DEPARTMENT OF CITY PLANNING

RECOMMENDATION REPORT

City Planning Commission

Date: March 24, 2022
Time: After 8:30 a.m.*
Place: Due to concerns over COVID-19, this meeting/public hearing will be conducted entirely telephonically by Zoom [https://zoom.us/].

The meeting's telephone number and access code access number will be provided no later than 72 hours before the meeting on the meeting agenda published at Commissions, Boards, and Hearings | Los Angeles City Planning (lacity.org) and/or by contacting cpc@lacity.org

Public Hearing: September 28, 2021
Appeal Status: The Density Bonus and Off-Menu Incentive are not appealable; the Zoning Administrator Adjustment and Project Permit Compliance may be appealed to the City Council
Expiration Date: March 24, 2022, Subject to Mayor's Tolling Order
Multiple Approval: Yes

Case No.: CPC-2017-1923-DB-DRB-SPP-MSP-ZAD
CEQA No.: ENV-2017-1925-MND
Council No.: 4 - Raman
Plan Area: Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass
Specific Plan: Mulholland Scenic Parkway
Certified NC: Hollywood Hills West
GPLU: Low Medium Residential
Zones: RD1.5-1

Applicant: 3900 Kentucky LLC
Zaven Ghanimian

Representative: Jerome Buckmelter
Associates, Inc.

PROJECT LOCATION: 3902 Kentucky Drive and 3894-3900 Fredonia Drive

PROPOSED PROJECT: Demolition of two vacant single-family dwellings and a garage and the construction, use, and maintenance of a new, five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot lot, including two affordable units. A total of 15 trees are proposed for removal. The applicant is also requesting haul route approval for the export of approximately 11,200 cubic yards of earth.

REQUESTED ACTIONS:

1. Pursuant to CEQA Guidelines Section 15074(b), the whole of the administrative record, including the Mitigated Negative Declaration, No.

ENV-2017-1925-MND ("Mitigated Negative Declaration"), all comments received, the imposition of Mitigation Measures, and the Mitigation Monitoring Program prepared for the report.

2. A request to the City Planning Commission pursuant to LAMC Section 12.22 A.25 to permit the construction, use and maintenance of 21 residential condominium units with five density bonus units including two units (11 percent) set aside for Very Low Income Households and one off-menu incentive for a site located in a Very High Fire Severity Zone to allow an 11 foot increase in height for a total of 68 feet in lieu of the maximum height of 57 feet.

3. Pursuant to LAMC Section 12.24 X.26, a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls.

4. Pursuant to LAMC Sections 11.5.7 and 16.50, a Project Permit Compliance and Design Review as required by the Mulholland Scenic Parkway Specific Plan Ordinance (Ordinance No. 167,943).

RECOMMENDED ACTIONS:

1. **FIND,** pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Mitigated Negative Declaration No. ENV-2017-1925-MND (“Mitigated Negative Declaration”), and all comments received, with the imposition of mitigation measures, there is no substantial evidence that the project will have a significant effect on the environment; FIND the Mitigated Negative Declaration reflects the independent judgment and analysis of the City; FIND the mitigation measures have been made enforceable conditions of the project; and ADOPT the Mitigated Negative Declaration and the Mitigation Monitoring Program prepared for the Mitigated Negative Declaration; and

2. **APPROVE** pursuant to LAMC Section 12.22 A.25, the construction, use, and maintenance of a total of 21 residential condominium units with five density bonus units including two units (11 percent) set aside for Very Low Income Households and one off-menu incentive for a site located in a Very High Fire Severity Zone to allow an 11 foot increase in height for a total of 68 feet in lieu of the maximum height of 57 feet.

3. **APPROVE** pursuant to LAMC Section 12.24 X.26, a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls.

4. **APPROVE** pursuant to LAMC Sections 11.5.7 and 16.50, a Project Permit Compliance and Design Review as required by the Mulholland Scenic Parkway Specific Plan Ordinance (Ordinance No. 167,943).

5. **ADOPT** the attached Findings for the requested approvals; and

6. **ADVISE** the applicant that, pursuant to California State Public Resources Code Section 21081.6, the City shall monitor or require evidence that the mitigation conditions are implemented and maintained throughout the life of the project, and the City may require any necessary fees to cover the cost of such monitoring; and

7. **ADVISE** the applicant that, pursuant to State Fish and Wildlife Code Section 711.4, a Fish and Wildlife and/or Certificate of Game Exemption is now required to be submitted to the County Clerk prior to or concurrent with the Environmental Notice of Determination (NOD) filing.

VINCENT P. BERTONI, AICP
Director of Planning

Blake Lamb
Blake Lamb, Principal Planner

Claudia Rodriguez
Claudia Rodriguez, Senior City Planner

Laura Frazin-Steele
Laura Frazin Steele, City Planner

BL:CR:LFS

ADVICE TO PUBLIC: *The exact time this report will be considered during the meeting is uncertain since there may be several other items on the agenda. Written communications may be mailed to the Planning Commission Secretariat, 200 North Spring Street, Room 272, Los Angeles, CA 90012 (Phone No. 213-978-1300). While all written communications are given to the Commission for consideration, the initial packets are sent the week prior to the Commission's meeting date. If you challenge these agenda items in court, you may be limited to raising only those issues you or someone else raised at the public hearing agendized herein, or in written correspondence on these matters delivered to this agency at or prior to the public hearing. As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability, and upon request, will provide reasonable accommodation to ensure equal access to this programs, services and activities. Sign language interpreters, Communication Access Real-Time Transcription (CART), Assistive Listening Devices, or other auxiliary aids and/or services may be provided upon request. To ensure availability, you are advised to make your request at least 72 hours prior to the meeting you wish to attend. Due to difficulties in securing Sign Language Interpreters, five or more business day's notice is strongly recommended. For additional information, please contact the Commission Secretariat (213) 978-1360.

TABLE OF CONTENTS

Project Analysis ……A-1

Project Summary
Background
Hearing Officer Comments
Conclusion

Conditions of Approval……C-1

Findings ……..F-1

Density Bonus/Affordable Housing Incentives Program Determination Findings
Zoning Administrator Determination Findings
Project Permit Compliance and Design Review Findings
CEQA Findings

Public Hearing and Communications……P-1

Exhibits:

A – Project Plans (April 15, 2021)

B – Vicinity Map

C – Aerial Photo

D – Radius Map

E – ZIMAS Zoning Map and Parcel Profile Report

F – Site and Surrounding Area Photos

G – Environmental Clearance – Mitigated Negative Declaration No. ENV-2017-1925-MND and Mitigation Monitoring Program

H – Reports (Tree Report, Letters from City Agencies, Letter from Hollywood Hills West Neighborhood Council, Geology and Soils Report Approval Letter)

I – Case No. VTT-73784-CN

PROJECT ANALYSIS

Project Summary

The applicant is proposing the construction, use, and maintenance of a new, five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot lot, including two affording units (11 percent) set aside for Very Low Income Households. A total of 15 trees are proposed for removal. The applicant is also requesting haul route approval for the export of approximately 11,200 cubic yards of earth.

The applicant's request includes one off-menu incentive for a site located in a Very High Fire Severity Zone pursuant to LAMC Section 12.22 A.25(g)(3) to allow an 11 foot increase in height for a total of 68 feet in lieu of the maximum height of 57 feet. Were the site not located in a Very High Fire Severity Zone, the requested height increase of 11 feet could be processed as an on-menu incentive. Furthermore, pursuant to LAMC Section 12.24 X.26, the applicant is requesting six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls. Pursuant to LAMC Sections 11.5.7 and 16.50, the applicant is requesting a Project Permit Compliance and Design Review as required by the Mulholland Scenic Parkway Specific Plan and Design and Preservation Guidelines (Ordinance No. 167,943). Finally, the applicant is requesting haul route approval for the export of approximately 11,200 cubic yards of earth as regulated by the Los Angeles Department of Building and Safety (LADBS).

The proposed 21 unit condominium building is five stories over two stories of partially subterranean parking. The proposed structure includes 13 two-bedroom units and eight three-bedroom units. The proposed project includes 3,056 square feet of open space, comprised of private balconies on five units (500 square feet), a recreation room (756 square feet), and a common patio courtyard (1,800 square feet).

The applicant is proposing to provide 47 automobile parking spaces, which includes 42 parking spaces as required per LAMC Section 12.22 A.25 and five non-required guest parking spaces. The proposed project includes 24 bicycle parking spaces (21 long-term and 3 short-term). Vehicular access is proposed via an existing alleyway at the rear of the structure. No vehicular access is proposed from Kentucky or Fredonia Drives.

To achieve the proposed project, the applicant is requesting the following entitlements:

- A request to the City Planning Commission pursuant to LAMC Section 12.22 A.25 to permit the construction, use and maintenance of a total of 21 residential condominium units with five density bonus units including two units (11 percent) set aside for Very Low Income Households and one off-menu incentive for a site located in a Very High Fire Severity Zone to allow an 11 foot increase in height for a total of 68 feet in lieu of the maximum height of 57 feet; and

- Pursuant to LAMC Section 12.24 X.26, a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls pursuant to LAMC Section 12.21 C.8; and

- Pursuant to LAMC Sections 11.5.7 and 16.50, a Project Permit Compliance and Design Review as required by the Mulholland Scenic Parkway Specific Plan Ordinance (Ordinance No. 167,943).

Additionally, the applicant concurrently applied for incidental Case No. VTT-73784-CN, which was approved by the Advisory Agency on October 15, 2021. Case No. VTT-73784-CN was approved for a residential condominium subdivision with a maximum of 21 dwelling units on two lots totaling 22,508 square feet in the RD1.5-1 Zone. Case No. VTT-73784-CN was not appealed.

Background

Subject Property



The proposed project site is comprised of two irregular shaped hillside lots totaling 22,508 square feet at the confluence of Kentucky and Fredonia Drives. The site is located within the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan area, with a land use designation of Low Medium Residential and is zoned RD1.5-1. The Low Medium Residential land use designation corresponds with the RZ, RD6, RD5, RD4, RD3, RD2, and RD1.5 Zones, which is consistent with the current RD1.5-1 Zoning. The RD Zone would permit a maximum of 16 multi-family residential dwelling units by-right.

The subject site has approximately 145 feet of street frontage along Kentucky and Fredonia Drives. The northern property line extends from Kentucky and Fredonia Drives to a rear alley for a length of approximately 139 feet. The southerly property line extends from Kentucky and Fredonia Drives to the rear alley for a length of approximately 177 feet. The site abuts a 20 foot

alley along the rear property line for a length of approximately 140 feet. The property slopes upward from Kentucky and Fredonia Drives and downward from the Kentucky and Fredonia Drive frontage to the rear alley.

The largest lot on the subject site is approximately 15,555 square feet and is improved with two single-family dwellings (770 square feet each) and a 260 square foot garage built in 1951. According to information provided by the applicant, these structures have been vacant for over 5 years. The smaller approximately 6,958 square foot lot is vacant. City records show that the 6,968 square foot lot was improved with a single-family dwelling in 1957; a demolition permit for a single-family dwelling and garage was issued in 2005.

The project site is located within the geographic area governed by the Mulholland Scenic Parkway Specific Plan and Design and Preservation Guidelines (Ordinance No. 167,943, ZI-1224). The intent of the Mulholland Scenic Parkway Specific Plan is to do the following:

- Assure maximum preservation and enhancement of unique scenic features and resources
- Preserve Mulholland Drive as a slow-speed, low-intensity drive
- Preserve and enhance land having exceptional recreational and/or educational value
- Assure that land uses are compatible with the parkway environment
- Assure that the design and placement of buildings and other improvements preserve, complement and/or enhance views from Mulholland Drive
- Preserve the existing residential character of areas along and adjoining the right-of-way
- Minimize grading/assure that graded slopes have a natural appearance compatible with the characteristics of the Santa Monica Mountains
- Preserve the natural topographic variation within the Inner and Outer Corridors
- Reduce visual intrusion caused by excessive lighting
- Minimize driveway and private street access into the right-of-way
- Preserve the existing ecological balance
- Protect prominent ridges, streams, and environmentally sensitive areas; and the aquatic, biologic, geologic, and topographic features therein
- Protect all identified archaeological and paleontological resources
- Provide a review process of all projects which are visible from Mulholland Drive to assure their conformance to the purposes and development standards contained in the Specific Plan and the Landform Grading Manual

To achieve these goals, the Specific Plan regulates uses, grading, heights, and yards and implements environmental protection measures. The proposed project is located downslope from Mulholland Drive. More restrictions are placed on projects that are visible from Mulholland Drive than projects that are not visible, but all projects are subject to identical environmental protection measures. These environmental protection measures regulate grading and construction on prominent ridges, streams, and parklands; oak tree preservation and removal; and archaeological and paleontological resources. The subject site is not visible from Mulholland Drive. On March 30, 2021, an Implementation Guidance Memo was issued by the Department of City Planning to clarify that projects not visible from Mulholland Drive are not subject to Design Review Procedures. However, this project was presented to the Mulholland Design Review Board three times, on January 15, 2020, June 3, 2020, and October 21, 2020. Because this review pre-dated the issuance of the Implementation Guidance Memo, the project did follow the Design Review Procedures and that process is described herein. The site is in the Outer Corridor and is not on or adjacent to a prominent ridge, stream, parkland, major vista point, trail, organization group meeting center, or visitor's center.

Additionally, the subject site is located within a geographic area designated as ZI-2452 Transit Priority Area in the City of Los Angeles. Under Senate Bill (SB) 743 and Section 21099 (d)(1) of the Public Resources Code (PRC), a project's aesthetic and parking impacts shall not be considered a significant impact on the environment when the project is a residential, mixed-use residential, or employment center project that is located on an infill site within a transit priority area as designated by ZIMAS. Section 21099 (a) of the PRC defines an "infill site" as a lot located within an urban area that has been previously developed, or on a vacant site where at least 75 percent of the perimeter of the site adjoins, or is separated only by an improved public right-of-way from, parcels that are developed with qualified urban uses. A "transit priority area" is defined as an area located within one-half mile of a major transit stop that is existing or planned. Section 21064.3 of the PRC defines a "major transit stop" as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. For purposes of Section 21099 of the PRC, a transit priority area also includes major transit stops in the City of Los Angeles that are scheduled to be completed within the planning horizon of the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS). Transit priority areas are mapped and identified on the City's ZIMAS system. Visual resources, aesthetic character, shade and shadow, light and glare, and scenic vistas or any other aesthetic impact as defined in the City's CEQA Threshold Guide shall not be considered an impact for infill projects within transit priority areas pursuant to CEQA. However, aesthetic related impacts can be regulated pursuant to the Mulholland Scenic Parkway Specific Plan.

The project site is also located within a geographic area designated as ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses. Residential projects sited within 1,000 feet of a freeway are encouraged to minimize air pollution exposure and associated health risks by locating open space areas (play areas, courtyards, patios, balconies, etc.) as far from the freeway sources as possible when the size of the site permits, prioritizing the location of non-habitable uses (parking structures and building areas not calculated in floor area) nearest the freeway, and screening the project site with substantial vegetation and/or a wall barrier.

ZIMAS shows that the subject site is located within a Hillside Area, Urban Agriculture Incentive Zone, Very High Fire Severity Zone, BOE Special Grading Area, and a Landslide Area. The subject site is within 0.03 kilometers of the Hollywood Fault, although it is not located within an Alquist-Priolo Fault Zone. It is not located within a Liquefaction or Preliminary Fault Rupture Study Area. The site is not located within a Tsunami Inundation Zone. Fire protection services are provided by Fire Station No. 76, Battalion No. 5 of the Los Angeles Fire Department. Police Services are provided by Reporting District 1599, North Hollywood Division, Valley Bureau of the Los Angeles Police Department. Finally, the subject site is located within Tier 3 of a Transit Oriented Community (TOC).

The subject site falls within a 500 foot radius of the US-101 (Hollywood Freeway), which is located to the east of the subject site. A freeway ramp with Cahuenga Boulevard access is located approximately 350 feet to the southeast of the subject site.

Surrounding Land Uses

Surrounding properties to the northeast and southeast of the subject site front along Cahuenga Boulevard. These sites are developed with one- and two-story small scale commercial office, retail, and restaurant uses. These sites are zoned C2-1VL and are designated General

Commercial by the Community Plan. To the northwest and southwest along Kentucky and Fredonia Drives, properties are improved with one-, two- and three-story single- and multi-family residential uses. These sites are zoned RD1.5-1 and designated Low Medium Residential land use. To the west, northwest, and southwest of the subject site, properties are zoned R1-1 and designated Low Residential. These sites are improved with one- and two-story single-family dwellings.

Street Designations and General Circulation

Kentucky Drive, a designated Local Street – Standard, is required to have a right-of-way width of 60 feet and a designated roadway width of 36 feet. Kentucky Drive is not improved with a curb or sidewalk.

Fredonia Drive, a designated Local Street – Standard, is required to have a right-of-way width of 60 feet and a designated roadway width of 36 feet. Fredonia Drive is not improved with a curb or sidewalk.

Relevant Cases

ON-SITE:

VTT-73784-CN – Effective October 15, 2021, the Advisory Agency approved a residential condominium subdivision with a maximum of 21 dwelling units on two lots totaling 22,508 square feet in the RD1.5-1 Zone.

CPC-2002-6583-SP-PA1 – Effective September 20, 2010, the City Planning Commission approved amendments to the Mulholland Scenic Parkway Specific Plan Design and Preservation Guidelines.

AA-2006-7111-PMLA-SL – On August 11, 2006, an application was filed to subdivide one lot into two lots at 3894 N. Fredonia Drive. No action was taken on the entitlement request.

Permit No. 2005VN70998 – On April 14, 2005, a permit was issued to demolish a single-family dwelling and attached garage at 3894 N. Fredonia Drive (FR 117, TR 5593; APN 2425-003-017).

Permit No. 2004VN54460 – On July 9, 2004, a permit was issued to convert a laundry room to a new bathroom within an existing single-family dwelling at 3902 Kentucky Drive (Lot 116, TR 5593; APN2425002026).

CPC-2002-6583-SP – Effective July 17, 2003, the City Planning Commission approved Design and Preservation Guidelines for the Mulholland Scenic Parkway Specific Plan for an area extending 0.5 miles on either side of Mulholland Drive from the City line to the west to the Hollywood Freeway on the east.

Ordinance No. 167,973 – The Mulholland Scenic Parkway Specific Plan was adopted by the City of Los Angeles on May 13, 1992 (ZI-1224).

Ordinance No. 164341-SA24 – Effective February 28, 1989, the zoning on the subject site was changed from R3-1 to RD1.5-1 under the General Plan Zoning Consistency Program.

Ordinance No. 129,279 – Effective February 26, 1965, specific sites in the City of Los Angeles were designated as hillside areas.

Certificate of Occupancy 1953LA52033 – On June 25, 1957, a Certificate of Occupancy was issued for a one-story single-family dwelling at 3894 Fredonia Drive (APN 2425-003-017).

Building Permit No. 195003329 – On February 6, 1950, a permit was issued for a one-story building at 3902 Kentucky Drive (APN 2425-002-026)

OFF-SITE:

DIR-2016-2455-DRB-SPP-MSP-1A - On March 7, 2019, the South Valley Area Planning Commission denied an appeal and approved the demolition of two one-story, multi-family residential structures and the construction of an approximately 33.5 foot in height, 8,643 square foot, small lot subdivision with four units on an approximately 7,281 square foot lot in the RD1.5-1 Zone located within the Mulholland Scenic Parkway Specific Plan area at 3686-3688 North Fredonia Drive.

VTT-74217-SL-1A – On March 7, 2019, the South Valley Area Planning Commission denied an appeal and approved a Vesting Tentative Tract Map for a small lot subdivision for a maximum of four single-family lots in the RD1.5-1 Zone located within the Mulholland Scenic Parkway Specific Plan area at 3686-3688 North Fredonia Drive.

DIR-2017-3522-DRB-SPP-MSP-TOC-1A – On February 25, 2019, the City Planning Commission denied in part and approved in part an appeal filed on a five-story, 28 unit multi-family residential building located in Transit Oriented Community Tier 3 in the RD1.5-1 Zone located within the Mulholland Scenic Parkway Specific Plan area at 3645-3657 N. Regal Place.

DIR-2016-2490-DRB-SPP-MSP – On August 23, 2017, the Director of Planning corrected and re-issued a Mulholland Project Permit Compliance and Design Review Determination to allow the addition of 2,802 square feet to an approximately 30 feet in height, 6,285 square-foot, two-story office building on an approximately 11,500 square foot lot in the C2-1VL Zone at 3751-3759 North Cahuenga Boulevard.

DIR-2016-3339-DRB-SPP-MSP - On February 16, 2017, the Director of Planning approved a Project Permit Compliance and Design Review for a 25 foot in height, two-story, 4,563 square-foot single-family residence on a 25,412 square foot vacant lot in the RE15-1-H and RE40-1-H Zones within the Mulholland Scenic Parkway Specific Plan area at 3604-3608 Multiview Drive.

DIR-2015-1006-DRB-SPP-MSP – On April 16, 2015, the Director of Planning approved a Mulholland Project Permit Compliance and Design Review for the construction of three apartments in two buildings with 3,900 square feet of habitable area and a total square footage of 6,746 square feet on a 7,100 square foot lot in the RD1.5-1 Zone at 3696-3698 N. Fredonia Drive.

DIR-2013-4152-DRB-SPP-MSP – On January 28, 2015, the South Valley Area Planning Commission approved the demolition of two single family dwellings and approved in part and denied in part a Director's Determination allowing the construction of three

dwelling units of variable height (maximum height 35.5 feet) in two separate buildings with a maximum square footage of 3,900 square feet or 1,300 square feet per unit on a 7,100 square foot lot in the RD1.5-1 Zone located within the Mulholland Scenic Parkway Specific Plan area at 3696-3698 N. Fredonia Drive.

Density

Pursuant to LAMC Section 12.09.1, the RD1.5 Zone requires a minimum lot area of 1,500 square feet per dwelling unit. The lot area is 22,508 square feet lot, and with the additional 1,400 square feet for one-half the alleyway, the allowable density is calculated with a total of 23,908 square feet (22,508 + 1,400 = 23,908). Therefore, a total of 16 dwelling units are allowed by-right at the subject site (23,908 ÷ 1,500 = 16). LAMC Section 12.22 A.25 allows the applicant to request a maximum density bonus of 35 percent or 22 units at the site. The applicant is requesting a 31.25 percent density bonus to provide a total of 21 units including 5 density bonus units (16 units by-right + 5 density bonus units = 21 units). As required pursuant to LAMC Section 12.22 A.25, the applicant is setting aside a minimum of two units (11 percent) as affordable to Very Low Income Households.

Floor Area

Pursuant to LAMC Section 12.21.1 A, a floor area ratio (FAR) of 3:1 is allowed in the RD1.5-1 Zone. The buildable area of the subject site is 18,002 square feet lot, thereby allowing a maximum floor area of 54,006 square feet. The applicant is proposing to construct a 35,227 square foot residential apartment building with an FAR of 1.96, which is below the allowable FAR for the subject site.

Height

LAMC Section 12.21.A allows a residential building height for 45 feet and unlimited number of stories in the RD1.5-1 Zone. However, LAMC Section 12.21.1 B.2, as regulated by the Los Angeles Department of Building and Safety, allows a height exception not exceeding 12 feet for a multi-family structure when the highest point of elevation of the adjoining sidewalk or ground surface within a 5 foot horizontal distance measured from the exterior wall of the building exceeds grade level by more than 20 feet. Because this project meets that criteria, the height limit for the subject project is 57 feet. The applicant is requesting an 11 foot height incentive (off-menu incentive) pursuant to LAMC Section 12.22 A.25, thereby allowing a 68 foot height (45 + 12 + 11 = 68) if approved by the decision maker.

Floor Plan

The proposed project is designed with two partially subterranean parking garages, which are shown on the applicant's plans as the Lower Garage and Upper Garage (see **"Exhibit A"**). The first and second floors will be below grade. As shown in **"Exhibit A,"** the 1st floor includes storage, recreational space, and three residential condominium units. The 2nd floor plans show storage space and three residential condominium units. The main entrance and building lobby are sited on the 3rd floor, which is at ground level. The main entrance and lobby will be open to the fourth and fifth floors. The 3rd and 4th floors each include six residential condominium units. An additional three residential condominium units, for a total of 21 units, are located on the 5th floor. Of the 21 dwelling units, 13 are two-bedroom units and eight are three-bedroom units.

Open Space

LAMC Section 12.21 G requires the provision of open space based on the number of habitable rooms per dwelling unit. The required and provided open space for the 21-unit residential condominium building is as follows:

REQUIRED OPEN SPACE

Unit Type	Number of Units	Ratio	Required in Square Feet
Less than 3 habitable rooms	0	100 sq. ft. per unit	0
3 habitable rooms (2 bedroom units)	13	125 sq. ft. per unit	1,625
More than 3 habitable rooms (3 bedroom units)	8	175 sq. ft. per unit	1,400
Total			3,025

OPEN SPACE PROVIDED

Type of Open Space	Square Feet as Allowed per LAMC
Private balconies and patios	500
Recreation room	756
Common open space patio	1,800
Total	3,056

As required, the applicant is providing a total of 3,056 square feet of private and common open space. For the purpose of calculating Code required private open space, in the RD1.5 Zone no private open space dimension shall be less than 8 feet and must contain a minimum of 100 square feet. A maximum of 100 square feet per unit may be attributed toward the private open space calculation. In this particular instance, five units are designed with patios and balconies that meet Code private open space requirements (Unit Nos. 101, 102, 103, 201, and 203); as such, the plans show 500 square feet of private open space.

As shown in **"Exhibit A,"** a 1,306 square foot recreation room is sited on the 1st floor. Per LAMC Section 12.21 G, the recreation room shall not qualify for more the 25 percent of the total common open space requirement. In this instance, a maximum of 756 square feet (.25 x 3,025 = 756) is counted toward the common open space requirement. The recreation room is open to the 2nd floor. Also shown on the applicant's plans (see **"Exhibit A"**) is an 1,800 square foot common open to the sky patio that is sited at the main entry level/grade level on the 1st floor.

Therefore, the applicant is providing 3,056 square feet of open space that meets LAMC requirements, thereby slightly exceeding the amount of open space required by the Code.

Yards/Setbacks

Pursuant to LAMC Section 12.09.1, which regulates the RD1.5 Zone, a minimum 15 foot front and rear yard setback is required. For this building, which is five stories in height, a minimum 8 foot side yard is required pursuant to LAMC Section 12.09.1. The applicant's plans show a minimum 15 foot front yard setback, 8 foot side yards, and a minimum rear yard setback of 39 feet, thereby meeting yard and setback requirements.

Parking and Access

As permitted pursuant to LAMC Section 12.22 A.25, Option 1, the applicant is providing two automobile parking spaces per dwelling unit for a total of 42 parking spaces. Additionally, the applicant is providing five non-required guest parking spaces for a total of 47 automobile parking spaces. Furthermore, LAMC Section 12.21 A.16 requires one long-term bicycle parking space per unit and one short-term bicycle parking spaces per 10 units. As the required, the applicant is providing 21 long-term bicycle parking spaces and three short-term bicycle parking spaces for a total of 24 bicycle parking spaces.

All of the automobile parking will be provided within two partially subterranean garages in compliance with the Mulholland Design and Preservation Guideline No. 7. The lower garage will include 25 automobile parking spaces. The upper garage will include 22 vehicular parking spaces and 21 long-term bicycle parking spaces. Three short-term parking spaces are provided at grade at the main entry level (3rd floor level).

Additionally, as shown on **"Exhibit A,"** vehicular access to the project site is proposed via an existing alleyway at the rear of the structure. No vehicular access is proposed from Kentucky or Fredonia Drives. Signage at the building frontage will direct all vehicular access to the alley. Furthermore, according to information provided by the applicant, a "package concierge service" will be available to expedite package delivery to building residents.

Design

On March 30, 2021, an Implementation Guidance Memo was issued by the Department of City Planning to clarify that projects not visible from Mulholland Drive are not subject to Design Review Procedures. The proposed project was reviewed at by the Mulholland Design Review Board (DRB) pursuant to LAMC Section 16.50 and Section 11 of the Mulholland Scenic Parkway Specific Plan on January 15, 2020, June 3, 2020, and October 21, 2020. Because this review pre-dated the issuance of the Implementation Guidance Memo, the project did follow the Design Review Procedures and that process is described herein. The DRB commented on the project and requested changes as follows:

At the January 15, 2020 meeting, Mulholland Design Review Board members voted to continue the project and made the following comments:

- All exterior lighting shall be downward facing and shielded.
- No trees shall be planted in the LID planters.
- Comply with Guideline No. 2; provide subsections that show the heights of buildings on Cahuenga Boulevard and Kentucky/Fredonia Drives to show how the proposed project relates to the neighborhood.
- Clarify the natural grade on all elevations.
- Dimension the height of the building.
- Remove rooftop decks and access at the 5th floor level.

- Provide photographs of the site and surrounding sites.
- Reach out to the neighbors.
- Show the location of mechanical equipment and provide shielding.
- Add street access and walkways to the landscape plan.
- Provide colored renderings at the alley and street views.
- Add loading area to the alleyway.
- Provide stairs at the side yard.
- Articulate garage levels.
- Make guest access more welcoming at the alley.
- Nice planting plan.

At the June 3, 2020 meeting, Mulholland Design Review Board members voted to continue the project and made the following comments:

- The project is too bulky. Break up the massing on the corners of the 5th floor facing Kentucky Drive.
- Remove or replace all IPE wood material.
- Verify that the proposed parking is Code compliant.
- Revise the project description to state consistently throughout that the project is a five-story building.
- Show the electrical transformer on the plans.
- Show the stucco screed in plans.
- Show solar panels on sections and elevations.
- The proposed colors are too light. All exterior colors must be 25 percent grey scale or darker.
- Ensure that all drawings are consistent throughout the entire set of project plans.
- Remove all rooftop decks.
- Plans appear to show LID compliance (location of planters, appropriate plants).

The Design Review Board recommended approval of the proposed project (4-0) at the October 21, 2020 meeting and made the following comments:

- Revise plans so that stairs and entrance to the building are ADA compliant.
- Add security gates at the stairs and ADA lift.
- Move the stair shaft along the side yard inward a minimum of 2 feet.
- Cut the corners of the building at the 4th floor facing the alley (northwest and northeast corners) to set back the elevation. At a minimum, align the depth of the cutback with the existing balcony and the full width of the bedroom.
- Show the number of street trees to be removed and replaced. Replace street trees at a 2:1 ratio.
- Remove all roof decks and patios from the 5th floor and remove access to the roof decks from units below.
- Add signage on Fredonia/Kentucky Drives stating that all drop-off/pick up/deliveries must be from the alley.

In response to DRB comments and recommendations, the applicant revised the project design to comply with the Mulholland Design and Preservation Guidelines. For example, in compliance with the Specific Plan and Design Guidelines, the project roofline will fall below the roadway elevation. In conformance with Mulholland Design and Preservation Guideline Nos. 2 and 50, the condominium building utilizes a stepped-profile and is compatible with the height and massing of neighboring structures.

In compliance with Mulholland Design and Preservation Guideline Nos. 32 and 34 (massing and articulation), the exterior of the building presents a variety of surfaces, textures, and angles. Per Guideline No. 38, the exterior colors and materials are non-reflective, natural, earth tone (25 percent grey scale or darker excluding black). The colors and materials proposed by the applicant include Morning Fog, Crushed Ice, Iron Ore, and Cityscape smooth finish plaster. Non-reflective glass balcony railings are utilized. Per Guideline 42, windows and glass doors will be aluminum frame.

Per Guideline 46, trash and recycling receptacles will be stored inside the building within the garage. Per Guidelines 37, rooftop equipment is screened from view. Mechanical equipment (transformer, gas meters) are screened with landscape materials and are at the rear and side of the structure per Guideline 44. Per Mulholland Design and Preservation Guidelines 40 and 69, lighting fixtures will be shielded and directed downward.

Retaining Walls

Pursuant to LAMC Section 12.24 X.26, the applicant is requesting a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls pursuant to LAMC Section 12.21 C.8. The applicant's plans show the retaining wall height including the portion of the retaining wall below ground. Information provided by the applicant on April 26, 2021 provides the retaining wall dimensions when measured from the finished grade as shown below:

RETAINING WALL DIMENSIONS

RETAINING WALL	LENGTH IN FEET	MAXIMUM HEIGHT IN FEET WHEN MEASURED FROM FINISHED GRADE
1	273	10
2	116	10
3	37	12
4	40	10
5	140	12
6	27	12

Trees

According to the Arborist Report prepared for the subject site by McKinley & Associates dated October 5, 2016, no protected trees will be removed on the subject site. The Arborist Report is supported by a letter submitted by D & G Horticulture dated October 6, 2016. The Arborist Report identifies 15 mature trees, including one in the public right-of-way, that will be removed to construct the condominium project. The Arborist Report states that the existing trees on site are in very poor health and condition. The tree species to be removed include Fraxinus velutina or Arizona Ash, Fraxinus uhdei or Shamel Ash, Ceratonia siliqua or Carob Tree, Ailanthus Altissima or Tree of Heaven, Arbutus unedo or Strawberry Tree, and Ficus macrophylla or Morten Bay Fig. None of the trees proposed for removal are identified in the City's Protected Tree Ordinance No. 177,404 effective April 23, 2006. Effective February 4, 2021, Ordinance

No. 186,873 expanded the list of protected trees to include the Mexican Elderberry and Toyon shrubs. On April 8, 2021, the applicant team verified that no protected Mexican Elderberry or Toyon shrubs are present on the subject site.

Environmental

The project was analyzed under Mitigated Negative Declaration No. ENV-2017-1925-MND ("Mitigated Negative Declaration") and the Mitigation Monitoring Program attached to this report as Exhibit G. The Mitigated Negative Declaration was published on June 10, 2021 and circulated for a 20 day period ending on June 30, 2021. The project was found to have potential impacts that could be reduced to a less than significant level with mitigation in the following areas:

Biological Resources (habitat modification, tree preservation and replacement)
Geology and Soils (erosion/grading/short-term construction, slope maintenance)
Noise (demolition, grading, and construction)
Transportation (haul route and construction, pedestrian safety)
Tribal Cultural Resources (tribal monitor)
Wildfire

Biological Resources. It is possible that the removal of 14 trees on the project site and one tree in the public right-of-way could have environmental impacts, including impacts on nesting birds. The project is mitigated for tree replacement, Urban Forestry/Board of Public Works review, and avoidance of work during the bird breeding season. As mitigated, impacts to biological resources will be less than significant.

Geology and Soils. The subject side is located in a hillside area that is a seismically induced landslide hazard zone. The Los Angeles Department of Building and Safety (LADBS) issued a Geology and Soils Report Approval Letter for the proposed project on February 6, 2019 (see Appendix H). As conditioned therein, and with the implementation of mitigation measures for erosion/grading/short-term construction impacts and slope maintenance, any impacts to soils and geology will be less than significant.

Noise. Noise during demolition, grading, construction activities are regulated by the Los Angeles Municipal Code. Noise impacts, particularly to surrounding residential sites to the east, west, and north, are further mitigated through the implementation of mitigation measures during demolition, grading, construction.

Transportation. The project applicant is requesting haul route approval, as regulated by LADBS. Haul route environmental impacts are analyzed in the Mitigated Negative Declaration, as required. With mitigation, the impacts of the haul route will be reduced to a less than significant level. Furthermore, the Mitigated Negative Declaration analyzes and mitigates the impact of the project construction on pedestrian safety.

Tribal Cultural Resources. Based on tribal consultations held with the Gabrieleno Band of Mission Indians – Kizh Nation and the Fernandeño Tataviam Band of Mission Indians, it was determined that the sensitivity for the presence of undocumented resources is high. Therefore, the Mitigated Negative Declaration includes a mitigation measure for a tribal monitor in the event that tribal cultural resources are uncovered during ground disturbance activities.

Wildfire. As shown on ZIMAS, the subject site is located in a Very High Fire Severity Zone and Hillside Area, which are subject to wildfires. Furthermore, the project site is also located in a

Mountain Fire District, as shown in the City of Los Angeles Safety Element. As such, the project is mitigated to include measures to reduce the impact of a possible spread of a wildfire.

The project applicant/representative submitted comments to the Mitigated Negative Declaration as follows:

- The Mitigated Negative Declaration Project Description states that "The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage…" However, the Project Description should read: "The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, and a 260 square foot garage…" This comment does not change the analysis of the MND, since all structures on site will be demolished.

- The Mitigated Negative Declaration states that "The project site slopes upward from Kentucky and Fredonia Drives and downslope toward Cahuenga. As designed, the project roofline will fall below the roadway elevation." The applicant's representative clarified that the project roofline will generally fall below the elevation. According to the applicant, "The roofline (top of parapet) will generally fall below the roadway elevation. Specifically, the top of parapet will be at elevation 688 feet, max. The elevation of Fredonia Drive is 688+ feet; Kentucky Drive is 689+ feet. However, Kentucky Drive falls slightly to the west to a height of approximately 685 feet at the northwest corner of the site. Note that the building will be set back approximately 50 feet from the roadway at this point." This comment clarifies but does not change the analysis of the MND.

- The Mitigated Negative Declaration includes the following item under Section 3.4, Requested Permits and Approvals: "Other discretionary and ministerial permits and approvals that may be deemed necessary, including, but not limited to, temporary street closure permits, grading permits, excavation permits, foundation permits, building permits, and sign permits." The applicant's representative asked that "demolition permits be added to the discretionary and ministerial permits requested." This does not change the MND analysis, as the demolition is discussed within the MND project description.

Public Comments Provided to the Hearing Officer

The Hollywood Hills West Neighborhood Council submitted a letter dated February 22, 2018 recommending the following changes to the proposed project (see Exhibit H):

- Eliminate rooftop decks
- Increase setbacks on the alley side of the building to decrease the building mass, which seems too big/huge
- Improve the alley roadway and add safety features to help the alley function safely
- Add more guest parking spaces
- Include at least one three-bedroom unit in the two units set aside for Very Low Income households

A joint public hearing for CPC-2017-1923-DB-DRB-SPP-MSP-ZAD and VTT-73784-CN was conducted entirely telephonically by Zoom due to concerns over COVID-19 on Tuesday, September 28, 2021 at 9:00 a.m. Planning staff conducted the hearing.

The project representative, Jerome Buckmelter, discussed the applicant's entitlement requests and described the project. The project was redesigned to meet all the DRB and Neighborhood Council requests, with the exception of the request to provide a three-bedroom unit for Very Low Income households, which falls under the purview of the Los Angeles Housing Department. Additionally, the applicant's representatives are working with Council District 4 to begin demolition due to safety concerns at the site. The applicant asked for revisions to Fire Department, Bureau of Engineering, Bureau of Street Lighting, and haul route conditions. None of these requests fall under the purview of City Planning.

A representative from Council District 4, also expressed concerns for expediting the demolition of the site, which is under the jurisdiction of LADBS.

Members of the public, included representatives of the Cahuenga Pass Property Owners Association, provided the following public testimony:

- The project will add to traffic, which is already excessive in the area;
- Guest parking isn't sufficient;
- Retaining walls are too high; retaining walls will encourage graffiti and block views;
- A street light is unnecessary
- There is no need for sidewalks or street widening
- Demolition needs to occur due to safety concerns (squatters, fires)
- How will affordable units be rented/sold?[1]

Conclusion

The staff recommends that the Density Bonus, Specific Plan Project Permit Compliance and Design Review for the Mulholland Specific Plan, and Zoning Administrator Determination be approved in order to achieve the proposed project. The applicant is proposing the construction, use, and maintenance of a new, 5-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot lot, including two affordable units (11 percent) set aside for Very Low Income Households. The staff recommends approval of one off-menu incentive for a site located in a Very High Fire Severity Zone pursuant to LAMC Section 12.22 A.25(g)(3) to allow an 11 foot increase in height for a total of 68 feet in lieu of the maximum height of 57 feet. Furthermore, the staff recommends approval of six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade). The proposed project will provide much needed multi-family residential housing, and in particular, affordable housing to the City. As designed and mitigated, the project will have less than significant impacts in a hillside Very High Fire Severity Zone. Finally, the project has been reviewed and recommended for approval by the Mulholland Design Review Board and meets the regulations of the Mulholland Scenic Parkway Specific Plan.

[1] Effective September 28, 2021, California SB 798 amended California Government Code Section 65915, which regulates Density Bonus Law, to allow qualified non-profit agencies to work with lower income households (as defined by Health and Safety Code Section 50079.5) to qualify for the purchase of affordable units.

CONDITIONS OF APPROVAL

Pursuant to Section 12.22 A.25 of the Los Angeles Municipal Code, the following conditions are hereby imposed upon the use of the subject property:

Density Bonus Affordable Housing Incentives Program Determination and Conditions

1. **Site Development**. Except as modified herein, the project shall be in substantial conformance with the plans and materials submitted by the applicant, stamped "**Exhibit A"** (dated April 15, 2021) and attached to the subject case file. No change to the plans will be made without prior review by the Department of City Planning, Valley Project Planning Division, and written approval by the Director of Planning. Each change shall be identified and justified in writing. Minor deviations may be allowed in order to comply with the provisions of the LAMC or the project conditions.

2. **Use.** The property shall be limited to a 21-unit multi-family residential dwelling.

3. **Height.** The applicant is granted a density bonus incentive to allow building height to be limited to five stories over two levels of partially subterranean parking and 68 feet in height as shown on **"Exhibit A."**

4. **Floor Area Ratio (FAR)**. The project shall be limited to a maximum FAR of 2:1.

5. **Affordable Units**. A minimum of two units (11 percent) shall be reserved as affordable units for Very Low Income Households, as defined by the State Density Bonus Law 65915(C)(2).

6. **Changes in Restricted Units**. Deviations that increase the number of restricted affordable units or that change the composition of units or change parking numbers shall be consistent with LAMC Section 12.22 A.25.

7. **Housing Requirements**. Prior to issuance of a building permit, the owner shall execute a covenant to the satisfaction of the Los Angeles Housing and Community Investment Department (HCIDLA) to make two units available to Very Low Income Households for sale or rental as determined to be affordable to such households by HCIDLA for a period of 55 years. Enforcement of the terms of said covenant shall be the responsibility of HCIDLA. The Applicant shall present a copy of the recorded covenant to the Department of City Planning for inclusion in this file and to the Council Office and Neighborhood Council. The project shall comply with the Guidelines for the Affordable Housing Incentives Program adopted by the City Planning Commission and with any monitoring requirements established by the HCIDLA.

8. **Rent Stabilization Ordinance**

    a. The project shall comply with any tenant relocation requirements established by HCIDLA. Enforcement shall be the responsibility of HCIDLA.
    b. The applicant shall execute and record a Covenant and Agreement (Planning Department General Form CP-6770) in a form satisfactory to Los Angeles City Planning binding the applicant and any successor in interest to provide tenant relocation assistance and establish a relocation program in a manner consistent with

the Rent Stabilization Ordinance. The covenant and agreement shall be executed and recorded within 10 days after the expiration of the appeal period (and final action thereon) and a copy provided to each eligible tenant within five days of recordation of the covenant and agreement.

c. Within 10 days after the time to appeal has expired, the applicant shall execute and record a Covenant and Agreement (Planning Department General Form CP-6770) in a form satisfactory to the Los Angeles City Planning binding the applicant and any successor in interest to the affirmative duty to abide by all provisions of the Rental Stabilization Ordinance.
d. Prior to the issuance of a demolition permit, the Applicant or successor shall provide certified mailing receipts of proof of service, to the Department of City Planning demonstrating that existing qualified tenants were provided an offer to enter into a private agreement with the applicant (or successor) that includes the following terms: 1) the ability for the tenant to return to a comparable unit within the project; and, 2) during construction of the project, funding of the difference in rent of a comparably-sized unit between the tenant's rental rate immediately prior to the demolition of the building and the tenant's new rental rate, until the ability to return, if accepted, is exercised. The Applicant (or successor) shall provide a copy of the signed agreement(s) with, or written rejection from, the tenant(s). Where the Applicant (or successor) is not able to enter into an agreement with the tenant(s), the Applicant (or successor) shall submit a written declaration, under penalty of perjury, that best faith efforts have been made to enter into a private agreement with the tenant(s). The applicant (or their successor) shall also submit to the Department of City Planning, concurrent with certified mailing receipts of proof of service signed under penalty of perjury, the rent roll of occupied units at the time the offer is commenced.

9. **Rent Stabilization Ordinance (RSO).** Prior to the issuance of a Certificate of Occupancy, the owner shall obtain approval from the Los Angeles Housing and Community Investment Department (HCIDLA) regarding replacement of affordable units, provision of RSO Units, and qualification for the Exemption from the Rent Stabilization Ordinance with Replacement Affordable Units in compliance with Ordinance No. 184,873. In order for all the new units to be exempt from the Rent Stabilization Ordinance, the Applicant will need to either replace all withdrawn RSO units with affordable units on a one-for-one basis or provide at least 20% of the total number of newly constructed rental units as affordable, whichever results in the greater number. The executed and recorded covenant and agreement submitted and approved by HCIDLA shall be provided.

10. **Residential Parking.** Based upon the number and type of dwelling units proposed, a minimum of 42 residential parking spaces shall be provided according to LAMC Section 12.22 A.25, Parking Option 1.

11. **Adjustment of Parking**. In the event the number of Restricted Affordable Units should increase, or the composition of such units should change (i.e. the number of bedrooms, or the number of units made available to Senior Citizens and/or Disabled Persons), or the Applicant selects another Parking Option (including Bicycle Parking Ordinance) and no other Condition of Approval or incentive is affected, then no modification of this determination shall be necessary, and the number of parking spaces shall be re-calculated by the Department of Building and Safety based upon the ratios set forth pursuant to LAMC Section 12.22 A.25.

12. **Unbundled Parking.** Residential parking shall be unbundled from the cost of the rental units, with the exception of parking for Restricted Affordable Units.

13. **Solar Power.** The project shall provide Photovoltaic Collectors for a Solar Hot Water System or photovoltaic provisions as required to comply with the 2019 California Energy Code for Solar Ready Buildings (Section 110.10) to be maintained for the life of the project.

14. **Solar and Electric Generator.** Generators used during the construction process shall be electric or solar powered. Solar generator and electric generator equipment shall be located as far away from sensitive uses as feasible. Where power poles are available, electricity from power poles and/or solar-powered generators rather than temporary diesel or gasoline generators shall be used during construction.

15. **Stormwater/irrigation** – The project shall implement on-site stormwater infiltration as feasible based on the site soils conditions, the geotechnical recommendations, and the City of Los Angeles Department of Building and Safety Guidelines for Storm Water Infiltration. If on-site infiltration is deemed infeasible, the project shall analyze the potential for stormwater capture and reuse for irrigation purposes based on the City Low Impact Development (LID) guidelines.

16. **Utility Connections.** New utility connections shall be undergrounded to the maximum extent feasible.

17. **Electric Vehicle Parking.** Electric Vehicle Parking. All electric vehicle charging spaces (EV Spaces) and electric vehicle charging stations (EVCS) shall comply with the regulations outlined in Sections 99.04.106 and 99.05.106 of Article 9, Chapter IX of the LAMC.

    Any parking spaces provided above LAMC requirements shall be provided with EV chargers to immediately accommodate electric vehicles within the parking areas.

18. **Parking Garage Design.** That portion of a building or structure that is used for parking at grade or above grade shall be designed to minimize vehicle headlight and parking structure interior lighting impacts (“spillover”) on adjacent streets and properties.

19. **Bicycle Parking**. Bicycle parking shall be provided consistent with LAMC Section 12.21 A.16.

20. **Open Space.** The applicant shall meet all open space requirements pursuant to LAMC Section 12.21 G.

21. **Street Trees.** New trees planted within the public right-of-way shall be spaced not more than an average of 30 feet on center, unless otherwise permitted by the Urban Forestry Division, Bureau of Public Works. Crape Myrtle shall not be considered appropriate in meeting this condition.

22. **Street Trees.** No street tree removal is approved herein. All street tree removal and replacement are subject to review and approval by the Urban Forestry Division and Board of Public Works.

23. **Heat Island Effect.** To reduce the heat island effect, a minimum of 50% of the area of pathways, patios, driveways or other paved areas shall use materials with a minimum initial Solar Reflectance value of 0.35 in accordance with ASTM (American Society of Testing Materials) standards.

24. **Solar-ready Buildings.** The project shall comply with the Los Angeles Municipal Green Building Code, Section 99.05.211, to the satisfaction of the Department of Building and Safety.

25. **Lighting.** All outdoor and parking lighting shall be shielded and down-cast within the site in a manner that prevents the illumination of adjacent public rights-of-way, adjacent properties, and the night sky (unless otherwise required by the Federal Aviation Administration (FAA) or for other public safety purposes).

26. **Lighting Design.** Areas where nighttime uses are located shall be maintained to provide sufficient illumination of the immediate environment so as to render objects or persons clearly visible for the safety of the public and emergency response personnel. All pedestrian walkways and vehicular access ways shall be illuminated with lighting fixtures. Lighting fixtures shall be harmonious with the building design. Wall mounted lighting fixtures to accent and complement architectural details at night shall be installed on the building to provide illumination to pedestrians and motorists.

27. **Alleyway Lighting.** Lighting fixtures shall be installed on the project site so as to illuminate the adjacent alleyway in the following manner:
    - These lighting fixtures shall be shielded and down-cast in a manner that prevents the illumination of adjacent properties and the night sky (unless otherwise required by the Federal Aviation Administration (FAA) or for other public safety purposes).
    - Lighting fixtures shall accent and complement architectural details.
    - Lighting fixtures for the purpose of alleyway illumination shall not be taller than 15 feet above grade.

28. **Landscape Plan.** Revised landscape plans shall be submitted to show the size and location of all plants. The landscape plan shall indicate landscape points for the Project as required by LAMC 12.40 and Landscape Ordinance Guidelines “O”. All open areas not used for buildings, driveways, parking areas, recreational facilities or walks shall be landscaped, including an automatic irrigation system, and maintained in accordance with a final landscape plan prepared by a licensed landscape architect or licensed architect, and submitted for approval to the Department of City Planning. The final landscape plan shall be in substantial conformance with the submitted Landscape Plan, **“Exhibit A,”** and shall incorporate any modifications required as a result of this grant.

29. **Protected Trees and Shrubs**. The applicant shall submit an updated Protected Tree and Shrub Report that complies with Ordinance No. 186,873. The removal of any protected trees/protected shrubs is subject to the review and approval of the Urban Forestry Division and Board of Public Works.

30. **Glass Walls/Windows - Bird Protection.** The project shall use “bird protection glass”, such as non-reflective darker tinted glass (i.e. “Ornilux”), specifically designed to help prevent bird strike deaths.

Zoning Administrator Determination Conditions

Pursuant to Section 12.24 X.26 of the Los Angeles Municipal Code, the following conditions are hereby imposed on the project:

31. **Retaining Walls.** Approved herein are six retaining walls of variable height (10 to 12 feet when measured from the finished grade). Except as modified herein, the retaining walls shall be in substantial conformance with the plans and materials submitted by the Applicant, labeled **"Exhibit A,"** dated April 15, 2021, and attached to the subject case file. No change to the plans shall be made without prior review by the Department of City Planning, Plan Implementation Division, and written approval by the Director of Planning. Each change shall be identified and justified in writing. Minor deviations may be allowed in order to comply with the provisions of the Municipal Code, the project conditions, or the project permit authorization.

32. **Retaining Wall Height.** The applicant's plans shall be revised to show the retaining wall height from finished grade. No wall shall exceed 12 feet in height.

Project Permit Compliance and Design Review Conditions

Pursuant to Sections 11.5.7 and 16.50 of the Los Angeles Municipal Code, the following conditions are hereby imposed on the project:

33. **Site Development.** Except as modified herein, the project shall be in substantial conformance with the plans and materials submitted by the Applicant, labeled **"Exhibit A,"** dated April 15, 2021, and attached to the subject case file. No change to the plans shall be made without prior review by the Department of City Planning, Plan Implementation Division, and written approval by the Director of Planning. Each change shall be identified and justified in writing. Minor deviations may be allowed in order to comply with the provisions of the Municipal Code, the project conditions, or the project permit authorization.

34. **Floor Area.** The project shall be limited to 35,227 square feet of floor area.

35. **Height.** The project shall be limited to five stories over two levels of subterranean parking and 68 feet in height.

36. **Exterior Colors and Materials**. The applicant shall provide color specifications for the windows and door frames to the Valley Project Planning staff prior to the issuance of permits. The colors will be 25 percent greyscale or greater except black and emphasize a color palette that is consistent with the Santa Monica Mountains. As shown in **"Exhibit A,"** the following materials shall be utilized on the facades:
    - Smooth finish plaster Morning Fog, Crushed Ice, Functional Gray, Iron Ore, Cityscape; aluminium frame windows and doors; glass railings.
    - No IPE wood shall be used.

37. **Exterior Windows.** All exterior windows shall be low-reflective, non-glare glass.

38. **Vehicular Access.** All vehicular access, including loading/unloading, shall be from the alleyway at the rear of the structure.

39. **Signage.** Signage at the Kentucky/Fredonia Drive streetfacing entrance shall clearly indicate that all drop-off/pick-up/deliveries shall be from the alleyway at the rear of the structure.

40. **Landscape Plan.** All open areas not used for buildings, driveways, parking areas, or walkways shall be landscaped, including an automatic irrigation system, and maintained in accordance with a final landscape plan prepared by a licensed landscape architect or licensed architect, and submitted for approval to the Department of City Planning. The final landscape plan shall be in substantial conformance with the submitted Landscape Plan, labeled **"Exhibit A,"** dated April 15, 2021, and shall incorporate any modifications required as a result of this grant. Any modifications to the landscape plan subsequent to the effectuation of this grant shall be to the satisfaction of the Director of Planning.

41. **Landscape Plans.** Prior to any sign-off of plans by the Development Services Center, the plot plan and the landscape plan shall be submitted to the Fire Department for review of compliance with the Los Angeles Municipal Code fire protection provisions for hillside dwellings.

42. **Tree Replacement.** The landscape plan shall identify a minimum 1:1 tree replacement for a minimum total of 14 trees to be planted on the site, a minimum of 24-inch box trees, for the unavoidable loss of desirable trees on the site.

43. **Trees in the Public Right-of-Way.** Street trees shall be removed and replanted at a minimum 2:1 ratio.

44. **LID Planters.** No trees shall be planted in LID planter boxes.

45. **Preferred Plants**. The applicant shall provide a plant palette comprised of a minimum of 75 percent native or native-type plant material in the landscape as specified on the Preferred Plant List of the Specific Plan.

46. **Roof Form.** As shown in **"Exhibit A,"** dated April 15, 2021, and attached to the subject case file, the project shall utilize a flat roof form with a minimum of two roof forms, with a minimum offset of 4 feet in height variation.

47. **Rooftop Decks.** No rooftop decks shall be permitted.

48. **Roof Equipment.** No equipment shall be placed on the roof and roof materials shall be surfaced with non-glare materials; with the exception that solar energy devices shall be allowed.

49. **Exterior Lighting.** All exterior lighting fixtures shall be shielded and directed downward to illuminate only the project property. Up-lighting shall be prohibited.

50. **Cultural Resource Inadvertent Discovery.** In the event that objects or artifacts that may be tribal cultural resources are encountered during the course of any ground disturbance activities (excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity), all such activities shall temporarily cease on the project site until the potential tribal cultural resources are properly assessed and addressed pursuant to the process set forth below:

- Upon a discovery of a potential tribal cultural resource, the Applicant shall immediately stop all ground disturbance activities and contact the following: (1) all California Native American tribes that have informed the City they are traditionally and culturally affiliated with the geographic area of the proposed project; (2) and the Department of City Planning at (818) 374-9918.

- If the City determines, pursuant to Public Resources Code Section 21074 (a)(2), that the object or artifact appears to be tribal cultural resource, the City shall provide any effected tribe a reasonable period of time, not less than 30 days, to conduct a site visit and make recommendations to the Applicant and the City regarding the monitoring of future ground disturbance activities, as well as the treatment and disposition of any discovered tribal cultural resources.

- The Applicant shall implement the tribe's recommendations if a qualified archaeologist and by a culturally affiliated tribal monitor, both retained by the City and paid for by the Applicant, reasonably concludes that the tribe's recommendations are reasonable and feasible.

- The Applicant shall submit a tribal cultural resource monitoring plan to the City that includes all recommendations from the City and any effected tribes that have been reviewed and determined by the qualified archaeologist and by a culturally affiliated tribal monitor to be reasonable and feasible. The Applicant shall not be allowed to recommence ground disturbance activities until this plan is approved by the City.

- If the Applicant does not accept a particular recommendation determined to be reasonable and feasible by the qualified archaeologist or by a culturally affiliated tribal monitor, the Applicant may request mediation by a mediator agreed to by the Applicant and the City who has the requisite professional qualifications and experience to mediate such a dispute. The Applicant shall pay any costs associated with the mediation.

- The Applicant may recommence ground disturbance activities outside of a specified radius of the discovery site, so long as this radius has been reviewed by the qualified archaeologist and by a culturally affiliated tribal monitor and determined to be reasonable and appropriate.

- Copies of any subsequent prehistoric archaeological study, tribal cultural resources study or report, detailing the nature of any significant tribal cultural resources, remedial actions taken, and disposition of any significant tribal cultural resources shall be submitted to the South Central Coastal Information Center (SCCIC) at California State University, Fullerton.

51. **Human Remains Inadvertent Discovery.** In the event that human skeletal remains are encountered at the project site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, pursuant to State Health and Safety Code Section 7050.5 which requires that no further ground disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to California Public Resources Code Section 5097.98. In the event human skeletal remains are discovered during construction or during any ground disturbance actives, the following procedures shall be followed:

- Stop immediately and contact the County Coroner: 1104 N. Mission Road Los Angeles, CA 90033 323-343-0512 (8 a.m. to 5 p.m. Monday through Friday) or 323-343-0714 (After Hours, Saturday, Sunday, and Holidays)

- If the remains are determined to be of Native American descent, the Coroner has 24 hours to notify the Native American Heritage Commission (NAHC).

- The NAHC will immediately notify the person it believes to be the most likely descendent of the deceased Native American.

- The most likely descendent has 48 hours to make recommendations to the Applicant, for the treatment or disposition, with proper dignity, of the human remains and grave goods.

- If the Applicant does not accept the descendant's recommendations, the owner or the descendent may request mediation by the NAHC.

52. **Archaeological Resources Inadvertent Discovery.** In the event that any subsurface cultural resources are encountered at the project site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, pursuant to State Health and Safety Code Section 7050.5. At which time the applicant shall notify the City and consult with a qualified archaeologist who shall evaluate the find in accordance with Federal, State, and local guidelines, including those set forth in the California Public Resources Code Section 21083.2 and shall determine the necessary findings as to the origin and disposition to assess the significance of the find. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined to be unnecessary or infeasible by the City. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted.

53. **Paleontological Resources Inadvertent Discovery.** In the event that any prehistoric subsurface cultural resources are encountered at the project site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, at which time the applicant shall notify the City and consult with a qualified paleontologist to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined to be unnecessary or infeasible by the City. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted.

Environmental Conditions (ENV-2017-1925-MND)

54. **BIO-1. Habitat Modification (Nesting Native Birds, Hillside or Rural Areas).** The project will result in the removal of vegetation and disturbances to the ground and therefore may result in take of nesting native bird species. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). The

following measures are as recommended by the California Department of Fish and Game:

- Proposed project activities (including disturbances to native and non-native vegetation, structures and substrates) should take place outside of the breeding bird season which generally runs from March 1- August 31 (as early as February 1 for raptors) to avoid take (including disturbances which would cause abandonment of active nests containing eggs and/or young). Take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture of kill (Fish and Game Code Section 86).

- If project activities cannot feasibly avoid the breeding bird season, beginning 30 days prior to the disturbance of suitable nesting habitat, the applicant shall:

    a. Arrange for weekly bird surveys to detect any protected native birds in the habitat to be removed and any other such habitat within 300 feet of the construction work area (within 500 feet for raptors) as access to adjacent areas allows. The surveys shall be conducted by a Qualified Biologist with experience in conducting breeding bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work.
    b. If a protected native bird is found, the applicant shall delay all clearance/construction disturbance activities within 300 feet of suitable nesting habitat for the observed protected bird species (within 500 feet for suitable raptor nesting habitat) until August 31.
    c. Alternatively, the Qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, clearing and construction within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified biological monitor, shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. The buffer zone from the nest shall be established in the field with flagging and stakes. Construction personnel shall be instructed on the sensitivity of the area.
    d. The applicant shall record the results of the recommended protective measures described above to document compliance with applicable State and Federal laws pertaining to the protection of native birds. Such record shall be submitted and received into the case file for the associated discretionary action permitting the project.

55. **BIO-2. Tree Removal (Non-Protected Trees).** Environmental impacts from project implementation may result due to the loss of significant trees on the site. However, the potential impacts will be mitigated to a less than significant level by the following measures:
    - Prior to the issuance of any permit, a plot plan shall be prepared indicating the location, size, type, and general condition of all existing trees on the site and within the adjacent public right(s)-of-way.
    - All significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) non-protected trees on the site proposed for removal shall be replaced at a 1:1 ratio with a minimum 24-inch box tree. Net, new trees, located within the parkway of the adjacent public right(s)-of-way, may be counted toward replacement tree requirements.

- Removal or planting of any tree in the public right-of-way requires approval of the Board of Public Works. Contact Urban Forestry Division at: 213-847-3077. All trees in the public right-of-way shall be provided per the current standards of the Urban Forestry Division the Department of Public Works, Bureau of Street Services.

56. **BIO-3. Tree Removal (Public Right-of-Way)**
    - Removal of trees in the public right-of-way requires approval by the Board of Public Works.
    - The required Tree Report shall include the location, size, type, and condition of all existing trees in the adjacent public right-of-way and shall be submitted for review and approval by the Urban Forestry Division of the Bureau of Street Services, Department of Public Works (213-847-3077).
    - The plan shall contain measures recommended by the tree expert for the preservation of as many trees as possible. Mitigation measures such as replacement by a minimum of 24-inch box trees in the parkway and on the site, on a 1:1 basis, shall be required for the unavoidable loss of significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) trees in the public right-of-way.
    - All trees in the public right-of-way shall be provided per the current Urban Forestry Division standards.

57. **GEO-1. Erosion/Grading/Short-Term Construction Impacts.** Short-term erosion impacts may result from the construction of the proposed project. However, these impacts can be mitigated to a less than significant level by the following measures:
    - The applicant shall provide a staked signage at the site with a minimum of 3-inch lettering containing contact information for the Senior Street Use Inspector (Department of Public Works), the Senior Grading Inspector (LADBS) and the hauling or general contractor.

58. **GEO-2. Slope Maintenance**. The applicant shall implement a program of normal slope maintenance, including annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardance, deep rooted ground cover, and proper irrigation.

59. **NOISE-1. Increased Noise Levels (Demolition, Grading, and Construction Activities)**
    - Construction and demolition shall be restricted to the hours of 7:00 am to 6:00 pm Monday through Friday, and 8:00 am to 6:00 pm on Saturday.
    - Demolition and construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.
    - The project contractor shall use power construction equipment with state-of-the-art noise shielding and muffling devices.
    - A temporary noise control barrier shall be installed on the property line of the construction site abutting residential uses. The noise control barrier shall be engineered to reduce construction-related noise levels at the adjacent residential structures with a goal of a reduction of 10dBA. The supporting structure shall be engineered and erected according to applicable codes. The temporary barrier shall remain in place until all windows have been installed and all activities on the project site are complete.

60. **TR-1. Haul Route and Construction**
    - The developer shall install appropriate traffic signs around the site to ensure pedestrian and vehicle safety.
    - The applicant shall be limited to no more than two trucks at any given time within the site's staging area.
    - There shall be no staging of hauling trucks on any streets adjacent to the project, unless specifically approved as a condition of an approved haul route.
    - No hauling shall be done before 9 a.m. or after 3 p.m.
    - Trucks shall be spaced so as to discourage a convoy effect.
    - On substandard hillside streets, only one hauling truck shall be allowed on the street at any time.
    - A minimum of two flag persons are required. One flag person is required at the entrance to the project site and one flag person at the next intersection along the haul route.
    - Truck crossing signs are required within 300 feet of the exit of the project site in each direction.
    - The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by grading and hauling, and at all times shall provide reasonable control of dust caused by wind.
    - Loads shall be secured by trimming and watering or may be covered to prevent the spilling or blowing of the earth material.
    - Trucks and loads are to be cleaned at the export site to prevent blowing dirt and spilling of loose earth.
    - No person shall perform grading within areas designated "hillside" unless a copy of the permit is in the possession of a responsible person and available at the site for display upon request.
    - A log documenting the dates of hauling and the number of trips (i.e. trucks) per day shall be available on the job site at all times.
    - The applicant shall identify a construction manager and provide a telephone number for any inquiries or complaints from residents regarding construction activities. The telephone number shall be posted at the site readily visible to any interested party during site preparation, grading and construction.

61. **TR-2. Pedestrian Safety**
    - Applicant shall plan construction and construction staging as to maintain pedestrian access on adjacent sidewalks throughout all construction phases. This requires the applicant to maintain adequate and safe pedestrian protection, including physical separation (including utilization of barriers such as K-Rails or scaffolding, etc) from work space and vehicular traffic and overhead protection, due to sidewalk closure or blockage, at all times.
    - Temporary pedestrian facilities shall be adjacent to the project site and provide safe, accessible routes that replicate as nearly as practical the most desirable characteristics of the existing facility.
    - Covered walkways shall be provided where pedestrians are exposed to potential injury from falling objects.
    - Applicant shall keep sidewalk open during construction until only when it is absolutely required to close or block sidewalk for construction staging. Sidewalk shall be reopened as soon as reasonably feasible taking construction and construction staging into account.

62. **TRIBAL-1. Tribal Monitor**
Prior to commencing any ground diturbance activities at the Project site, the Applicant, or its successor, shall retain archeological monitors and tribal monitors that are qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. Any qualified tribal monitor(s) shall be approved by the Gabrieleno Band of Mission Indians and the Fernandeño Tataviam Band of Mission Indians. Any qualified archaeological monitor(s) shall be approved by the Department of City Planning, Office of Historic Resources ("OHR"). The qualified archeological and tribal monitors shall observe all ground disturbance activities on the project site at all times the ground disturbance activities are taking place. If ground disturbance activities are simultaneously occurring at multiple locations on the project site, an archeological and tribal monitor shall be assigned to each location where the ground disturbance activities are occurring. The on-site monitoring shall end when the ground disturbing activities are completed, or when the archaeological and tribal monitor both indicate that the site has a low potential for impacting tribal cultural resources.

Prior to commencing any ground disturbance activities, the archaeological monitor in consultation with the tribal monitor, shall provide Worker Environmental Awareness Program (WEAP) training to construction crews involved in ground disturbance activities that provides information on regulatory requirements for the protection of tribal cultural resources. As part of the WEAP training, construction crews shall be briefed on proper procedures to follow should a crew member discover tribal cultural resources during ground disturbance activities. In addition, workers will be shown examples of the types of resources that would require notification of the archaeological monitor and tribal monitor. The Applicant shall maintain on the Project site, for City inspection, documentation establishing the training was completed for all members of the construction crew involved in ground disturbance activities.

In the event that any subsurface objects or artifacts that may be tribal cultural resources are encountered during the course of any ground disturbance activities, all such activities shall temporarily cease within the area of discovery, the radius of which shall be determined by a qualified archeologist, in consultation with a qualified tribal monitor, until the potential tribal cultural resources are properly assessed and addressed pursuant to the process set forth below:

- Upon a discovery of a potential tribal cultural resource, the Applicant, or its successor, shall immediately stop all ground disturbance activities and contact the following: (1) all California Native American tribes that have informed the City they are traditionally and culturally affiliated with the geographic area of the proposed project; (2) and OHR.

- If OHR determines, pursuant to Public Resources Code Section 21074 (a)(2), that the object or artifact appears to be a tribal cultural resource in its discretion and supported by substantial evidence, the City shall provide any affected tribe a reasonable period of time, not less than 14 days, to conduct a site visit and make recommendations to the Applicant, or its successor, and the City regarding the monitoring of future ground disturbance activities, as well as the treatment and disposition of any discovered tribal cultural resources.

- The Applicant, or its successor, shall implement the tribe's recommendations if a qualified archaeologist retained by the City and paid for by the Applicant, or its successor, in consultation with the tribal monitor, reasonably conclude that the tribe's recommendations are reasonable and feasible.

- In addition to any recommendations from the applicable tribe(s), a qualified archeologist shall develop a list of actions that shall be taken to avoid or minimize impacts to the identified tribal cultural resources substantially consistent with best practices identified by the Native American Heritage Commission and in compliance with any applicable federal, state or local law, rule or regulation.

- If the Applicant, or its successor, does not accept a particular recommendation determined to be reasonable and feasible by the qualified archaeologist or qualified tribal monitor, the Applicant, or its successor, may request mediation by a mediator agreed to by the Applicant, or its successor, and the City. The mediator must have the requisite professional qualifications and experience to mediate such a dispute. The City shall make the determination as to whether the mediator is at least minimally qualified to mediate the dispute. After making a reasonable effort to mediate this particular dispute, the City may (1) require the recommendation be implemented as originally proposed by the archaeologist or tribal monitor; (2) require the recommendation, as modified by the City, be implemented as it is at least as equally effective to mitigate a potentially significant impact; (3) require a substitute recommendation be implemented that is at least as equally effective to mitigate a potentially significant impact to a tribal cultural resource; or (4) not require the recommendation be implemented because it is not necessary to mitigate an significant impacts to tribal cultural resources. The Applicant, or its successor, shall pay all costs and fees associated with the mediation.

- The Applicant, or its successor, may recommence ground disturbance activities outside of a specified radius of the discovery site, so long as this radius has been reviewed by both the qualified archaeologist and qualified tribal monitor and determined to be reasonable and appropriate.

- The Applicant, or its successor, may recommence ground disturbance activities inside of the specified radius of the discovery site only after it has complied with all of the recommendations developed and approved pursuant to the process set forth in paragraphs 2 through 5 above.

- Copies of any subsequent prehistoric archaeological study, tribal cultural resources study or report, detailing the nature of any significant tribal cultural resources, remedial actions taken, and disposition of any significant tribal cultural resources shall be submitted to the South Central Coastal Information Center (SCCIC) at California State University, Fullerton and to the Native American Heritage Commission for inclusion in its Sacred Lands File.

- Notwithstanding paragraph 8 above, any information that the Department of City Planning, in consultation with the City Attorney's Office, determines to be confidential in nature shall be excluded from submission to the SCCIC or provided to the public under the applicable provisions of the California Public Records Act, California Public Resources Code, section 6254(r), and handled in compliance with the City's AB 52 Confidentiality Protocols.

63. **FIRE-1. WILDFIRE**
    - The project shall be designed with boxed-in eaves; single pane, double thickness (minimum 1/8" thickness) or insulated windows; non-combustible finishes, non-combustible roofs (non-wood); and non-wood siding. Exposed wooden members shall be 2 inches nominal thickness.
    - Irrigated and managed greenbelts around the perimeter of all structures for a distance of 100 feet shall be considered as a buffer between the brush and the proposed project.
    - All landscaping shall use fire-resistant plants and materials. A list of such plants is available from the contact Brush Clearance Unit, 6262 Van Nuys Blvd., Room 451, Van Nuys 91401 (800) 994-4444.
    - The brush in the area adjacent to the proposed development shall be cleared or thinned periodically by the Homeowner's Association under supervision to the Los Angeles City Fire Department to reduce the risk of brush fires spreading to the homes.

Administrative Conditions

64. **Final Plans.** Prior to the issuance of any building permits for the project by the Department of Building and Safety, the applicant shall submit all final construction plans that are awaiting issuance of a building permit by the Department of Building and Safety for final review and approval by the Department of City Planning. All plans that are awaiting issuance of a building permit by the Department of Building and Safety shall be stamped by Department of City Planning staff “Final Plans”. A copy of the Final Plans, supplied by the applicant, shall be retained in the subject case file.

65. **Notations on Plans.** Plans submitted to the Department of Building and Safety, for the purpose of processing a building permit application shall include all of the Conditions of Approval herein attached as a cover sheet, and shall include any modifications or notations required herein.

66. **Approval, Verification and Submittals.** Copies of any approvals, guarantees or verification of consultations, review of approval, plans, etc., as may be required by the subject conditions, shall be provided to the Department of City Planning prior to clearance of any building permits, for placement in the subject file.

67. **Final Plans.** A copy of the first page of this grant and all Conditions and/or any subsequent appeal of this grant and its resultant Conditions and/or letters of clarification shall be printed on the building plans submitted to the Development Services Center and the Department of Building and Safety for purposes of having a building permit issued.

68. **Covenant and Agreement**. Within 30 days of the effective date of this grant, a covenant acknowledging and agreeing to comply with all the terms and conditions established herein shall be recorded in the County Recorder's Office. The agreement (standard master covenant and agreement form CP-6770) shall run with the land and shall be binding on any subsequent owners, heirs or assigns. The agreement with the conditions attached must be submitted to the Development Services Center for approval before being recorded. After recordation, a certified copy bearing the Recorder's number and date shall be provided to the Development Services Center for inclusion in the case file.

69. **Certification of Landscape Installation**. Prior to obtaining a Certificate of Occupancy, the project architect, landscape architect, or engineer shall certify in a letter to the Department of City Planning and to the Department of Building and Safety that the approved landscape plan has been implemented.

70. **Code Compliance.** Use, area, height, and yard regulations of the zone classification of the subject property shall be complied with, except where granted conditions differ herein.

71. **Department of Building and Safety**. The granting of this determination by the Director of Planning does not in any way indicate full compliance with applicable provisions of the Los Angeles Municipal Code Chapter IX (Building Code). Any corrections and/or modifications to plans made subsequent to this determination by a Department of Building and Safety Plan Check Engineer that affect any part of the exterior design or appearance of the project as approved by the Director, and which are deemed necessary by the Department of Building and Safety for Building Code compliance, shall require a referral of the revised plans back to the Department of City Planning for additional review and sign-off prior to the issuance of any permit in connection with those plans.

72. **Enforcement.** Compliance with these conditions and the intent of these conditions shall be to the satisfaction of the Department of City Planning through the enforcement of the Department of Building and Safety.

73. **Expiration**. In the event that this grant is not utilized within three years of its effective date (the day following the last day that an appeal may be filed), the grant shall be considered null and void. Issuance of a building permit, and the initiation of, and diligent continuation of, construction activity shall constitute utilization for the purposes of this grant.

74. **INDEMNIFICATION AND REIMBURSEMENT OF LITIGATION COSTS**

Applicant shall do all of the following:

a. Defend, indemnify and hold harmless the City from any and all actions against the City relating to or arising out of, in whole or in part, the City's processing and approval of this entitlement, including but not limited to, an action to attack, challenge, set aside, void or otherwise modify or annul the approval of the entitlement, the environmental review of the entitlement, or the approval of subsequent permit decisions or to claim personal property damage, including from inverse condemnation or any other constitutional claim.

b. Reimburse the City for any and all costs incurred in defense of an action related to or arising out of, in whole or in part, the City's processing and approval of the entitlement, including but not limited to payment of all court costs and attorney's fees, costs of any judgments or awards against the City (including an award of attorney's fees), damages and/or settlement costs.

c. Submit an initial deposit for the City's litigation costs to the City within 10 days' notice of the City tendering defense to the Applicant and requesting a deposit. The initial deposit shall be in an amount set by the City Attorney's Office, in its sole discretion, based on the nature and scope of action, but in no event shall the

initial deposit be less than $50,000. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (b).

d. Submit supplemental deposits upon notice by the City. Supplemental deposits may be required in an increased amount from the initial deposit if found necessary by the City to protect the City's interests. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement (b).

e. If the City determines it necessary to protect the City's interests, execute an indemnity and reimbursement agreement with the City under terms consistent with the requirements of this condition.

The City shall notify the applicant within a reasonable period of time of its receipt of any action and the City shall cooperate in the defense. If the City fails to notify the applicant of any claim, action or proceeding in a reasonable time, or if the City fails to reasonably cooperate in the defense, the applicant shall not thereafter be responsible to defend, indemnify or hold harmless the City.

The City shall have the sole right to choose its counsel, including the City Attorney's office or outside counsel. At its sole discretion, the City may participate at its own expense in the defense of any action, but such participation shall not relieve the applicant of any obligation imposed by this condition. In the event the Applicant fails to comply with this condition, in whole or in part, the City may withdraw its defense of the action, void its approval of the entitlement, or take any other action. The City retains the right to make all decisions with respect to its representations in any legal proceeding, including its inherent right to abandon or settle litigation.

For purposes of this condition, the following definitions apply:

"City" shall be defined to include the City, its agents, officers, boards, commission, committees, employees and volunteers.

"Action" shall be defined to include suits, proceedings (including those held under alternative dispute resolution procedures), claims or lawsuits. Actions includes actions, as defined herein, alleging failure to comply with any federal, state or local law.

Nothing in the definitions included in this paragraph are intended to limit the rights of the City or the obligations of the Applicant otherwise created by this condition.

FINDINGS

1. Density Bonus/Affordable Housing Incentives Program Determination Findings

Housing Replacement

With Assembly Bill 2222, applicants of Density Bonus projects filed as of January 1, 2015 must demonstrate compliance with the housing replacement provisions which require replacement of rental dwelling units that either exist at the time of application of a Density Bonus project or have been vacated or demolished in the five year period preceding the application of the project. This applies to all pre-existing units that have been subject to a recorded covenant, ordinance, or law that restricts rents to levels affordable to persons and families of lower or very low income; subject to any other form of rent or price control; or occupied by Low or Very Low Income Households.

Pursuant to the Determination made by the Los Angeles Housing and Community Investment Department (HCIDLA) dated June 28, 2017, the existing use within the last five years has been two single-family residences subject to RSO. HCIDLA has determined that two units are subject to replacement under AB 2556 (formerly AB 2222). Consistent with AB 2556, HCIDLA has determined that the two units are to be replaced with equivalent type; specifically, one unit restricted to Very Low Income household and one unit restricted to Low Income household. As conditioned herein, prior to the issuance of a Certificate of Occupancy, the owner shall obtain approval from the Los Angeles Housing and Community Investment Department (HCIDLA) regarding replacement of affordable units, provision of RSO Units, and qualification for the Exemption from the Rent Stabilization Ordinance with Replacement Affordable Units in compliance with Ordinance No. 184,873.

