06 User: agekas Style Table: Langan.stb Layout: Figure 1 Site Loc



EXPLANATION

B-1 ⌖	Approximate location of boring by Treadwell & Rollo, November 2011
TP-1 ◧	Approximate location of test pit by Treadwell & Rollo, November 2011
🟥	Seismic refraction line by Langan Treadwell Rollo, January 2015
🟩	Seismic refraction line by Langan, December 2021
af	Artificial fill
sp	Serpentinite bedrock
– – – –	Geologic contact, dashed where approximate
▼	Fill slope
▲	Cut slope
—1390—	Top of bedrock elevation contour (feet, NGVD 29 datum)
—1350—	Ground surface elevation contour (NGVD 29 datum)
(2.5)	Depth to bedrock (feet)

Reference: Base map from a drawing titled "Architectural Site Plan, Lakeport Courthouse, Lakeport, CA," by Mark Cavagnero Associates, 100% Schematic Design, dated 19 December 2011. Elevations reference National Geodetic Vertical Datum of 1929 (NGVD 29).



Approximate scale

LANGAN
Langan Engineering and
Environmental Services, Inc.
135 Main Street, Suite 1500
San Francisco, CA 94105
T: 415.955.5200 F: 415.955.5201 www.langan.com

Project
LAKEPORT COURTHOUSE
675 LAKEPORT BOULEVARD
LAKEPORT
LAKE COUNTY CALIFORNIA

Figure Title
ENGINEERING
GEOLOGIC MAP
AND TOP OF BEDROCK
ELEVATION CONTOURS

Project No. 731563903
Date 01/07/2022
Drawn By AG
Checked By EA

Figure No.
2

Filename: C:\bms\langan-pw-01\d0118550\FG01-731563903-B-SP0101.dwg Date: 1/13/2022 Time: 08:58 User: agekas Style Table: Apple LaserWriter 8500.ctb Layout: GEO MAP

APPENDIX A

NORCAL Report

Geophysical Report

Seismic Refraction Survey – Phase 2
Lakeport Courthouse
675 Lakeport Boulevard, Lakeport, California

January 6, 2022
NORCAL Job No. NS215147

Prepared for:

LANGAN
1814 Franklin Street, Suite 505
Oakland, CA 94612

Prepared by:

NORCAL
GEOPHYSICAL CONSULTANTS INC.
A Terracon COMPANY
321A Blodgett Street
Cotati, CA 94931

January 6, 2022

LANGAN
1814 Franklin Street, Suite 505
Oakland, CA 94612

Subject: Seismic Refraction Survey – Phase 2
Lakeport Courthouse
675 Lakeport Boulevard, Lakeport, California
NORCAL Job No. NS215147

Attention: Elena M. Ayers

This report presents the findings of a seismic refraction (SR) survey performed by NORCAL Geophysical Consultants, Inc. for Langan at the proposed Lakeport Courthouse site at the above address in Lakeport, California. The work was authorized by a Langan Subcontractor Authorization with reference to Langan Project No. 731563903 and dated December 10, 2021. NORCAL Professional Geophysicist Hunter S. Philson (CA PGp No. 1094) and Senior Geophysical Technician Travis W. Black performed the survey on December 30, 2021. Kiara Broudy of Langan provided on-site logistical support.

The scope of NORCAL's services for this project consisted of using geophysical methods to characterize the subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the standard of care ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

We appreciate having the opportunity to provide our services for this project. If you have any questions or require additional geophysical services, please do not hesitate to call on us.

Respectfully,

NORCAL Geophysical Consultants, Inc.

Hunter Philson

Hunter S. Philson
California Professional Geophysicist
PGp No. 1094

Hunter S. Philson
No. 1094

01-06-22

W Black

William E Black, Reviewer
California Professional Geophysicist
PGp No. 843

WILLIAM ERNEST BLACK
No. 843

01-06-22

1. INTRODUCTION

This report presents the Phase 2 results of a geophysical investigation performed at the proposed Lakeport Courthouse site. The Phase 1 investigation is summarized in a NORCAL report dated February 24, 2015. Both phases of the investigation were performed to aid in the planning and design for a proposed courthouse building at the site. The Phase 2 investigation consists of a seismic refraction survey:

- A seismic refraction (SR) survey measures the compressional (P-) wave velocities of the subsurface along a traverse. The survey produces two-dimensional (2D) cross-sections displaying seismic P-wave velocity data of subsurface materials. The seismic P-wave velocity of fill, sediments, and rock are dependent on physical properties such as compaction, density, induration (hardness), weathering, fracturing and saturation. Descriptions of the SR methodology, our data acquisition and analysis procedures and the instrumentation we used for the SR survey are provided in **Appendix B: Seismic Refraction**.

2. SITE DESCRIPTION

The following description of site conditions is derived from our site visit, a review of publicly available geologic and topographic maps, and background information provided by Langan.

Item	Description
Site information	The proposed Lakeport Courthouse site is located at 675 Lakeport Boulevard in Lakeport, CA. The site comprises an approximately 280- by 320-ft empty building pad bounded by a cut slope to the west and large fill slopes dropping to the north and east. A 1993 aerial photograph shows the building pad, suggesting it was constructed over 28 years ago.
Existing improvements	The survey area is generally unimproved except for the building pad and gravel access roads originating from Lakeport Boulevard and Bevins Street.
Current ground cover	At the time of the survey, the ground was unvegetated and gravelly with some large puddles from recent rains.
Existing topography	The SR survey area topography is generally flat. The ground surface elevation is roughly 1392-ft according to a topo map provided by Langan.

Item	Description
Site geology	According to geologic maps, the site is underlain by Quaternary alluvium and Mesozoic ultrabasic intrusive rocks such as Serpentinite (CGS 2010). Serpentine bedrock outcrops in the cut slope west of the building pad. Langan borings drilled on the pad in 2011 indicate very shallow serpentinite bedrock to the west and artificial fill materials up to 18-ft thick towards the east.

3. GLOSSARY OF GEOPHYSICAL TERMS

Seismic P-wave Velocity (Vp) – the propagation velocity of compressional waves in the earth, which relates to the density and elastic properties of the subsurface

Seismic Refraction (SR) – a technique for measuring P-wave velocities along a traverse (line) to produce a Vp cross-section (profile)

Geophone – a device that measures ground movement

Seismic Source – *A mechanical device, typically vertical impact, used to produce P-wave energy*

Shot Point – *A location where P-wave energy is imparted to the subsurface*

Spread – a collinear array of shot points and geophones

Line – a traverse along which geophysical data are acquired; may consist of one or more spreads

Profile – a cross-section depicting variations in P-wave velocities beneath a portion of a line

4. SCOPE OF SERVICES

The objective of the Phase 2 SR survey is to obtain seismic P-wave velocity data beneath the western and southern portions of the building pad to determine the thickness of overburden and characterize the underlying bedrock. To achieve this objective, we obtained SR data along two lines, as illustrated in bright red on the Site Location Map on **Appendix A: Plate 1**. The lines are labelled Lines 1-2 and range in length from 300- to 400-ft as measured along the ground surface. The line lengths and positions were chosen, with guidance from Langan, to optimize resolution and depth of investigation in areas of interest. The line locations from the 2015 survey are shown in a faded red color for reference purposes only.

5. RESULTS

The results of the SR survey are illustrated by the Seismic Refraction Profiles in **Appendix A: Plate 2**. On each profile, the vertical axis represents elevation above mean sea level (msl) and the horizontal axis represents station distance (in feet) along the line. The profiles for Lines 1 and 2 are oriented west to east and north to south, respectively. Variations in seismic P-wave velocity

(Vp) are indicated by labeled contours and by color shading between contours, as indicated by the color scale shown below the profiles. These profiles indicate that Vp ranges from about 2,000-ft/s near the surface to over 8,000-ft/s at depths of up to 50-ft below ground surface (bgs). For ease of comparison, the color scale is the same for all profiles in this report and the Phase 1 (2015) report.

5.1 INTERPRETATION

Our interpretation of the Vp distribution illustrated by the SR profiles for Lines 1 and 2, is unchanged from the Phase 1 report. We interpret Vp less than 4,500-ft/sec (brown to yellow colors) as representing overburden, consisting of fill and/or underlying colluvial material. Moderate Vp ranging from 4,500- to 6,000-ft/sec (green to blue colors) likely represent a transition zone to moderately weathered and/or fractured serpentine rock. The highest Vp values, greater than 6,000-ft/sec, are interpreted to represent less weathered and fractured serpentine rock (blue to purple colors). The maximum Vp values measured along Lines 1-2 are between 8,000- and 9,000-ft/sec. These are slightly higher than the Phase 1 maximum velocities which were between 7,000- and 8,000-ft/sec.

5.2 DISCUSSION

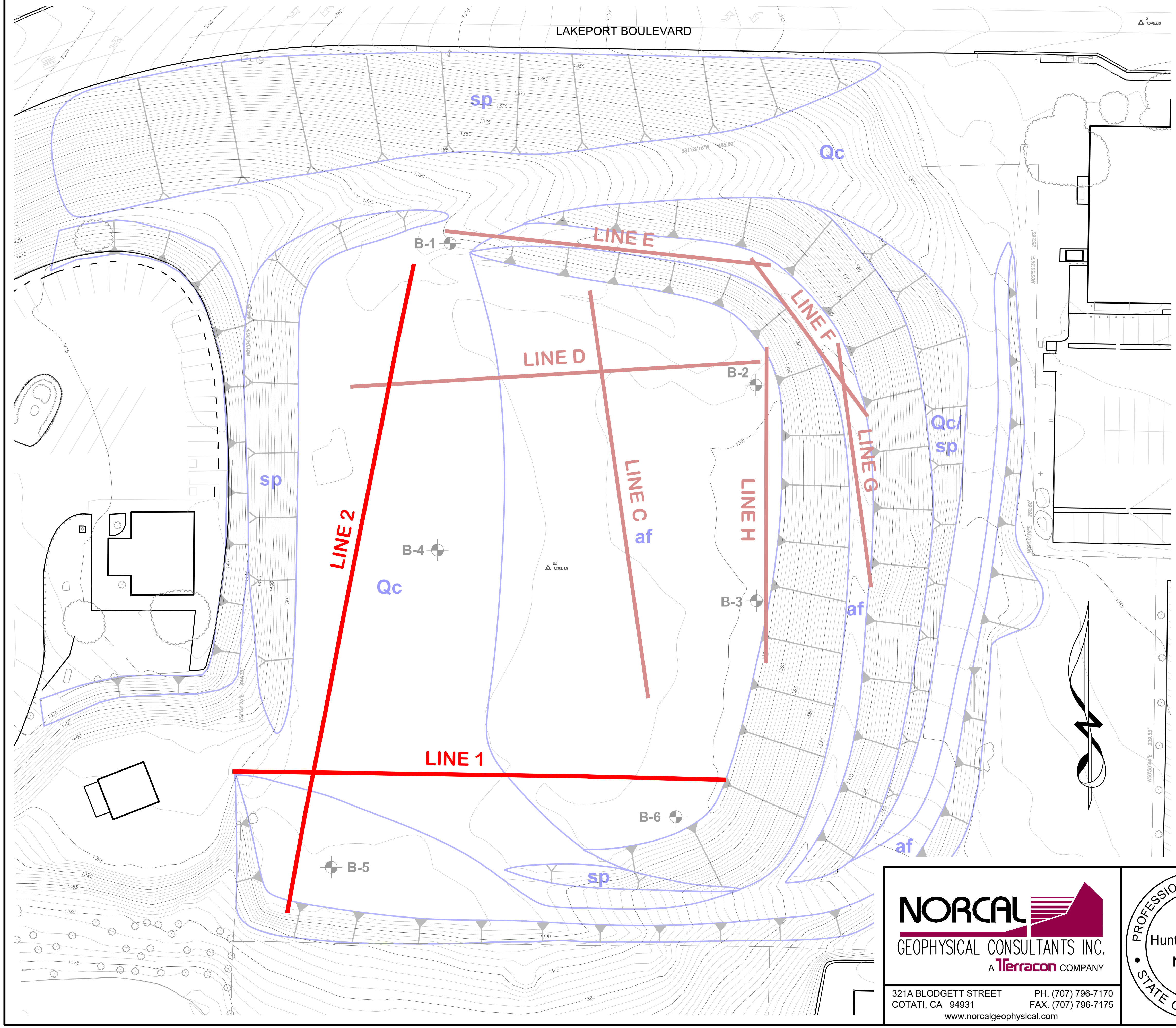
The SR profiles provide a general characterization of the fill/colluvium overlying serpentine bedrock of varying degrees of weathering. The profiles for Lines 1 and 2 display high Vp at shallow depths along most of their length, suggesting a relatively thin layer of fill/colluvium overlying competent rock. The lower Vp values on the rightmost portions of the profiles (towards the east and south) indicate the presence of thicker fill/colluvium wedges. This is likely caused by a transition from excavated (cut) regions to the fill slopes at the eastern and southern edges of the building pad. Although the interpreted fill/colluvium layer is mostly very thin along the profiles, the thickness increases to about 12- and 17-ft towards the east end of Line 1 and the south end of Line 2, respectively. This is consistent with the maximum fill depth of 18-ft encountered in the 2011 Langan borings.

The high Vp values along Lines 1 and 2 suggest that the western and southern portions of the building pad represent regions where overburden was mostly removed during construction of the pad. Conversely, the Phase 1 SR profiles characterized regions where slower Vp values indicated the presence of large fill accumulations. Together with ground-truth from borings and outcroppings, the SR results illustrate the approximate lateral and vertical extent of excavated and filled areas within the building pad.