LAMC Criteria

As permitted by LAMC Section 12.22 A.25 the applicant is requesting one off-menu incentive to allow an increase in height for a project sited in a Very High Fire Severity Zone. Pursuant to LAMC Section 12.22 A.25 (g)(3), in order to be eligible for any off-menu incentives, a Housing Development Project shall comply with the following criteria, which it does:

Pursuant to Section 12.22 A.25(c) of the LAMC and Government Code Section 65915, the Commission shall approve a Density Bonus and requested off-menu Incentive(s) unless the Commission finds that:

a. *The incentives do not result in identifiable and actual cost reductions to provide for affordable housing costs as defined in California Health and Safety Code Section 50052.5 or Section 50053 for rents for the affordable units.*

ZIMAS identifies the subject site as being located within a Very High Fire Severity Zone. Pursuant to LAMC Section 12.22 A. 25 (e)(2)(iv), the proposed project is not eligible for an on-menu incentive. Therefore, the applicant has requested an off-menu incentive for increased height as pursuant to LAMC Section 12.22 A.25 (g)(3).

LAMC Section 12.21.A allows a residential building height for 45 feet and unlimited number of stories in the RD1.5-1 Zone. The Mulholland Scenic Parkway Specific Plan does not further limit height at this specific site in the Mulholland Outer Corridor. LAMC Section 12.21.1 B.2, as regulated by the Los Angeles Department of Building and

Safety, allows a height exception not exceeding 12 feet for a multi-family structure when the highest point of elevation of the adjoining sidewalk or ground surface within a 5 foot horizontal distance measured from the exterior wall of the building exceeds grade level by more than 20 feet. The applicant is requesting an 11 foot height incentive (off-menu incentive) pursuant to LAMC Section 12.22 A.25, thereby allowing a 68 foot height (45 + 12 + 11 = 68).

The proposed project is designed with two partially subterranean parking garages, which are shown on the applicant's plans as the Lower Garage and Upper Garage (see **"Exhibit A"**). The first and second floors will be below grade. As shown in **"Exhibit A,"** the first floor includes storage, recreational space, and three residential condominium units. The second floor plans show storage space and three residential condominium units. The main entrance and building lobby are sited on the third floor, which is at ground level. The main entrance and lobby will be open to the fourth and fifth floors. The third and fourth floors each include six residential condominium units. An additional three residential condominium units, for a total of 21 units, are located on the fifth floor. Of the 21 dwelling units, 13 are two-bedroom units and eight are three-bedroom units.

The off-menu incentive to increase the height to five stories over two levels of partially subterranean parking and a maximum of 68 feet will result in the inclusion of nine residential condominium units on the 4th and 5th floors. The additional market rate units will help to offset the costs of providing two affordable units in the development.

Furthermore, because the building will be constructed on a slope, the building cannot expand horizontally. To expand horizontally would render sections of the building without windows and uninhabitable as a dwelling unit. Due to the sloping nature of the site, the only viable expansion for this structure is to expand vertically.

As proposed, the off-menu incentive to exceed the otherwise allowed height will allow for the construction of a five-story building (with two levels of subterranean parking) with a maximum building height of 68 feet, which will accommodate 21 dwelling units (of which two will be restricted affordable units).

b. *The Incentive <u>will have</u> a specific adverse impact upon public health and safety, or on any real property that is listed in the California Register of Historical Resources and for which there are no feasible method to satisfactorily mitigate or avoid the specific adverse Impact without rendering the development unaffordable to Very Low, Low and Moderate Income households. Inconsistency with the zoning ordinance or the general plan land use designation shall not constitute a specific, adverse impact upon the public health or safety.*

There is no substantial evidence in the record that the proposed off-menu incentive will have a specific adverse impact. A "specific adverse impact" is defined as, "a significant, quantifiable, direct and unavoidable impact, based on objective, identified written public health or safety standards, policies, or conditions as they existed on the date the application was deemed complete" (LAMC Section 12.22 A.25(b). Based on the above there is no basis to deny the requested incentive. As required by Section 12.22 A.25(e)(2), the project meets the additional eligibility criterion that is required for density bonus projects. The requested incentive permits increased height, but the building will be stepped back into a north facing hillside. As proposed, the roof of the building will be generally the same height as Kentucky and Fredonia Drives. As such, the building will not block the viewshed, cast extensive shadows, or invade the privacy of abutting

residential uses. The project is conditioned and designed to comply with all Mulholland Scenic Parkway Specific Plan regulations and design standards.

Furthermore, the project is designed and conditioned herein to offset any specific adverse impacts of siting a multi-level 68 foot in height structure within a scenic hillside area that is also a Very High Fire Hazard Severity Zone. Specifically, the project is conditioned to provide updated landscape plans that comply with the LAMC, and an updated Protected Tree Report that complies with Ordinance No. 186,873 to determine whether Toyon and/or Mexican Elderberry are present on the site. The removal of any protected trees/shrubs and/or street trees are subject to the review and approval of Urban Forestry and the Board of Public Works as conditioned herein. Additionally, the project is conditioned for energy efficiency by requiring the use of solar power, solar and electric generators, greywater, stormwater infiltration, and electric vehicle parking. Heat island effects will be mitigated through conditions that regulate landscaping, street trees, and materials used for paving. For aesthetic purposes, the project is designed or conditioned to place all utilities underground to the maximum extent feasible, to enclose parking in two partially subterranean levels, and to shield lighting from neighboring uses. As conditioned, birds are protected through the use of bird protection glass on glass doors and windows. These conditions contribute toward the feasible mitigation of the specific adverse impacts of the increased project height.

Therefore, there is no substantial evidence that the proposed height will have a specific adverse impact on public health and safety.

2. <u>Zoning Administrator Determination Findings</u>

In order for a deviation from the zoning regulations to be granted, all of the legally mandated findings delineated in Section 12.24 X of the Los Angeles Municipal Code must be made in the affirmative. Following is a delineation of the findings and the application of the relevant facts to same:

a. The project will enhance the built environment in the surrounding neighborhood or will perform a function or provide a service that is essential or beneficial to the community, city or region.

The proposed project site is comprised of two irregular shaped hillside lots totaling 22,508 square feet at the confluence of Kentucky and Fredonia Drives. The site is located within the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan area, with a land use designation of Low Medium Residential and is zoned RD1.5-1. The Community Plan designates the subject site for Low Medium Residential land use with corresponding zones of RZ, RD6, RD5, RD4, RD3, RD2, and RD1.5, which is consistent with the current RD1.5-1 Zoning. The RD Zone would permit a maximum of 16 multi-family residential dwelling units by-right.

The subject site has approximately 145 feet of street frontage along Kentucky and Fredonia Drives. The northern property line extends from Kentucky and Fredonia Drives to a rear alley for a length of approximately 139 feet. The southerly property line extends from Kentucky and Fredonia Drives to the rear alley for a length of approximately 177 feet. The site abuts a 20 foot alley along the rear property line for a length of approximately 140 feet. The proposed project is located downslope from Mulholland Drive. The property slopes upward from Kentucky and Fredonia Drives and downward from the Kentucky and Fredonia Drive frontage to the rear alley.

The project site is located within the geographic area governed by the Mulholland Scenic Parkway Specific Plan (Ordinance No. 167,943, ZI-1224). As previously stated, the Specific Plan regulates uses and implements environmental protection measures, grading, heights, and yards. More restrictions are placed on projects that are visible from Mulholland Drive than projects that are not visible, but all projects are subject to identical environmental protection measures. These environmental protection measures regulate grading and construction on prominent ridges, streams, and parklands; oak tree preservation and removal; and archaeological and paleontological resources. The subject site is not visible from Mulholland Drive. The site is in the Outer Corridor and is not on or adjacent to a prominent ridge, stream, parkland, major vista point, trail, organization group meeting center, or visitor's center.

Additionally, the subject site is located within a geographic area designated as ZI-2452 Transit Priority Area in the City of Los Angeles and a geographic area designated as ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses. ZIMAS shows that the subject site is located within a Hillside Area, Urban Agriculture Incentive Zone, Very High Fire Severity Zone, BOE Special Grading Area, and a Landslide Area. The subject site is within 0.03 kilometers of the Hollywood Fault, although it is not located within an Alquist-Priolo Fault Zone. It is not located within a Liquefaction or Preliminary Fault Rupture Study Area. The site is not located within a Tsunami Inundation Zone. Fire protection services are provided by Fire Station No. 76, Battalion No. 5 of the Los Angeles Fire Department. Police Services are provided by Reporting District 1599, North Hollywood Division, Valley Bureau of the Los Angeles Police Department. Finally, the subject site is located within Tier 3 of a Transit Oriented Community (TOC).

The applicant is requesting a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls pursuant to LAMC Section 12.21 C.8. The applicant's plans (see **"Exhibit A"**) are supplemented by information submitted by the applicant to the case file to request the following six retaining walls:

- One 273 foot in length, 10 foot in height (when measured from the finished grade) retaining wall located in the required front and side yards (Retaining Wall No. 1);
- One 116 foot in length, 10 foot in height (when measured from the finished grade) retaining wall located in the required front and side yards (Retaining Wall No. 2);
- One 37 foot in length, 12 foot in height (when measured from the finished grade) retaining wall located in the required rear yard (Retaining Wall No. 3);
- One 40 foot in length, 10 foot in height (when measured from the finished grade) retaining wall located in the required rear and side yards (Retaining Wall No. 4);
- One 140 foot in length, 12 foot in height (when measured from the finished grade) retaining wall located in the required side yard (Retaining Wall No. 5);
- One 27 foot in length, 12 foot in height (when measured from the finished grade) retaining wall located in the required front yard (Retaining Wall No. 6)

The subject site is steeply sloping and cannot be developed without multiple retaining walls. The property slopes upward from Kentucky and Fredonia Drives and downward from the Kentucky and Fredonia Drive frontage to the rear alley. Most of the lots in the surrounding hillside area are zoned for single-family dwellings. Single-family dwellings,

when compared to multiple-family uses, are smaller in square footage and present flexibility in placement. In comparison, multi-family buildings are generally larger, which gives less flexibility in placement. This would result in the need for more and larger retaining walls than are needed for a single-family use. Furthermore, the proposed density bonus project necessitates a higher building than would otherwise be proposed. This project, which is stair-stepped up the slope, requires multiple retaining walls to be constructed.

Three of the retaining walls requested by the applicant are located in the required front and side yards (Nos. 1, 2, and 6). One retaining wall is located in the side yard at the southwest corner of the site (No. 6). These four retaining walls may be visible from the street frontage. The remaining two retaining walls are located in the northeast side yard and rear yard, and will not be visible from the project frontage (Nos. 3 and 4).

Furthermore, a review of the ZA cases in the surrounding area within 500 feet of the subject property found multiple approvals for over-in-height fences, walls, and structures within the front, side, and rear yard setbacks. The grant allows the applicant to redevelop the property in a manner that is compatible and consistent with the surrounding area. As conditioned, the project will enhance the built environment in the surrounding neighborhood.

b. The project's location, size, height, operations and other significant features will be compatible with and will not adversely affect or further degrade adjacent properties, the surrounding neighborhood, or the public health, welfare and safety.

As previously stated, the proposed project site is comprised of two irregular shaped hillside lots totaling 22,508 square feet at the confluence of Kentucky and Fredonia Drives. The site is located within the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan area, with a land use designation of Low Medium Residential and is zoned RD1.5-1. An alley abuts the project site at the rear yard setback.

Surrounding properties to the northeast and southeast of the subject site front along Cahuenga Boulevard. These sites are developed with one- and two-story small scale commercial office, retail, and restaurant uses. These sites are zoned C2-1VL and are designated General Commercial by the Community Plan. To the northwest and southwest along Kentucky and Fredonia Drives, properties are improved with one-, two- and three-story single- and multi-family residential uses. These sites are zoned RD1.5-1 and designated Low Medium Residential land use. To the west, northwest, and southwest of the subject site, properties are zoned R1-1 and designated Low Residential. These sites are improved with one- and two-story single-family dwellings.

The applicant is requesting a determination to authorize the construction of six retaining walls varying in height from 10 to 12 feet from the finished grade. As previously discussed, the project is stair-stepped on the sloping site, and can only be achieved with the construction of retaining walls. Views of at least two of the retaining walls from the site frontage will be obstructed by the sloping nature of the site and the placement of the retaining walls.

According to information provided by the applicant, the roof of the proposed condominium structure will be at or near the same elevation as Kentucky and Fredonia Drives. This is made possible in part by the use of retaining walls. Furthermore, the

project site is attractively landscaped to meet Mulholland Specific Plan design requirements that promote enhancement of the natural environment.

Mitigation measures are imposed herein for erosion, grading, construction, and slope maintenance. These mitigations will be in place during construction of the project as a whole, including retaining wall construction. Slope maintenance mitigations will be in place on an ongoing basis.

Therefore, the project is compatible to the surrounding area, neighborhood, and size. As conditioned, herein, the proposed project and its features will not adversely affect adjacent properties or public health, welfare and safety.

c. The project substantially conforms to the purpose, intent and provisions of the General Plan, the applicable community plan, and any specific plan.

The General Plan is the City's roadmap for future growth and development. The General Plan elements establish goals, policies, purposes, and programs that provide for the regulatory environment in managing the City, and for addressing environmental concerns and problems. The majority of the policies derived from these elements are in the form of Los Angeles Municipal Code requirements. Except for the entitlement described herein, the project does not propose to deviate from any other Los Angeles Municipal Code requirements. The General Plan is comprised of the Framework Element, seven state-mandated elements, and four additional elements adopted by the City Council. The Framework Element establishes the broad overall policy and direction for the General Plan. Approval of the project is in substantial conformance with the following Framework Element housing goals and objectives:

Goal 4A: *An equitable distribution of housing opportunities by type and cost accessible to all residents of the City.*

Objective 4.4: *Reduce regulatory and procedural barriers to increase housing production and capacity in appropriate locations.*

The Housing Element provides a plan for the City's existing and future housing needs to ensure a range of housing choices for residents of all income levels. The Housing Element determined the City was "facing an unprecedented housing crisis" due to the high demand for housing and the lack of affordable options. The Housing Element provides decision-makers policy guidance to evaluate discretionary housing applications. This approval conforms to the following goals and objectives in the Housing Element:

Goal 1: *A City where housing production and preservation result in an adequate supply of ownership and rental housing that is safe, healthy, sanitary and affordable to people of all income levels, races, ages, and suitable for their various needs.*

Objective 1.5: *Reduce regulatory and procedural barriers to the production and preservation of housing at all income levels and needs.*

The Land Use Element of the City's General Plan divides the City into 35 Community Plan areas. The Sherman Oaks – Studio City – Toluca Lake – Cahuenga Pass Community Plan designates the subject site as for Low Medium Residential land use with corresponding zones of RZ, RD6, RD5, RD4, RD3, RD2, and RD1.5, which is consistent with the current RD1.5-1 Zoning. The property is in the Mulholland Scenic

Parkway Specific Plan area. The Sherman Oaks–Studio City–Toluca Lake–Cahuenga Pass Community Plan sets objectives for the planning and development of the area, and seeks to guide development to be in character with the community. The proposed project has been conditioned to comply with the following Community Plan residential objectives and policies for hillside projects:

Objective 1-3: To preserve and enhance the varied and distinct residential character and integrity in existing single and multi-family neighborhoods.

1-3.1.1 Seek a high degree of compatibility and landscaping for a new infill development to protect the character and scale of existing residential neighborhoods.

1-3.1.2 Preserve existing views in hillside areas.

The proposed construction of six retaining walls at the subject site will allow the applicant to construct a 21-unit residential condominium building on a property zoned and designated for such use. On October 21, 2020, the Design Review Board recommended to conditionally approve the project since it will comply with Specific Plan and, in turn, aligns with the Community Plan's objectives and policies. As conditioned, the project will substantially conform to the purpose, intent and objectives of the General Plan, the Sherman Oaks–Studio City –Toluca Lake –Cahuenga Pass Community Plan, and the Mulholland Scenic Parkway Specific Plan and Design and Preservation Guidelines.

d. That while site characteristics or existing improvements make strict adherence to the zoning regulations impractical or infeasible, the project nonetheless conforms with the intent of those regulations.

The applicant is requesting a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls pursuant to LAMC Section 12.21 C.8.

LAMC regulations that limit the number and height of hillside retaining walls were put in place to preclude the use of visually unattractive retaining walls that loom directly over adjacent homes, radically alter the nature of the hillside, and are seen from great distances as large slabs of cement. Such retaining walls detract from the overall quality and character of a hillside neighborhood. However, as proposed herein, the retaining wall height is limited to 12 feet above grade. Four of the six requested retaining walls will be visible, and all will be landscaped. The retaining wall design, placement, and landscaping was reviewed and approved by the Mulholland DRB for compatibility with the surrounding neighborhood.

The subject site is steeply sloping and cannot be developed without multiple retaining walls. The property slopes upward from Kentucky and Fredonia Drives and downward from the Kentucky and Fredonia Drive frontage to the rear alley. Most of the lots in the surrounding hillside area are zoned for single-family dwellings. Single-family dwellings, when compared to multiple-family uses, are smaller in square footage and present flexibility in placement. In comparison, multi-family buildings are generally larger, which gives less flexibility in placement. This would result in the need for more and larger retaining walls than are needed for a single-family use. Furthermore, the proposed density bonus project necessitates a higher building than would otherwise be proposed.

This project, which is stair-stepped up the slope, requires multiple retaining walls to be constructed.

Therefore, while site characteristics or existing improvements make strict adherence to the zoning regulations impractical or infeasible, the project nonetheless conforms with the intent of those regulations.

3. Mulholland Scenic Parkway Specific Plan Project Permit Compliance and Design Review Findings

The proposed project is the construction, use, and maintenance of a new, five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot lot, including two affording units (11 percent) set aside for Very Low Income Households. A total of 15 trees are proposed for removal. The applicant is also requesting haul route approval for the export of approximately 11,200 cubic yards of earth. The subject site is not visible from Mulholland Drive. The site is in the Outer Corridor and is not on or adjacent to a prominent ridge, stream, parkland, major vista point, trail, organization group meeting center, or visitor's center. The proposed project is located downslope from Mulholland Drive.

a. A recommendation was made by the Mulholland Design Review Board, pursuant to Los Angeles Municipal Code Section 16.50:

On March 30, 2021, an Implementation Guidance Memo was issued by the Department of City Planning to clarify that projects not visible from Mulholland Drive are not subject to Design Review Procedures. However, this project was presented to the Mulholland Design Review Board three times, on January 15, 2020, June 3, 2020, and October 21, 2020. Because this review pre-dated the issuance of the Implementation Guidance Memo, the project did follow the Design Review Procedures and that process is described herein. On October 21, 2020, a recommendation was made by the Mulholland Design Review Board (4-0), pursuant to Los Angeles Municipal Code Section 16.50, to approve the project as revised in response to prior DRB reviews on June 3, 2020 and January 15, 2020. The proposed project is subject to the design review process because it is located within the boundaries of the Mulholland Scenic Parkway Specific Plan, and is not subject to exemptions of Section 11.J.

In accordance with Specific Plan Section 11.F, the Design Review Board may advise on aspects of exterior design; site layout; grading; driveway access; landscaping; and height, bulk, materials, textures and colors of any building, structure, and/or sign.

On October 21, 2020, the Design Review Board met and convened a quorum of five members. The vote was 4-0 (with one abstention) recommending conditional approval of the project since the project will substantially comply with Section 16.50, Subsection E of the Los Angeles Municipal Code as well as the relevant design guidelines and development provisions of the Plan. The conditions recommended by the board on June 3, 2020, January 15, 2020, and October 21, 2020 were as follows:

<u>January 15, 2020</u>

- All exterior lighting shall be downward facing and shielded.
- No trees shall be planted in the LID planters.

- Comply with Guideline No. 2; provide subsections that show the heights of buildings on Cahuenga Boulevard and Kentucky/Fredonia Drives to show how the proposed project relates to the neighborhood.
- Clarify the natural grade on all elevations.
- Dimension the height of the building.
- Remove rooftop decks and access at the 5th floor level.
- Provide photographs of the site and surrounding sites.
- Reach out to the neighbors.
- Show the location of mechanical equipment and provide shielding.
- Add street access and walkways to the landscape plan.
- Provide colored renderings at the alley and street views.
- Add loading area to the alleyway.
- Provide stairs at the side yard.
- Articulate garage levels.
- Make guest access more welcoming at the alley.
- Nice planting plan.

June 3, 2020

- The project is too bulky. Break up the massing on the corners of the 5th floor facing Kentucky Drive.
- Remove or replace all IPE wood material.
- Verify that the proposed parking is Code compliant.
- Revise the project description to state consistently throughout that the project is a five-story building.
- Show the electrical transformer on the plans.
- Show the stucco screed in plans.
- Show solar panels on sections and elevations.
- The proposed colors are too light. All exterior colors must be 25 percent grey scale or darker.
- Ensure that all drawings are consistent throughout the entire set of project plans.
- Remove all rooftop decks.
- Plans appear to show LID compliance (location of planters, appropriate plants).

October 21, 2020

- Revise plans so that stairs and entrance to the building are ADA compliant.
- Add security gates at the stairs and ADA lift.
- Move the stair shaft along the side yard inward a minimum of 2 feet.
- Cut the corners of the building at the 4th floor facing the alley (northwest and northeast corners) to set back the elevation. At a minimum, align the depth of the cutback with the existing balcony and the full width of the bedroom.
- Show the number of street trees to be removed and replaced. Replace street trees at a 2:1 ratio.
- Remove all roof decks and patios from the 5th floor and remove access to the roof decks from units below.
- Add signage on Fredonia/Kentucky Drives stating that all drop-off/pick up/deliveries must be from the alley.

As such, and prior to the Implementation Guidance Memo dated March 31, 2021, recommendations were made by the Mulholland Design Review Board at three separate meetings, and the project was recommended for approval pursuant to LAMC Section

16.50. Subsequent to each meeting, the applicant revised plans to comply with DRB recommendations.

b. The project substantially complies with the applicable regulations, findings, standards, and provisions of the Specific Plan.

Based on a review of the plans submitted with the application, marked **"Exhibit A,"** dated April 15, 2021, and as conditioned herein, the following findings are made in accordance with the applicable design review criteria of the Mulholland Scenic Parkway Specific Plan, Ordinance No. 167,943, effective June 29, 1992:

(1) Section 6.A: Uses

The proposed project is not visible from Mulholland Drive, and therefore, this provision does not apply. Uses at this site are regulated by the underlying RD1.5-1 Zone pursuant to LAMC Section 12.09.1.

(2) Section 6.B: Environmental Protection Measures

Section 6.B of the Specific Plan refers back to Section 5.B, stating that all measures required for the Inner Corridor are to be complied with for properties in the Outer Corridor. The subject property is not defined as a "prominent ridge" as per the definition in Section 4 since no ridgeline appears near the property on the map of the Specific Plan Area: Map 11 of 12. As such, the project is not subject to Sections 5.B.1.a and 5.B.1.b, which limit grading and visibility on the defined Prominent Ridges in the Plan area. Furthermore, according to the same map and ZIMAS, the project is further than 100 feet from a watercourse and more than 200 feet from public parkland; is not subject to Section 5.B.2, which limits grading within 100 feet of a stream bank or Section 5.B.3, which limits construction and grading within 200 feet of public parkland. The project does not propose to remove, move, or alter any protected or native trees, which include Oak trees, in accordance with Section 5.B.4. The project is further conditioned herein to comply with updated tree and shrub regulations (Ordinance 186,873 effective February 4, 2021). Finally, should the applicant encounter any archeological or paleontological resources while grading for the project, the applicant will need to follow the necessary notification procedures pursuant to California Health and Safety Code Sections 7000 et sequentia to appropriately handle these resources, fulfilling the intent of Section 5.B.5 that seeks to protect these resources. As such, the project complies with Section 6.B of the Specific Plan.

(3) Section 6.C: Grading

As shown on **"Exhibit A,"** the project requires approximately 11,200 cubic yards of cut, 93 cubic yards of fill, 11,147 cubic yards of export, and 0 cubic yards of import. The applicant is requesting haul route approval for the export of approximately 11,200 cubic yards of earth. The project is located in the Mulholland Outer Corridor and is non-visible; therefore, pursuant to Specific Plan Section 6.C:

…The Director may approve grading up to four cubic yards of earth per four square feet of lot area per lot after making the following findings:

a. The Department of Building and Safety or the Bureau of Engineering has determined that such grading is required to provide access driveways, pedestrian accessways, drainage facilities, slope easements, and/or dwelling foundations.

b. All grading conforms to the standards set forth in the Landform Grading Manual, unless the Department of Building and Safety has determined that landform

grading will conflict with the provisions of Divisions 29 and 70 of Article 1 of Chapter IX of the Code.

c. *The graded slopes have a natural appearance compatible with the characteristics of the Santa Monica Mountains.*
d. *The Department of Building and Safety has determined that grading will minimize erosion.*

Per this Section, the applicant would be limited to 22,508 cubic yards of grading for the 22,508 square foot site; as noted above the project requires a maximum of 11,200 cubic yards of grading. This grading is necessary for the reasonable development of the property for the project, conforms with the Landform Grading Manual, and as conditioned in this determination letter, the design of the multi-family building will be compatible with the Santa Monica Mountains. Furthermore, the applicant is subject to stricter grading requirements by the LAMC, and is required to obtain grading permits and follow all practices imposed on them during the process of grading from the Building and Safety Grading Division. As such, the project complies with Section 6.C of the Specific Plan.

(4) Section 6.D: Building Standards

The project's height is limited to 68 feet, which complies with the height limit identified in subdivision 6.D, which has no height limit for structures that are not visible from Mulholland Drive. However, per Section 3.B of the Specific Plan, where the Los Angeles Municipal Code has a lower height requirement, the LAMC prevails and as such, the project is also subject to the envelope height requirements of the Baseline Hillside Ordinance. In this particular instance, the applicant is requesting an off-menu height incentive under LAMC Section 12.22 A.25 (Density Bonus Ordinance).

(5) Sections 7-9: Mulholland Drive and Right-of-Way Regulations, Core Trail, Major Vista Points

Sections 7-9 are not applicable to the proposed project. The applicant is not requesting changes to the Mulholland Drive Right-of-Way, Core Trails, and/or Major Vista Points as defined by the Specific Plan.

(6) Section 10: Landscaping

Section 10 of the Specific Plan requires the applicant to provide a landscape plan for DRB review and approval. Landscaping shall predominantly consist of native-type fire resistant plant materials. Native trees, including but not limited to oak trees, that are approved for removal are to be replaced. Specific plant materials are prohibited by the Specific Plan as outlined in Section 10.B. The project is conditioned herein to meet these requirements by providing a revised landscape plan that provides a plant palette of a minimum of 75 percent native-type plant material as specified on the Specific Plan Preferred Plant List. **"Exhibit A"** shows 100 percent native plants and trees throughout the project, including Western Redbud, California Ash, and Coast Live Oak trees. No prohibited plants are shown in the project landscape design, and no oak trees are proposed or approved for removal herein.

(7) Section 11.I.3: Design Review Criteria

Based on a review of the project proposal, and in consideration of the recommendation of the Design Review Board, the proposed multi-family condominium, as modified by the conditions herein, is compatible with the surrounding uses and the parkway environment in terms of design, massing, materials, and color and as such complies with Section 11.I.3 of the Plan.

Design Guideline 1: Natural Topography and Geotechnical Issues. The steeply sloping site slopes upward from Kentucky and Fredonia Drives and downward from the Kentucky and Fredonia Drive frontage to the rear alley. In keeping with the intent of Design Guideline 1, the project is designed to be stair-stepped up the slope to fit the natural topography. The Los Angeles Department of Building and Safety (LADBS) issued a Geology and Soils Report Approval Letter for the proposed project on February 6, 2019. Furthermore, geotechnical issues are conditioned therein and in the associated MND prepared for the project.

Design Guideline 2: Sloping Site Profile. In keeping with the intent of Design Guideline 2, the project is designed with a stepped profile and the roof follows the predominant slope of the land.

Design Guideline 3: Silhouetting. Design Guideline 3 applies to projects sited on the slopes of ridges and is not applicable to this project.

Design Guideline 4: Site Drainage. Regulatory Compliance Measures are in place to review the project for Low Impact Development and Stormwater Control, which meets the intent of Design Guideline 4.

Design Guideline 5: Site Permeability. As shown in the application materials attached to the case file, the project is in keeping with the intent of Design Guideline 5, which calls for a maximum of 50 percent of the lot area to comprised of impermeable surfaces.

Design Guideline 6: Site Fencing. Design Guideline 6 states that fencing and walls should not obstruct the Mulholland Drive right-of-way or view from Mulholland Drive. The project site is not visible from Mulholland Drive, and no fencing/gates are proposed. Therefore, this Design Guideline is not applicable.

Design Guideline 7: Additional On-Site Parking. In keeping with the intent of Design Guideline 7, all automobile parking for the project will be screened from view within two partially subterranean parking garages.

Design Guidelines 8-9: Prominent Ridges and Ridge Top Construction. The proposed project is not on a prominent ridge or ridge top as defined by the Specific Plan, and these guidelines are not appliable.

Design Guidelines 10-11: Site Grading, Grading Limits, Landform Grading. The Department of Building and Safety, Grading Division, issued a Geology and Soils Approval Letter dated March 18, 2019, and conditioned the project therein. The project was reviewed by the Department of Building and Safety under associated Case No. VTT-73784-CN (approved October 15, 2021). Mitigation Measures for grading are incorporated in the associated environmental Case No. ENV-2017-1925-MND. Furthermore, Section 6.C of the Specific Plan limits grading to 4 cubic yards per 4 square feet of lot area. Thus, the applicant is limited to 22,508 cubic yards of grading for the 22,508 square foot site; as noted above the project requires a maximum of 11,200 cubic yards of grading. This grading is necessary for the reasonable development of the property for the project, conforms with the Landform Grading Manual, and as conditioned in this determination letter, the design of the multi-family building will be compatible with the Santa Monica Mountains. Furthermore the applicant is subject to stricter grading requirements by the LAMC,

and is required to obtain grading permits and follow all practices imposed on them during the process of grading from the Building and Safety Grading Division. As such, the project keeps with the intent of Design Guidelines 10 and 11.

Design Guideline 12: Trees. In keeping with the intent of Design Guideline 12, no native protected trees, including Coast Live Oaks, are on the subject site. The project is conditioned herein to provide an updated protected Tree and Shrub Report in compliance with Ordinance No. 186,873. As conditioned herein, the removal of any protected trees/shrubs is subject to the review and approval of the Urban Forestry Division and Board of Public Works.

Design Guidelines 15-16: Streams and Parkland. These guidelines are not applicable as the subject site is not located within 100 feet of a stream or 200 feet of a parkland.

Design Guideline 17-19: Visibility Study and Viewshed Protection/Analysis. These Design Guidelines are not applicable.

Design Guidelines 20-24: Right-of-Way Construction, Grading, Landscaping; Core Trails; Entry Gateways. These Design Guidelines are not applicable, as the project is not sited on a right-of-way or core trail. There is no entry gateway to the project.

Design Guideline 25: Driveways. In compliance with Design Guideline 25, no driveway intersects Mulholland Drive. In this particular instance, the applicant is complying with the Mulholland DRB recommendation for this particular project regarding driveways, and all vehicular access will be from the alley at the rear of the site.

Design Guideline 27: Dirt Mulholland. This guideline is not applicable, as the project site is not located on Dirt Mulholland (unpaved portion of Mulholland Drive).

Design Guideline 28: Retaining Wall Height, Materials, and Landscaping. Design Guideline 28 states that retaining walls shall not exceed 10 feet in height and stepped retaining walls shall be offset by a horizontal distance of 3 feet. The project applicant is requesting a Zoning Administrator Determination to allow the height of all retaining walls to be limited to 12 feet above grade. The Design Review Board recommended approval of the project, which does keep within the intent of Design Guidelines 28-30 by offsetting all stepped retaining walls by a minimum of 3 feet and landscaping all retaining walls with Specific Plan recommended plant materials. Some of the plant materials are in planter boxes, which diminish the appearance of exposed retaining walls with dense landscaping. Additionally, the retaining walls are finished with smooth plaster in Sherwin Williams color 'Morning Fog' to match the elevations.

Design Guideline 31: Building Height. As stated in Guideline 31, projects that are within allowable height limits may be recommended for disapproval if the building height impacts views or is incompatible with the parkway environment and surrounding neighborhood. The Mulholland DRB recommended the project for approval on October 21, 2020. To ensure compatibility relative to the project height, rooftop decks are prohibited as recommended by the Mulholland DRB and as conditioned herein.

Design Guideline 32: Massing. In keeping with the intent of Design Guideline 32, the project combines more than three building elements (balconies, varied roof top heights, projecting windows.

Design Guideline 34: Articulation. As shown in **"Exhibit A,"** the project is designed with a variety of surfaces, textures, and angles, such as aluminum frame doors and windows, glass railings, smooth finish plaster, varied roof tops, and projecting balconies.

Design Guidelines 35-36: Roof Form and Materials. In keeping with Design Guidelines 35 and 36, flat roof forms are combined with secondary roof forms that are offset by a minimum of 4 feet as shown on **"Exhibit A."** The cool grey colored roof materials are complementary with the earth tone colors used throughout the building design (Morning Fog, Crushed Ice, Iron Ore, and Cityscape).

Design Guideline 37: Rooftop Equipment. In keeping with the intent of Design Guideline 37, the project has been conditioned to prohibit roof-mounted equipment with the exception of solar energy devices.

Design Guideline 38: Exterior Colors. The exterior colors and materials used in the project design are non-reflective, natural earth tones (25 percent grey scale or darker excluding black). The colors shown in the applicant's plans include Morning Fog, Crushed Ice, Iron Ore, and Cityscape.

Design Guideline 39: Exterior Materials. As conditioned herein, the project will use non- reflective, non-glare glass, in conformance with Design Guideline 39, which states that non-reflective materials should be used.

Design Guideline 40: Exterior Lighting. In compliance with the Design Guidelines, the project is conditioned herein to direct lighting sources downward and to shield exterior lighting fixtures to screen the light source.

Design Guideline 41: Skylights. In keeping with Design Guideline 41, no rooftop skylights are used in the project design.

Design Guideline 42: Windows. Per Design Guideline 42, the applicant's plans show aluminum frame glass windows and doors.

Design Guideline 43: Garages. In keeping with Design Guideline 43, no multiple garage doors are shown in the same plane and visible from the right-of-way. All garage entries are accessed from the alley.

Design Guideline 44: Mechanical Equipment. In conformance with Design Guideline 44, mechanical equipment (transformer, gas meters) are screened with landscape materials to the extent feasible and are located at the side and rear of the structure.

Design Guideline 45: Pool Equipment. No swimming pool is proposed, and this guideline is not applicable.

Design Guideline 46: Trash Receptacles. In conformance with Design Guidelines 46, trash and recycling receptacles will be stored inside the building within the garage.

Design Guideline 50: Neighborhood Compatibility. At the request of the Design Review Board, the applicant provided cross sections that show the project massing and height in relationship to neighboring structures (see **"Exhibit A"**).

Design Guideline 53: Tree Survey. In accordance with Design Guideline 53, the applicant is conditioned herein to provide an updated Arborist Report that complies with the Protected Tree and Shrub Ordinance No. 186,873 (effective February 4, 2021).

Design Guidelines 54-55: Protection of Native and/or Significant Trees. As previously discussed, the project is conditioned to provide an updated Arborist Report. No protected tree or shrub or street tree may be removed without the review and approval of Urban Forestry and the Board of Public Works.

Design Guidelines 56-59: Landform Planting, New Plants, Plant Colors, Landscape Arrangement. As shown in **"Exhibit A"** and as conditioned herein, the project is densely landscaped with plants colors and materials from the Mulholland Preferred Plant List. The landscape plans show that 100 percent California native plants are used. The stepped profile of the development, including the landscaping, conforms with landform grading and planting guidelines. Trees, shrubs, and ground cover are shown in **"Exhibit A"** within planter boxes and informally grouped around the site. As such, the project keeps within the intent of Design Guidelines 56-59.

Design Guideline 60: Prohibited Plant Material
The project is conditioned herein to incorporate plants that are appropriate for the Santa Monica Mountains as required by this Design Guideline. Prohibited plant materials, as delineated in Appendices C and D of the Design and Preservation Guidelines, are not used in the landscape design.

Design Guidelines 62-66: Project Visibility, Landscape Screening, Viewshed Protections. These guidelines address landscaping as a screening device in projects that are visible from Mulholland Drive. As previously discussed, the project site is non-visible, and these guidelines are not applicable.

Design Guideline 68: Fencing and Walls. As previously discussed, the project provides dense landscaping around retaining walls and therefore keeps within the intent of this guideline.

Design Guideline 69: Landscape Lighting. As conditioned herein, outdoor lighting will be downward facing.

Design Guideline 70: Landscape Planting/Irrigation Plan Detail. As shown in the applicant's plans and as conditioned herein, landscape plans must include a complete landscape planting plan, with a plant legend keyed to the plan using symbols and listing the quantity, botanical name, common name, size at planting, size at maturity and time to maturity of all proposed plantings, and a complete irrigation plan. The Design and Preservation Guidelines include a Preferred Plant List (Appendix A), a Non-Preferred Plant List (Appendix B), and a Prohibited Plant List (Appendices C and D). The landscape plan conforms with preferred and non-preferred plant lists.

Design Guidelines 71-76: Planning and Design for Sustainable Building Practices. Regulatory Compliance Measures will be imposed for Stormwater Management, Title 24 energy compliance, Green Building, and Low Impact Development.

Design Guidelines 77-92: Utility and Utility Related Structures. To the maximum extent feasible, it is recommended the utilities be undergrounded. Planting plans, as shown in **"Exhibit A,"** will be used to screen walls to the maximum extent feasible. Irrigation plans are provided and conditioned herein. As such, the project complies with these Design Guidelines.

c. The project incorporates mitigation measures, monitoring measures when necessary, or alternatives identified in the environmental review, which would mitigate the negative environmental effects of the project, to the extent physically feasible.

The project incorporates mitigation measures under associated Case No. ENV-2017-1925-MND. The MND includes mitigation measures for habitat modification and tree preservation/replacement to protect biological resources. There will be less than significant impact to geology and soils with the implementation of mitigation measures for erosion, grading, construction, and slope maintenance. Noise impact will be mitigated during demolition, grading, and construction. Transportation impacts will be less than significant during construction, and measures are included to enhance pedestrian safety. A Tribal monitor will be on-site during construction to protect Tribal cultural resources, and impacts on wildfire will be mitigated. Therefore, the project incorporates mitigation measures, monitoring measures when necessary, or alternatives identified in the environmental review, which would mitigate the negative environmental effects of the project to the extent physically feasible.

4. <u>CEQA Findings</u>

A Mitigated Negative Declaration, Case No. ENV-2017-1925-MND, was prepared for the proposed project. The Department of City Planning published the Mitigated Negative Declaration beginning June 10, 2021 for 20 days, ending June 30, 2021 for the subject case. The Lead Agency found potential negative impacts could occur from the project's implementation due to:

Biological Resources (habitat modification, tree preservation and replacement)
Geology and Soils (erosion/grading/short-term construction, slope maintenance)
Noise (demolition, grading, and construction)
Transportation (haul route and construction, pedestrian safety)
Tribal Cultural Resources (tribal monitor)
Wildfire

Other identified potential impacts not specifically mitigated by these conditions are already subject to existing City ordinances (Sewer Ordinance, Grading Ordinance, Flood Plain Management, Xeriscape Ordinance, Stormwater Ordinance, etc.) which are specifically intended to mitigate such potential impacts on all projects.

The project applicant submitted comments to the Mitigated Negative Declaration, which clarified the project description and requests herein but did not change the analysis of the Mitigated Negative Declaration and/or the Mitigation Measures included herein.

Therefore, Find, pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Mitigated Negative Declaration, No. ENV-2017-1925-MND, as circulated on June 10, 2021 ("Mitigated Negative Declaration"), and all comments received, with the imposition of mitigation measures, there is no substantial evidence that the project will have a significant effect on the environment; Find the Mitigated Negative Declaration reflects the independent judgment and analysis of the City; Find the mitigation measures have been made enforceable conditions on the project; and Adopt the Mitigated Negative Declaration and the Mitigation Monitoring Program prepared for the Mitigated Negative Declaration.

The records upon which this decision is based are with Valley Project Planning, Department of City Planning, 6262 Van Nuys Boulevard, Room 430, Los Angeles, CA 90012.

PUBLIC HEARING AND COMMUNICATIONS

A joint public hearing for CPC-2017-1923-DB-DRB-SPP-MSP-ZAD and VTT-73784-CN was conducted entirely telephonically by Zoom due to concerns over COVID-19 on Tuesday, September 28, 2021 at 9:00 a.m. Planning staff and the Advisory Agency conducted the hearing.

The project representative, Jerome Buckmelter, discussed the applicant's entitlement requests and described the project. The project was redesigned to meet all the DRB and Neighborhood Council requests, with the exception of the request to provide a three-bedroom unit for Very Low Income households, which falls under the purview of the Los Angeles Housing Department. Additionally, the applicant's representatives are working with Council District 4 to begin demolition due to safety concerns at the site. The applicant asked for revisions to Fire Department, Bureau of Engineering, Bureau of Street Lighting, and haul route conditions. None of these requests fall under the purview of City Planning.

A representative from Council District 4, also expressed concerns for expediting the demolition of the site, which is under the jurisdiction of LADBS.

Members of the public, included representatives of the Cahuenga Pass Property Owners Association, provided the following public testimony:

- The project will add to traffic, which is already excessive in the area;
- Guest parking isn't sufficient;
- Retaining walls are too high; retaining walls will encourage graffiti and block views;
- A street light is unnecessary;
- There is no need for sidewalks or street widening;
- Demolition needs to occur due to safety concerns (squatters, fires);
- How will affordable units be rented/sold?

The proposed project was reviewed at by the Mulholland Design Review Board (DRB) pursuant to LAMC Section 16.50 and Section 11 of the Mulholland Scenic Parkway Specific Plan on January 15, 2020, June 3, 2020, and October 21, 2020. At that time, members of the public had the opportunity to comment on the project.

The Hollywood Hills West Neighborhood Council submitted a letter dated February 22, 2018 recommending the following changes to the proposed project (see Exhibit H):

- Eliminate rooftop decks
- Increase setbacks on the alley side of the building to decrease the building mass, which seems too big/huge
- Improve the alley roadway and add safety features to help the alley function safely
- Add more guest parking spaces
- Include at least one three-bedroom unit in the two units set aside for Very Low Income households

EXHIBIT A

PROJECT PLANS

April 15, 2021

21 UNIT APARTMENT BUILDING
3900 KENTUCKY DRIVE

LOS ANGELES, CALIFORNIA 90068

KAMRAN TABRIZI ARCHITECT & ASSOCIATES

VICINITY MAP



DEFERRED APPROVALS

1. FIRE SPRINKLER SYSTEM. NFPA 13
2. ELEVATOR.
3. MECH., ELECT., PLUMB.
4. SOLAR PANELS

NOTE:

1. THE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR REVIEW AND APPROVAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.
2. PLANS FOR THE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED IN A TIMELY MANNER THAT ALLOWS INITIAL PLAN REVIEW AND REPLY TO PLAN REVIEW COMMENTS BY BUILDING DEPARTMENT. ALL COMMENTS RELATED TO THE DEFERRED SUBMITTAL MUST BE ADDRESSED TO THE SATISFACTION OF THE PLAN CHECK DIVISION PRIOR TO APPROVAL OF THE SUBMITTED ITEMS.

APPROVALS & REQUIREMENTS

PLAN CHECK FILE NO:

APPLICABLE BUILDING CODES:

2014 CITY OF LOS ANGELES BUILDING CODE

NOTE: THIS PROJECT SHALL COMPLY W/ ALL APPLICABLE BLDG. CODES.

PROJECT SUMMARY

PROJECT LOCATION:	3900 KENTUCKY DRIVE., LOS ANGELES, CA 90068
LEGAL DESCRIPTION:	LOT 116 AND A PORTION OF AND THE NORTHWESTERLY 40 FEET OF LOT 117 OF TRACT NO. 5543, IN THE CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 63 ,PAGES 62 AND 63 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.
ZONE:	RD 1.5-1
LOT DIMENSIONS:	LOT 116: 168.51' (VARIES) X 100' LOT FR 117: 168.51' (VARIES) X 40'
LOT AREA:	LOT 116: 15,550 SF (PER ZIMAS) LOT FR 117: 6,957.6 SF (PER ZIMAS) + 1/2 OF ALLEY: 10' X 140' = 1,400 SF TOTAL LOT AREA = 23,907.60 SF
DENSITY CALCULATIONS:	23,907.60 SF DIVIDED BY 1500 (PER ZONING) = 15.9 UNITS= 16 16 X 35% (DENSITY BONUS) =5.6 UNITS= 6 UNITS GRAND TOTAL= 22 UNITS ALLOWED INCLUDING 2 VERY LOW INCOME UNITS
OFF MENU INCENTIVES:	11'-0" HEIGHT INCREASE FROM 57'-0" TO 68'-0"
FAR CALCULATION:	35,227 DIVIDED BY 18,002 (BUILDABLE AREA)=1.96
UNIT MIX:	13 - 2 BEDROOM + 2 BATH 8 - 3 BEDROOM + 3 BATH
OCCUPANCY:	R-2 / S-2
TYPE OF CONST.:	III-A OVER TWO LEVELS OF I-A GARAGE
NO. OF STORY:	PER ZONING CODE: 5 PER BUILDING CODE: 5
FIRE SPRINKLER:	NFPA 13 PER CFC
FIRE ALARM:	YES PER CFC
BUILDING HEIGHT PER ZONING CODE:	68'-0" 56'-0" + 12'-0" ADDITIONAL HEIGHT PER LAMC SECTION 12.21.1.A.1 EXCEPTION B2.

SQUARE FOOTAGE

UNIT A.3.1

FLOOR AREA	1,550 SQ. FT.

UNIT A.3.1.1

FLOOR AREA	1,555 SQ. FT.

UNIT A.3.1.2

FLOOR AREA	1,548 SQ. FT.

UNIT A.3.2

FLOOR AREA	1,533 SQ. FT.

UNIT B

FLOOR AREA	1,402 SQ. FT.

UNIT B.1

FLOOR AREA	1,407 SQ. FT.

UNIT B.1.1

FLOOR AREA	1,460 SQ. FT.

UNIT B.1.2

FLOOR AREA	1,466 SQ. FT.

UNIT B.1.3

FLOOR AREA	1,457 SQ. FT.

UNIT B.1.4

FLOOR AREA	1,467 SQ. FT.

UNIT B.1.5

FLOOR AREA	1,406 SQ. FT.

UNIT B.1.6

FLOOR AREA	1,406 SQ. FT.

UNIT B.2

FLOOR AREA	1,412 SQ. FT.

RECREATION ROOM 'A'

FLOOR AREA	1,268 SQ. FT.

STORAGE

FLOOR AREA	1,366 SQ. FT.

BUILDING FLOOR AREA PER LAMC 12.03

	GROSS AREA OUT TO OUT BUILDING DIMENSION	AREA OF EXTERIOR WALLS	AREA OF OPENINGS TO BELOW	AREA OF STAIRWAYS , ELEVATOR & MECH. ROOMS	ZONING CODE FLOOR AREA
FIRST FLOOR	7,794 S.F.	206 S.F.	0 S.F.	461 S.F.	7,127 S.F.
SECOND FLOOR	7,794 S.F.	206 S.F.	2,070 S.F.	461 S.F.	5,057 S.F.
THIRD FLOOR	10,154 S.F.	272 S.F.	0 S.F.	673 S.F.	9,209 S.F.
FOURTH FLOOR	9,994 S.F.	270 S.F.	0 S.F.	673 S.F.	9,049 S.F.
FIFTH FLOOR	5,667 S.F.	209 S.F.	0 S.F.	673 S.F.	4,785 S.F.
TOTAL	41,563 S.F.				35,227 S.F.

LOWER GARAGE	9,491 S.F.
UPPER GARAGE	9,491 S.F.

PARKING SUMMARY

RESIDENCE REQUIRED PARKING PER DENSITY BONUS OPTION 1:

3 BEDROOM = 8 UNITS X 2 PARKING PER UNIT = 16 PARKING
2 BEDROOM = 13 UNITS X 2 PARKING PER UNIT = 26 PARKING
TOTAL REQUIRED PARKING = 42
TOTAL GUEST PARKING (NOT REQUIRED BUT PROVIDED)= 0.25 X 21 = 5

TOTAL PROVIDED PARKING = 47
STANDARD PARKING : 20 STALLS (INCLUDING 7 EV STALLS)
DISABLE PARKING : 2 STALLS (INCLUDING ONE FOR GUEST)
COMPACT PARKING 25 STALLS (INCLUDING 4 FOR GUEST)

BICYCLE REQUIRED PARKING:
TOTAL LONG TERM PROVIDED: 21
TOTAL SHORT TERM REQUIRED AND PROVIDED: 10% OF UNITS= 3

SHEET INDEX

ARCHITECTURAL

T5	COVER SHEET
A5.1	SURVEY PLAN
A5.2	ARCHITECTURAL SITE PLAN
O5.1	OPEN SPACE PLAN
A1.0A	LOWER GARAGE PLAN
A1.0B	UPPER GARAGE PLAN
A1.1	1ST FLOOR BUILDING PLAN
A1.2	2ND FLOOR BUILDING PLAN
A1.3	3RD FLOOR BUILDING PLAN
A1.4	4TH FLOOR BUILDING PLAN
A1.5	5TH FLOOR BUILDING PLAN
A2.1	ROOF PLAN
A2.2	TOPOGRAPHIC ROOF PLAN
A3.1	EXTERIOR ELEVATIONS
A3.2	EXTERIOR ELEVATIONS
A3.3	PROPERTY LINES FENCE WALL ELEVATIONS
A4.1	BUILDING SECTIONS
A4.2	BUILDING SECTIONS
A4.3	CROSS SECTIONS

SUSTAINABLITY CHECKLIST

1- ELECTRIC VEHICLE SUPPLY EQUIPMENT , SEE GARAGE PLANS
2- WATER EFFICENT LANDSCAPE, SEE LANDSCAPE PLAN
3- LOW FLUSH TOILETS AND PLUMBING FIXTURES, PER PLUMBING PLAN
4- STORM WATER POLLUTION, PER LID PLAN
5- HIGH REFLECTANCE ROOFING, SEE ROOF PLAN
6- WASTE MANAGEMENT, RECYCLING ROOM, SEE GARAGE PLANS
6- ENERGY EFFICENCY, ENERGY STAR APPLIANCES PER MECH. PLANS

OPEN SPACE TABULATION

REQUIRED OPEN SPACE :	
8 UNITS WITH MORE THAN 3 HABITABLE ROOM	8 X 175 = 1,400 S.F.
13 UNITS WITH 3 HABITABLE ROOM	13 X 125 = 1,625 S.F.
TOTAL	3,025 S.F.
PROVIDED OPEN SPACE :	
PRIVATE BALC. 5 UNITS 5X100	500 S.F.
REC. ROOM 3,025 X 25% = 756	756 S.F.
COMMON PATIO COURTYARD	1,800 S.F.
TOTAL	3,056 S.F.

PROJECT DIRECTORY

ARCHITECT

KAMRAN TABRIZI ARCHITECT & ASSOCIATES
21731 AMBAR DRIVE
WOODLAND HILLS, CALIFORNIA 91364
TEL: (818) 888-6365
FAX: (818) 888-6725

DEVELOPER:

3900 KENTUCKY LLC
528 STATE STREET
GLENDALE, CA 91203

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

21731 AMBAR DR.
WOODLAND HILLS CA. 91364
TEL. (818) 888-6365
FAX: (818) 888-6725

PROJECT:

21 UNIT APARTMENT BLD'G.
3900 KENTUCKY DR.
LOS ANGELES, CA. 90068

OWNER:

3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

NOT FOR CONSTRUCTION

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CONSTRUCTION			PRE-CONSTRUCTION	
REV.	BULLETIN	DATE	ISSUED FOR	DATE

CHECKED BY | DATE
DRAWN BY | JOB NUMBER

SHEET TITLE

TITLE SHEET

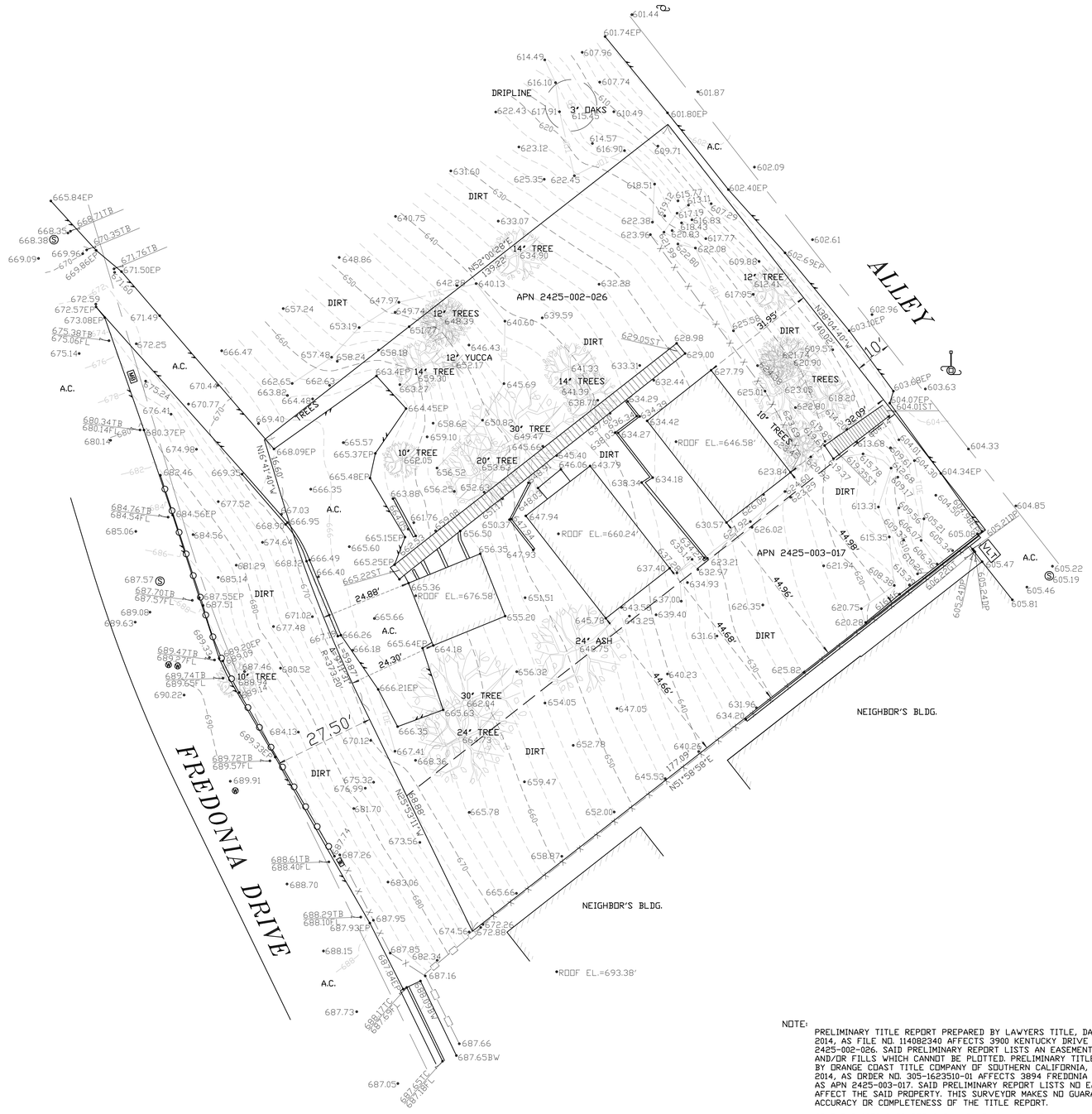
SHEET NUMBER

TS

LAWRENCE J. SCHMAHL LICENSED SURVEYOR PLS 5748
11209 HOWARD ST. WHITTIER, CALIFORNIA 90606 (562) 908-0570 / (323) 773-1675

TOPOGRAPHIC SURVEY

SCALE: 1" = 16' APRIL, 2015



LEGAL DESCRIPTION:

LOT 116 AND A PORTION OF AND THE NORTHWESTERLY 40 FEET OF LOT 117 OF TRACT NO. 5593, IN THE CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 63 ,PAGES 62 AND 63 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BENCHMARK:

WIRE SPK.; S.E. CURB LANKERSHIM BLVD., 29.8FT S.W. OF CURB LINE CAHUENGA BLVD., N'LY END CB

LABM# 08-00060 EL= 591.811FT (2000) NAVD 1988

FOR:

3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA 91203

BY:

LAWRENCE J. SCHMAHL L.S. 5748

LEGEND:

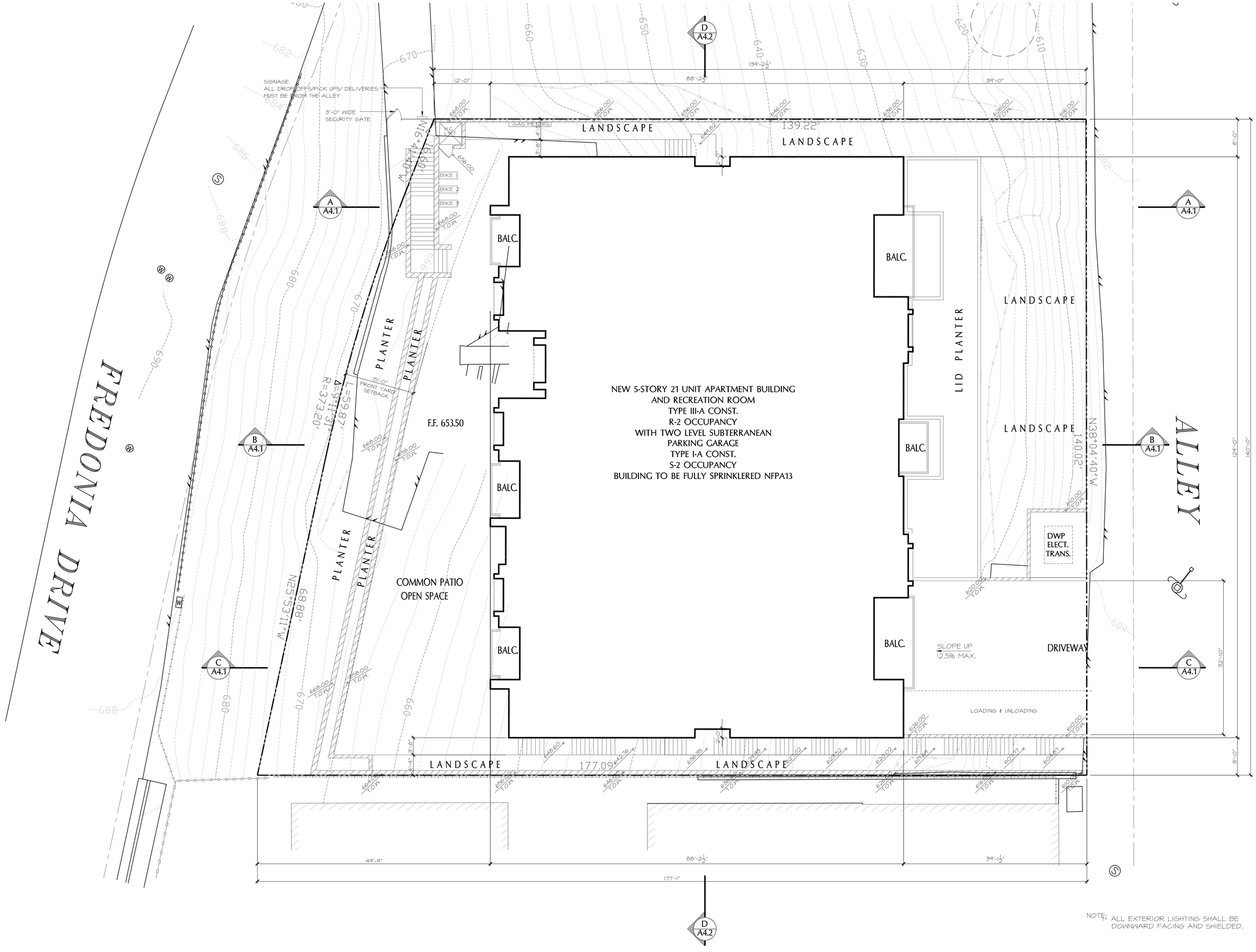
A.C.	ASPHALT CONCRETE
BW	BACK OF WALK
CONC.	CONCRETE
DP	DRAIN PIPE
E	EAST
FF	FINISHED FLOOR
FL	FLOWLINE
GT	GATE
N	NORTH
S	SOUTH
ST	STAIRS
TC	TOP OF CURB
TG	TOP OF GRATE
TW	TOP OF WALL
W	WEST
	BUILDING LINE
	CENTERLINE
	EDGE OF PAVEMENT
EM	ELECTRIC METER
	FENCE, CHAIN-LINK
	FENCE, IRON
	FENCE, WIRE
	FENCE, WOOD
GM	GAS METER
	LIGHT POLE
MB	MAILBOX
	POWER POLE
	PROPERTY LINE
S	SEWER MANHOLE
52.52 52.52	SPOT ELEVATIONS
VLT	VAULT
	WALL
	WATER METER
W	WATER VALVE

NOTE:

PRELIMINARY TITLE REPORT PREPARED BY LAWYERS TITLE, DATED NOVEMBER 26, 2014, AS FILE NO. 114082340 AFFECTS 3900 KENTUCKY DRIVE ALSO KNOWN AS APN 2425-002-026. SAID PRELIMINARY REPORT LISTS AN EASEMENT FOR SLOPES, CUTS AND/OR FILLS WHICH CANNOT BE PLOTTED. PRELIMINARY TITLE REPORT PREPARED BY ORANGE COAST TITLE COMPANY OF SOUTHERN CALIFORNIA, DATED DECEMBER 23, 2014, AS ORDER NO. 305-1623510-01 AFFECTS 3894 FREDONIA DRIVE ALSO KNOWN AS APN 2425-003-017. SAID PRELIMINARY REPORT LISTS NO EASEMENTS WHICH AFFECT THE SAID PROPERTY. THIS SURVEYOR MAKES NO GUARANTEES AS TO THE ACCURACY OR COMPLETENESS OF THE TITLE REPORT.

IF THE EXISTING GRADES SHOWN ON THIS MAP ARE TO BE USED FOR CONSTRUCTION PURPOSES, IT IS THE RESPONSIBILITY OF THE PARTY USING THIS MAP TO VERIFY THE VERTICAL DATUM BY CHECKING BETWEEN AT LEAST FIVE EXISTING GRADES SHOWN HEREON.
IF THE INFORMATION ON THIS MAP IS TO BE INCLUDED IN CONSTRUCTION PLANS, THIS MAP IN ITS ENTIRETY MUST BE MADE A PART OF THOSE CONSTRUCTION PLANS.

JOB# 12232



NOTE: ALL EXTERIOR LIGHTING SHALL BE DOWNWARD FACING AND SHIELDED.

SITE PLAN

ACCESSIBLE. BUILDING

SCALE: 1/8" = 1'-0"

NORTH

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

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FAX: (818) 888-6725

PROJECT:

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3900 KENTUCKY DR.
LOS ANGELES, CA. 90068

OWNER:

3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

NOT FOR CONSTRUCTION

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CONSTRUCTION			PRE-CONSTRUCTION	
REV.	BULLETIN	DATE	ISSUED FOR	DATE

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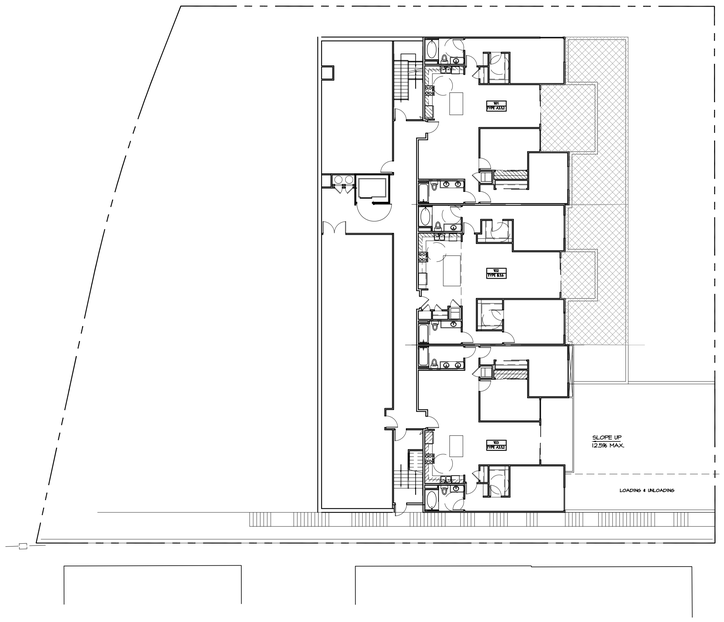
DRAWN BY | JOB NUMBER

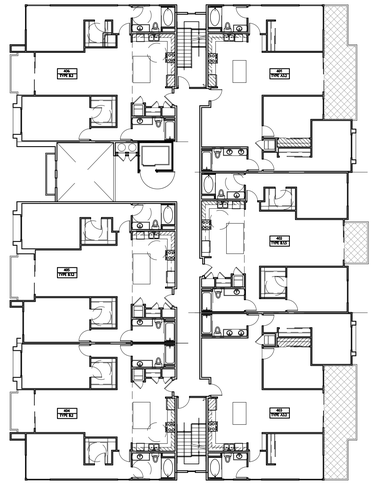
SHEET TITLE

SITE PLAN

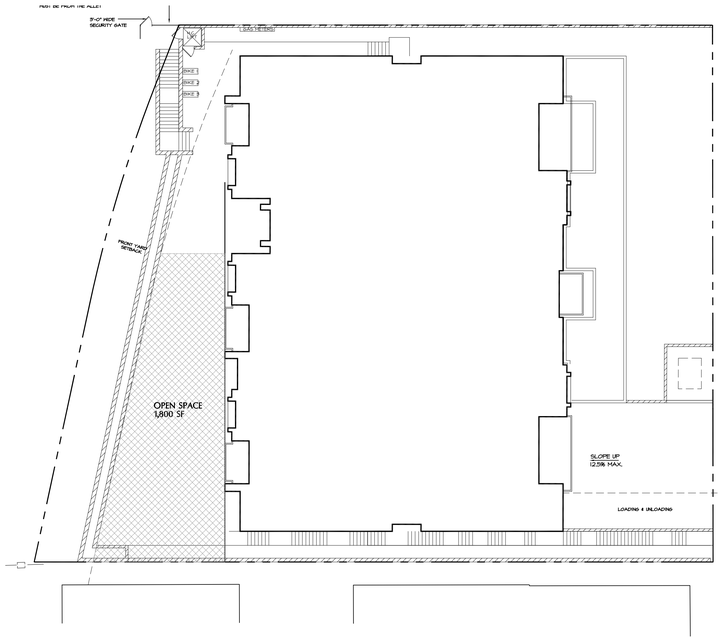
SHEET NUMBER AS.2



FIRST FLOOR PLAN



FOURTH FLOOR



SITE PLAN

OPEN SPACE TABULATION	
REQUIRED OPEN SPACE :	
8 UNITS WITH MORE THAN 3 HABITABLE ROOM	8 X 175 = 1,400 S.F.
13 UNITS WITH 3 HABITABLE ROOM	13 X 125 = 1,625 S.F.
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REC. ROOM 3,025 X 25% = 756	756 S.F.
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TOTAL	3,056 S.F.

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3900 KENTUCKY DR.
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OWNER:

3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

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CONSTRUCTION			PRE-CONSTRUCTION	
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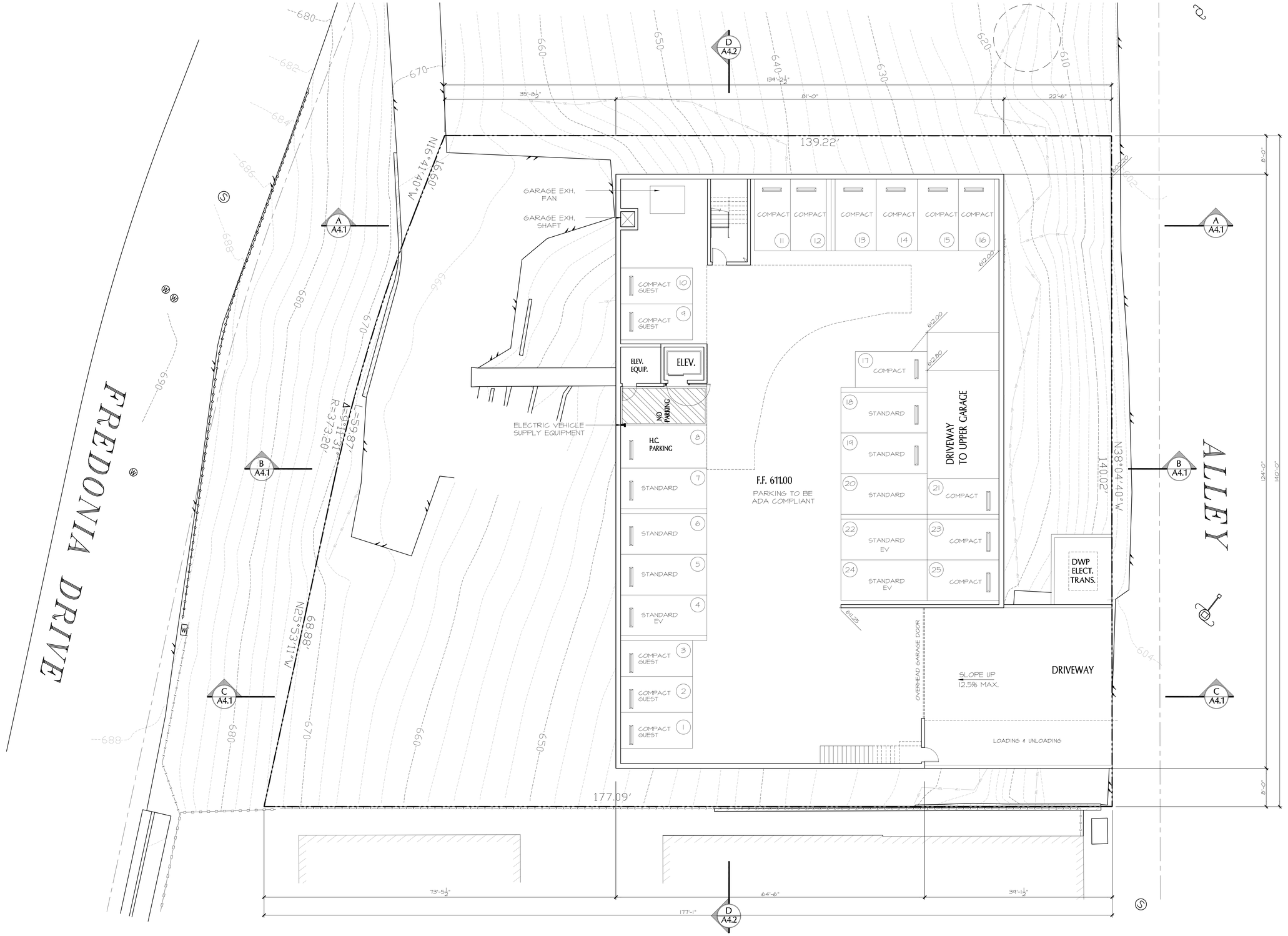
JOB NUMBER

SHEET TITLE

OPEN SPACE PLAN

SHEET NUMBER OS.1



LOWER GARAGE PLAN

ACCESSIBLE BUILDING

SCALE: 1/8" = 1'-0"

NORTH

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REV.	BULLETIN	DATE	ISSUED FOR	DATE

CHECKED BY

DATE

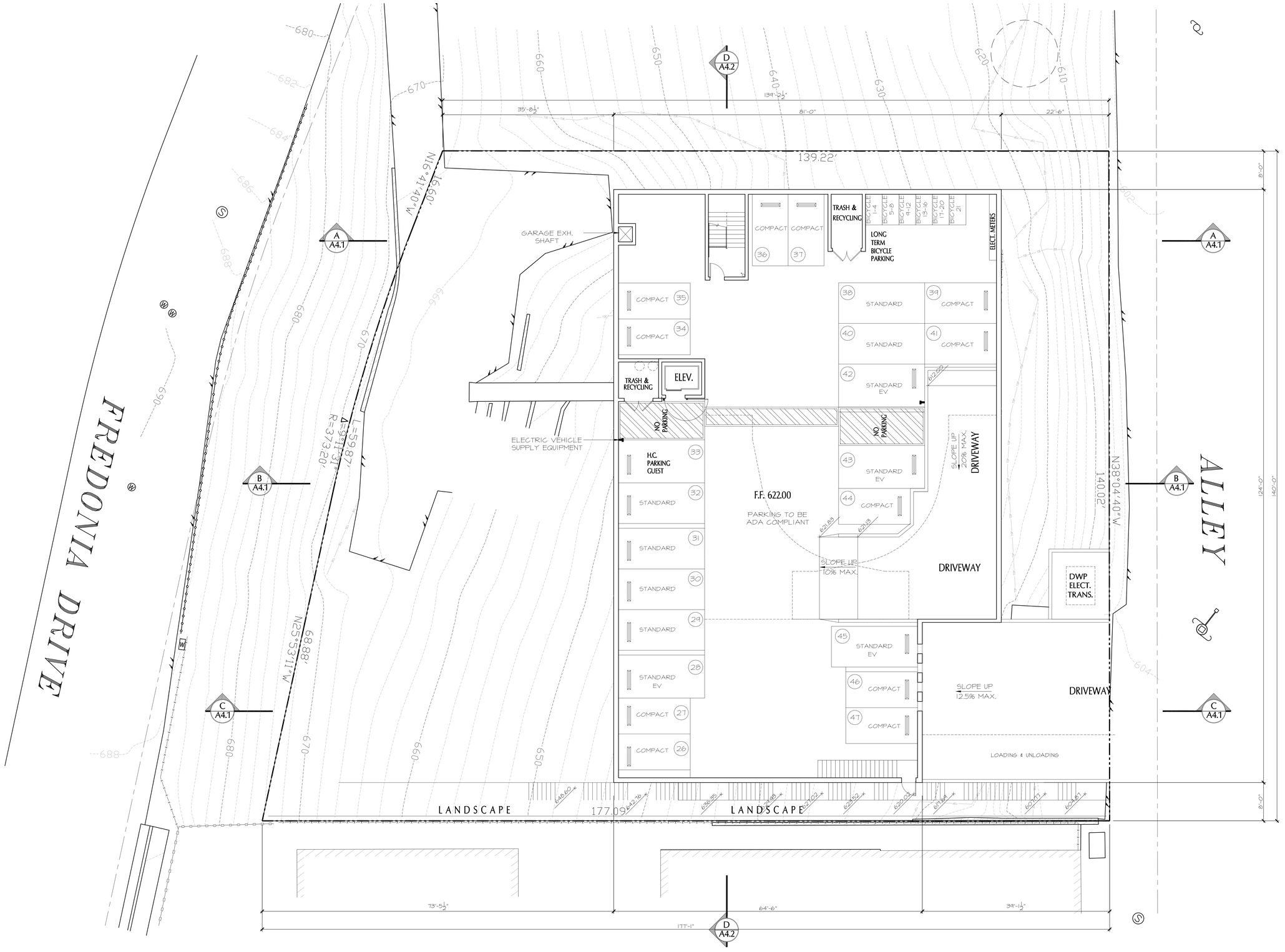
DRAWN BY

JOB NUMBER

SHEET TITLE

LOWER GARAGE PLAN

SHEET NUMBER A1.0A



UPPER GARAGE PLAN

ACCESSIBLE. BUILDING

SCALE: 1/8" = 1'-0"

NORTH

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

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CONSTRUCTION			PRE-CONSTRUCTION	
REV.	BULLETIN	DATE	ISSUED FOR	DATE

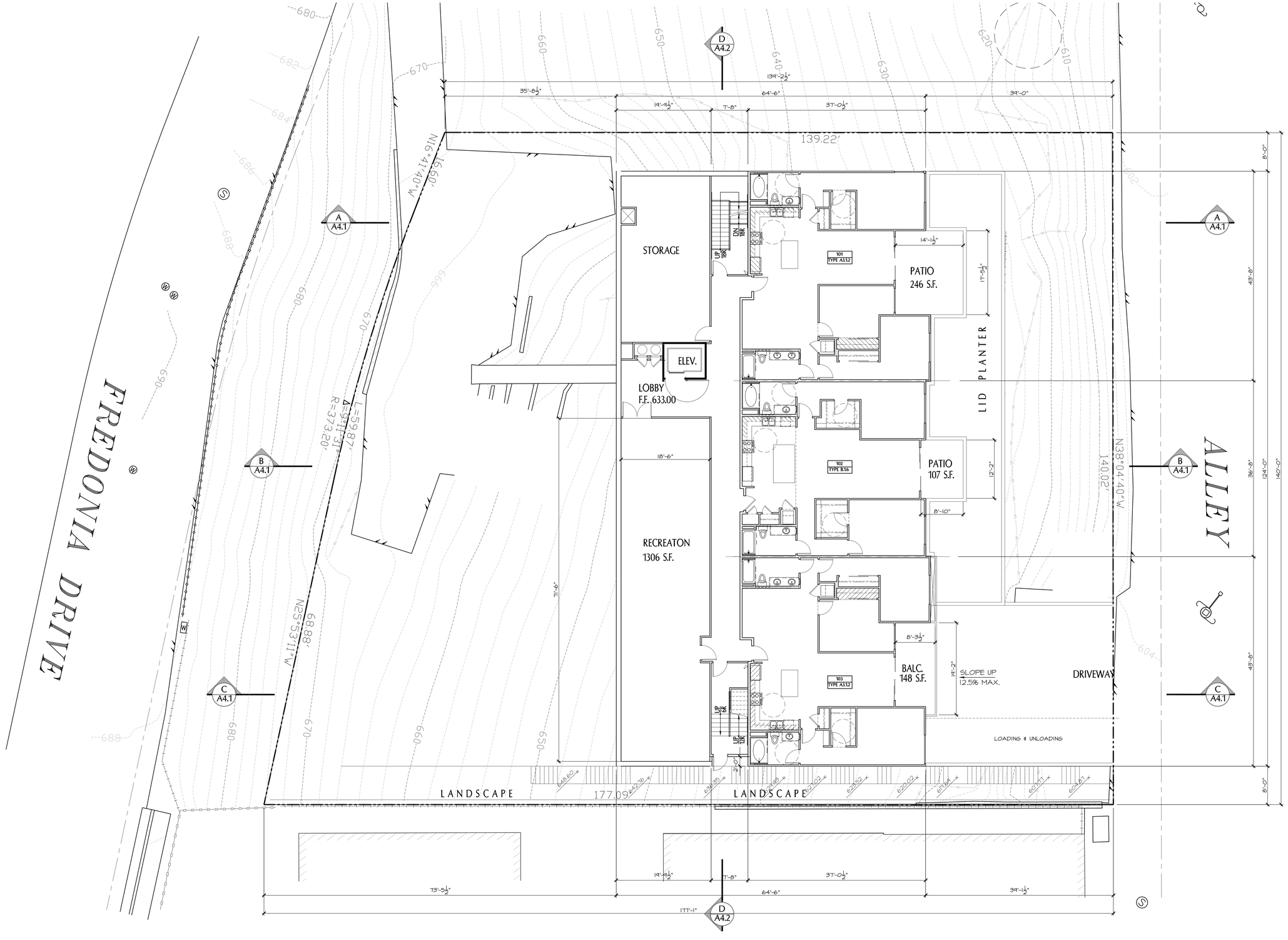
CHECKED BY | DATE

DRAWN BY | JOB NUMBER

SHEET TITLE

UPPER GARAGE PLAN

SHEET NUMBER A1.0B



FIRST FLOOR PLAN

ACCESSIBLE. BUILDING

SCALE: 1/8" = 1'-0"

NORTH

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

21731 AMBAR DR.
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FAX: (818) 888-6725

PROJECT:

21 UNIT APARTMENT BLD'G.
3900 KENTUCKY DR.
LOS ANGELES, CA. 90068

OWNER:

3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

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DATE

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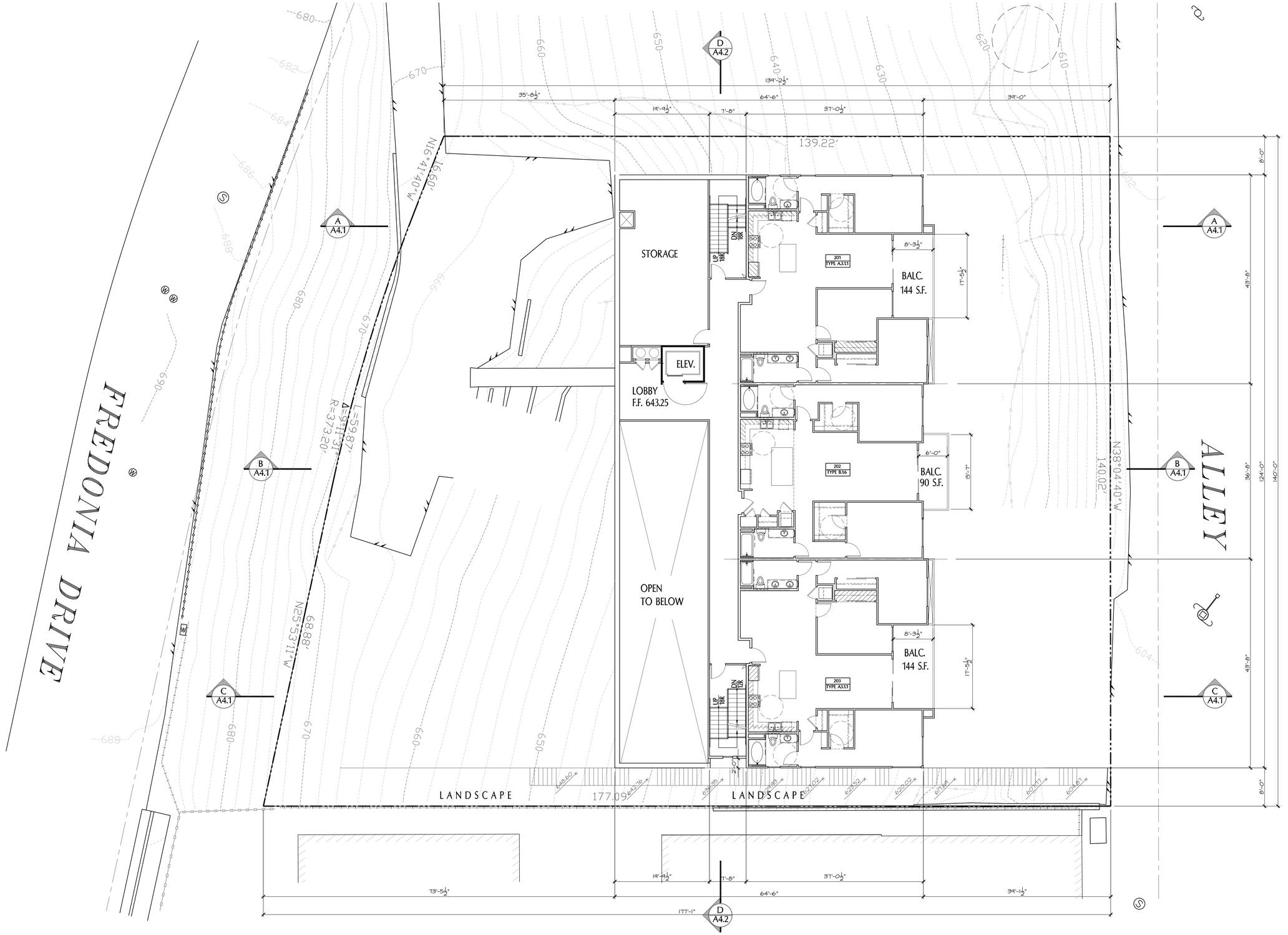
JOB NUMBER

SHEET TITLE

FIRST FLOOR PLAN

SHEET NUMBER A1.1



SECOND FLOOR PLAN

ACCESSIBLE. BUILDING

TOTAL 8 -1 BD. = 13 -2BD.

SCALE: 1/8" = 1'-0"

NORTH

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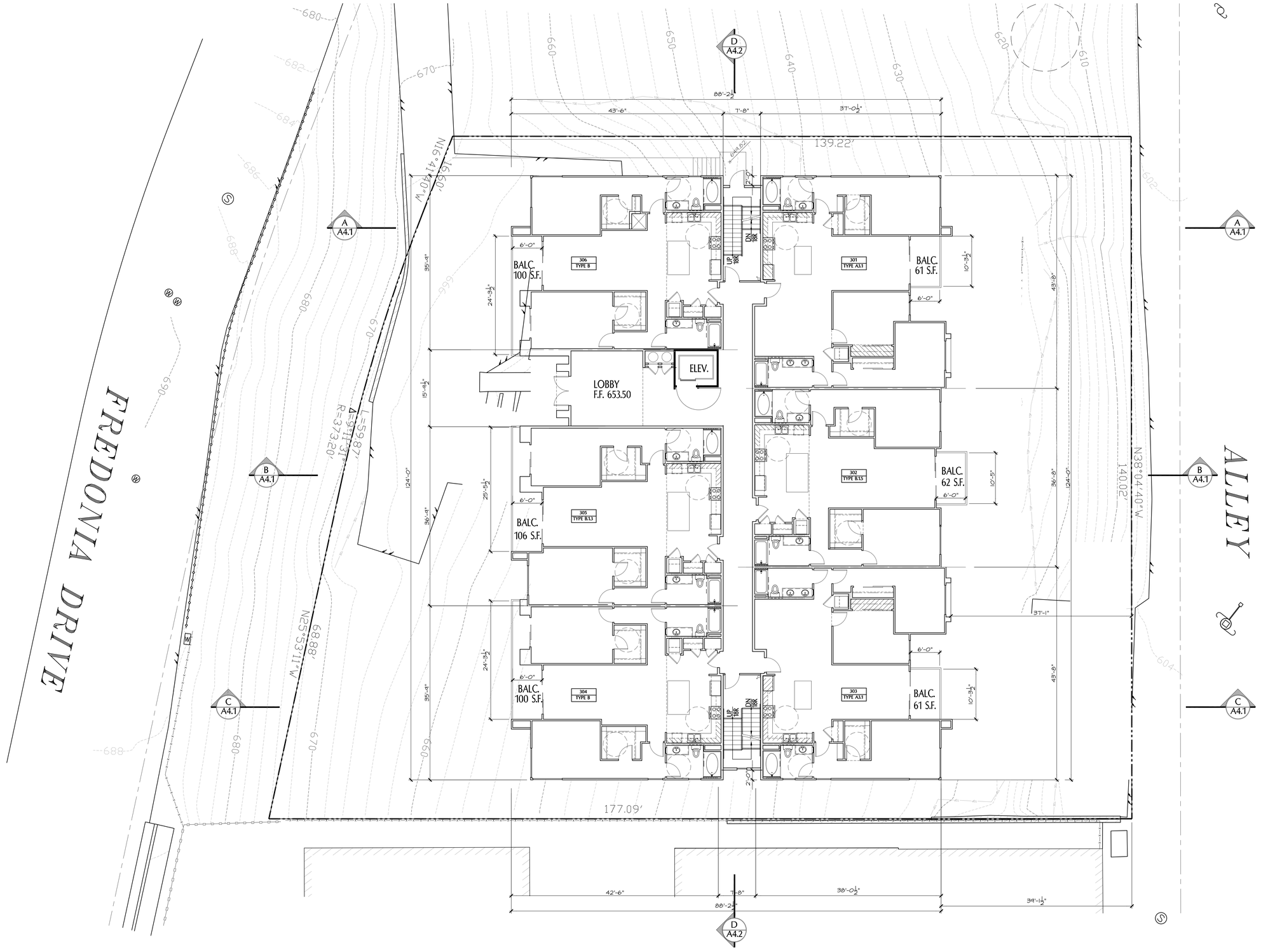
SECOND FLOOR PLAN

SHEET NUMBER A1.2



THIRD FLOOR PLAN

ACCESSIBLE BUILDING

SCALE: 1/8" = 1'-0"

NORTH

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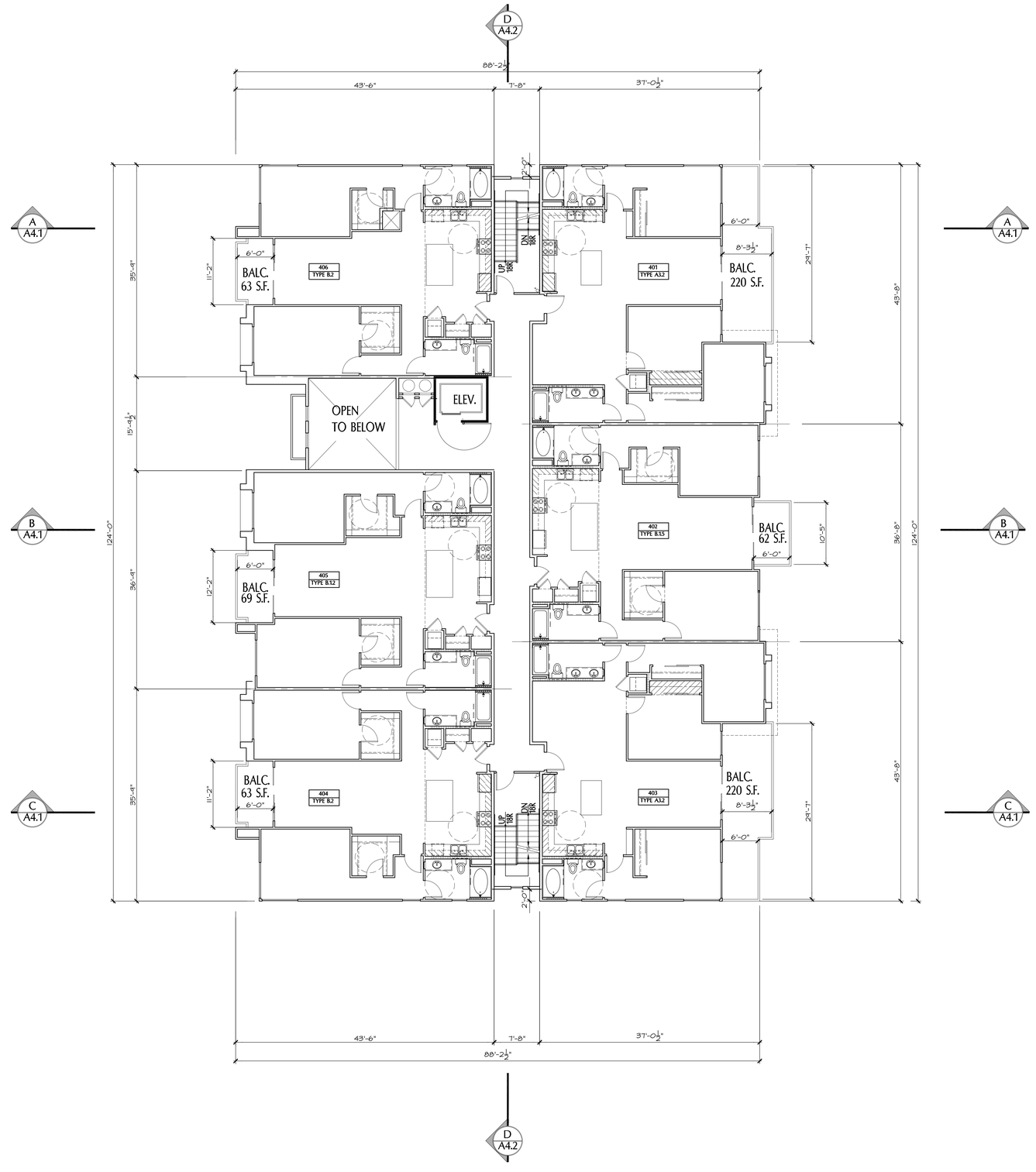
SHEET TITLE

THIRD FLOOR PLAN

SHEET NUMBER A1.3



FOURTH FLOOR PLAN

ACCESSIBLE.
BUILDING

SCALE: 1/8" = 1'-0"

NORTH

KAMRAN
TABRIZI,
ARCHITECT &
ASSOCIATES

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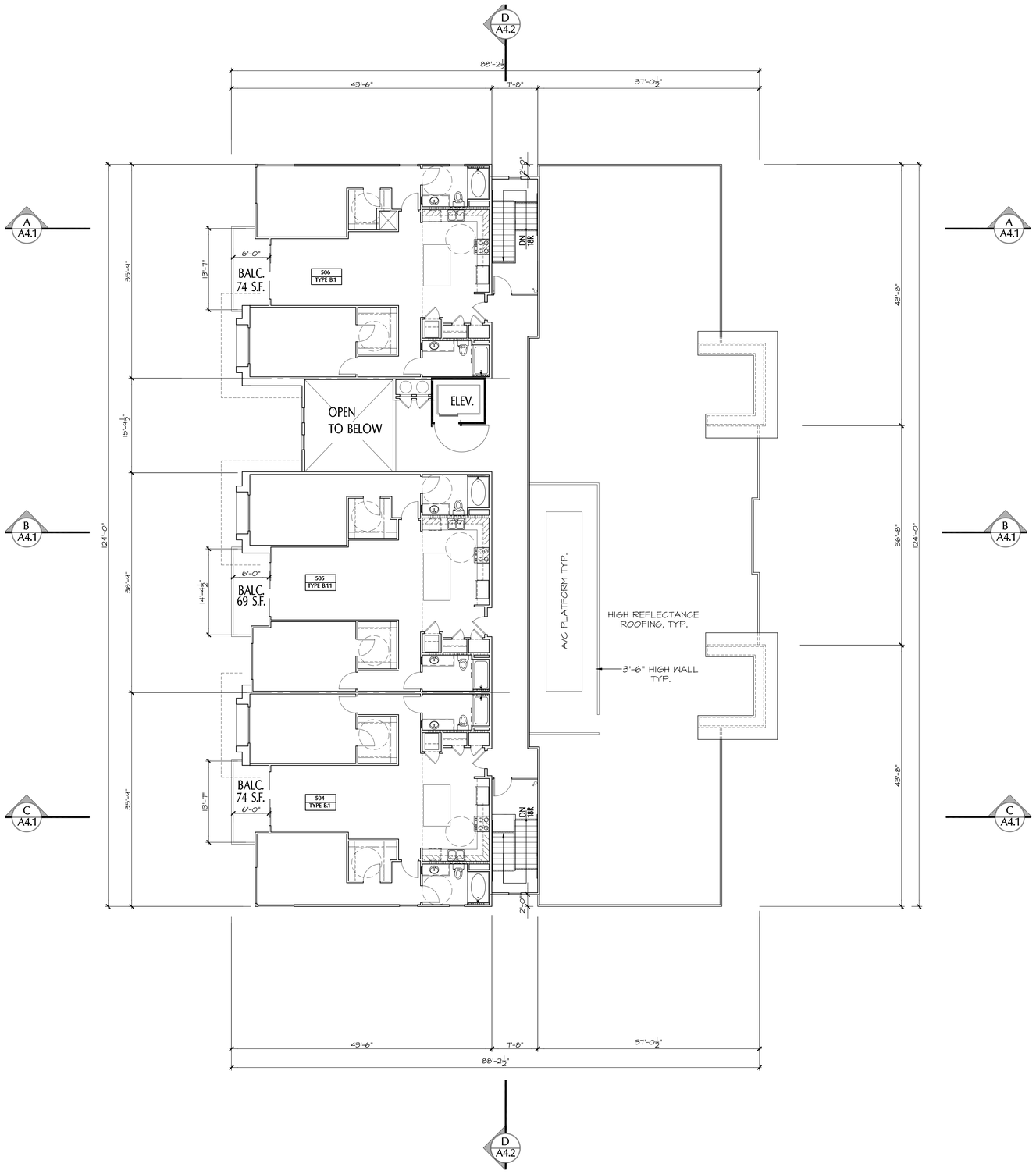
SHEET TITLE

FOURTH FLOOR PLAN

SHEET NUMBER

A1.4



FIFTH FLOOR PLAN

ACCESSIBLE. BUILDING

SCALE: 1/8" = 1'-0"

NORTH

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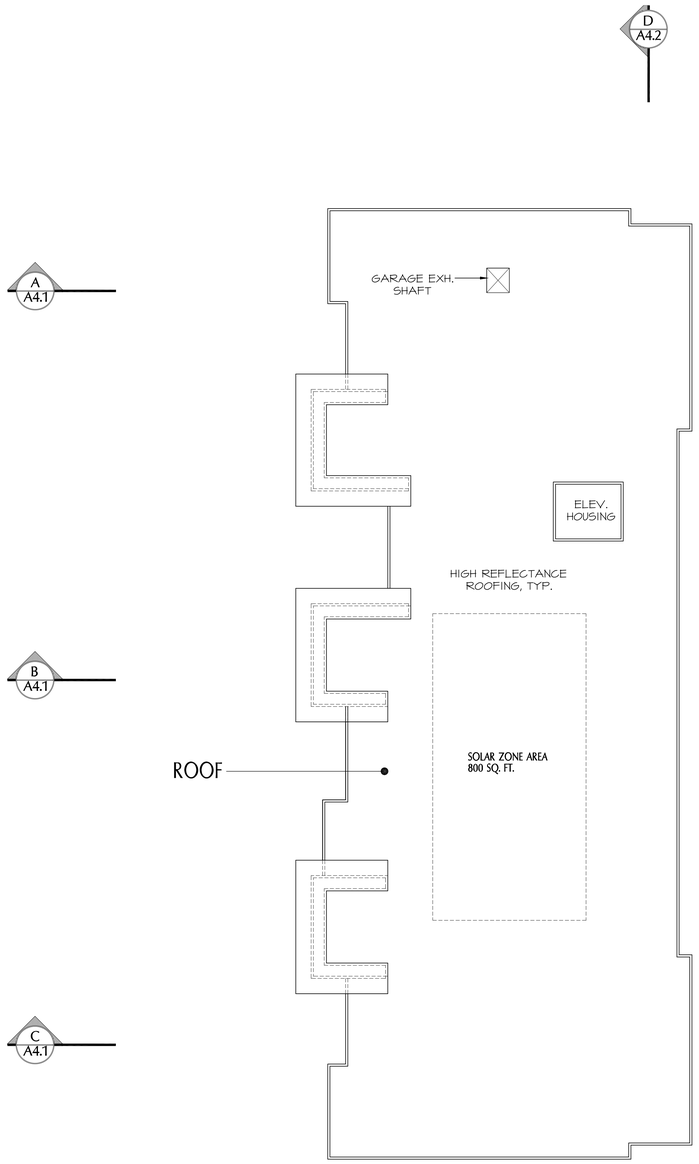
FIFTH FLOOR PLAN

SHEET NUMBER A1.5









TOTAL ROOF AREA: 5,280 SF
15% OF ROOF AREA FOR SOLAR ZONE: 792 SF
800 SF SOLAR ZONE AREA PROVIDED

ROOF PLAN

ACCESSIBLE BUILDING

SCALE: 1/8" = 1'-0"

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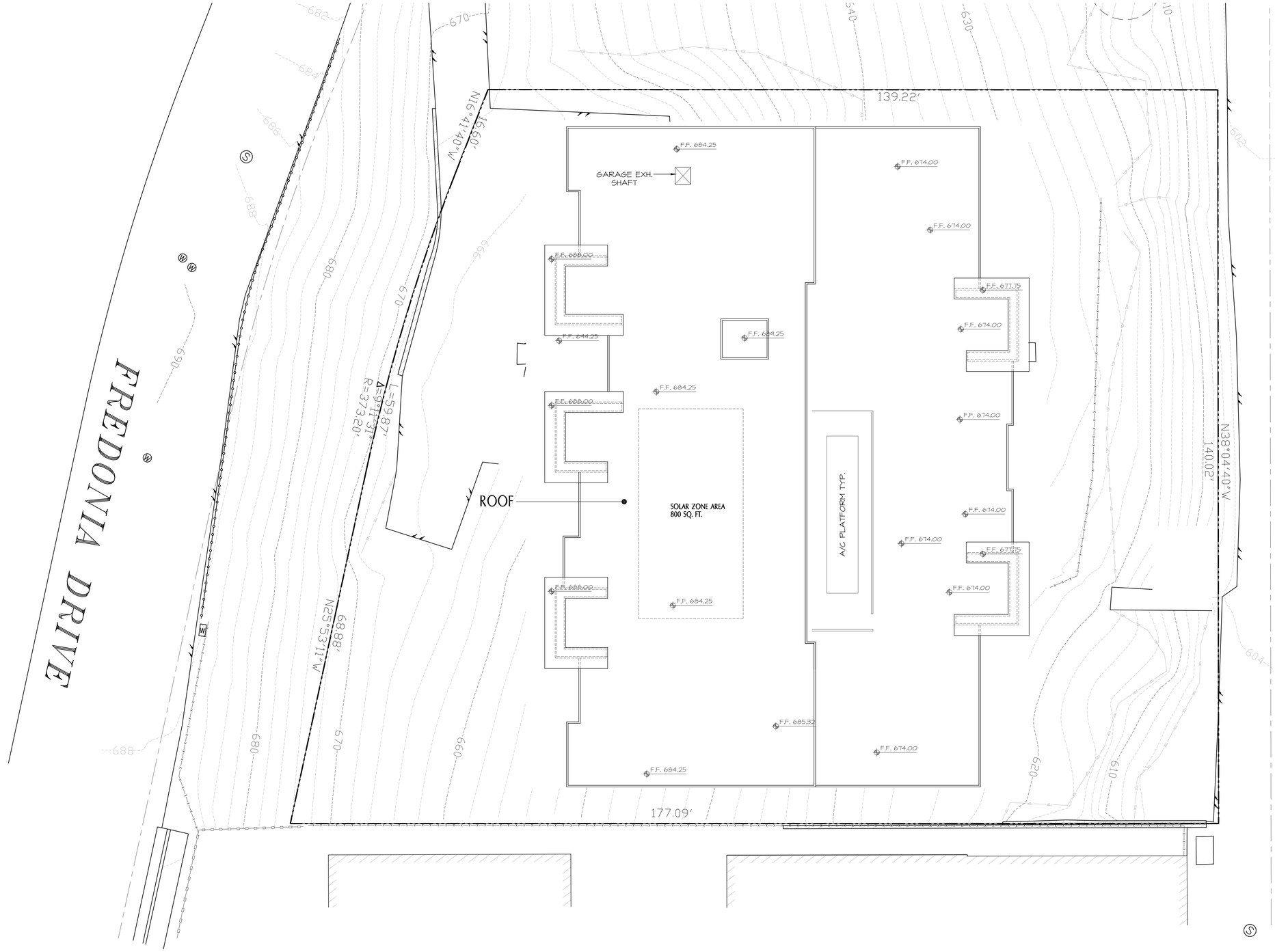
ROOF PLAN

SHEET NUMBER A2.1



TOPOGRAPHIC ROOF PLAN

ACCESSIBLE BUILDING

SCALE: 1/8" = 1'-0"

NORTH

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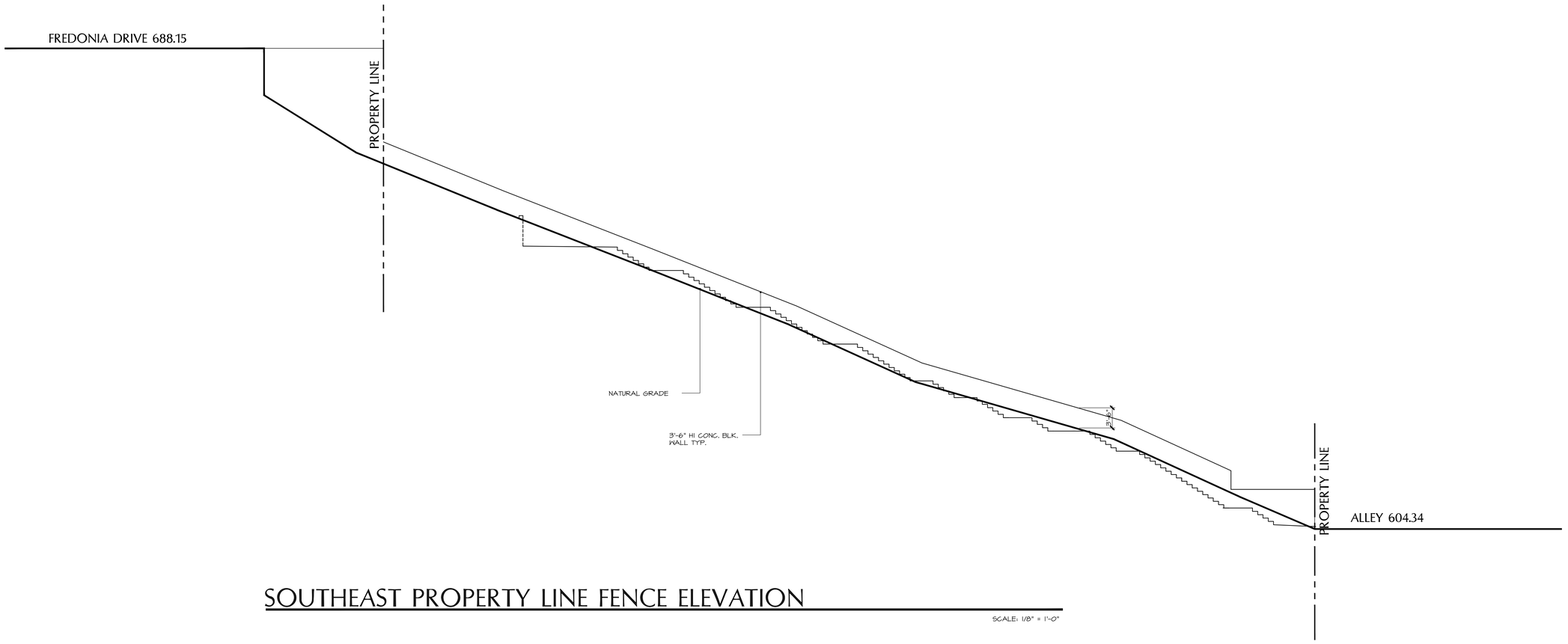
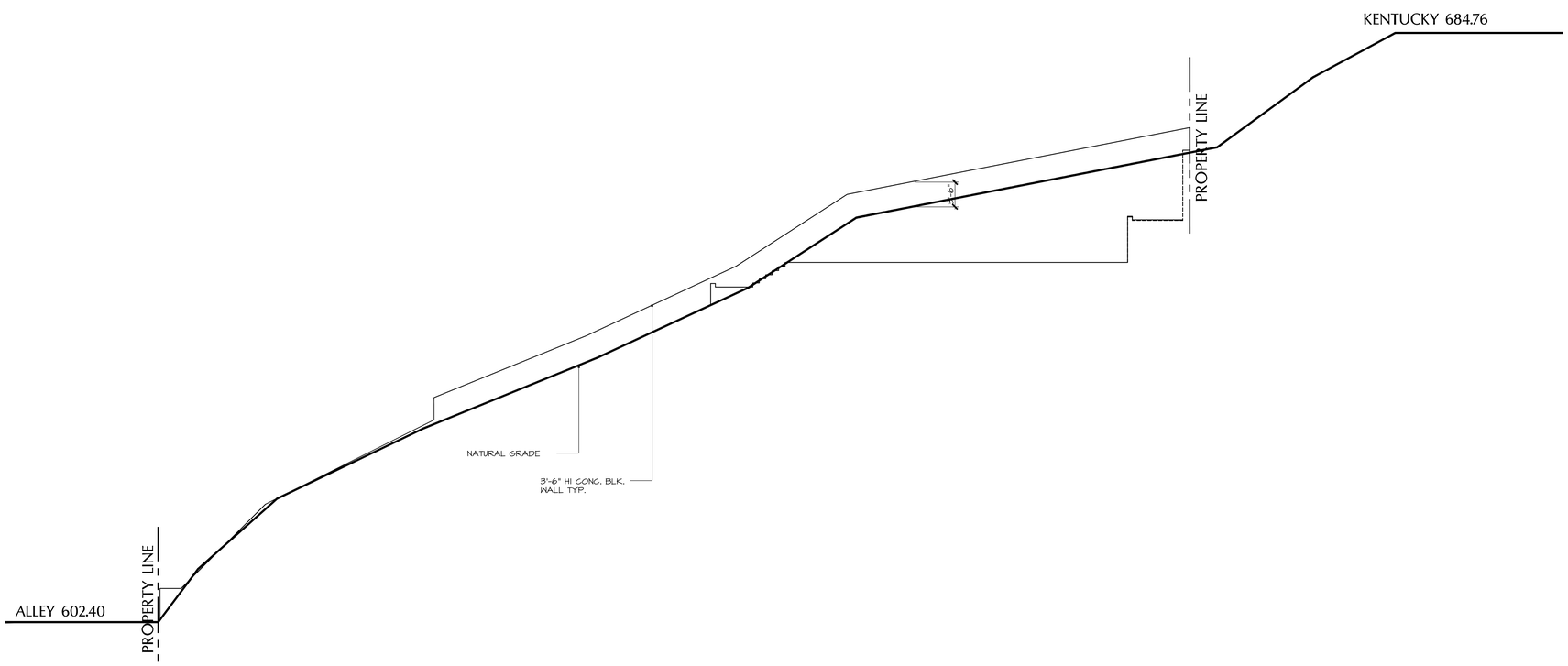
TOPOGRAPHIC ROOF PLAN

SHEET NUMBER A2.2



SOUTHEAST PROPERTY LINE FENCE ELEVATION

SCALE: 1/8" = 1'-0"



NORTHWEST PROPERTY LINE FENCE ELEVATION

SCALE: 1/8" = 1'-0"

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PROPERTY LINE FENCE ELEVATION

SHEET NUMBER A3.3

ELEVATION SHEET NOTES

1.	FOR TYPICAL FLASHING AT EXTERIOR OPENINGS REFER TO DETAIL:	1 / D.3
2.	FOR PENETRATION AT EXTERIOR WALLS REFER TO DETAIL:	18 / D.4
3.	PER PORTLAND CEMENT PLASTER/STUCCO MANUAL EB049 AND NAAMM STANDARD EMLA GUIDE SPECIFICATIONS FOR EXPANDED METAL LATH AND FURRING 920 INSTALL STUCCO CONTROL JOINTS WITH THE FOLLOWING CRITERIA: A. WALL AREAS: NOT MORE THAN 144 SQ. FT. IN AREA. B. THE RATIO OF HEIGHT TO WIDTH OF EACH AREA SHALL NOT EXCEED 2 1/2:1 OR 1:2 1/2. C. HORIZONTAL SURFACES: NOT MORE THAN 100 SQ. FT. IN AREA.	
4.	REFER TO ROOF PLAN FOR TYP. ARCHITECTURAL ROOF DETAILS.	
5.	DISCHARGE POINT FOR EXHAUST AIR SHALL BE AT LEAST 3' AWAY FROM ANY OPENING WHICH ALLOWS AIR ENTRY INTO OCCUPIED PORTIONS OF THE BLDG.	7 / D.4
6.	INSTALL DRIP SCREED AT ALL EXT. HORIZ. SURFACES MEETING (VERT) WALLS AND PARAPETS TO PREVENT EXT. FIN. STUCCO FROM STAINING.	
7.	THE FIRST 9' HEIGHT FROM FINISH GRADE OF EXTERIOR FINISH SHALL HAVE ANTI GRAFFITI TREATMENT BY "MONOPOLE INC." R.R. #25080.	
8.	PROVIDE 1/2" EXPANSION MATERIAL (COMPRESSIBLE FILLER STRIP) WHERE ALL EXTERIOR FLATWORK ABUTS BUILDING FOUNDATIONS.	
9.	JOINTS: A. SOLID FRAMING IS RECOMMENDED BEHIND ALL STUCCO JOINTS. B. REINFORCE THE WATER-RESISTIVE BARRIER WITH SELF ADHERED FLASHING AT ALL JOINT LOCATIONS. AT HORIZONTAL ASSEMBLIES, THE SAF SHOULD BE WEATHER LAPPED TO THE WATER RESISTIVE BARRIER. C. LATH SHOULD ALWAYS BE INTERRUPTED AT EXPANSION JOINTS PER ASTM C 1063. D. BUTT JOINTS AND MITERED CORNERS OF STUCCO CONTROL AND EXPANSION JOINTS SHALL BE EMBEDDED IN SEALANT TO PREVENT WATER INTRUSION AT THIS UNSEALED JUNCTION PER ASTM E2266.	
10.	ALL SEISMIC STRAPS AND OTHER EXPOSED STRUCTURAL HARDWARE TO BE COVERED WITH SELF ADHERED FLASHING PRIOR TO THE APPLICATION OF THE WATER RESISTIVE BARRIER.	

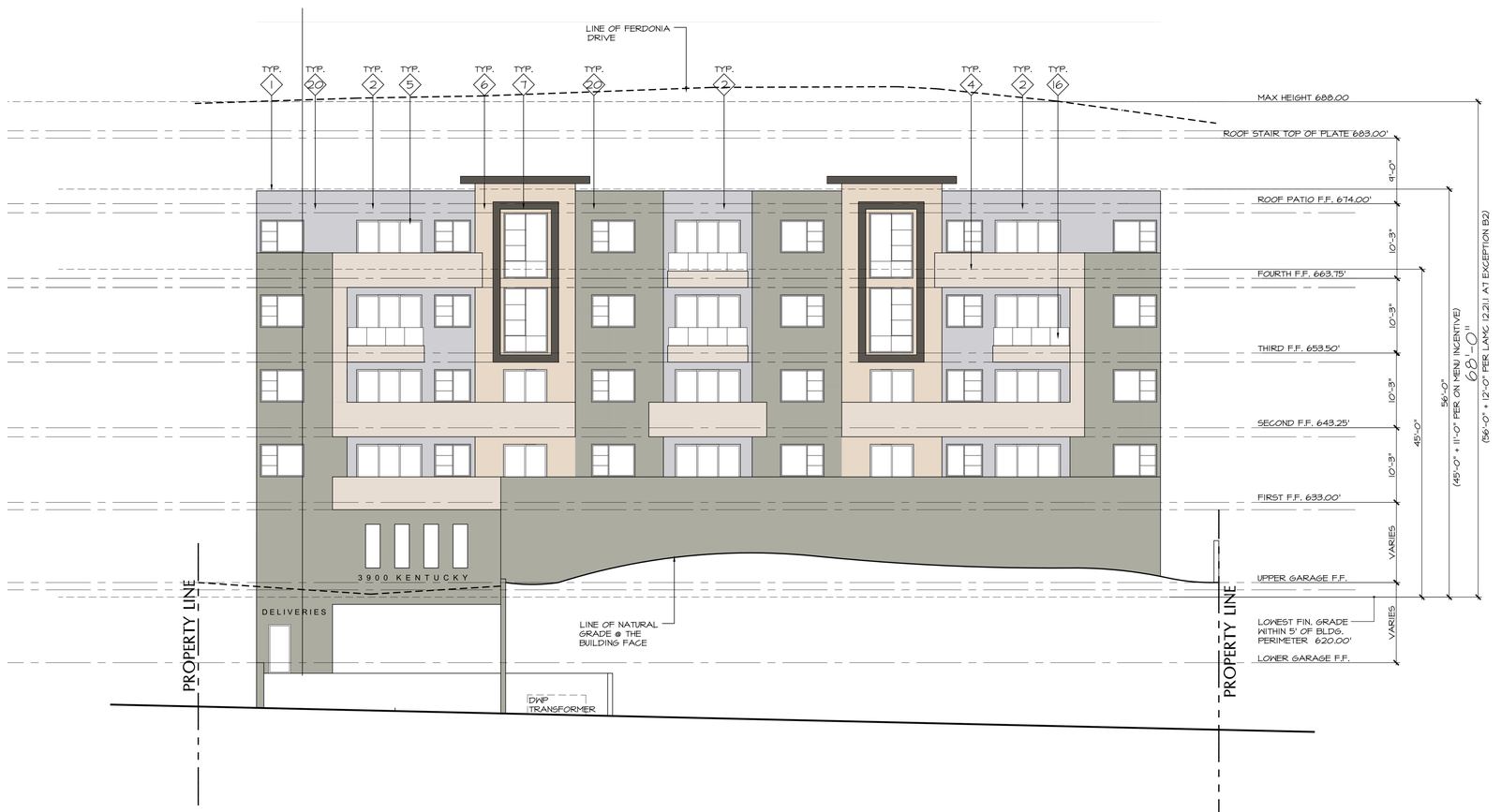
ELEVATION SHEET KEYNOTES

1	CLASS 'A' BUILT-UP ROOFING 'GAFGLAS' BY 'GAF' OR EQUAL. ICC ESR 1274, COOL GRAY PER COLOR WHEEL	11	INDICATES LOCATION OF ELECTRIC. TRANSFORMER.
2	⅞" THK. EXT. SMOOTH FINISH PLASTER, MORNING FOG SW 6255 BY SHERWIN WILLIAMS	12	FUTURE SOLAR PANEL
3	ALUMINUM FRAME WINDOW.	13	INDICATES LINE OF ROOF GUTTER. SIZE PER PLUMBING PLANS.
4	⅞" THK. EXT. SMOOTH FINISH PLASTER, CRUSHED ICE SW 7647 BY SHERWIN WILLIAMS	14	LINE OF GALV. MTL. DOWNSPOUT. SIZE PER PLUMBING PLANS. PRIMED AND PAINTED.
5	ALUMINUM FRAME GLASS DOOR.	15	FRONT LOAD STOREFRONT ALUM. GLAZING SYSTEM.
6	⅞" THK. EXT. SMOOTH FINISH PLASTER, FUNCTIONAL GRAY SW 7024 BY SHERWIN WILLIAMS	16	GLASS RAILING TO BE INSTALLED PER SPECS.
7	⅞" THK. EXT. SMOOTH FINISH PLASTER, IRON ORE SW 7069 BY SHERWIN WILLIAMS	17	GALVANIZED METAL BALC. SCUPPER
8	GALV. MTL. ENTRY GATE. PRIME AND PAINTED PER SPEC'S.	18	PROPOSED LOCATION OF BLDG. ADDRESS IN ACCORDANCE TO L.A.M.C. 57.09.11
9	GALV. MTL. LVR. WALL VENT. PAINT TO MATCH ADJ. FIN.	19	PROVIDE STUCCO CONTROL JOINTS (SCREED LINES) AT HORIZ. SURFACES AT MAX. 10' EA. DIRECTION TYPICAL.
10	LINE OF MTL. FLASHING AT ROOF TO WALL CONDITION.	20	⅞" THK. EXT. SMOOTH FINISH PLASTER, CITYSCAPE SW 7067 BY SHERWIN WILLIAMS



SOUTHWEST ELEVATION

SCALE: 1/8" = 1'-0"



NORTHEAST (ALLEY) ELEVATION

SCALE: 1/8" = 1'-0"

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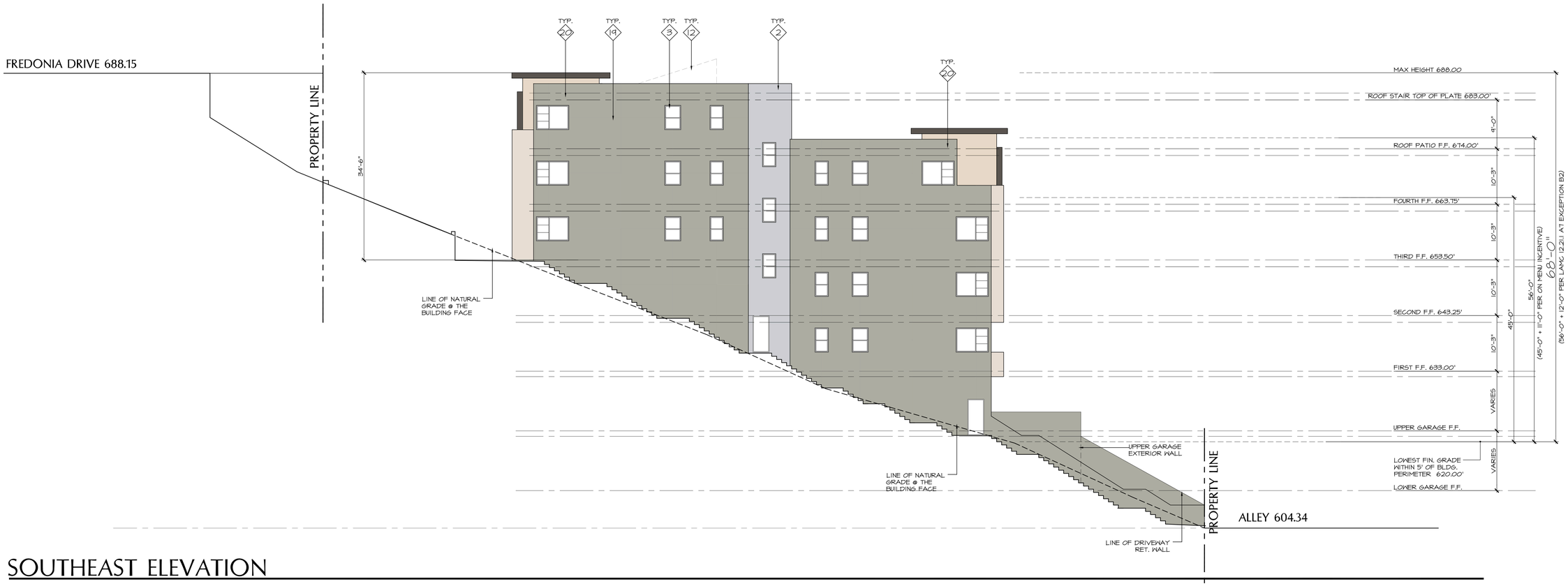
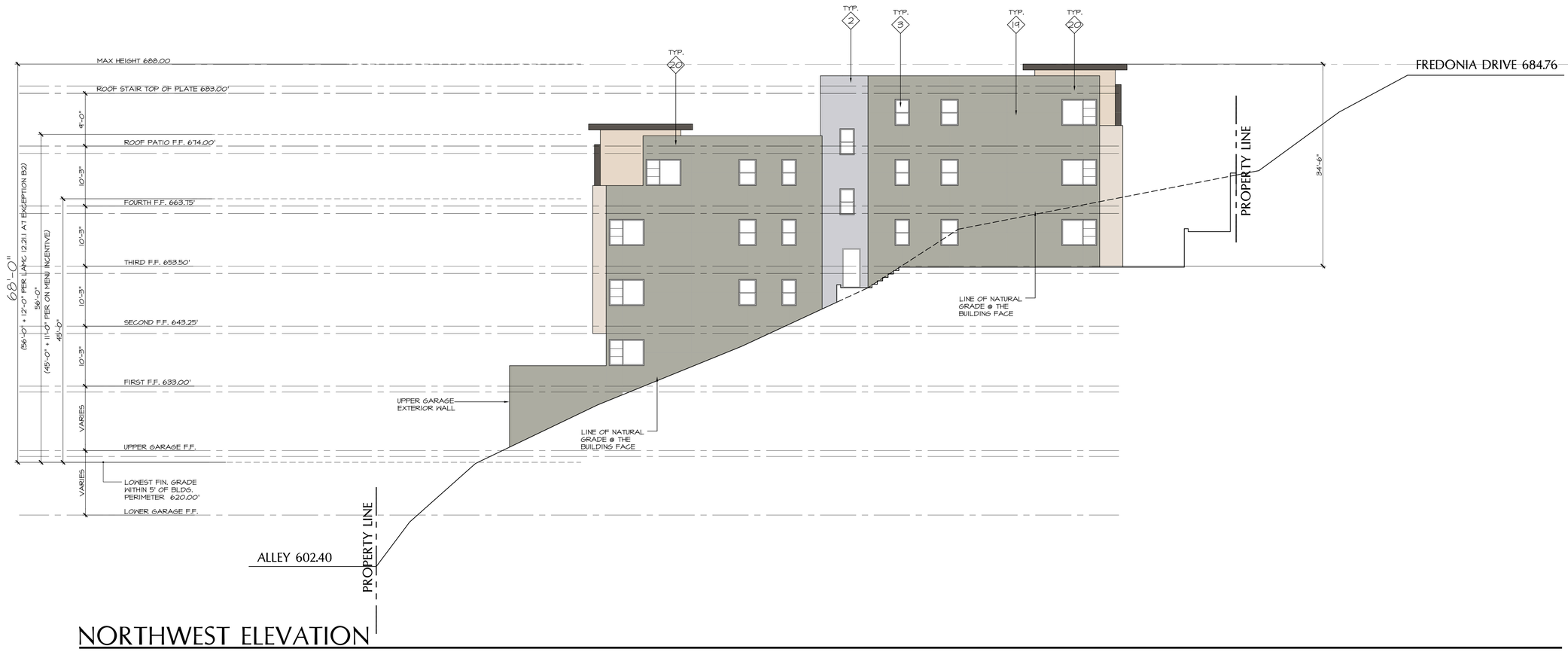
ELEVATIONS

SHEET NUMBER A3.1



SOUTHEAST ELEVATION



NORTHWEST ELEVATION

SCALE: 1/8" = 1'-0"

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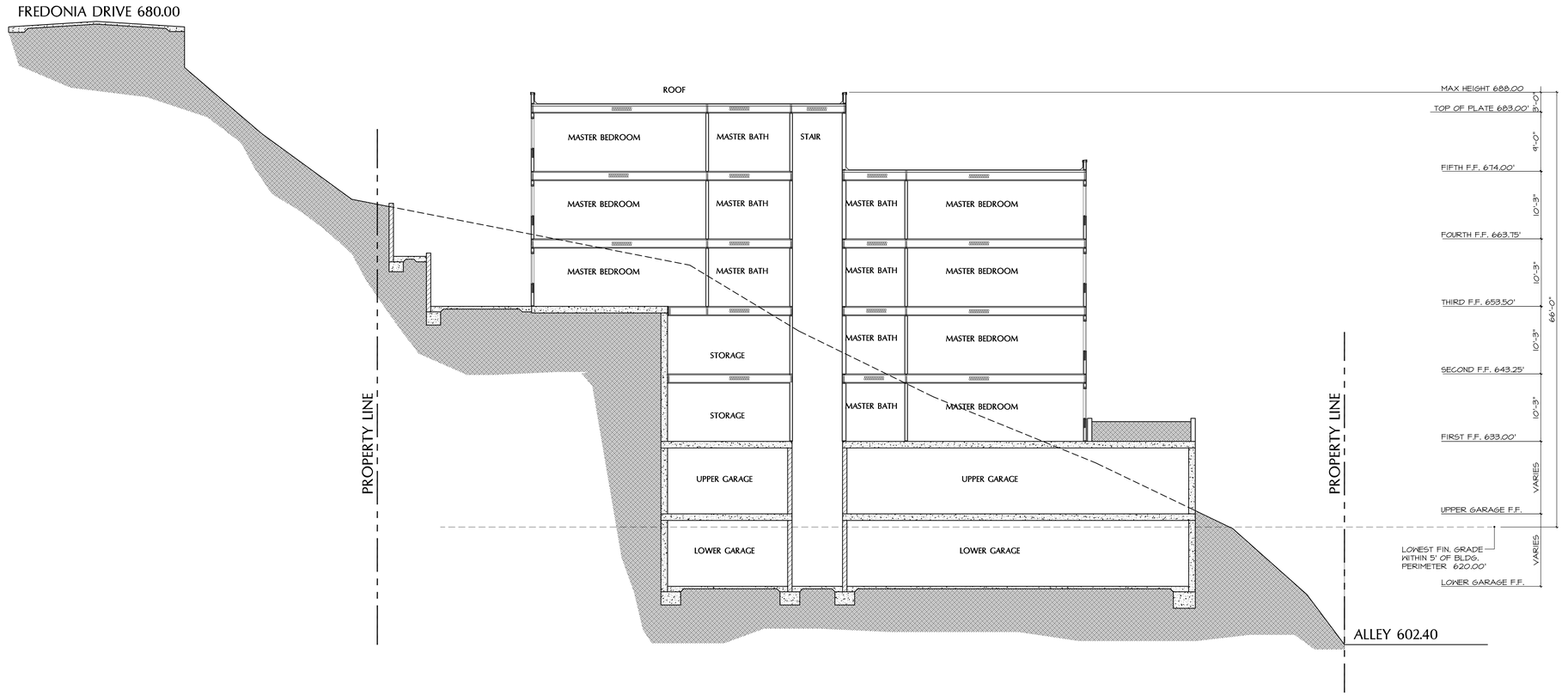
SHEET TITLE

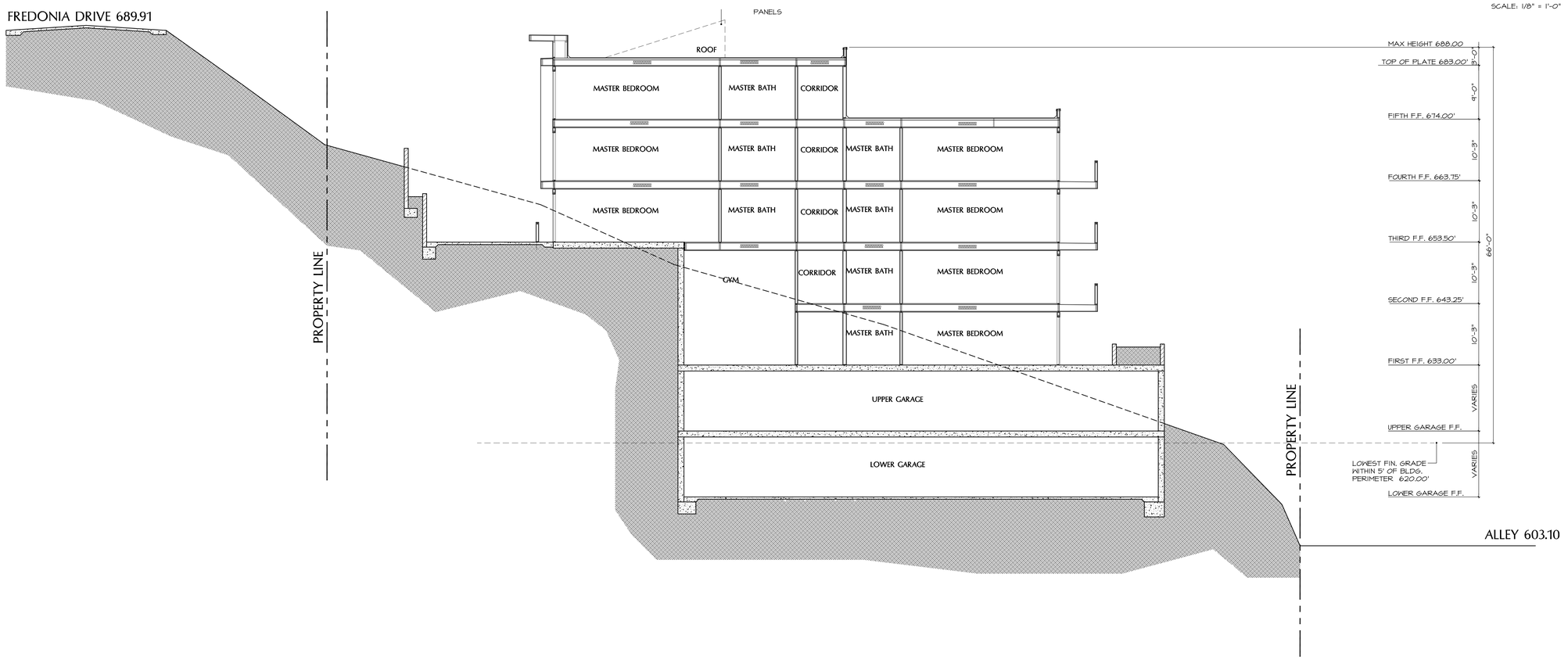
ELEVATIONS

SHEET NUMBER A3.2



SECTION A

SCALE: 1/8" = 1'-0"



SECTION B

SCALE: 1/8" = 1'-0"

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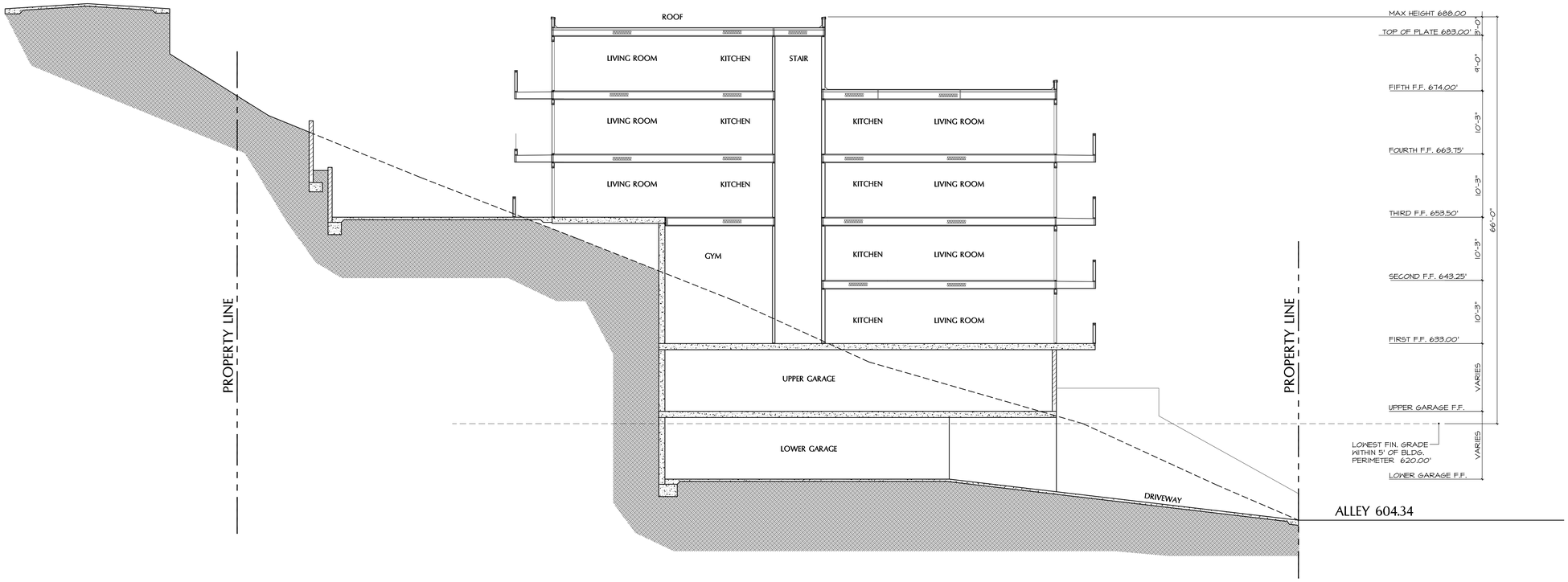
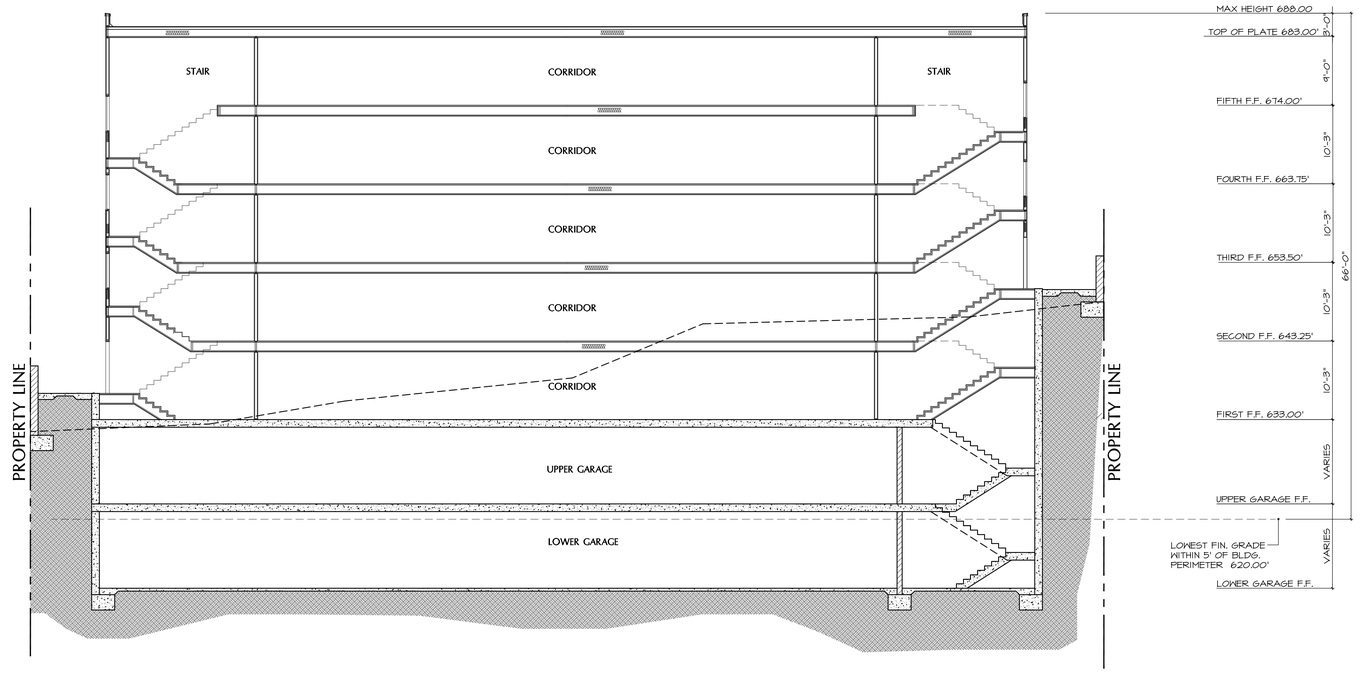
SECTIONS

SHEET NUMBER A4.1



SECTION C

SCALE: 1/8" = 1'-0"



SECTION D

SCALE: 1/8" = 1'-0"

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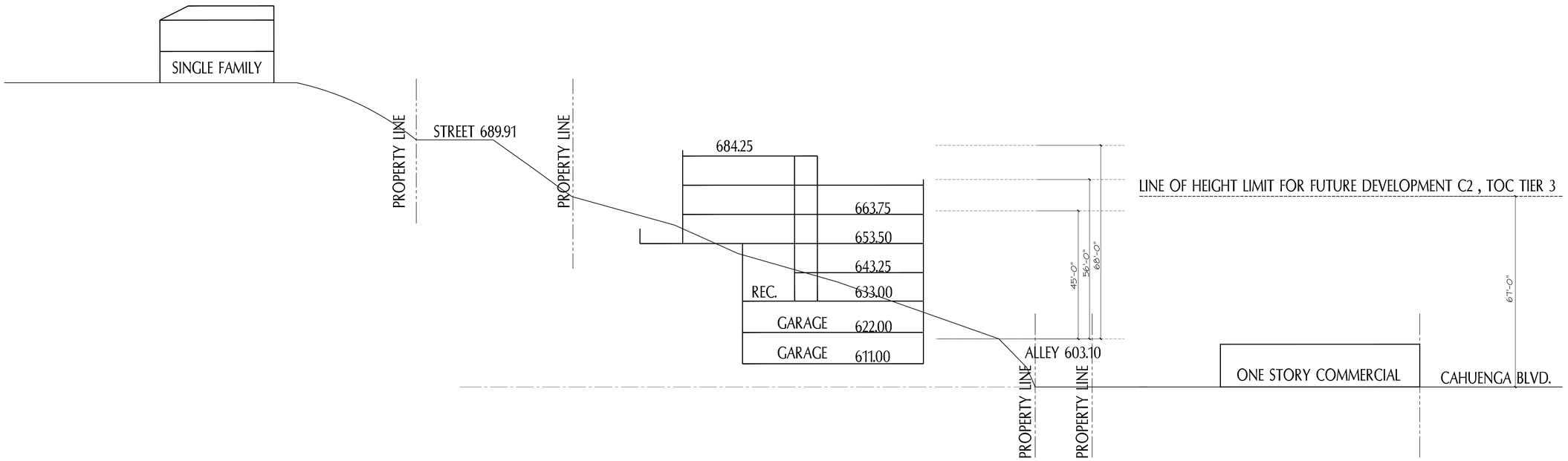
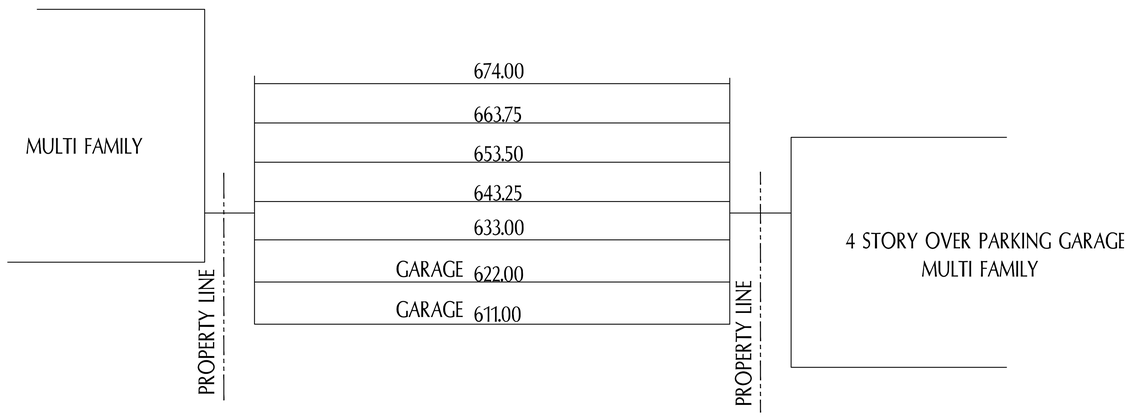
SHEET NUMBER A4.2



CROSS SECTION WEST - EAST

SCALE: 1/16" = 1'-0"



CROSS SECTION SOUTH - NORTH

SCALE: 1/16" = 1'-0"

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

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WOODLAND HILLS CA. 91364
TEL. (818) 888-6365
FAX: (818) 888-6725

PROJECT:

21 UNIT APARTMENT BLD'G.
3900 KENTUCKY DR.
LOS ANGELES, CA. 90068

OWNER:

3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

NOT FOR CONSTRUCTION

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CONSTRUCTION			PRE-CONSTRUCTION	
REV.	BULLETIN	DATE	ISSUED FOR	DATE

CHECKED BY | DATE
DRAWN BY | JOB NUMBER

SHEET TITLE

SECTIONS

SHEET NUMBER A4.3

ELEVATION SHEET NOTES

1.	FOR TYPICAL FLASHING AT EXTERIOR OPENINGS REFER TO DETAIL: (1/D.3)
2.	FOR PENETRATION AT EXTERIOR WALLS REFER TO DETAIL: (18/D.4)
3.	PER PORTLAND CEMENT PLASTER/STUCCO MANUAL EB049 AND NAAMM STANDARD EMLA GUIDE SPECIFICATIONS FOR EXPANDED METAL LATH AND FURRING 920 INSTALL STUCCO CONTROL JOINTS WITH THE FOLLOWING CRITERIA: A. WALL AREAS: NOT MORE THAN 144 SQ. FT. IN AREA. B. THE RATIO OF HEIGHT TO WIDTH OF EACH AREA SHALL NOT EXCEED 2 1/2:1 OR 1:2 1/2. C. HORIZONTAL SURFACES: NOT MORE THAN 100 SQ. FT. IN AREA.
4.	REFER TO ROOF PLAN FOR TYP. ARCHITECTURAL ROOF DETAILS.
5.	DISCHARGE POINT FOR EXHAUST AIR SHALL BE AT LEAST 3' AWAY FROM ANY OPENING WHICH ALLOWS AIR ENTRY INTO OCCUPIED PORTIONS OF THE BLDG. (7/D.4)
6.	INSTALL DRIP SCREED AT ALL EXT. HORIZ. SURFACES MEETING (VERT) WALLS AND PARAPETS TO PREVENT EXT. FIN. STUCCO FROM STAINING.
7.	THE FIRST 9' HEIGHT FROM FINISH GRADE OF EXTERIOR FINISH SHALL HAVE ANTI GRAFFITI TREATMENT BY "MONOPOLE INC." R.R. #25080.
8.	PROVIDE 1/2" EXPANSION MATERIAL (COMPRESSIBLE FILLER STRIP) WHERE ALL EXTERIOR FLATWORK ABUTS BUILDING FOUNDATIONS.
9.	JOINTS: A. SOLID FRAMING IS RECOMMENDED BEHIND ALL STUCCO JOINTS. B. REINFORCE THE WATER-RESISTIVE BARRIER WITH SELF ADHERED FLASHING AT ALL JOINT LOCATIONS. AT HORIZONTAL ASSEMBLIES, THE SAF SHOULD BE WEATHER LAPPED TO THE WATER RESISTIVE BARRIER. C. LATH SHOULD ALWAYS BE INTERRUPTED AT EXPANSION JOINTS PER ASTM C 1063. D. BUTT JOINTS AND MITERED CORNERS OF STUCCO CONTROL AND EXPANSION JOINTS SHALL BE EMBEDDED IN SEALANT TO PREVENT WATER INTRUSION AT THIS UNSEALED JUNCTION PER ASTM E2266.
10.	ALL SEISMIC STRAPS AND OTHER EXPOSED STRUCTURAL HARDWARE TO BE COVERED WITH SELF ADHERED FLASHING PRIOR TO THE APPLICATION OF THE WATER RESISTIVE BARRIER.

ELEVATION SHEET KEYNOTES

1	CLASS 'A' BUILT-UP ROOFING 'GAFGLAS' BY 'GAF' OR EQUAL. ICC ESR 1274, COOL GRAY PER COLOR WHEEL	11	INDICATES LOCATION OF ELECTRIC. TRANSFORMER.
2	⅞" THK. EXT. SMOOTH FINISH PLASTER, MORNING FOG SW 6255 BY SHERWIN WILLIAMS	12	FUTURE SOLAR PANEL
3	ALUMINUM FRAME WINDOW.	13	INDICATES LINE OF ROOF GUTTER. SIZE PER PLUMBING PLANS.
4	⅞" THK. EXT. SMOOTH FINISH PLASTER, CRUSHED ICE SW 7647 BY SHERWIN WILLIAMS	14	LINE OF GALV. MTL. DOWNSPOUT. SIZE PER PLUMBING PLANS. PRIMED AND PAINTED.
5	ALUMINUM FRAME GLASS DOOR.	15	FRONT LOAD STOREFRONT ALUM. GLAZING SYSTEM.
6	⅞" THK. EXT. SMOOTH FINISH PLASTER, FUNCTIONAL GRAY SW 7024 BY SHERWIN WILLIAMS	16	GLASS RAILING TO BE INSTALLED PER SPECS.
7	⅞" THK. EXT. SMOOTH FINISH PLASTER, IRON ORE SW 7069 BY SHERWIN WILLIAMS	17	GALVANIZED METAL BALC. SCUPPER
8	GALV. MTL. ENTRY GATE. PRIME AND PAINTED PER SPEC'S.	18	PROPOSED LOCATION OF BLDG. ADDRESS IN ACCORDANCE TO L.A.M.C. 57.09.11
9	GALV. MTL. LVR. WALL VENT. PAINT TO MATCH ADJ. FIN.	19	PROVIDE STUCCO CONTROL JOINTS (SCREED LINES) AT HORIZ. SURFACES AT MAX. 10' EA. DIRECTION TYPICAL.
10	LINE OF MTL. FLASHING AT ROOF TO WALL CONDITION.	20	⅞" THK. EXT. SMOOTH FINISH PLASTER, CITYSCAPE SW 7067 BY SHERWIN WILLIAMS

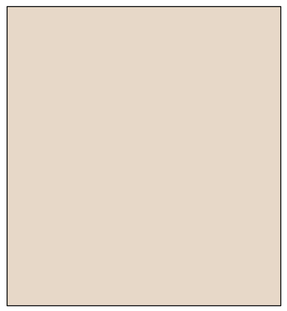


SOUTHWEST ELEVATION

SCALE: 1/8" = 1'-0"



16



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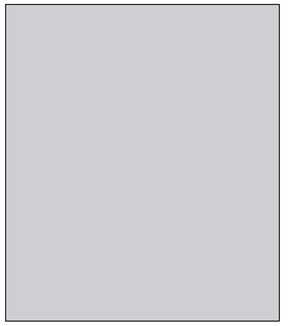
3 5



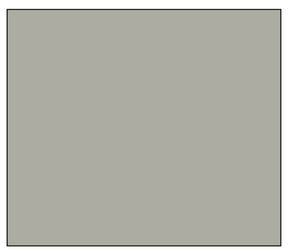
2



4



7



20

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CHECKED BY
DATE
DRAWN BY
JOB NUMBER

SHEET TITLE

MATERIALS

SHEET NUMBER M.1


DELIVERIES


DELIVERIES


3900 KENTUCKY
DELIVERIES





TREE NOTE

EACH EXISTING, SIGNIFICANT NON-PROTECT TREE WITHIN THE RIGHT-OF-WAY THAT IS TO BE REMOVED SHALL BE REPLACE BY TWO TREES. THE REMOVAL OF TREES IN THE RIGHT-OF-WAY MAY REQUIRE THE APPROVAL OF THE BOARD OF PUBLIC WORKS. PER THE TREE REPORT PREPARED BY MCKINLEY & ASSOC. OCT. 6, 2016 THERE IS ONLY ONE NON-PROTECTED TREE WITHIN THE RIGHT-OF-WAY AND NO PROTECTED TREES.

LIGHTING NOTE

ALL EXTERIOR LIGHTING SHALL BE DOWNWARD FACING AND SHEILDED.

TREE REPORT

REFER TO THE TREE REPORT PREPARED BY:
MCKINLEY & ASSOCIATES (818) 240-1358
DATED: OCTOBER 5, 2016

THERE ARE NO PROTECTED TREES ON SITE PER THE TREE REPORT.

TREE NOTES

1 TREE REQUIRED FOR EVERY FOUR UNITS - 21 UNITS = 5 - 24 INCH BOX TREES REQUIRED.
7 - 24 INCH BOX TREES PROVIDED

OPEN SPACE TABULATION

REQUIRED			
UNIT TYPE	QUANTITY	RATIO / DU	SQ. FEET
>3 HABITABLE ROOMS	8	175	1,400 S.F.
3 HABITABLE ROOMS	13	125	1,625 S.F.
TOTAL REQUIRED			3,025 S.F.

PROVIDED			
UNIT TYPE	QUANTITY	RATIO / DU	SQ. FEET
BALCONY	5	100	500 S.F.
REC ROOM	-	-	756 S.F.
COMMON PATIO	-	15' MINIMUM WIDTH	1,800 S.F.
TOTAL PROVIDED			3,056 S.F.

POTENTIAL LANDSCAPE AREA

POTENTIAL LANDSCAPE AREA SITE = 22,495 S.F. - BUILDING 17,190 S.F. = 11,555 S.F.
LANDSCAPE PROVIDED = 6,459 S.F.