APPENDIX A:

PLATE 1 – SITE LOCATION MAP

PLATE 2 – SEISMIC REFRACTION PROFILES



VICINITY MAP

SCALE
0 60 120
(1 inch = 60 feet)

LEGEND

▬	SEISMIC REFRACTION LINE (PHASE 2 - 2022)
▬	SEISMIC REFRACTION LINE (PHASE 1 - 2015)
⌖	LANGAN TREADWELL ROLLO BORING (2011)
af	ARTIFICIAL FILL
Qc	COLLUVIUM/TOPSOIL
sp	SERPENTINITE BEDROCK

NOTE: BASE MAP PROVIDED BY LANGAN (2015)

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PROFESSIONAL GEOPHYSICIST
Hunter S. Philson
No. 1094
STATE OF CALIFORNIA

SITE LOCATION MAP
SEISMIC REFRACTION SURVEY - PHASE 2
LAKEPORT COURTHOUSE

LOCATION: 675 LAKEPORT BOULEVARD, LAKEPORT, CALIFORNIA

CLIENT: LANGAN

JOB #. NS215147

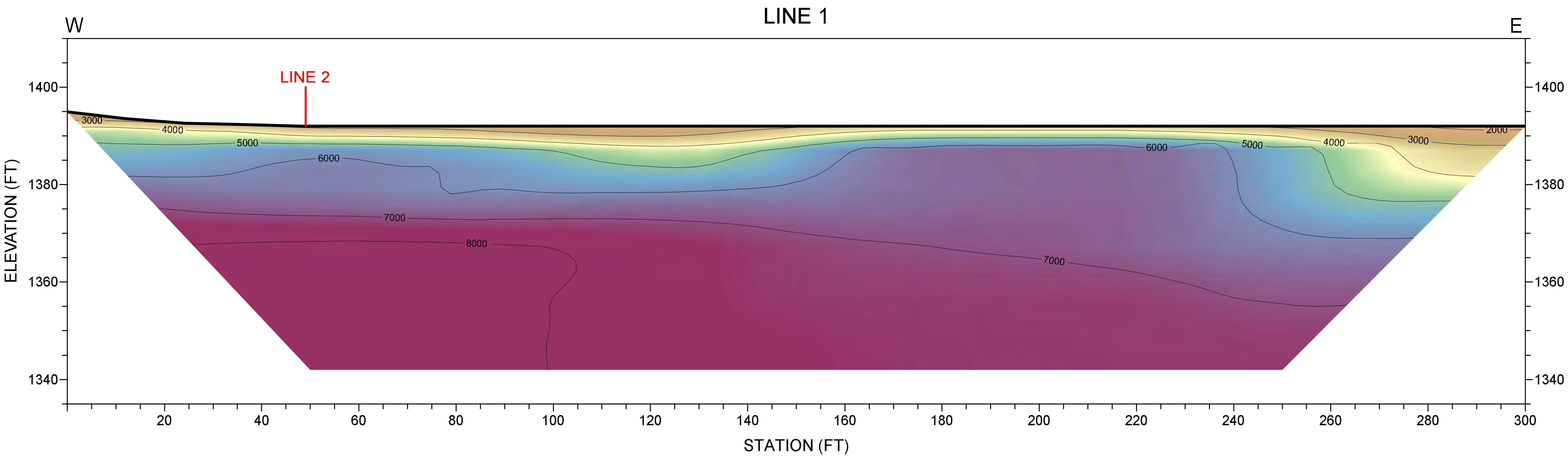
DATE: JANUARY 2022

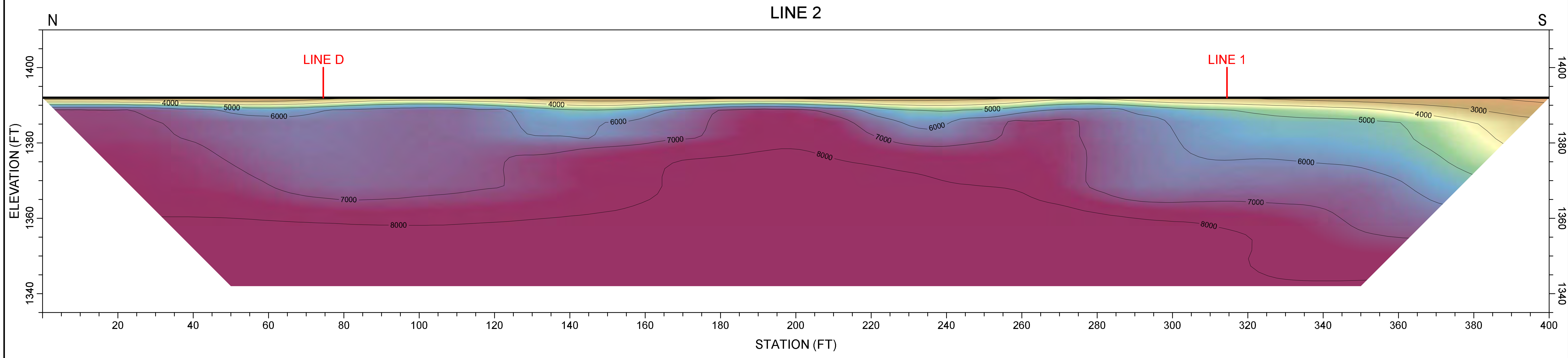
DRAWN BY: H.PHILSON

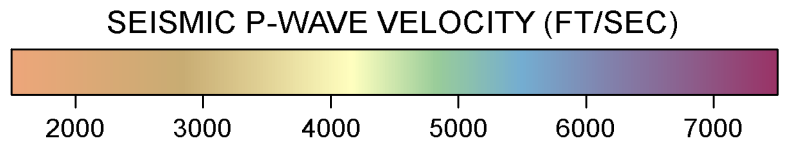
APPROVED BY: HSP

Hunter Philson 1/6/2022

PLATE
1







SCALE

0 10 20 40

(1 inch = 20 feet)

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SEISMIC REFRACTION PROFILES - PHASE 2
LINES 1 & 2
LAKEPORT COURTHOUSE

LOCATION: 675 LAKEPORT BOULEVARD, LAKEPORT, CALIFORNIA

CLIENT: LANGAN

JOB #: NS215147	DATE: JANUARY 2022	PLATE
DRAWN BY: H.PHILSON	APPROVED BY: HSP	2

Hunter Philson 1/6/2022

APPENDIX B:

SEISMIC REFRACTION

APPENDIX B:

SEISMIC REFRACTION

1.0 METHODOLOGY

The seismic refraction method provides information regarding the seismic velocity structure of the subsurface. An impulsive (mechanical or explosive) source is used to produce compressional (P) wave seismic energy at the surface. The P-waves propagate into the earth and are refracted along interfaces caused by a uniform, continuous, downward increase in velocity. A portion of the P-wave energy is typically refracted to the surface where it is detected by sensors (geophones) that are coupled to the ground surface in a collinear array (spread). The detected signals are recorded on a multi-channel seismograph and are analyzed to determine the shot point-to-geophone travel times. These data can be used along with the corresponding shot point-to-geophone distances and elevation data to determine the depth, thickness, and P-wave velocity (Vp) of subsurface seismic layers.

2.0 DATA ACQUISITION

We collected SR data along two lines designated as Line 1 and Line 2, as shown by the bright red lines on Plate 1. The line lengths and positions were chosen, with guidance from Langan, to optimize resolution and depth of investigation in areas of interest. Line locations were adjusted slightly to avoid large standing puddles at the time of the survey. We acquired the SR data using 24-geophones and 5-shot points distributed in collinear arrays (spreads). Line 1 consisted of a single spread with geophones distributed at 12-ft intervals. Line 2 comprised two overlapping spreads with 10-ft geophone intervals. The shot-points were placed one geophone interval off each end of the geophone array, in the center of the geophone array and multiple points in between. This resulted in spreads with lengths (end shot point to end shot point) of 250- or 300-ft, depending on the geophone interval. The total lengths of Lines 1 and 2 were 300-ft and 400-ft, respectively.

3.0 INSTRUMENTATION

The seismic waveforms produced at each shot point were recorded using a Geometrics ***Geode*** 24-channel engineering distributed array seismograph, as pictured in Figure 1, and Oyo ***Geospace*** geophones with a natural frequency of 8-Hz. The geophones were coupled to the ground surface by a metal spike affixed to the bottom of each geophone case. Seismic energy was produced at each shot point by multiple impacts with a 100-pound accelerated weight drop (AWD) against an aluminum strike plate placed on the ground surface. The AWD was attached to the back of a Kawasaki Mule UTV for ease of mobility between shot points. The seismic waveforms were digitized, processed and amplified by the Geode, transmitted via a ruggedized Ethernet cable to a field computer and algebraically summed (stacked) until a sufficient signal to noise ratio was achieved. The recorded seismic data were displayed on the laptop computer screen in the form of seismograms, analyzed for quality assurance and archived for subsequent processing. These images were eventually used to determine the time required for P-waves to travel from each shot point to each geophone in the array.

Figure 1: *Geometrics Geode 24-channel engineering distributed array seismograph with 12-volt battery power source.*

4.0 DATA ANALYSIS

The seismic refraction data were processed using the software package ***SeisImager,*** written by Oyo Corporation (Japan) and distributed by Geometrics Inc. This package consists of two programs titled ***Pickwin,*** Version 5.2.1.3 (2016) and ***Plotrefa*,** Version 3.1.0.5 (2016). For each seismic line we used ***Pickwin*** to view the seismic records and identify first arriving P-wave energy at each geophone and to determine the shot point to geophone travel time associated with each arrival. We then used ***Plotrefa*** to assign elevations to each geophone and to plot the shot point to geophone travel times versus their distance (Station) along the line. A sample Time versus Distance (T-D) graph is shown in Figure 2. After examining the T-D graph we assigned velocity layers (1-3) to each travel time and then computed a 2D model using ***Plotrefa's*** time-term routine. This resulted in a 2D layered cross-section (profile) illustrating Vp versus depth and distance. A sample 2D time-term model is shown in Figure 3.

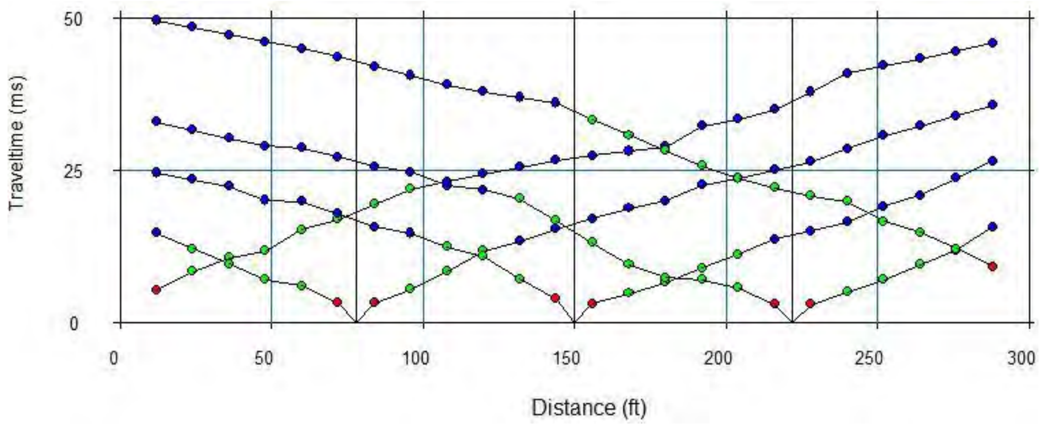


Figure 2*: Line 1 Time-Distance Graph. Red circles represent layer 1 (V1), green circles represent V2 and blue circles represent V3.*

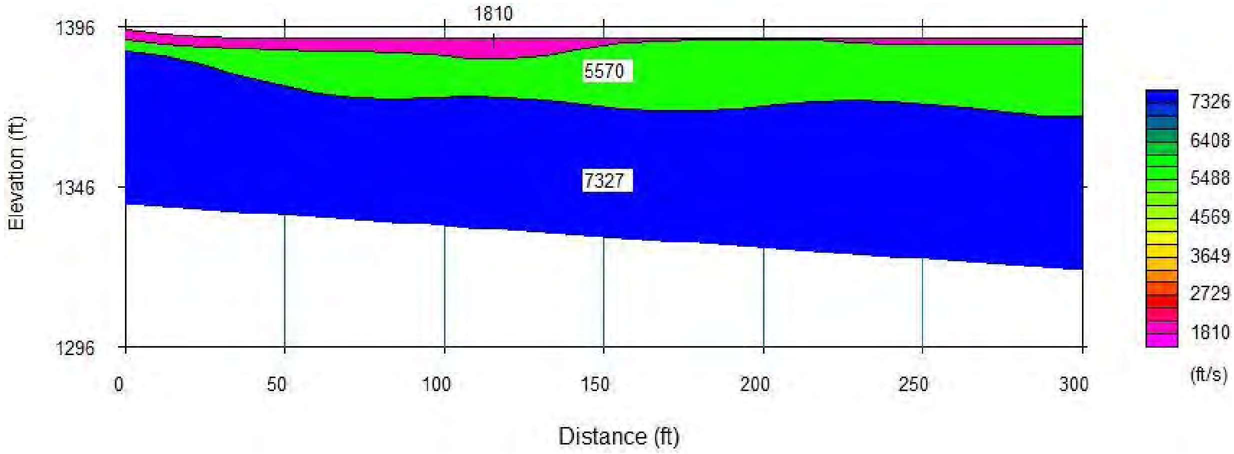


Figure 3: *Line 1 Time-Term Seismic Velocity Model. Velocities are labeled and indicated by the color bar on the right.*

Finally, we used the time term model as input to ***Plotrefa's*** tomographic routine. This routine divided the input model into cells according to the geophone spacing and depth range and assigned a velocity to each cell. It then used a ray tracing routine to compute synthetic travel times through the model from each shot point to every geophone. The synthetic travel times were compared with the observed travel times to determine the goodness of fit. If the fit was not within certain assigned parameters, the program then adjusted the velocity in each cell and reran the ray tracing. This procedure was repeated through as many as 20 iterations to achieve the optimum fit between observed and synthetic travel times.