TREE LEGEND

SYMBOL	BOTANICAL NAME / COMMON NAME / SIZE @ SIZE @ YEARS TO SIZE / QTY/ W/COLS / PLANTING / MATURITY / MATURITY
A C	CERCIS OCCIDENTALIS WESTERN REDBUD 24 INCH BOX / 6 / LOW / 3'T X 2'W / 12'+T X 12'+W 12 YEARS
	(1) EXISTING TREE TO REMAIN PROTECT IN PLACE -
A C	FRAXINUS DIPETALA CALIFORNIA ASH 24 INCH BOX / 3 / LOW / 6'T X 2' W / 20'T X 13' W
	QUERCUS AGRIFOLIA COAST LIVE OAK 24" BOX / 9 / LOW / 8'T X 3'W / 40'T X 40'+W/ 30 YRS

SHRUB LEGEND

SYMBOL	BOTANICAL NAME / COMMON NAME / SIZE @ SIZE @ YEARS TO SIZE / QTY/ W/COLS / PLANTING / MATURITY / MATURITY
A C	CEANOTHUS CUNEATUS BUCKBRUSH 1 GAL / 18 / LOW / 10"T X10" W / 5-8'T X 5-8'W / 5 YEARS
A C	CEANOTHUS T. 'YANKEE POINT' YANKEE POINT CEANLOTHUS 1 GAL / 44 / LOW / 6"T X 6 W / 18"T X 8-10'W / 5 YEARS
A C	ERIOGONUM GRANDE RUBESCENS SAN MIGUEL BUCKWHEAT 1 GAL / 29 / LOW / 6"T X 12" W / 1-2'T X 2-3'W / 2 YEARS
A C	HEUCHERA MAXIMA ISLAND ALUM ROOT 1 GAL / 25 / LOW / 6"T X 12" W / 1-2'T X 1-2'W / 2 YEARS
A C	JUNCUS PATENS SPREADING RUSH 1 GAL / 98 / LOW / 18"T X 8"W / 24"T X 24"W / 1 YEAR
A C	KECKIELLA CORDIFOLIA HEART LEAVED PENSTEMON 5 GAL / 9 / LOW / 12"T X 12"W / 5'T X 5'W / 4 YEARS
A C	LEYMUS TRITICOIDES WILD RYE 1 GAL /88/ LOW / 4"T X 4"W / 3'T X 3'W / 1 YEAR
A C	MUHLENBERGIA RIGEN DEER GRASS 1 GAL / 33 / LOW / 12"T X 12"W / 4'T X 4'W / 8 YEARS
A C	RHAMNUS C. ILICIFOLIA HOLLYLEAF REDBERRY 5 GAL / 43 / LOW / 12"T X 12"W / 6'T X 6'W/ 5 YEARS
A C	SYMPHORICARPOS MOLLIS SOUTHERN CALIFORNIA SNOWBERRY 5 GAL / 63 / LOW / 12 T X 12 W / 3'T X 4'W / 3 YEARS
A C	VENEGASIA CARPESIODES / *LACRMP CANYON SUNFLOWER 5 GAL / 24 / LOW / 12"T x 12"W / 3'T X 3'W / 3 YEARS

GROUNDCOVER LEGEND

SYMBOL	BOTANICAL NAME / COMMON NAME / SIZE @ SIZE @ YEARS TO SIZE / QTY/ W/COLS
	3" MULCH IN ALL FLAT SERVICE PLANTERS

LANDSCAPE POINT SYSTEM

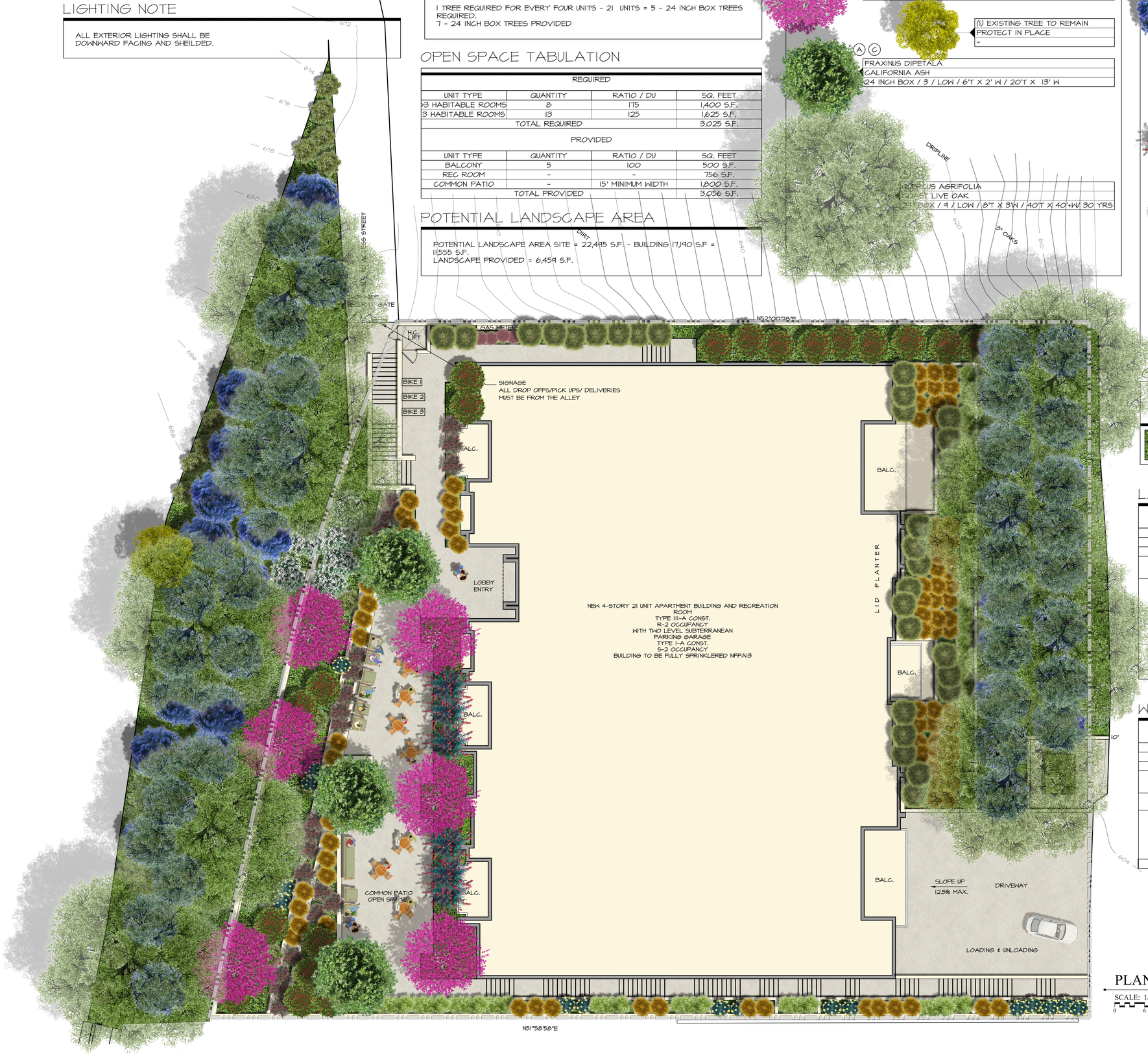
REQUIRED			
REFERENCE NO.	UNIT TYPE	POINTS	SQ. FEET
N/A	ENTIRE SITE	20	22,495
TOTAL REQUIRED:		20	

PROVIDED			
A	100% CALIFORNIA NATIVE PLANTS THROUGHOUT THE PROJECT	10	N/A
B	1 TREE TAXON NOT WITHIN 1000' R- 5 PTS PER TREE - UP TO 50% OF POINTS	10	N/A
A	100% LOS ANGELES NATIVE PLANTS 75% OF POINTS	15	N/A
TOTAL PROVIDED:		35	

WATER MANAGEMENT POINT SYSTEM

REQUIRED			
REFERENCE NO.	UNIT TYPE	POINTS	SQ. FEET
N/A	ENTIRE SITE	300	22,495
TOTAL REQUIRED:		300	

PROVIDED			
N/A	AUTOMATIC CONTROLLERS	5	N/A
C	PLANTS ONCE ESTABLISHED THAT WILL REMAIN IN GOOD HEALTH WITH SUMMER WATER 492 X 2 PTS.	984	N/A
TOTAL PROVIDED:		898	



PLANTING PLAN

SCALE: 1/8" = 1'-0"
0 6 10 16

LICENSED LANDSCAPE ARCHITECT
SUSAN E. McEOWEN #2180
REN. 3-31-22
STATE OF CALIFORNIA

THE OFFICE OF
SUSAN E. McEOWEN
LANDSCAPE ARCHITECT 2180
A CALIFORNIA CORPORATION
19197 Golden Valley Road, #924
Santa Clarita, CA 91387
Office Telephone: (661) 212 3335
Email Address: Landarch.Susan@gmail.com

OWNER:
-
3900 KENTUCKY LLC.
528 STATE STREET
GLENDALE, CA
91203

PROJECT:
21-UNIT APARTMENT BUILDING
3900 KENTUCKY DRIVE
LOS ANGELES, CA
90068

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SHEET TITLE:
PLANTING PLAN

START DATE:	2017-03-31
REVISION DATE 01:	2020-02-07
REVISION DATE 02:	SITE JUNE 4, 2020
REVISION DATE 03:	SIGNAGE OC. 24, 2020
DRAWN BY:	SEH
CHECKED BY:	SEH
FILE NUMBER:	2017-3-1

L-1

KENTUCKY DRIVE

GENERAL #3 LANDSCAPE AREA

1. TOTAL OF 11,380 SQ. FT. OF LANDSCAPED AREA. 100% LOW WATER SHRUBS & TREES.
2. 100% OF PLANT AVERAGE PER HYDZ/LS = LOW OR 0.3
   492 PLANTS X 70% = 364 PLANTS 0.3 OR LESS = 492 PLANTS PROVIDED 0.3 OR LESS.
3. 11,380 SQ.FT. LANDSCAPE PROVIDED - WATERED WITH POTABLE WATER
4. SITE MEETS MWELO REQUIREMENTS - SEE WORKSHEET.

#1 LANDSCAPE DOCUMENTATION

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE ORDINANCE DOCUMENTATION PACKAGE.

DEC. 13, 2019

#12 - RECIRCULATING WATER

RE CIRCULATING WATER SYSTEMS SHALL BE USED FOR WATER FEATURES.

#13 - MULCH

A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.

#14 - SOILS

FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.

#16, 18, & 20 - IRRIGATION EQUIPMENT

MWELO IRRIGATION EQUIPMENT SPECIFICATIONS

16. A 1" DEDICATED WATER METER FOR IRRIGATION USE ONLY TO BE PROVIDED.
18. PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.
20. CHECK VALVES OR ANTI-SYPHON VALVES ARE REQUIRED ON ALL SPRINKLERS HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

REQUIRED STATEMENTS & CERTIFICATION'S

23. I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLANS.
24. THE FINAL SET OF LANDSCAPE AND IRRIGATION PLANS SHALL BEAR THE SIGNATURE OF A LICENSED LANDSCAPE ARCHITECT, LICENSED LANDSCAPE CONTRACTOR, CERTIFIED IRRIGATION DESIGNER, LICENSED ARCHITECT, LICENSED ENGINEER, LICENSED LAND SURVEYOR OR PERSONAL PROPERTY OWNER.
25. A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.
26. A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE SIGNER OF THE LANDSCAPE PLANS, THE SIGNER OF THE IRRIGATION PLANS, OR THE LICENSED CONTRACTOR OF THE PROJECT.
27. AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION.

Water Efficient Landscape Worksheet

Reference Evapotranspiration (ETo)		50.1	Los Angeles	12 month Eto for Los Angeles from Jan. 1 - Dec. 31			
	ETWU requirement	ETWU requirement	ETWU requirement	ETWU requirement	MAWA requirement	ETWU requirement	
Hydrozone#/Planting Description	Plant Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area (LA) (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU)
Regular Landscape Areas							
1)low shrubs	0.3	drip	0.81	0.370	149	55.19	1,714
2)low shrubs	0.3	Drip	0.81	0.370	141	52.22	1,622
3) low shrubs	0.3	drip	0.81	0.370	123	45.56	1,415
4) low shrubs	0.3	Drip	0.81	0.370	39	14.44	449
5) low shrubs	0.3	drip	0.81	0.370	58	21.48	667
6) low shrubs	0.5	drip	0.81	0.617	128	79.01	2,454
7)low shrubs	0.3	Drip	0.81	0.370	813	301.11	9,353
8) low trees	0.3	Drip	0.81	0.370	40	14.81	460
9) low trees	0.3	Drip	0.81	0.370	70	25.90	805
10) low shrubs	0.3	Drip	0.81	0.370	1,107	410.00	12,735
11)low shrubs	0.3	Drip	0.81	0.370	215	79.63	2,473
12) low trees & shrubs	0.3	Overhead Spray	0.81	0.370	1,500	555.56	17,257
13)low trees & shrubs	0.3	Overhead Spray	0.75	0.400	1,500	600.00	18,637
14)low trees & shurbs	0.3	Overhead Spray	0.75	0.400	1,500	600.00	18,637
15)low tree	0.5	drip	0.81	0.617	20	12.35	383
16) low shrubs	0.3	Drip	0.81	0.370	362	134.07	4,165
17) low shrubs	0.3	drip	0.81	0.370	112	41.48	1,288
18)low shrubs	0.3	Drip	0.81	0.370	50	18.52	575
19) low shrubs	0.3	Drip	0.81	0.370	56	20.74	644
20) low shrubs	0.3	Drip	0.81	0.370	70	25.90	805
21) low shrubs	0.3	Drip	0.81	0.370	46	17.04	529
22)low shrubs	0.3	Drip	0.81	0.370	40	14.81	460
23) low shrubs	0.3	Drip	0.81	0.370	1,063	393.70	12,229
24) low trees & shrubs	0.3	Overhead Spray	0.81	0.370	726	268.62	8,344
25) low trees & shrubs	0.3	Overhead Spray	0.81	0.370	726	268.89	8,352
26)low trees & shrubs	0.3	Overhead Spray	0.81	0.370	726	268.89	8,352
							0
			Totals		11,380	4,340	134,807
Special Landscape Areas (SLA): Recycled Water							
				1	0	0	0
					0	0	0
			Total is		0	0	0
	Estimated Total Water Use (ETWU)						**134,807**
	Maximum Allowed Water Allowance (MAWA)						**194,417**

ETWU must be Less than MAWA
ETWU will be "0" for 100% recycled water systems

Plant Water Use Type	Plant Factor	Irrigation method	Irrigation Efficiency
very low	0-0.1	overhead spray	0.75
low	0.1-0.3	drip	0.81
medium	0.4-0.6		
high	0.7-1.0		

MAWA (annual gallons allowed)= (Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]

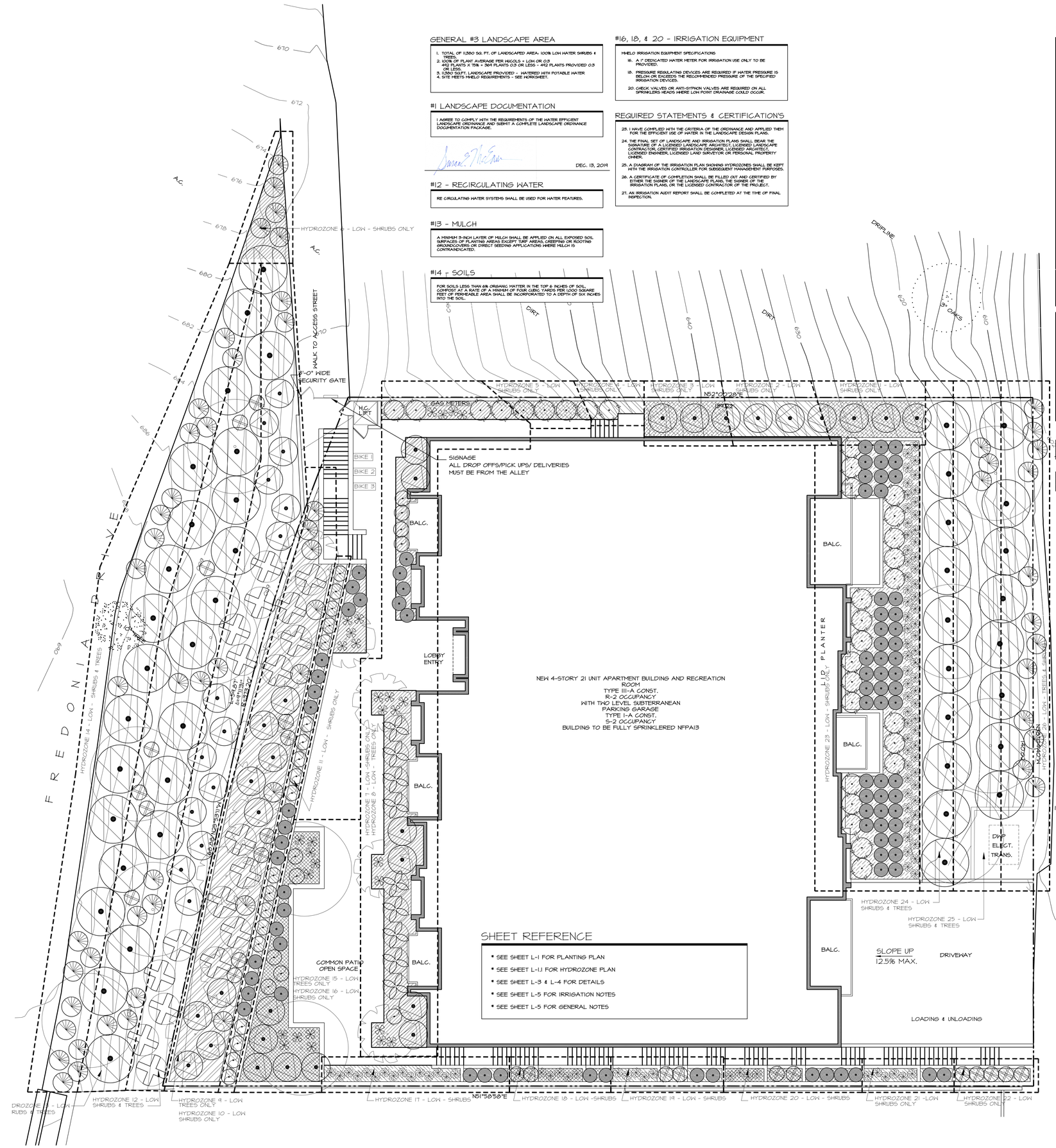
where 0.62 is a conversion factor that converts acre-inches per acre/year to gallons per sq. ft./year. LA is the total landscape area in sq. ft, SLA is the total special landscape area in sq. ft., and ETAF is .55 for residential areas and 0.45 for non residential areas.

(50.1)(0.62) [(.55 x 11,380 + [(1-.55) x 0)]
31.062 x 6,259 + 0 = **194,417 MAWA**

ETAF Calculations

Regular Landscape Areas	
Total ETAF x Area	4,340
Total Area	11,380
Average ETAF	**0.38**

All Landscape Areas	
Total ETAF x Area	4,340
Total Area	11,380
Sitewide ETAF	**0.38**



SHEET REFERENCE

- SEE SHEET L-1 FOR PLANTING PLAN
- SEE SHEET L-1.1 FOR HYDROZONE PLAN
- SEE SHEET L-3 & L-4 FOR DETAILS
- SEE SHEET L-5 FOR IRRIGATION NOTES
- SEE SHEET L-5 FOR GENERAL NOTES

HYDROZONE PLAN

SCALE: 1/8" = 1'-0"

0 6 10 16

LICENSED LANDSCAPE ARCHITECT SUSAN E. McEOWEN #2180 REN. 3-31-22 STATE OF CALIFORNIA

THE OFFICE OF
SUSAN E. McEOWEN
LANDSCAPE ARCHITECT 2180
A CALIFORNIA CORPORATION
19197 Golden Valley Road, #924
Santa Clarita, CA 91387
Office Telephone: (661) 212 3335
Email Address: Landarch.Susan@gmail.com

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HYDROZONE PLAN

START DATE:	2017-03-31
REVISION DATE 01:	2020-02-07
REVISION DATE 02:	SITE JAN. 6, 2020
REVISION DATE 03:	SIGNAGE OC. 24, 2020
DRAWN BY:	SEM
CHECKED BY:	SEM
FILE NUMBER:	2017-3-1

L-1.1

KENTUCKY DRIVE

MWELO IRRIGATION CERTIFICATION

MWELO IRRIGATION CERTIFICATION OF COMPLETION REQUIREMENTS

1. A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT PURPOSES.
2. AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED A THE TIME OF FINAL INSPECTION.

MUNICIPAL PRESSURE CALCULATIONS

SYSTEM DESIGN CAPACITY: 40 GALLONS PER MINUTE MAXIMUM
CALCULATIONS FOR ZONE No: 20 (MOST DISTAL ZONE FROM POC)

ITEM SPECIFICATION	PSI
STATIC WATER PRESSURE (65 PSI - VERIFY IN FIELD)	+65.0
WYE STRAINER / FILTER	-2.0
BACKFLOW PREVENTION DEVICE	-15.0
PRESSURE REDUCING VALVE	-4.0
REMOTE CONTROL MASTER VALVE	-3.5
REMOTE CONTROL VALVE	-1.9
LATERAL LINE (-0.55 PSI / 100 LF X 175 LF)	-1.0
MAIN LINE (PER PIPE SIZING CALLOUTS)	-2.4
FITTING LOSSES (10% OF TOTAL PIPE LOSSES)	-0.3
DIFFERENCE IN ELEVATION (+ / - 0.433 PSI PER FOOT)	-4.3
SUBTOTAL OF LOSSES	-34.4
BOOSTER PUMP (MINIMUM PSI GAIN REQUIRED)	N/A
TOTAL PRESSURE AVAILABLE:	+30.6

SHEET REFERENCE

- SEE SHEET L-1 FOR PLANTING PLAN
- SEE SHEET L-3 & L-4 FOR DETAILS
- SEE SHEET L-5 FOR IRRIGATION NOTES
- SEE SHEET L-5 FOR GENERAL NOTES

DIAGRAMMATIC IRRIGATION PLAN

PLAN IS DIAGRAMMATIC FOR PURPOSES OF GRAPHIC CLARITY;

1. VALVE PLACEMENT TO DIVIDE AND EQUALIZE FLOW RATES PER IRRIGATION ZONE.
2. LATERAL PIPE IS 1"Ø UNLESS SPECIFIED OTHERWISE PER CALLOUTS ON PLAN.
3. INSTALL ALL IRRIGATION PIPE IN LAWN AND PLANTING BEDS.
4. IRRIGATION PIPE TO BE SLEEVED UNDER ALL PAVED AREAS. ALL SLEEVES SHALL BE A MINIMUM OF TWO (2) TIMES LARGER THAN IRRIGATION PIPE(S).
5. INSTALL ALL VALVES IN ACCESSIBLE, INCONSPICUOUS AREAS.

XFS DRIPLINE

XFS DRIPLINE IRRIGATION ZONES SPECIFICATIONS AND CALCULATIONS FOR THIS PLAN ARE BASED ON THE FOLLOWING PARAMETERS;

1. SOIL TYPE: SANDY LOAM (LOAM)
2. SLOPED IRRIGATION ZONES: 3
3. STATIC WATER PRESSURE: 65 PSI - VERIFY IN FIELD

- IRRIGATION CONTRACTOR TO OBTAIN SOILS REPORT TO VERIFY IRRIGATION ZONE SPECIFICATIONS AND CALCULATIONS FOR THIS PLAN.
- CONTRACTOR RESPONSIBLE FOR VERIFYING STATIC WATER PRESSURE.
- REFER TO RAIN BIRD 2014 IRRIGATION PRODUCTS CATALOG (WWW.RAINBIRD.COM) FOR ALL XFS DRIPLINE SPECIFICATIONS AND REFER TO RAIN BIRD DESIGN GUIDELINES AND SPECIFICATIONS.

IRRIGATION LEGEND

SYMBOL	MANUFACTURER	MODEL SPECIFICATION	PER DETAIL
M	ANY	WATER METER	N/A
	NOTE: VERIFY SIZE AND LOCATION IN FIELD		
POC	N/A	POINT OF CONNECTION	N/A
	NOTE: VERIFY LOCATION IN FIELD		
Y	ZURN WILKINS	5XL 1"	7 / L-3
	DESCRIPTION: 1" LEAD-FREE CAST BRONZE WYE TYPE STRAINER		
	ZURN WILKINS	MODEL 375XL 1"	7 / L-3
	DESCRIPTION: 1" BACKFLOW PREVENTION DEVICE		
P	ZURN WILKINS	500XL 2"	7 / L-3
	DESCRIPTION: 2" PRESSURE REDUCING VALVE / POTABLE WATER LINES		
P	EZ-FLO	EZ-FLO EZ XXX-HC	10 / L-3
	NOTE: XXX AUTOMATIC FERTILIZATION SYSTEM		
	RAIN BIRD	150-PESB-PRS-D	9 / L-3
	DESCRIPTION: 1-1/2" REMOTE CONTROL VALVE WITH SCRUBBER / PSI CTL.		
	NIBCO / EQUAL	LINE SIZE	N/A
	DESCRIPTION: GATE VALVE IN YARD BOX		
	NIBCO / EQUAL	LINE SIZE	N/A
	DESCRIPTION: LINE SIZE BALL VALVE IN YARD BOX		
	RAIN BIRD	100-PESB-PRS-D	9 / L-3
	DESCRIPTION: 1" REMOTE CONTROL VALVE WITH SCRUBBER / PSI CTL.		
	RAIN BIRD	XCZ-LF-100-PRF	17 & 18 / L-3
	DESCRIPTION: LOW FLOW CONTROL ZONE KIT		
	RAIN BIRD	33DRLC	8 / L-3
	DESCRIPTION: QUICK COUPLER VALVE		
	RAIN BIRD	RWS-M-B-C-1402	14 & 16 / L-3
	NOTE: ROOT WATERING SYSTEM WITH FILTER FABRIC SOCK / 0.50 GPM		
	IRRITROL	MC-30E (BLUE) SERIES	11 / L-3
	DESCRIPTION: 30-STATION OUTDOOR CONTROLLER		
W	IRRITROL	CL-MI (CL-100-WIRELESS KIT)	12 / L-3
	DESCRIPTION: IRRITROL WIRELESS RECEIVER MODULE		
	IRRITROL	CL-WI (CL-100-WIRELESS KIT)	13 / L-3
	DESCRIPTION: IRRITROL WIRELESS WEATHER SENSOR		
	NOTE: PLANTER PENETRATION / CORING AND WATER PROOFING BY CERTIFIED BUILDING PLUMBER.		
	NOTE: FLOOR SLAB AND PLANTER PENETRATION / CORING AND WATER PROOFING BY CERTIFIED BUILDING PLUMBER.		
	ANY	PVC CLASS 200 PLASTIC PIPE	N/A
	SIZE: 1" LATERAL LINE		
	ANY	PVC CLASS 315 PLASTIC PIPE	N/A
	SIZE: SEE PLAN FOR PIPE-SIZING CALLOUTS		
	ANY	TYPE K COPPER WATER TUBE	N/A
	SIZE: XXX MAIN LINE / INSTALLATION BY CERTIFIED PLUMBER		
1.5"		IRRIGATION PIPE SIZE	N/A
	NOTE: SIZE PER LEG INDICATED / ASSUME 1" FOR PIPE NOT INDICATED		
	RAIN BIRD	XFS-04-18-XXX	L-4
	RAIN BIRD	XQF-XXX	
	DESCRIPTION: SUB-SURFACE DRIPLINE (0.9 GPH / 18" EMITTER SPACING) AND OF DRIPLINE HEADER (SIZE PER MFG. GUIDELINES).		
	HUNTER	MPB005R-90 / 90°	16 / L-3
	DESCRIPTION: SEE ZONE CALLOUT FOR SPRAY BODY MODEL & PSI		
	HUNTER	MPB005R-90 / 120°	16 / L-3
	DESCRIPTION: SEE ZONE CALLOUT FOR SPRAY BODY MODEL & PSI		
	HUNTER	MP1000-90°	16 / L-3
	DESCRIPTION: SEE ZONE CALLOUT FOR SPRAY BODY MODEL & PSI		
	HUNTER	MP1000-120°	16 / L-3
	DESCRIPTION: SEE ZONE CALLOUT FOR SPRAY BODY MODEL & PSI		
	HUNTER	MP1000-180°	16 / L-3
	DESCRIPTION: SEE ZONE CALLOUT FOR SPRAY BODY MODEL & PSI		
	HUNTER	MP1000-360°	16 / L-3
	DESCRIPTION: SEE ZONE CALLOUT FOR SPRAY BODY MODEL & PSI		

SUB-SURFACE ZONE

ZONE: 1
SIZE: 1"
TYPE: SHRUB
AREA: 473
PSI: 30
GPM 2.27
RATE: 0.64
TIME: 23 MIN

- ZONE NUMBER
- VALVE SIZE
- AREA TYPE
- SQUARE FEET
- PSI / VALVE
- GAL. / MIN.
- INCHES / HR.
- 1/4" H2O
- LOCATION

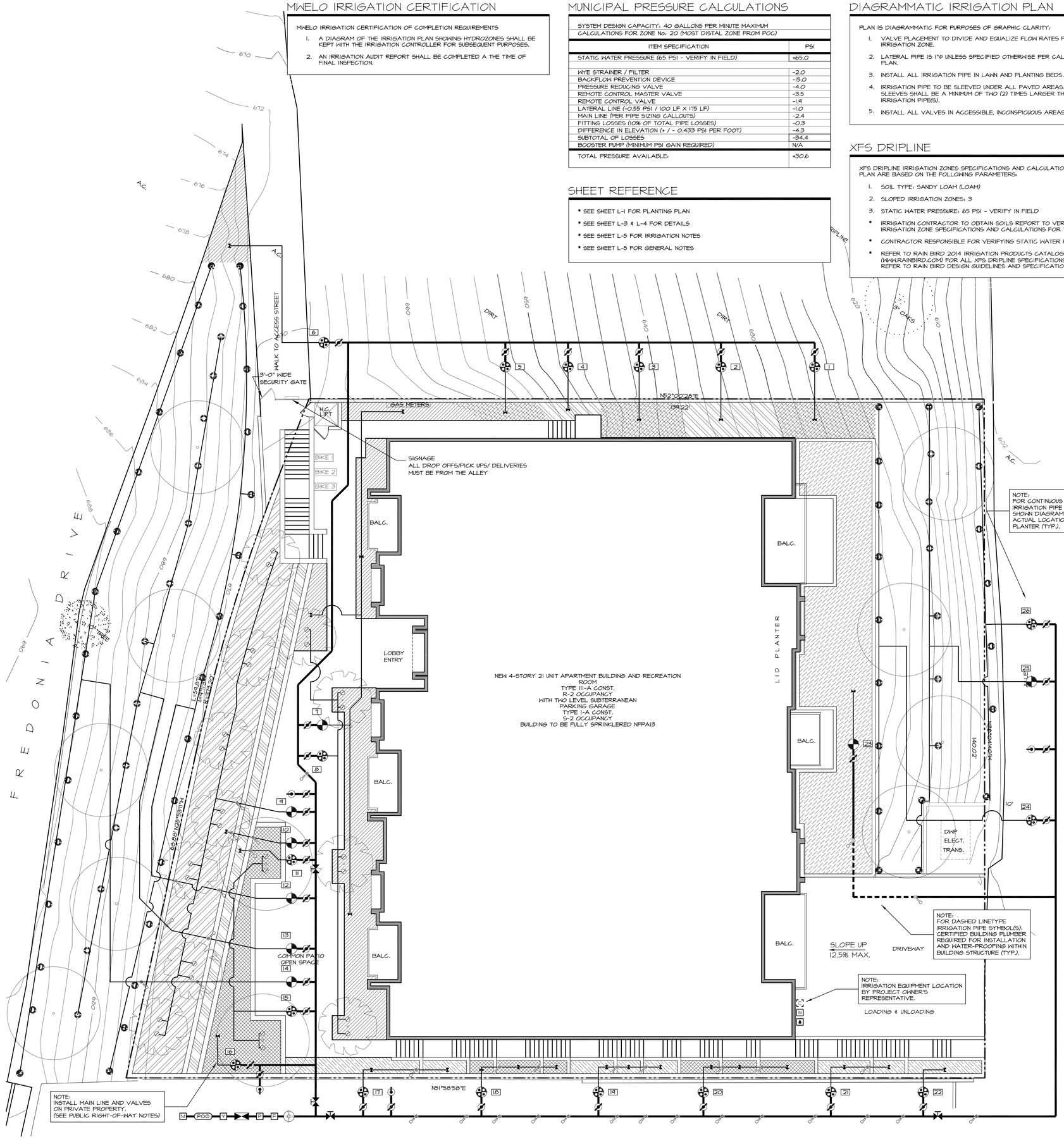
ROOT WATER ZONE

ZONE: 1
SIZE: 1"
TYPE: TREE
PSI: 30
GPM: 5.0
RATE: 0.64
TYPE: BBLR
COUNT: 10

- ZONE NUMBER
- VALVE SIZE
- AREA TYPE
- PSI / VALVE
- GAL. / MIN.
- RWS (BBLR)
- BBLR COUNT
- LOCATION

ZONE CALLOUTS

ZONE: 1 SIZE: 1" TYPE: SHRUB AREA: 144 PSI: 30 GPM: 0.99 RATE: 0.64 TIME: 23 MIN	ZONE: 2 SIZE: 1" TYPE: SHRUB AREA: 141 PSI: 30 GPM: 0.94 RATE: 0.64 TIME: 23 MIN	ZONE: 3 SIZE: 1" TYPE: SHRUB AREA: 123 PSI: 30 GPM: 0.82 RATE: 0.64 TIME: 23 MIN	ZONE: 4 SIZE: 1" TYPE: SHRUB AREA: 391 PSI: 30 GPM: 0.26 RATE: 0.64 TIME: 23 MIN	ZONE: 5 SIZE: 1" TYPE: SHRUB AREA: 58 PSI: 30 GPM: 0.39 RATE: 0.64 TIME: 23 MIN
ZONE: 6 SIZE: 1" TYPE: SHRUB AREA: 128 PSI: 30 GPM: 0.85 RATE: 0.64 TIME: 23 MIN	ZONE: 7 SIZE: 1" TYPE: SHRUB AREA: 813 PSI: 30 GPM: 5.42 RATE: 0.64 TIME: 23 MIN	ZONE: 8 SIZE: 1" TYPE: TREE PSI: 30 GPM: 4.00 TYPE: BBLR COUNT: 8	ZONE: 9 SIZE: 1" TYPE: TREE PSI: 30 GPM: 7.00 TYPE: BBLR COUNT: 14	ZONE: 10 SIZE: 1" TYPE: SHRUB AREA: 1107 PSI: 30 GPM: 7.38 RATE: 0.64 TIME: 23 MIN
ZONE: 11 SIZE: 1" TYPE: SHRUB AREA: 215 PSI: 30 GPM: 1.43 RATE: 0.64 TIME: 23 MIN	ZONE: 12 SIZE: 1" TYPE: SHRUB PSI: 35 GPM: 5.01 TYPE: SPRAY COUNT: 15 RISER: 12"	ZONE: 13 SIZE: 1" TYPE: SHRUB PSI: 35 GPM: 4.23 TYPE: SPRAY COUNT: 13 RISER: 12"	ZONE: 14 SIZE: 1" TYPE: SHRUB PSI: 35 GPM: 5.02 TYPE: SPRAY COUNT: 15 RISER: 12"	ZONE: 15 SIZE: 1" TYPE: TREE PSI: 30 GPM: 2.00 TYPE: BBLR COUNT: 4
ZONE: 16 SIZE: 1" TYPE: SHRUB AREA: 362 PSI: 30 GPM: 2.41 RATE: 0.64 TIME: 23 MIN	ZONE: 17 SIZE: 1" TYPE: SHRUB AREA: 112 PSI: 30 GPM: 0.75 RATE: 0.64 TIME: 23 MIN	ZONE: 18 SIZE: 1" TYPE: SHRUB AREA: 50 PSI: 30 GPM: 0.33 RATE: 0.64 TIME: 23 MIN	ZONE: 19 SIZE: 1" TYPE: SHRUB AREA: 56 PSI: 30 GPM: 0.37 RATE: 0.64 TIME: 23 MIN	ZONE: 20 SIZE: 1" TYPE: SHRUB AREA: 70 PSI: 30 GPM: 0.47 RATE: 0.64 TIME: 23 MIN
ZONE: 21 SIZE: 1" TYPE: SHRUB AREA: 46 PSI: 30 GPM: 0.31 RATE: 0.64 TIME: 23 MIN	ZONE: 22 SIZE: 1" TYPE: SHRUB AREA: 40 PSI: 30 GPM: 0.27 RATE: 0.64 TIME: 23 MIN	ZONE: 23 SIZE: 1" TYPE: SHRUB AREA: 1063 PSI: 30 GPM: 7.09 RATE: 0.64 TIME: 23 MIN	ZONE: 24 SIZE: 1" TYPE: SHRUB PSI: 35 GPM: 2.81 TYPE: SPRAY COUNT: 9 RISER: 12"	ZONE: 25 SIZE: 1" TYPE: SHRUB PSI: 35 GPM: 5.61 TYPE: SPRAY COUNT: 9 RISER: 12"
ZONE: 26 SIZE: 1" TYPE: SHRUB PSI: 35 GPM: 2.40 TYPE: SPRAY COUNT: 9 RISER: 12"				



IRRIGATION PLAN

SCALE: 1/8" = 1'-0"
0 6 10 16

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-
3900 KENTUCKY LLC.
528 STATE STREET
GLENDALE, CA
91203

PROJECT:
21-UNIT APARTMENT BUILDING
3900 KENTUCKY DRIVE
LOS ANGELES, CA
90068

These drawings are not final and shall not be used for construction purposes until signed by Susan E. McEowen, Landscape Architect #2180. These plans and all contained thereon are an original, unpublished work and may not be duplicated, published or used in whole or part without prior written consent by Susan E. McEowen

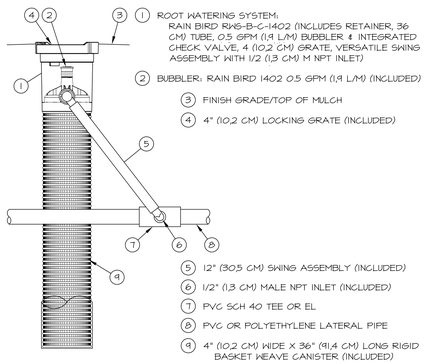
SHEET TITLE:
IRRIGATION PLAN

START DATE:	2017-03-31
REVISION DATE 01:	2020-02-27
REVISION DATE 02:	SITE JUNE 11, 2020
REVISION DATE 03:	SIGNAGE DC. 24, 2020
DRAWN BY:	SEM
CHECKED BY:	SEM
FILE NUMBER:	2017-3-1

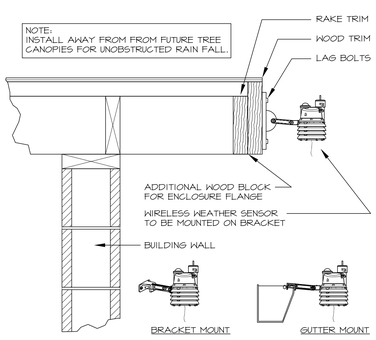
L-2

KENTUCKY DRIVE

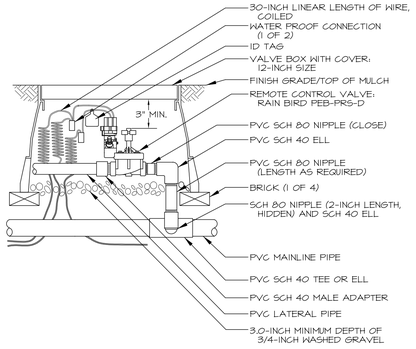
LICENSED LANDSCAPE ARCHITECT
SUSAN E. McEOWEN #2180
REN. 3-31-20
STATE OF CALIFORNIA



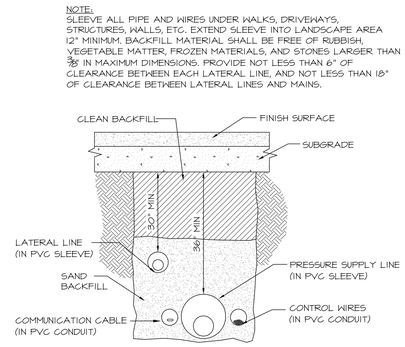
15 ROOT WATERING SYSTEM (RWS)
NO SCALE



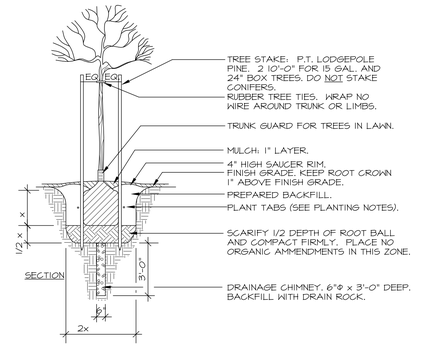
13 WIRELESS WEATHER SENSOR MOUNTING
NO SCALE



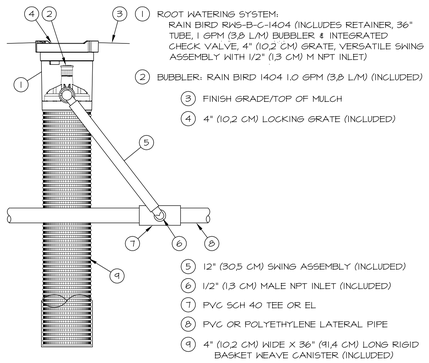
9 REMOTE CONTROL VALVE
NO SCALE



5 TRENCHING - UNDER HARDSCAPE
NO SCALE



1 TREE PLANTING DETAIL
NO SCALE



16 ROOT WATERING SYSTEM (RWS)
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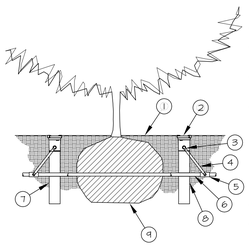
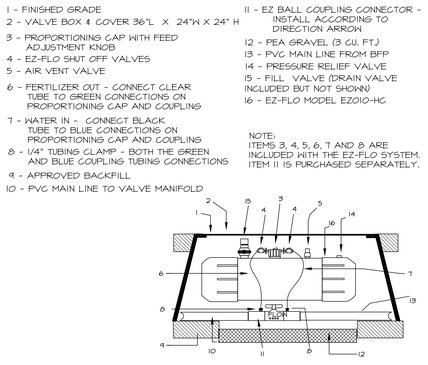
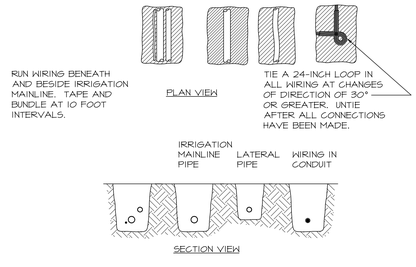


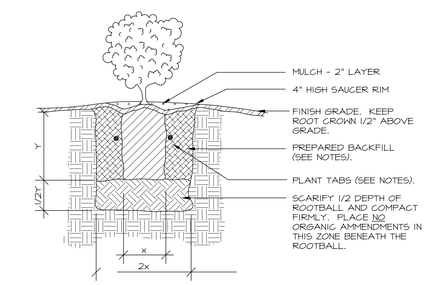
14 RWS INSTALLATION FOR TREES
NO SCALE



10 EZ-FLO FERTILIZING SYSTEM
NO SCALE



6 PIPE AND WIRE TRENCHING DETAIL
NO SCALE



2 SHRUB PLANTING DETAIL
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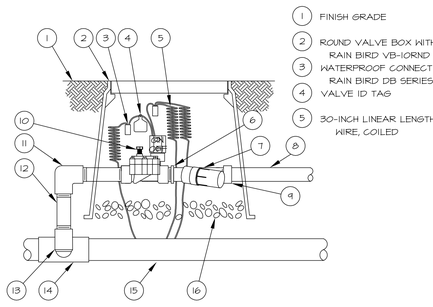
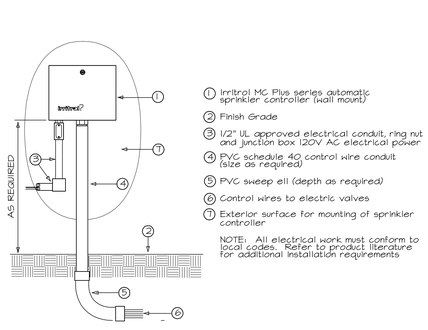
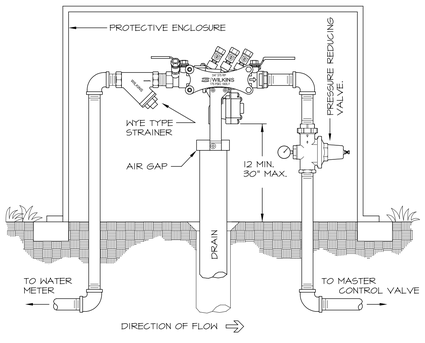


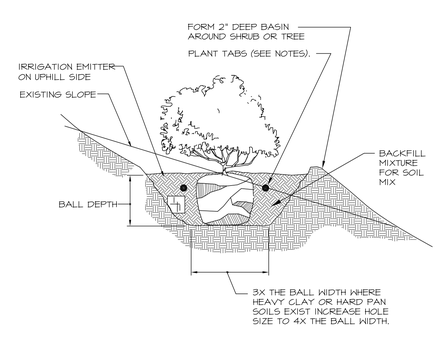
17 CONTROL ZONE KIT IN ROUND VALVE BOX
NO SCALE



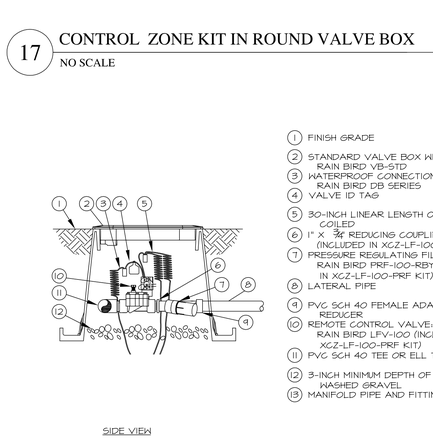
11 WALL MOUNT CONTROLLER
NO SCALE



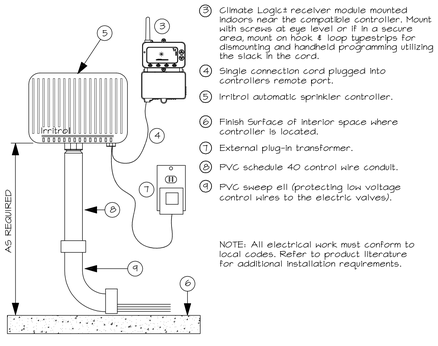
7 REDUCED PRESSURE BACKFLOW DEVICE
NO SCALE



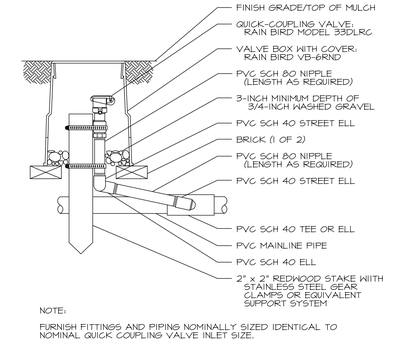
3 SLOPE PLANTING DETAIL
NO SCALE



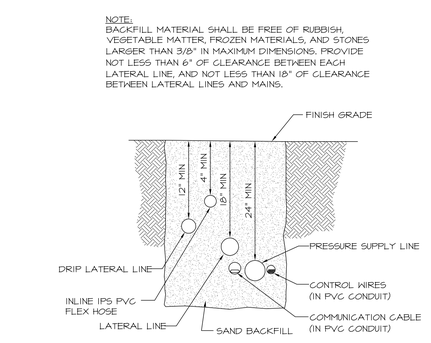
18 CONTROL ZONE KIT IN SQUARE VALVE BOX
NO SCALE



12 WEATHER-SENSING SYSTEM
NO SCALE



8 QUICK COUPLING VALVE
NO SCALE



4 TRENCHING - OPEN AREAS
NO SCALE

THE OFFICE OF
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OWNER:
OWNER_01
3900 KENTUCKY LLC.
528 STATE STREET
GLENDALE, CA
91203

PROJECT:
21-UNIT APARTMENT BUILDING
3900 KENTUCKY DRIVE
LOS ANGELES, CA
90068

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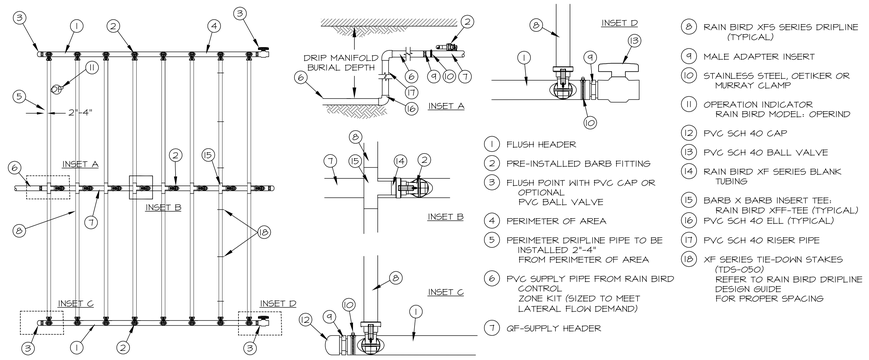
SHEET TITLE:
DETAILS

START DATE:	2017-09-11
REVISION DATE 01:	REV_01
REVISION DATE 02:	REV_02
REVISION DATE 03:	REV_03
DRAWN BY:	SEM
CHECKED BY:	SEM
FILE NUMBER:	2017-3-1

L-3

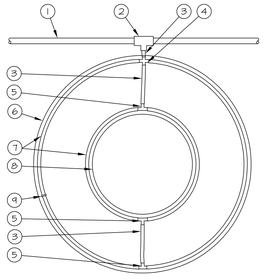
KENTUCKY DRIVE



1. FLUSH HEADER
2. PRE-INSTALLED BARB FITTING
3. FLUSH POINT WITH PVC CAP OR OPTIONAL PVC BALL VALVE
4. PERIMETER OF AREA
5. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
6. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
7. QF-SUPPLY HEADER
8. RAIN BIRD XFS SERIES DRIPLINE (TYPICAL)
9. MALE ADAPTER INSERT
10. STAINLESS STEEL, OETIKER OR MURRAY CLAMP
11. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
12. PVC SCH 40 CAP
13. PVC SCH 40 BALL VALVE
14. RAIN BIRD XF SERIES BLANK TUBING
15. BARB X BARB INSERT TEE: RAIN BIRD XFF-TEE (TYPICAL)
16. PVC SCH 40 ELL (TYPICAL)
17. PVC SCH 40 RISER PIPE
18. XF SERIES TIE-DOWN STAKES (TDS-050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING

10 XFS SUB-SURFACE DRIPLINE - CENTER FEED LAYOUT - QF HEADER

NO SCALE

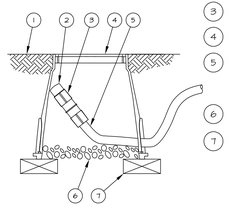


1. PVC DRIP MANIFOLD PIPE
2. PVC SCH 40 TEE OR EL
3. RAIN BIRD XF SERIES BLANK TUBING
4. BARB CROSS INSERT FITTING RAIN BIRD XFD-CROSS
5. BARB TEE INSERT FITTING: RAIN BIRD XFF-TEE
6. PROJECTED CANOPY LINE OF TREE
7. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
8. PLACE AS SHOWN (LENGTH AS REQUIRED)
9. ROOT BALL

TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (QUANTITY AS REQUIRED, SEE NOTES 2-3 BELOW)

6 DRIPLINE / AROUND TREE

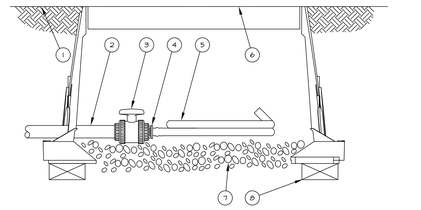
NO SCALE



1. FINISH GRADE
2. FLUSH CAP FOR EASY FIT COMPRESSION FITTINGS: POTABLE:RAIN BIRD MDCFCAP NON-POTABLE: RAIN BIRD MDCFPCAP
3. EASY FIT COUPLING: RAIN BIRD MDCFCOUP
4. SUBTERRANEAN EMITTER BOX: RAIN BIRD SEB 7XB
5. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
6. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
7. BRICK (1 OF 2)

5 DRIPLINE / FLUSH POINT COMPRESSION FIT

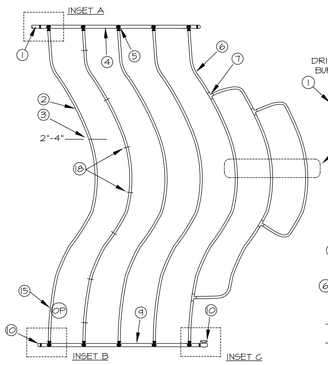
NO SCALE



1. FINISH GRADE
2. PVC DRIP MANIFOLD PIPE
3. PVC 1" X 3/4" UNION BALL VALVE
4. EASY FIT MALE X BARB ADAPTER: RAIN BIRD XFF-MA-075
5. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES BLANK TUBING
6. 12-INCH VALVE BOX WITH COVER: RAIN BIRD VB-STD
7. 3-INCH MINIMUM DEPTH OF 3/4" WASHED GRAVEL
8. BRICK (1 OF 2)

1 DRIPLINE / FLUSH POINT WITH BALL VALVE

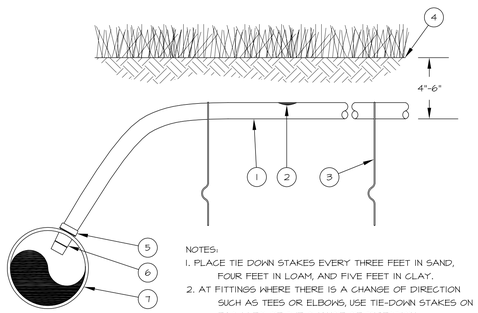
NO SCALE



1. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
2. PERIMETER OF AREA
3. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
4. QF-SUPPLY HEADER
5. PRE-INSTALLED BARB FITTING
6. RAIN BIRD XFS SERIES DRIPLINE (TYPICAL)
7. BARB X BARB INSERT TEE: RAIN BIRD XFF-TEE (TYPICAL)
8. TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE
9. QF-FLUSH HEADER
10. FLUSH POINT WITH PVC CAP OR OPTIONAL PVC BALL VALVE
11. PVC RISER PIPE
12. PVC SCH 40 ELL (TYPICAL)
13. MALE ADAPTER INSERT
14. STAINLESS STEEL, OETIKER OR MURRAY CLAMP
15. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
16. PVC SCH 40 CAP
17. PVC SCH 40 BALL VALVE
18. XF SERIES TIE-DOWN STAKES (TDS-050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING

11 XFS SUB-SURFACE DRIPLINE - CURVE LAYOUT - QF HEADER

NO SCALE

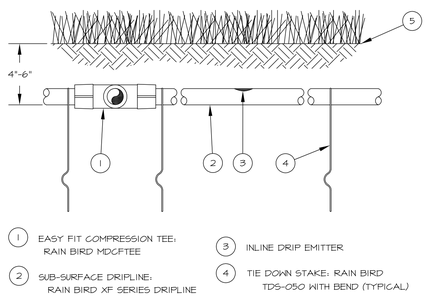


NOTES:
1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
3. INSERTION FLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

1. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
2. INLINE DRIP EMITTER OUTLET
3. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)
4. TURF/FINISH GRADE OR SHRUB BED WITH MULCH
5. RATCHET CLAMP (INCLUDED WITH ADAPTER)
6. INSERT ADAPTER FOR PVC PIPE: RAIN BIRD XFD-INVPC
7. PVC LATERAL PIPE MINIMUM 1-1/2" IN DIAMETER DEPTH PER SPECIFICATION

7 DRIPLINE / INSERT ADAPTER FOR 1 1/2" OR LARGER PVC

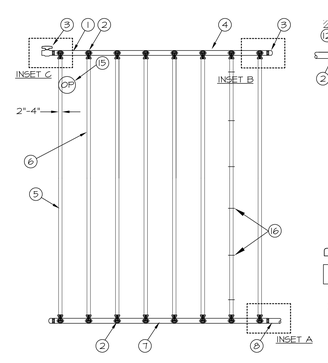
NO SCALE



1. EASY FIT COMPRESSION TEE: RAIN BIRD MDCFTEE
2. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
3. INLINE DRIP EMITTER
4. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)
5. TURF/FINISH GRADE OR SHRUB BED WITH MULCH

2 DRIPLINE / BURIAL

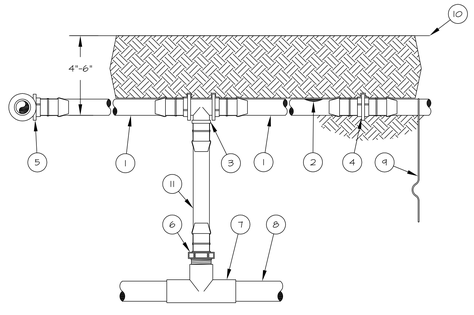
NO SCALE



1. QF-FLUSH HEADER
2. PRE-INSTALLED BARB FITTING
3. FLUSH POINT WITH PVC CAP OR OPTIONAL PVC BALL VALVE PERIMETER OF AREA
4. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
5. RAIN BIRD XFS SERIES DRIPLINE (TYPICAL)
6. QF-SUPPLY HEADER
7. PVC DRIP MANIFOLD FROM RAIN BIRD CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
8. PVC SCH 40 ELL (TYPICAL)
9. PVC SCH 40 RISER PIPE
10. MALE ADAPTER INSERT
11. STAINLESS STEEL, OETIKER OR MURRAY CLAMP
12. PVC SCH 40 CAP
13. PVC SCH 40 BALL VALVE
14. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
15. XF SERIES TIE-DOWN STAKES (TDS-050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING

12 XFS SUB-SURFACE DRIPLINE - END FEED LAYOUT - QF HEADER

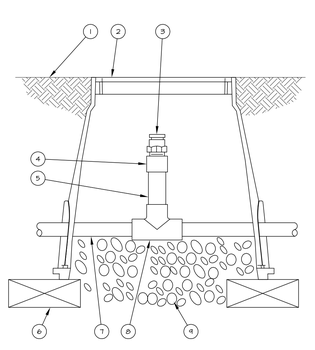
NO SCALE



1. ON-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
2. INLINE DRIP EMITTER OUTLET, SEE PLANS FOR DRIPLINE OUTLET SPACING.
3. BARB TEE 17X17X17mm RAIN BIRD XFF-TEE
4. BARB COUPLING 17x17mm RAIN BIRD XFF-COUP
5. BARB ELBOW 17x17mm RAIN BIRD XFF-ELBOW
6. BARB MALE ADAPTER 17mm X 1/2" MPT RAIN BIRD XFF-MA-050 17mm X 3/4" MPT RAIN BIRD XFF-MA-075
7. PVC TEE 5x5x7
8. PVC LATERAL SUPPLY HEADER
9. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)
10. FINISH GRADE
11. RAIN BIRD XF SERIES BLANK TUBING LENGTH AS REQUIRED

8 DRIPLINE / RISER ASSEMBLY

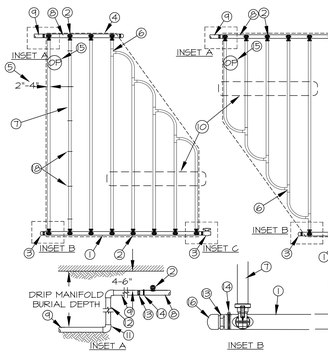
NO SCALE



1. FINISH GRADE
2. SUBTERRANEAN EMITTER BOX: RAIN BIRD SEB 7XB
3. ½" AIR RELIEF VALVE: RAIN BIRD ARV050 TO BE INSTALLED AT HIGH POINTS IN DRIP ZONE
4. PVC SCH 40 FEMALE ADAPTER
5. PVC SCH 80 RISER
6. BRICK (1 OF 2)
7. PVC HEADER PIPE
8. PVC SCH 40 TEE
9. 3" MINIMUM DEPTH OF ¾" WASHED GRAVEL

3 DRIPLINE / 1/2" HEADER AIR RELIEF VALVE

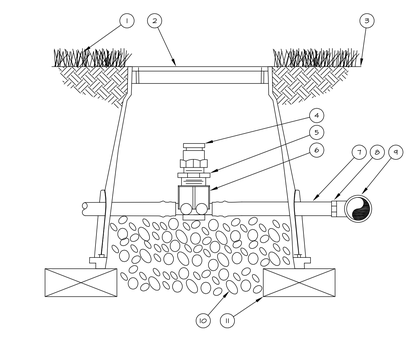
NO SCALE



1. QF-FLUSH HEADER
2. PRE-INSTALLED BARB FITTING
3. FLUSH POINT WITH PVC CAP OR OPTIONAL PVC BALL VALVE
4. PERIMETER OF AREA
5. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
6. BARB X BARB INSERT TEE: RAIN BIRD XFF-TEE (TYPICAL)
7. RAIN BIRD XFS SERIES DRIPLINE (TYPICAL)
8. QF-SUPPLY HEADER
9. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
10. TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE
11. PVC SCH 40 ELL (TYPICAL)
12. PVC SCH 40 RISER PIPE
13. MALE ADAPTER INSERT
14. STAINLESS STEEL, OETIKER OR MURRAY CLAMP
15. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
16. PVC SCH 40 CAP
17. PVC SCH 40 BALL VALVE
18. XF SERIES TIE-DOWN STAKES (TDS-050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING

13 XFS SUB-SURFACE DRIPLINE - IRREGULAR SHAPED LAYOUT - QF HEADER

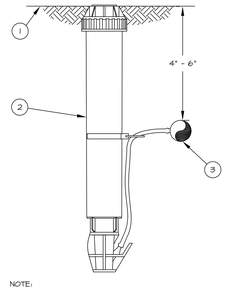
NOT TO SCALE



1. TURF GRASS
2. SUBTERRANEAN EMITTER BOX: RAIN BIRD SEB 7XB
3. FINISH GRADE
4. ½" AIR RELIEF VALVE: RAIN BIRD ARV050 TO BE INSTALLED AT HIGH POINTS IN DRIP ZONE
5. ½" X ¾" PVC REDUCER BUSHING
6. BARB X FEMALE THREAD CONNECTOR: RAIN BIRD XFD-TFA FITTING
7. ½" BLANK DRIPLINE TUBING: RAIN BIRD XF SERIES
8. BARB X MALE THREAD CONNECTOR: RAIN BIRD XFF-MA FITTING
9. PVC TEE CONNECTED TO PVC HEADER PIPE
10. 3" MINIMUM DEPTH OF ¾" WASHED GRAVEL
11. BRICK (1 OF 2)

9 DRIPLINE / 1/2" INLINE AIR RELIEF VALVE

NO SCALE



1. FINISH GRADE/TURF
2. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
3. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

NOTE:
1. INSERT BARB TRANSFER FITTING DIRECTLY INTO DRIPLINE TUBING.
2. VAN NOZZLE MAY BE SET TO CLOSED, OR IF IT IS DESIRED TO SEE SPRAY FROM THE NOZZLE, SET THE ARC TO ¼ PATTERN. THE FLOW FROM THE NOZZLE, 0.3 GPM, SHOULD BE ACCOUNTED FOR IN THE SYSTEM DESIGN.

4 DRIPLINE / OPERATION INDICATOR

NO SCALE

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3900 KENTUCKY LLC.
528 STATE STREET
GLENDALE, CA
91203

PROJECT:
21-UNIT APARTMENT BUILDING
3900 KENTUCKY DRIVE
LOS ANGELES, CA
90068

These drawings are not final and shall not be used for construction purposes until signed by Susan E. McEowen, Landscape Architect #2180. These plans and all contained thereon are an original, unpublished work and may not be duplicated, published or used in whole or part without prior written consent by Susan E. McEowen

SHEET TITLE:
DETAILS

START DATE:	2017-03-31
REVISION DATE 01:	REV_01
REVISION DATE 02:	REV_02
REVISION DATE 03:	REV_03
DRAWN BY:	SEM
CHECKED BY:	SEM
FILE NUMBER:	2017-3-1

L-4

KENTUCKY DRIVE

XFS SERIES DRIPLINE SPACING GUIDELINES

SOIL TYPE	CLAY	LOAM	SAND
EMITTER FLOW RATE	0.6 GPH	0.6 GPH/0.9 GPH	0.9 GPH
EMITTER SPACING	24"	18"	12"
LATERAL SPACING	18 - 24"	16" - 22"	12" - 18"

XFS SERIES DRIPLINE FLOW (PER 100 FEET)

EMITTER SPACING	0.6 GPH EMITTER		0.9 GPH EMITTER	
INCHES	GPH	GPM	GPH	GPM
12"	61.00	1.02	92.00	1.53
18"	41.00	0.68	61.00	1.02
24"	31.00	0.52	46.00	0.77

XFS DRIPLINE INFILTRATION RATES / HOUR

PERCENT OF SLOPE	CLAY	LOAM	SAND
0% - 4%	0.13 - 0.44	0.44 - 0.88	0.88 - 1.25
5% - 8%	0.1 - 0.35	0.35 - 0.7	0.7 - 1

XFS DRIPLINE DESIGN GUIDELINES

XFS DRIPLINE GENERAL DESIGN GUIDELINES:

1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS, AND CHANGES IN ELEVATION. SEE INSTALLATION SPECIFICATIONS ON RAIN BIRD WEB SITE (WWW.RAINBIRD.COM) FOR SUGGESTED SPACING.
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLES.
3. INSTALL AIR RELIEF VALVE AT HIGH POINTS IN DRIP LATERAL.
4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

XFS DRIPLINE FOR TREES AND SHRUBS

XFS DRIPLINE INSTALLATION GUIDELINES FOR TREES AND SHRUBS:

1. DRIPLINE PIPE SHOULD BE BURIED 4-6 INCHES BELOW SOIL SURFACE (SEE "XFS SUB-SURFACE DRIPLINE BURIAL." DETAIL).
2. INSTALL MULTIPLE RINGS AS REQUIRED TO PROVIDE IRRIGATION COVERAGE FROM ROOT BALL TO PROJECTED TREE CANOPY. REFER TO RAIN BIRD DESIGN GUIDELINES AND SPECIFICATIONS FOR RECOMMENDED SPACING BETWEEN RINGS (WWW.RAINBIRD.COM).
3. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
4. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
5. INSERTION FLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

MWELO IRRIGATION EQUIPMENT

MWELO IRRIGATION EQUIPMENT SPECIFICATIONS

1. A 1" DEDICATED WATER METER FOR IRRIGATION USE ONLY TO BE PROVIDED.
2. PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.
3. CHECK VALVES OR ANTI-SYPHON VALVES ARE REQUIRED ON ALL SPRINKLERS HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

GENERAL PLANTING NOTES

1. THE WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO COMPLETE THE FINISH GRADING, SOIL PREPARATION, PLANTING, AND MAINTENANCE SPECIFIED.
2. THE CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK.
3. ALL SOIL USED DURING THE GRADING OPERATION SHALL BE LOOSE, FRIABLE SOIL OF THE SAME QUALITY AS EXISTING SOIL.
4. ALL PLANTS SHALL BE HEALTHY, OF NORMAL GROWTH, WELL-ROOTED, FREE FROM DISEASE AND INSECT INFESTATION, AND NOT ROOT BOUND.
5. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL. THE PLANTS WILL BE REJECTED BY THE OWNER OR HIS REPRESENTATIVE IF DEEMED UNSATISFACTORY.
6. FINISH GRADE IS FINAL GRADE, WITH SMOOTH, UNIFORM SURFACE, WEED FREE, READY FOR PLANTING. PLANTING AREA FINISH GRADE SHALL BE 1 1/2" BELOW ADJACENT PAVED SURFACES.
7. NO PLANT SHALL BE PLANTED UNTIL IRRIGATION WORK IS COMPLETE, TESTED AND APPROVED OR UNTIL SOIL PREPARATION AND FINAL GRADE IS ESTABLISHED.
8. EXCAVATE PLANTS WITH VERTICAL SIDES FOR ALL PLANTS THICE THE DIAMETER AND 1 1/2 TIMES THE DEPTH OF ROOT BAILS. BACK-FILL WITH THE FOLLOWING MIX:
   a. 6 PARTS ON SITE SOIL (BY VOLUME)
   b. 4 PARTS NITROLIZED FIR SHAVINGS (BY VOLUME)
   c. 2 POUNDS 10-10-10 COMMERCIAL FERTILIZER (PER CUBIC YARD MIX)
   d. 10 POUNDS AGRICULTURE GYPSUM (PER CUBIC YARD MIX)
   e. 2 POUNDS IRON SULFATE (PER CUBIC YARD OF MIX)
9. RIP ALL PLANTING AREAS TO A DEPTH OF 6A AND TILL WITH THE FOLLOWING MATERIALS (PER 100 SQUARE FEET):
   a. 4 CUBIC YARDS NITROLIZED FIR SHAVINGS
   b. 30 POUNDS 20-20-20 COMMERCIAL FERTILIZER (10% SLOW RELEASE)
   c. 100 POUNDS AGRICULTURAL GYPSUM
10. AFTER SETTING PLANTS, BACK-FILL MATERIALS SHALL BE SOAKED TO SETTLE. THE TOP OF THE ROOT BALL SHALL BE 1" ABOVE FINISHED GRADE AFTER SETTLING OCCURS.
11. THE OWNER OR HIS REPRESENTATIVE SHALL BE NOTIFIED 48 HOURS PRIOR TO THE FOLLOWING STAGES OF CONSTRUCTION INSPECTION:
    a. AFTER TREE AND SHRUBS HAVE BEEN SPOTTED - PRIOR TO EXCAVATION OF PLANTING HOLES.
    b. UPON COMPLETION OF ALL PLANTING FOR APPROVAL TO BEGIN MAINTENANCE.
    c. ONCE A WEEK PRIOR TO END OF MAINTENANCE.
12. DO NOT WILLFULLY INSTALL ANY PLANT MATERIAL AS PER DESIGN WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN SITE CONDITIONS EXISTED THAT WAS NOT KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE OR OTHERWISE THE CONTRACTOR MUST ASSUME FULL RESPONSIBILITY FOR ANY AND ALL REVISIONS.
13. AFTER ALL WORK HAS BEEN COMPLETED AND APPROVED BY THE OWNER, THE CONTRACTOR SHALL MAINTAIN THE PROJECT FOR A 90 DAY MAINTENANCE PERIOD BY WATERING, WEEDING, MULCHING, CULTIVATING, FERTILIZING AT 30, 60, AND 90 DAYS INTO THE MAINTENANCE PERIOD. USE 10-20-10 COMMERCIAL FERTILIZER PER MANUFACTURER'S RECOMMENDATIONS, AND ANY OTHER OPERATION NECESSARY FOR THE UPKEEP OF THE PROJECT.
14. LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR THE FOLLOWING PERIODS OF TIME:
    a. 1 YEAR FOR TREES
    b. 6 MONTHS FOR SHRUBS
    c. 30 DAYS FOR GROUNDCOVERS
15. THE GUARANTEE SPECIFIED ABOVE DOES NOT HOLD FOR PLANT LOSS DUE TO POOR MAINTENANCE BY THE OWNER OR DUE TO VANDALISM BEFORE OR AFTER FINAL ACCEPTANCE.
16. ALL TREES SPECIFIED ON PLAN SHALL BE GUYED PER PLAN DETAILS.

GENERAL IRRIGATION NOTES

1. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE STATIC WATER PRESSURE OF 65 PSI. THE CONTRACTOR SHALL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION AND REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ABOVE AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE.
2. THIS DESIGN IS DIAGRAMMATIC FOR PURPOSES OF GRAPHIC CLARITY. ALL PIPING, VALVES, ETC. SHOWN WITHIN PAVED AREAS ARE FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN PLANTING AREAS WHERE POSSIBLE. INSTALL A MINIMUM LAYER OF 6" OF CLEAN FILL SAND BELOW PAVED AREAS.
3. BEFORE ANY WORK COMMENCES, A CONFERENCE SHALL BE HELD WITH THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR, REGARDING GENERAL REQUIREMENTS FOR THIS WORK.
4. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT UTILITIES AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS AND HE IS RESPONSIBLE FOR THE PROTECTION OF ANY DAMAGE TO THESE LINES OR STRUCTURES.
5. THE CONTRACTOR AGREES THAT HE SHALL ASSUME COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND CONTRACTOR AGREES TO DEFEND AND INDEMNIFY AND HOLD OWNER AND DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCES OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.
6. DO NOT INSTALL THE IRRIGATION SYSTEM AS SHOWN IN THE DRAWINGS WHEN IT IS OBVIOUS, IN THE FIELD, THAT OBSTRUCTIONS, GRADE DIFFERENCES, OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNERS OR AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVER-SPRAY ON TO WALKS, ROADWAYS, AND / OR BUILDINGS AS MUCH AS POSSIBLE. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT THE EXISTING SITE CONDITIONS AND THROTTLE THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING FLOW FOR EACH SYSTEM.
8. ALL POP-UP TYPE SPRINKLER HEADS INSTALLED IN SHRUB OR GROUND COVER AREAS SHALL BE INSTALLED WHERE THE TOP OF THE SPRINKLER HEAD IS 1" ABOVE FINISHED GRADE.
9. ALL POP-UP TYPE SPRINKLER HEADS INSTALLED IN LAWN AREAS SHALL BE INSTALLED WHERE THE TOP OF THE SPRINKLER HEAD IS FLUSH WITH ADJACENT SIDEWALK OR CURB.
10. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE DESIGNATED IN THE PLANS.
11. 110 / 120 VOLT ELECTRICAL POWER AT THE AUTOMATIC CONTROLLER LOCATION SHALL BE PROVIDED BY OTHERS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE THE FINAL HOOKUP FROM THE ELECTRICAL OUTLET TO THE AUTOMATIC CONTROLLER.
12. INSTALL ALL PIPE MATERIALS AND EQUIPMENT AS SHOWN IN DETAILS. USE TEFLON TAPE OR TEFLON PIPE DOPE ON ALL PVC MALE PIPE THREADS ON ALL SPRINKLERS, SWING JOINTS, AND VALVE ASSEMBLIES.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, RETAINING WALLS, ETC. HE SHALL COORDINATE HIS WORK WITH THE SUBCONTRACTORS FOR THE LOCATION AND THE INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER ROADWAYS, PAVING STRUCTURES, ETC.
14. IN ADDITION TO THE CONTROL WIRE SLEEVES AND PIPE SLEEVES SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONTROL WIRE AND PIPE SLEEVES OF SUFFICIENT SIZE UNDER ALL PAVED AREAS.
15. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL THE LOCAL CODES AND ORDINANCES FOR NON-POTABLE WATER USAGE. HE SHALL TAG ALL PARTS OF THE IRRIGATION SYSTEM AS REQUIRED FOR NON-POTABLE WATER USAGE (IF REQUIRED).
16. STOP ALL BACK-DRAINAGE OF HEADS WITH CHECK VALVES IN RISERS. ADJUST TO RECOMMENDED PRESSURE PER MANUFACTURE'S SPECIFICATIONS.
17. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO LOCAL AND STATE CODES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK.
18. THE CONTRACTOR SHALL APPLY AND PAY FOR ALL PERMITS REQUIRED FOR THE WORK INDICATED ON THE PLAN.
19. THE IRRIGATION SYSTEM SHALL BE UNCONDITIONALLY GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.
20. UPON COMPLETION OF WORK, ALL MATERIALS, EQUIPMENT, AND WASTE SHALL BE REMOVED FROM THE SITE TO THE OWNER'S SATISFACTION.
21. THE IRRIGATION SYSTEM SHALL BE DEEMED INCOMPLETE UNTIL ALL HEADS, VALVES, AND RELATED IRRIGATION EQUIPMENT HAVE BEEN CHECKED AND ADJUSTED TO BEST CONFORM TO THE CONDITIONS THAT PREVAIL AT THE SITE.
22. BACK FILL FOR TRENCHING SHALL BE COMPACTED TO DRY DENSITY EQUAL TO THE ADJACENT UNDISTURBED SOIL AND SHALL CONFORM TO THE ADJACENT GRADES WITHOUT DIPS, SUNKEN AREAS, HUMPS OR OTHER IRREGULARITIES.
23. ALL PIPING SHALL CONFORM TO IRRIGATION LEGEND.
24. PLASTIC FITTINGS SHALL BE OF SCHEDULE 40 POLYVINYL CHLORIDE PLASTIC PIPE.
25. INITIAL BOCK-FILL ON PLASTIC LINES SHALL BE OF FINE GRANULAR MATERIAL WITH NO FOREIGN MATTER LARGER THAN 1/2" DIAMETER.
26. SUPPLY OS PART OF THIS CONTRACT THE FOLLOWING TOOLS:
    a. ONE WRENCH FOR DISASSEMBLY OF EACH TYPE OF SPRINKLER HEAD SUPPLIED.
    b. TWO KEYS FOR THE CONTROLLER.