Once the tomographic processing was complete, we used the computer program ***Surfer*** by Golden Software to construct a color contoured 2D cross-section (profile) illustrating the results for each seismic line, as shown on Plate 2.

5.0 INTERPRETATION

The SR profiles described above are models of the subsurface based on P-wave velocities. How these velocities and their subsurface distribution relate to geology is a matter of interpretation. This interpretation can be based on experience and a general knowledge of the local geology. However, the best results are achieved when the models can be correlated with subsurface information provided by other means such as onsite observations, borehole geological and/or geophysical logs, trench logs or projections based on mapped surface geology. This type of information is referred to as “ground truth”.

In any case, the resulting seismic velocity profile represents a model of the subsurface that must be interpreted by the best means available. Thus, the interpreted profile is conceptual in nature, and is not expected to represent an exact depiction of the subsurface.

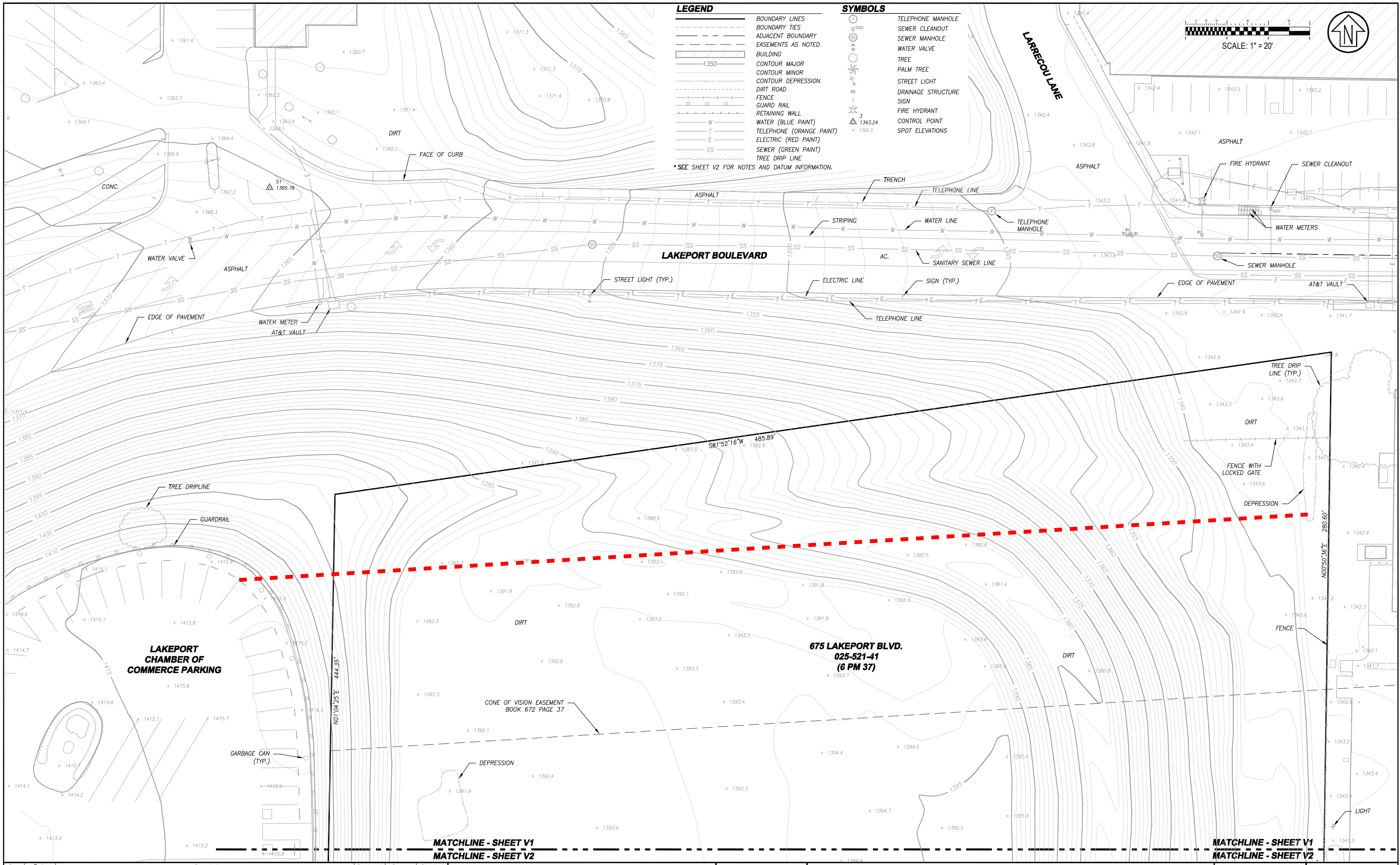
6.0 LIMITATIONS

Based on the physical properties of refraction (Snell’s Law), for a seismic wave to be refracted toward the surface, the seismic interface must represent a significant downward increase in seismic velocity. When the opposite is true, often referred to as a velocity inversion, the seismic energy will be refracted downward, and the lower layer will not be detected at the surface. As a result, the calculated depths of any deeper higher velocity layers may be over-estimated. Furthermore, some layers may be truncated, or too thin to detect. These are referred to as “hidden layers”.

If the seismic source used for the survey does not produce sufficient energy to propagate through the entire spread at detectable levels, the first arriving P-waves at each geophone may not be visible on the seismic records. Additionally, extraneous seismic energy sources such as wind, traffic or nearby machinery may create “noise” on the recorded waveforms that may mask the first arrivals. In noisy conditions many repeated impacts, or “stacks”, may be necessary to achieve an acceptable signal to noise ratio. Stacking consists of algebraically summing waveforms from repeated impacts. This causes the repeatable portion of the signal to be enhanced while the random, non-repeatable portion (“noise”) tends to cancel out. Another common external noise source is overhead power lines. If the cable is laid out parallel to the lines, electrical noise may be induced in the cable. Possible internal noise sources may include, but are not limited to, faulty geophone connections due to dirt or moisture, or use of an unsuppressed power supply.

Finally, seismic refraction processing algorithms are based on the assumption that the seismic velocity layers are isotropic. That is, that the velocity is uniform within the length and breadth of each layer. Another assumption is that the velocity distribution does not change in a direction transverse to the seismic line. In other words, that there is true 2D symmetry. If these conditions are not met, the actual subsurface conditions will vary from those represented by the seismic model.

4. TOPOGRAPHIC SURVEY



Rev	Date	Description	Designed	Drawn	Checked
0	07/30/10	SUBMITTED FOR REVIEW		JLW	TWP

CSW | ST2

CSW/Stuber-Stroeh Engineering Group, Inc.
Civil & Structural Engineers | Surveying & Mapping | Environmental Planning
Land Planning | Construction Management
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fax: 415.883.9835
http://www.cswst2.com
© 2010

City: Lakeport
County: Lake
State: California

675 LAKEPORT

TOPOGRAPHIC AND BOUNDARY MAP

APN: 025-521-41

Prepared Under the Direction of:

LICENSED LAND SURVEYOR
TRACY W. PARK
No. 8176
Exp. 12/31/10
STATE OF CALIFORNIA

Sheet
V1

Scale: 1" = 20'
Date: 07/30/10
Project Number: 4114100
Plan File: D-4968

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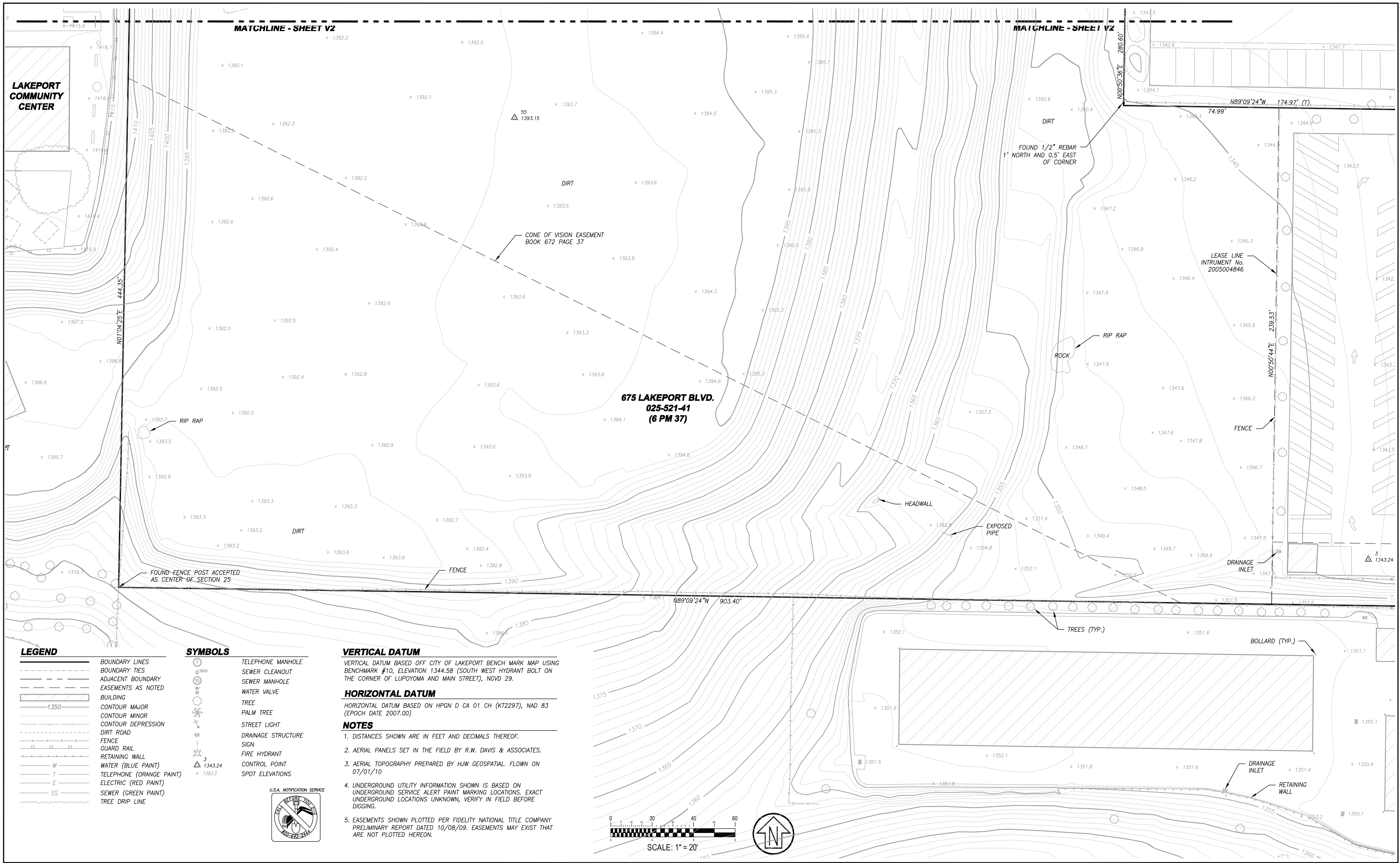

LEGEND

▬▬▬	BOUNDARY LINES
- - - -	BOUNDARY TIES
—— – – ——	ADJACENT BOUNDARY
— — — —	EASEMENTS AS NOTED
▨	BUILDING
——1350——	CONTOUR MAJOR
——	CONTOUR MINOR
— ˌ — ˌ —	CONTOUR DEPRESSION
- - - -	DIRT ROAD
—×—×—×—	FENCE
—□—□—□—	GUARD RAIL
‒ˌ‒ˌ‒ˌ‒	RETAINING WALL
—— W ——	WATER (BLUE PAINT)
—— T ——	TELEPHONE (ORANGE PAINT)
—— E ——	ELECTRIC (RED PAINT)
—— SS ——	SEWER (GREEN PAINT)
〰〰	TREE DRIP LINE

SYMBOLS

Ⓣ	TELEPHONE MANHOLE
0 SSCO	SEWER CLEANOUT
Ⓢ	SEWER MANHOLE
WV ⊗	WATER VALVE
✿	TREE
✵	PALM TREE
✳	STREET LIGHT
▤	DRAINAGE STRUCTURE
ǀ	SIGN
✱	FIRE HYDRANT
△ 3 1343.24	CONTROL POINT
× 1393.3	SPOT ELEVATIONS

U.S.A. NOTIFICATION SERVICE

CALL BEFORE YOU DIG 800-642-2444

VERTICAL DATUM

VERTICAL DATUM BASED OFF CITY OF LAKEPORT BENCH MARK MAP USING BENCHMARK #10, ELEVATION 1344.58 (SOUTH WEST HYDRANT BOLT ON THE CORNER OF LUPOYOMA AND MAIN STREET), NGVD 29.

HORIZONTAL DATUM

HORIZONTAL DATUM BASED ON HPGN D CA 01 CH (KT2297), NAD 83 (EPOCH DATE 2007.00)

NOTES

1. DISTANCES SHOWN ARE IN FEET AND DECIMALS THEREOF.
2. AERIAL PANELS SET IN THE FIELD BY R.W. DAVIS & ASSOCIATES.
3. AERIAL TOPOGRAPHY PREPARED BY HJW GEOSPATIAL. FLOWN ON 07/01/10
4. UNDERGROUND UTILITY INFORMATION SHOWN IS BASED ON UNDERGROUND SERVICE ALERT PAINT MARKING LOCATIONS. EXACT UNDERGROUND LOCATIONS UNKNOWN, VERIFY IN FIELD BEFORE DIGGING.
5. EASEMENTS SHOWN PLOTTED PER FIDELITY NATIONAL TITLE COMPANY PRELIMINARY REPORT DATED 10/08/09. EASEMENTS MAY EXIST THAT ARE NOT PLOTTED HEREON.