THE OFFICE OF
SUSAN E. McEOWEN
LANDSCAPE ARCHITECT 2180
A CALIFORNIA CORPORATION
19197 Golden Valley Road, #924
Santa Clarita, CA 91387
Office Telephone: (661) 294 3753
Email Address: susan@landarch.us

OWNER:
OWNER_01
3900 KENTUCKY LLC.
528 STATE STREET
GLENDALE, CA
91203

PROJECT:
21-UNIT APARTMENT BUILDING
3900 KENTUCKY DRIVE
LOS ANGELES, CA
90068

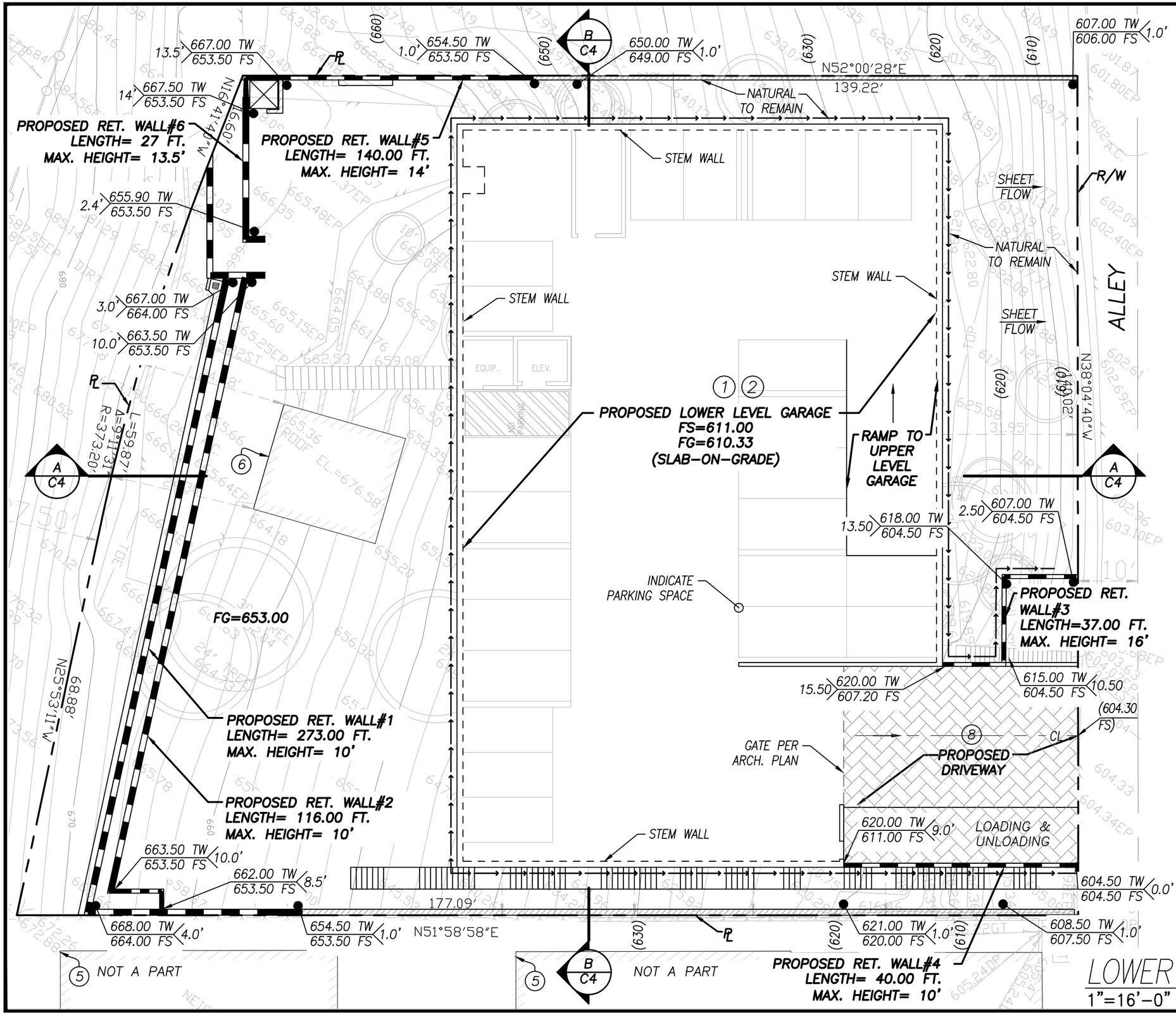
These drawings are not final and shall not be used for construction purposes until signed by Susan E. McEowen, Landscape Architect #2180. These plans and all contained thereon are an original, unpublished work and may not be duplicated, published or used in whole or part without prior written consent by Susan E. McEowen

SHEET TITLE:
IRRIGATION NOTES
&
GENERAL NOTES

START DATE:	2017-09-11
REVISION DATE 01:	REV_01
REVISION DATE 02:	REV_02
REVISION DATE 03:	REV_03
DRAWN BY:	SEH
CHECKED BY:	SEH
FILE NUMBER:	2017-3-1

L-5

KENTUCKY DRIVE



LEGEND

℄	CENTER LINE
CO	CLEANOUT
DG	DECOMPOSED GRANITE
DL	DAYLIGHT LINE
DN	DOWN
● DS	DOWNSPOUT
FF	FINISH FLOOR
FP	FIRE PLACE
FG	FINISH GRADE
FL	FLOW LINE
FP	FIRE PLACE
FS	FINISH SURFACE
HP	HIGH POINT
INV	INVERT
PA	PLANTER AREA
PL	PROPERTY LINE
NG	NATURAL GRADE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRATE
TW	TOP OF WALL
UNO	UNLESS NOTED OTHERWISE
	RETAINING WALL
	BLOCK WALL
FS	CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.
	12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204. U.N.O.
	6"ø SPEE-D BASIN PER NDS. PLASTIC PRODUCTS PART NO. 101, 201, 300. U.N.O.
	INDICATES 4"ø PERF. SUBDRAIN
185.5 TC	EXISTING SPOT ELEVATIONS

CONSTRUCTION NOTES

1. STRUCTURAL FOUNDATION PER STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
2. FOUNDATION EMBEDMENT PER SOILS REPORT RECOMMENDATIONS
3. CONSTRUCT SDR 35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø.)
4. CONSTRUCT STAIRS ON GRADE PER DETAIL 1 ON SHEET C-4.1
5. EXISTING TO REMAIN
6. EXISTING TO BE REMOVED
7. CONSTRUCT CONC. CURB PER DETAIL 4 ON SHEET C-4.4
8. CONSTRUCT PERMEABLE DRIVEWAY PER DETAIL 1, SHEET LID2
9. CONSTRUCT 4" THK. SLAB ON GRADE WITH #4 REBARS AT 16" O.C. BOTH WAYS PER SOILS REPORT RECOMMENDATION
10. CONSTRUCT CONC. SWALE PER DETAIL 4 ON SHEET C 4.1

LOWER GARAGE GRADING PLAN

1"=16'-0"

GREYSTONE ENGINEERING GROUP INC
11022 SANTA MONICA BLVD. SUITE 440 LOS ANGELES, CA 90025
(310) 405-2341 EMAIL: INFO@GREYSTONEENG.COM

REGISTERED PROFESSIONAL ENGINEER SCHEIL MOEINI No.84000 Exp. Sep. 2021 CIVIL STATE OF CALIFORNIA

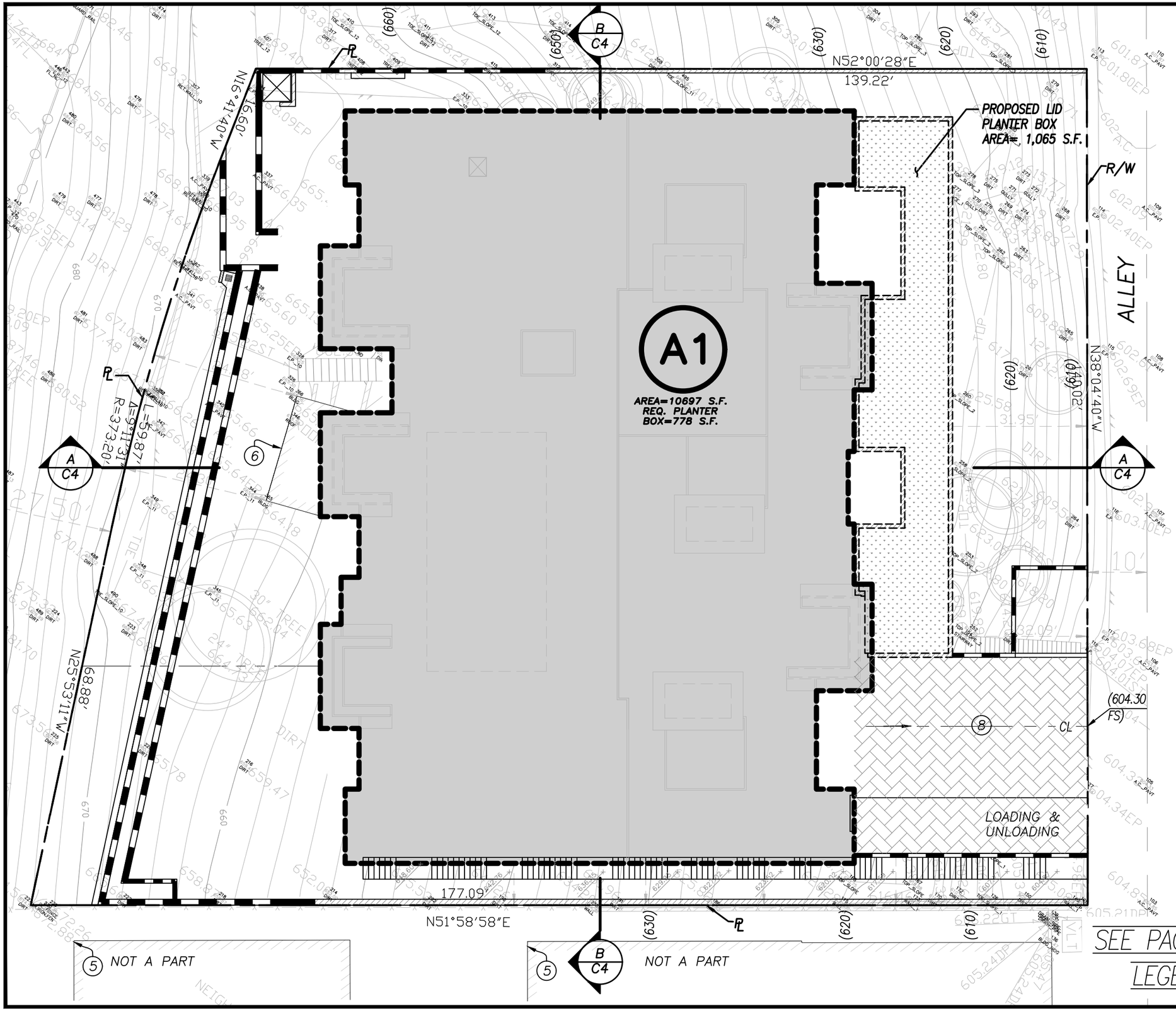
CLIENT: 3900 KENTUCKY LLC

CITY OF LOS ANGELES
3900 KENTUCKY DR.
LOS ANGELES, CA 90068

GRADING PLAN
LOWER GARAGE

DATE: 9/1/2020

SHEET C3 OF 15



LEGEND

SUB-AREA DESIGNATION — A1

SUB-AREA BOUNDARY

DOWNSPOUT — DS

INDICATES ROOF IMPERVIOUS AREA

INDICATES PERMEABLE PAVERS

LID PLAN

1"=20'-0"

SEE PAGE LID-1.2 FOR CALLOUTS, LEGEND AND CALCULATIONS

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CIVIL
STATE OF CALIFORNIA

CLIENT: 3900 KENTUCKY LLC

CITY OF LOS ANGELES
3900 KENTUCKY DR.
LOS ANGELES, CA 90068

LID PLAN

DATE: 9/1/2020

SHEET LID1
OF 15

LID Design Rainfall Depth:

Project Site 85th Percentile 24-hr Rainfall:	1.05
(Check at:) http://ladpw.org/wrd/hydrologygis/	
Design Rainfall Depth:	**1.05**
(85th Percentile Rainfall or 3/4", whichever is greater)	

Areas draining to BMP

Red values to be changed by user.					
Black values are automatically calculated.					
Drainage Area	**Total Area**		**Impervious Area**		**% IMP**
	sqft	*ACRES*	*sqft*	*ACRES*	*%*
A1	10697	0.246	10697	0.246	100%

Planter Box#1 Sizing A1

Note:

Red values to be changed by user.
Black values are automatically calculated.

[1]	Total Area (SF)		10697
[2]	Impervious Area (SF)		10697
[3]	Pervious Area (SF)	**[1]-[2] =**	0
[4]	Catchment Area (SF)	**([2]*0.9)+([3]*0.1) =**	9627
[5]	Design Rainfall Depth (in)	**Greater of 0.75", 85th percentile**	1.05
[6]	V_{design} (CF)	**1.5*[5]/12*[4] =**	1264
[7]	$K_{sat,media}$ (in/hr)		5.0
[8]	FS		2.0
[9]	$K_{sat,design}$ (in/hr)	**[7]/[8] =**	2.5
[10]	d_{p_max}, Max. Ponding Depth (ft)	**MIN(1, [9]*48/12) =**	1.0
[11]	d_p, Ponding Depth (ft)	**1' max.**	1.0
[12]	T_{fill} (hr)		3
[13]	**A_{min} (sq. ft)**	**]*[12]/12 + [11])**	**778**

SUMMERY BMP TABLE

PLANTER BOX	*TRIBUTARY AREA*	*REQUIRED PLANTER BOX AREA(SF)*	*PROPOSED PLANTER BOX AREA(SF)*
#1	*A1=10697 S.F.*	*778 S.F.*	*1,065 SF*
TOTAL	*A1=10697 S.F.*	*778 S.F.*	*1,065 SF*

PERMEABLE PAVERS AREA:1283 S.F

CONSTRUCTION NOTES

1. *STRUCTURAL FOUNDATION PER STRUCTURAL PLANS AND GEOTECHNICAL REPORT.*
2. *FOUNDATION EMBEDMENT PER SOILS REPORT RECOMMENDATIONS*
3. *CONSTRUCT SDR 35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø.)*
4. *CONSTRUCT STAIRS ON GRADE PER DETAIL 1 ON SHEET C-4.1*
5. *EXISTING TO REMAIN*
6. *EXISTING TO BE REMOVED*
7. *CONSTRUCT CONC. CURB PER DETAIL 4 ON SHEET C-4.4*
8. *CONSTRUCT PERMEABLE DRIVEWAY PER DETAIL 1, SHEET LID2*
9. *CONSTRUCT 4" THK. SLAB ON GRADE WITH #4 REBARS AT 16" O.C. BOTH WAYS PER SOILS REPORT RECOMMENDATION*
10. *CONSTRUCT CONC. SWALE PER DETAIL 4 ON SHEET C-4.1*

LEGEND

℄	*CENTER LINE*
CO	*CLEANOUT*
DG	*DECOMPOSED GRANITE*
DL	*DAYLIGHT LINE*
DN	*DOWN*
● *DS*	*DOWNSPOUT*
FF	*FINISH FLOOR*
FP	*FIRE PLACE*
FG	*FINISH GRADE*
FL	*FLOW LINE*
FP	*FIRE PLACE*
FS	*FINISH SURFACE*
HP	*HIGH POINT*
INV	*INVERT*
PA	*PLANTER AREA*
PL	*PROPERTY LINE*
NG	*NATURAL GRADE*
TC	*TOP OF CURB*
TD	*TOP OF DECK*
TG	*TOP OF GRATE*
TW	*TOP OF WALL*
UNO	*UNLESS NOTED OTHERWISE*

RETAINING WALL

BLOCK WALL

FS — *CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.*

12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204. U.N.O.

6"ø SPEE-D BASIN PER NDS. PLASTIC PRODUCTS PART NO. 101, 201, 300. U.N.O.

INDICATES 4"ø PERF. SUBDRAIN

185.5 TC — *EXISTING SPOT ELEVATIONS*

NOTE:

ANY CHANGES (TYPE, SIZE, LOCATION) TO APPROVED STORMWATER BEST MANAGEMENT PRACTICE(S) (BMPs) MUST OBTAIN WRITTEN APPROVAL FROM LOS ANGELES, DEPARTMENT OF PUBLIC WORKS, BUREAU OF SANITATION PRIOR TO CONSTRUCTION OF BMP(s).

NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY THE LOCATIONS OF ALL PROPOSED STRUCTURES, ELEVATIONS, AND DIMENSIONS PRIOR TO CONSTRUCTION. CONTRACTOR TO CONTACT PROJECT ENGINEER OF ANY DISCREPANCIES PRIOR TO ANY CONSTRUCTION.

NOTE: ALL SLOPES TO BE VEGETATED

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ENGINEERING GROUP INC
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REGISTERED PROFESSIONAL ENGINEER — No.84000 — Exp. Sep. 2021 — CIVIL — STATE OF CALIFORNIA

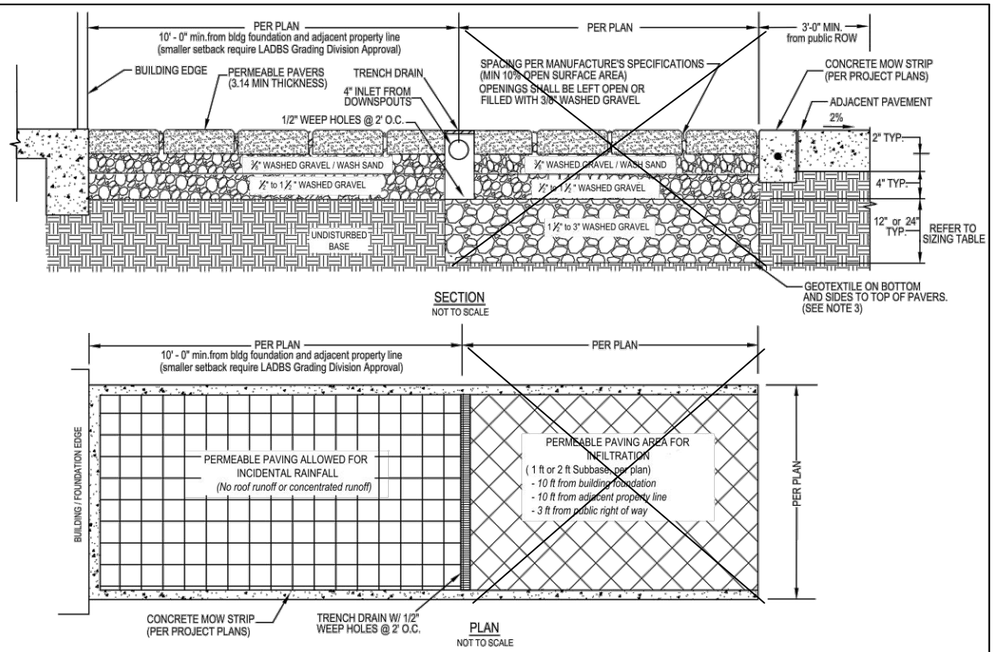
CLIENT: 3900 KENTUCKY LLC

CITY OF LOS ANGELES
3900 KENTUCKY DR.
LOS ANGELES, CA 90068

LID TABLE & NOTES

DATE: 9/1/2020

SHEET OF LID1.1
15



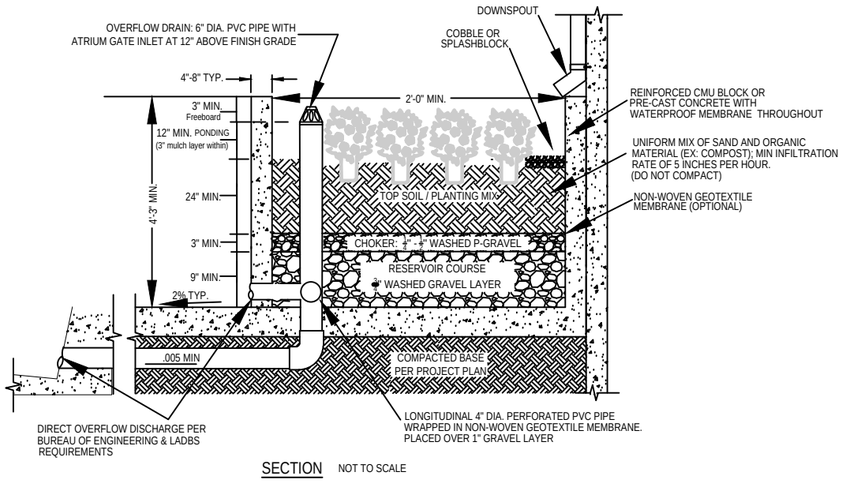
NOTES:

1. SITE SOILS SHALL HAVE ADEQUATE DRAINAGE (AT LEAST 0.5 INCHES PER HOUR).
2. INFILTRATION SHALL NOT CAUSE GEOTECHNICAL HAZARDS RELATED TO EXPANSIVE SOIL MOVEMENT, TUNNEL EROSION, OR SLOPE STABILITY.
3. IF INFILTRATION HARZARDS ARE A CONCERN, AN UNDERDRAIN SHALL BE INSTALLED TO DRAIN WATER INTO STORM DRAIN INLET OR ONSITE BMP.
4. ANY OVERFLOW SHALL BE DISCHARGED PER BUREAU OF ENGINEERING AND BUILDING & SAFETY REQUIREMENTS.
5. SLOPE IS NOT GREATER THAN 3 PERCENT.
6. FLOW DIRECTED TO PERMEABLE PAVEMENT SHALL BE DISPERSED SO AS NOT TO BE CONCENTRATED AT A SMALL AREA OF PAVEMENT.
7. PRE-FABRICATED PRODUCTS HAVE BEEN INSTALLED PER ALL APPROPRIATE MANUFACTURER'S SPECIFICATIONS. IF REQUIRED, SUB-GRADE SOIL SHALL BE COMPACTED IN ACCORDANCE WITH PRODUCT INSTALLATION SPECIFICATION.
8. SEE PERMEABLE PAVERS FACT SHEET FOR MORE INFORMATION.

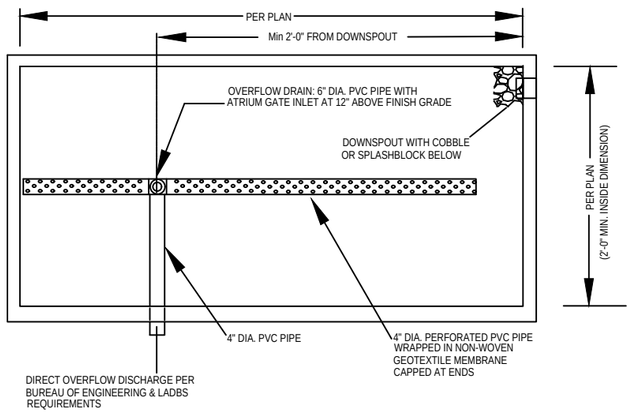
REVISED 5/10/16

PERMEABLE PAVERS FOR SMALL SCALE RESIDENTIAL

DETAIL NO. 1 PERMEABLE PAVERS
N.T.S.



SECTION NOT TO SCALE



PLAN NOT TO SCALE

NOTES:

1. AT LEAST 15 INCHES SHALL BE PROVIDED BETWEEN THE PLANTING SURFACE AND THE CREST OF EACH PLANTER
2. PLANTERS SHALL NOT BE LOCATED ON UNEVEN OR SLOPED SURFACES.
3. TOP SOIL/PLANTING MIX IS AT LEAST 24" DEEP.
4. TOP SOIL CONTAINS NO MORE THAN 30% COMPOST.
5. MINIMUM GRAVEL LAYER SHALL BE 12" DEEP.
6. DIRECT OVERFLOW DISCHARGE PER BUREAU OF ENGINEERING AND BUILDING AND SAFETY REQUIREMENTS.
7. PLANTING IS REQUIRED. CONSULT LANDSCAPE ARCHITECT FOR SPECIFIC PLANT TYPES.

REVISED 5/10/16

STORMWATER PLANTER FOR LARGE SCALE

DETAIL NO. 2 LARGE SCALE PLANTER BOX
N.T.S.

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Exp. Sep. 2021
CIVIL
STATE OF CALIFORNIA

CLIENT:
3900 KENTUCKY LLC

CITY OF LOS ANGELES
3900 KENTUCKY DR.
LOS ANGELES, CA 90068

LID DETAILS

DATE:
9/1/2020

SHEET LID2
OF 15

Low Impact Development (LID)
Post Construction Stormwater Mitigation
Best Management Practices (BMPs)

STORMWATER BMP(s) VERIFICATION

Upon LADBS Inspector Verification that approved stormwater BMPs are in place, a Stormwater Observation Report (SOR) Form shall be submitted to Department of Public Works, Bureau of Sanitation. 201 N. Figueroa, 3rd floor, station 18.

Project Address: 3900 KENTUCKY DR. LOS ANGELES, CA 90068

RESIDENTIAL (4 UNITS OR LESS, <10,000 SF, <2,500 SF within a ESA)

Item #	Stormwater BMP	Description (Units, total)	Reference Sheet(s)* (Sheet #)
1	Rain Tank(s) – 50 to 129 gal each		
2	Rain Tank(s) – > 130 gal min		
3	Shade Tree - min 15 gal		
4	Flow thru Planter(s)		
5	Permeable pavers / Porous concrete (min 10% open space)	☐ Incidental; _____ total SF ☐ Infiltration; _____ total SF	
6	Rain Garden	☐ #____ - Lined; _____ total SF ☐ # ____ - Unlined; _____ total SF	
7	Dry Well		
8	SUMP Pump (modification was not required)		

ALL OTHER DEVELOPMENT
(Residential: 5 ≥ units, 10,000 ≥ SF, within a ESA and ≥2,500SF)

	Item #	Stormwater BMP	Description (Units, total)	Reference Sheet(s)* (Sheet #)
Infiltration	1	Infiltration Basin / Trench		
	2	Dry Well		
	3	Permeable pavers / Porous concrete (min 10% open space)	☒ Incidental; 1283 total SF ☐ Infiltration; _____ total SF	DETAIL 1 LID2
Capture & Use	4	Rain Tank(s) – 530 gal min		
	5	Cistern	☐ Above Grade ☐ Below Grade	
Treat & Discharge	6	Flow thru Planter(s)	1,065 S.F.	DETAIL 2 LID2
	7	Biofiltration	☐ #____ - Lined; _____ total SF ☐ # ____ - Unlined; _____ total SF	
	8	Vegetative Swale / Filter Strip		
	9	Catch Basin Filter(s)		
	10	Trench Drain Filter(s)		
	11	Down Spout Filter(s)		
	12	SUMP Pump (modification was not required)		

* At a minimum: Site Plan, Architectural Elevations, Roof Plan, Civil Sheets and Detail

STORMWATER OBSERVATION REPORT (SOR) FORM

Only to be used for Single Family Residences
(4 units or less, <10,000 SF, <2,500 SF within a ESA)

LOW IMPACT DEVELOPMENT

IN THE EVENT THAT THE APPROVED STORMWATER BMP CANNOT BE BUILT PER PLANS (OR ANY MODIFICATION), CONSULT WITH BUREAU OF SANITATION STAFF PRIOR TO ANY PLAN MODIFICATIONS. FAILURE TO DO SO MAY DELAY OBTAINING A FINAL APPROVAL AND CERTIFICATE OF OCCUPANCY (C of O).

STORMWATER OBSERVATION *means the visual observation of the stormwater related Best Management Practices (BMPs) for conformance with the approved LID Plan at significant construction stages and at completion of the project. Stormwater observation does not include or waive the responsibility for the inspections required by Section 108 or other sections of the City of Los Angeles Building Code.*

STORMWATER OBSERVATION *must be performed by the contractor responsible for the approved LID Plan or designated staff in their employment. Homeowner can also perform the Stormwater Observation if no licensed contractor was involved.* ***AS PART OF THE OBSERVATION, PROVIDE PRINTED PHOTOS OF THE BMPS TAKEN DURING VARIOUS CONSTRUCTION PHASES.***

STORMWATER OBSERVATION REPORT (SOR) *must be signed by the contractor responsible for the approved LID Plan and submitted to the City prior to the issuance to the certificate of occupancy. Homeowner can sign the Stormwater Observation Report if no licensed contractor was involved.* ***PRIOR TO CERTIFICATE OF OCCUPANCY (C of O), SOR FORM, PRINTED PHOTOS OF THE BMPS TAKEN DURING VARIOUS CONSTRUCTION PHASES AND APPROVED STAMPED PLANS BY THE BUREAU OF SANITATION MUST BE SUBMITTED TO THE PUBLIC COUNTER FOR STAFF APPROVAL.***

Project Address: 3900 KENTUCKY DR. LOS ANGELES, CA 90068	**Building Permit No.:**
Contractor / Architect / Engineer responsible for construction of best management practices per approved LID Plan:	**Phone Number:**

I declare that the following statements are true to the best of my knowledge:

1. I am responsible for the approved LID Plan, and
2. I, or designated staff under my responsible charge, have performed the required site visits at each significant construction stage and at completion to verify that the best management practices as shown on the approved plan have been constructed and installed in accordance with the approved LID Plan.

Signature Date Contractor/Architect/Engineer License

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CITY OF LOS ANGELES 3900 KENTUCKY DR. LOS ANGELES, CA 90068

LID FORMS

DATE: 9/1/2020

SHEET OF LID2.1 15

EXHIBIT B

VICINITY MAP

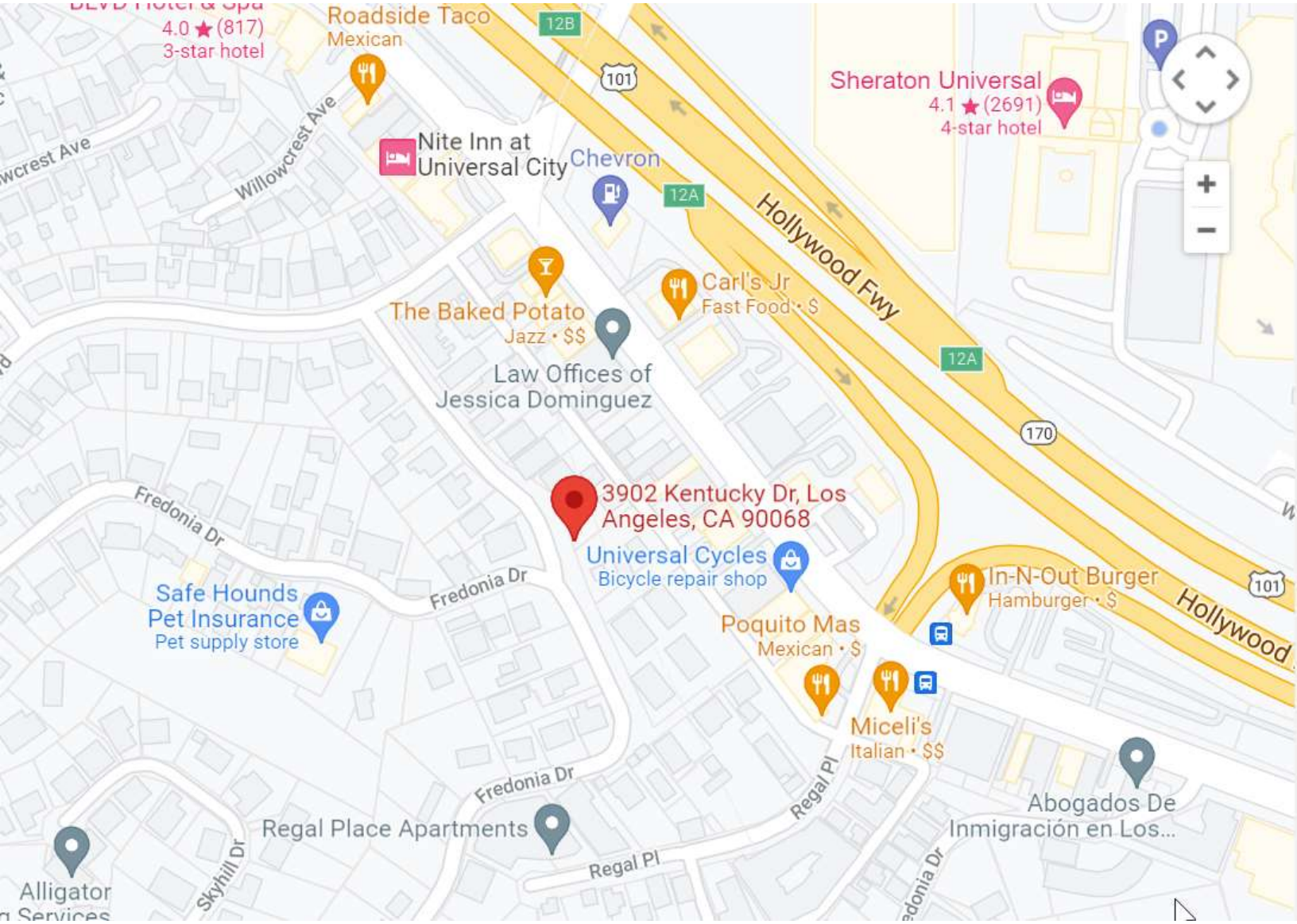

4.0 ★ (817)
3-star hotel
Roadside Taco
Mexican
12B
101
Sheraton Universal
4.1 ★ (2691)
4-star hotel
Willowcrest Ave
Nite Inn at
Universal City
Chevron
12A
Hollywood Fwy
The Baked Potato
Jazz · $$
Carl's Jr
Fast Food · $
Law Offices of
Jessica Dominguez
170
3902 Kentucky Dr, Los
Angeles, CA 90068
Fredonia Dr
Universal Cycles
Bicycle repair shop
In-N-Out Burger
Hamburger · $
Safe Hounds
Pet Insurance
Pet supply store
Poquito Mas
Mexican · $
Miceli's
Italian · $$
Regal Pl
Abogados De
Inmigración en Los...
Regal Place Apartments
Skyhill Dr
Alligator

EXHIBIT C

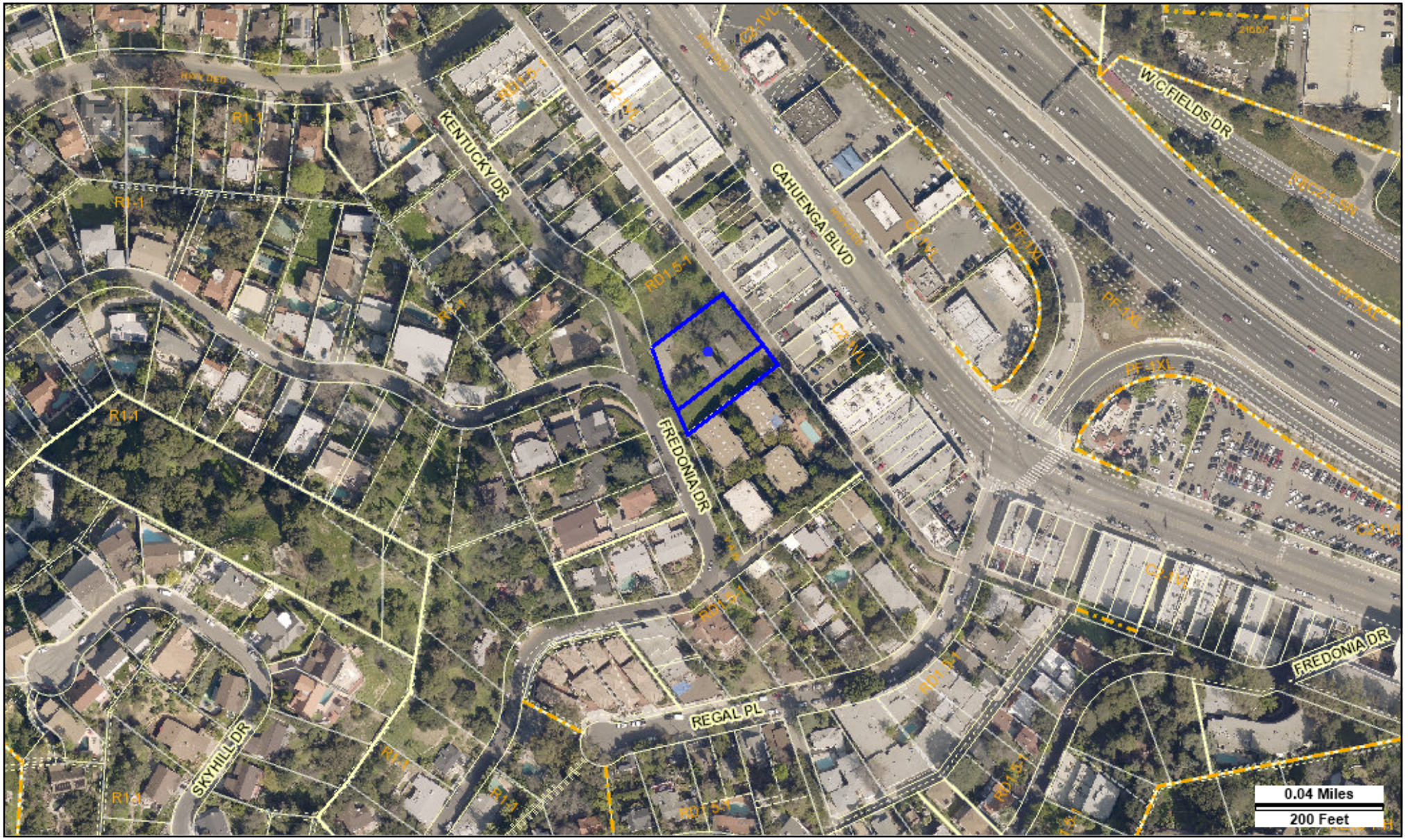
AERIAL PHOTO

ZIMAS INTRANET

LARIAC5 2017 Color-Ortho

02/14/2022

City of Los Angeles
Department of City Planning



Address: 3902 N KENTUCKY DR
APN: 2425002026
PIN #: 159B177 73

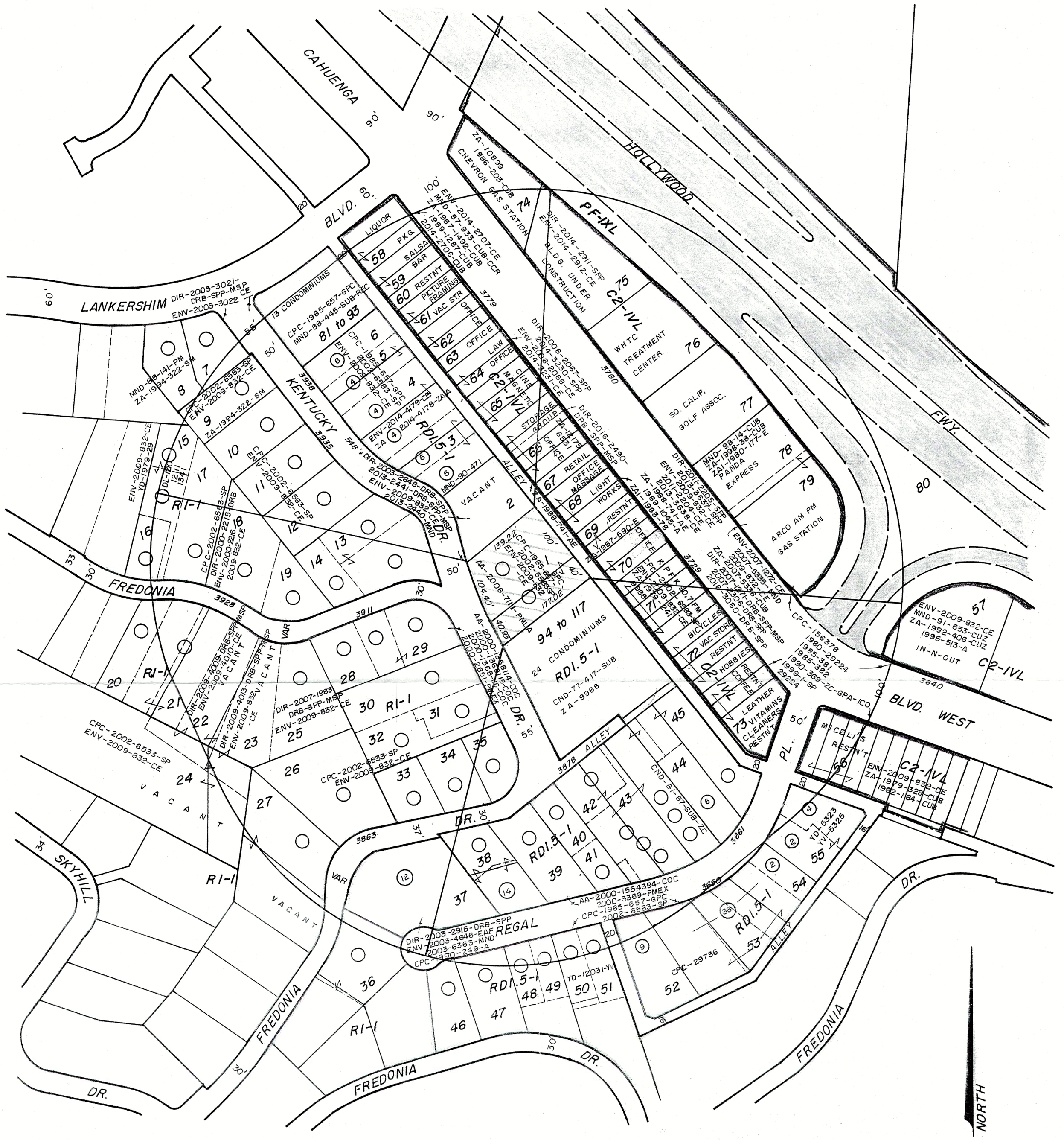
Tract: TR 5593
Block: None
Lot: 116
Arb: None

Zoning: RD1.5-1
General Plan: Low Medium Residential

N
W E
S

EXHIBIT D

RADIUS MAP



VESTING TENTATIVE TRACT NO. 73784 FOR CONDOMINIUM PURPOSES / DENSITY BONUS 0.51 AC. - CPC
MULHOLLAND SCENIC PARKWAY DESIGN REVIEW / PROJECT PERMIT COMPLIANCE / HAUL ROUTE APPROVAL

CASE NO.
DATE FEB. 7, 2017
D.M. 159B177, 162B177
SCALE 1" = 100'
USES FIELD

LEGAL: LOTS 116 & 117, TRACT NO. 5593 MB 63-62/63

T.B. PAGE 563 GRID B-6

C.D. 4 C.T. 1437.00 P.A. 212 SHR

JEROME BUCKMELTER ASSOC. INC.
23534 AETNA ST.
WOODLAND HILLS, CA 91367
(818) 340-8386

EXHIBIT E

ZIMAS ZONING MAP AND PARCEL PROFILE REPORT

City of Los Angeles
Department of City Planning

2/14/2022
PARCEL PROFILE REPORT

PROPERTY ADDRESSES

3902 N KENTUCKY DR

3900 N FREDONIA DR

ZIP CODES

90068

RECENT ACTIVITY

None

CASE NUMBERS

CPC-2017-1923-DB-DRB-SPP-MSP-ZAD

CPC-2002-6583-SP

CPC-1985-657-GPC

ORD-167943

ORD-164341-SA24

ORD-129279

ORD-128730

VTT-73784-CN

ENV-2017-1925-MND

ENV-2009-832-CE

Address/Legal Information	
PIN Number	159B177 73
Lot/Parcel Area (Calculated)	15,555.0 (sq ft)
Thomas Brothers Grid	PAGE 563 - GRID B6
Assessor Parcel No. (APN)	2425002026
Tract	TR 5593
Map Reference	M B 63-62/63
Block	None
Lot	116
Arb (Lot Cut Reference)	None
Map Sheet	159B177
Jurisdictional Information	
Community Plan Area	Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass
Area Planning Commission	South Valley
Neighborhood Council	Hollywood Hills West
Council District	CD 4 - Nithya Raman
Census Tract #	1437.00
LADBS District Office	Los Angeles Metro
Permitting and Zoning Compliance Information	
Administrative Review	None
Planning and Zoning Information	
Special Notes	None
Zoning	RD1.5-1
Zoning Information (ZI)	ZI-1224 Specific Plan: Mulholland Scenic Parkway (Outer Corridor)
	ZI-2452 Transit Priority Area in the City of Los Angeles
	ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses
General Plan Land Use	Low Medium Residential
General Plan Note(s)	Yes
Hillside Area (Zoning Code)	Yes
Specific Plan Area	MULHOLLAND SCENIC PARKWAY (OUTER CORRIDOR)
Subarea	None
Special Land Use / Zoning	None
Historic Preservation Review	No
Historic Preservation Overlay Zone	None
Other Historic Designations	None
Other Historic Survey Information	None
Mills Act Contract	None
CDO: Community Design Overlay	None
CPIO: Community Plan Imp. Overlay	None
Subarea	None
CUGU: Clean Up-Green Up	None
HCR: Hillside Construction Regulation	No
NSO: Neighborhood Stabilization Overlay	No
POD: Pedestrian Oriented Districts	None
RFA: Residential Floor Area District	None
RIO: River Implementation Overlay	No
SN: Sign District	No

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(*) - APN Area is provided "as is" from the Los Angeles County's Public Works, Flood Control, Benefit Assessment.

Streetscape	No
Adaptive Reuse Incentive Area	None
Affordable Housing Linkage Fee	
Residential Market Area	Medium
Non-Residential Market Area	High
Transit Oriented Communities (TOC)	Tier 3
RPA: Redevelopment Project Area	None
Central City Parking	No
Downtown Parking	No
Building Line	None
500 Ft School Zone	No
500 Ft Park Zone	No
Assessor Information	
Assessor Parcel No. (APN)	2425002026
Ownership (Assessor)	
Owner1	3900 KENTUCKY LLC
Address	528 STATE ST GLENDALE CA 91203
Ownership (Bureau of Engineering, Land Records)	
Owner	3900 KENTUCKY LLC
Address	528 STATE ST GLENDALE CA 91203
APN Area (Co. Public Works)*	0.348 (ac)
Use Code	0200 - Residential - Double, Duplex, or Two Units - 4 Stories or Less
Assessed Land Val.	$769,255
Assessed Improvement Val.	$396,381
Last Owner Change	01/29/2015
Last Sale Amount	$1,050,010
Tax Rate Area	13
Deed Ref No. (City Clerk)	980833
	870879
	437476
	437475
	3157270
	2798512
	2783331
	235158
	1698765
	163416
	1578063
	156534
	1423210-1
	1360519
	127132
	107329
	100641
Building 1	
Year Built	1951
Building Class	D5A
Number of Units	1
Number of Bedrooms	2
Number of Bathrooms	1
Building Square Footage	770.0 (sq ft)
Building 2	
Year Built	1951

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Building Class	D5A
Number of Units	1
Number of Bedrooms	2
Number of Bathrooms	2
Building Square Footage	770.0 (sq ft)
Building 3	No data for building 3
Building 4	No data for building 4
Building 5	No data for building 5
Rent Stabilization Ordinance (RSO)	Yes [APN: 2425002026]
Additional Information	
Airport Hazard	None
Coastal Zone	None
Farmland	Area Not Mapped
Urban Agriculture Incentive Zone	YES
Very High Fire Hazard Severity Zone	Yes
Fire District No. 1	No
Flood Zone	Outside Flood Zone
Watercourse	No
Hazardous Waste / Border Zone Properties	No
Methane Hazard Site	None
High Wind Velocity Areas	No
Special Grading Area (BOE Basic Grid Map A-13372)	Yes
Wells	None
Seismic Hazards	
Active Fault Near-Source Zone	
Nearest Fault (Distance in km)	0.032074104
Nearest Fault (Name)	Hollywood Fault
Region	Transverse Ranges and Los Angeles Basin
Fault Type	B
Slip Rate (mm/year)	1.00000000
Slip Geometry	Left Lateral - Reverse - Oblique
Slip Type	Poorly Constrained
Down Dip Width (km)	14.00000000
Rupture Top	0.00000000
Rupture Bottom	13.00000000
Dip Angle (degrees)	70.00000000
Maximum Magnitude	6.40000000
Alquist-Priolo Fault Zone	No
Landslide	Yes
Liquefaction	No
Preliminary Fault Rupture Study Area	No
Tsunami Inundation Zone	No
Economic Development Areas	
Business Improvement District	None
Hubzone	Not Qualified
Opportunity Zone	No
Promise Zone	None
State Enterprise Zone	None
Housing	
Direct all Inquiries to	Los Angeles Housing Department
Telephone	(866) 557-7368
Website	https://housing.lacity.org
Rent Stabilization Ordinance (RSO)	Yes [APN: 2425002026]
Ellis Act Property	No

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AB 1482: Tenant Protection Act	No
Public Safety	
Police Information	
Bureau	Valley
Division / Station	North Hollywood
Reporting District	1599
Fire Information	
Bureau	West
Batallion	5
District / Fire Station	76
Red Flag Restricted Parking	No

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CASE SUMMARIES

Note: Information for case summaries is retrieved from the Planning Department's Plan Case Tracking System (PCTS) database.

Case Number:	CPC-2017-1923-DB-DRB-SPP-MSP-ZAD
Required Action(s):	DB-DENSITY BONUS
	DRB-DESIGN REVIEW BOARD
	SPP-SPECIFIC PLAN PROJECT PERMIT COMPLIANCE
	MSP-MULHOLLAND SPECIFIC PLAN
	ZAD-ZA DETERMINATION (PER LAMC 12.27)
Project Descriptions(s):	PURSUANT TO LAMC SECTIONS 11 .5. 7 C AND 16.50, AND SECTION 11 OF THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN (ORDINANCE NO. 167,943), PROJECT PERMIT COMPLIANCE AND DESIGN REVIEW FOR THE DEMOLITION OF TWO SINGLE FAMILY DWELLINGS AND DETACHED GARAGE, AND THE CONSTRUCTION OF 37,119 SQUARE FOOT, 68 FEET IN HEIGHT WITH 21 UNIT RESIDENTIAL CONDOMINIUM BUILDING, ON A 22,508 SQUARE FOOT LOT DOWN-SLOPING LOT WITH 15 NON-PROTECTED TREES WHICH WILL BE REMOVED AND REPLACED WITH NATIVES TREES; AND, PURSUANT TO LAMC SECTION 12.22A.25(G)(3) OF THE MUNICIPAL CODE, AN OFF-MENU INCENTIVE FOR A 21 UNIT RESIDENTIAL CONDOMINIUM PROJECT OF WHICH 2 UNITS SHALL BE SET ASIDE FOR VERY LOW INCOME. THE INCENTIVE IS FOR A WAIVER OF DEVELOPMENT STANDARDS TO LAMC SECTION 12.21.1(A)(7) FOR A MAXIMUM HEIGHT OF 68 IN LIEU OF 57 FT.; AND, IN ACCORDANCE WITH THE PROVISIONS OF LAMC SECTION 17.06 THE REQUEST FOR THE SUBDIVISION OF TWO LOTS (22,508 SQFT TOTAL) FOR THE DEVELOPMENT OF A ONE-LOT, 21 UNIT RESIDENTIAL CONDOMINIUMS AND HAUL ROUTE OF 9,500 C.Y.
Case Number:	CPC-2002-6583-SP
Required Action(s):	SP-SPECIFIC PLAN (INCLUDING AMENDMENTS)
Project Descriptions(s):	PROPOSED DESIGN AND PRESERVATION GUIDELINES PURSUANT TO THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN.
Case Number:	CPC-1985-657-GPC
Required Action(s):	GPC-GENERAL PLAN/ZONING CONSISTENCY (AB283)
Project Descriptions(s):	A PROGRAM TO AMEND THE SHERMAN OAKS-STUDIO CITY-TOLUCA LAKE DISTRICT PLAN AND/OR RELATED ZONING IN ORDER TO DEVELOP CONSISTENCY BETWEEN THE TWO AS LEGALLY REQUIRED BY STATE LEGISLATION
Case Number:	VTT-73784-CN
Required Action(s):	CN-NEW CONDOMINIUMS
Project Descriptions(s):	PURSUANT TO LAMC SECTIONS 11 .5. 7 C AND 16.50, AND SECTION 11 OF THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN (ORDINANCE NO. 167,943), PROJECT PERMIT COMPLIANCE AND DESIGN REVIEW FOR THE DEMOLITION OF TWO SINGLE FAMILY DWELLINGS AND DETACHED GARAGE, AND THE CONSTRUCTION OF 37,119 SQUARE FOOT, 68 FEET IN HEIGHT WITH 21 UNIT RESIDENTIAL CONDOMINIUM BUILDING, ON A 22,508 SQUARE FOOT LOT DOWN-SLOPING LOT WITH 15 NON-PROTECTED TREES WHICH WILL BE REMOVED AND REPLACED WITH NATIVES TREES; AND, PURSUANT TO LAMC SECTION 12.22A.25(G)(3) OF THE MUNICIPAL CODE, AN OFF-MENU INCENTIVE FOR A 21 UNIT RESIDENTIAL CONDOMINIUM PROJECT OF WHICH 2 UNITS SHALL BE SET ASIDE FOR VERY LOW INCOME. THE INCENTIVE IS FOR A WAIVER OF DEVELOPMENT STANDARDS TO LAMC SECTION 12.21.1(A)(7) FOR A MAXIMUM HEIGHT OF 68 IN LIEU OF 57 FT.; AND, IN ACCORDANCE WITH THE PROVISIONS OF LAMC SECTION 17.06 THE REQUEST FOR THE SUBDIVISION OF TWO LOTS (22,508 SQFT TOTAL) FOR THE DEVELOPMENT OF A ONE-LOT, 21 UNIT RESIDENTIAL CONDOMINIUMS AND HAUL ROUTE OF 9,500 C.Y.
Case Number:	ENV-2017-1925-MND
Required Action(s):	MND-MITIGATED NEGATIVE DECLARATION
Project Descriptions(s):	PURSUANT TO LAMC SECTIONS 11 .5. 7 C AND 16.50, AND SECTION 11 OF THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN (ORDINANCE NO. 167,943), PROJECT PERMIT COMPLIANCE AND DESIGN REVIEW FOR THE DEMOLITION OF TWO SINGLE FAMILY DWELLINGS AND DETACHED GARAGE, AND THE CONSTRUCTION OF 37,119 SQUARE FOOT, 68 FEET IN HEIGHT WITH 21 UNIT RESIDENTIAL CONDOMINIUM BUILDING, ON A 22,508 SQUARE FOOT LOT DOWN-SLOPING LOT WITH 15 NON-PROTECTED TREES WHICH WILL BE REMOVED AND REPLACED WITH NATIVES TREES; AND, PURSUANT TO LAMC SECTION 12.22A.25(G)(3) OF THE MUNICIPAL CODE, AN OFF-MENU INCENTIVE FOR A 21 UNIT RESIDENTIAL CONDOMINIUM PROJECT OF WHICH 2 UNITS SHALL BE SET ASIDE FOR VERY LOW INCOME. THE INCENTIVE IS FOR A WAIVER OF DEVELOPMENT STANDARDS TO LAMC SECTION 12.21.1(A)(7) FOR A MAXIMUM HEIGHT OF 68 IN LIEU OF 57 FT.; AND, IN ACCORDANCE WITH THE PROVISIONS OF LAMC SECTION 17.06 THE REQUEST FOR THE SUBDIVISION OF TWO LOTS (22,508 SQFT TOTAL) FOR THE DEVELOPMENT OF A ONE-LOT, 21 UNIT RESIDENTIAL CONDOMINIUMS AND HAUL ROUTE OF 9,500 C.Y.
Case Number:	ENV-2009-832-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION
Project Descriptions(s):	ENVIVRONMENT CLEARANCE TO ADD SUSTAINIBILITY GUIDELINES TO THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN DESIGN AND PRESERVATION GUIDELINES

DATA NOT AVAILABLE

ORD-167943

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ORD-164341-SA24
ORD-129279
ORD-128730

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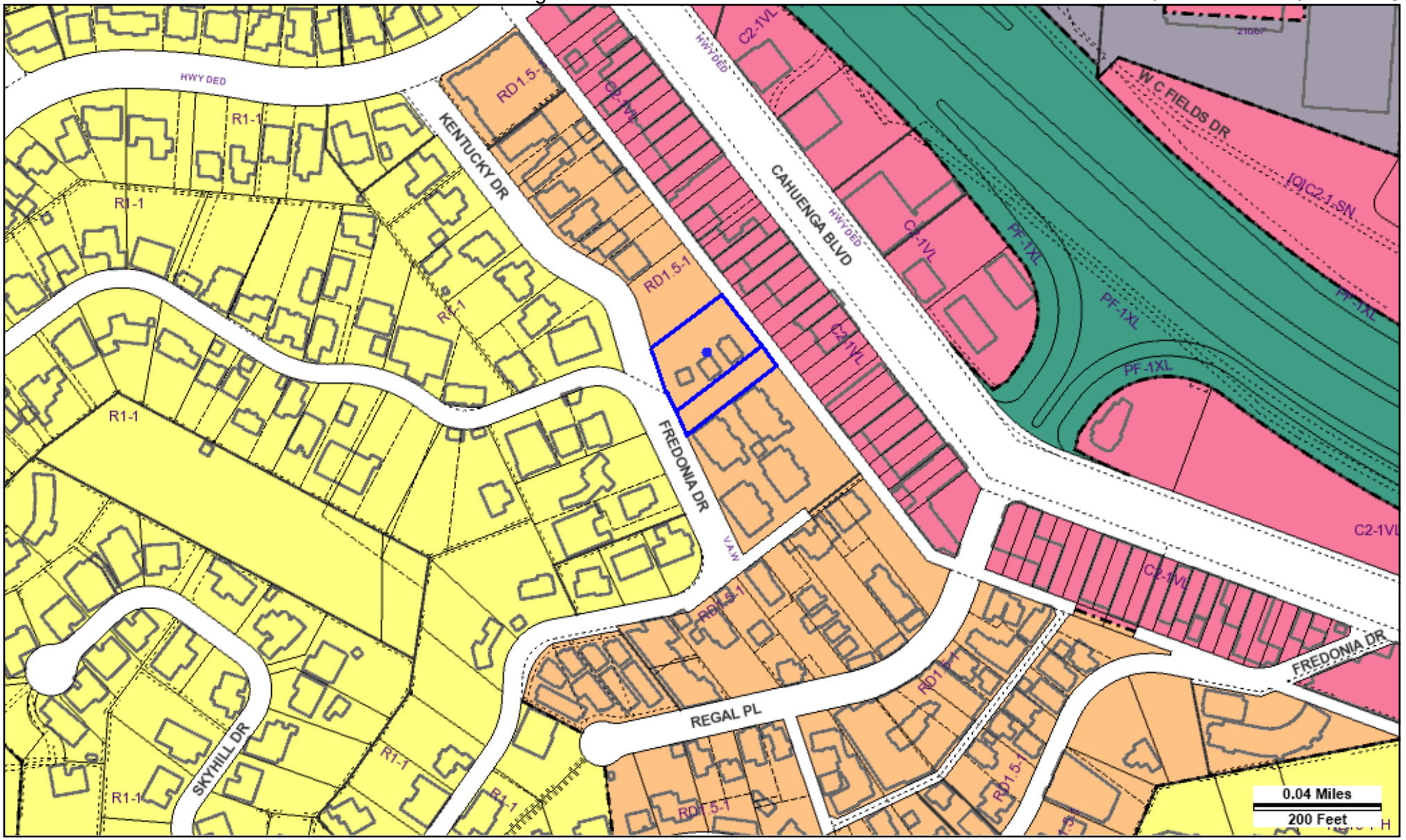
ZIMAS INTRANET

Generalized Zoning

02/14/2022

City of Los Angeles
Department of City Planning



Address: 3902 N KENTUCKY DR
APN: 2425002026
PIN #: 159B177 73

Tract: TR 5593
Block: None
Lot: 116
Arb: None

Zoning: RD1.5-1
General Plan: Low Medium Residential

N
W E
S

CITY OF LOS ANGELES FOUNDED 1781

LEGEND

GENERALIZED ZONING

- OS, GW
- A, RA
- RE, RS, R1, RU, RZ, RW1
- R2, RD, RMP, RW2, R3, RAS, R4, R5, PVSP
- CR, C1, C1.5, C2, C4, C5, CW, WC, ADP, LASED, CEC, USC, PPSP, MU, NMU
- CM, MR, CCS, UV, UI, UC, M1, M2, LAX, M3, SL, HJ, HR, NI
- P, PB
- PF

GENERAL PLAN LAND USE

LAND USE

RESIDENTIAL

- Minimum Residential
- Very Low / Very Low I Residential
- Very Low II Residential
- Low / Low I Residential
- Low II Residential
- Low Medium / Low Medium I Residential
- Low Medium II Residential
- Medium Residential
- High Medium Residential
- High Density Residential
- Very High Medium Residential

COMMERCIAL

- Limited Commercial
- Limited Commercial - Mixed Medium Residential
- Highway Oriented Commercial
- Highway Oriented and Limited Commercial
- Highway Oriented Commercial - Mixed Medium Residential
- Neighborhood Office Commercial
- Community Commercial
- Community Commercial -Mixed High Residential
- Regional Center Commercial

INDUSTRIAL

- Commercial Manufacturing
- Limited Manufacturing
- Light Manufacturing
- Heavy Manufacturing
- Hybrid Industrial

PARKING

- Parking Buffer

PORT OF LOS ANGELES

- General / Bulk Cargo - Non Hazardous (Industrial / Commercial)
- General / Bulk Cargo - Hazard
- Commercial Fishing
- Recreation and Commercial
- Intermodal Container Transfer Facility Site

LOS ANGELES INTERNATIONAL AIRPORT

- Airport Landside / Airport Landside Support
- Airport Airside
- LAX Airport Northside

OPEN SPACE / PUBLIC FACILITIES

- Open Space
- Public / Open Space
- Public / Quasi-Public Open Space
- Other Public Open Space
- Public Facilities

FRAMEWORK

COMMERCIAL

- Neighborhood Commercial
- General Commercial
- Community Commercial
- Regional Mixed Commercial

INDUSTRIAL

- Limited Industrial
- Light Industrial

CIRCULATION

STREET

- Arterial Mountain Road
- Collector Scenic Street
- Collector Street
- Collector Street (Hillside)
- Collector Street (Modified)
- Collector Street (Proposed)
- Country Road
- Divided Major Highway II
- Divided Secondary Scenic Highway
- Local Scenic Road
- Local Street
- Major Highway (Modified)
- Major Highway I
- Major Highway II
- Major Highway II (Modified)
- Major Scenic Highway
- Major Scenic Highway (Modified)
- Major Scenic Highway II
- Mountain Collector Street
- Park Road
- Parkway
- Principal Major Highway
- Private Street
- Scenic Divided Major Highway II
- Scenic Park
- Scenic Parkway
- Secondary Highway
- Secondary Highway (Modified)
- Secondary Scenic Highway
- Special Collector Street
- Super Major Highway

FREEWAYS

- Freeway
- Interchange
- On-Ramp / Off- Ramp
- Railroad
- Scenic Freeway Highway

MISC. LINES

- Airport Boundary
- Bus Line
- Coastal Zone Boundary
- Coastline Boundary
- Collector Scenic Street (Proposed)
- Commercial Areas
- Commercial Center
- Community Redevelopment Project Area
- Country Road
- DWP Power Lines
- Desirable Open Space
- Detached Single Family House
- Endangered Ridgeline
- Equestrian and/or Hiking Trail
- Hiking Trail
- Historical Preservation
- Horsekeeping Area
- Local Street
- MSA Desirable Open Space
- Major Scenic Controls
- Multi-Purpose Trail
- Natural Resource Reserve
- Park Road
- Park Road (Proposed)
- Quasi-Public
- Rapid Transit Line
- Residential Planned Development
- Scenic Highway (Obsolete)
- Secondary Scenic Controls
- Secondary Scenic Highway (Proposed)
- Site Boundary
- Southern California Edison Power
- Special Study Area
- Specific Plan Area
- Stagecoach Line
- Wildlife Corridor

POINTS OF INTEREST

- Alternative Youth Hostel (Proposed)
- Animal Shelter
- Area Library
- Area Library (Proposed)
- Bridge
- Campground
- Campground (Proposed)
- Cemetery
- HW Church
- City Hall
- Community Center
- Community Library
- Community Library (Proposed Expansion)
- Community Library (Proposed)
- Community Park
- Community Park (Proposed Expansion)
- Community Park (Proposed)
- Community Transit Center
- Convalescent Hospital
- Correctional Facility
- Cultural / Historic Site (Proposed)
- Cultural / Historical Site
- Cultural Arts Center
- DMV DMV Office
- DWP DWP
- DWP Pumping Station
- Equestrian Center
- HQ Fire Department Headquarters
- Fire Station
- Fire Station (Proposed Expansion)
- Fire Station (Proposed)
- Fire Supply & Maintenance
- Fire Training Site
- Fireboat Station
- Health Center / Medical Facility
- Helistop
- Historic Monument
- Historical / Cultural Monument
- Horsekeeping Area
- Horsekeeping Area (Proposed)
- Horticultural Center
- Hospital
- Hospital (Proposed)
- HW House of Worship
- e Important Ecological Area
- e Important Ecological Area (Proposed)
- Interpretive Center (Proposed)
- JC Junior College
- M MTA / Metrolink Station
- M MTA Station
- MTA Stop
- MWD MWD Headquarters
- Maintenance Yard
- Municipal Office Building
- P Municipal Parking lot
- Neighborhood Park
- Neighborhood Park (Proposed Expansion)
- Neighborhood Park (Proposed)
- Oil Collection Center
- P Parking Enforcement
- HQ Police Headquarters
- Police Station
- Police Station (Proposed Expansion)
- Police Station (Proposed)
- Police Training site
- PO Post Office
- Power Distribution Station
- Power Distribution Station (Proposed)
- Power Receiving Station
- Power Receiving Station (Proposed)
- C Private College
- E Private Elementary School
- Private Golf Course
- Private Golf Course (Proposed)
- JH Private Junior High School
- PS Private Pre-School
- Private Recreation & Cultural Facility
- SH Private Senior High School
- SF Private Special School
- E Public Elementary (Proposed Expansion)
- E Public Elementary School
- E Public Elementary School (Proposed)
- Public Golf Course
- Public Golf Course (Proposed)
- Public Housing
- Public Housing (Proposed Expansion)
- JH Public Junior High School
- JH Public Junior High School (Proposed)
- MS Public Middle School
- SH Public Senior High School
- SH Public Senior High School (Proposed)
- Pumping Station
- Pumping Station (Proposed)
- Refuse Collection Center
- Regional Library
- Regional Library (Proposed Expansion)
- Regional Library (Proposed)
- Regional Park
- Regional Park (Proposed)
- RPD Residential Plan Development
- Scenic View Site
- Scenic View Site (Proposed)
- ADM School District Headquarters
- SC School Unspecified Loc/Type (Proposed)
- Skill Center
- SS Social Services
- Special Feature
- Special Recreation (a)
- SF Special School Facility
- SF Special School Facility (Proposed)
- Steam Plant
- sm Surface Mining
- Trail & Assembly Area
- Trail & Assembly Area (Proposed)
- UTL Utility Yard
- Water Tank Reservoir
- Wildlife Migration Corridor
- Wildlife Preserve Gate

SCHOOLS/PARKS WITH 500 FT. BUFFER

- Existing School/Park Site
- Planned School/Park Site
- Inside 500 Ft. Buffer

- Aquatic Facilities
- Beaches
- Child Care Centers
- Dog Parks
- Golf Course
- Historic Sites
- Horticulture/Gardens
- Skate Parks
- Other Facilities
- Park / Recreation Centers
- Parks
- Performing / Visual Arts Centers
- Recreation Centers
- Senior Citizen Centers
- Opportunity School
- Charter School
- Elementary School
- Span School
- Special Education School
- High School
- Middle School
- Early Education Center

COASTAL ZONE

- Coastal Commission Permit Area
- Dual Permit Jurisdiction Area
- Single Permit Jurisdiction Area
- Not in Coastal Zone

TRANSIT ORIENTED COMMUNITIES (TOC)

- Tier 1
- Tier 2
- Tier 3
- Tier 4

Note: TOC Tier designation and map layers are for reference purposes only. Eligible projects shall demonstrate compliance with Tier eligibility standards prior to the issuance of any permits or approvals. As transit service changes, eligible TOC Incentive Areas will be updated.

WAIVER OF DEDICATION OR IMPROVEMENT

- Public Work Approval (PWA)
- Waiver of Dedication or Improvement (WDI)

OTHER SYMBOLS

- Lot Line
- Tract Line
- Lot Cut
- Easement
- Zone Boundary
- Building Line
- Lot Split
- Community Driveway
- Building Outlines 2014
- Building Outlines 2008
- Airport Hazard Zone
- Census Tract
- Coastal Zone
- Council District
- LADBS District Office
- Downtown Parking
- Fault Zone
- Fire District No. 1
- Tract Map
- Parcel Map
- Flood Zone
- Hazardous Waste
- High Wind Zone
- Hillside Grading
- Historic Preservation Overlay Zone
- Specific Plan Area
- Very High Fire Hazard Severity Zone
- Wells

City of Los Angeles
Department of City Planning

3/9/2022
PARCEL PROFILE REPORT

PROPERTY ADDRESSES
3894 N FREDONIA DR

ZIP CODES
90068

RECENT ACTIVITY
None

CASE NUMBERS
CPC-2017-1923-DB-DRB-SPP-MSP-ZAD
CPC-2002-6583-SP
CPC-1985-657-GPC
ORD-167943
ORD-164341-SA24
ORD-129279
ORD-128730
VTT-73784-CN
AA-2006-7111-PMLA-SL
ENV-2017-1925-MND
ENV-2009-832-CE
PRIOR-06/01/1946

Address/Legal Information	
PIN Number	159B177 87
Lot/Parcel Area (Calculated)	6,957.6 (sq ft)
Thomas Brothers Grid	PAGE 563 - GRID B6
Assessor Parcel No. (APN)	2425003017
Tract	TR 5593
Map Reference	M B 63-62/63
Block	None
Lot	FR 117
Arb (Lot Cut Reference)	None
Map Sheet	159B177
Jurisdictional Information	
Community Plan Area	Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass
Area Planning Commission	South Valley
Neighborhood Council	Hollywood Hills West
Council District	CD 4 - Nithya Raman
Census Tract #	1437.00
LADBS District Office	Los Angeles Metro
Permitting and Zoning Compliance Information	
Administrative Review	None
Planning and Zoning Information	
Special Notes	None
Zoning	RD1.5-1
Zoning Information (ZI)	ZI-1224 Specific Plan: Mulholland Scenic Parkway (Outer Corridor)
	ZI-2452 Transit Priority Area in the City of Los Angeles
	ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses
General Plan Land Use	Low Medium Residential
General Plan Note(s)	Yes
Hillside Area (Zoning Code)	Yes
Specific Plan Area	MULHOLLAND SCENIC PARKWAY (OUTER CORRIDOR)
Subarea	None
Special Land Use / Zoning	None
Historic Preservation Review	No
Historic Preservation Overlay Zone	None
Other Historic Designations	None
Other Historic Survey Information	None
Mills Act Contract	None
CDO: Community Design Overlay	None
CPIO: Community Plan Imp. Overlay	None
Subarea	None
CUGU: Clean Up-Green Up	None
HCR: Hillside Construction Regulation	No
NSO: Neighborhood Stabilization Overlay	No
POD: Pedestrian Oriented Districts	None
RFA: Residential Floor Area District	None
RIO: River Implementation Overlay	No
SN: Sign District	No

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Streetscape	No
Adaptive Reuse Incentive Area	None
Affordable Housing Linkage Fee	
Residential Market Area	Medium
Non-Residential Market Area	High
Transit Oriented Communities (TOC)	Tier 3
RPA: Redevelopment Project Area	None
Central City Parking	No
Downtown Parking	No
Building Line	None
500 Ft School Zone	No
500 Ft Park Zone	No
Assessor Information	
Assessor Parcel No. (APN)	2425003017
Ownership (Assessor)	
Owner1	3900 KENTUCKY LLC
Address	528 STATE ST GLENDALE CA 91203
Ownership (Bureau of Engineering, Land Records)	
Owner	BOUTIQUE PROPERTIES LLC
Address	7083 HOLLYWOOD BLVD # 105 HOLLYWOOD CA 90028
APN Area (Co. Public Works)*	0.159 (ac)
Use Code	010V - Residential - Single Family Residence - Vacant Land
Assessed Land Val.	$565,952
Assessed Improvement Val.	$0
Last Owner Change	01/30/2015
Last Sale Amount	$515,005
Tax Rate Area	13
Deed Ref No. (City Clerk)	1001611
	0-992
Building 1	No data for building 1
Building 2	No data for building 2
Building 3	No data for building 3
Building 4	No data for building 4
Building 5	No data for building 5
Rent Stabilization Ordinance (RSO)	No [APN: 2425003017]
Additional Information	
Airport Hazard	None
Coastal Zone	None
Farmland	Area Not Mapped
Urban Agriculture Incentive Zone	YES
Very High Fire Hazard Severity Zone	Yes
Fire District No. 1	No
Flood Zone	Outside Flood Zone
Watercourse	No
Hazardous Waste / Border Zone Properties	No
Methane Hazard Site	None
High Wind Velocity Areas	No
Special Grading Area (BOE Basic Grid Map A-13372)	Yes
Wells	None
Seismic Hazards	
Active Fault Near-Source Zone	
Nearest Fault (Distance in km)	0.0197623176

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Nearest Fault (Name)	Hollywood Fault
Region	Transverse Ranges and Los Angeles Basin
Fault Type	B
Slip Rate (mm/year)	1.00000000
Slip Geometry	Left Lateral - Reverse - Oblique
Slip Type	Poorly Constrained
Down Dip Width (km)	14.00000000
Rupture Top	0.00000000
Rupture Bottom	13.00000000
Dip Angle (degrees)	70.00000000
Maximum Magnitude	6.40000000
Alquist-Priolo Fault Zone	No
Landslide	Yes
Liquefaction	No
Preliminary Fault Rupture Study Area	No
Tsunami Inundation Zone	No
Economic Development Areas	
Business Improvement District	None
Hubzone	Not Qualified
Opportunity Zone	No
Promise Zone	None
State Enterprise Zone	None
Housing	
Direct all Inquiries to	Los Angeles Housing Department
Telephone	(866) 557-7368
Website	https://housing.lacity.org
Rent Stabilization Ordinance (RSO)	No [APN: 2425003017]
Ellis Act Property	No
AB 1482: Tenant Protection Act	See Notes
Assessor Parcel No. (APN)	2425003017
Address	3894 FREDONIA DR
Use Code	010V - Residential - Single Family Residence - Vacant Land
Notes	The property is subject to AB 1482 only if the owner is a corporation, limited liability company, or a real estate investment trust.
Public Safety	
Police Information	
Bureau	Valley
Division / Station	North Hollywood
Reporting District	1599
Fire Information	
Bureau	West
Batallion	5
District / Fire Station	76
Red Flag Restricted Parking	No

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CASE SUMMARIES

Note: Information for case summaries is retrieved from the Planning Department's Plan Case Tracking System (PCTS) database.

Case Number:	CPC-2017-1923-DB-DRB-SPP-MSP-ZAD
Required Action(s):	DB-DENSITY BONUS
	DRB-DESIGN REVIEW BOARD
	SPP-SPECIFIC PLAN PROJECT PERMIT COMPLIANCE
	MSP-MULHOLLAND SPECIFIC PLAN
	ZAD-ZA DETERMINATION (PER LAMC 12.27)
Project Descriptions(s):	PURSUANT TO LAMC SECTIONS 11 .5. 7 C AND 16.50, AND SECTION 11 OF THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN (ORDINANCE NO. 167,943), PROJECT PERMIT COMPLIANCE AND DESIGN REVIEW FOR THE DEMOLITION OF TWO SINGLE FAMILY DWELLINGS AND DETACHED GARAGE, AND THE CONSTRUCTION OF 37,119 SQUARE FOOT, 68 FEET IN HEIGHT WITH 21 UNIT RESIDENTIAL CONDOMINIUM BUILDING, ON A 22,508 SQUARE FOOT LOT DOWN-SLOPING LOT WITH 15 NON-PROTECTED TREES WHICH WILL BE REMOVED AND REPLACED WITH NATIVES TREES; AND, PURSUANT TO LAMC SECTION 12.22A.25(G)(3) OF THE MUNICIPAL CODE, AN OFF-MENU INCENTIVE FOR A 21 UNIT RESIDENTIAL CONDOMINIUM PROJECT OF WHICH 2 UNITS SHALL BE SET ASIDE FOR VERY LOW INCOME. THE INCENTIVE IS FOR A WAIVER OF DEVELOPMENT STANDARDS TO LAMC SECTION 12.21.1(A)(7) FOR A MAXIMUM HEIGHT OF 68 IN LIEU OF 57 FT.; AND, IN ACCORDANCE WITH THE PROVISIONS OF LAMC SECTION 17.06 THE REQUEST FOR THE SUBDIVISION OF TWO LOTS (22,508 SQFT TOTAL) FOR THE DEVELOPMENT OF A ONE-LOT, 21 UNIT RESIDENTIAL CONDOMINIUMS AND HAUL ROUTE OF 9,500 C.Y.
Case Number:	CPC-2002-6583-SP
Required Action(s):	SP-SPECIFIC PLAN (INCLUDING AMENDMENTS)
Project Descriptions(s):	PROPOSED DESIGN AND PRESERVATION GUIDELINES PURSUANT TO THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN.
Case Number:	CPC-1985-657-GPC
Required Action(s):	GPC-GENERAL PLAN/ZONING CONSISTENCY (AB283)
Project Descriptions(s):	A PROGRAM TO AMEND THE SHERMAN OAKS-STUDIO CITY-TOLUCA LAKE DISTRICT PLAN AND/OR RELATED ZONING IN ORDER TO DEVELOP CONSISTENCY BETWEEN THE TWO AS LEGALLY REQUIRED BY STATE LEGISLATION
Case Number:	VTT-73784-CN
Required Action(s):	CN-NEW CONDOMINIUMS
Project Descriptions(s):	PURSUANT TO LAMC SECTIONS 11 .5. 7 C AND 16.50, AND SECTION 11 OF THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN (ORDINANCE NO. 167,943), PROJECT PERMIT COMPLIANCE AND DESIGN REVIEW FOR THE DEMOLITION OF TWO SINGLE FAMILY DWELLINGS AND DETACHED GARAGE, AND THE CONSTRUCTION OF 37,119 SQUARE FOOT, 68 FEET IN HEIGHT WITH 21 UNIT RESIDENTIAL CONDOMINIUM BUILDING, ON A 22,508 SQUARE FOOT LOT DOWN-SLOPING LOT WITH 15 NON-PROTECTED TREES WHICH WILL BE REMOVED AND REPLACED WITH NATIVES TREES; AND, PURSUANT TO LAMC SECTION 12.22A.25(G)(3) OF THE MUNICIPAL CODE, AN OFF-MENU INCENTIVE FOR A 21 UNIT RESIDENTIAL CONDOMINIUM PROJECT OF WHICH 2 UNITS SHALL BE SET ASIDE FOR VERY LOW INCOME. THE INCENTIVE IS FOR A WAIVER OF DEVELOPMENT STANDARDS TO LAMC SECTION 12.21.1(A)(7) FOR A MAXIMUM HEIGHT OF 68 IN LIEU OF 57 FT.; AND, IN ACCORDANCE WITH THE PROVISIONS OF LAMC SECTION 17.06 THE REQUEST FOR THE SUBDIVISION OF TWO LOTS (22,508 SQFT TOTAL) FOR THE DEVELOPMENT OF A ONE-LOT, 21 UNIT RESIDENTIAL CONDOMINIUMS AND HAUL ROUTE OF 9,500 C.Y.
Case Number:	AA-2006-7111-PMLA-SL
Required Action(s):	PMLA-PARCEL MAP
	SL-SMALL LOT SUBDIVISION
Project Descriptions(s):	PRELIMARY PARCEL MAP FOR THE SMALL LOT SUBDIVISON OF ONE LOT INTO TWO ON 0.16 ACRES OF LAND WITHIN THE RD1.5-1 ZONE.
Case Number:	ENV-2017-1925-MND
Required Action(s):	MND-MITIGATED NEGATIVE DECLARATION
Project Descriptions(s):	PURSUANT TO LAMC SECTIONS 11 .5. 7 C AND 16.50, AND SECTION 11 OF THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN (ORDINANCE NO. 167,943), PROJECT PERMIT COMPLIANCE AND DESIGN REVIEW FOR THE DEMOLITION OF TWO SINGLE FAMILY DWELLINGS AND DETACHED GARAGE, AND THE CONSTRUCTION OF 37,119 SQUARE FOOT, 68 FEET IN HEIGHT WITH 21 UNIT RESIDENTIAL CONDOMINIUM BUILDING, ON A 22,508 SQUARE FOOT LOT DOWN-SLOPING LOT WITH 15 NON-PROTECTED TREES WHICH WILL BE REMOVED AND REPLACED WITH NATIVES TREES; AND, PURSUANT TO LAMC SECTION 12.22A.25(G)(3) OF THE MUNICIPAL CODE, AN OFF-MENU INCENTIVE FOR A 21 UNIT RESIDENTIAL CONDOMINIUM PROJECT OF WHICH 2 UNITS SHALL BE SET ASIDE FOR VERY LOW INCOME. THE INCENTIVE IS FOR A WAIVER OF DEVELOPMENT STANDARDS TO LAMC SECTION 12.21.1(A)(7) FOR A MAXIMUM HEIGHT OF 68 IN LIEU OF 57 FT.; AND, IN ACCORDANCE WITH THE PROVISIONS OF LAMC SECTION 17.06 THE REQUEST FOR THE SUBDIVISION OF TWO LOTS (22,508 SQFT TOTAL) FOR THE DEVELOPMENT OF A ONE-LOT, 21 UNIT RESIDENTIAL CONDOMINIUMS AND HAUL ROUTE OF 9,500 C.Y.
Case Number:	ENV-2009-832-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION

This report is subject to the terms and conditions as set forth on the website. For more details, please refer to the terms and conditions at zimas.lacity.org
(*) - APN Area is provided "as is" from the Los Angeles County's Public Works, Flood Control, Benefit Assessment.