Rev	Date	Description	Designed	Drawn	Checked
0	07/30/10	SUBMITTED FOR REVIEW		JLW	TWP

CSW | ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
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City: Novato
County: Marin
State: California

675 LAKEPORT

TOPOGRAPHIC AND BOUNDARY MAP

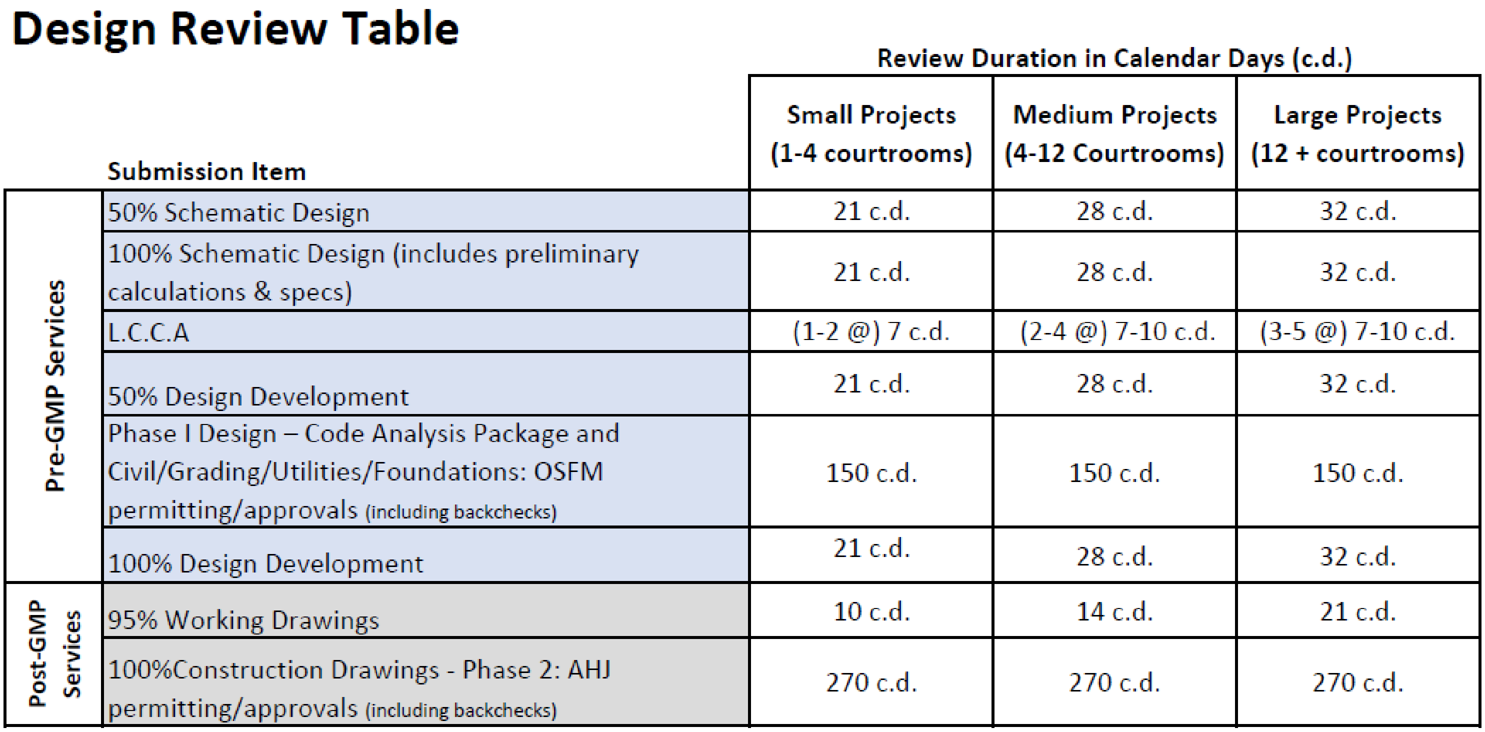
APN: 025-521-41

Prepared Under the Direction of:

TRACY W. PARK
No. 8176
Exp. 12/31/10

Sheet	V2
Scale:	1" = 20'
Date:	07/30/10
Project Number:	4114100
Plan File:	D-4968

5. DESIGN REVIEW TABLE *[REVISED]*



Design Review Table

		Review Duration in Calendar Days (c.d.)		
	Submission Item	**Small Projects (1-4 courtrooms)**	**Medium Projects (4-12 Courtrooms)**	**Large Projects (12 + courtrooms)**
Pre-GMP Services	50% Schematic Design	21 c.d.	28 c.d.	32 c.d.
	100% Schematic Design (includes preliminary calculations & specs)	21 c.d.	28 c.d.	32 c.d.
	L.C.C.A	(1-2 @) 7 c.d.	(2-4 @) 7-10 c.d.	(3-5 @) 7-10 c.d.
	50% Design Development	21 c.d.	28 c.d.	32 c.d.
	Phase I Design – Code Analysis Package and Civil/Grading/Utilities/Foundations: OSFM permitting/approvals (including backchecks)	150 c.d.	150 c.d.	150 c.d.
	100% Design Development	21 c.d.	28 c.d.	32 c.d.
Post-GMP Services	95% Working Drawings	10 c.d.	14 c.d.	21 c.d.
	100%Construction Drawings - Phase 2: AHJ permitting/approvals (including backchecks)	270 c.d.	270 c.d.	270 c.d.

6. JUDICIAL COUNCIL's OSFM CODE CHECKLIST AND OSFM PHASED PERMIT BUILDINGS SUBMITTAL GUIDE

CHECKLIST

AS-BUILT DOCUMENTATION

See information under Survey Tab for required existing building information	☐
All information regarding as-built condition is included and accurately depicted.	☐
Code Analysis for the existing building has been confirmed and demonstrated on the title sheet.	☐
Field verification of the as-built condition has been confirmed.	☐
Field verification of as-built condition does not comply with the year of code used for construction.	☐

CODE ANALYSIS

Occ2, Occ3, Occ4 and Mixed Use tabs below are to assist in determining allowable are based upon occupancy classification.	☐
Provide a detailed scope of work, include all effects to existing building components and disciplines; demonstrate the area limitations on an overall facility plan.	☐
Indicate year of code originally built and/or year of code applied	☐
List applicable NFPA standards with the adopted edition as shown in CFC Ch. 80 or CBC Ch. 35	☐
OSFM Local fire agency access approval letter included	☐
Occupancy Group classification and use	☐
Building construction type, fire resistant rating required for building elements, fire resistance rating for exterior walls (see Construction Type Tab below for assistance)	☐
Proposed/existing number of building stories, allowable number of building stories, story increase taken	☐
Proposed/existing building height, allowable building height, building height increases taken	☐
Proposed/existing building area, allowable area, area increases taken (see Occupancy/Allowable Area Tab for assistance)	☐
Building separated or non-separated mixed use or single use	☐
Allowable area calculations, clearly demonstrated all allowable increases and frontage increases	☐
Deferred submittal, OSFM accepts Fire Alarm, Fire Sprinklers, Smoke Control, Emergency Responder Radio Coverage	☐
Special provisions utilized, describe and provide references as described in chapter 5 of CBC	☐
Provide applicable scale and graphic scale. Title block shall comply with latest requirement for electronic submittal.	☐
Hazardous materials statement	☐
Depict lowest level of fire department access. Include datum for elevation relative to the top of the occupied floor	☐
Automatic fire sprinklers yes/no, specialty fire protection provided yes/no, type (wet, dry, pre-action, deluge)	☐
Are fire pumps or water tanks being provided, yes/no	☐
Location of on site secondary water supply, calculations confirming size for required duration (high-rise)	☐
Location and fire department access to Fire Command Center (high-rise)	☐
Fire alarm system yes/no, type of fire alarm system, emergency voice/alarm communication yes/no	☐
Smoke control system yes/no, type of smoke control	☐
Standpipe system yes/no, classification of standpipe, exceptions applied	☐

Use and occupant load for each individual space, provide a table that summarizes the occupancy classification, occupant load and occupant load factor	
Maximum exit access travel distance allowable, actual maximum exit access travel distance, increases applied	
Number of required exits, number of exits provided, capacity factor applied	
Maximum common path of travel allowed, actual maximum common path of travel	
Path of travel with accumulated occupant loads to the exit/exit discharge	
Demonstrate exit discharge and path of travel to the public way, lighting shall be noted to be provided to the public way at the required illumination levels.	
Indicate rated or non-rated corridors	
Doors access exit access shall demonstrate compliance, with door swing, encroachment and egress continuity	
Means of egress illumination under emergency power and illumination level under emergency power	
Seismic joints yes/no	
Emergency responder radio coverage provided yes/no	
Demonstrate fire access roadways, roadways and hose pulls within 150 of travel distance to all portions of exterior wall	
A 20-foot wide fire lane serves the building and access to area during construction? Demonstrate access from the public way, a roadway that is a continuous loop or show fire apparatus turnaround/hammerheads and those area with limited dead end roadways, demonstrate turning radius along the entire fire access roadway. Identify impediments such as fences, gates, steep grades (>10%), note roadway design and minimum vertical clearance	
Show access to fire department appliances along the fire access roadway such as hydrant, fire department and standpipe connections. Demonstrate distance from building and roadway. Note appropriate signage for fire access roadway and appliances.	
Site plan that demonstrates building location, roadways private/public, set backs and property lines	
Water supply test results, calculations, method of testing, site hydrants tested demonstrated on site plan with water system configuration, water supply test shall be within 6 months of submittal	
Fire flow required for building, fire flow reductions taken	
Number of required fire hydrants, number of fire hydrants provided, maximum spacing of required fire hydrants allowable, maximum spacing provided of required fire hydrants	
Emergency or standby power system yes/no, Class and type	
Code analysis drawing shows plans with all fire/smoke rated walls labeled properly and identified as to wall type, fire barrier, fire partition, fire wall etc…	
Code analysis drawing includes basic section showing fire/smoke horizontal assemblies labeled properly	
Extents and requirements of each type of fire/smoke wall and horizontal assembly has been documented	
Clearly identify smoke control zones with appropriate barriers	
Elevators and elevator lobby's, what exceptions are being utilized. Elevator door rated with smoke seals, shaft pressurization…	
Interior wall and ceiling finish requirements for the occupancy(ies).	
All doors and frames in each fire/smoke wall meet rating requirements for those walls and UL listed assembly details	
All glazing and frames in each fire/smoke wall meet rating requirements and permissible maximum area of openings	
Mechanical ducts penetrating each type of fire/smoke wall have dampers meeting rating requirements for each wall	
Pipes/conduit/misc penetrations in each fire/smoke wall are detailed as required for the rating of each wall, which includes UL listed assembly details for both through penetrations with F ratings and floor/ceiling penetration with F & T ratings	
Distance between exterior walls and (actual/assumed)property lines indicated, separations between buildings demonstrated	
Percentage of openings of exterior walls have been calculated	
Exterior openings comply with Table 705.8	
All building components comply with fire resistive requirements of the Construction Type	

REQUIRED REPORTS

Fire Protection Engineering building analysis	
Fire Protection Engineering Smoke Control	
Geological/soil report	

EXISTING BUILDING MISC ITEMS (also see information under code analysis)

Are there any construction modifications that do not appear to be original?	
Were modification approved or permitted?	
Did modification use the required construction materials based on type of construction?	
If modifications were made, was proper sprinkler coverage maintained?	
Are there any areas that are not fully sprinklered?	
Has a recent fire flow test been performed within the last 6 months prior to submittal?	
Does the fire flow meet requirements for the fire area under consideration?	
Have fire detection and fire suppression systems been maintained? Date of the last annual and 5-year inspection.	
Is there a fire pump or water tank that supports the building?	
Is the existing fire alarm system capable of accepting additional devices?	
Is the fire detection system currently code compliant?	
If present, is the smoke control system compliant?	
Does the project have emergency or standby power, is it capable of accepting additional loads?	
Are all building systems on the emergency generator? What is the amount of fuel supply and is the fuel supply compliant with the required run time?	

PROPER SEPARATION/ACCESS/EGRESS (see information under code analysis)

Are there any buildings (separate per code) within 20 feet of the perimeter?	
Are there any combustible canopies within 20 feet of the building?	
Are canopies within 20 feet of the building sprinklered?	
Obstacles (walls, fences, guardrails, planters, elevation changes, etc.) that prevent free egress?	
Outbuildings, portable buildings, or combustible appurtenances are w/in 20 feet of the building?	
Demonstrate location and method of sizing of safe dispersal areas.	
The above buildings/combustible appurtenances are indicated on approved drawings?	
Property lines/assumed property lines limit egress?	

OCCUPANCY (see information under code analysis)

What are the occupancy groups per the current adopted CBC Chapter 3?

Primary Occupancy	Occupancy 2	Occupancy 3	Occupancy 4

What are the occupancy groups per the code cycle the building was originally approved for?

Primary Occupancy	Occupancy 2	Occupancy 3	Occupancy 4

If applicable, what occupancy groups where improvements last approved under?

Primary Occupancy	Occupancy 2	Occupancy 3	Occupancy 4

GENERAL HEIGHT AND AREA (see information under code analysis and below tab information if used)

Building Height in Feet Above Grade Plane	
Number of Stories Above Grade Plane (S_a)	
Basement Area (if applicable)	
Building Area on Ground Floor	
Building Area of Largest Floor	
Area of Primary Occupancy	
Area of Occupancy 2 (if applicable)	
Area of Occupancy 3 (if applicable)	
Area of Occupancy 4 (if applicable)	
Building Area - Total	

STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE AND LIFE SAFETY DIVISION
PHASED PERMIT BUILDINGS SUBMITTAL GUIDE
SFM-G-10 (12/2020)

Phased Permit Buildings Submittal Guide

GENERAL INFORMATION

The Phased Permit Building Program was created to allow building permits to be issued in phases for complex facilities. The following are the minimum requirements to be provided by the project team and approved by the Office of the State Fire Marshal, prior to any permits being issued or commencement of construction; Any holders of a Phased Permit proceed at their own risk without assurance that a permit for the entire structure will be granted;

PREREQUISITES

The following are the minimum requirements to be eligible for phased permitting:

- The project construction duration must exceed twelve (12) months from foundations to final Certificate of Occupancy.
- A preliminary meeting may be required between the Office of the State Fire Marshal (OSFM), State Agency representative, owner representative, and the various project designers to review the project scope, the proposed phased permit schedule, the valuation of each proposed design phase, and to answer any questions the State Agency or designers may have regarding the phased permit process or code requirements.

PRELIMINARY MEETING

A preliminary meeting may be requested by OSFM or the design team depending on the complexity of the project. An application shall be submitted and the permit# provided to the OSFM prior. The attendees must include the State Agency representative, owner representative, principal design professional, architect, structural engineer, mechanical engineer, electrical engineer, civil engineer and contractor. Please call (916) 568-3801 to schedule this required preliminary meeting.

The project team shall provide the following information at this meeting:

1. A list of the State Agency representative(s), owner representative(s), and the design professionals associated with the project;
2. A detailed description of the entire project, including building(s) analysis and property ownership;
3. A preliminary design, permit, and construction schedule;
4. A site plan indicating all existing and proposed property lines showing the project location and yards;
5. A sufficient number of building elevations and cross sections necessary to convey the overall scope of the project; and
6. Any project specific information
7. Completed applications alternate materials and/or alternate methods for proposal.

The OSFM will provide the following information:

1. A review to verify minimum submittal requirements have been met;
2. Answer questions pertaining to minimum code requirements;
3. Describe construction limits which will be placed on each of the proposed phased permit applications;
4. Agreement on phased approach and schedule.

PHASE I DESIGN - CODE ANALYSIS PACKAGE AND CIVIL/GRADING/UTILITIES/FOUNDATIONS

Phase I of the phased permit process is the submittal of the Code Analysis Package and the grading, underground utilities, and the foundations for the entire project. These construction documents must be submitted for review and include the following:

A. A Fire Protection Report signed by a licensed California Fire Protection Engineer may be required depending on the complexity of the project.
B. Descriptive and complete scope of work;
C. Design Summary/Code Analysis including;
    1. Proposed building uses/occupancies.
    2. Separated or Non-separate design.
        a) Mixed-Use design analysis.
    3. Building construction type.
    4. Building area (in square feet).
    5. Number of stories.
    6. Actual building height.
    7. Area increase.
        a) Justify allowable area(s) increase, show area(s) using frontages, justify each proposed increase.
    8. Height increase justification.
        a) Provide allowable building height increase analysis.
    9. Occupant load of each building (itemized by each proposed use).
    10. Occupant load for entire building and each floor.
    11. Fire Sprinklers.
    12. Fire Alarm.
    13. Other fire protection systems proposed.
    14. Fire protection design, including all passive and active elements and design.
    15. Accessibility analysis.
    16. Confirm if the site in a High Fire Hazard Severity Zone.
    17. Emergency Responder Radio Coverage (if applicable).
D. Site Plans which indicate all existing and proposed property lines, easements, fire department access, all accessibility routes on the property between buildings including from the right-of-way and all buildings/structures, and separation/setback distances;
E. Utility Plans indicating all fire hydrant locations, documentation of required fire flow, and all underground plumbing, electrical and mechanical (if applicable);
F. Preliminary Smoke Control Report, which is conceptual in nature, but still includes all aspects required in the final report. The acceptance of the preliminary Smoke Control Report does not constitute final approval.
G. Chemical Inventory List and HMIS Statement- CFC 5001.5.2
H. Hazardous Materials Control Areas – number of and location clearly indicated and coordinated with the HMIS
I. High-Piled, Combustible Storage – locations, dimensions, types of commodities; identified in accordance with CFC 3201.3
J. A complete grading and drainage plan, including landscape and irrigation, and any temporary or permanent dewatering system for the entire site;
K. All soil bearing pressures taken directly form the Geotechnical reports prepared by a California registered civil engineer;
L. Complete structural foundation plans, calculations, and all other supportive data for this phase;
M. All electrical, mechanical and plumbing plans associated with the scope of work proposed for the foundation design phase;
N. Electrical power distribution plans including all grounding and bonding;
O. Architectural plans of the exterior elevations for each building or structure;
P. Fire Department vehicle access (during construction).

PHASE II DESIGN - STRUCTURE PLAN AND COMPLETE ARCHITECTURAL, ELECTRICAL, PLUMBING, AND MECHANICAL DESIGNS

The second phased permit submittal is for the entire structure of each building or for the entire project, the complete architectural, electrical, mechanical, and plumbing designs either by individual building(s) or for the entire project. The required construction documents include the following:

1. Completed plan review application with phase clearly indicated and phased design schedule;
2. All previously submitted and approved documents with any deviation from approved documents noted;
3. Complete sets of all structural plans, calculations, and all other supportive data;
4. Complete exterior wall cladding designs including all structural connection details and edge of slab protection details;
5. Stairs, handrails and guards, and associated cross-sections and details;
6. All electrical, mechanical, and plumbing plans associated with the scope of work proposed for the structural design phase (i.e., concrete or masonry embeds);
7. Electrical power distribution plans including all grounding and bonding;
8. Steel fireproofing plans and schedules which must include:
    a. Structural framing backgrounds with hourly fire-resistance ratings.
    b. Fireproofing schedules.
9. Architectural reference plans of the exterior elevations for each building; and
10. Architectural reference floor plans of each floor of each building.

Architectural plans will include but are not limited to:

1. Completed plan review application with phase clearly indicated and phased permit schedule;
2. All previously submitted and approved documents with any deviation from approved documents noted;
3. Floor plans which indicate the use of each space and all wall types;
4. Exterior and interior elevations;
5. Roof and floor/ceiling assemblies, any horizontal assemblies, penetrations protectives, and reflective ceiling plans;
6. Interior and exterior wall plans including all wall framing details, fire-resistance-rating details and connection to structure details indicating all fire walls, fire barriers, shaft enclosures, fire partitions, smoke barriers, smoke partitions, penetrations, fire-resistant joint systems, opening protective's, exit enclosures, all construction details and fire-stopping methods;
7. Exterior wall cladding systems, including Exterior Insulation and Finish Systems (EIFS), curtain walls, store fronts, etc., and all edge of slab protection details (if applicable);
8. Furniture and fixture plans per floor;
9. Seating plans for all possible event configurations (if applicable);
10. Building cross-sections;
11. Door & window schedules including fire-resistance ratings;
12. All necessary architectural details;
13. Stairs, handrails and guards, and associated cross-sections and details; and
14. Interior and exterior floor, wall and ceiling finishes, including; schedules and details.
15. The approved Hazardous Materials Inventory Statement- CFC 5001.5.2
16. Hazardous Material Management Plan- CFC 5001.5.1
17. High-Piled Combustible Storage –Construction documents in accordance with CFC 3201.3

Mechanical/Plumbing Plans for the scope of work should include the following:

1. Site Utility Plan, indicating cooling towers, fire pumps, private and public sewer lines, manholes, cleanouts, materials, sizing, and slopes;
2. Mechanical and plumbing floor plans (indicating all fire-resistance rated walls and horizontal assemblies and the required duct and air transfer opening protection);
3. All equipment and fixture schedules (for both plumbing and mechanical);
4. Provide calculations for minimum outside air ventilation requirements;
5. All refrigeration systems, refrigerant classifications, machinery rooms, and piping;

6. All smoke control and smoke exhaust designs (if applicable);
7. Duct and register materials, sizes and support methods for supply, return, outside air, environmental air, product conveying systems, commercial hoods and kitchen ventilation;
8. Vertical riser diagrams for all multi-story structures, for drain, waste and vent fittings (DWV), water, gas and mechanical ventilation systems;
9. Seismic restraint design and details of all required mechanical and plumbing elements (if applicable);
10. Locations and functions of all smoke/fire detectors and duct smoke detectors;
11. Locations of all smoke/fire dampers;
12. Location and programming of all control devices;
13. Waste and vent materials, sizing and isometric layouts;
14. Water supply and distribution materials, sizing, calculations and isometric layouts;
15. Indirect waste, materials, sizing, and cleanouts;
16. Fuel gas piping, design pressures, regulator locations, and shut-off valves (if medium or high pressure gas are to be used an approval letter from the gas provider is required);
17. Combustion air openings and details;
18. All gas venting sizing, terminations and details;
19. Cross-connection control devices;
20. Primary and Secondary Roof drainage piping plans and calculations; and
21. Sand, oil, and grease interceptors with calculations.
22. Smoke Control report: which includes smoke control system design, and pass/fail criteria; including necessary weather conditions acceptable during commissioning testing without further review.
23. Letter from third party that has reviewed the smoke control system and finds it to be acceptable.

Electrical Plans for the scope of work should include the following:

1. Electrical site plan identifying all site lighting, utility transformer(s), service location(s), emergency generator location(s) and fire pump(s);
2. Electrical floor plans for lighting, power, communications and all special systems with all circuits clearly identified;
3. Provide ¼" = 1'-0" scale drawings of all electrical rooms, elevator machine rooms, generator rooms and fire pump rooms;
4. Electrical symbol schedule and legend;
5. Switchboard and panel board schedules with Ampere Interrupting Capacity (AIC) ratings, specifications and loads clearly shown;
6. Provide electrical specifications for all HVAC and Refrigeration equipment and all other mechanical equipment;
7. Lighting fixture schedule;
8. Show locations of all normal and emergency panel boards and distribution equipment, etc.;
9. Power distribution plans and single-line diagrams indicating size and types of all transformers, conduit, conductors, over-current protection, grounding and bonding for all distribution boards, switchboards, panels and services, including all electric utility information;
10. All raceways, wiring methods, materials, feeder sizes, and circuits;
11. All over current protection;
12. Bus bracing fault-current calculations;
13. Complete electrical load calculations;
14. Seismic restraint design and details of all required electrical elements (if applicable);
15. Protection of emergency and standby systems;
16. All egress illumination and egress identification;
17. All systems supplied by emergency and standby power; and
18. Location of emergency lighting with photometric justification.

PERMITS

Permits for construction will only be issued after the Phased Permit Building application has been submitted, reviewed and approved. Only one job card/permit and construction binder will be issued. Work is authorized for each phase by the approved plans.

Close control will be maintained to assure that the latest approved plans are on the job site and that construction does not proceed beyond the permitted scope of work. Construction will be stopped if it progresses beyond the scope of work for which permits have been issued.

DEMOLITION PERMITS:

The demolition phase may be approved by the local Deputy State Fire Marshal; If it is too complex or time consuming then the plan can be submitted to the plan review office; Provide a complete demolition plan that includes site, staging, and any alternate egress plans for existing building in proximity of the construction site.

GRADING PERMITS:

1. A phased permit for grading only may be obtained separately for the entire project site. This permit includes excavation only for the foundation and may include on-site drainage channels and underground box culverts.
2. If a site contains multiple buildings, a grading permit will be required for the entire site. Grading permits will not be issued for partial sections.

SUBMITTAL PACKAGE

Construction design plans and supporting documents must be prepared, wet or electronically signed and stamped by a California registered architect or professional engineer (as applicable for the discipline involved). All plans shall be drawn to scale on the same size sheets, bound, and must weigh less than 40 pounds.

A contractor licensed under the provisions of the Contractors State License Board may prepare and submit his own plans, provided that the plans are signed by the contractor and meet the conditions specified in Contractor State Licensing Boards Laws and Regulations.

SUBMITTAL PROCEDURES

Plan review application must be submitted in GOVmotus for all submittals; during the application process you may choose to submit electronic plans or paper. Paper submittals must be submitted in person or mailed to:

CAL FIRE – Office of the State Fire Marshal
Fire and Life Safety Division, Plan Review Section
2251 Harvard Street Suite 130
Sacramento, CA 95825
(916) 568-3801

For further Information please visit: http://osfm;fire;ca;gov/firelifesafety/firelifesafety;php

7. CONE OF VISION EASEMENT

P.O. Box 115
Local.

RECORDED AT REQUEST OF
City of Lakeport
AUG 11 4 11 PM 1971

11079

EASEMENT DEED

We, JOHN W. SEREGOW and LOUISE SEREGOW, his wife,

Grant to the CITY OF LAKEPORT, a Municipal Corporation, a cone of vision easement upon, over and across that portion of grantor's property in the northeast quarter of Section 25, Township 14 North, Range 10 West, Mount Diablo Base and Meridian described as follows:

Beginning at the southwest corner of grantors' property, being the center of Section 25, Township 14 North, Range 10 West, Mount Diablo Base and Meridian, and running thence northerly, along the west line of said northeast quarter, a distance of 245.64 feet to the true point of beginning.

Said cone of vision will be bounded on the south side by a line that bears South 65° East from the true point of beginning.

Said cone of vision will be bounded on the north side by a line that bears North 85° East from a point on the west line of said northeast quarter located 75.00 feet northerly of the true point of beginning.

Said view corridor will remain unobstructed by buildings, appurtenances or other improvements above elevation 1416.00 as determined by the USC&GS mean sea level datum, 1956.

In the event that for any reason whatsoever that certain Agreement between the CITY OF LAKEPORT and the STATE OF CALIFORNIA establishing a Vista Point along the westerly boundary of this easement is terminated, then such action shall extinguish this cone of vision easement.

- 2 -

Dated this 21st day of June 19 71.

John W. Seregow

Louise Seregow

FORM RW-58 (REV. 4-62)

STATE OF CALIFORNIA
County of Lake } ss.