Project Descriptions(s): ENVIVRONMENT CLEARANCE TO ADD SUSTAINIBILITY GUIDELINES TO THE MULHOLLAND SCENIC PARKWAY SPECIFIC PLAN DESIGN AND PRESERVATION GUIDELINES

DATA NOT AVAILABLE

ORD-167943

ORD-164341-SA24

ORD-129279

ORD-128730

PRIOR-06/01/1946

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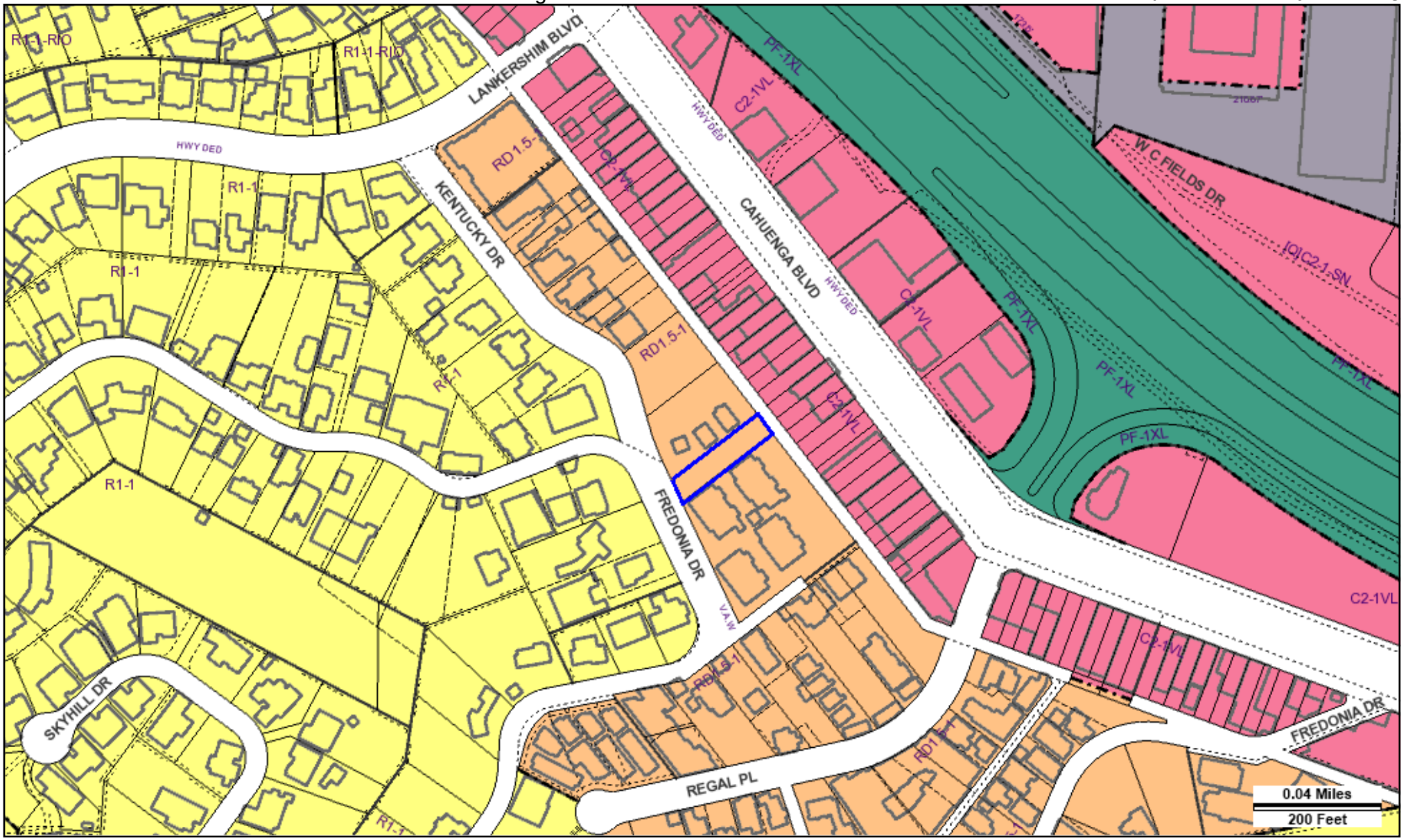
(*) - APN Area is provided "as is" from the Los Angeles County's Public Works, Flood Control, Benefit Assessment.

ZIMAS INTRANET

Generalized Zoning

03/09/2022

City of Los Angeles
Department of City Planning



Address: 3894 N FREDONIA DR
APN: 2425003017
PIN #: 159B177 87

Tract: TR 5593
Block: None
Lot: FR 117
Arb: None

Zoning: RD1.5-1
General Plan: Low Medium Residential

N
W E
S

LEGEND

GENERALIZED ZONING

- OS, GW
- A, RA
- RE, RS, R1, RU, RZ, RW1
- R2, RD, RMP, RW2, R3, RAS, R4, R5, PVSP
- CR, C1, C1.5, C2, C4, C5, CW, WC, ADP, LASED, CEC, USC, PPSP, MU, NMU
- CM, MR, CCS, UV, UI, UC, M1, M2, LAX, M3, SL, HJ, HR, NI
- P, PB
- PF

GENERAL PLAN LAND USE

LAND USE

RESIDENTIAL

- Minimum Residential
- Very Low / Very Low I Residential
- Very Low II Residential
- Low / Low I Residential
- Low II Residential
- Low Medium / Low Medium I Residential
- Low Medium II Residential
- Medium Residential
- High Medium Residential
- High Density Residential
- Very High Medium Residential

COMMERCIAL

- Limited Commercial
- Limited Commercial - Mixed Medium Residential
- Highway Oriented Commercial
- Highway Oriented and Limited Commercial
- Highway Oriented Commercial - Mixed Medium Residential
- Neighborhood Office Commercial
- Community Commercial
- Community Commercial -Mixed High Residential
- Regional Center Commercial

INDUSTRIAL

- Commercial Manufacturing
- Limited Manufacturing
- Light Manufacturing
- Heavy Manufacturing
- Hybrid Industrial

PARKING

- Parking Buffer

PORT OF LOS ANGELES

- General / Bulk Cargo - Non Hazardous (Industrial / Commercial)
- General / Bulk Cargo - Hazard
- Commercial Fishing
- Recreation and Commercial
- Intermodal Container Transfer Facility Site

LOS ANGELES INTERNATIONAL AIRPORT

- Airport Landside / Airport Landside Support
- Airport Airside
- LAX Airport Northside

OPEN SPACE / PUBLIC FACILITIES

- Open Space
- Public / Open Space
- Public / Quasi-Public Open Space
- Other Public Open Space
- Public Facilities

FRAMEWORK

COMMERCIAL

- Neighborhood Commercial
- General Commercial
- Community Commercial
- Regional Mixed Commercial

INDUSTRIAL

- Limited Industrial
- Light Industrial

CIRCULATION

STREET

- Arterial Mountain Road
- Collector Scenic Street
- Collector Street
- Collector Street (Hillside)
- Collector Street (Modified)
- Collector Street (Proposed)
- Country Road
- Divided Major Highway II
- Divided Secondary Scenic Highway
- Local Scenic Road
- Local Street
- Major Highway (Modified)
- Major Highway I
- Major Highway II
- Major Highway II (Modified)
- Major Scenic Highway
- Major Scenic Highway (Modified)
- Major Scenic Highway II
- Mountain Collector Street
- Park Road
- Parkway
- Principal Major Highway
- Private Street
- Scenic Divided Major Highway II
- Scenic Park
- Scenic Parkway
- Secondary Highway
- Secondary Highway (Modified)
- Secondary Scenic Highway
- Special Collector Street
- Super Major Highway

FREEWAYS

- Freeway
- Interchange
- On-Ramp / Off- Ramp
- Railroad
- Scenic Freeway Highway

MISC. LINES

- Airport Boundary
- Bus Line
- Coastal Zone Boundary
- Coastline Boundary
- Collector Scenic Street (Proposed)
- Commercial Areas
- Commercial Center
- Community Redevelopment Project Area
- Country Road
- DWP Power Lines
- Desirable Open Space
- Detached Single Family House
- Endangered Ridgeline
- Equestrian and/or Hiking Trail
- Hiking Trail
- Historical Preservation
- Horsekeeping Area
- Local Street
- MSA Desirable Open Space
- Major Scenic Controls
- Multi-Purpose Trail
- Natural Resource Reserve
- Park Road
- Park Road (Proposed)
- Quasi-Public
- Rapid Transit Line
- Residential Planned Development
- Scenic Highway (Obsolete)
- Secondary Scenic Controls
- Secondary Scenic Highway (Proposed)
- Site Boundary
- Southern California Edison Power
- Special Study Area
- Specific Plan Area
- Stagecoach Line
- Wildlife Corridor

POINTS OF INTEREST

- Alternative Youth Hostel (Proposed)
- Animal Shelter
- Area Library
- Area Library (Proposed)
- Bridge
- Campground
- Campground (Proposed)
- Cemetery
- HW Church
- City Hall
- Community Center
- Community Library
- Community Library (Proposed Expansion)
- Community Library (Proposed)
- Community Park
- Community Park (Proposed Expansion)
- Community Park (Proposed)
- Community Transit Center
- Convalescent Hospital
- Correctional Facility
- Cultural / Historic Site (Proposed)
- Cultural / Historical Site
- Cultural Arts Center
- DMV DMV Office
- DWP DWP
- DWP Pumping Station
- Equestrian Center
- HQ Fire Department Headquarters
- Fire Station
- Fire Station (Proposed Expansion)
- Fire Station (Proposed)
- Fire Supply & Maintenance
- Fire Training Site
- Fireboat Station
- Health Center / Medical Facility
- Helistop
- Historic Monument
- Historical / Cultural Monument
- Horsekeeping Area
- Horsekeeping Area (Proposed)
- Horticultural Center
- Hospital
- Hospital (Proposed)
- HW House of Worship
- e Important Ecological Area
- e Important Ecological Area (Proposed)
- Interpretive Center (Proposed)
- JC Junior College
- M MTA / Metrolink Station
- M MTA Station
- MTA Stop
- MWD MWD Headquarters
- Maintenance Yard
- Municipal Office Building
- P Municipal Parking lot
- Neighborhood Park
- Neighborhood Park (Proposed Expansion)
- Neighborhood Park (Proposed)
- Oil Collection Center
- P Parking Enforcement
- HQ Police Headquarters
- Police Station
- Police Station (Proposed Expansion)
- Police Station (Proposed)
- Police Training site
- PO Post Office
- Power Distribution Station
- Power Distribution Station (Proposed)
- Power Receiving Station
- Power Receiving Station (Proposed)
- C Private College
- E Private Elementary School
- Private Golf Course
- Private Golf Course (Proposed)
- JH Private Junior High School
- PS Private Pre-School
- Private Recreation & Cultural Facility
- SH Private Senior High School
- SF Private Special School
- E Public Elementary (Proposed Expansion)
- E Public Elementary School
- E Public Elementary School (Proposed)
- Public Golf Course
- Public Golf Course (Proposed)
- Public Housing
- Public Housing (Proposed Expansion)
- JH Public Junior High School
- JH Public Junior High School (Proposed)
- MS Public Middle School
- SH Public Senior High School
- SH Public Senior High School (Proposed)
- Pumping Station
- Pumping Station (Proposed)
- Refuse Collection Center
- Regional Library
- Regional Library (Proposed Expansion)
- Regional Library (Proposed)
- Regional Park
- Regional Park (Proposed)
- RPD Residential Plan Development
- Scenic View Site
- Scenic View Site (Proposed)
- ADM School District Headquarters
- SC School Unspecified Loc/Type (Proposed)
- Skill Center
- SS Social Services
- Special Feature
- Special Recreation (a)
- SF Special School Facility
- SF Special School Facility (Proposed)
- Steam Plant
- sm Surface Mining
- Trail & Assembly Area
- Trail & Assembly Area (Proposed)
- UTL Utility Yard
- Water Tank Reservoir
- Wildlife Migration Corridor
- Wildlife Preserve Gate

SCHOOLS/PARKS WITH 500 FT. BUFFER

- Existing School/Park Site
- Planned School/Park Site
- Inside 500 Ft. Buffer

- Aquatic Facilities
- Beaches
- Child Care Centers
- Dog Parks
- Golf Course
- Historic Sites
- Horticulture/Gardens
- Skate Parks
- Other Facilities
- Park / Recreation Centers
- Parks
- Performing / Visual Arts Centers
- Recreation Centers
- Senior Citizen Centers
- Opportunity School
- Charter School
- Elementary School
- Span School
- Special Education School
- High School
- Middle School
- Early Education Center

COASTAL ZONE

- Coastal Commission Permit Area
- Dual Permit Jurisdiction Area
- Single Permit Jurisdiction Area
- Not in Coastal Zone

TRANSIT ORIENTED COMMUNITIES (TOC)

- Tier 1
- Tier 2
- Tier 3
- Tier 4

Note: TOC Tier designation and map layers are for reference purposes only. Eligible projects shall demonstrate compliance with Tier eligibility standards prior to the issuance of any permits or approvals. As transit service changes, eligible TOC Incentive Areas will be updated.

WAIVER OF DEDICATION OR IMPROVEMENT

- Public Work Approval (PWA)
- Waiver of Dedication or Improvement (WDI)

OTHER SYMBOLS

- Lot Line
- Tract Line
- Lot Cut
- Easement
- Zone Boundary
- Building Line
- Lot Split
- Community Driveway
- Building Outlines 2014
- Building Outlines 2008
- Airport Hazard Zone
- Census Tract
- Coastal Zone
- Council District
- LADBS District Office
- Downtown Parking
- Fault Zone
- Fire District No. 1
- Tract Map
- Parcel Map
- Flood Zone
- Hazardous Waste
- High Wind Zone
- Hillside Grading
- Historic Preservation Overlay Zone
- Specific Plan Area
- Very High Fire Hazard Severity Zone
- Wells

EXHIBIT F

SITE AND SURROUNDING AREA PHOTOS

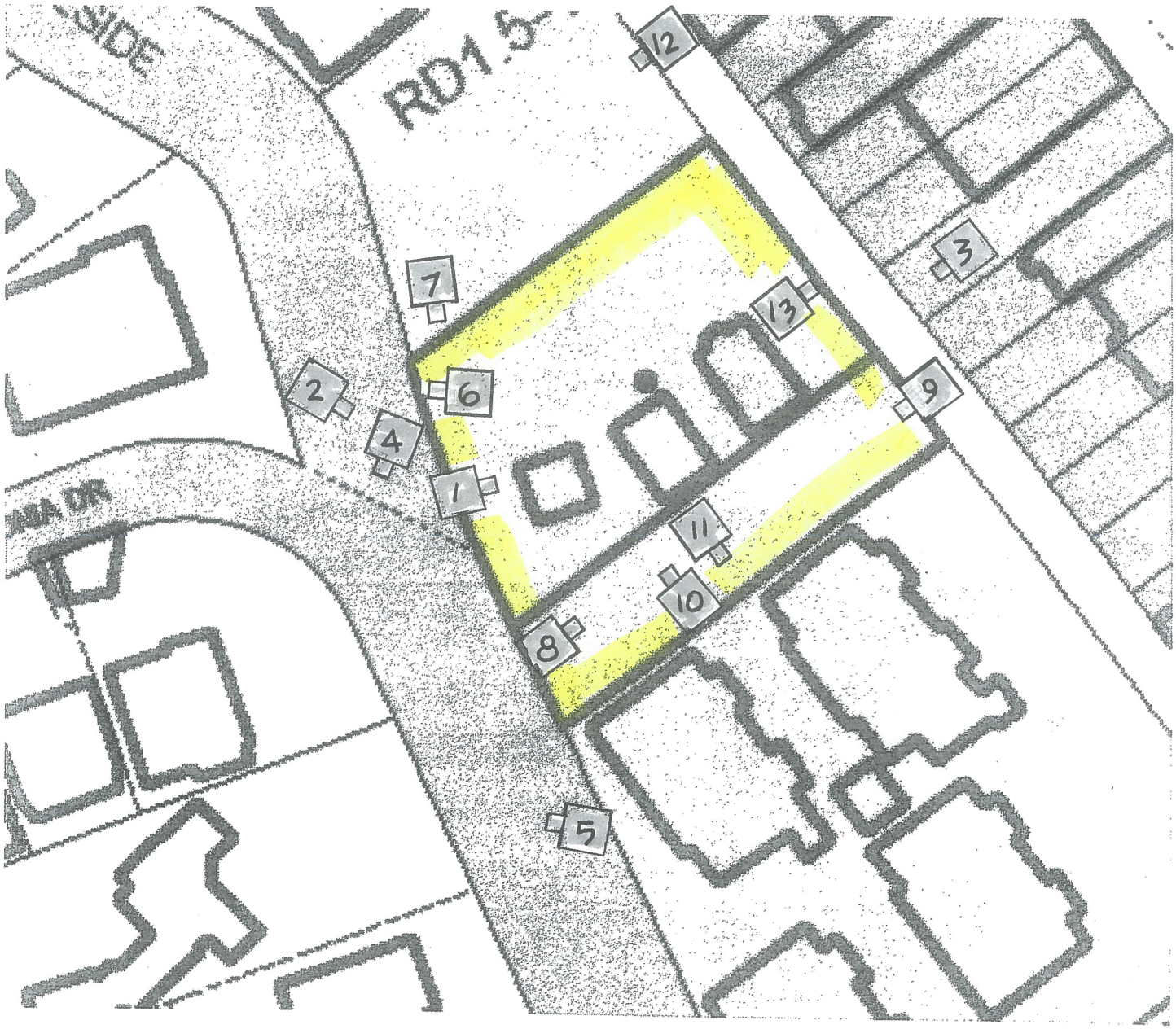
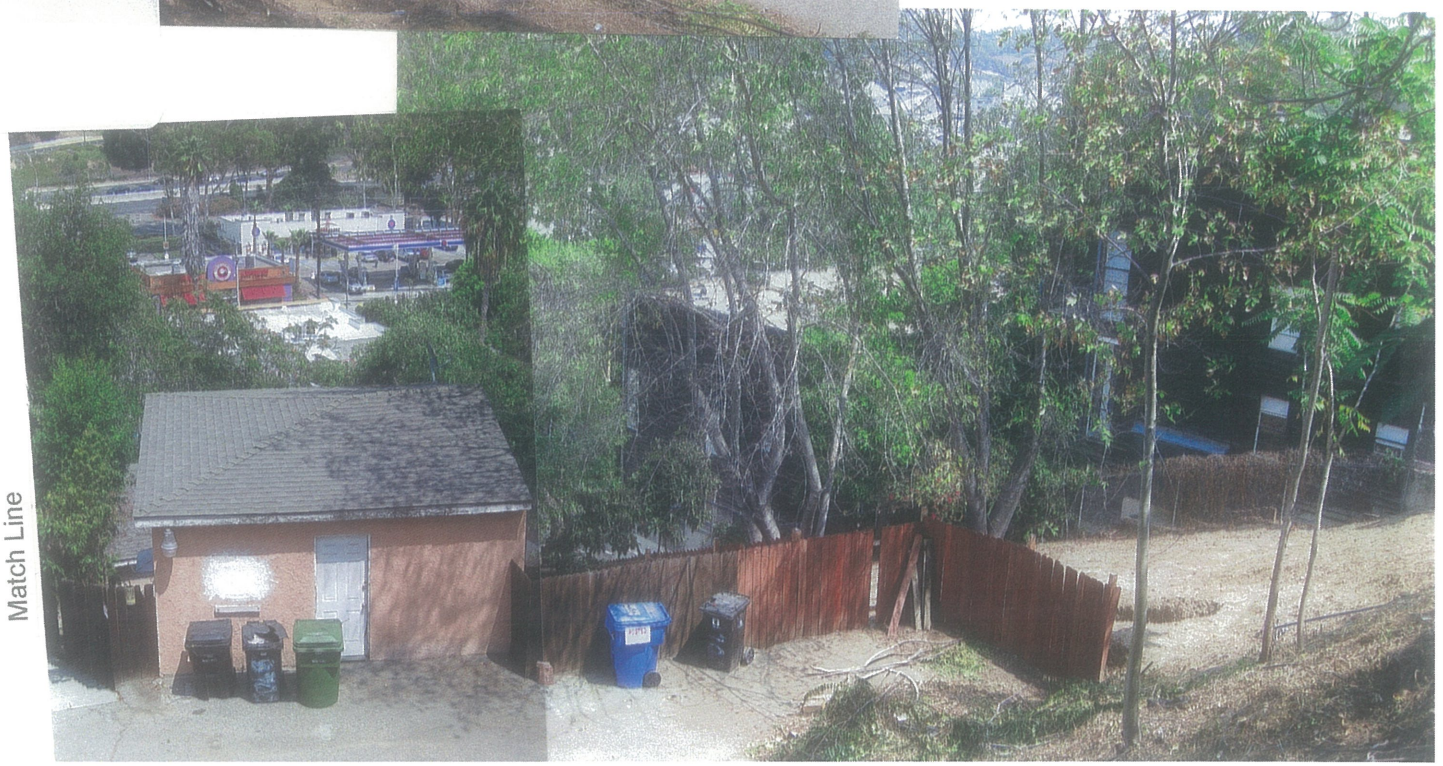


PHOTO KEY MAP

NOT TO SCALE



1. Photo of subject property from edge of Kentucky Drive to east.





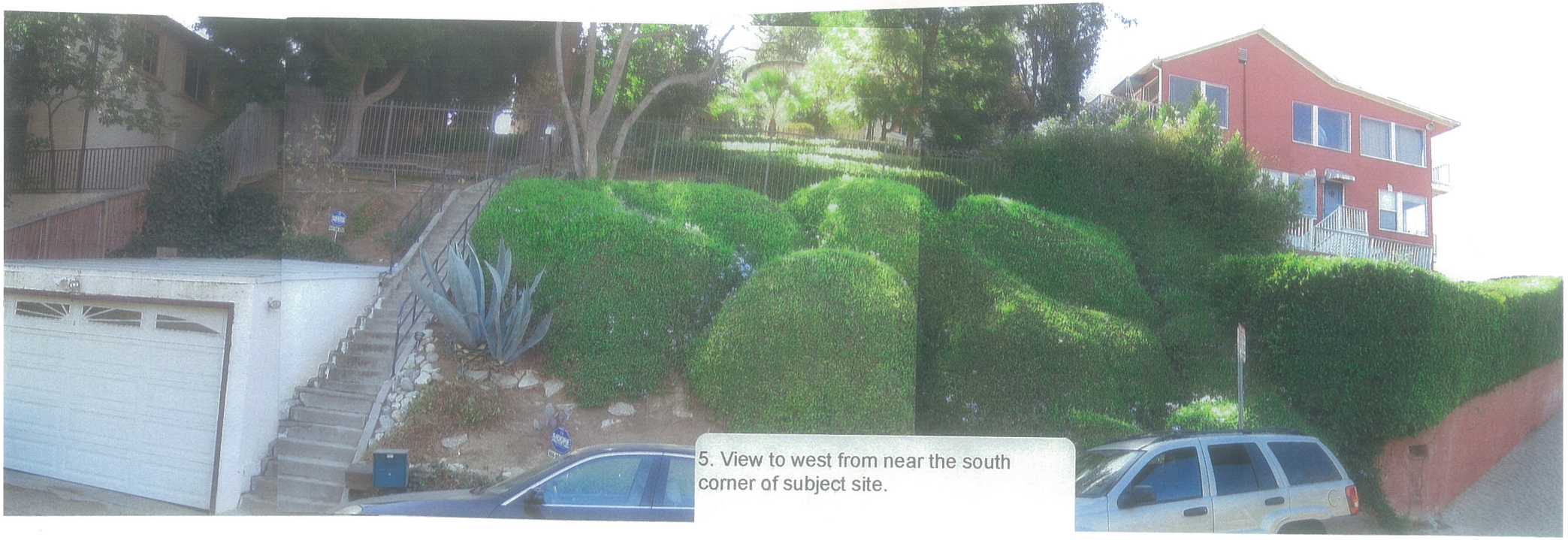
2. View to southeast of subject property from Kentucky/Fredonia Drives. Note: site is down-slope of the road.



3. Photo to southwest of subject site from commercial property northeast of alley.

4. View to south from near the west corner of subject property.





5. View to west from near the south corner of subject site.



6. View to west from near west corner of site.



7. View to south of slope adjacent Kentucky/Fredonia Drives.

8. View to northeast of subject property from Fredonia Drive.





9. View to southwest of subject property from alley.

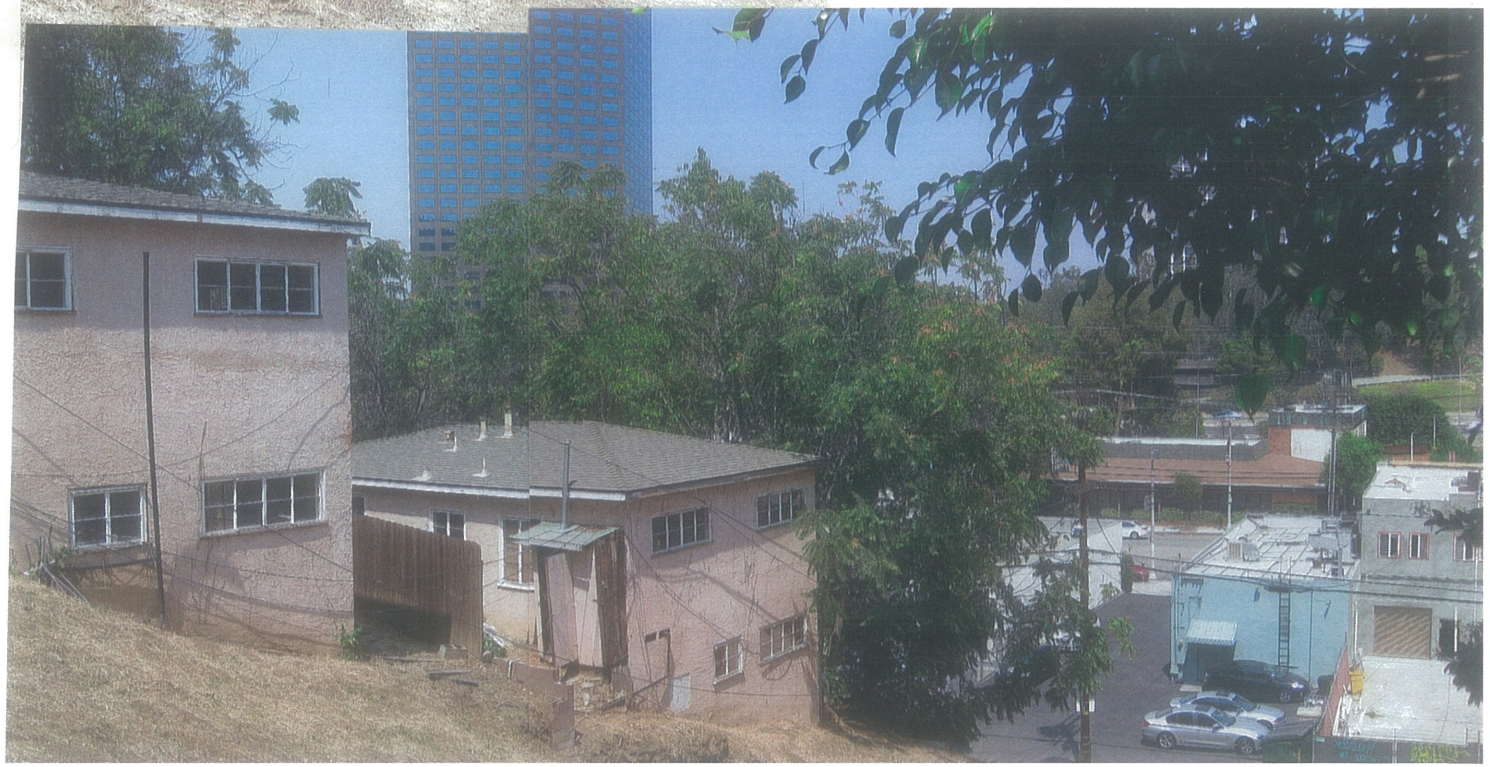


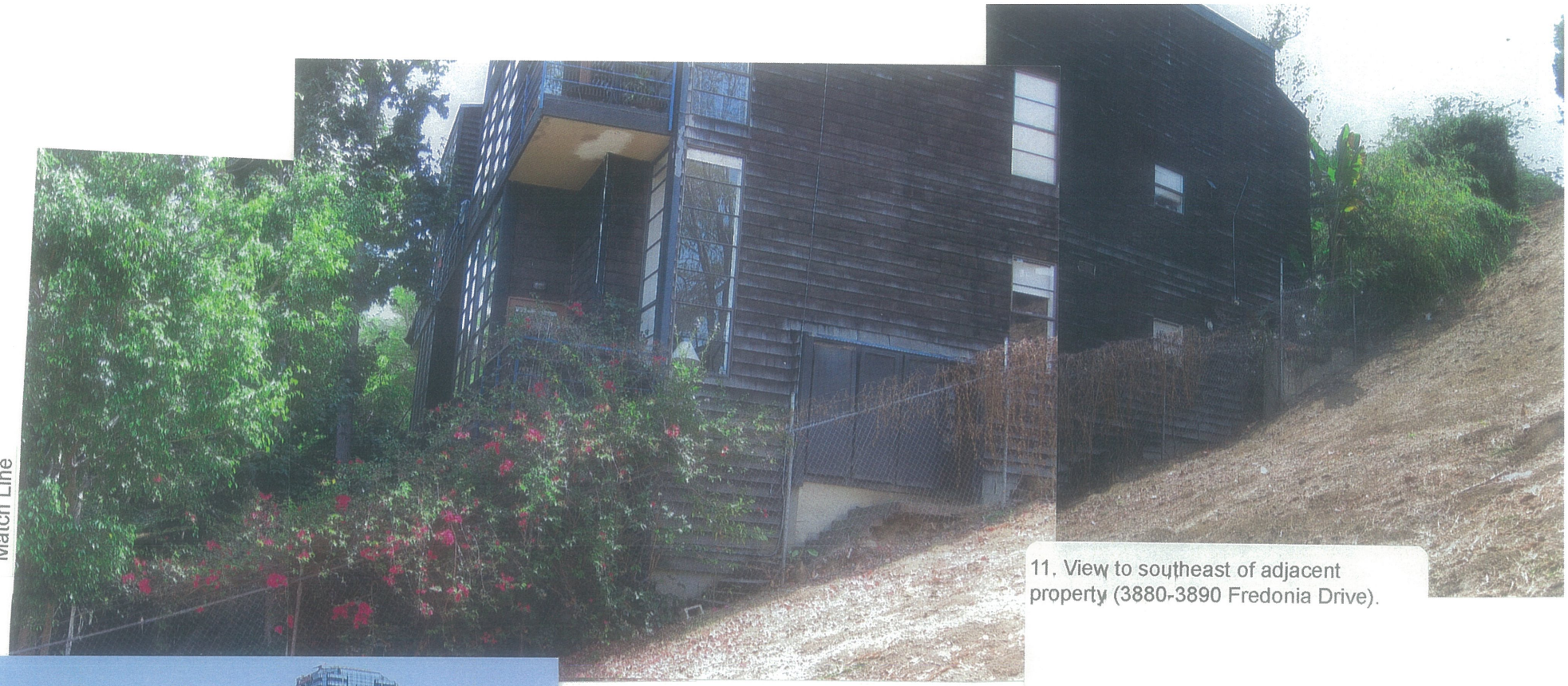


Match Line

10. Photo to northwest of the subject property from property to south.

Match Line





Match Line

11. View to southeast of adjacent property (3880-3890 Fredonia Drive).



Match Line



12. View from alley of property to the north of the subject site.



13. View from subject site of commercial buildings to the northeast (across alley).

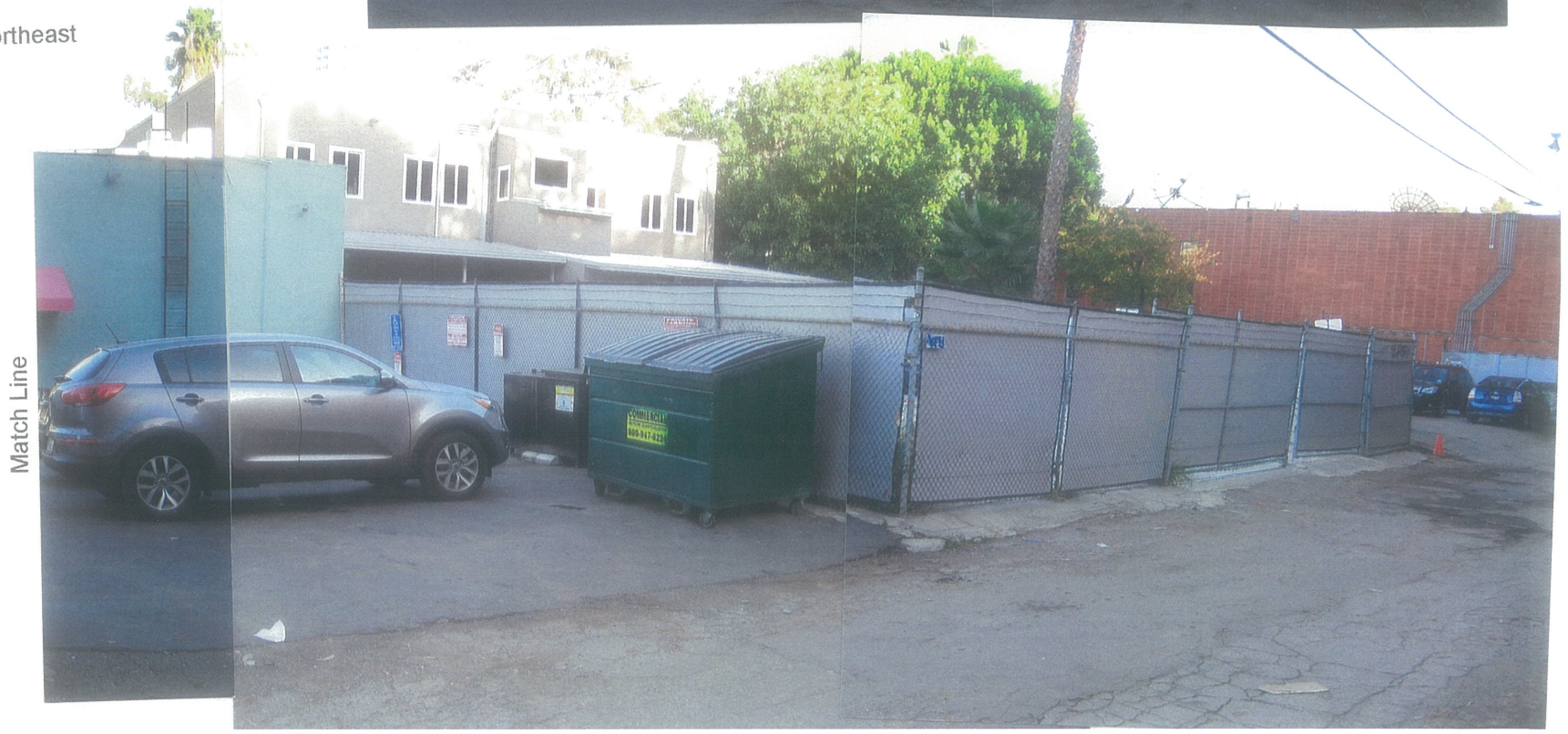


EXHIBIT G

ENVIRONMENTAL CLEARANCE

ENV-2017-1925-MND

MITIGATION MONITORING PROGRAM

DEPARTMENT OF CITY PLANNING

COMMISSION OFFICE
(213) 978-1300

CITY PLANNING COMMISSION

SAMANTHA MILLMAN
PRESIDENT

CAROLINE CHOE
VICE-PRESIDENT

HELEN LEUNG
KAREN MACK
DANA M. PERLMAN
YVETTE LOPEZ-LEDESMA
JENNA HORNSTOCK
VACANT
VACANT

CITY OF LOS ANGELES
CALIFORNIA

ERIC GARCETTI
MAYOR

EXECUTIVE OFFICES
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DIRECTOR

KEVIN J. KELLER, AICP
EXECUTIVE OFFICER

SHANA M.M. BONSTIN
DEPUTY DIRECTOR

ARTHI L. VARMA, AICP
DEPUTY DIRECTOR

LISA M. WEBBER, AICP
DEPUTY DIRECTOR

VACANT
DEPUTY DIRECTOR

3902 Kentucky Drive Project

Case Number: ENV-2017-1925-MND

Project Location: 3902 Kentucky Drive and 3894-3900 Fredonia Drive, Los Angeles, CA 90068

Community Plan Area: Sherman Oaks – Studio City – Toluca Lake – Cahuenga Pass

Council District: 4 – Raman

Project Description: The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage. The applicant is proposing the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop 16 of the condominium dwelling units as allowed by-right and five density bonus units with two of the 21 units set aside for Very Low Income households. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided. The proposed project includes six retaining walls ranging between 10 and 12 feet when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested.

PREPARED BY:

The City of Los Angeles

Department of City Planning

APPLICANT:

3900 Kentucky, LLC by Zaven Ghanimian, Manager

June 2021

INITIAL STUDY

TABLE OF CONTENTS

1. Introduction 5

2. Executive Summary 7

3. Project Description 17
3.1. Project Summary 17
3.2. Environmental Setting 17
3.3. Description of Project 20
3.4. Requested Permits and Approvals 23

4. Environmental Checklist 24
I. Aesthetics 24
II. Agriculture and Forestry Resources 27
III. Air Quality 30
IV. Biological Resources 33
V. Cultural Resources 39
VI. Energy 42
VII. Geology and Soils 44
VIII. Greenhouse Gas Emissions 50
IX. Hazards and Hazardous Materials 52
X. Hydrology and Water Quality 56
XI. Land Use and Planning 60
XII. Mineral Resources 62
XIII. Noise 63
XIV. Population and Housing 65
XV. Public Services 67
XVI. Recreation 70
XVII. Transportation 71
XVIII. Tribal Cultural Resources 75
XIX. Utilities and Service Systems 80
XX. Wildfire 83
XXI. Mandatory Findings of Significance 87

5. Preparers and Persons Consulted 89

6. References, Acronyms, and Abbreviations 90

7. Appendices

A. Arborist Report, McKinley & Associates, October 5, 2016 (includes D & G Horticulture Letter, October 6, 2016)

B. Addendum No. 1, Applied Earth Sciences, August 7, 2019

C. Geology and Soils Report Approval Letter, Log # 97819-02, February 6, 2019

D. Addendum Report 2, Applied Earth Sciences, November 9, 2018

E. LADBS Department Review Letter, October 12, 2018

F. Addendum Report No. 1, Applied Earth Sciences, August 3, 2018

G. Addendum Report No. A, Applied Earth Sciences, August 4, 2018

H. LADBS Department Review Letter, May 10, 2017

I. Geology/Soils Report, Applied Earth Sciences, June 10, 2016

List of Figures

1 ZIMAS Map……..9

2 Visibility Map (ArcGis Map)...……..….10

3 Mulholland Scenic Parkway Specific Plan Map…….……..11

INITIAL STUDY

1 INTRODUCTION

This Initial Study (IS) document evaluates potential environmental effects resulting from construction and operation of the proposed multi-family residential building. The proposed Project is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). Therefore, this document has been prepared in compliance with the relevant provisions of CEQA and the State CEQA Guidelines as implemented by the City of Los Angeles (City). Based on the analysis provided within this Initial Study, the City has concluded that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because mitigation measures have been incorporated which will reduce potential effects on the environment to a less than significant level. This Initial Study and Mitigated Negative Declaration are intended as informational documents, and are ultimately required to be adopted by the decision maker prior to project approval by the City.

1.1 PURPOSE OF AN INITIAL STUDY

The California Environmental Quality Act was enacted in 1970 with several basic purposes: (1) to inform governmental decision makers and the public about the potential significant environmental effects of proposed projects; (2) to identify ways that environmental damage can be avoided or significantly reduced; (3) to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of feasible alternatives or mitigation measures; and (4) to disclose to the public the reasons behind a project's approval even if significant environmental effects are anticipated.

An application for the proposed project has been submitted to the City of Los Angeles Department of City Planning for discretionary review. The Department of City Planning, as Lead Agency, has determined that the project is subject to CEQA, and the preparation of an Initial Study is required.

An Initial Study is a preliminary analysis conducted by the Lead Agency, in consultation with other agencies (responsible or trustee agencies, as applicable), to determine whether there is substantial evidence that a project may have a significant effect on the environment. If the Initial Study concludes that the Project, with mitigation, may have a significant effect on the environment, an Environmental Impact Report should be prepared; otherwise the Lead Agency may adopt a Negative Declaration or a Mitigated Negative Declaration.

This Initial Study has been prepared in accordance with CEQA (Public Resources Code §21000 et seq.), the State CEQA Guidelines (Title 14, California Code of Regulations, §15000 et seq.), and the City of Los Angeles CEQA Guidelines (1981, amended 2006).

1.2. ORGANIZATION OF THE INITIAL STUDY

This Initial Study is organized into four sections as follows:

1 INTRODUCTION

Describes the purpose and content of the Initial Study, and provides an overview of the CEQA process.

2 EXECUTIVE SUMMARY

Provides Project information, identifies key areas of environmental concern, and includes a determination whether the project may have a significant effect on the environment.

3 PROJECT DESCRIPTION

Provides a description of the environmental setting and the Project, including project characteristics and a list of discretionary actions.

4 EVALUATION OF ENVIRONMENTAL IMPACTS

Contains the completed Initial Study Checklist and discussion of the environmental factors that would be potentially affected by the Project.

INITIAL STUDY

2 EXECUTIVE SUMMARY

PROJECT TITLE	**3902 KENTUCKY DRIVE**
ENVIRONMENTAL CASE NO.	**ENV-2017-1925-MND**
RELATED CASES	**CPC-2017-1923-DB-DRB-SPP-MSP-ZAD and VTT-73784-CN**

PROJECT LOCATION	**3902 KENTUCKY DRIVE & 3894-3900 FREDONIA DRIVE**
COMMUNITY PLAN AREA	SHERMAN OAKS – STUDIO CITY – TOLUCA LAKE – CAHUENGA PASS
GENERAL PLAN DESIGNATION	LOW MEDIUM RESIDENTIAL
ZONING	RD1.5-1
COUNCIL DISTRICT	4 – RAMAN

LEAD AGENCY	**City of Los Angeles**
STAFF CONTACT	LAURA FRAZIN STEELE
ADDRESS	6262 VAN NUYS BLVD, ROOM 430, LOS ANGELES, CA 91401
PHONE NUMBER	(818) 374-9919
EMAIL	LAURA.FRAZINSTEELE@LACITY.ORG

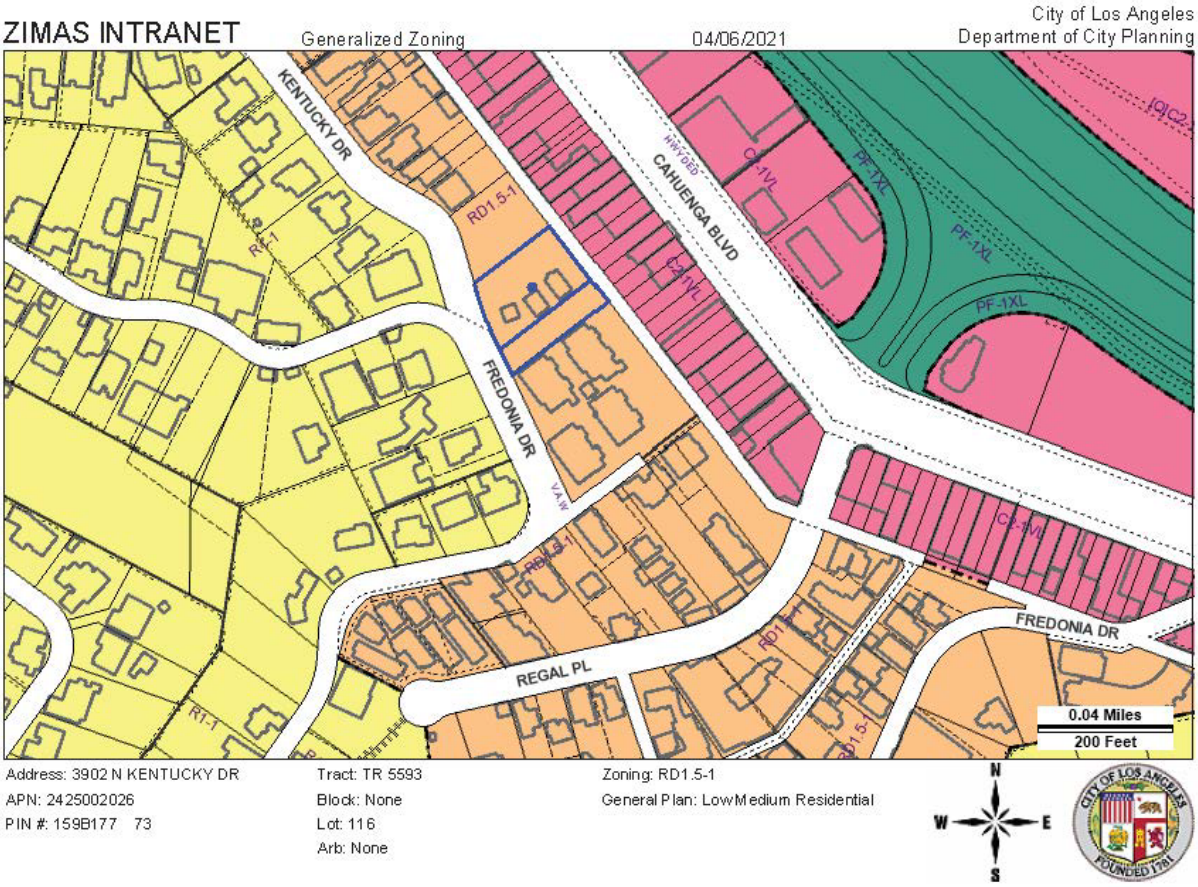
APPLICANT	3900 KENTUCKY, LLC BY ZAVEN GHANIMIAN, MANAGER
ADDRESS	528 STATE STREET, GLENDALE, CA 91203
PHONE NUMBER	(818) 644-1476

PROJECT DESCRIPTION

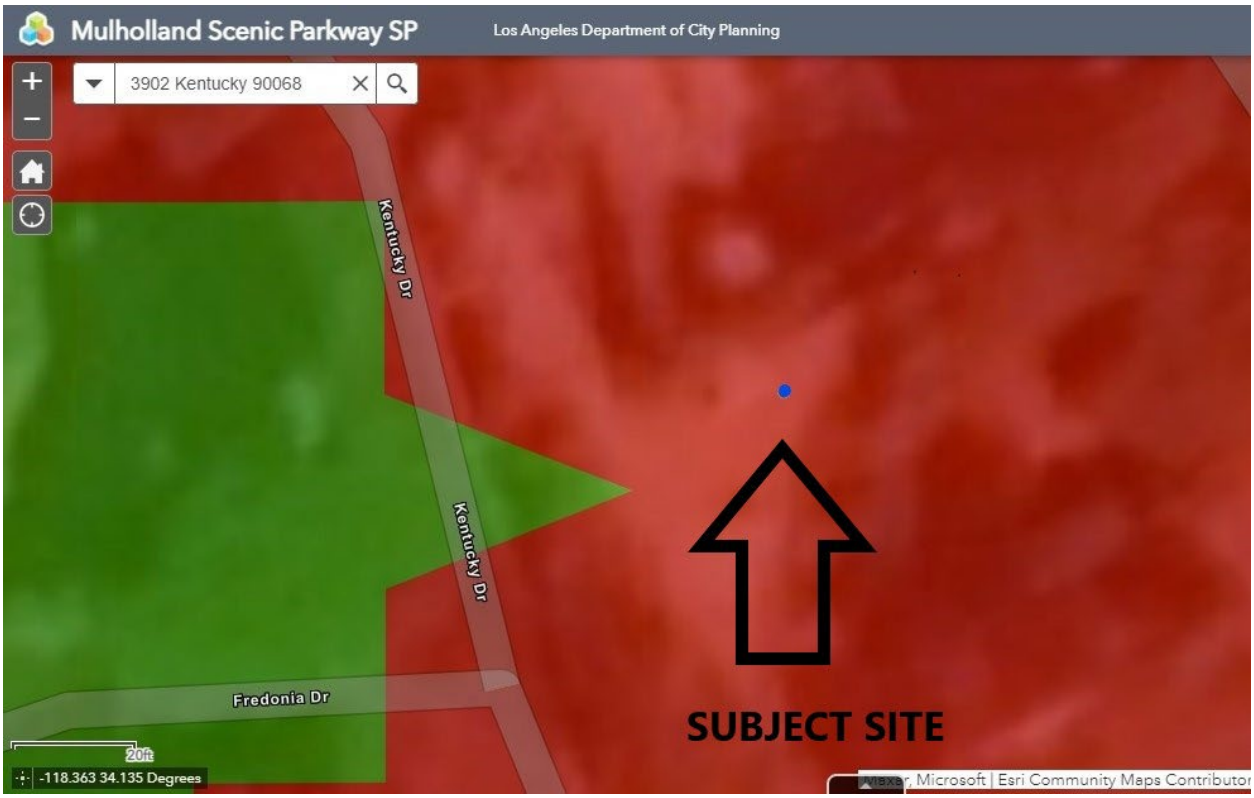
The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage. The applicant is proposing the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop 16 of the condominium dwelling units as allowed by-right and five density bonus units with two of the 21 units set aside for Very Low Income households. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided. The proposed project includes six retaining walls ranging between 10 and 12 feet when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested. (For additional detail, see “Section 3. PROJECT DESCRIPTION”)

ENVIRONMENTAL SETTING

The property consists of two downward-sloping, hillside, irregularly-shaped lots totaling approximately 22,508 square feet. The subject site is located at the confluence of Kentucky and Fredonia Drives in the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan area. As shown in Figure 1, the subject site is designated for Low Medium Residential land use by the Community Plan and is zoned RD1.5-1.



The subject site is located within the Outer Corridor of the Mulholland Scenic Parkway Specific Plan (Ordinance No. 167,943; ZI-1224). The intent of the Specific Plan is to preserve and enhance the scenic and geographic features and resources of the area. To achieve these goals, the Specific Plan regulates uses and implements environmental protection measures, grading, heights, and yards. The proposed project is located downslope from Mulholland Drive. More restrictions are placed on projects that are visible from Mulholland Drive than projects that are not visible, but all projects are subject to environmental protection measures. These environmental protection measures regulate grading and construction on prominent ridges, streams, and parklands; oak tree preservation and removal; and archaeological and paleontological resources. As shown in Figure 2, the subject site is not visible from Mulholland Drive (Los Angeles Department of City Planning, ArcGis Map). As further shown in Figure 3, the subject site is in the Outer Corridor and is not on or adjacent to a prominent ridge, stream, parkland, major vista point, trail, organization group meeting center, or visitor's center.



Legend

Red: Not Visible

Green: Visible

FIGURE 2. VISIBILITY MAP (ARCGIS MAP)

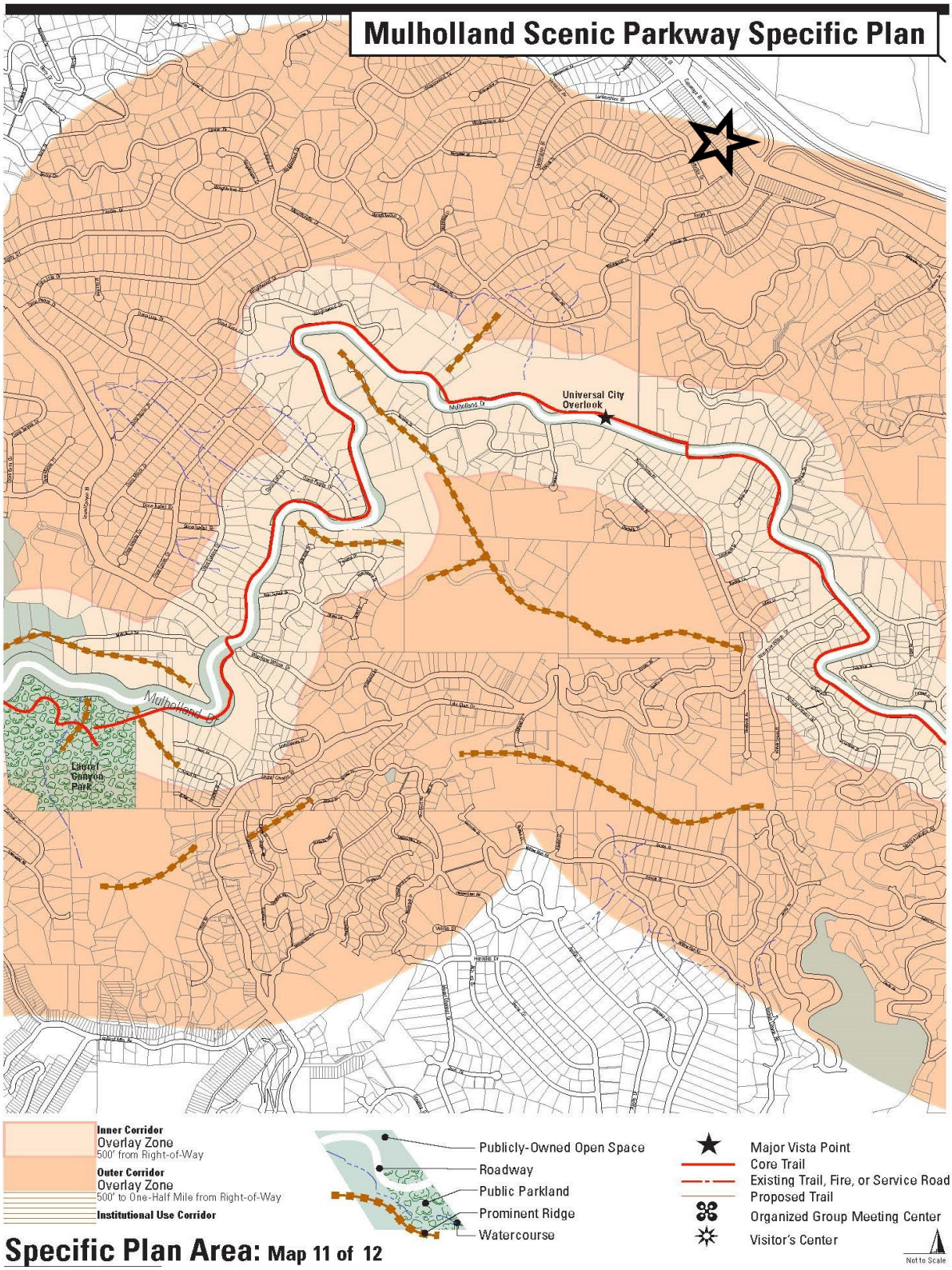


FIGURE 3. SPECIFIC PLAN MAP

The subject site is located within a geographic area designated as ZI-2452 Transit Priority Area in the City of Los Angeles. Under Senate Bill (SB) 743 and Section 21099 (d)(1) of the Public Resources Code (PRC), a project's aesthetic and parking impacts shall not be considered a significant impact on the environment when the project is a residential, mixed-use residential, or employment center project that is located on an infill site within a transit priority area as designated by ZIMAS. Visual resources, aesthetic character, shade and shadow, light and glare, and scenic vistas or any other aesthetic impact as defined in the City's CEQA Threshold Guide shall not be considered an impact for infill projects within transit priority areas pursuant to CEQA. However, aesthetic related impacts can be regulated pursuant to the Mulholland Scenic Parkway Specific Plan.

The project site is also located within a geographic area designated as ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses. Residential projects sited within 1,000 feet of a freeway are encouraged to minimize air pollution exposure and associated health risks by locating open space areas (play areas, courtyards, patios, balconies, etc.) as far from the freeway sources as possible when the size of the site permits, prioritizing the location of non-habitable uses (parking structures and building areas not calculated in floor area) nearest the freeway, and screening the project site with substantial vegetation and/or a wall barrier.

ZIMAS shows that the subject site is located within a Hillside Area, Urban Agriculture Incentive Zone, Very High Fire Severity Zone, BOE Special Grading Area, and a Landslide Area. The subject site is within 0.03 kilometers of the Hollywood Fault, although it is not located within an Alquist-Priolo Fault Zone. It is not located within a Liquefaction or Preliminary Fault Rupture Study Area. The site is not located within a Tsunami Inundation Zone. Fire protection services are provided by Fire Station No. 76, Battalion No. 5 of the Los Angeles Fire Department. Police Services are provided by Reporting District 1599, North Hollywood Division, Valley Bureau of the Los Angeles Police Department. Finally, the subject site is located within Tier 3 of a Transit Oriented Community (TOC).

The subject site has approximately 145 feet of street frontage along Kentucky and Fredonia Drives. The northern property line extends from Kentucky and Fredonia Drives to a rear alley for a length of approximately 139 feet. The southerly property line extends from Kentucky and Fredonia Drives to the rear alley for a length of approximately 177 feet. The site abuts a 20 foot alley along the rear property line for a length of approximately 140 feet. The property slopes downward from the Kentucky and Fredonia Drive frontage toward Cahuenga Boulevard.

The largest lot is approximately 15,555 square feet and is improved with two single-family dwellings (770 square feet each) and a 260 square foot garage built in 1951. According to information provided by the applicant, these structures have been vacant for over 5 years. The smaller approximately 6,958 square foot lot is vacant. City records show that the 6,968 square foot lot was improved with a single-family dwelling in 1957; a demolition permit for a single-family dwelling and garage was issued in 2005.

Properties to the northeast and southeast of the subject site front along Cahuenga Boulevard and are developed with one- and two-story commercial office, retail, and restaurant uses. These sites are zoned C2-1VL and are designated General Commercial by the Community Plan. To the northwest and southwest along Kentucky and Fredonia Drives, properties are improved with one,

two, and three story single- and multi-family residential uses. These sites are zoned RD1.5-1 and designated Low Medium Residential land use. To the west, northwest, and southwest of the subject site, properties are zoned R1-1 and designated Low Residential. These sites are improved with one- and two-story single-family dwellings.

Both Kentucky and Fredonia Drives are designated Local Street – Standard with a designated right-of-way width of 60 feet and a designated roadway width of 36 feet. The subject site falls within a 500 foot radius of the US-101 (Hollywood Freeway), which is located to the east of the subject site. A freeway ramp with Cahuenga Boulevard access is located approximately 350 feet to the southeast of the subject site.

(For additional detail, see "Section 3. PROJECT DESCRIPTION").

OTHER PUBLIC *AGENCIES* WHOSE APPROVAL IS REQUIRED

(e.g. permits, financing approval, or participation agreement)

None

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- ☐ Aesthetics
- ☐ Agriculture & Forestry Resources
- ☐ Air Quality
- ☒ Biological Resources
- ☐ Cultural Resources
- ☐ Energy
- ☒ Geology / Soils
- ☐ Greenhouse Gas Emissions
- ☐ Hazards & Hazardous Materials
- ☐ Hydrology / Water Quality
- ☐ Land Use / Planning
- ☐ Mineral Resources
- ☒ Noise
- ☐ Population / Housing
- ☐ Public Services
- ☐ Recreation
- ☒ Transportation
- ☒ Tribal Cultural Resources
- ☐ Utilities / Service Systems
- ☒ Wildfire
- ☐ Mandatory Findings of Significance

DETERMINATION

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions on the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Laura Frazin Steele	City Planner
PRINTED NAME	**TITLE**
SIGNATURE	**DATE**

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less that significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of a mitigation measure has reduced an effect from "Potentially Significant Impact" to "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analysis," as described in (5) below, may be cross referenced).

5) Earlier analysis must be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR, or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated

7) Supporting Information Sources: A sources list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whichever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

INITIAL STUDY

3 PROJECT DESCRIPTION

3.1 PROJECT SUMMARY

The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage. The applicant is proposing the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop 16 of the condominium dwelling units as allowed by-right and five density bonus units with two of the 21 units set aside for Very Low Income households. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided. The proposed project includes six retaining walls ranging between 10 and 12 feet when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested.

3.2 ENVIRONMENTAL SETTING

3.2.1 Project Location

The project is located at the confluence of Kentucky and Fredonia Drives within the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan area in the City of Los Angeles. The project site is also located within the geographic area governed by the Mulholland Scenic Parkway Specific Plan (Ordinance No. 167,943, ZI-1224). The intent of the Specific Plan is to do the following:

- Assure maximum preservation and enhancement of unique scenic features and resources
- Preserve Mulholland Drive as a slow-speed, low-intensity drive
- Preserve and enhance land having exceptional recreational and/or educational value
- Assure that land uses are compatible with the parkway environment
- Assure that the design and placement of buildings and other improvements preserve, complement and/or enhance views from Mulholland Drive
- Preserve the existing residential character of areas along and adjoining the right-of-way
- Minimize grading/assure that graded slopes have a natural appearance compatible with the characteristics of the Santa Monica Mountains
- Preserve the natural topographic variation within the Inner and Outer Corridors
- Reduce visual intrusion caused by excessive lighting
- Minimize driveway and private street access into the right-of-way

- Preserve the existing ecological balance
- Protect prominent ridges, streams, and environmentally sensitive areas; and the aquatic, biologic, geologic, and topographic features therein
- Protect all identified archaeological and paleontological resources
- Provide a review process of all projects which are visible from Mulholland Drive to assure their conformance to the purposes and development standards contained in the Specific Plan and the Landform Grading Manual

To achieve these goals, the Specific Plan regulates uses and implements environmental protection measures, grading, heights, and yards. The proposed project is located downslope from Mulholland Drive. More restrictions are placed on projects that are visible from Mulholland Drive than projects that are not visible, but all projects are subject to identical environmental protection measures. These environmental protection measures regulate grading and construction on prominent ridges, streams, and parklands; oak tree preservation and removal; and archaeological and paleontological resources. As shown in Figure 2, the subject site is not visible from Mulholland Drive (Los Angeles Department of City Planning, ArcGis Map). As further shown in Figure 3, the subject site is in the Outer Corridor and is not on or adjacent to a prominent ridge, stream, parkland, major vista point, trail, organization group meeting center, or visitor's center.

The subject site is located within a geographic area designated as ZI-2452 Transit Priority Area in the City of Los Angeles. Under Senate Bill (SB) 743 and Section 21099 (d)(1) of the Public Resources Code (PRC), a project's aesthetic and parking impacts shall not be considered a significant impact on the environment when the project is a residential, mixed-use residential, or employment center project that is located on an infill site within a transit priority area as designated by ZIMAS. Section 21099 (a) of the PRC defines an "infill site" as a lot located within an urban area that has been previously developed, or on a vacant site where at least 75 percent of the perimeter of the site adjoins, or is separated only by an improved public right-of-way from, parcels that are developed with qualified urban uses. A "transit priority area" is defined as an area located within one-half mile of a major transit stop that is existing or planned. Section 21064.3 of the PRC defines a "major transit stop" as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. For purposes of Section 21099 of the PRC, a transit priority area also includes major transit stops in the City of Los Angeles that are scheduled to be completed within the planning horizon of the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS). Transit priority areas are mapped and identified on the City's ZIMAS system. Visual resources, aesthetic character, shade and shadow, light and glare, and scenic vistas or any other aesthetic impact as defined in the City's CEQA Threshold Guide shall not be considered an impact for infill projects within transit priority areas pursuant to CEQA. However, aesthetic related impacts can be regulated pursuant to the Mulholland Scenic Parkway Specific Plan.

The project site is also located within a geographic area designated as ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses. Residential projects sited within 1,000 feet of a freeway are encouraged to minimize air pollution exposure and associated health risks by locating open space areas (play areas, courtyards, patios, balconies, etc.) as far from the freeway sources as possible when the size of the site permits, prioritizing the location of non-habitable uses (parking structures

and building areas not calculated in floor area) nearest the freeway, and screening the project site with substantial vegetation and/or a wall barrier.

ZIMAS shows that the subject site is located within a Hillside Area, Urban Agriculture Incentive Zone, Very High Fire Severity Zone, BOE Special Grading Area, and a Landslide Area. The subject site is within 0.03 kilometers of the Hollywood Fault, although it is not located within an Alquist-Priolo Fault Zone. It is not located within a Liquefaction or Preliminary Fault Rupture Study Area. The site is not located within a Tsunami Inundation Zone. Fire protection services are provided by Fire Station No. 76, Battalion No. 5 of the Los Angeles Fire Department. Police Services are provided by Reporting District 1599, North Hollywood Division, Valley Bureau of the Los Angeles Police Department. Finally, the subject site is located within Tier 3 of a Transit Oriented Community (TOC).

3.2.2 Existing Conditions

The property consists of two upward-sloping, hillside, irregularly-shaped lots totaling approximately 22,508 square feet. As shown in Figure 1, the subject site is designated for Low Medium Residential land use by the Community Plan and is zoned RD1.5-1.

The largest lot is approximately 15,555 square feet and is improved with two single-family dwellings (770 square feet each) and a 260 square foot garage built in 1951. According to information provided by the applicant, these structures have been vacant for over 5 years. The smaller approximately 6,958 square foot lot is vacant. City records show that the 6,968 square foot lot was improved with a single-family dwelling in 1957; a demolition permit for a single-family dwelling and garage was issued in 2005.

Both Kentucky and Fredonia Drives are designated Local Street – Standard with a designated right-of-way width of 60 feet and a designated roadway width of 36 feet. The subject site has approximately 145 feet of street frontage along Kentucky and Fredonia Drives. The northern property line extends from Kentucky and Fredonia Drives to a rear alley for a length of approximately 139 feet. The southerly property line extends from Kentucky and Fredonia Drives to the rear alley for a length of approximately 177 feet. The site abuts a 20 foot alley along the rear property line for a length of approximately 140 feet. The property slopes upward from Kentucky and Fredonia Drives and downward from the Kentucky and Fredonia Drive frontage to the rear alley.

3.2.3 Surrounding Land Uses

Properties to the northeast and southeast of the subject are front along Cahuenga Boulevard and are developed with one- and two-story small scale commercial office, retail, and restaurant uses. These sites are zoned C2-1VL and are designated General Commercial by the Community Plan.

To the northwest and southwest along Kentucky and Fredonia Drives, properties are improved with one-, two- and three-story single- and multi-family residential uses. These sites are zoned RD1.5-1 and designated Low Medium Residential land use. To the west, northwest, and southwest of the subject site, properties are zoned R1-1 and designated Low Residential. These sites are improved with one- and two-story single-family dwellings.

The subject site falls within a 500 foot radius of the US-101 (Hollywood Freeway), which is located to the east of the subject site. A freeway ramp with Cahuenga Boulevard access is located approximately 350 feet to the southeast of the subject site.

3.3 DESCRIPTION OF PROJECT

3.3.1 Project Overview

The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage. The applicant is proposing the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop 16 of the condominium dwelling units as allowed by-right and five density bonus units with two of the 21 units set aside for Very Low Income households. The 21 residential dwelling units will be comprised of 13 two-bedroom, two-bath units and 8 three-bedroom, three-bath units. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided. The proposed project includes six retaining walls ranging between 10 and 12 feet when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested.

Density. The project is sited on two lots totaling 22,508 square feet and abuts an alley at the rear property line. Per LAMC Section 12.22 C.16, when computing the number of dwelling units allowed on a lot abutting an alley, one-half the width of the alley is included in the density calculation. As such, an additional 1,400 square feet is included in the lot area calculation when calculating allowable density at this site, thereby yielding a total of 23,908 square feet (22,508 + 1,400 = 23,908).

Pursuant to LAMC Section 12.09.1, the RD1.5 Zone requires a minimum lot area of 1,500 square feet per dwelling unit (including one-half of the abutting alley as discussed above). Therefore, a total of 16 dwelling units are allowed by-right at the subject site. LAMC Section 12.22 A.25 allows the applicant to request a maximum density bonus of 35 percent or 22 units at the site. The applicant is requesting a 31.25 percent density bonus to provide a total of 21 units including 5 density bonus units (16 units by-right + 5 density bonus units = 21 units). As required pursuant to LAMC Section 12.22 A.25, the applicant is setting aside a minimum of 2 units (11 percent) as affordable to Very Low Income Households.

Height. LAMC Section 12.21.A allows a residential building height of 45 feet and unlimited number of stories in the RD1.5-1 Zone. However, LAMC Section 12.21.1 B.2, as regulated by the Los Angeles Department of Building and Safety, allows a height exception not exceeding 12 feet for a multi-family structure when the highest point of elevation of the adjoining sidewalk or ground surface within a 5 foot horizontal distance measured from the exterior wall of the building exceeds grade level by more than 20 feet. Furthermore, the applicant is requesting an 11 foot height incentive under LAMC Section 12.22 A.25, thereby allowing a 68 foot height (45 + 12 + 11 = 68) if approved by the appropriate decision maker. Pursuant to Section 12.22 A.25(g)(3), the incentive request is off-menu, because the project site is located within a Very High Fire Severity Zone.

3.3.2 Design and Architecture

Pursuant to LAMC Section 16.50 and Section 11 of the Mulholland Scenic Parkway Specific Plan, the proposed project was reviewed by the Mulholland Design Review Board. (DRB). The Mulholland DRB reviews projects within the context of the Specific Plan and the Mulholland Scenic Parkway Specific Plan Design and Preservation Guidelines.

The Mulholland DRB reviewed the project on January 15, 2020 and June 3, 2020 and requested changes to the project design. On October 21, 2020, the Mulholland DRB recommended to approve the project design with conditions.

As previously stated, the five-story condominium building over two levels of partially subterranean parking will be sited at the confluence of Kentucky and Fredonia Drives. The project site slopes upward from Kentucky and Fredonia Drives and downslope toward Cahuenga. As designed, the project roofline will fall below the roadway elevation. In conformance with Mulholland Design and Preservation Guideline Nos. 2 and 50, the condominium building utilizes a stepped-profile and is compatible with the height and massing of neighboring structures.

Vehicular parking will be provided in two partially subterranean levels. The first and second floors will be below grade. The first floor will include three residential dwelling units and a 1,306 square foot recreation room that is open to the second floor. The second floor will also provide three dwelling units. The main entrance and lobby will be located at on the third floor and will be open to the fourth and fifth floors. The third floor will be at grade at the Kentucky/Fredonia Drive frontage. Six residential dwelling units will be located on the third floor and the fourth floor. Three residential dwelling units will be located on the fifth floor.

In compliance with Mulholland Design and Preservation Guideline Nos. 32 and 34 (massing and articulation), the exterior of the building presents a variety of surfaces, textures, and angles. Per Guideline No. 38, the exterior colors and materials are non-reflective, natural, earth tone (25 percent grey scale or darker excluding black). The colors and materials proposed by the applicant include Morning Fog, Crushed Ice, Iron Ore, and Cityscape smooth finish plaster. Non-reflective glass balcony railings are utilized. Per Guideline 42, windows and glass doors will be aluminum frame.

Per Guideline 46, trash and recycling receptacles will be stored inside the building within the garage. Per Guidelines 37, rooftop equipment is screened from view. Mechanical equipment (transformer, gas meters) are screened with landscape materials and are at the rear and side of the structure per Guideline 44. Per Mulholland Design and Preservation Guidelines 40 and 69, lighting fixtures will be shielded and directed downward.

3.3.3 Open Space and Landscaping

LAMC Section 12.21 G.2 requires 3,025 square feet of open space for this project. The project provides 3,056 square feet of open space. An 1,800 square foot common open-to-the-sky patio/ courtyard is located at the third floor main entry level (grade level). As discussed above, a 1,306 square foot recreation room is located on the first floor and is open to the second floor.

LAMC Section 12.21 G.2 specifies area and dimensional requirements for private open space. In the RD Zone, private open space is required to be a minimum of 100 square feet with no horizontal dimension less than 8 feet. While each of the 21 units has an attached balcony or patio, five units meet private open space area and dimensional requirements.

Per LAMC Section 12.21 G and Mulholland Design and Preservation Guideline 70, the applicant has submitted a landscaping and irrigation plan showing trees and plant materials. Per LAMC Section 12.21 G.2(3), 25 percent of the common open space is required to be landscaped with ground cover, shrubs, or trees. The project exceeds Code requirements by providing 11,380 square feet of landscaping. Per Mulholland Design and Preservation Guidelines 57 and 60, native plants will be utilized in the landscaping, and no prohibited plant materials will be used. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. A minimum of seven 24-inch box trees are proposed, including six Western Redbud, three California Ash, and nine Coast Live Oaks. Furthermore, in compliance with LAMC Section 12.21 C.8 and Mulholland Design and Preservation Guideline Nos. 28 and 30, the proposed retaining walls are fully landscaped.

3.3.4 Access, Parking and Circulation

Vehicular access to the condominium building will be from the alley at the southeastern portion of the subject site. The southeastern corner of the site will be used for loading and unloading. No vehicular access will be provided from the street frontage on Kentucky or Fredonia Drives. Pursuant to LAMC Section 12.22 A.25 (Parking Option 1), the application is required to provide 2 on-site parking spaces for each two- to three-bedroom residential unit for a total of 42 required automobile parking spaces. The applicant is providing a total of 47 automobile parking spaces to accommodate guest parking. All of the automobile parking will be provided within two partially subterranean garages in compliance with the Mulholland Design and Preservation Guideline No. 7. Additionally, pursuant to LAMC Section 12.21 A.16, the project will include 21 long-term bicycle parking spaces and three short-term bicycle parking spaces. The lower garage will include 25 automobile parking spaces. The upper garage will include 22 vehicular parking spaces and 21 long-term bicycle parking spaces. Three short-term parking spaces are provided at grade at the main entry level (3rd floor level).

3.3.5 Sustainability Features

Title 24 and the City of Los Angeles Green Code applies to all projects in the City. The project includes a rooftop solar zone area, and as required, meets stormwater best management practices through the provision of LID planters and permeable pavers at the loading and unloading area. The utilization of permeable driveway pavers complies with Mulholland Design and Preservation Guideline No. 5.

3.4 REQUESTED PERMITS AND APPROVALS

The list below includes the anticipated requests for approval of the project. The Mitigated Negative Declaration will analyze impacts associated with the project and will provide environmental review sufficient for all necessary entitlements and public agency actions associated with the Project. The discretionary entitlements, reviews, permits and approvals required to implement the Project include, but are not necessarily limited to, the following:

- A request to the City Planning Commission pursuant to LAMC Section 12.22 A.25(g)(3) to permit the construction, use, and maintenance of 21 residential condominium units with five density bonus units including two units (11 percent) set aside for Very Low Income Households for the construction of a new 21-unit condominium building with two (2) units set aside for Very Low Income households, and one off-menu incentive for a site located in a Very High Fire Severity Zone to allow an 11 foot increase in height for a total of 68 feet in lieu of the maximum height of 57 feet.
- Pursuant to LAMC Sections 17.03, 17.06, and 17.15, a Vesting Tentative Tract Map No. VTT-73784-CN to allow 21 condominium units.
- Pursuant to LAMC Section 12.24 X.26, a Zoning Administrator Determination to allow six retaining walls of variable height (10 to 12 feet in height when measured from the finished grade) in lieu of the otherwise allowed maximum of one 12 foot retaining wall or two 10 foot retaining walls.
- Pursuant to LAMC Sections 11.5.7 and 16.50, a Project Permit Compliance and Design Review as required by the Mulholland Scenic Parkway Specific Plan (Ordinance No. 167,943).
- Haul Route approval for the export of approximately 11,200 cubic yards of earth.
- Other discretionary and ministerial permits and approvals that may be deemed necessary, including, but not limited to, temporary street closure permits, grading permits, excavation permits, foundation permits, building permits, and sign permits.

INITIAL STUDY

4 ENVIRONMENTAL IMPACT ANALYSIS

I. AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099 would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

a) Have a substantial adverse effect on a scenic vista?

No Impact. Senate Bill (SB) 743 [Public Resources Code (PRC) §21099(d)] sets forth new guidelines for evaluating project transportation impacts under CEQA, as follows: "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area (TPA) shall not be considered significant impacts on the environment." PRC Section 21099 defines a "transit priority area" as an area within 0.5 mile of a major transit stop that is "existing or planned, if the planned stop is scheduled to be completed

within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations." PRC Section 21064.3 defines "major transit stop" as "a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods." PRC Section 21099 defines an "employment center project" as "a project located on property zoned for commercial uses with a floor area ratio of no less than 0.75 and that is located within a transit priority area. PRC Section 21099 defines an "infill site" as a lot located within an urban area that has been previously developed, or on a vacant site where at least 75 percent of the perimeter of the site adjoins, or is separated only by an improved public right-of-way from, parcels that are developed with qualified urban uses. This state law supersedes the aesthetic impact thresholds in the 2006 L.A. CEQA Thresholds Guide, including those established for aesthetics, obstruction of views, shading, and nighttime illumination.

The related City of Los Angeles Department of City Planning Zoning Information (ZI) File ZI No. 2452 provides further instruction concerning the definition of transit priority projects and that "visual resources, aesthetic character, shade and shadow, light and glare, and scenic vistas or any other aesthetic impact as defined in the City's CEQA Threshold Guide shall not be considered an impact for infill projects within TPAs pursuant to CEQA."[1]

PRC Section 21099 applies to the project. Therefore, the project is exempt from aesthetic impacts. The analysis in this initial study (or in the EIR, if any aesthetic impact discussion is included), is for informational purposes only and not for determining whether the project will result in significant impacts to the environment. Any aesthetic impact analysis in this initial study (or the EIR) is included to discuss what aesthetic impacts would occur from the project if PRC Section 21099(d) was not in effect. As such, nothing in the aesthetic impact discussion in this initial study (or the EIR) shall trigger the need for any CEQA findings, CEQA analysis, or CEQA mitigation measures.

However, aesthetic related impacts as regulated by the Mulholland Scenic Parkway Specific Plan, which governs the subject site, can be considered under the discretionary entitlement review by the appropriate decision maker.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, or other locally recognized desirable aesthetic natural feature within a state scenic highway?

No impact. See a) above.

[1] City of Los Angeles Department of City Planning, Zoning Information File ZA No. 2452, Transit Priority Areas (TPAs)/Exemptions to Aesthetics and Parking Within TPAs Pursuant to CEQA. Available at: http://zimas.lacity.org/documents/zoneinfo/ZI2452.pdf.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No impact. See a) above

d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?

Less than significant impact. See a) above

II. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No impact. A significant impact would occur if the proposed project would convert valued farmland to non-agricultural uses. The project site is not designated as farmland, and is partially improved with residential uses. No farmland, agricultural uses, or related operations are present within the project site or surrounding area. Due to its setting, the project site and surrounding area are not included in the Farmland Mapping and Monitoring Program of the California Department of Conservation. Therefore, the proposed project would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, and no impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No impact. A significant impact would occur if the proposed project conflicted with existing agricultural zoning or agricultural parcels enrolled under the Williamson Act. The project site is not zoned for agricultural use or under a Williamson Contract. As the project site and surrounding area do not contain farmland of any type, the proposed project would not conflict with a Williamson Contract. Per ZIMAS, the subject site is located within an Urban Agricultural Incentive Zone, but no agricultural uses are proposed. Therefore, no impacts would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No impact. A significant impact would occur if the proposed project conflicted with existing zoning or cause rezoning of forest land or timberland, or result in the loss of forest land or in the conversion of forest land to non-forest use. The project site and the surrounding area are not zoned for forestland or timberland. Accordingly, the proposed project would not conflict with forest land or timberland zoning or resulting in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No impact. A significant impact would occur if the proposed project conflicted with existing zoning or caused rezoning of forest land or timberland, or resulted in the loss of forest land or in the conversion of forestland to non-forest use. The project site and the surrounding area are not zoned for forest land or timberland. Accordingly, the proposed project would not conflict with forest land or timberland zoning or result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact would occur.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No impact. A significant impact would occur if the proposed project caused the conversion of farmland to non-agricultural use. The project site does not contain farmland, forestland, or timberland. Per ZIMAS, the subject site is located within an Urban Agricultural Incentive Zone, but no agricultural uses are proposed. Therefore, no impacts would occur.