On this 21st *day of* June *in the year one thousand nine hundred and* seventy-one *before me, the undersigned, a Notary Public in and for the* *County of* Lake *State of California, personally appeared* JOHN W. SEREGOW and LOUISE SEREGOW *Known to me to be the persons whose name s are subscribed to the within instrument, and acknowledged that they executed the same.*

WITNESS my hand and official seal.

Carol A. Braito

CAROL A. BRAITO
My Commission Expires January 22, 1973

Carol A. Braito
Name (Typed or Printed)

(ACKNOWLEDGMENT)
EST. 412. 67674 6-62 2500 SPO

CERTIFICATE OF ACCEPTANCE

THIS IS TO CERTIFY that an Easement Deed dated June 21,1971, from JOHN W. SEREGOW and LOUISE SEREGOW, his wife, to the CITY OF LAKEPORT, a Municipal Corporation, is hereby accepted by order of the City Council of the City of Lakeport; and Grantee consents to recordation thereof by its duly authorized officer.

DATED this 21st day of June, 1971.

Bernice M. Hudson
CITY CLERK, City of Lakeport

8. MEMORANDUM OF UNDERSTANDING BETWEEN THE JUDICIAL COUNCIL OF CALIFORNIA, ADMINISTRATIVE OFFICE OF THE COURTS; CITY OF LAKEPORT; AND THE REDEVELOPMENT AGENCY OF THE CITY OF LAKEPORT REGARDING THE PROPOSED NEW LAKEPORT COURTHOUSE

MEMORANDUM OF UNDERSTANDING BETWEEN THE JUDICIAL COUNCIL OF CALIFORNIA, ADMINISTRATIVE OFFICE OF THE COURTS; CITY OF LAKEPORT; AND THE REDEVELOPMENT AGENCY OF THE CITY OF LAKEPORT REGARDING THE PROPOSED NEW LAKEPORT COURTHOUSE

THIS **MEMORANDUM OF UNDERSTANDING** ("MOU") is made and entered into on this 11TH day of JANUARY, 2011, by and between the **City of Lakeport**, a California municipal corporation (the "City"), the **Lakeport Redevelopment Agency** (the "Agency"), and the State of California, acting by and through the Judicial Council of California, **Administrative Office of the Courts** (the "AOC") (each a "Party" and collectively, the "Parties").

BACKGROUND AND PURPOSE OF THE MOU

A. The AOC intends to design and construct certain court facilities and related improvements thereon for use by the Superior Court of California, County of Lake in the City of Lakeport, County of Lake, State of California ("Project");

B. The Public Works Board of the State of California ("PWB") approved the AOC's selection of a potential 5.74 acre site located at 675 Lakeport Boulevard ("Real Property") in the City of Lakeport;

C. The Real Property is located within an area of the City designated for redevelopment pursuant to the Redevelopment Plan ("Plan") adopted on June 7, 1999, by Ordinance No. 799 pursuant to the California Community Redevelopment Law (Cal. Health & Safety Code §§ 33000 et seq.;

D. The Real Property is owned by two private parties;

E. The AOC has filed a Notice of Determination for a Mitigated Negative Declaration in compliance with the California Environmental Quality Act ("CEQA") for the Project;

F. As a condition of acquiring real property located in redevelopment areas, staff for PWB requires that the AOC obtain a written agreement by and between the City, the Agency, and the State, whereby the City and Agency relinquish any rights they may have regarding the imposition and enforcement of planning and design controls on the Real Property and the Project. The City and Agency are willing to provide a written agreement to satisfy PWB staff's requirement;

G. The City desires that the AOC proceed with the Project;

H. The Agency desires that the AOC proceed with the Project; and

I. The Agency desires to participate in the Project.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. AOC OBLIGATIONS

1.1 **Acquisition of Real Property.** The AOC intends to purchase the Real Property for the future development of a courthouse and related parking. Agency and City understand that AOC is not authorized to acquire the Real Property until the PWB has given site acquisition approval. Agency and City also understand that acquisition approval cannot be granted without a complete CEQA review.

1.2 **Development of a Courthouse for the Superior Court, County of Lake.** The AOC intends to construct and operate a new courthouse building that is approximately 51,000 building gross square feet, two stories high, and would include four courtrooms, associated support space, and on-site parking.

1.3 **Design of Project.**

(a) The AOC will develop the new court building so it is consistent with the recorded "cone of vision" easement extending through the Project site.

(b) The AOC will prepare an engineered hydrology study which quantifies the amount of additional storm water runoff resulting from the proposed Project and will provide construction of adequately sized on-site storm water detention facilities or adequate downstream storm drain conveyance improvements that will ensure there is no net increase in the rate of and amount of storm water runoff from the Project site. There will be no additional impact to downstream property owners or existing storm drain systems as a result of the new court building and site improvements.

(c) If feasible to the AOC, the AOC will dedicate sufficient land for a street right-of-way for a collector street along the Real Property's eastern property line through the Project site in an alignment which will provide for extension of the street to the south.

(d) The Project will comply with ADA requirements.

(e) The AOC will quantify the effect the new courthouse would have on the city water and sewer systems. The AOC will provide the standard calculations. The

AOC will calculate the number of sewer residential unit equivalents generated by the operation of the new courthouse and quantify the water service pipe size necessary to serve the new court building.

(f) If feasible to the AOC, the AOC will dedicate land for the construction of a traffic roundabout street intersection at the Lakeport Boulevard/Larrecou Lane intersection.

(g) The AOC will consult with the City on the design of the Project to allow the City to review impacts and issues affecting City infrastructure, adjacent property, adjacent roads, and the community in general.

(h) The AOC will provide adequately-sized refuse enclosures to store the trash and recyclables generated by the Project, propane tank enclosures, paint all metal, exposed venting and piping and screens around all roof mounted heating and AC units.

(i) The AOC will comply with the terms, conditions, and requirements of the Project's mitigation monitoring plan.

2. CITY AND AGENCY OBLIGATIONS

2.1 **Participation in the Project Advisory Group ("PAG").** City and Agency agree to continue to actively participate in the PAG.

2.2 **Cooperation in the Acquisition and Development Process.** City and Agency agree to cooperate with the AOC on items relating to the CEQA process, acquisition of the Real Property, and Project development. Such cooperation may include:

(a) The timely review of documents and/or response to requests for information; and

(b) Participation in meetings regarding the dedication of a right-of-way for a future public street.

(c) Contribute in the Development of Offsite Improvements. City and Agency may contribute in the development of offsite improvements related to the Project.

3. CITY AND AGENCY'S WAIVER OF RIGHTS

3.1 The City and the Agency agree that they will not exercise at any time any rights they may have under the Plan, to implement or impose any restrictions, controls, limitations or prohibitions on State's use or development of the Real Property, construction of the Project, or maintenance and operation of the Project, and so long as the State holds title to the Real Property, the City and Agency waive any and all rights they may have under the Plan, General Plan, or other document implementing either to enforce against the State by litigation or any other means any such provision of the Plan, or General Plan.

The City and the Agency further acknowledge and agree that the State, including any agency or department of the State of California, is not subject to the City's general plan, zoning ordinance, building code, or other municipal code provisions in its development and construction of the Project or other facility owned by the State of California, and so long as the State of California holds title to the Real Property, the City waives forever any and all rights it may have to enforce against the State of California by litigation or any other means the general plan, zoning ordinance or building codes.

3.2 The AOC agrees that it will consult with the Agency regarding design of the Project, provided however, that City and the Agency shall not have any right under the Plan, General Plan, or other document implementing either, or otherwise, to impose any planning or design controls on the Real Property or the Project or to impose any other restrictions on the use or development of the Real Property or the Project.

4. MISCELLANEOUS

4.1 **Notices.** All notices required to be given by either party will be made in writing and may be effected (i) by personal delivery, (ii) via reputable overnight courier service, (iii) by mail registered or certified postage prepaid with return receipt requested, or (iv) by facsimile transmission. Notices sent by courier or mail must be addressed to the parties at the addresses and faxed notices must be sent to the parties at the facsimile numbers appearing below in this Section 4.1, but each party may change its designated address or facsimile number by giving written notice to the other party in accordance herewith. Notices delivered personally will be deemed communicated as of actual receipt; notices sent via overnight courier will be deemed communicated as of the date delivered by the courier; mailed notices will be deemed communicated as of the date of receipt or the fifth day after mailing, whichever occurs first; and faxed notices will be deemed communicated as of the time and date of the facsimile confirmation printout of the recipient. The parties' addresses, telephone numbers, and facsimile numbers are as follows (telephone numbers are provided for convenience only):

Agency: Redevelopment Agency of the City of Lakeport
Attn: Richard Knoll
225 Park Street
Lakeport, California 95453
Telephone: 707-263-8840
Facsimile: 707-263-8584

City: City of Lakeport
Attn: Margaret Silveira
225 Park Street
Lakeport, California 95453
Telephone: 707-263-5615
Facsimile: 707-263-8584

AOC: Judicial Council of California
Administrative Office of the Courts
Office of Court Construction and Management
Attn: Assistant Director, Real Estate
455 Golden Gate Avenue
San Francisco, California 94102
Telephone: 415-865-4040
Facsimile: 415-865-8885

and,

Judicial Council of California
Administrative Office of the Courts
Office of Court Construction and Management
Attn: Director
455 Golden Gate Avenue
San Francisco, California 94102
Telephone: 916-263-1493
Facsimile: 916-263-2342

In addition, all audit requests and notices by the Agency related to termination of this MOU or any notice alleging any breach or default by the AOC of this MOU must also be sent to:

Administrative Office of the Courts
Attention: Senior Manager, Business Services
455 Golden Gate Avenue
San Francisco, California 94102-3688

4.2 **Headings.** The headings used in this MOU are for convenience only and will not affect the meaning or interpretation of this MOU.

4.3 **Incorporation by Reference.** The recitals contained in this MOU are incorporated into and made a part of this MOU for all purposes.

4.4 **Roles and Responsibilities.** This MOU is an understanding of roles and responsibilities of the Parties hereto, and represents the intentions of each, subject to the conditions and approvals described herein.

4.5 **Integration; Amendments.** This MOU contains the entire understanding of the Parties, and supersedes all previous communications, representations and understandings, whether verbal, written, express, or implied, between the Parties.

4.6 **Further Assurances.** The Parties agree to cooperate reasonably and in good faith with one another to (1) implement the terms and provisions set forth in this MOU, and (2) consummate the transactions contemplated herein, and shall execute any the agreements described herein, subject to the conditions attached thereto, and perform any additional acts that may be reasonably necessary to carry out the purposes and intent of this MOU.

[SIGNATURE PAGE TO IMMEDIATELY FOLLOW]

IN WITNESS WHEREOF, the parties hereto have executed this MOU as of the Effective Date.

APPROVED AS TO FORM:
Administrative Office of the Courts,
Office of the General Counsel

By: Leslie G. M
Name: Leslie G. Miessner
Title: Supervising Attorney, Real Estate Unit
Date: 2/4/11

JUDICIAL COUNCIL OF CALIFORNIA, ADMINISTRATIVE OFFICE OF THE COURTS

By:
Name: William C. Vickrey
Title: Administrative Director of the Courts
Date: 2-14-11

APPROVED AS TO FORM:
Office of the City Attorney,
City of Lakeport

By: Brookes
Name: Steven Brookes
Title: City Attorney
Date: 3-1-11

CITY OF LAKEPORT, a political subdivision of the State of California

By: Margaret Silveira
Name: Margaret Silveira
Title: City Manager
Date: 4/20/11

REDEVELOPMENT AGENCY OF THE CITY OF LAKEPORT

By: Richard Knoll
Name: Richard Knoll
Title: Redevelopment Agency Director
Date: 4/19/2011

9. MEMORANDUM OF UNDERSTANDING BETWEEN THE JUDICIAL COUNCIL OF CALIFORNIA, ADMINISTRATIVE OFFICE OF THE COURTS AND THE CITY OF LAKEPORT REGARDING RIGHT OF WAY ACCESS

Doc # 2011015432
Page 1 of 7
Date: 10/27/2011 02:12P
Filed by: FIDELITY NATIONAL TITLE
Filed & Recorded in Official Records
of COUNTY OF LAKE
DOUGLAS W. WACKER
COUNTY RECORDER
Fee: $0.00

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:

STATE OF CALIFORNIA
c/o Judicial Council of California
Administrative Office of the Courts
Office of Court Construction and Management
455 Golden Gate Avenue, 8th Floor
San Francisco, California 94102
Attn: Eunice Calvert-Banks, Manager, Real Estate

SPACE ABOVE FOR
RECORDER'S USE

OFFICIAL STATE BUSINESS – EXEMPT FROM RECORDING FEES PURSUANT TO GOV'T. CODE SECTION 27383 AND DOCUMENTARY TRANSFER TAX PURSUANT TO REVENUE AND TAXATION CODE SECTION 11922.

APN(S): 025-521-41; County of Lake

175105468 44B

MEMORANDUM OF UNDERSTANDING BETWEEN THE JUDICIAL COUNCIL OF CALIFORNIA, ADMINISTRATIVE OFFICE OF THE COURTS AND THE CITY OF LAKEPORT REGARDING RIGHT OF WAY ACCESS

THIS **MEMORANDUM OF UNDERSTANDING** ("MOU") is made and entered into on this 19th day of July, 2011, by and between the City of Lakeport, a California municipal corporation (the "City"), and the State of California, acting by and through the Judicial Council of California, Administrative Office of the Courts (the "AOC") (each a "Party" and collectively, the "Parties").

BACKGROUND AND PURPOSE OF THE MOU

A. The AOC intends to design and construct certain court facilities and related improvements thereon for use by the Superior Court of California, County of Lake in the City of Lakeport, County of Lake, State of California ("Project").

B. The Public Works Board of the State of California ("PWB") approved the AOC's acquisition of a 5.74 acre site located at 675 Lakeport Boulevard ("Court Property") in the City of Lakeport.

C. The City is the owner of certain property along Lakeport Boulevard ("Access Area") that is physically open and publicly maintained and available for public use. The Access Area is more fully described and depicted in the attached Exhibit "A."

D. The AOC needs access, both during construction of the Project and after completion of the Project, through the Access Area for the purpose of ingress and egress and passage of automobiles, other vehicles and equipment to and from the Court Property to Lakeport Boulevard.

E. The City is willing to grant access to the AOC for the convenient use thereof and in a right of direct and reasonable ingress to and egress from the Court Property, over the Access Area, to Lakeport Boulevard.

F. City represents the Access Area is usable and has not been terminated by matters shown in public records, such as merger in chain of title, or by off-record matters such as adverse possession, estoppels or surcharge.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. The City hereby grants to AOC, a perpetual, non-exclusive use of the Access Area appurtenant to the Court Property, for the purposes of allowing employees and representatives of the AOC, together with the general public, to enter upon the Access Area, for access over, on, across, and through the Access Area, for ingress and egress and the passage of automobiles, other vehicles, and equipment to and from the Court Property to the public street known as Lakeport Boulevard.

2. The AOC shall have the right to construct any roadway and parking improvements which the AOC deems necessary in order to utilize the Access Area for the purposes set forth in this MOU, including any hardscaped and landscaped surfaces, lighting and other utilities, fencing, fixtures, and other improvements related to the AOC's use of the Access Area. The AOC shall perform, or cause to be performed all maintenance, repairs, and replacement of any roadway/parking improvements constructed by the AOC.

3. The AOC will dedicate up to a maximum 50 foot right-of-way for a collector street along the Court Property's eastern property line through the Project site in an alignment which will provide for extension of the street to the south if the City's final design and location for the collector street are consistent with, and do not adversely affect the layout of the Project and the AOC will contribute the Project's fair share contribution towards the construction of a new collector street (including sewer, water, storm water drainage, power, street lights, cable television, and telephone lines) through the Project site to provide access to the new court building and on-site parking facilities. The AOC's fair share contribution shall include the value of any real property dedicated for the collector street.

4. This MOU may be amended only by written agreement signed by both of the Parties hereto. In the event that the Parties hereto mutually agree to terminate this MOU, the Parties hereto agree to execute in a recordable form any documents requested by either party acknowledging the partial or complete termination of the rights described herein.

5. This MOU is an understanding of roles and responsibilities of the Parties hereto, and represents the intentions of each, subject to the conditions and approvals described herein.

6. This MOU contains the entire understanding of the Parties, and supersedes all previous communications, representations and understandings, whether verbal, written, express, or implied, between the Parties regarding the subject matter of this MOU.

7. The Parties agree to cooperate reasonably and in good faith with one another to implement the terms and provisions set forth in this MOU.

[SIGNATURE PAGE TO IMMEDIATELY FOLLOW]

IN WITNESS WHEREOF, the parties hereto have executed this MOU as of the Effective Date.

APPROVED AS TO FORM:
Administrative Office of the Courts,
Office of the General Counsel

By: Leslie G-M
Name: Leslie G. Miessner
Title: Supervising Attorney, Real Estate Unit
Date: 8/22/11

JUDICIAL COUNCIL OF CALIFORNIA, ADMINISTRATIVE OFFICE OF THE COURTS

By:
Name: William C. Vickrey
Title: Administrative Director of the Courts
Date: 8-23-11

APPROVED AS TO FORM:
Office of the City Attorney,
City of Lakeport

By: St Brookes
Name: Steven Brookes
Title: City Attorney
Date: 7/28/2011

CITY OF LAKEPORT, a California municipal corporation

By: Margaret Silveira
Name: Margaret Silveira
Title: City Manager
Date: 7/28/2011

AOC ACKNOWLEDGMENT

STATE OF CALIFORNIA

COUNTY OF SAN FRANCISCO

On AUGUST 23, 2011 before me, Z. BURSIK, Notary Public, personally appeared **WILLIAM C. VICKREY**, who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/~~they~~ executed the same in his/~~her~~/~~their~~ authorized capacity(~~ies~~), and that by his/~~her~~/~~their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Z Bursik

Z. BURSIK
Commission # 1855012
Notary Public - California
San Francisco County
My Comm. Expires Jun 20, 2013

(Seal)

California All-Purpose Acknowledgment

State of California

County of Lake s.s.

On July 28, 2011 before me, Kelly Buendia, Notary,

personally appeared Margaret Silveira and

Steven Brookes

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) ~~is~~/are subscribed to the within instrument and acknowledged to me that ~~he~~/~~she~~/they executed the same in ~~his~~/~~her~~/their authorized capacity(ies), and that by ~~his~~/~~her~~/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

KELLY BUENDIA
COMM. #1881088
Notary Public - California
Merced County
My Comm. Expires Feb. 27, 2014
NR01

WITNESS my hand and official seal.

Kelly Buendia

OPTIONAL INFORMATION

Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of MOU AOC + City of Lakeport,

containing _____ pages, and dated _______________.

The signer(s) capacity or authority is/are as:

☐ Individual(s)
☐ Attorney-in-fact
☐ Corporate Officer(s) _______________

☐ Guardian/Conservator
☐ Partner - Limited/General
☐ Trustee(s)
☐ Other: _______________

representing: _______________

Additional Information

Method of Signer Identification

Proved to me on the basis of satisfactory evidence:

☐ form(s) of identification ☐ credible witness(es)

Notarial event is detailed in notary journal on:

Page # _____ Entry # _____

Notary contact: _______________

Other

☐ Additional Signer ☐ Signer(s) Thumbprints(s)

☐ _______________

EXHIBIT "A"

MAP OF ACCESS AREA AND COURT PROPERTY

JUDICIAL COUNCIL
OF CALIFORNIA
ADMINISTRATIVE DIVISION
FACILITIES SERVICES

New Lakeport Courthouse MND & City of Lakeport MOU MEETING MINUTES

Project Manager: Zulqar Helal
Design-Build Entity: TBD
Criteria Architect: Moore Ruble Yudell
Date: May 18, 2022 **Time:** 2:00 pm – 3:20 pm
Location: In person meeting at the Lakeport City Hall

Attendees: Name - Company	**Y/N**	**Attendees: Name - Company**	**Y/N**	**Attendees: Name - Company**	**Y/N**
Kevin Ingram (KI)- City Manager	Y	Krista LeVier (KL)- Court Executive Officer	Y		
Jenni Byers (JB)- City Community Development Director	Y	Zulqar Helal (ZH)- Judicial Council Project Manager	Y		
Paul Curren (PC)- City Engineer	Y				

Date/ Item#	**Description**	**Action By**	**Due Date**
	OVERVIEW		
220518-00	After the introduction, the Judicial Council provided an overview of the project funding status, anticipated schedule for Design & Build project delivery, and recently updated scope/ program in the published Criteria Document. The Judicial Council is currently soliciting for the DBE (Design-Build Entity). Purpose of the meeting was outlined as follows: 1) Initiate the discussion on fair share contributions for traffic related upgrades surrounding the new courthouse project site as outlined in CEQA MND (Mitigated Negative Declaration, 2010) and the City MOU (Memorandum of Understanding, 2010). 2) Identify the offsite work scope to be designed and constructed by the Judicial Council/ DBE.	Info	N/A

Date/ Item#	Description	Action By	Due Date
	MOU-Hydrology Study		
220518-01	The Judicial Council will have the selected DBE team to perform onsite hydrology study and related design and construction per MOU.	ZH	12/31/2025
	MOU-Offsite Improvement Considerations		
220518-02	City is initiating a new traffic study, to define the scope and costs of the offsite improvements shown in the attached agenda/ map. The study will be used to develop and discuss the cost model and the fair share contributions by the Judicial Council and other public and private developers in the neighborhood. It will need two weeks to issue the RFP, 30 days for response and 90 days to develop a preliminary study tentatively by end of Sep, 2022.	PC	9/30/2022
	MOU-50’ Right of Way at East Edge of Property (If Feasible)		
220518-03	The Judicial Council expressed concern that 50’ right of way requirement per MOU for any future road construction will make the courthouse site planning and storm water management, options limited Judicial Council therefore, requested this requirement is removed from the MOU altogether. The City is open to Judicial Council’s request and will discuss internally. The City may request a 5’ wide PUE (Public Utility Easement), as an alternative.	PC	5/27/22
	MOU-Calculation/ Water Service Piping		
220518-04	The Judicial Council requested the City to confirm if the services running along the Lakeport Blvd are adequate to serve the fully sprinklered courthouse building and onsite fire hydrant/s. The City will review and respond.	PC	5/27/22

Date/ Item#	Description	Action By	Due Date
	MOU- Traffic Turning Circle and Dedication (If Feasible)		
220518-05	The MOU requires that the Judicial Council dedicate land for a traffic turning circle at Lakeport Blvd and Larrecou Ln intersection. The Judicial Council explained the land belongs to the City, so there is nothing to dedicate. The City concurred and indicated a traffic circle at this location was unlikely given the multiple private and public land owners at this intersection.	Info	N/A
	MOU-Right of Way Access Zone		
220518-06	The City confirmed that per MOU, the Judicial Council will establish vehicular and utility access through City owned land along the Lakeport Blvd.	Info	N/A
	MND- TRANS-1- Highway 29 On/Off Ramps, Main St & Lakeport Blvd		
220518-07	Fair share discussions will begin with the new traffic study, refer to MOU item #220518-2. City explained the tentative plan to improve the on/off ramps at Highway 29 and the Bevins/Lakeport Blvd. intersections was two traffic circles. One would be at the West side of of Highway 29 and include the on/off ramps. A second traffic circle would be at the East side of Highway 29 and would include both the on/off ramps and the Bevins/Lakeport Blvd. intersections.	PC	9/30/22
	MND- TRANS-2- Bevins St & Lakeport Blvd		
220518-08	Fair share discussions will begin with the new traffic study, refer to MOU item #220518-2.	PC	9/30/22
	MND- TRANS-3- Bus Stops @ Larrecou Ln & Lakeport Blvd		
220518-09	The Judicial Council confirmed that the DBE will design and build two bus stops per the City standards (available online) at both sides of Lakeport Blvd at Larrecou Ln intersection per MND. City will contact the local bus company and try to inquire whether they would consider a stop in the courthouse parking lot, if the bus was able to loop through the courthouse parking lot.	JB	9/30/22

New Lakeport Courthouse
MND & City of Lakeport MOU
MEETING MINUTES

Date/ Item#	Description	Action By	Due Date
	MND- TRANS-4- Crosswalk @ Larrecou Ln & Lakeport Blvd		
220518-10	The City confirmed that the Judicial Council will take the lead on designing the crosswalk with flashing lights per the City standards (available online).	ZH	9/30/23
	New Item- Sidewalk Along the Street Frontage Along Lakeport Blvd		
220518-11	The City would like to see a new sidewalk built at the street frontage along Lakeport Blvd. Since the south side of Lakeport Blvd is a hill, the City is open to having a sidewalk along the north side of Lakeport Blvd which is flat. Judicial Council will review the request. City will not require the courthouse project improve or cost share 50% of street frontage. City mentioned these requirements come from the City Municipal Code.	ZH	5/27/22
	New Item- Site Access/ Egress Via Bevins St.		
220518-12	The City suggested that if needed the Judicial Council may use their land leading to/ from Bevins St as a means to access/ egress the courthouse site.	Info	N/A
	NEXT MEETING		
	Next Meeting will be held on Zoom/ MS Teams on June 8th at 2pm.	ZH	06/08/22

These minutes were prepared from notes taken by Zulqar Helal. If anyone present at the meeting has any changes or corrections, they are to notify Zulqar Helal in writing, within three business days after receipt of these minutes so that revisions may be made and distributed well in advance of the next meeting.

Name: Zulqar Helal
Title: Senior Project Manager

May 18, 2022

Agenda

Lakeport Courthouse – Lakeport Off Site Improvements / City of Lakeport

Hydrology Study

50’ Right of Way at East Edge of property

- Design
- Alignment
- Utilities
- Impacts to Entry Driveway / Access / Retaining / Grading

Calculation / Water Service Piping

Traffic Turning Circle (if feasible)

Right of Way Access Zone

Mitigated Negative Declaration Items

TRANS-1

Judicial Council payment of project’s fair share contribution of improvements to multiple intersections.