III. AIR QUALITY

Where available, the significance criteria established by the South Coast Air Quality Management District (SCAQMD) may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact. The South Coast Air Quality Management District (SCAQMD) is the agency primarily responsible for comprehensive air pollution control in the South Coast Air Basin and reducing emissions from area and point stationary, mobile, and indirect sources. SCAQMD prepared the 2012 Air Quality Management Plan (AQMP) to meet federal and state ambient air quality standards. A significant air quality impact may occur if a project is inconsistent with the AQMP or would in some way represent a substantial hindrance to employing the policies or obtaining the goals of that plan. If a proposed project has less than 80 residential units and involves less than 20,000 cubic yards of soil export, it will not likely exceed the SCAQMD construction and operational thresholds, and therefore will not require an air quality assessment. The proposed project is a 35,227 square foot, five-story residential structure over two partially subterranean levels of parking and is not expected to conflict with or obstruct the implementation of the AQMP and SCAQMD rules. The proposed project is also subject to the City's Green Building Program Ordinance (Ord. No. 179,890), which was adopted to reduce the use of natural resources, create healthier living environments, and minimize the negative impacts of development on local, regional, and global ecosystems. Therefore, impacts would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the air basin is non-attainment under an applicable federal or state ambient air quality standard?

Less than significant impact. A significant impact would occur if the proposed project would violate any air quality standard or contribute substantially to an existing or projected air quality violation. Based on published studies from similar projects, during the construction phase, the proposed project would not likely exceed the regional SCAQMD significance thresholds for emissions of Carbon Monoxide (CO), Reactive Organic Compounds (ROG), Nitrogen Oxides (NOx), Particulate Matter (PM10 and PM2.5), and Sulfur Dioxide (SOx). Therefore, regional emission impacts for the proposed project would be less than significant for all construction phases. Motor vehicles that access the project site would be the predominant source of long-term project operations emissions. Additional emissions would be generated by area sources, such as energy use and landscape maintenance activities. Therefore, the proposed project would result in a less than significant impact related to regional operational emissions. The project would be subject to regulatory compliance measures, which reduce the impacts of operational and construction regional emissions.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact. A significant impact may occur if a project were to generate pollutant concentrations to a degree that would significantly affect sensitive receptors. The SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. The SCAQMD has developed localized significance thresholds (LSTs) that are based on the amount of maximum daily localized construction emissions per day that can be generated by a project that would cause or contribute

to adverse localized air quality impacts. These apply to projects that are less than or equal to five acres in size and are only applicable to Respirable Particulate Matter (PM10 and PM2.5), Carbon Monoxide (CO), and Nitrogen Oxides (NOx). Therefore, localized emission impacts for the proposed project would be less than significant for all construction phases and the proposed project would not expose sensitive receptors to substantial localized criteria pollutant emissions during construction. The proposed project would result in a less than significant impact.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than significant impact. Potential sources that may emit odors during construction activities include equipment exhaust and architectural coatings. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The proposed project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Construction of the proposed project would not cause an odor nuisance.

According to the SCAQMD CEQA Air Quality Handbook, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies and fiberglass molding. The proposed land uses would not result in activities that create objectionable odors. Therefore, the proposed project would result in a less than significant impact related to objectionable odors.

IV. BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than significant impact with mitigation. A significant biological impact would occur through the loss or destruction of individuals of a species or through the degradation of sensitive habitat. The project site is located two lots totaling 22,508 square feet. The 15,555 square foot lot is improved with two single-family dwellings, and the 6,958 square foot lot is currently vacant. The project site is not near an identified stream or parkland as shown in Figure 3. The subject site abuts a highly urbanized area improved with commercial structures along Cahuenga Boulevard and is located within 500 feet of the US-101 Freeway.

According to the Arborist Report prepared for the subject site by McKinley & Associates dated October 5, 2016, no protected trees will be removed (see Appendix A). The Arborist Report is supported by a letter submitted by D & G Horticulture dated October 6, 2016 (included in Appendix A). The Arborist Report identifies 15 mature trees, including one in the public right-of-way, that will be removed to construct the proposed condominium project. The Arborist Report states that the existing trees on site are in very poor health and condition. The tree species to be removed include Fraxinus velutina or Arizona Ash, Fraxinus uhdei or Shamel Ash, Ceratonia siliqua or Carob Tree, Ailanthus Altissima or Tree of Heaven, Arbutus unedo or Strawberry Tree, and Ficus macrophylla or Morten Bay Fig. None of the trees proposed for removal are identified in the City's Protected Tree Ordinance No. 177,404 effective April 23, 2006. Effective February 4, 2021, Ordinance No. 186,873 expanded the list of protected trees to include the Mexican Elderberry and Toyon shrubs. On April 8, 2021, the applicant team verified that no protected Mexican Elderberry or Toyon shrubs are present on the subject site.

Nesting birds are protected under the Federal Migratory Bird Treaty Act (MBTA) (Title 33, United States Code, Section 703 et seq., see also Title 50, Code of Federal Regulation, Part 10) and Section 3503 of the California Department of Fish and Wildlife Code. It is possible that the removal of 15 trees in a designated hillside area could impact nesting birds, but with the implementation of mitigation measures herein, impacts will be reduced to a less than significant level. As recommended in the Arborist Report, requiring a 1:1 tree replacement will mitigate the loss of 15 trees that are in poor condition. Adherence to regulatory compliance measures and the mitigations herein will reduce any impacts to nesting birds, trees, or sensitive biological species or habitat to a less than significant level.

BIO-1. Habitat Modification (Nesting Native Birds, Hillside or Rural Areas)

The project will result in the removal of vegetation and disturbances to the ground and therefore may result in take of nesting native bird species. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code

prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). The following measures are as recommended by the California Department of Fish and Game:

- Proposed project activities (including disturbances to native and non-native vegetation, structures and substrates) should take place outside of the breeding bird season which generally runs from March 1- August 31 (as early as February 1 for raptors) to avoid take (including disturbances which would cause abandonment of active nests containing eggs and/or young). Take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture of kill (Fish and Game Code Section 86).
- If project activities cannot feasibly avoid the breeding bird season, beginning 30 days prior to the disturbance of suitable nesting habitat, the applicant shall:
  a. Arrange for weekly bird surveys to detect any protected native birds in the habitat to be removed and any other such habitat within 300 feet of the construction work area (within 500 feet for raptors) as access to adjacent areas allows. The surveys shall be conducted by a Qualified Biologist with experience in conducting breeding bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work.
  b. If a protected native bird is found, the applicant shall delay all clearance/construction disturbance activities within 300 feet of suitable nesting habitat for the observed protected bird species (within 500 feet for suitable raptor nesting habitat) until August 31.
  c. Alternatively, the Qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, clearing and construction within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified biological monitor, shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. The buffer zone from the nest shall be established in the field with flagging and stakes. Construction personnel shall be instructed on the sensitivity of the area.
  d. The applicant shall record the results of the recommended protective measures described above to document compliance with applicable State and Federal laws pertaining to the protection of native birds. Such record shall be submitted and received into the case file for the associated discretionary action permitting the project.

BIO-2. Tree Removal (Non-Protected Trees)

Environmental impacts from project implementation may result due to the loss of significant trees on the site. However, the potential impacts will be mitigated to a less than significant level by the following measures:

- Prior to the issuance of any permit, a plot plan shall be prepared indicating the location, size, type, and general condition of all existing trees on the site and within the adjacent public right(s)-of-way.
- All significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) non-protected trees on the site proposed for removal shall be replaced at a 1:1 ratio with a minimum 24-inch box tree.

Net, new trees, located within the parkway of the adjacent public right(s)-of-way, may be counted toward replacement tree requirements.

- Removal or planting of any tree in the public right-of-way requires approval of the Board of Public Works. Contact Urban Forestry Division at: 213-847-3077. All trees in the public right-of-way shall be provided per the current standards of the Urban Forestry Division the Department of Public Works, Bureau of Street Services.

BIO-3. Tree Removal (Public Right-of-Way)

- Removal of trees in the public right-of-way requires approval by the Board of Public Works.
- The required Tree Report shall include the location, size, type, and condition of all existing trees in the adjacent public right-of-way and shall be submitted for review and approval by the Urban Forestry Division of the Bureau of Street Services, Department of Public Works (213-847-3077).
- The plan shall contain measures recommended by the tree expert for the preservation of as many trees as possible. Mitigation measures such as replacement by a minimum of 24-inch box trees in the parkway and on the site, on a 1:1 basis, shall be required for the unavoidable loss of significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) trees in the public right-of-way.
- All trees in the public right-of-way shall be provided per the current Urban Forestry Division standards.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than significant impact. A significant impact would occur if any riparian habitat or natural community would be lost or destroyed as a result of urban development. The project site does not contain any riparian habitat and does not contain any streams or water courses necessary to support riparian habitat. The proposed project is mitigated herein for any impacts to trees and nesting birds. Therefore, less than significant impact would occur to habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife (CDFW) or the United States Fish and Wildlife Services (USFWS).

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No impact. A significant impact would occur if federally protected wetlands would be modified or removed by a project. The project site does not contain any federally protected wetlands, wetland resources, or other waters of the United States as defined by Section 404 of the Clean Water Act. The project site is located in a highly urbanized area and developed/previously developed with residential. Therefore, the proposed project would not have any effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh,

vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means, and no impacts would occur.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than significant impact with mitigation. A significant impact would occur if the proposed project would interfere with, or remove access to, a migratory wildlife corridor or impede use of native wildlife nursery sites. The project site abuts an urbanized commercial area, as well as single- and multi-family residences. Due to the lack of a major water body, the project site does not support habitat for native resident or migratory species or contain native nurseries. As previously discussed, there are no protected trees or shrubs on the subject site. However, the removal of 15 mature trees may interfere with nesting birds in a designated hillside area. As mitigated herein, impacts to wildlife species will be reduced to a less than significant level.

BIO-1 Habitat Modification (Nesting Native Birds, Hillside or Rural Areas), BIO-2 Tree Removal (Non-Protected Trees), BIO-3. Tree Removal (Public Right-of-Way)

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than significant impact with mitigation. A significant impact would occur if the proposed project would be inconsistent with local regulations pertaining to biological resources. The proposed project would not conflict with any policies or ordinances protecting biological resources, such as the City of Los Angeles Protected Tree Ordinance (No. 186,873). The project site does not contain locally-protected biological resources, such as oak trees, Southern California black walnut, western sycamore, and California bay trees. The project site does not include Mexican Elderberry or Toyon shrubs. The proposed project would be required to comply with the provisions of the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code (CFGC). Both the MBTA and CDFW protect migratory birds that may use trees on or adjacent to the project site for nesting. The removal of 15 trees in a designated hillside area may cause disturbance to nesting birds during construction of the proposed project, and the project is mitigated to protect native nesting birds. Therefore, impacts to any local policies or ordinances protecting biological resources are reduced to a less than significant level with mitigation.

BIO-1 Habitat Modification (Nesting Native Birds, Hillside or Rural Areas)

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less than significant. The project site and its vicinity are not part of any draft or adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan. The proposed project is mitigated elsewhere herein to protect

biological resources. Therefore, the proposed project would not conflict with the provisions of any adopted conservation plan, and any impacts would be less than significant.

V. CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

a) Cause a substantial adverse change in the significance of a historical resource as pursuant to State CEQA Guidelines §15064.5?

No impact. A significant impact would occur if the proposed project would substantially alter the environmental context of, or remove identified historical resources. The project includes the demolition of two residences constructed in 1951. However, neither residence has been identified as a historic resource by local or state agencies, and the project site has not been determined to be eligible for listing in the National Register of Historic Places, California Register of Historical Resources, the Los Angeles Historic-Cultural Monuments Register, and/or any local register. In addition, the site was not found to be a potential historic resource based on SurveyLA, the citywide survey of Los Angeles or the City's HistoricPlacesLA website. Therefore, there would be no impact to the significance of a historical resource.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines §15064.5?

Less than significant impact. A significant impact would occur if a known or unknown archaeological resource would be removed, altered, or destroyed as a result of the proposed development. Section 15064.5 of the State CEQA Guidelines defines significant archaeological resources as resources that meet the criteria for historical resources or resources that constitute unique archaeological resources. A project-related significant impact could occur if a project would significantly affect archaeological resources that fall under either of these categories. If archaeological resources are discovered during excavation, grading, or construction activities, work shall cease in the area of the find until a qualified archaeologist has evaluated the find in accordance with federal, State, and local guidelines, including those set forth in California Public

Resources Code Section 21083.2. Per regulatory compliance measures, personnel of the proposed project shall not collect or move any archaeological materials and associated materials. Construction activity may continue unimpeded on other portions of the Project site. The found deposits would be treated in accordance with federal, State, and local guidelines, including those set forth in California Public Resources Code Section 21083.2.

California Assembly Bill 52 (AB 52) established a formal consultation process for a California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources, as defined in Public Resources Code Section 21074 as part of CEQA. As specified in AB 52, lead agencies must provide notice inviting consultation to California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project if the Tribe has submitted a request in writing to be notified of proposed projects. The Tribe must respond in writing within 30 days of the City's AB 52 notice. The Native American Heritage Commission (NAHC) provided a list of Native American groups and individuals who might have knowledge of the religious and/or cultural significance of resources that may be in and near the project site. Any impacts to Tribal archaeological resources are analyzed elsewhere herein (see Section XVIII. Tribal Cultural Resources).

A confidential California Historical Resources Information System (CHRIS) search was conducted for the subject site by SWCA Environmental Consultants dated September 6, 2019. Based on the results of the search, the analysis of Tribal archaeological resources elsewhere within this document, and regulatory compliance measures, any impacts to archaeological resources as a result of the proposed project are less than significant.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Less than significant impact. A significant impact would occur if excavation or construction activities associated with the proposed project would disturb paleontological or unique geological features. If paleontological resources are discovered during excavation, grading, or construction, the City of Los Angeles Department of Building and Safety shall be notified immediately, and all work shall cease in the area of the find until a qualified paleontologist evaluates the find. Construction activity may continue unimpeded on other portions of the Project site. The paleontologist shall determine the location, the time frame, and the extent to which any monitoring of earthmoving activities shall be required. The found deposits would be treated in accordance with federal, State, and local guidelines, including those set forth in California Public Resources Code Section 21083.2. Furthermore, inadvertent conditions of discovery for paleontological resources are discussed elsewhere herein (see Section VII. Geology and Soils).

As previously stated, California Assembly Bill 52 (AB 52) established a formal consultation process for a California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources, as defined in Public Resources Code Section 21074 as part of CEQA. Any impacts to Native American human remains, including those interred outside of formal cemeteries, are analyzed elsewhere herein (see Section XVIII. Tribal Cultural Resources). With the

implementation of regulatory compliance measures and recommended conditions of inadvertent discovery, impacts to human remains would be less than significant.

VI. ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than significant impact. During plan check, the City will assure that the project plans comply with existing LAMC requirements for energy-efficiency including compliance with Green Building Code requirements. The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage. The applicant is proposing the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided. The proposed project includes six retaining walls ranging between 10 and 12 feet when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested. Landscaping and irrigation is incorporated in the project design. As such, the project will not result in a wasteful, inefficient, or unnecessary consumption of energy resources.

The project includes a rooftop solar zone area, and as required, meets stormwater best management practices through the provision of permeable pavers at the loading and unloading area and LID planters. The utilization of permeable driveway pavers complies with Mulholland Design and Preservation Guideline No. 5. As such, compliance with LAMC energy efficiency standards and project design features would reduce energy impacts to less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than significant impact. As a regulatory requirement, the project will be reviewed for consistency with applicable state and local plans for renewable energy and efficiency. The Los Angeles Municipal Code incorporates the California Green Building Standards Code Title 24 standards which require projects to provide energy saving features. Compliance with regulatory requirements will reduce energy impacts to a less than significant impact.

VII. GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☒	☐	☐
ii. Strong seismic ground shaking?	☐	☒	☐	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv. Landslides?	☐	☒	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒	☐	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

The Los Angeles Department of Building and Safety (LADBS) issued a Geology and Soils Report Approval Letter for the project on February 6, 2019 (Log # 97819-02). A copy of this letter is provided in Appendix C. The February 6, 2019 Geology and Soils Approval Letter references the following documents, which are included herein as appendices:

- Addendum Report 2 dated November 9, 2018 prepared by Applied Earth Sciences (included herein as Appendix D)
- LADBS Department Review Letter dated October 12, 2018 (included herein as Appendix E)
- Addendum Report No. 1 dated August 3, 2018 prepared by Applied Earth Sciences (included herein as Appendix F)
- Addendum Report No. A dated August 4, 2018 prepared by Applied Earth Sciences (included herein as Appendix G)
- LADBS Department Review Letter dated May 10, 2017 (included herein as Appendix H)
- Geology/Soils Report dated June 10, 2016 prepared by Applied Earth Sciences (included herein as Appendix I)

The LADBS Geology and Soils Approval Letter dated February 6, 2019 (Log # 97819-02) states that the earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone, claystone and shale bedrock. The subject site is located in a designated seismically induced landslide hazard zone as shown on the State Seismic Hazard Zones map. Furthermore, as noted in the June 10, 2016 report prepared by Applied Earth Sciences, hillside properties are typically subject to potential geotechnical hazards including mudslides, spalling of slopes, erosion, and concentrated flows. Responsible maintenance of slopes, as conditioned herein, can significantly reduce hazards (see Appendix I).

Per LADBS, the reports referenced herein and included as appendices to this document (Appendices D – I) include an acceptable seismic slope stability analysis and meet the requirements of the 2017 City of Los Angeles Building Code as conditioned. The conditions, including slope maintenance, as referenced in the LADBS February 6, 2019 Geology and Soils Approval Letter are by reference included herein as required mitigations.

A significant impact would occur if the proposed project would cause personal injury or death or result in property damage as a result of a fault rupture occurring on the project site and if the project site is located within a State-designated Alquist-Priolo Zone or other designated fault zone. As previously stated, the subject site is located within a designated seismically induced landslide hazard zone. According to ZIMAS, the nearest fault is the Hollywood Fault located a distance of 0.03 km from the subject site. According to the Applied Earth Sciences Geological Investigation dated June 10, 2016, the closest fault is the Benedict Canyon Fault, located approximately 300-400 feet north of the subject site. However, the Benedict Canyon fault is not considered active, and the site is not located in an Earthquake Special Studies Zone.

The applicant submitted an additional Addendum No. 1 dated August 7, 2019 prepared by Applied Earth Sciences (see Appendix B). This addendum explores the possible need for an archaeological report due to uncertified fill on the site. According to the Applied Earth Sciences Report, fill on the project site is most likely not related to prehistoric human activities, and no evidence of any prehistoric human use was found on 14 test holes across the site.

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

i) **Less than significant with mitigation**. As discussed above, the applicant was required to submit geotechnical reports to the Department of Building and Safety for review. The Department of Building and Safety issued a Geology and Soils Report Approval Letter Soils Approval Letter dated February 6, 2019 (Log Reference #97819-02) and their recommendations are incorporated herein by reference. The Alquist-Priolo Earthquake Fault Zoning Act is intended to mitigate the hazard of surface fault rupture on structures for human occupancy. As further mitigated herein, any impacts would be less than significant.

ii) **Less than significant with mitigation**. A significant impact would occur if the proposed project would cause personal injury or death or resulted in property damage as a result of seismic ground shaking. The entire Southern California region is susceptible to strong ground shaking from severe earthquakes. Consequently, the development of the proposed project could expose people and structures to strong seismic ground shaking. However, the proposed project would be designed and constructed in accordance with state and local building codes to reduce the potential for exposure of people or structures to seismic risks to the maximum extent possible. As applicable, the proposed project would be required to comply with the California Department of Conservation, Division of Mines and Geology (CDMG), which provides guidance for the evaluation and mitigation for earthquake-related hazards, and with the seismic safety requirements in the Uniform Building Code (UBC) and the LAMC. Compliance with such requirements would reduce seismic ground shaking impacts to the maximum extent practicable with current engineering practices. As discussed above, the applicant is also required to comply with the conditions referenced in the Geology and Soils Report Approval Letter Soils Approval Letter dated February 6,

2019. Therefore, as further mitigated herein, impacts related to strong seismic ground shaking would be less than significant with mitigation.

iii) **Less than significant with mitigation**. A significant impact may occur if a proposed project site is located within a liquefaction zone. Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during severe ground shaking. As previously discussed, the site is not located within a liquefaction zone, and the applicant is required to comply with all conditions of the LADBS Geology and Soils Report Approval Letter. Therefore, less than significant impacts related to seismic-related ground failure, including liquefaction, would occur with mitigation.

iv) **Less than significant with mitigation**. A significant impact would occur if the proposed project would be implemented on a site that would be located in a hillside area with unstable geological conditions or soil types that would be susceptible to failure when saturated. The subject site is located within a designated seismically induced landslide hazard zone as shown on the State Seismic Hazard Zones map. The applicant was required to submit geotechnical reports to the Department of Building and Safety for review. The Department of Building and Safety, issued a Geology and Soils Report Approval Letter Soils Approval Letter dated February 6, 2019 (Log Reference #97819-02) and their recommendations are incorporated herein by reference. Additional mitigation measures are included herein to reduce risks related to seismic ground shaking,, liquefaction, and/or landslides.

GEO-1. Erosion/Grading/Short-Term Construction Impacts
Short-term erosion impacts may result from the construction of the proposed project. However, these impacts can be mitigated to a less than significant level by the following measures:

- The applicant shall provide a staked signage at the site with a minimum of 3-inch lettering containing contact information for the Senior Street Use Inspector (Department of Public Works), the Senior Grading Inspector (LADBS) and the hauling or general contractor.

GEO-2. Slope Maintenance

- The applicant shall implement a program of normal slope maintenance, including annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardance, deep rooted ground cover, and proper irrigation.

b) Result in substantial soil erosion or the loss of topsoil?

Less than significant with mitigation. A significant impact would occur if construction activities or future uses would result in substantial soil erosion or loss of topsoil. Construction of the proposed project includes 11,200 cubic yards of cut, 11,200 cubic yards of export, and no fill or import. This grading work would result in ground surface disturbance in a hillside area, which

could create the potential for soil erosion to occur. Construction activities would be performed in accordance with the requirements of the Los Angeles Building Code and the Los Angeles Regional Water Quality Control Board (LARWQCB) through the City's Storm water Management Division. In addition, the proposed project would be required to develop a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would require implementation of an erosion control plan to reduce the potential for wind or water born erosion during the construction process. In addition, all onsite grading and site preparation would comply with applicable provisions of Chapter IX, Division 70 of the LAMC, and conditions imposed by the City of Los Angeles Department of Building and Safety's Soils Report Approval Letter dated February 6, 2019 (Log Reference #97819-02). Given the quantity of grading onsite and the hillside topography of the site, and the regulatory compliance measures required, a less than significant impact would occur with mitigations incorporated.

GEO-1. Erosion/Grading/Short-Term Construction Impacts, GEO-2. Slope Maintenance

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than significant with mitigation. A significant impact would occur if any unstable geological conditions would result in any type of geological failure, including lateral spreading, off-site landslides, liquefaction, or collapse. Development of the proposed project would have the potential to expose people and structures to seismic-related ground failure, including liquefaction and landslide as previously discussed.

Subsidence and ground collapse generally occur in areas with active groundwater withdrawal or petroleum production. The extraction of groundwater or petroleum from sedimentary source rocks can cause the permanent collapse of the pore space previously occupied by the removed fluid. According to the Environmental and Public Facilities Maps (1996) and ZIMAS, the project site is not identified as being located in an oil field or within an oil drilling area. The proposed project would be required to implement standard construction practices that would ensure that the integrity of the project site and the proposed structures is maintained. Construction will be required by the Department of Building and Safety to comply with the City of Los Angeles Uniform Building Code (UBC) which is designed to assure safe construction and includes building foundation requirements appropriate to site conditions. With the implementation of the Building Code requirements and the Department of Building and Safety's Soils Report Approval Letter dated February 6, 2019 (Log Reference #97819-02) and the mitigations incorporated herein, the potential for landslide lateral spreading, subsidence, liquefaction or collapse would be less than significant.

GEO-1. Erosion/Grading/Short-Term Construction Impacts, GEO-2. Slope Maintenance

d) Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less than significant impact. A significant impact would occur if the proposed project would be built on expansive soils without proper site preparation or design features to provide adequate foundations for project buildings, thus, posing a hazard to life and property. Expansive soils have relatively high clay mineral and expand with the addition of water and shrink when dried, which can cause damage to overlying structures. However, as applicable, the proposed project would be required to comply with the requirements of the UBC, LAMC, and other applicable building codes. Compliance with such requirements would reduce impacts related to expansive soils, and impacts would be less than significant.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Less than significant impact. The project would cause a significant impact if adequate waste water disposal is not available. The project site is located in an urbanized area, where waste water infrastructure is currently in place. The proposed project would connect to existing sewer lines that serve the site. Therefore, impacts would be less than significant.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than significant impact. A significant impact may occur if a project directly or indirectly destroys a unique paleontological resource or site or unique geologic feature. According to Addendum No. 1 prepared by Applied Earth Sciences dated August 7, 2019 (see Appendix B), fill on the project site is most likely not related to prehistoric human activities, and no evidence of any prehistoric human use was found on 14 test holes across the site. If paleontological resources are discovered during excavation, grading, or construction, the City of Los Angeles Department of Building and Safety shall be notified immediately, and all work shall cease in the area of the find until a qualified paleontologist evaluates the find. Construction activity may continue unimpeded on other portions of the project site. The paleontologist shall determine the location, the time frame, and the extent to which any monitoring of earthmoving activities shall be required. The found deposits would be treated in accordance with federal, State, and local guidelines, including those set forth in California Public Resources Code Section 21083.2. With the recommendation of inadvertent conditions of discovery and regulatory compliance measures, the impact would be less than significant.

VIII. GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant impact. Greenhouse gases (GHG) are those gaseous constituents of the atmosphere, both natural and human generated, that absorb and emit radiation at specific wave lengths within the spectrum of terrestrial radiation emitted by the earth's surface, the atmosphere itself, and by clouds. The City has adopted the LA Green Plan to provide a citywide plan for achieving the City's GHG emissions targets, for both existing and future generation of GHG emissions. In order to implement the goal of improving energy conservation and efficiency, the Los Angeles City Council has adopted multiple ordinances and updates to establish the current Los Angeles Green Building Code (LAGBC) (Ordinance No. 181,480). The LAGBC requires projects to achieve a 20 percent reduction in potable water use and wastewater generation. Through required implementation of the LAGBC, the proposed project would be consistent with local and statewide goals and policies aimed at reducing the generation of GHGs. Therefore, the proposed project's generation of GHG emissions would not make a cumulatively considerable contribution to emissions and impacts would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No impact. The California legislature passed Senate Bill (SB) 375 to connect regional transportation planning to land use decisions made at a local level. SB 375 requires the metropolitan planning organizations to prepare a Sustainable Communities Strategy (SCS) in the regional transportation plans to achieve the per capita GHG reduction targets. For the SCAG region, the SCS is contained in the 2016-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The 2016-2035 RTP/SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas on existing main streets

and in downtowns and commercial corridors, resulting in more opportunity for transit-oriented development.

In addition, SB 743, adopted September 27, 2013, encourages land use and transportation planning decisions that reduce vehicle miles traveled, which contribute to GHG emissions, as required by AB 32. Under ZIMAS, the subject site is located within a geographic area designated as ZI-2452 Transit Priority Area in the City of Los Angeles. Under Senate Bill (SB) 743 and Section 21099 (d)(1) of the Public Resources Code (PRC), Section 21099 (a) of the PRC defines an "infill site" as a lot located within an urban area that has been previously developed, or on a vacant site where at least 75 percent of the perimeter of the site adjoins, or is separated only by an improved public right-of-way from, parcels that are developed with qualified urban uses. A "transit priority area" is defined as an area located within one-half mile of a major transit stop that is existing or planned. Section 21064.3 of the PRC defines a "major transit stop" as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. For purposes of Section 21099 of the PRC, a transit priority area also includes major transit stops in the City of Los Angeles that are scheduled to be completed within the planning horizon of the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS). Transit priority areas are mapped and identified on the City's ZIMAS system.

As such, the project would provide a multi-family residential structure located within a designated Transit Priority Area, and would not interfere with SCAG's ability to implement the regional strategies outlined in the 2016-2035 RTP/SCS. The proposed project, therefore, would be consistent with statewide, regional and local goals and policies aimed at reducing GHG emissions and would result in no impact related to plans that target the reduction of GHG emissions.

IX. HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than significant impact. A significant impact would occur if the proposed project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Construction of the proposed project would involve the temporary use of potentially hazardous materials, including vehicle fuels, oils, and transmission fluids. Operation of the project would involve the limited use and storage of common hazardous substances typical of those used in single- and multi-family residential projects, including lubricants, paints, solvents, custodial products (e.g., cleaning supplies), pesticides and other landscaping supplies, and vehicle fuels, oils, and transmission fluids. No uses or activities are proposed that would result in the use or discharge of unregulated hazardous materials and/or substances, or create a public hazard through transport, use, or disposal. As a residential development, the proposed project would not involve large quantities of hazardous materials that would require routine transport, use, or disposal. With compliance to applicable standards and regulations and adherence to manufacturer's instructions related to the transport, use, or disposal of hazardous materials, the proposed project would not create a significant hazard through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than significant impact. A significant impact would occur if the proposed project created a significant hazard to the public or environment due to a reasonably foreseeable release of hazardous materials. The existing single-family dwellings on the project site were built in 1951 and therefore may contain asbestos-containing materials (ACMs) and lead-based paint (LBP). Demolition of these buildings would have the potential to release asbestos fibers into the atmosphere if such materials exist and they are not properly stabilized or removed prior to demolition activities. The removal of asbestos is regulated by SCAQMD Rule 1403; therefore, any asbestos found on-site would be required to be removed in accordance with applicable regulations prior to demolition. Similarly, it is likely that lead-based paint is present in buildings constructed prior to 1979. Compliance with existing State laws regarding removal would be required, resulting in a less than significant impact.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than significant impact. Construction activities have the potential to result in the release, emission, handling, and disposal of hazardous materials within one-quarter mile of an existing school. The proposed project would include grading and construction of a multi-family residential structure. The project would be expected to use and store hazardous materials, such as paints, solvents, cleaners, pesticides, etc. All hazardous materials within the project site would be acquired, handled, used, stored, transported, and disposed of in accordance with all applicable

federal, State, and local requirements. With compliance, the proposed project would result in a less than significant impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No impact. A significant impact would occur if the project site is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would create a significant hazard to the public or the environment. The California Department of Toxic Substances Control (DTSC) maintains a database (EnviroStor) that provides access to detailed information on hazardous waste permitted sites and corrective action facilities, as well as existing site cleanup information. EnviroStor also provides information on investigation, cleanup, permitting, and/or corrective actions that are planned, being conducted, or have been completed under DTSC's oversight. A review of EnviroStor did not identify any records of hazardous waste facilities on the project site. Therefore, the proposed project would not be located on a site that is included on a list of hazardous materials sites or create a significant hazard to the public or the environment, and no impact would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No impact. The project site is not located in an airport land use plan area, or within two miles of any public or public use airports, or private air strips. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area, and no impacts would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No impact. The nearest emergency route is Cahuenga Boulevard, which is approximately 150 feet east of the project site (City of Los Angeles, Safety Element of the Los Angeles City General Plan, Critical Facilities and Lifeline Systems, Exhibit H, November 1996.) The proposed project is not expected to require the closure of any public or private streets or impede emergency vehicle access to the project site or surrounding area. Additionally, emergency access to and from the project site would be provided in accordance with requirements of the Los Angeles Fire Department (LAFD). Therefore, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and no impact would occur.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than significant impact. A significant impact would occur if the proposed project exposed people and structures to high risk of wildfire. As shown on ZIMAS, the project site is located in a

Very High Fire Severity Zone and a Hillside Area, which is subject to wildfires. The project site is also located in a Mountain Fire District, as shown in the City of Los Angeles, Safety Element of the Los Angeles City General Plan, Critical Facilities and Lifeline Systems, Exhibit H (November 1996.) According to ZIMAS, the site is not located within a Very High Wind Velocity Area. However, the proposed project would be designed and constructed in accordance with State and local Building and Fire Codes, including installing sprinklers and planting fire resistant landscaping as appropriate, to reduce the potential for exposure of people or structures to wildfires to the maximum extent possible. Furthermore, the project is mitigated elsewhere within for impacts involving wildfires (see Section XX. Wildfire). As such, the impact of the project in exposing people or structures to a risk of loss, injury, or death involving wildland fires, would be less than significant.

X. HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or off-site;				
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				
iv. Impede or redirect flood flows?				
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than significant impact. A significant impact would occur if the proposed project discharges water that does not meet the quality standards of agencies which regulate surface water quality and water discharge into stormwater drainage systems, or does not comply with all applicable regulations as governed by the Los Angeles Regional Water Quality Control Board (LARWQCB). Stormwater runoff from the proposed project has the potential to introduce small amounts of pollutants into the stormwater system. Pollutants would be associated with runoff from landscaped areas (pesticides and fertilizers) and paved surfaces (ordinary household cleaners). Thus, the proposed project would be required to comply with the National Pollutant Discharge Elimination System (NPDES) standards and the City's Stormwater and Urban Runoff Pollution Control regulations (Ordinance No. 172,176 and No. 173,494) to ensure pollutant loads from the project site are minimized for downstream receiving waters. The ordinances contain requirements for construction activities and operation of projects to integrate Low Impact Development (LID) practices and standards for stormwater pollution mitigation, and maximize open, green and pervious space on all projects consistent with the City's landscape ordinance and other related requirements in the City's Development Best Management Practices (BMPs) Handbook. Conformance would be ensured during the City's building plan review and approval process. Therefore, the proposed project would result in less than significant impacts.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than significant impact. A significant impact would occur if the proposed project would substantially deplete groundwater or interferes with groundwater recharge. The proposed project would not require the use of groundwater at the project site. Potable water would be supplied by the Los Angeles Department of Water and Power (LADWP), which draws its water supplies from distant sources for which it conducts its own assessment and mitigation of potential environmental impacts. Therefore, the project would not require direct additions or withdrawals of groundwater. The project includes two levels of partially subterranean parking; however, excavation to accommodate subterranean levels is not proposed at a depth that would result in the interception of existing aquifers or penetration of the existing water table. Therefore, the impact on groundwater supplies or groundwater recharge would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site;

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. Impede or redirect flood flows?

i. **No impact**. A significant impact would occur if the proposed project would substantially alter the drainage pattern of an existing stream or river so that erosion or siltation would result. There are no streams or rivers located within the project vicinity.

ii. **Less than significant impact**. A significant impact would occur if the proposed project would substantially alter the drainage pattern of an existing stream or river such that flooding would result. There are no streams or rivers located in the project vicinity. During project operation, storm water or any runoff irrigation waters would be directed into existing storm drains that are currently receiving surface water runoff under existing conditions. Impermeable surfaces resulting from the development of the project would not substantially change the volume of stormwater runoff in a manner that would result in flooding on- or off-site. Accordingly, significant alterations to existing drainage patterns within the site and surrounding area would not occur. Therefore, the proposed project would result in less than significant impacts related to the alteration of drainage patterns and on- or off-site flooding.

iii. **Less than significant impact**. A significant impact would occur if runoff water would exceed the capacity of existing or planned storm drain systems serving the project site, or if the proposed project would substantially increase the probability that polluted runoff would reach the storm drain system. Site-generated surface water runoff would continue to flow to the City's storm drain system. Any project that creates, adds, or replaces 500 square feet of impervious surface must comply with the Low Impact Development (LID) Ordinance or alternatively, the City's Standard Urban Stormwater Mitigation Plan (SUSMP), as an LAMC requirement to address water runoff and storm water pollution. Furthermore, to prevent the erosion of land downhill and subsequent storm water runoff, the applicant is requesting discretionary approval to provide six retaining walls ranging between 10 and 12 feet in height when measured from the finished grade. Grading mitigations are recommended elsewhere herein (see Section VII. Geology and Soils). Therefore, the proposed project would result in less than significant impacts related to existing storm drain capacities or water quality.

iv. **No impact**. A significant impact would occur if the proposed project would be located within a 100-year or 500-year flood plain or would impede or redirect flood flows. According to the Safety Element of the City of Los Angeles General Plan Safety Element of the Los Angeles City General Plan, Critical Facilities and Lifeline Systems, Exhibit F (November 1996), ZIMAS, and NavigateLA, the project site is not located within a 100-year or 500-year flood plain. Therefore, the proposed project would not be located in such areas, and no impact related to flood zones would occur.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less than significant impact. A significant impact would occur if the proposed project would be located within a flood plain or an area susceptible to inundation by seiche, tsunami, or mudflow. According to the Safety Element of the City of Los Angeles General Plan, Critical Facilities and Lifeline Systems, Exhibit F (November 1996), ZIMAS, and NavigateLA, the project site is not located within a 100-year or 500-year flood plain. Therefore, the proposed project would not be located in such areas, and no impact related to flood zones would occur. A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, or lake. A tsunami is a great sea wave produced by a significant undersea disturbance. Mudflows result from the down slope movement of soil and/or rock under the influence of gravity. The project site and the surrounding areas are not located near a water body to be inundated by seiche. Similarly, the project site and the surrounding areas are located in the San Fernando Valley and not near an ocean or lake. Therefore, the project would have a less than significant impact related to flood plains or inundation by seiche, tsunami, or mudflow.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than significant impact. The project will not conflict with or obstruct the implementation of a water quality control plan or sustainable ground water management plan. As previously discussed, the project is subject to applicable regulations as governed by the Los Angeles Regional Water Quality Control Board (LARWQCB), National Pollutant Discharge Elimination System (NPDES) standards, and the City's Stormwater and Urban Runoff Pollution Control regulations (Ordinance No. 172,176 and No. 173,494). The ordinances contain requirements for construction activities and operation of projects to integrate Low Impact Development (LID) practices and standards for stormwater pollution mitigation, and maximize open, green and pervious space on all projects consistent with the City's landscape ordinance and other related requirements in the City's Development Best Management Practices (BMPs) Handbook. Therefore, the project would have no impact related to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

XI. LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a) Physically divide an established community?

No impact. A significant impact would occur if the proposed project would be sufficiently large or configured in such a way so as to create a physical barrier within an established community. A physical division of an established community is caused by an impediment to through travel or a physical barrier, such as a new freeway with limited access between neighborhoods on either side of the freeway, or major street closures. The proposed project would not involve any closure or result in development of new thoroughfares or highways. The proposed project is the construction of a multi-family building in an area with existing residential and commercial uses, and would not divide an established community. Therefore, no impact would occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than significant impact. A significant impact may occur if a project is inconsistent with the General Plan or zoning designations currently applicable to the project site, and would cause adverse environmental effects, which the General Plan and zoning ordinance are designed to avoid or mitigate. The site is located within the Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass Community Plan Area. The site is zoned RD1.5-1, with a General Plan land use designation of Low Medium Residential. The proposed project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage, and the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop 16 of the condominium dwelling units as allowed by-right and five density bonus units with two of the 21 units set aside for Very Low Income Households. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided within two partially subterranean levels. The proposed project includes six retaining walls ranging between 10 and 12 feet in height when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards

of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested.

The proposed project would conform to the allowable land uses pursuant to the Los Angeles Municipal Code. The decision makers will determine whether discretionary requests will conflict with applicable plans/policies. Impacts related to land use have been mitigated elsewhere, or are addressed through compliance with existing regulations. Therefore, the impact would be less than significant.

XII. MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No impact. A significant impact would occur if the proposed project would result in the loss of availability of known mineral resources of regional value or locally-important mineral resource recovery site. The project site is not classified by the City as containing significant mineral deposits nor is it designated for mineral extraction land use. In addition, the project site is not identified by the City as being located in an oil field or within an oil drilling area. Therefore, the proposed project would not result in the loss of availability of any known, regionally- or locally-valuable mineral resource, and no impact would occur.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No impact. A significant impact would occur if the proposed project would result in the loss of availability of known mineral resources of regional value or locally-important mineral resource recovery site. The project site is not classified by the City as containing significant mineral deposits nor is it designated for mineral extraction land use. In addition, the project site is not identified by the City as being located in an oil field or within an oil drilling area. There are no known mineral resources on the local General Plan, Specific Plan, or any other land use plan. Therefore, the proposed project would not result in the loss of availability of any known, regionally- or locally-valuable mineral resource, and no impact would occur.

XIII. NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than significant with mitigation. The City of Los Angeles has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. Construction activity would result in temporary increases in ambient noise levels in the project area on an intermittent basis. Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers. Construction noise for the project will cause a temporary increase in the ambient noise levels, but will be subject to the LAMC Sections 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) and 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) regarding construction hours and construction equipment noise thresholds. The project is required to comply with the City of Los Angeles General Plan Noise Element and Ordinance No. 161,574, which prohibits the emission of creation of noise beyond certain levels at adjacent uses unless technically infeasible. Therefore, with mitigation, the proposed project would result in less than significant impact related to the exposure of persons to or generation of noise levels in excess of

standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

NOISE-1. Increased Noise Levels (Demolition, Grading, and Construction Activities)

- Construction and demolition shall be restricted to the hours of 7:00 am to 6:00 pm Monday through Friday, and 8:00 am to 6:00 pm on Saturday.
- Demolition and construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.
- The project contractor shall use power construction equipment with state-of-the-art noise shielding and muffling devices.
- A temporary noise control barrier shall be installed on the property line of the construction site abutting residential uses. The noise control barrier shall be engineered to reduce construction-related noise levels at the adjacent residential structures with a goal of a reduction of 10dBA. The supporting structure shall be engineered and erected according to applicable codes. The temporary barrier shall remain in place until all windows have been installed and all activities on the project site are complete.

b) Generation of, excessive groundborne vibration or groundborne noise levels?

Less than significant with mitigation. Construction activities can generate varying degrees of vibration, depending on the construction procedures and the type of construction equipment used. The operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. Unless heavy construction activities are conducted extremely close (within a few feet) to the neighboring structures, vibrations from construction activities rarely reach the levels that damage structures. By complying with regulations and the mitigations herein, the project would result in a less than significant impact related to construction vibration.

NOISE-1. Increased Noise Levels (Demolition, Grading, and Construction Activities)

c) For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impact. A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels from a public airport or public use airport or a private airstrip. The proposed project is not located within two miles of a public airport or public use airport. The project site is outside of the Los Angeles International Airport Land Use Plan. The proposed project is not within the vicinity of a private airstrip. Accordingly, the proposed project would not expose people working or residing in the project area to excessive noise levels from a public airport or public use airport or private airstrip. Therefore, no impact would occur.

XIV. POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than significant impact. A potentially significant impact would occur if the proposed project would induce substantial population growth that would not have otherwise occurred as rapidly or in as great a magnitude. The proposed project would result in the development of 21 residential condominium units. The increase in residential population resulting from the proposed project would not be considered substantial in consideration of anticipated growth for the Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass Community Plan, and is within the Southern California Association of Governments' (SCAG) 2020 population projections for the City in their 2016-2035 Regional Transportation Plan. The project would meet a growing demand for housing near jobs and transportation centers, consistent with State, regional and local regulations designed to reduce trips and greenhouse gas emissions. Operation of the proposed project would not induce substantial population growth in the project area, either directly or indirectly. The physical secondary or indirect impacts of population growth such as increased traffic or noise have been adequately mitigated in other portions of this document. Therefore, the impact would be less than significant.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less than significant impact. A potentially significant impact would occur if the proposed project would displace a substantial quantity of existing residences or a substantial number of people. The project site is developed with two residential dwelling units that are currently vacant. These

vacant units are proposed to be demolished and replaced with a 21-unit residential condominium project. As such, the proposed project would have less than significant impact in displacing any residence or person.

XV. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☒	☐
d. Parks?	☐	☐	☒	☐
e. Other public facilities?	☐	☐	☒	☐

a) Fire protection?

Less than significant impact. A significant impact would occur if the Los Angeles Fire Department (LAFD) could not adequately serve the proposed project, necessitating a new or physically altered station. The project site and the surrounding area are currently served by Fire Station 76, located at 3111 Cahuenga Boulevard (approximately 1.5 miles southeast of the project site). The proposed project would result in an increase of 19 units (the project site is currently developed with two vacant single-family dwellings), which could increase the number of emergency calls and demand for LAFD fire and emergency services. To maintain the level of fire protection and emergency services, the LAFD may require additional fire personnel and equipment. However, given that there are existing fire stations are in close proximity to the project site, it is not anticipated that there would be a need to build a new or expand an existing fire station to serve the proposed project and maintain acceptable service ratios, response times, or other performance objectives for fire protection. By analyzing data from previous years and continuously monitoring current data regarding response times, types of incidents, and call frequencies, LAFD can shift resources to meet local demands for fire protection and emergency services. The proposed project would neither create capacity or service level problems nor result in substantial adverse physical impacts associated with the provision of new or physically altered

governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for fire protection. Therefore, the proposed project would result in a less than significant impact.

b) Police protection?

Less than significant impact. A significant impact would occur if the Los Angeles Police Department (LAPD) could not adequately serve the proposed project, necessitating a new or physically altered station. The proposed project would result in an increase of 19 units and could increase demand for police service. The project site and the surrounding area are currently served by LAPD's North Hollywood division, located at 11640 Burbank Boulevard (approximately 3.2 miles northwest of the project site). Prior to the issuance of a building permit, the LAPD would review the project plans to ensure that the design of the project follows the LAPD's Design Out Crime Program, an initiative that introduces the techniques of Crime Prevention Through Environmental Design to all City departments beyond the LAPD. Through the incorporation of these techniques into the project design, in combination with the safety features already incorporated into the proposed project, the proposed project would not create capacity/service level problems or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for police protection. In the event a situation should arise requiring increased staffing or patrol units, additional resources can be assembled. Therefore, the proposed project would result in a less than significant impact related to police protection services.

c) Schools?

Less than significant impact. A significant impact would occur if the proposed project would include substantial employment or population growth, which could generate a demand for school facilities that would exceed the capacity of the school district. The proposed project would result in an increase of 19 residential dwelling units, which could increase enrollment at schools that serve the area. However, development of the proposed project would be subject to California Government Code Section 65995, which would allow LAUSD to collect impact fees from developers of new residential and commercial space. Conformance to California Government Code Section 65995 is deemed to provide full and complete mitigation of impacts to school facilities. Therefore, the proposed project would result in a less than significant impact to public schools.

d) Parks?

Less than significant impact. A significant impact would occur if the proposed project would exceed the capacity or capability of the local park system to serve the proposed project. The City of Los Angeles Department of Recreation and Parks (RAP) is responsible for the provision, maintenance, and operation of public recreational and park facilities and services in the City. The proposed project would result in an increase of 19 residential dwelling units, which could result in increased demand for parks and recreation facilities. However, the proposed project would not

create capacity or service level problems, or result in substantial physical impacts associated with the provision or new or altered parks facilities. Accordingly, the proposed project would result in a less than significant impact on park facilities.

e) Other public facilities?

Less than significant impact. A significant impact would occur if the proposed project would result in substantial employment or population growth that could generate a demand for other public facilities, including libraries, which exceed the capacity available to serve the project site, necessitating new or physically altered public facilities, the construction of which would cause significant environmental impacts. The proposed project would result in an increase of 19 residential dwelling units, which could result in increased demand for library services and resources of the Los Angeles Public Library System. However, the proposed project would not create substantial capacity or service level problems that would require the provision of new or expanded public facilities in order to maintain an acceptable level of service for libraries and other public facilities. Therefore, the proposed project would result in a less than significant impact on other public facilities.

XVI. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a) Would the project Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?

Less than significant impact. A significant impact would occur if the proposed project would exceed the capacity or capability of the local park system to serve the proposed project. The City of Los Angeles Department of Recreation and Parks (RAP) is responsible for the provision, maintenance, and operation of public recreational and park facilities and services in the City. The proposed project would result in an increase of 19 residential dwelling units (the site is currently developed with two vacant residential dwelling units), which could result in increased demand for parks and recreation facilities. However, the proposed project would not create capacity or service level problems, or result in substantial physical impacts associated with the provision or new or altered parks facilities. Accordingly, the proposed project would result in a less than significant impact on park facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less than significant impact.

See a) above

XVII. TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d. Result in inadequate emergency access?	☐	☒	☐	☐

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than significant impact. A significant impact may occur if the project conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. The project involves the construction of 21 residential condominium units. The number of daily vehicle trips generated at this specific site by a 21 unit condominium development (113 daily vehicle trips) are below the threshold required by the Los Angeles Department of Transportation to perform a vehicle miles traveled analysis.

As mitigated herein, the proposed project complies with the Mobility Plan 2035 and does not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Therefore, impacts would be less than significant.

Furthermore, pursuant to SB 743 and as identified on ZIMAS under ZI-2452, the subject site is located within a Transit Priority Area in the City of Los Angeles. As such, a project's aesthetic and parking impacts shall not be considered a significant impact on the environment under CEQA.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less than significant impact. CEQA Guidelines Section 15064.3 describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts; "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. The City of Los Angeles Transportation Assessment Guidelines state that a transportation assessment is required under the following circumstances:

- *If the Development Project is estimated to generate a net increase of 250 or more daily vehicle trips and requires discretionary action, a transportation assessment for a Development Project is required.*
- *If a Transportation Project is likely to either: (1) induce additional vehicle miles traveled by increasing vehicle capacity; or (2) reduce roadway through-lane capacity on a street that exceeds 750 vehicles per hour per lane for at least two (2) consecutive hours in a 24-hour period after the project is completed, a transportation assessment is generally required.*
- *A transportation assessment is required by City ordinance or regulation.*

The project involves the construction of 21 residential condominium units. The number of daily vehicle trips generated at this specific site (113 daily vehicle trips) are below the threshold required by the Los Angeles Department of Transportation (LADOT) to perform a vehicle miles traveled analysis. Furthermore, any dedications or improvements recommended by the Bureau of Engineering (BOE) and/or LADOT will be conditioned if approved by the appropriate decision-maker. Therefore, the proposed project does not conflict with and is not inconsistent with CEQA Guidelines Section 15064.3, and any impacts are less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than significant impact with mitigation. A significant impact would occur if the proposed project would substantially increase an existing hazardous design feature or introduce incompatible uses to the existing traffic pattern. The proposed project would not include unusual or hazardous design features and the proposed project is compatible with existing uses in the area. However, the project may have potentially significant impacts on the hillside street during haul route and construction phases. With implementation of the referenced mitigation measure, the potential impacts related to hazards would be reduced to less than significant.

TR-1. Haul Route and Construction

- The developer shall install appropriate traffic signs around the site to ensure pedestrian and vehicle safety.
- The applicant shall be limited to no more than two trucks at any given time within the site's staging area.

- There shall be no staging of hauling trucks on any streets adjacent to the project, unless specifically approved as a condition of an approved haul route.
- No hauling shall be done before 9 a.m. or after 3 p.m.
- Trucks shall be spaced so as to discourage a convoy effect.
- On substandard hillside streets, only one hauling truck shall be allowed on the street at any time.
- A minimum of two flag persons are required. One flag person is required at the entrance to the project site and one flag person at the next intersection along the haul route.
- Truck crossing signs are required within 300 feet of the exit of the project site in each direction.
- The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by grading and hauling, and at all times shall provide reasonable control of dust caused by wind.
- Loads shall be secured by trimming and watering or may be covered to prevent the spilling or blowing of the earth material.
- Trucks and loads are to be cleaned at the export site to prevent blowing dirt and spilling of loose earth.
- No person shall perform grading within areas designated "hillside" unless a copy of the permit is in the possession of a responsible person and available at the site for display upon request.
- A log documenting the dates of hauling and the number of trips (i.e. trucks) per day shall be available on the job site at all times.
- The applicant shall identify a construction manager and provide a telephone number for any inquiries or complaints from residents regarding construction activities. The telephone number shall be posted at the site readily visible to any interested party during site preparation, grading and construction.

TR-2. Pedestrian Safety

- Applicant shall plan construction and construction staging as to maintain pedestrian access on adjacent sidewalks throughout all construction phases. This requires the applicant to maintain adequate and safe pedestrian protection, including physical separation (including utilization of barriers such as K-Rails or scaffolding, etc) from work space and vehicular traffic and overhead protection, due to sidewalk closure or blockage, at all times.
- Temporary pedestrian facilities shall be adjacent to the project site and provide safe, accessible routes that replicate as nearly as practical the most desirable characteristics of the existing facility.
- Covered walkways shall be provided where pedestrians are exposed to potential injury from falling objects.
- Applicant shall keep sidewalk open during construction until only when it is absolutely required to close or block sidewalk for construction staging. Sidewalk shall be reopened as soon as reasonably feasible taking construction and construction staging into account.

d) Result in inadequate emergency access?

Less than significant impact with mitigation. A significant impact may occur if the project design threatened the ability of emergency vehicles to access and serve the project site or adjacent uses. The nearest emergency/disaster route to the project site is Cahuenga Boulevard to the east (City of Los Angeles, General Plan Safety Element Exhibit H, Critical Facilities & Lifeline Systems, 1996). As mitigated herein, the proposed project would not require the closure of any public or private streets and would not impede emergency vehicle access to the project site or surrounding area.

TR-1. Haul Route and Construction, TR-2. Pedestrian Safety

XVIII. TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k)?

Less than significant impact. Assembly Bill 52 (AB 52) established a formal consultation process for California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources, as defined in Public Resources Code §21074, as part of CEQA. As specified in AB 52, lead agencies must provide notice inviting consultation to California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project

if the Tribe has submitted a request in writing to be notified of proposed projects. The Tribe must respond in writing within 30 days of the City's AB 52 notice.

On August 1, 2017, notification was mailed to 10 Tribes that are traditionally and culturally affiliated with the geographic area associated with the proposed project. On May 8, 2019, notification was mailed to 11 Tribes affiliated with the geographic area.

On May 13, 2019, the Gabrieleno Band of Mission Indians – Kizh Nation requested consultation. Consultation with the Gabrieleno Tribe was held on July 24, 2019, and consultation was concluded on May 17, 2021.

On October 10, 2019, the Fernandeno Tataviam Band of Mission Indians requested additional information from the lead agency (Geotechnical Report, SCCIC search record). Consultation was held on October 9, 2019 and May 6, 2021. Consultation was concluded on May 17, 2021.

Based on the tribal consultations held with staff, it was determined that the sensitivity for the presence of undocumented resources is considered to be high. The following mitigation measures is recommended for impacts to tribal cultural resources. The staff recommendation report will include conditions related to the unanticipated discovery of tribal cultural resources, archaeological resources, and paleontological resources. As such, the project is anticipated to have a less than significant impact with mitigation.

TRIBAL-1. Tribal Monitor

Prior to commencing any ground disturbance activities at the Project site, the Applicant, or its successor, shall retain archeological monitors and tribal monitors that are qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. Any qualified tribal monitor(s) shall be approved by the Gabrieleno Band of Mission Indians and the Fernandeno Tataviam Band of Mission Indians. Any qualified archaeological monitor(s) shall be approved by the Department of City Planning, Office of Historic Resources ("OHR"). The qualified archeological and tribal monitors shall observe all ground disturbance activities on the project site at all times the ground disturbance activities are taking place. If ground disturbance activities are simultaneously occurring at multiple locations on the project site, an archeological and tribal monitor shall be assigned to each location where the ground disturbance activities are occurring. The on-site monitoring shall end when the ground disturbing activities are completed, or when the archaeological and tribal monitor both indicate that the site has a low potential for impacting tribal cultural resources.

Prior to commencing any ground disturbance activities, the archaeological monitor in consultation with the tribal monitor, shall provide Worker Environmental Awareness Program (WEAP) training to construction crews involved in ground disturbance activities that provides information on

regulatory requirements for the protection of tribal cultural resources. As part of the WEAP training, construction crews shall be briefed on proper procedures to follow should a crew member discover tribal cultural resources during ground disturbance activities. In addition, workers will be shown examples of the types of resources that would require notification of the archaeological monitor and tribal monitor. The Applicant shall maintain on the Project site, for City inspection, documentation establishing the training was completed for all members of the construction crew involved in ground disturbance activities.

In the event that any subsurface objects or artifacts that may be tribal cultural resources are encountered during the course of any ground disturbance activities, all such activities shall temporarily cease within the area of discovery, the radius of which shall be determined by a qualified archeologist, in consultation with a qualified tribal monitor, until the potential tribal cultural resources are properly assessed and addressed pursuant to the process set forth below:

1. Upon a discovery of a potential tribal cultural resource, the Applicant, or its successor, shall immediately stop all ground disturbance activities and contact the following: (1) all California Native American tribes that have informed the City they are traditionally and culturally affiliated with the geographic area of the proposed project; (2) and OHR.
2. If OHR determines, pursuant to Public Resources Code Section 21074 (a)(2), that the object or artifact appears to be a tribal cultural resource in its discretion and supported by substantial evidence, the City shall provide any affected tribe a reasonable period of time, not less than 14 days, to conduct a site visit and make recommendations to the Applicant, or its successor, and the City regarding the monitoring of future ground disturbance activities, as well as the treatment and disposition of any discovered tribal cultural resources.
3. The Applicant, or its successor, shall implement the tribe's recommendations if a qualified archaeologist retained by the City and paid for by the Applicant, or its successor, in consultation with the tribal monitor, reasonably conclude that the tribe's recommendations are reasonable and feasible.
4. In addition to any recommendations from the applicable tribe(s), a qualified archeologist shall develop a list of actions that shall be taken to avoid or minimize impacts to the identified tribal cultural resources substantially consistent with best practices identified by the Native American Heritage Commission and in compliance with any applicable federal, state or local law, rule or regulation.
5. If the Applicant, or its successor, does not accept a particular recommendation determined to be reasonable and feasible by the qualified archaeologist or qualified tribal monitor, the Applicant, or its successor, may request mediation by a mediator agreed to by the Applicant, or its successor, and the City. The mediator must have the requisite professional qualifications and experience to mediate such a dispute. The City shall make the determination as to whether the mediator is at least minimally qualified to mediate the dispute. After making a reasonable effort to mediate this particular dispute, the City may (1) require the recommendation be implemented as originally proposed by the archaeologist or tribal monitor; (2) require the recommendation, as modified by the City,

be implemented as it is at least as equally effective to mitigate a potentially significant impact; (3) require a substitute recommendation be implemented that is at least as equally effective to mitigate a potentially significant impact to a tribal cultural resource; or (4) not require the recommendation be implemented because it is not necessary to mitigate an significant impacts to tribal cultural resources. The Applicant, or its successor, shall pay all costs and fees associated with the mediation.

6. The Applicant, or its successor, may recommence ground disturbance activities outside of a specified radius of the discovery site, so long as this radius has been reviewed by both the qualified archaeologist and qualified tribal monitor and determined to be reasonable and appropriate.
7. The Applicant, or its successor, may recommence ground disturbance activities inside of the specified radius of the discovery site only after it has complied with all of the recommendations developed and approved pursuant to the process set forth in paragraphs 2 through 5 above.
8. Copies of any subsequent prehistoric archaeological study, tribal cultural resources study or report, detailing the nature of any significant tribal cultural resources, remedial actions taken, and disposition of any significant tribal cultural resources shall be submitted to the South Central Coastal Information Center (SCCIC) at California State University, Fullerton and to the Native American Heritage Commission for inclusion in its Sacred Lands File.
9. Notwithstanding paragraph 8 above, any information that the Department of City Planning, in consultation with the City Attorney's Office, determines to be confidential in nature shall be excluded from submission to the SCCIC or provided to the public under the applicable provisions of the California Public Records Act, California Public Resources Code, section 6254(r), and handled in compliance with the City's AB 52 Confidentiality Protocols.

b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less than significant impact with mitigation.

See a) above

XIX. UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than significant impact. A significant impact may occur if the project would require or result in the relocation or construction of water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities to such a degree that the construction or relocation of which would cause significant environmental effects. The subject property is located in the established neighborhood of Studio City that has long been developed and urbanized. The

project proposes the demolition of two existing single-family dwellings and the construction of a 21 unit condominium building. Although the project proposes to intensify the existing uses on the subject property, it is unlikely that the project would require any major utility relocation or construction because both the property and the surrounding area have long been served with existing utility infrastructure and the project will maintain all existing utility systems. The project is entirely consistent with the applicable City long-range and development plans, which have accounted for any potential project impacts on utility capacity and infrastructure. In addition, the project will comply with all applicable regulations regarding energy usage and discharge, per the requirements of the applicable managing utility departments/agencies. Therefore, the project will have a less than significant impact on the relocation or construction of new or expanded utility facilities.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than significant impact. A significant impact would occur if the proposed project would increase water consumption or wastewater generation to such a degree that the capacity of facilities currently serving the project site would be exceeded. The Los Angeles Department of Water and Power (LADWP) conducts water planning based on forecast population growth. The addition of 21 units as a result of the proposed project would be consistent with Citywide growth, and therefore, the project demand for water is not anticipated to require new water supply entitlements and/or require the expansion of existing or construction of new water treatment facilities beyond those already in the LADWP 2015 Urban Water Management Plan (UWMP). Prior to any construction activities, the project applicant would be required to coordinate with the City of Los Angeles Bureau of Sanitation (BOS) to determine the exact wastewater conveyance requirements of the proposed project, and any upgrades to the wastewater lines in the vicinity of the project site that are needed to adequately serve the proposed project would be undertaken as part of the project. Therefore, the proposed project would have less than significant impact related to water supplies.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. A significant impact may occur if the amount of wastewater that the project would generate would exceed the capacity of the existing wastewater treatment provider. Although the project proposes to intensify the residential density on the subject property, it is unlikely to generate such a substantial increase in demand that would exceed the capacity of the existing wastewater treatment system. In addition, all wastewater from the project will be treated in accordance with the requirements of the Los Angeles Regional Water Quality Control Board. The project is entirely consistent with the applicable City long-range and development plans and projected growth, and thus alone will not likely exceed the capacity of the existing system. Prior to any construction activities, the applicant will be required to coordinate with the Los Angeles Bureau of Sanitation to determine the exact wastewater conveyance requirements of the proposed project. Any upgrades to the wastewater infrastructure in the vicinity of the project site that are needed to adequately serve the proposed project would be undertaken as a part of the development. Therefore, the project will have a less than significant impact on wastewater capacity.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. A significant impact may occur if the amount of solid waste that the project would generate would exceed the capacity of existing infrastructure. The Los Angeles Bureau of Sanitation and private waste management companies are responsible for the collection, disposal, and recycling of solid waste within the City, including the project site. The entire Southern California region is served by an extensive network of landfills and other waste disposal methods. Although the project proposes to intensify the existing residential use on the subject property, it is unlikely to generate such a substantial increase in waste that would exceed the capacity of the existing waste disposal system. The project will comply with all applicable federal, State, and local regulations involving solid waste. Therefore, the project will have a less than significant impact on the generation of solid waste.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. A significant impact may occur if the project would conflict with any statutes and regulations governing solid waste. The Los Angeles Bureau of Sanitation and private waste management companies are responsible for the collection, disposal, and recycling of solid waste within the City, including the project site. The entire Southern California region is served by an extensive network of landfills and other waste disposal methods. Although the project proposes to intensify the existing residential use on the subject property, it is unlikely to generate such a substantial increase in waste that would exceed the capacity of the existing waste disposal system. The project will comply with all applicable federal, State, and local regulations involving solid waste. Therefore, the project will have a less than significant impact on statutes and regulations governing solid waste.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☐

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. A significant impact may occur if a project were to interfere with roadway operations used in conjunction with an emergency response plan or emergency evacuation plan or would generate traffic congestion that would interfere with the execution of such a plan.

There are no other critical facilities and lifeline systems in the immediate vicinity of the project site. Kentucky and Fredonia Drives are not identified as disaster routes by the City of Los Angeles as shown in the City of Los Angeles, Safety Element of the Los Angeles City General Plan, Critical Facilities and Lifeline Systems, Exhibit H (November 1996.) Additionally, Los Angeles County does not designate Kentucky or Fredonia Drives as disaster routes (Los Angeles County Department of Public Works, Disaster Route Maps). The project site is approximately 150 feet from Cahuenga Boulevard, which is designated by the City as a selected disaster route which may be utilized for evacuation during an emergency. The project constitutes a private development located on private land, and does not propose alteration to the public rights-of-way. No full road closures along Kentucky Drive or Fredonia Drive, which provide access to Cahuenga Boulevard from the project site, are anticipated during the construction and haul route phases. However, if lane closures are necessary to local streets adjacent to the project site, the remaining travel lanes would be maintained in accordance with standard construction management plans that would be implemented to ensure adequate emergency access and circulation. With regards to operation, the Project would comply with access requirements from the Los Angeles Fire Department (LAFD) and would not impede emergency access within the project vicinity. The project's driveway and internal circulation would be designed to incorporate all applicable City Building Code and Fire Code requirements regarding site access, including providing adequate emergency vehicle access. The proposed condominium project provides fire access at two points: one at the Kentucky and Fredonia Drive frontage and a second access at the rear of the site via the alley. Therefore, through compliance with applicable provisions of the Fire Code, the project would not cause an impediment along the City's designated disaster routes or impair the implementation of the City's emergency response plan. Impacts related to the implementation of the City's emergency response plan would be less than significant, and no mitigation measures would be required.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than significant impact with mitigation. A significant impact would occur if the proposed project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. As shown on ZIMAS, the project site is located in a Very High Fire Severity Zone and a Hillside Area, which is subject to wildfires. The project site is also located in a Mountain Fire District, as shown in the City of Los Angeles, Safety Element of the Los Angeles City General Plan, Critical Facilities and Lifeline Systems, Exhibit H (November 1996.) According to ZIMAS, the site is not located within a Very High Wind Velocity Area. The addition of 21 new residential

units will have the potential to expose new residents to the risk of wildfires. The proposed project would be designed and constructed in accordance with State and local Building and Fire Codes, including installing sprinklers and planting fire resistant landscaping as appropriate, to reduce the potential for exposure of people or structures to wildfires to the maximum extent possible. The project site and new construction will be required to comply with the Building Code and the Brush Clearance Requirements of the Fire Code. With the addition of mitigation measures, the impact of a possible spread of a wildfire and exposure to pollutants would be less than significant.

FIRE-1. WILDFIRE

- The project shall be designed with boxed-in eaves; single pane, double thickness (minimum 1/8" thickness) or insulated windows; non-combustible finishes, non-combustible roofs (non-wood); and non-wood siding. Exposed wooden members shall be 2 inches nominal thickness.
- Irrigated and managed greenbelts around the perimeter of all structures for a distance of 100 feet shall be considered as a buffer between the brush and the proposed project.
- All landscaping shall use fire-resistant plants and materials. A list of such plants is available from the contact Brush Clearance Unit 6262 Van Nuys Blvd., Room 451, Van Nuys 91401 (800) 994-4444.
- The brush in the area adjacent to the proposed development shall be cleared or thinned periodically by the Homeowner's Association under supervision to the Los Angeles City Fire Department to reduce the risk of brush fires spreading to the homes.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant Impact. A significant impact may occur if a project would require the installation or maintenance of associated infrastructure that may exacerbate fire risks or that may result in temporary or ongoing impacts to the environment.

The project would involve the construction of new buildings in an urbanized area of the City of Los Angeles. No roads, fuel breaks, or emergency water sources would be installed or maintained. Installation of any required power lines or other utilities would be done in a manner consistent with other construction projects typical of urban development requiring connection to the existing utility grid and infrastructure and in accordance with applicable City building codes and utility provider policies and would not exacerbate fire risk. Hydrants, water lines, and water tanks would be installed per Fire Code requirements. In addition, the LAFD would review the plans for compliance with applicable City Fire Code, California Fire Code, City of Los Angeles Building Code, and National Fire Protection Association standards, thereby ensuring that the project would not create any undue fire hazard. Automatic fire sprinkler systems are also required for the proposed land uses as part of the project. Compliance with all building code, developmental regulations, and utility providers requirements and policies would result in less than significant fire

impacts due to the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities).

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less than significant impact. A significant impact may occur if a project were to expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope stability, or drainage changes. The project would be required to comply with all developmental regulations and City building codes with regard to fire safety. The applicant is proposing to provide six retaining walls that would protect people and structures from risks associated with post-fire slope instability. These retaining walls are requested as an entitlement, and approval of the entitlement requests will be determined by the appropriate decision maker. With regulatory compliance measures and mitigation measures requested within this section and elsewhere herein, impacts would be less than significant.

FIRE-1. WILDFIRE

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than significant impact. Based on the analysis of this Initial Study and as mitigated, the proposed project would not have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Implementation of the mitigation measures identified and compliance with existing regulations would reduce impacts to less than significant levels.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than significant impact. A significant impact may occur if the proposed project, in conjunction with the related products, would result in impacts that are less than significant when viewed separately but significant when viewed together. Although projects may be constructed in the project vicinity, the cumulative impacts to which the proposed project would contribute would be less than significant. Implementation of the mitigation measures identified would reduce cumulative impacts to less than significant levels.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than significant impact. A significant impact may occur if the proposed project has the potential to result in significant impacts, as discussed in the preceding sections. All potential impacts of the proposed project have been identified, and mitigation measures have been prescribed, where applicable, to reduce all potential impacts to less than significant levels. Upon implementation of mitigation measures identified and compliance with existing regulations, the proposed project would not have the potential to result in substantial adverse impacts on human beings either directly or indirectly.

5 PREPARERS AND PERSONS CONSULTED

Applied Earth Sciences

D & G Horticulture

Fernandeno Tataviam Band of Mission Indians

Gabrieleno Band of Mission Indians – Kizh Nation

Los Angeles Department of Building and Safety

Los Angeles Fire Department

McKinley & Associates

South Central Coastal Information Center (SCCIC)

6 REFERENCES, ACRONYMS AND ABBREVIATIONS

ACM - asbestos-containing materials

AQMP – Air Quality Management Plan

BMP – Best Management Practices

BOS – City of Los Angeles Bureau of Sanitation

CARB – California Air Resources Board

CDFW – California Department of Fish and Wildlife

CEQA – California Environmental Quality Act

CFGC – California Fish and Game Code

CMP – Congestion Management Program

DTSC – California Department of Toxic Substances Control

FMMP – Farmland Mapping and Monitoring Program

GHG – greenhouse gasses

LADBS – Los Angeles Department of Building and Safety

LADOT – Los Angeles Department of Transportation

LADWP – Los Angeles Department of Water and Power

LAFD – Los Angeles Fire Department

LAGBC – Los Angeles Green Building Code

LAMC – Los Angeles Municipal Code

LAPD – Los Angeles Police Department

LBP – lead-based paint

LESA - Land Evaluation and Site Assessment

LID – low impact development

LST – localized significance thresholds

MBTA – Migratory Bird Treaty Act

Metro – Los Angeles County Metropolitan Transportation Authority

MND – Mitigated Negative Declaration

NAHC – Native American Heritage Commission

PRC – California Public Resources Code

RAP – Los Angeles Department of Recreation and Parks

REC – Recognized Environmental Condition

RTP – Regional Transportation Plan

SCAG – Southern California Association of Governments

SCAQMD – South Coast Air Quality Management District

SCCIC - Central Coastal Information Center

SCS – Sustainable Communities Strategy

TDP - Treatment and Disposition Plan

UBC – Uniform Building Code

USFWS – U.S. Fish and Wildlife Services

McKinley & Associates (818) 240-1358

Arborist Report

3894 Fredonia Drive & 3902 Kentucky Drive
Studio City, California

Prepared for:

Mr. Zaven Ghanimian
Z & H Holdings
528 State Street
Glendale, CA 91203

Prepared by:

William R. McKinley, Consulting Arborist
American Society of Consulting Arborists
Certified Arborist #WE-4578A
International Society of Arboriculture
1734 Del Valle Avenue
Glendale, CA 91208

Arborists and Environmental Consultants

McKinley & Associates (818) 240-1358

October 5, 2016

Mr. Zaven Ghanimian
Z & H Holdings
528 State Street
Glendale, CA 91203

Dear Mr. Ghanimian:

RE: **TREE REPORT** – 3894 Fredonia Drive & 3902 Kentucky Drive, Studio City
Demolition of Buildings and Construction of a new 21-Unit Apartment Building

PROJECT LOCATION

The subject properties are located in a mixed use urban area in Studio City, a community in the City of Los Angeles. The properties are near the intersection of Fredonia Drive and Kentucky Drive. The properties are on the northeast corner. The properties can be reached from the Ventura 134 Freeway by exiting at Forest Lawn Drive. Turn left at the stop sign and proceed west on Forest Lawn Drive to Barham Blvd. Turn left on Barham Blvd. and proceed south until you reach Cahuenga Blvd. Turn right and proceed west on Cahuenga Blvd. until you reach Fredonia Drive. Turn left on Fredonia Drive. Proceed uphill on Fredonia Drive as it winds its way around the hillside. The subject property is on the right or north side of Fredonia Drive at Kentucky Drive. Refer to the attached photos and for site access (See Thomas Guide, Page 563, B-6).

BACKGROUND

As stated earlier, the subject properties are in a mixed use area. There are single family homes along Fredonia Drive however immediately north of the subject properties there is an alley separating nearby commercial properties. The subject properties are located on steep down hill lots running from Fredonia downward toward Cahuenga Blvd. to the north. The lot located at 3894 Fredonia Drive has already undergone demolition. The lot located at 3902 Kentucky Drive still has 2 abandoned residential dwellings on the site. The majority of the existing trees appear to be growing on the 3902 Kentucky Drive property. There are no protected native Coast Live Oak, California Bay, California Sycamore or Southern California Black Walnut trees growing on or near the subject properties. No protected, native trees will be impacted by this project. The tree species identified which are growing on the subject properties include: *Fraxinus velutina* or Arizona Ash, *Fraxinus uhdei* or Shamel Ash, *Ceratonia siliqua* or Carob Tree, *Ailanthus Altissima* or Tree of Heaven, *Arbutus unedo* or Strawberry Tree and *Ficus macrophylla* or Morten Bay Fig. There are a total of 15 mature trees growing on these lots. It is my understanding that all 15 trees will be removed in order to construct a new 21-Unit Apartment Building. The tree removals will be mitigated. Please refer to Mitigation Measures at the end of this report regarding planting of replacement specimen trees as mitigation for the trees to be removed as well as other forms of tree mitigation.

D & G Horticulture

October 6, 2016

City of Los Angeles
Public Works Department
Urban Forestry, Sub-Division Section
1149 South Broadway, Suite 400
Los Angeles, CA 90015

Dear Urban Forester:

Please be advised that as an Agricultural Pest Control Adviser and an I.S.A. Certified Arborist, I have reviewed the Arborist Report prepared by William R. McKinley, McKinley & Associates while at the subject properties located at 3894 Fredonia Drive and 3902 Kentucky Drive, Studio City. The tree and site information contained within this report is accurate. There are no native, protected Oak, Bay, Sycamore or Southern California Black Walnut trees growing on or near these properties and therefore no such trees will be impacted or require removal as a result of this project. I concur with his recommendations and mitigation measures concerning the removal of the existing non-native trees on the site in order to construct a 21 Unit Residential Dwelling.

I have worked with Mr. McKinley for several years and I know him to be an honest, ethical person and a highly skilled and qualified Consulting Arborist. I am therefore recommending that this Arborist Report be accepted and approved.

Attached is a copy of my Agricultural Pest Control Adviser License card and a copy of my I.S.A. Certified Arborist card. If you have any further questions, please feel free to contact me by phone at (818) 262-7429 or at my office at (818) 548-3759.

Yours truly,

Dennis Gaudenti
Licensed Agricultural Pest Control Adviser
#PCA 70750
Certified Arborist #WE1159A
International Society of Arboriculture

International
Society
of Arboriculture™

ISA Certified Arborist

Dennis Gaudenti

Certificate Number: WE-1159A

Expiration Date: Jun 30, 2017

DEPARTMENT OF PESTICIDE REGULATION
LICENSING/CERTIFICATION PROGRAM

PCA

AGRICULTURAL PEST CONTROL ADVISER LICENSE

License #: 70750 EXPIRES: 12/31/2016
Categories: ABCDEFG ISSUED: 02/20/2015

DENNIS A GAUDENTI
9241 DORRINGTON PL
ARLETA CA 91331

This License must be shown to any representative of the Director or Commissioner upon request

McKinley & Associates (818) 240-1358

TREE REPORT

Project Address: 3894 Fredonia Drive & 3902 Kentucky Drive, Studio City
Applicant: Zaven Ghanimian
Proposed Activity: Construction of 21-Unit Apartment Building

This report is broken down into several subsections, which include:

1. Tree location map transposed onto the site plan showing the location of the trees and a number assigned to each tree.

2. Summary of Field Inspection with information regarding Native Trees:
   A. Form (Tree Number corresponding to the number on the tree location map, species of tree and size)
   B. Physical condition
   C. Recommended treatment
   D. Rating: Tree vigor is rated alphabetically (Example: a. Excellent, b. Good, c. Fair, d. Poor, e. Nearly Dead, f. Dead.

3. Summary of Data-Native Trees (Refer to Table 1) A summary of impacts in terms of trees present, trees impacted and trees to be removed.