- Highway 29 / Lakeport Boulevard Southbound On Ramps
- Highway 29 / Lakeport Boulevard Northbound On Ramps
- Main Street / Lakeport Boulevard

TRANS-2

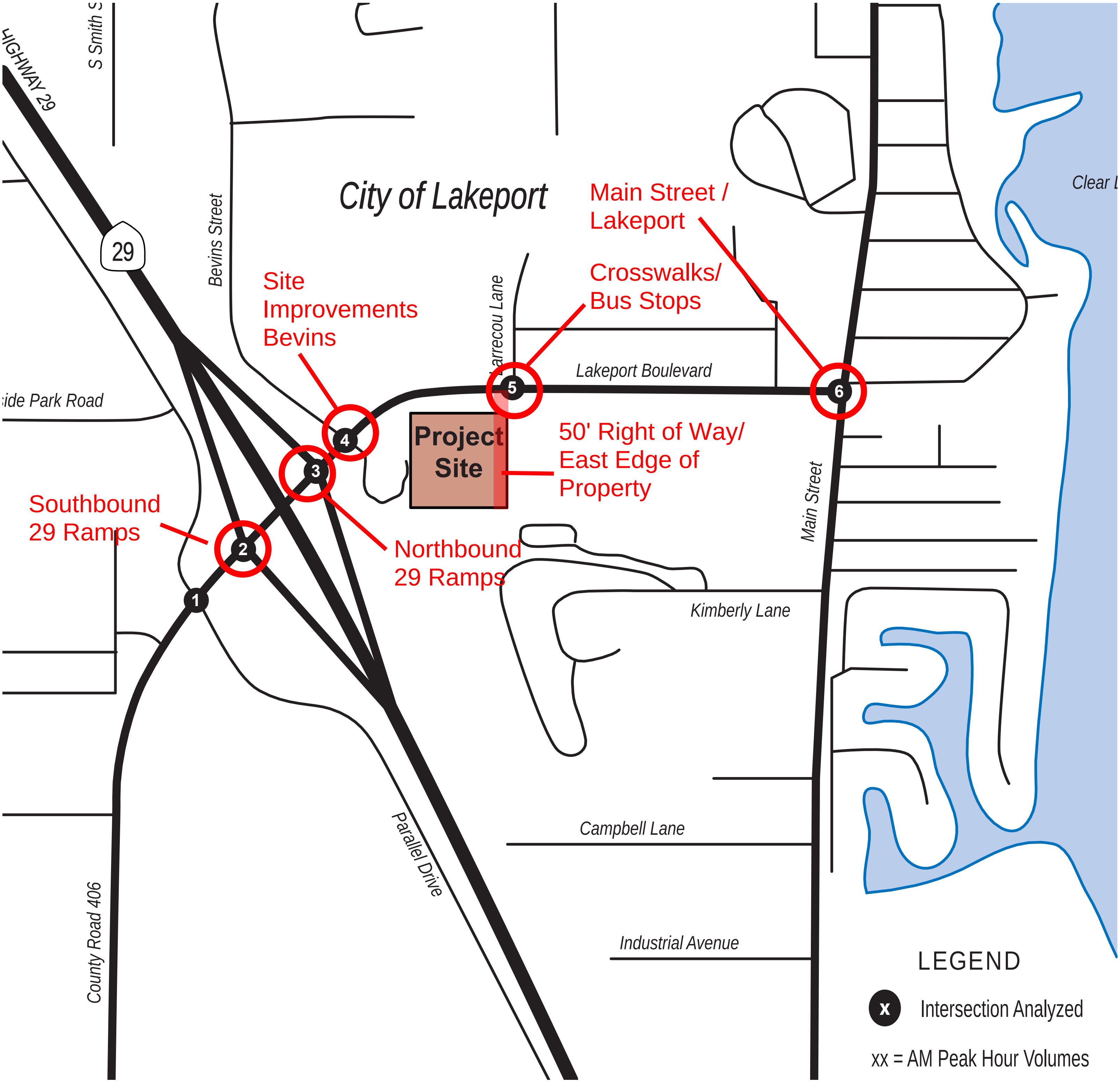
Judicial Council payment of project’s fair share contribution of improving the sight distance at Bevins Street / Lakeport Boulevard intersection.

TRANS-3

Prior to occupancy, bus stops to be constructed immediately east / west of the Larrecou Lane/ Lakeport Boulevard intersection. Provide direct access from local bus system and indirect access from the regional bus system to and from the proposed project.

TRANS-4

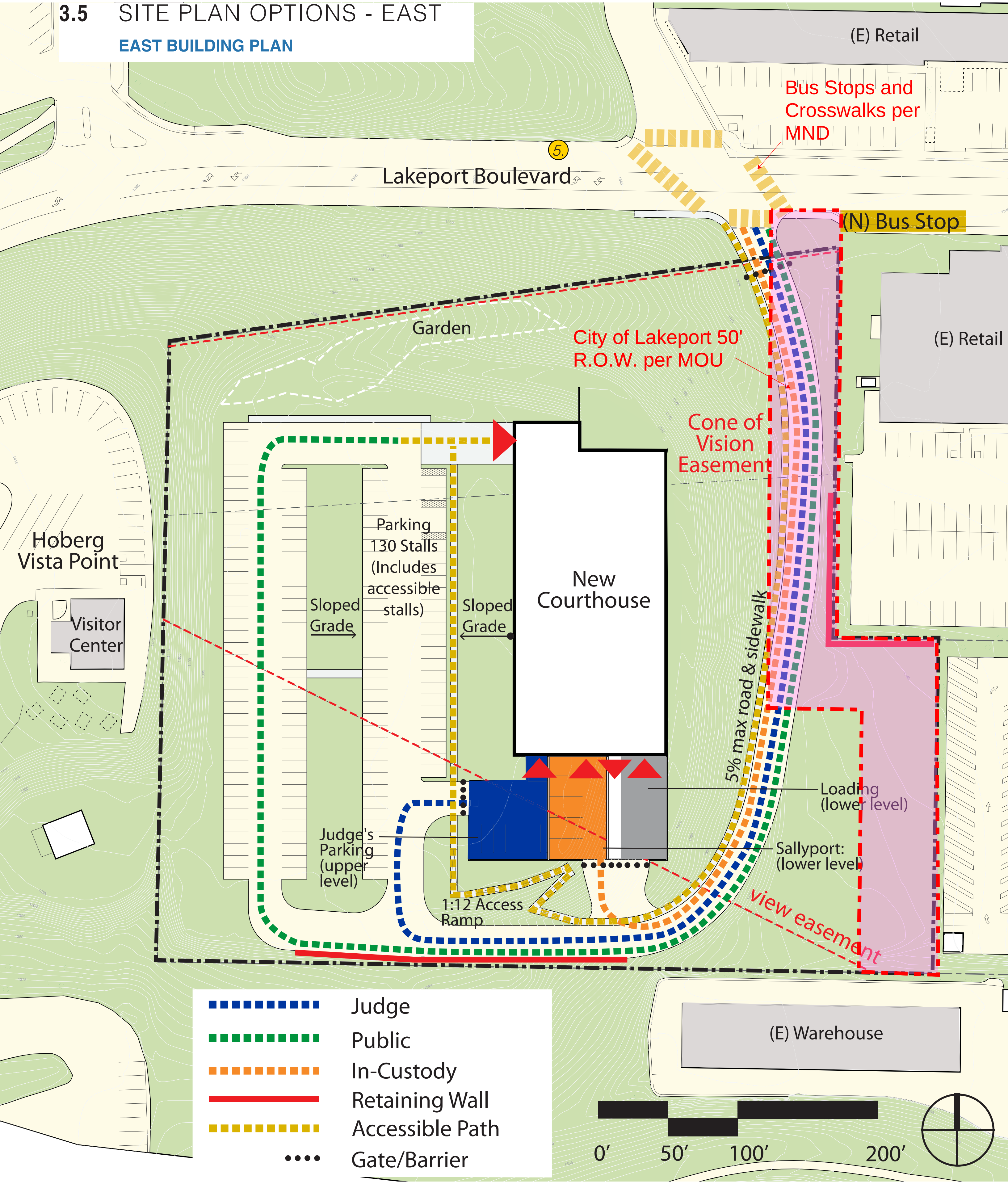
Prior to occupancy, high visibility crosswalks shall be installed to provide safe access for pedestrian to and from the bus stops. Pedestrian access should be provided throughout the proposed project with links to the existing pedestrian pathways and sidewalks.



Lakeport Courthouse
Off Site Improvements Review
5.16.2022

3.5 SITE PLAN OPTIONS - EAST

EAST BUILDING PLAN



11. CAPITAL PROJECT ASBESTOS SPECIFICATION

JUDICIAL COUNCIL OF CALIFORNIA

Capital Project Asbestos Specification

The full interior building asbestos survey will test all interior building materials that could contain asbestos, excluding stucco, fire doors and fire-rated assemblies during the installation process. The site inspection and testing shall be performed at intervals/construction milestones in a manner to have sampling randomly spread across the structure, such that testing will meet regulatory requirements for an asbestos survey. Sampling shall be organized to identify potential differences in asbestos content. This testing shall be organized to separately test and document, per material, different construction phases, material lots, manufacturers, etc. Testing shall be conducted in a manner that will classify all interior building materials that could contain asbestos for asbestos presence, with percent concentration, or absence.

What is in the project scope:

- Fireproofing (from overspray, not affecting fire rating)
- Duct Seam Sealants
- Firestop putty (from overage, not affecting fire rating or opening penetration)
- Drywall
- DW Joint Compounds / Texture Coating
- Vinyl floor tiles & mastic (each type will be sampled, based on color/design)
- Vinyl sheet flooring & mastic (each type will be sampled, based on color/design)
- Ceramic wall and floor tiles, grout & mastic/mortar (each type will be sampled, based on color/design)
- Vinyl basecove and adhesive (each type will be sampled, based on color/design)
- Mirror Mastic (collected during installation to prevent destructive testing)
- Sink undercoating
- Acoustic ceiling tiles (each type will be sampled, based on color/design)
- Acoustic ceiling spray
- Concrete slab/subfloor
- Carpet mastic
- Paper/cloth wrap over fiberglass pipe and duct insulation (this would enable handling of day-to-day pipe/valve/pump leaks that will come up and impact pipe insulation, and HVAC fixes)
- Mudded pipe fitting/edge insulation (if any)

This list is not comprehensive of all materials requiring testing. The site inspection personnel may identify additional materials requiring testing during the survey planning process or during site visits.

Testing Protocol

Testing of all materials shall occur during the installation process to minimize the need for destructive testing. The testing occurring during the different construction phases, such as concrete pours and fireproofing mixes, shall be documented. The testing protocol shall include the following:

- Visual inspection to identify building materials that could possibly contain asbestos
- Documentation of relevant conditions
- Collection of samples of suspect asbestos-containing materials for subsequent laboratory analysis
- Sample submission to laboratory with National Voluntary Laboratory Accreditation Program for

asbestos analysis

- Present survey results, conclusions and recommendations in a narrative report

Visual inspection, bulk sample collection and survey documentation shall be performed by Cal/OSHA-certified asbestos professionals. All site inspection personnel shall also be trained as Asbestos Building Inspectors in accordance with the provisions of the federal EPA Asbestos Hazard Emergency Response Act (AHERA). The survey shall include the entire building except the roofing and exterior materials. Equipment shall not be disassembled, and fire ratings shall be preserved (i.e., fire doors shall not be penetrated to sample cores) and subgrade materials will not be included. Collection of samples will be conducted during and immediately following construction of the building. Sampling and analysis shall be performed using the procedures specified by AHERA and generally should involve collection of multiple samples of each suspect material, from scattered representative locations, followed by laboratory analysis using Polarized Light Microscopy (PLM) for each unique layer within each sample.

The types, numbers and locations of samples will be determined based upon the project, visual observations, regulatory requirements and other survey management considerations.

Details of the tested materials, along with analytical results will be summarized in a written report.

Any materials that cannot be tested without jeopardizing the integrity of the material, such as a pre-fabricated wall assembly should be addressed with the Judicial Council's Project Manager and Risk Manager.

8.24.2022

City of Lakeport response to the Judicial Council's request for adequacy of existing water and sewer lines serving the Lakeport Courthouse Site: (*see Section 13.12 of the Agreement*)

The City of Lakeport has reviewed available water and sewer infrastructure on Lakeport Boulevard to serve the proposed project, per the e-mail below.

As part of their own due diligence, the DBE team is anticipated to perform their own site survey to confirm locations of existing utilities horizontally and vertically, to identify pipe size, pipe material or other necessary data to perform detailed design and construction of the proposed improvements. In addition to the site survey, the DBE shall determine if additional technologies such as potholing or other are necessary to locate and confirm utilities.

Per the e-mail from the City, estimated existing water pressure is 85 psi and existing flow rates exceed 1,500 gpm. The DBE team shall determine the number and location of necessary hydrant flow and pressure tests to determine data to inform site fire and building sprinkler design and documentation.

8.12.22 e-mail from City of Lakeport in response to request:

From: Paul Harris <pharris@cityoflakeport.com>
Sent: Friday, August 12, 2022 9:46 AM
To: Kevin Ingram <kingram@cityoflakeport.com>
Cc: Jenni Byers <jbyers@cityoflakeport.com>; Paul Curren <pcurren@cityoflakeport.com>
Subject: RE: Lakeport Courthouse Intro & City MOU

The water supply in the area should be adequate for fire suppression. The pressures are around 85 PSI and fire flows in the area exceed 1,500 gpm. The required flow for the engineered sprinkler system will be required to confirm adequacy of supply.

The existing terrain might present challenges related to the amount of fall in the sewer pipe. Design of the sewer system should take this into account and not allow more than ¼" of slope per linear foot.

Thanks
Paul

SECTION C - OTHER RELATED INFORMATION

This Section is reserved to provide documents or information other than the technical or project specific and/or reference information listed in Section B. The documents in this **Section C** of the Project Documents are **NOT** "Contract Documents", nor are they essential to the design and/or development of the project. The Section C documents are included for reference purposes **ONLY** for use during the Design Build Entity procurement process and/or subsequent administration of the contract.

1. Project Directory
2. Application for Payment;

1. PROJECT DIRECTORY

Project Information

Project Name:	New Lakeport Courthouse
Capital Outlay Project ID:	0000084
County:	Lake
Judicial Council Project Manager:	Zulqar Helal
All Project inquiries during Design Build Entity Procurement shall be directed to:	Matt Bagwill
All Project inquiries after contract award shall be directed to:	Zulqar Helal
Other Judicial Council Agents or Consultants:	1. Criteria Architect: Moore Ruble Yudell Architects 933 Pico Boulevard Santa Monica, CA 90405 310-450-1400 Contact: Adam Padua 310-450-1400 ext. 230 Bob Dolbinski, AIA, 310-450-1400 ext. 246
	2. Construction Manager: AECOM 2020 L Street, Suite 400 Sacramento, CA 95811 916-414-5800 Mike Regan Project Manager, US West PPM 970-381-7089 Carolyn Stegon, PE MSCE Senior Program Manager PPM West Digital Lead 714-814-0077
	3. Project Inspector: TBD

2. APPLICATION FOR PAYMENT

To be provided to the selected DBE.