4. Schedule of Proposed Native Tree Removals (Refer to Table 2)

5. Summary of Field Inspection (Non-Native Trees)

6. Summary of Data-Non-Native Trees (Refer to Table 3)

7. Schedule of Proposed Removals-Non-Native Trees (Refer to Table 4)

8. Tree List and description of location and condition

9. Tree Preservation Plan
   A. Control of diseases and pests
   B. Protection of trees during grading and construction
   C. Method and frequency of pruning
   D. Special instructions on watering
   E. Grading restrictions near the drip line
   F. Mitigation Measures

10. Photographs

11. Curriculum Vitae

LAWRENCE J. SCHMAHL, LICENSED SURVEYOR PLS 5748
11209 HOWARD ST. WHITTIER, CALIFORNIA 90606 (562) 908-0570 / (323) 773-1675

TOPOGRAPHIC SURVEY

SCALE: 1" = 16' APRIL, 2015



LEGAL DESCRIPTION:

LOT 116 AND A PORTION OF AND THE NORTHWESTERLY 40 FEET OF LOT 117 OF TRACT NO. 5593, IN THE CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 63 ,PAGES 62 AND 63 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BENCHMARK:

WIRE SPK.; S.E. CURB LANKERSHIM BLVD., 29.8FT S.W. OF CURB LINE CAHUENGA BLVD., N'LY END CB

LABM# 08-02060 EL= 591.811FT (2000) NAVD 1988

FOR:

3900 KENTUCKY LLC
520 STATE ST.
GLENDALE, CA 91203

BY:

LAWRENCE J. SCHMAHL L.S. 5748

LEGEND:

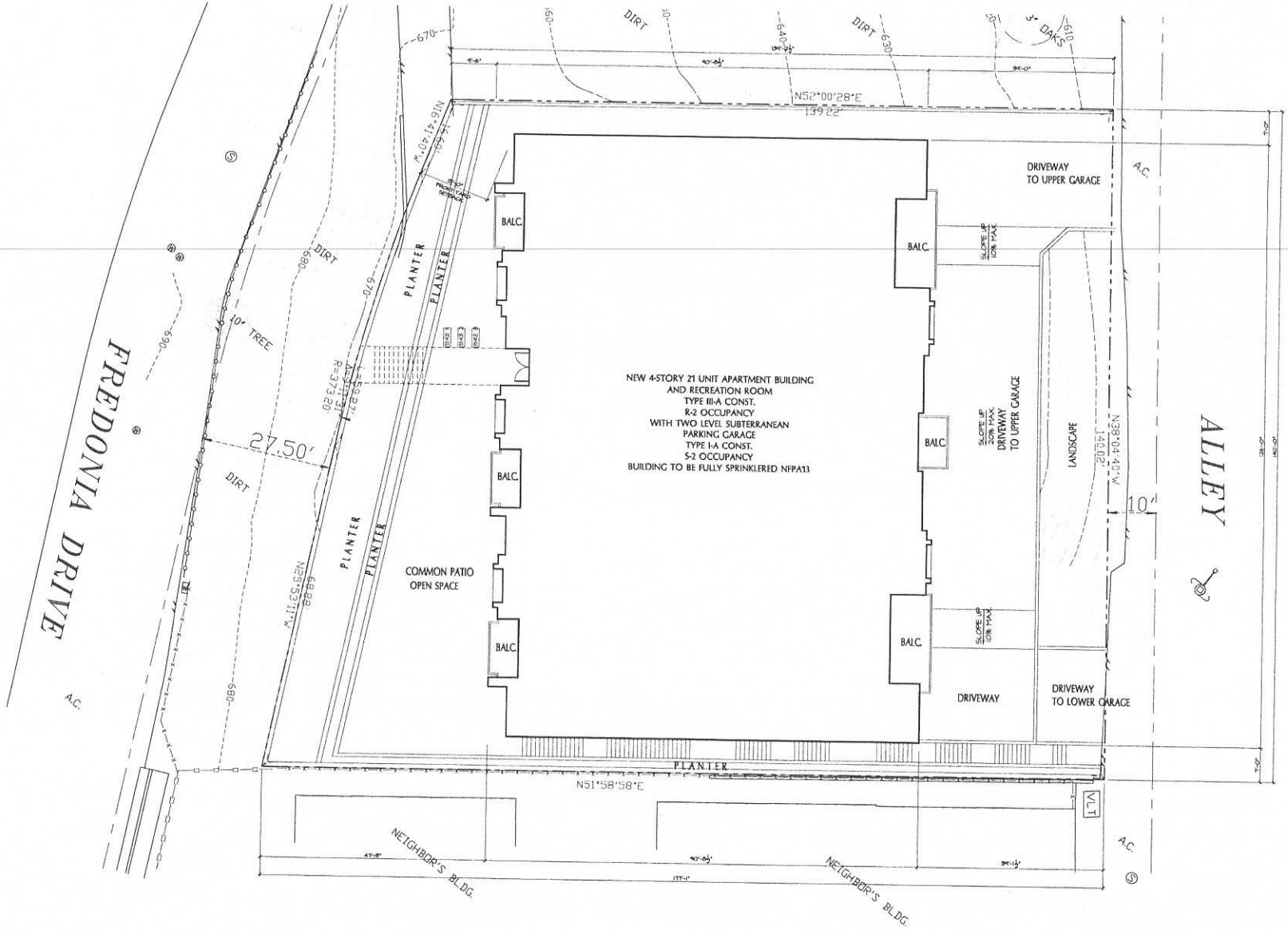
A.C.	ASPHALT CONCRETE
BW	BACK OF WALK
CONC.	CONCRETE
DP	DRAIN PIPE
E	EAST
FF	FINISHED FLOOR
FL	FLOWLINE
GT	GATE
N	NORTH
S	SOUTH
ST	STAIRS
TC	TOP OF CURB
TG	TOP OF GRATE
TW	TOP OF WALL
W	WEST
	BUILDING LINE
	CENTERLINE
	EDGE OF PAVEMENT
EM	ELECTRIC METER
-X-X-X-	FENCE, CHAIN-LINK
	FENCE, IRON
	FENCE, WIRE
	FENCE, WOOD
GM	GAS METER
	LIGHT POLE
MB	MAILBOX
	POWER POLE
	PROPERTY LINE
S	SEWER MANHOLE
52.52 52.52	SPOT ELEVATIONS
VLT	VAULT
	WALL
W	WATER METER
W	WATER VALVE

NOTE:

PRELIMINARY TITLE REPORT PREPARED BY LAWYERS TITLE, DATED NOVEMBER 26, 2014, AS FILE NO. 114082340 AFFECTS 3900 KENTUCKY DRIVE ALSO KNOWN AS APN 2425-002-026. SAID PRELIMINARY REPORT LISTS AN EASEMENT FOR SLOPES, CUTS AND/OR FILLS WHICH CANNOT BE PLOTTED. PRELIMINARY TITLE REPORT PREPARED BY ORANGE COAST TITLE COMPANY OF SOUTHERN CALIFORNIA, DATED DECEMBER 23, 2014, AS ORDER NO. 305-1623510-01 AFFECTS 3994 FREDONIA DRIVE ALSO KNOWN AS APN 2425-003-017. SAID PRELIMINARY REPORT LISTS NO EASEMENTS WHICH AFFECT THE SAID PROPERTY. THIS SURVEYOR MAKES NO GUARANTEES AS TO THE ACCURACY OR COMPLETENESS OF THE TITLE REPORT.

IF THE EXISTING GRADES SHOWN ON THIS MAP ARE TO BE USED FOR CONSTRUCTION PURPOSES, IT IS THE RESPONSIBILITY OF THE PARTY USING THIS MAP TO VERIFY THE VERTICAL DATUM BY CHECKING BETWEEN AT LEAST FIVE EXISTING GRADES SHOWN HEREON.
IF THE INFORMATION ON THIS MAP IS TO BE INCLUDED IN CONSTRUCTION PLANS, THIS MAP IN ITS ENTIRETY MUST BE MADE A PART OF THOSE CONSTRUCTION PLANS.

J09# 12232



SITE PLAN

ACCESSIBLE BUILDING

SCALE: 1/8" = 1'-0"

NORTH

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

21731 AMBAR DR.
WOODLAND HILLS CA. 91364
TEL (818) 888-6365
FAX (818) 888-6725

PROJECT:
21 UNIT APARTMENT BLD'G.
3900 KENTUCKY DR.
LOS ANGELES, CA. 90068

OWNER:
3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

NOT FOR CONSTRUCTION

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY AND COPYRIGHT OF THE ARCHITECT AND SHALL NOT BE USED (IN WHOLE OR IN PART) EXCEPT BY AGREEMENT WITH THE ARCHITECT. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED ON THE JOB. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT PRIOR TO FABRICATION OF ANY WORK.

CONSTRUCTION			PRE-CONSTRUCTION	
REV	BULLETIN	DATE	ISSUED FOR	DATE

CHECKED BY | DATE
DRAWN BY | JOB NUMBER

SHEET TITLE
SITE PLAN

SHEET NUMBER
AS.2

SUMMARY OF FIELD INSPECTION NATIVE TREES
3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE

Form						PHYSICAL CONDITION																TREATMENT							RATING			RATING CODE
			SIZE																													
Tree number	Quercus agrifolia	Other Native Tree Species	Trunk Diameter (inches") 4.5 Ft Above Base	Height (feet')	Spread (feet')	Heritage Tree	Overhead Utility Wires	Co-Dominant Stems/Trunks	Included Bark Tissue	Narrow Crotches/Weak Structure	Heart Rot Decay/Cavities	Raised Crown-Lower Limbs Cut	Crowded by nearby trees	Epicormic/Sucker Growth	Branch Dieback/Dead Wood	Insect Activity-Presence	Diseased	Multiple Stems/Weak Structure	Leaning/Asymmetrical Crown	Hardscape within Root Zone	Sapsucker damage-stems, etc.	Sparse or Thinning Crown	Structural Prune-Safety	Remove Deadwood	Raise Canopy	Insect Treatment	Disease Treatment	Mulch & Water Dripline	Remove	Health	Aesthetics & Conformity	Balance	A = EXCELLENT B = GOOD C = FAIR D = POOR E = NEARLY DEAD F = DEAD *SEE PHOTO R = Remove I = Impacted T = Transplantable NT = Not Transplantable BMC = Below main crotch
																																REMARKS
																																No Native trees exist on site!

3894 Fredonia Drive & 3902 Kentucky Drive

Table 1: Summary of Data (Native trees)

Total number of Native trees on map.....0

Total number of dead Native trees at site.....0

Total number of Native trees to be removed (Not including dead trees, Including Native where natural grade within drip line is changed).....0

Total number of Native trees, not removed, to be impacted by construction, encroachment into drip lines.....0

Total number of Native trees not dead, not removed, and/or where natural grade is unchanged.....0

Table 2: Schedule of Proposed Removals (Native trees)

Tree No.	Species	Condition Rating	General Location	Reason for Removal

No Oak, Bay, Sycamore or Southern California Black Walnut trees exist on or near the subject properties. No native trees will be impacted or removed!

CONDITION RATING CODE:

A = Excellent

B = Good

C = Fair

D = Poor

F = Dead

SUMMARY OF FIELD INSPECTION NON-NATIVE TREES
3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE

Tree number	Form: Ailanthus altissima	Form: Other Non-Native Tree Species	SIZE: Trunk Diameter (inches") 4.5 Ft Above Base	SIZE: Height (feet')	SIZE: Spread (feet')	PHYSICAL CONDITION: Heritage Tree	Overhead Utility Wires	Co-Dominant Stems/Trunks	Included Bark Tissue	Narrow Crotches/Weak Structure	Heart Rot Decay/Cavities	Raised Crown-Lower Limbs Cut	Crowded by nearby trees	Epicormic/Sucker Growth	Branch Dieback/Dead Wood	Insect Activity-Presence	Diseased	Multiple Stems/Weak Structure	Leaning/Asymmetrical Crown	Hardscape within Root Zone	Sapsucker damage-stems, etc.	Sparse or Thinning Crown	TREATMENT: Structural Prune-Safety	Remove Deadwood	Raise Canopy	Insect Treatment	Disease Treatment	Mulch & Water Dripline	Remove/Conflicts w/new bldg.	RATING: Health	Aesthetics & Conformity	Balance	REMARKS
1		x	10	40	18							x	x									x										
2		x	12, 12	50	30			x	x			x		x	x		x					x							x	D+	D+	C	Fraxinus velutina; Volunteer tree!
3		x	5,8,11,11	50	30				x			x	x		x		x	x				x							x	D-	D-	C	Fraxinus uhdei; Exfoliating bark!
4		x	9, 10	45	21			x	x			x			x							x							x	D	D	C	Fraxinus uhdei; Multiple stems!
5		x	16, 16	45	40			x	x		x	x					x					x							x	D	D	C-	Fraxinus uhdei; Crossing limbs!
6	x		10	40	30							x	x									x							x	D-	D-	C-	Ceratonia siliqua; Sulfur fungus!
7	x		5, 7	40	20		x					x	x		x							x							x	D-	D-	C-	Ivy climbs the tree's trunk!
8	x		10	35	30							x			x							x							x	D-	D-	D-	Utility wires run through the crown
9	x		8, 8, 8	35	25							x	x		x							x							x	D-	D-	C	Ivy covers the tree's trunk!
10		x	5, 7	15	20			x				x			x							x							x	D	D	D	Unbalanced, asymmetrical crown!
11	x		8	30	12							x			x				x			x							x	D+	D+	C	Arbutus unedo; 20% Dead wood!
12	x		6, 7, 7	40	20							x	x																x	D-	D-	C-	Tree bends then turns vertical!
13	x		7, 7	35	20							x	x						x			x							x	C	C	C	Crowded by nearby trees!
14		x	6, 7, 9	40	40							x	x									x							x	D	D	D-	Situated on steep downhill slope!
15	x		6, 10, 10	40	40							x	x									x							x	D	D	C	Ficus macrophylla; Ivy climbs tree!
																						x							x	D+	D+	C	Separate trunks; Ivy climbs tree!

RATING CODE

A = EXCELLENT
B = GOOD
C = FAIR
D = POOR
E = NEARLY DEAD
F = DEAD

*SEE PHOTO
R = Remove
I = Impacted
T = Transplantable
NT = Not Transplantable
BMC = Below main crotch

3894 Fredonia Drive & 3902 Kentucky Drive

Table 3: Summary of Data (Non-Native Trees)

Total number of Non-Native tree species on map.....15

Total number of Non-Native tree species dead at site.....0

Total number of Non-Native tree species to be removed (Not including dead trees, Including trees where natural grade within drip line is changed).....15

Total number of Non-Native tree species, not removed, to be impacted, encroachment into drip lines.....0

Total number of Non-Native tree species not dead, not removed, and/or where natural grade is unchanged.....0

Table 4: Schedule of Proposed Removals (Non-Native Trees)

Tree No.	Species	Condition Rating	General Location	Reason for Removal
1	Fraxinus velutina	D+	Fredonia Drive-Front	Grading/Building
2	Fraxinus uhdei	D-	Fredonia/Kentucky	New Building
3	Fraxinus uhdei	D	Fredonia/Kentucky	New Building
4	Fraxinus uhdei	D	Fredonia/Kentucky	New Building
5	Ceratonia siliqua	D-	Kentucky Lot	New Building
6	Ailanthus altissima	D-	Kentucky Lot	New Building
7	Ailanthus altissima	D-	Kentucky Lot	New Building
8	Ailanthus altissima	D-	Kentucky Lot	New Building
9	Ailanthus altissima	D	Kentucky Lot	New Building
10	Arbutus unedo	D+	Kentucky Lot	New Building
11	Ailanthus altissima	D-	Kentucky Lot	New Building
12	Ailanthus altissima	C	Kentucky Lot	New Building
13	Ailanthus altissima	D	Kentucky Lot	New Building
14	Ficus macrophylla	D	Kentucky Lot	New Building
15	Ailanthus altissima	D+	Kentucky Lot	New Building

CONDITION RATING CODE:

A = Excellent

B = Good

C = Fair

D = Poor

F = Dead

Tree List & Descriptions
3894 Fredonia Drive & 3902 Kentucky Drive
Studio City

Tree #1 is a Fraxinus velutina or Arizona Ash. The tree measures 10 inches in diameter at D.B.H. (Diameter Breast Height) or 4.5 feet above the ground. The tree has a drip line which measures 9 feet from the tree trunk and it has an 18 foot spread. It is estimated to be roughly 40 feet tall. The tree is located on the east side of the survey marker by Fredonia Drive. It is at the top of a down hill slope next to a guard rail. There is bark damage near the bottom of the tree near the ground. The tree's crown has been pruned and raised. It is crowded by a nearby volunteer Tree of Heaven on the east side. There is no irrigation or landscape near the tree. The tree appears to be drought stressed. The foliage size and color appears normal. The crown density is fair. The tree appears to be in below average health and condition. Rating: D+

Tree #2 is a Fraxinus uhdei or Shamel Ash. The tree measures 12 and 12 inches in diameter at D.B.H. The tree has a drip line which measures 15 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 50 feet tall. The tree is located east of the existing house parking area near the boundary between 3902 Kentucky Drive and 3894 Fredonia Drive. It is situated on a slope. There is no irrigation or landscape near the tree. The bark tissue is cracked and exfoliating at the base. The tree's crown has been pruned and raised. It has 2 co-dominant stems with included bark at 4 feet above the ground. There is exfoliating bark on the stems. The tree's crown has been pruned and headed back producing epicormic or sucker growth. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree appears to be in very poor health and condition. Rating: D-

Tree #3 is a Fraxinus uhdei or Shamel Ash. The tree measures 5, 8, 11 and 11 inches in diameter at D.B.H. The tree has a drip line which measures 15 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 50 feet tall. The tree is located 9 feet northwest of Tree #2 near the boundary between 3902 Kentucky Drive and 3894 Fredonia Drive. It is situated on a slope. There is no irrigation or landscape near the tree. There is exfoliating bark near the base or root crown. The crown has been pruned and raised. It has multiple stems and included bark creating weak structure. It is crowded by another tree. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in poor health and condition. Rating: D

Tree #4 is a Fraxinus uhdei or Shamel Ash. The tree measures 9 and 10 inches in diameter at D.B.H. The tree has a drip line which measures 16 feet from the tree trunk and it has a 21 foot spread. It is estimated to be roughly 45 feet tall. The tree is located 34 feet north and downhill from Tree #3 near the boundary between 3902 Kentucky Drive and 3894 Fredonia Drive. It is situated on a slope. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It has co-dominant stems which form a union at a point 2 feet above the ground. There is included bark at the union of the stems creating weak structure. It has crossing, rubbing limbs and branches. The crown is unbalanced and asymmetrical. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in poor health and condition. Rating: D

Tree #9 is an Ailanthus altissima or Tree of Heaven. The tree measures 8, 8, 8 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 25 foot spread. It is estimated to be roughly 35 feet tall. The tree is located north of Tree #8 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the concrete stairs. There is no irrigation or landscape near the tree. There is erosion and the root crown has been buried. The tree leans north and is crowded by other nearby trees. The tree is unbalanced and asymmetrical. The crown has been pruned and raised. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree appears to be in poor health and condition. Rating: D

Tree #10 is an Arbutus unedo or Strawberry Tree. The tree measures 5 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 10 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 15 feet tall. The tree is located north of Tree #9 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the concrete stairs. There is no irrigation or landscape near the tree. It has 2 co-dominant stems which form a union at a point 3 feet above the ground. The crown has been pruned and raised. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in below average condition. Rating: D+

Tree #11 is an Ailanthus altissima or Tree of Heaven. The tree measures 8 inches in diameter at D.B.H. The tree has a drip line which measures 6 feet from the tree trunk and it has a 12 foot spread. It is estimated to be roughly 30 feet tall. The tree is located at the bottom of the stairs at 3902 Kentucky Drive. It is situated on a steep downhill slope near the north side of the property. There is no irrigation or landscape near the tree. The tree bends west then turns back and grows vertical. The crown has been pruned and raised. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree appears to be in very poor health and condition. Rating: D-

Tree #12 is an Ailanthus altissima or Tree of Heaven. The tree measures 6, 7 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 10 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 40 feet tall. The tree is located north of the house at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It is crowded by other nearby trees. The foliage size and color appears normal. The crown density is normal. The tree appears to be in average health and condition. Rating: C

Tree #13 is an Ailanthus altissima or Tree of Heaven. The tree measures 7 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 35 feet tall. The tree is located north of Tree #12 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It is crowded by other nearby trees and the crown is unbalanced and asymmetrical. The foliage size and color appears normal. The crown density is fair. The tree appears to be in poor health and condition. Rating: D

Tree #14 is a Ficus macrophylla or Morten Bay Fig. The tree measures 6, 7 and 9 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 40 foot spread. It is estimated to be roughly 40 feet tall. The tree is located west of Tree #12 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. Ivy climbs the trunks. The crown has been pruned and raised. It is crowded by other nearby trees. The foliage size and color appears normal. The crown density is fair. The tree appears to be in poor health and condition. Rating: D

Tree #15 is an Ailanthus altissima or Tree of Heaven. The tree measures 6, 10 and 10 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 40 foot spread. It is estimated to be roughly 40 feet tall. The tree is located north of the house at 3902 Kentucky Drive and north of Tree #14. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It is crowded by other nearby trees. It has separate trunks and ivy climbs the tree's trunks. The foliage size and color appears normal. The crown density is fair. The tree appears to be in below average health and condition. Rating: D+

TREE PRESERVATION PLAN
3894 Fredonia Drive & 3902 Kentucky Drive

Recommendation
The following steps are recommended for tree preservation and tree mitigation:

A. Control of Diseases and Pests
Trees are largely effected by their environment. Competition with nearby trees and vegetation for water, nutrients, sunlight, space, drought, flooding, drainage, grading, soil compaction, root damage, limb failure, excessive pruning, etc. are just some of the factors which can impact the health of a tree. When trees are stressed due to environmental influences, their natural defenses are weakened. Trees can produce chemical odors when stressed which have been documented to attract insects. Stressed trees are also a suitable host for root fungi infection such as Armillaria sp. or Oak Root Fungus. Unsupervised construction activity can lead to soil compaction and poor drainage, which can cause an infection of Phytophthora sp. Root Rot. Oak Root Fungus, if identified in its early stages can be controlled by performing a root crown excavation and exposing the buttress roots to sunlight and by avoiding watering the last 10 feet of the tree. Phytophthora Root Rot can be controlled chemically through the use of Subdue® and similar soil drenches. Aerifying the soil and adjusting and minimizing excess irrigation is also beneficial.

B. Method and Frequency of Pruning
All trees have the potential to grow beyond their ability to support themselves and a trunk, limb or branch may fail or break, if the tree is not pruned to provide weight reduction and thinned to reduce wind resistance. Trees, which are near high traffic areas with the potential for damage to persons and property, must be maintained at a regular interval for safety.

Crown thinning, dead wood removal and removal of crossing, rubbing branches and weak branch attachments and structural pruning should be performed where possible during the proper season. Deciduous trees such as Southern California Black Walnut should be pruned in the winter when they are dormant.

Native, evergreen Oak trees such as Coast Live Oak should be pruned in hot, dry summer weather. The new foliage produced after pruning is less likely to become infected with powdery mildew and thus prevent "Witches Broom" from occurring.

C. Special Instructions on Watering
Native trees have the ability to withstand drought in their native environment and will generally not require additional watering. Native trees on improved, developed sites can be negatively impacted from over-watering. It is important to avoid watering the trunk and the last

C. Special Instructions on Watering-Continued

six feet of all trees to be preserved especially all native trees. Excessive moisture and watering this area can lead to Oak Root Fungus or Phytophthora Root Rot. Placing a soaker hose at the drip line of the trees to be preserved and applying water over a 24 hour period, one to two times per month, during the months of June through November and during periods of heat and drought can reduce stress.

D. Mitigation Measures

This development project involves 2 properties. The property at 3894 Fredonia Drive has undergone demolition at some point in the past and it is now a vacant lot. The property at 3902 Kentucky Drive has 2 abandoned residential buildings currently residing on the lot. The existing trees growing on or near these 2 properties are non-native species. Arizona Ash, Shamel Ash, Tree of Heaven, Carob, Strawberry Tree and Morten Bay Fig species were observed growing on or near these 2 properties. There are no native, protected Oak, Bay, Sycamore or Southern California Black Walnut trees growing on the subject properties or on neighboring properties which would be impacted or require removal as part of this project. Both these properties will undergo further demolition and grading in order to accommodate a new 4-story, 21-Unit Apartment Building with a 2-Level Subterranean Parking Garage. The proposed project will involve the removal of all the existing trees on these 2 lots. The existing trees appear to be mostly volunteer, weed-like species, in very poor health and condition. They are not worthy of consideration for preservation. There are a total of 15 mature, non-native trees whose trunk diameters exceed 8 inches in diameter. The City of Los Angeles, Planning Department normally requires the planting of one, 24 inch-box size tree for each mature tree measuring 8 inches or greater in diameter which must be removed from the site. A total of 15-24 inch-box size trees must be planted on site as part of the new landscape plan. These trees must be identified on the landscape plans as replacement trees. I would recommend that the replacement trees be drought tolerant species. There are many native and non-native tree species which would fit this requirement and do well on this site. Site limitations such as available rooting area, canopy spread, overhead utility wires, pedestrian and vehicle access should be taken into account when selecting replacement tree species. The project Landscape Architect and project Certified Arborist should review the proposed landscape plan to insure that the correct species of trees have been selected for this project. The irrigation design should also take into account the individual water requirements of these unique tree species.

Summary/Conclusion

In summary, after inspecting the subject properties, trees and plans it appears that it will be necessary to remove all 15 existing non-native trees in order to construct the new 4 Story, 21-Unit Apartment Building. There are no Oak, Bay, Sycamore or Southern California Black Walnut trees growing on the subject properties or on neighboring

Summary/Conclusion

properties and no protected native trees will be impacted or removed as part of this project. Non-Native trees which are 8 inches in diameter or larger are typically required to be replaced with 24 inch-box size trees at a 1:1 ratio unless specified otherwise. There are 15 non-native trees whose trunk diameters exceed 8 inches in diameter and therefore must be mitigated. A total of 15-24 inch-box size replacement trees must be planted on this site. I would recommend that the replacement trees be drought and heat tolerant. There are many different species of native and non-native trees which can meet these requirements. The replacement trees should be specified on the new landscape plan. Site limitations such as available rooting area, canopy spread, overhead utility wires, pedestrian and vehicle access should be taken into account when selecting replacement tree species. The project Landscape Architect and project Certified Arborist should review the proposed landscape plan to insure that the correct species of trees have been selected as part of the planting design. The irrigation design should also be carefully reviewed to insure that it meets the unique water requirements of these trees.

Limitations

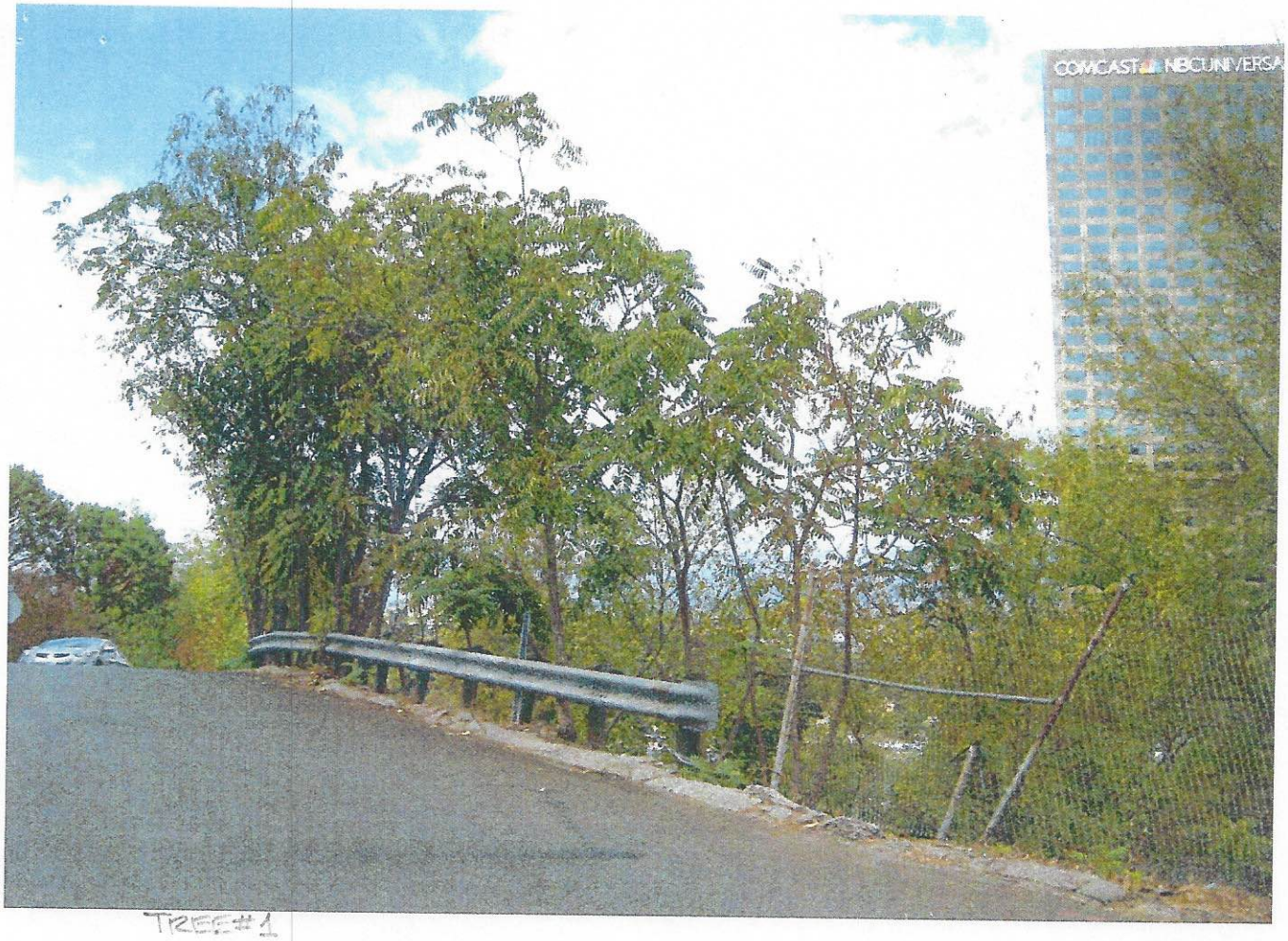
Information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection. The inspection was limited to visual examination of accessible items without dissection, probing or coring. Due to time constraints I was not able to expose and inspect the roots or root crown of the trees. Arboriculture is not an exact science and there is much that is still to be learned about trees. The observations and recommendations provided in this report reflect the latest research, knowledge and training available through university and professional research. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of these trees or the property in question may not arise in the future.

I sincerely hope you find this information useful in making a determination on the level of impact that this proposed construction project will have on the existing trees. If you have any further questions, please feel free to contact me on my business cell phone at (818) 426-2432 or my office phone at (818) 240-1358.

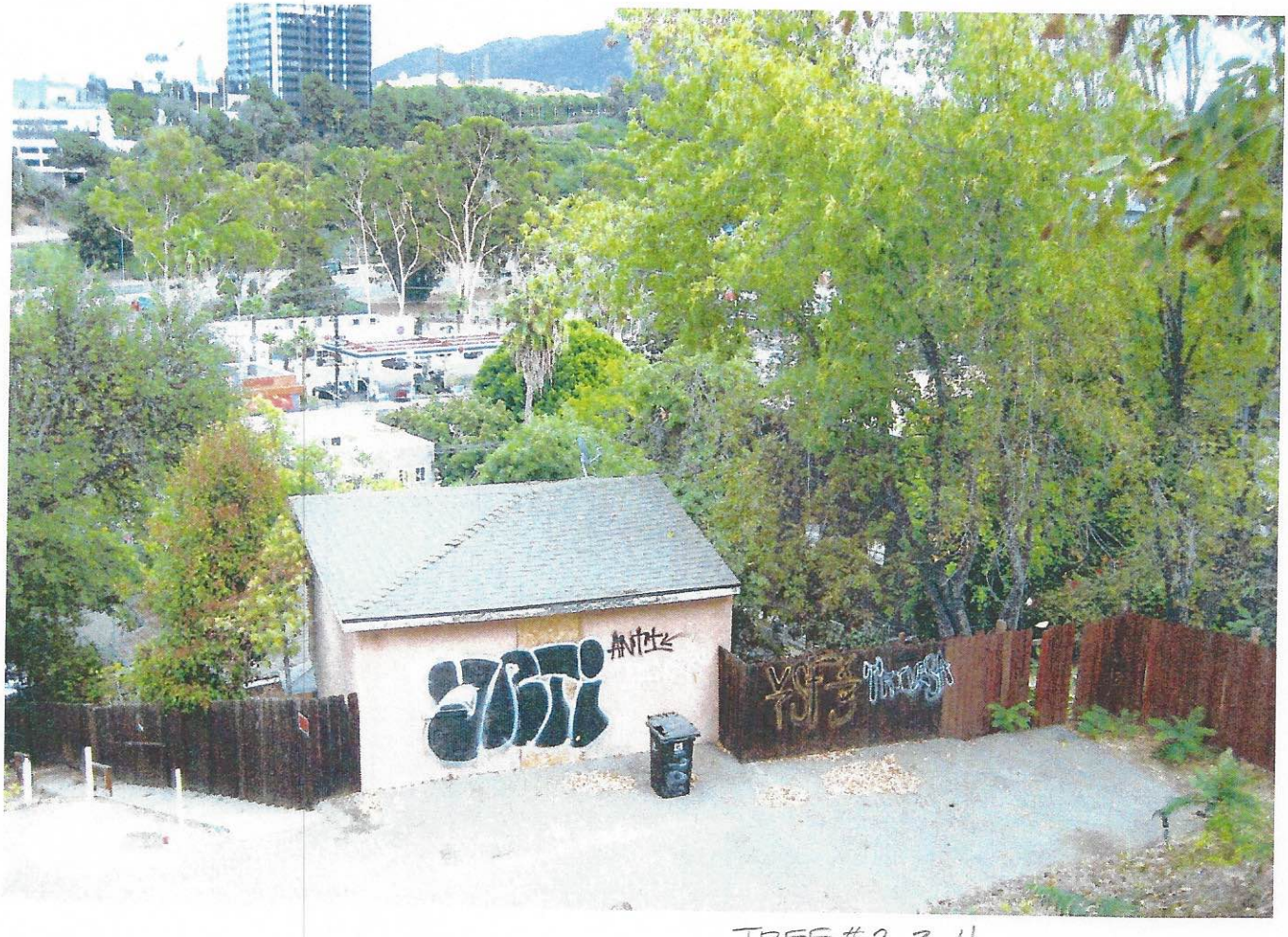
Yours truly,

William R. McKinley

William R. McKinley, Consulting Arborist
American Society of Consulting Arborists
Certified Arborist #WE-4578A
International Society of Arboriculture



TREE #1



TREE #2, 3, 4



VIEW OF TREE #5, 6, 7, 8, 9, 10, 11



TREE #6 TREE #5



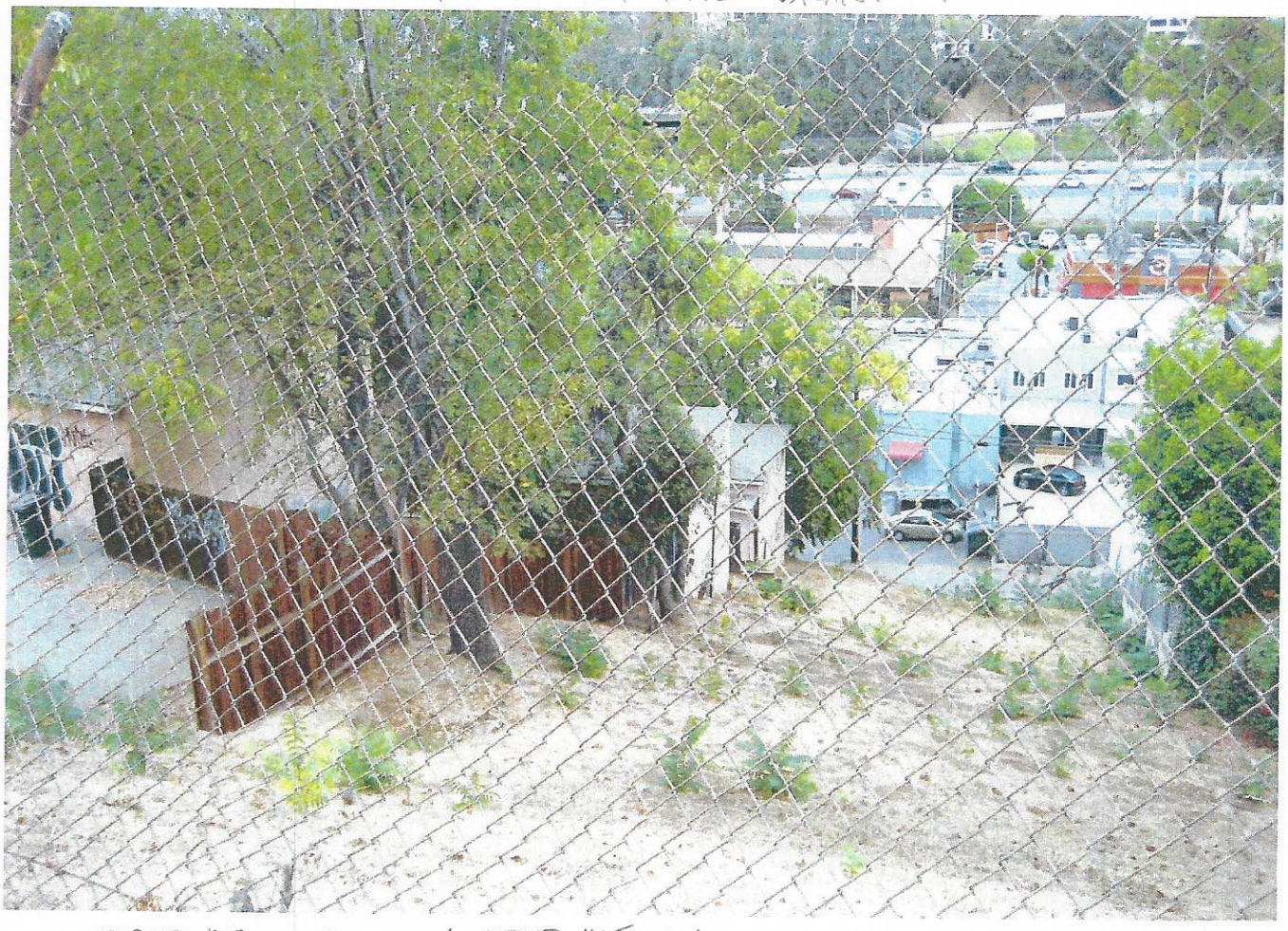
TREE #8 TREE #9 TREE #10 TREE #6, #5, #7



TREE #6



VIEW OF 3894 FREDONIA DRIVE - VACANT LOT



TREE #2, #3, #4; ~~TREE~~ #15, #14, #13, #12

Curriculum Vitae

WILLIAM R. MCKINLEY – MCKINLEY & ASSOCIATES

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Glendale, CA 91208

Email: william@mckinleyarborists.com
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Work (818) 426-2432
Home (818) 240-1358

SUMMARY of QUALIFICATIONS

Practicing Consulting Arborist. Member of American Society of Consulting Arborists (ASCA). Certified Arborist, International Society of Arboriculture since September 30, 1999. I.S.A. Arborist #WE-4578A. Recognized Oak Tree Expert throughout Southern California. Prepare arborist reports for developers, homeowners and attorneys. Assess the landscape value of trees. Assess and identify hazardous trees in the landscape. Provided hillside and Oak Woodland landscape and irrigation recommendations. Provide expert witness testimony on arboriculture related cases. Public speaker and presenter at community service group meetings, homeowner's association meetings and speaker at professional seminars and conferences. Presenter at Trees, People and Our Urban Environment Seminar, March 2002. Arbor Day Guest Speaker, City of Glendale, March 2005. Tree City USA Award Presenter – Glendale Arbor Day 2010, Tree City USA Award Presenter –Glendale Arbor Day 2012, Arbor Day Guest Speaker, Glendale, March 2014.

FULL TIME EMPLOYMENT HISTORY

City of Glendale, Parks, Recreation & Community Services

Park Services Manager-Contract Administration **2001-present**

Performs contract administration for Park Services Section. Manage grounds maintenance for sports fields, community buildings, parks, medians, and historic areas. Administers the City's landscape maintenance contract. Writes contract specifications. Administers the bidding process. Awards contracts to successful bidders. Conducts construction meetings and oversees the construction and inspection for these projects. Performs and assumes all former duties and responsibilities under the former Administrative Analyst position. Writes arborist reports. Hazardous tree assessment. Serves as expert witness in tree related cases.

Administrative Analyst **1988-2001**

Administer landscape maintenance contract for medians, reservoirs, pump houses and misc. areas. Administer and supervise the Division's Work Management System involving the scheduling and tracking of work and performance of over 50 full-time employees. Supervise one part-time data entry employee and supervise and coordinate with the California Conservation Corps, Boy Scouts and other community service volunteers in the parks. Supervise, monitor and report water and utility usage in the parks. Administer and supervise all tree planting projects and programs including the Arbor Day and Urban Forest Donation programs. Assist with budget preparation and acquisition of capital equipment. Prepare Capital Improvement Project specifications and assist with administering contracts. Administer the City of Glendale's Indigenous Oak Tree Ordinance. Coordinate with Planning, Permit Services, Engineering, Building, Neighborhood Services and Fire Department to insure the care and protection of trees, both during and after construction. Review grading, construction, landscape and irrigation plans. Modify and approve plans as necessary to protect indigenous trees. Perform field inspections on hazardous trees and make recommendations to park staff and the public. Serve as code enforcement officer and paralegal during Administrative Office Hearings regarding Indigenous Oak Tree Ordinance. Perform tree and landscape appraisals. Served as special show and marketing consultant to the Glendale Rose Pruning and Garden Show Committee.

Assistant Planner-Parks **1983-1988**

Assisted in park inventory development and implementation of the Work Management System. Served as guest speaker at the National Parks and Recreation Conference on the subject of computers and their role in park maintenance. Supervised the Capital Improvement Project Construction at Pacific Park and Brand Park. Coordinated with and supervised California Conservation Corps. Crews in planting, staking and tying hundreds of trees as part of the Arbor Day Program. Served as Arbor Day Co-Chairman, Glendale Rose Pruning & Garden Show Co-Chairman and President of Glendale Beautiful. Served as Ways and Means Chairman C.P.R.S. District XIV.

EDUCATION

1983 — California Polytechnic University, Pomona
Bachelor of Science Degree, Park Administration
Graduated Magna Cum Laude, Grade Point Average: 3.57

1983-Present — **CEU's-University of California**, Landscape Contract Maintenance, Hazardous Tree Identification & Assessment, Specimen Tree Appraisal, Advanced Tree Appraisal Theory and Practice, Tree and Landscape Liability – Trees and the Law. Oak Tree Symposium Graduate, Knowledge of oak tree physiology and native plant habitat. **ASCA** 2007 Consulting Academy, **National Arbor Day Foundation** Graduate, Symposiums: Construction Around Trees; Trees and the Law. Recognized Tree Expert: City of Los Angles, County of Los Angeles, City of Pasadena, City of La Canada Flintridge, City of Burbank, City of Calabasas, County of Ventura, City of Santa Clarita.

HONORS & ACTIVITIES

1999 - Present - Certified Arborist-International Society of Arboriculture
1996-1999 - Secretary/Treasurer, C.P.R.S. Park Operations Section
1994-1995 - President, C.P.R.S. District XIV
1994-1995 - Treasurer, Glendale Beautification Advisory Council
1992-1994 - Treasurer, C.P.R.S. District XIV
1993, 1994, 1995 C.P.R.S. Park Operations Scholarship
First, Second and Third Year, Graduate, Pacific Southwest Maintenance Mgmt. School
1988-1990 – President, Glendale Beautiful
1980, 1981 - Twice placed on Dean's Honor List
1982 - Who's Who in American Colleges and Universities
1978 - Recipient of Wayne Striker Memorial Scholarship
1975 - Awarded Eagle Scout Rank, Boy Scouts of America
Member - American Society of Consulting Arborists (ASCA)
Member - International Society of Arboriculture
Member - Western Chapter, International Society of Arboriculture
Member – Glendale Beautiful
Past Member - National Arbor Day Foundation
Past Member - California Oak Foundation

REFERENCES

Randall S. Stamen, Attorney/Arborist	(951) 787-9788
Susan & Gary Sims, Sims Tree Specialists	(951) 685-6662
Peter & Diana Harnisch, Harnisch Tree Care	(626) 444-7997

PROFESSIONAL SERVICE FEE

Site Inspection	-	$100.00 per hour
Consultation	-	$125.00 per hour
Arborist Report	-	$150.00 per hour
Public Hearing	-	$200.00 per hour
Arbitration	-	$225.00 per hour
Deposition	-	$250.00 per hour
Court Witness	-	$350.00 per hour

Tree #5 is a Ceratonia siliqua or Carob Tree. The tree measures 16 and 16 inches in diameter at D.B.H. The tree has a drip line which measures 25 feet from the tree trunk and it has a 40 foot spread. It is estimated to be roughly 45 feet tall. The tree is located 5 feet west of the concrete stairs leading downhill from the parking area at 3902 Kentucky Drive. It is situated on a slope. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It has 2 co-dominant stems, included bark, creating weak structure. There are multiple Sulfur Fungus conks which are visible in the upper and lower trunk areas. Decay is present in these areas. There has been recent limb breakage. The foliage size and color appears normal. The crown density is fair. The tree appears to be in very poor health and condition. Rating: D-

Tree #6 is an Ailanthus altissima or Tree of Heaven. The tree measures 10 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 40 feet tall. The tree is located downhill, north of Tree #5 at 3902 Kentucky Drive. It is situated on a steep slope west of the concrete stairs. There is no irrigation or landscape near the tree. The crown has been pruned and raised. There is a "No Parking" sign on the tree's trunk. Ivy stems climb the tree's trunk. The crown is crowded by other trees. The foliage size and color appears normal. The crown density is fair. The tree is unbalanced and asymmetrical. The tree appears to be in very poor health and condition. Rating: D-

Tree #7 is an Ailanthus altissima or Tree of Heaven. The tree measures 5 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 40 feet tall. The tree is located east of Tree #6 at 3902 Kentucky Drive. It is situated on a steep slope 4 feet west of the concrete stairs. There is no irrigation or landscape near the tree. The crown has been pruned and raised. Ivy stems climb the tree's trunk. Ivy covers most of the tree's trunk. The crown is crowded by other trees. Utility wires run through the tree's crown. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree is unbalanced and asymmetrical. The tree appears to be in very poor health and condition. Rating: D-

Tree #8 is an Ailanthus altissima or Tree of Heaven. The tree measures 10 inches in diameter at D.B.H. The tree has a drip line which measures 15 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 35 feet tall. The tree is located north of the parking lot at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the concrete stairs. There is no irrigation or landscape near the tree. The crown has been pruned and raised. Ivy climbs the tree's trunk and covers most of the tree's trunk. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in very poor health and condition. Rating: D-

August 7, 2019 16-379-22

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

Subject: Addendum No. 1
Geotechnical Investigation
Amount of Uncertified Fill on Property
Proposed Multifamily Residential Building
Lots 116 and FR117 of Tract No. 5593
3902 N. Kentucky Drive (aka 3894-3900 N. Fredonia Drive)
Los Angeles, CA 90068

Gentlemen:

INTRODUCTION

We are pleased to submit this Addendum No. 1 report presenting the results of our additional geotechnical and engineering-geologic evaluation for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 10, 2016. Supplement No. 1 was then issued on 8/3/2018 presenting response to the City Grading Department comments, with Supplement No. A dated 8/4/2018 responding to Public Works comments. Supplement No. 2 report was issued in response to additional city comments on 11/9/2018.

Our previous reports were reviewed and approved "with conditions" by the Grading Division of the Department of Building and Safety of the City of Los Angeles. A Geology and Soils Report Approval Letter to that effect was issued on February 6, 2019 (Log No. 97819-02). For convenience, we have enclosed a copy of the City Approval Letter with this Addendum No. 1.

PROJECT CONSIDERATIONS

On 7/24/2019 we received email correspondence from the client indicating that the city has requested an archeological report because the site has uncertified fill. The

client has requested that we clarify how much fill is on site, based on our exploration, and also to provide an opinion regarding the request for archaeologic investigation on this site.

As part of our field exploration of this site for the purpose of engineering geologic characterization, we advanced a total of eight shallow test pits into bedrock in 2016, followed by a total of 6 large-diameter borings advanced to around 40’ each, in 2018. All test holes and borings were downhole logged by the project and engineering geologists. It should be noted that this was a vast and extensive exploration program due to the complex subsurface geologic conditions (mainly folds in sedimentary bedrock).

However, in our test holes, we typically found between 1’-2’ of undocumented fill overlying native soils and bedrock, with some localized areas with between 4’ to 7’ fill in TP-3 and TP-7 respectively. The thickest fill near TP-7 appears to be related to road fill, that was dumped onto the site as part of road grading for Kentucky and Fredonia Roads. Road fill results from excavation on the upslope side of a roadway, and dumping onto the downslope side. This practice is no longer allowed but was common practice when these roads were graded more than 80 years ago.

Many similar sites that are located in hillside areas have similar subsurface conditions with some local areas having thicker fill due to road grading activities in the past. This undocumented fill will automatically be removed as part of this building project. In our opinion, however, this fill is in our professional opinion most likely not related to prehistoric human activities, and we found no such evidence in our 14 test holes across this site of any prehistoric human use of the site.

It should also be noted that this office performs hundreds of investigations across Los Angeles very year, and this is the first known instance where, due to presence of some uncertified fill (which is not an uncommon occurrence in Los Angeles) the city is requesting an archeological investigation. I kindly ask that the regulation, map or document governing this archeologic investigation requirement be provided to us for future reference. In conclusion, it is our hope that city agencies treat all properties similarly with respect to such requirements.

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Addendum No. 1, or wish to discuss the project further, please do not hesitate to call us.

Respectfully submitted,

APPLIED EARTH SCIENCES

Shant Minas
Engineering Geologist
EG 2607

CERTIFIED ENGINEERING GEOLOGIST
SHANT MINAS
EG # 2607
STATE OF CALIFORNIA

Caro J. Minas, President
Geotechnical Engineer
GE 601

REGISTERED PROFESSIONAL ENGINEER
CARO J. MINAS
NO. 601
GEOTECHNICAL
STATE OF CALIFORNIA

CJM/SM/la

Enclosures: City Approval Letter dated February 6, 2019 (Log No. 97819-02).

Distribution: (3)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

GEOLOGY AND SOILS REPORT APPROVAL LETTER

February 6, 2019

LOG # 97819-02
SOILS/GEOLOGY FILE - 2
LAN

To: Vincent P. Bertoni, AICP, Deputy Advisory Agency
c/o Mary.Crowell@lacity.org & Tom.Glick@lacity.org
Department of City Planning
200 N. Spring Street, 7th Floor, Room 750

From: Jesus Adolfo Acosta, Grading Division Chief
Department of Building and Safety

PROPOSED LEGAL: Vesting Tentative Tract VTT-73784-CN, Lot 1, 21 condominium units
CURRENT LEGAL: Tract 5593, Lots 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report No. 2	16-379-22	11/09/2018	Applied Earth Sciences

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	97819-01	10/12/2018	LADBS
Addendum Report No. 1	16-379-22	08/03/2018	Applied Earth Sciences
Addendum Report No. A	16-379-22	08/04/2018	``
Dept. Review Letter	97819	05/10/2017	LADBS
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed Vesting Tentative Tract VTT-73784-CN with Los Angeles Department of City Planning receipt stamp dated 05/15/2017 and the referenced reports that provide recommendations for the proposed demolition of all site improvements and construction of a 7-story condominium complex including 2 levels of subterranean parking and retaining walls up to 40 feet in height. The subject lot is located on an approximately 80 foot high slope with gradients as steep as 1.1H:1V per the geologic map.

The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone, claystone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to stabilize the slope with 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips) and support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

The site is located in a designated seismically induced landslide hazard zone as shown on the Seismic Hazard Zones map issued by the State of California. The above reports include an acceptable seismic slope stability analysis and the requirements of the 2017 City of Los Angeles Building Code have been satisfied.

The Vesting Tentative Tract VTT-73784-CN and the referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2017 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. The entire site shall be brought up to the current Code standard (7005.9).

2. The project shall include 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips)

3. All recommendations of the referenced reports by Applied Earth Sciences signed by Caro J. Minas, GE 601, and Shant Minas, CEG 2607, which in addition to or more restrictive than the conditions contained herein shall also be incorporated into the plans for the project. (7006.1)

4. Approval shall be obtained from the Department of Public Works, Bureau of Engineering, Development Services and Permits Program for the proposed removal of support and/or retaining of slopes adjoining to public way (3307.3.2).

   201 N. Figueroa Street 3rd Floor, LA (213) 482-7045

5. Secure the notarized written consent from all owners upon whose property proposed grading/construction access is to extend, in the event off-site grading and/or access for construction purposes is required (7006.6). The consent shall be included as part of the final plans.

6. Provide a notarized letter from all adjoining property owners allowing tie-back anchors on their property (7006.6).

7. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans that clearly indicates the geologist and soils engineer have reviewed the plans prepared by the design engineer; and, that the plans include the recommendations contained in their reports (7006.1).

8. All recommendations of the reports that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

9. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

10. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

11. Prior to the issuance of any permit, an accurate volume determination shall be made and included in the final plans, with regard to the amount of earth material to be exported from the site. For grading involving import or export of more than 1000 cubic yards of earth materials within the grading hillside area, approval is required by the Board of Building and Safety. Application for approval of the haul route must be filed with the Board of Building and Safety Commission Office. Processing time for application is approximately 8 weeks to hearing plus 10-day appeal period.

12. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

13. Existing uncertified fill and soil shall not be used for support of footings, concrete slabs or new fill, as recommended (1809.2, 7011.3).

14. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

15. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Grading Division of the Department and the Department of Public Works, Bureau of Engineering, B-Permit Section, for any grading work in excess of 200 cubic yards (7007.1).

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16. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored (7005.3).

17. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

18. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring, as recommended. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

19. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

20. The soils engineer shall review and approve the shoring and/or underpinning plans prior to issuance of the permit (3307.3.2).

21. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate the surcharge loads used in the report calculations for the design of the retaining walls and shoring. If the surcharge loads used in the calculations do not conform to the actual surcharge loads, the soil engineer shall submit a supplementary report with revised recommendations to the Department for approval.

22. Unsurcharged temporary excavations exposing unsupported geology and/or unsupported bedding planes shall be trimmed back along the lowest unsupported plane, or shored, as recommended.

23. Unsurcharged temporary excavations exposing soil and supported bedding as determined by the project geologist shall be trimmed back at a gradients specified in the section titled "Temporary Excavations" starting on page 10 of the 06/10/2016 report.

24. Shoring shall be designed for the lateral earth pressures specified on the plate titled "Wall Pressures Summary" included in the 08/03/2018 report; all surcharge loads shall be included into the design.

25. Shoring shall be designed for a maximum lateral deflection of 1 inch, provided there are no structures within a 1:1 plane projected up from the base of the excavation. Where a structure is within a 1:1 plane projected up from the base of the excavation, shoring shall be designed for a maximum lateral deflection of ½ inch, or to a lower deflection determined by the consultant that does not present any potential hazard to the adjacent structure.

26. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

27. All foundations shall derive entire support from competent bedrock, as recommended and approved by the geologist and soils engineer by inspection.

28. Foundations adjacent to a descending slope steeper than 3:1 (horizontal to vertical) in gradient shall be a minimum distance of one-third the vertical height of the slope but need not exceed 40 feet measured horizontally from the footing bottom to the face of the slope (1808.7.2).

29. Buildings adjacent to ascending slopes steeper than 3H:1V in gradient shall be setback from the toe of the slope a level distance measured perpendicular to slope contours equal to one-half the vertical height of the slope, but need not exceed 15 feet (1808.7.1).

30. Pile caisson and/or isolated foundation ties are required by LAMC Sections 91.1809.13 and/or 91.1810.3.13. Exceptions and modification to this requirement are provided in Information Bulletin P/BC 2014-030.

31. Pile and/or caisson shafts shall be designed for a lateral load of 1000 pounds per linear foot of shaft exposed to fill, soil and weathered bedrock per P/BC 2014-050.

32. The design passive pressure shall be neglected for a portion of the pile with a horizontal setback distance less than five feet from fill, soil or weathered bedrock.

33. The Code requires analysis for the group effects on lateral behavior where the center-to-center spacing of deep foundation elements in the direction of lateral force is less than eight times the least horizontal dimension of an element. The Code also requires analysis for the group effects on axial behavior where the center-to-center spacing of deep foundation elements is less than three times the least horizontal dimension of an element. Where this occurs for the proposed pile layout, a supplemental report shall be submitted that contains said analysis and recommendations for reduction factors as appropriate. (1810.2.5)

34. Existing uncertified fill shall not be used for lateral support of deep foundations (1810.2.1).

35. Slabs placed on approved compacted fill shall be at least 5 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

36. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane. The slabs shall be at least 5 inches thick and shall be

reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

37. The seismic design shall be based on a Site Class C, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

38. Retaining walls shall be designed for the lateral earth pressures specified on the plate titled "Wall Pressures Summary" included in the 08/03/2018 report. All surcharge loads shall be included into the design.

39. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

40. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

41. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

42. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

43. Prefabricated drainage composites (Miradrain, Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

44. The structure shall be connected to the public sewer system per P/BC 2014-027.

45. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner; water shall not be dispersed on to descending slopes without specific approval from the Grading Division and the consulting geologist and soils engineer (7013.10).

46. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

47. Sprinkler plans for irrigation shall be submitted and approved by the Mechanical Plan Check Section (7012.3.1).

48. Any recommendations prepared by the geologist and/or the soils engineer for correction of geological hazards found during grading shall be submitted to the Grading Division of the Department for approval prior to use in the field (7008.2, 7008.3).

49. The geologist and soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading (7008 & 1705.6).

50. All friction pile or caisson drilling and installation shall be performed under the inspection and approval of the geologist and soils engineer. The geologist shall indicate the distance that friction piles or caissons penetrate into competent bedrock in a written field memorandum. (1803.5.5, 1704.9)

51. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

52. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; underpinning; pile installation; protection fences; and, dust and traffic control will be scheduled (108.9.1).

53. Installation of shoring, underpinning, slot cutting excavations and/or pile installation shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6).

54. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whichever is more restrictive. [Research Report #23835]

55. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included (7011.3).

56. No footing/slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

CLJ DLS
CLJ/DLS:clj/dls
Log No. 97819-01
213-482-0480

cc: 3900 Kentucky LLC, Owner
Zaven Ghnimian, Applicant
Applied Earth Sciences, Project Consultant
LA District Office

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

GEOLOGY AND SOILS REPORT APPROVAL LETTER

February 6, 2019

LOG # 97819-02
SOILS/GEOLOGY FILE - 2
LAN

To: Vincent P. Bertoni, AICP, Deputy Advisory Agency
c/o Mary.Crowell@lacity.org & Tom.Glick@lacity.org
Department of City Planning
200 N. Spring Street, 7th Floor, Room 750

From: Jesus Adolfo Acosta, Grading Division Chief
Department of Building and Safety

PROPOSED LEGAL: Vesting Tentative Tract VTT-73784-CN, Lot 1, 21 condominium units
CURRENT LEGAL: Tract 5593, Lots 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report No. 2	16-379-22	11/09/2018	Applied Earth Sciences

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	97819-01	10/12/2018	LADBS
Addendum Report No. 1	16-379-22	08/03/2018	Applied Earth Sciences
Addendum Report No. A	16-379-22	08/04/2018	``
Dept. Review Letter	97819	05/10/2017	LADBS
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed Vesting Tentative Tract VTT-73784-CN with Los Angeles Department of City Planning receipt stamp dated 05/15/2017 and the referenced reports that provide recommendations for the proposed demolition of all site improvements and construction of a 7-story condominium complex including 2 levels of subterranean parking and retaining walls up to 40 feet in height. The subject lot is located on an approximately 80 foot high slope with gradients as steep as 1.1H:1V per the geologic map.

The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone, claystone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to stabilize the slope with 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips) and support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

The site is located in a designated seismically induced landslide hazard zone as shown on the Seismic Hazard Zones map issued by the State of California. The above reports include an acceptable seismic slope stability analysis and the requirements of the 2017 City of Los Angeles Building Code have been satisfied.

The Vesting Tentative Tract VTT-73784-CN and the referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2017 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. The entire site shall be brought up to the current Code standard (7005.9).

2. The project shall include 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips)

3. All recommendations of the referenced reports by Applied Earth Sciences signed by Caro J. Minas, GE 601, and Shant Minas, CEG 2607, which in addition to or more restrictive than the conditions contained herein shall also be incorporated into the plans for the project. (7006.1)

4. Approval shall be obtained from the Department of Public Works, Bureau of Engineering, Development Services and Permits Program for the proposed removal of support and/or retaining of slopes adjoining to public way (3307.3.2).

   201 N. Figueroa Street 3rd Floor, LA (213) 482-7045

5. Secure the notarized written consent from all owners upon whose property proposed grading/construction access is to extend, in the event off-site grading and/or access for construction purposes is required (7006.6). The consent shall be included as part of the final plans.

6. Provide a notarized letter from all adjoining property owners allowing tie-back anchors on their property (7006.6).

7. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans that clearly indicates the geologist and soils engineer have reviewed the plans prepared by the design engineer; and, that the plans include the recommendations contained in their reports (7006.1).

8. All recommendations of the reports that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

9. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

10. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

11. Prior to the issuance of any permit, an accurate volume determination shall be made and included in the final plans, with regard to the amount of earth material to be exported from the site. For grading involving import or export of more than 1000 cubic yards of earth materials within the grading hillside area, approval is required by the Board of Building and Safety. Application for approval of the haul route must be filed with the Board of Building and Safety Commission Office. Processing time for application is approximately 8 weeks to hearing plus 10-day appeal period.

12. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

13. Existing uncertified fill and soil shall not be used for support of footings, concrete slabs or new fill, as recommended (1809.2, 7011.3).

14. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

15. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Grading Division of the Department and the Department of Public Works, Bureau of Engineering, B-Permit Section, for any grading work in excess of 200 cubic yards (7007.1).

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16. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored (7005.3).

17. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

18. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring, as recommended. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

19. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

20. The soils engineer shall review and approve the shoring and/or underpinning plans prior to issuance of the permit (3307.3.2).

21. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate the surcharge loads used in the report calculations for the design of the retaining walls and shoring. If the surcharge loads used in the calculations do not conform to the actual surcharge loads, the soil engineer shall submit a supplementary report with revised recommendations to the Department for approval.

22. Unsurcharged temporary excavations exposing unsupported geology and/or unsupported bedding planes shall be trimmed back along the lowest unsupported plane, or shored, as recommended.

23. Unsurcharged temporary excavations exposing soil and supported bedding as determined by the project geologist shall be trimmed back at a gradients specified in the section titled "Temporary Excavations" starting on page 10 of the 06/10/2016 report.

24. Shoring shall be designed for the lateral earth pressures specified on the plate titled "Wall Pressures Summary" included in the 08/03/2018 report; all surcharge loads shall be included into the design.

25. Shoring shall be designed for a maximum lateral deflection of 1 inch, provided there are no structures within a 1:1 plane projected up from the base of the excavation. Where a structure is within a 1:1 plane projected up from the base of the excavation, shoring shall be designed for a maximum lateral deflection of ½ inch, or to a lower deflection determined by the consultant that does not present any potential hazard to the adjacent structure.

26. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

27. All foundations shall derive entire support from competent bedrock, as recommended and approved by the geologist and soils engineer by inspection.

28. Foundations adjacent to a descending slope steeper than 3:1 (horizontal to vertical) in gradient shall be a minimum distance of one-third the vertical height of the slope but need not exceed 40 feet measured horizontally from the footing bottom to the face of the slope (1808.7.2).

29. Buildings adjacent to ascending slopes steeper than 3H:1V in gradient shall be setback from the toe of the slope a level distance measured perpendicular to slope contours equal to one-half the vertical height of the slope, but need not exceed 15 feet (1808.7.1).

30. Pile caisson and/or isolated foundation ties are required by LAMC Sections 91.1809.13 and/or 91.1810.3.13. Exceptions and modification to this requirement are provided in Information Bulletin P/BC 2014-030.

31. Pile and/or caisson shafts shall be designed for a lateral load of 1000 pounds per linear foot of shaft exposed to fill, soil and weathered bedrock per P/BC 2014-050.

32. The design passive pressure shall be neglected for a portion of the pile with a horizontal setback distance less than five feet from fill, soil or weathered bedrock.

33. The Code requires analysis for the group effects on lateral behavior where the center-to-center spacing of deep foundation elements in the direction of lateral force is less than eight times the least horizontal dimension of an element. The Code also requires analysis for the group effects on axial behavior where the center-to-center spacing of deep foundation elements is less than three times the least horizontal dimension of an element. Where this occurs for the proposed pile layout, a supplemental report shall be submitted that contains said analysis and recommendations for reduction factors as appropriate. (1810.2.5)

34. Existing uncertified fill shall not be used for lateral support of deep foundations (1810.2.1).

35. Slabs placed on approved compacted fill shall be at least 5 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

36. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane. The slabs shall be at least 5 inches thick and shall be

reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

37. The seismic design shall be based on a Site Class C, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

38. Retaining walls shall be designed for the lateral earth pressures specified on the plate titled "Wall Pressures Summary" included in the 08/03/2018 report. All surcharge loads shall be included into the design.

39. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

40. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

41. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

42. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

43. Prefabricated drainage composites (Miradrain, Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

44. The structure shall be connected to the public sewer system per P/BC 2014-027.

45. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner; water shall not be dispersed on to descending slopes without specific approval from the Grading Division and the consulting geologist and soils engineer (7013.10).

46. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

47. Sprinkler plans for irrigation shall be submitted and approved by the Mechanical Plan Check Section (7012.3.1).

48. Any recommendations prepared by the geologist and/or the soils engineer for correction of geological hazards found during grading shall be submitted to the Grading Division of the Department for approval prior to use in the field (7008.2, 7008.3).

49. The geologist and soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading (7008 & 1705.6).

50. All friction pile or caisson drilling and installation shall be performed under the inspection and approval of the geologist and soils engineer. The geologist shall indicate the distance that friction piles or caissons penetrate into competent bedrock in a written field memorandum. (1803.5.5, 1704.9)

51. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

52. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; underpinning; pile installation; protection fences; and, dust and traffic control will be scheduled (108.9.1).

53. Installation of shoring, underpinning, slot cutting excavations and/or pile installation shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6).

54. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whichever is more restrictive. [Research Report #23835]

55. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included (7011.3).

56. No footing/slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

CLJ DLS
CLJ/DLS:clj/dls
Log No. 97819-01
213-482-0480

cc: 3900 Kentucky LLC, Owner
Zaven Ghnimian, Applicant
Applied Earth Sciences, Project Consultant
LA District Office

November 9, 2018 16-379-22

3900 Kentucky LLC
528 State Street
Glendale, California 91203

Subject: Supplement No. 2
Geotechnical Investigation
Proposed 7-Story Condominium Building Complex
Lots 116 and FR117 Of Tract No. 5593
3902 North Kentucky Drive
(aka 3900 North Fredonia Drive & 3894 North Fredonia Drive)
Los Angeles, California 90068

Gentlemen:

INTRODUCTION

We are pleased to submit this Supplement No. 2 report presenting the results of our additional geotechnical evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 10, 2016. Subsequently, our Supplement No. 1 report was issued on August 3, 2018 responding to City comments.

This submittal is in response to comments in a Geology And Soils Report Review Letter dated October 12, 2018 prepared by the Grading Section Of The Department Of Building And Safety of the City of Los Angeles (Log # 97819-01). Our response is presented below in the original order of the comments.

RESPONSE TO THE COMMENTS

Response to Comment No. 1

Static and seismic slope stability analyses of the upper portion of Section B-B' has been revised to show the existing fill strength as c=190 PCF. See enclosed engineering calculations

Comment No. 2

Additional static and seismic stability analyses for Section B-B' showing the lowest factor of safety without any reinforcement and without constraining the search. See enclosed engineering calculations.

Comment No. 3

The site plan has been revised to show on the plan the location where the basement wall design changes from retaining wall 2 (EFP=78 PCF) to retaining wall 1 (EFP=53 PCF). As can be seen from the enclosed revised Geotechnical Site Plan (Drawing No. 2) to the north of the syncline fold, where the bedding plane would have down dip direction, the higher (EFP=78 PCF) should be used. To the south of the fold, the lower values should be used (EFP=53 PCF).

Comment No. 4

From the provided information about the off-site improvements, the foundation of the adjacent buildings either occurs below the base of the proposed building (to the north) or outside a 45 degree line from the base of the proposed building (to the south). Therefore, the basement (restrained) walls of the proposed building will not be subject to surcharge loads from the adjacent building footings. See enclosed Geologic Cross Section C-C' (Drawing No. 5).

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. 2, or wish to discuss the project further, please do not hesitate to call us.

Respectfully Submitted,

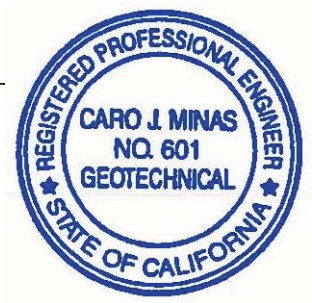
APPLIED EARTH SCIENCES

Arsham "Marshall" Hayrikian
Staff Engineer

Shant Minas
Engineering Geologist
EG 2607



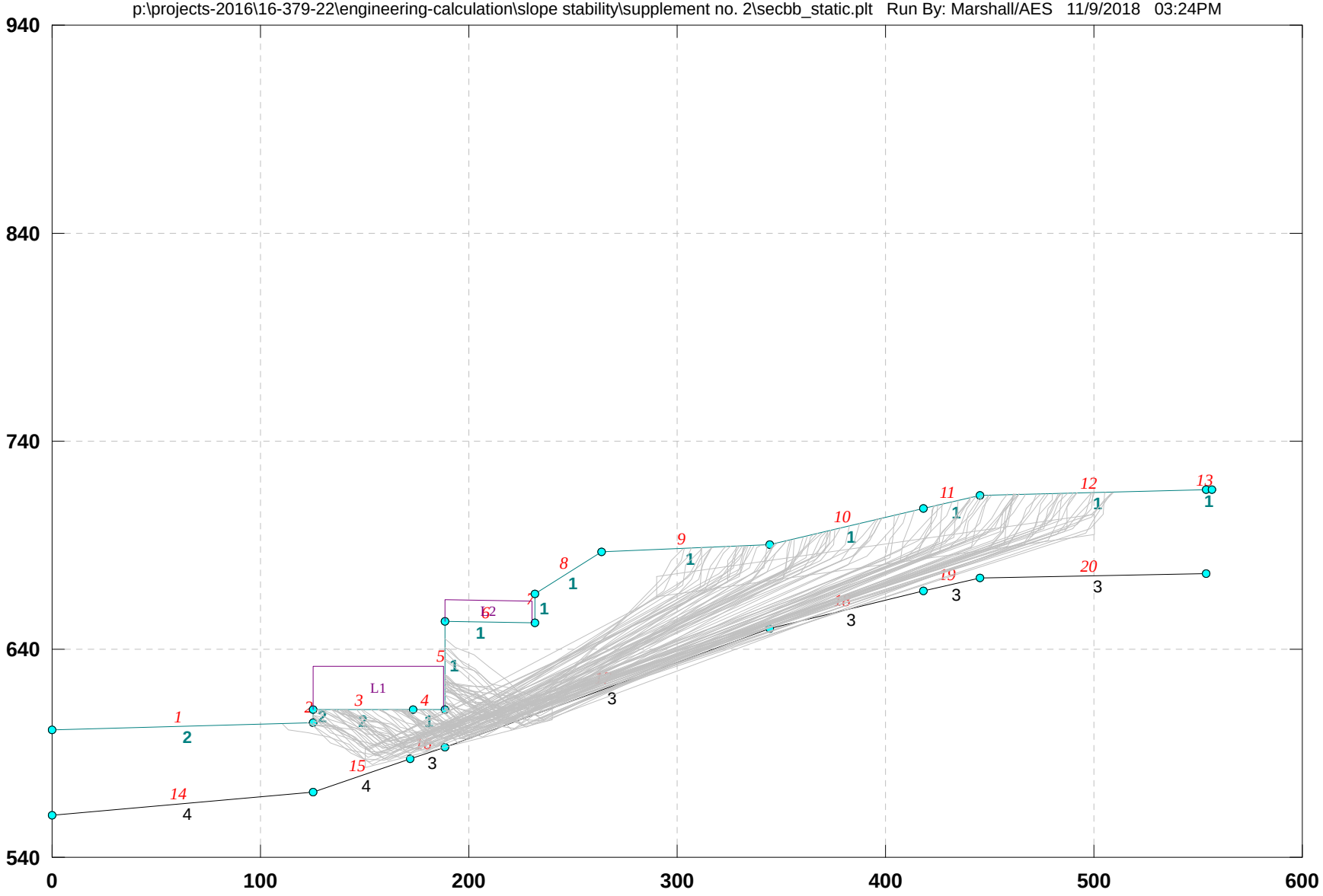
Caro J. Minas, President
Geotechnical Engineer
GE 601



AH/CJM/SM/la

Enclosure: Engineering Calculations
Drawing No. 1 - Revised Geotechnical Site Plan
Drawing No. 5 - Geologic Cross Section C-C'
Review Letter By The Geotechnical Engineering Group Of The Department of Public Works Of The City of Los Angeles, dated 10/12/18

Distribution: (3)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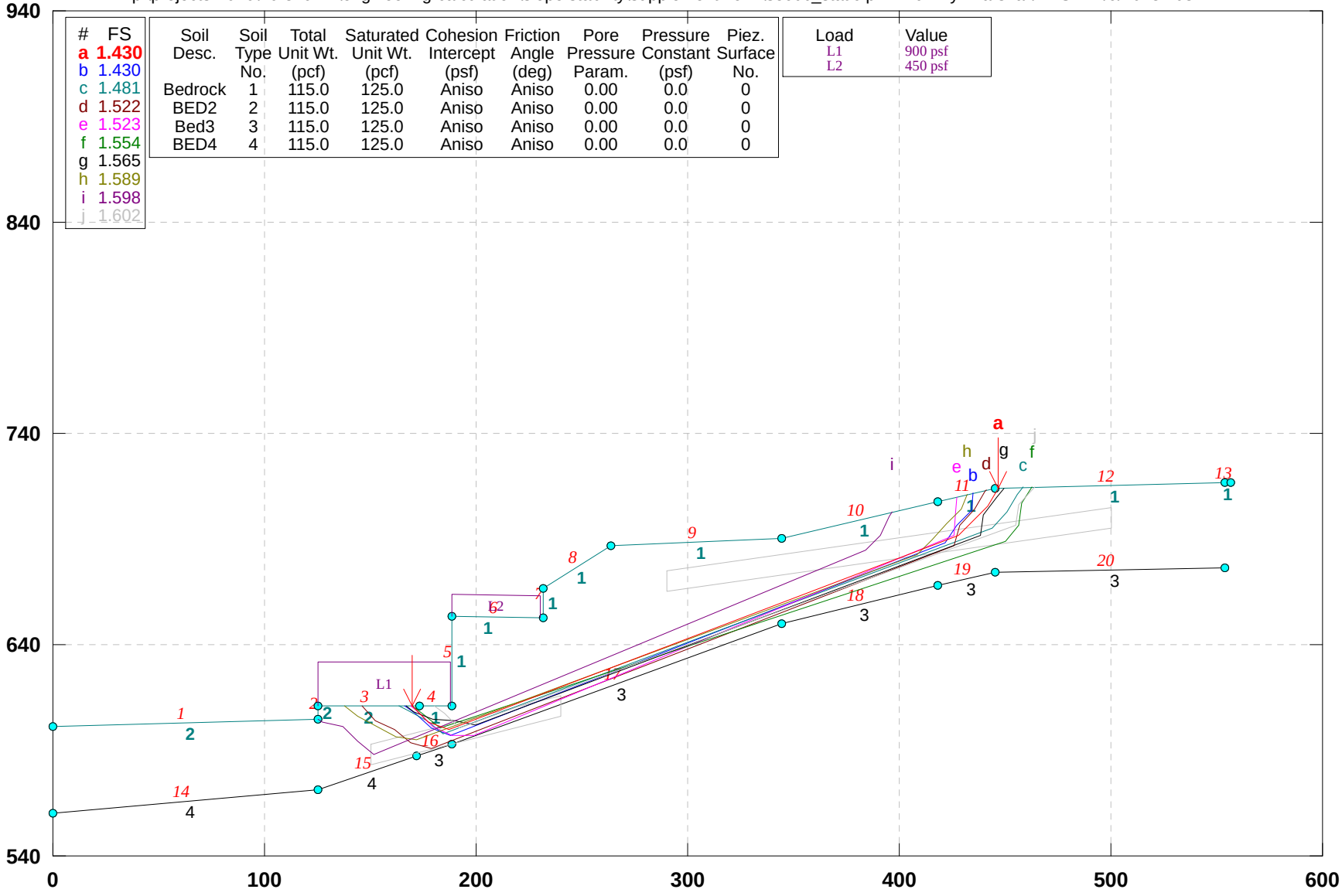

GSTABL7 v.2 FSmin=1.430

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

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Run By: Marshall/AES
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PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	588.00	240.00	611.00	10.00
2	290.00	670.00	500.00	700.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.580 FS Min = 1.430 FS Ave = 2.138
Standard Deviation = 0.487 Coefficient of Variation = 22.78 %
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	169.661	611.000
2	170.346	610.350
3	177.487	603.350
4	186.931	600.059
5	427.748	691.572
6	434.731	698.731
7	441.675	705.927
8	446.397	714.027

Factor of Safety
*** 1.430 ***

Individual data on the 19 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	0.7	25.6	0.0	0.0	0.	0.	0.0	0.0	616.4
2	2.6	558.5	0.0	0.0	0.	0.	0.0	0.0	2298.5
3	4.6	2849.8	0.0	0.0	0.	0.	0.0	0.0	4128.7
4	9.4	10094.4	0.0	0.0	0.	0.	0.0	0.0	8498.8
5	1.1	1320.6	0.0	0.0	0.	0.	0.0	0.0	962.5
6	0.4	481.1	0.0	0.0	0.	0.	0.0	0.0	0.0
7	0.0	36.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.1	547.2	0.0	0.0	0.	0.	0.0	0.0	0.0
9	41.5	212285.7	0.0	0.0	0.	0.	0.0	0.0	18675.0
10	2.0	8214.9	0.0	0.0	0.	0.	0.0	0.0	0.0
11	0.0	48.6	0.0	0.0	0.	0.	0.0	0.0	0.0
12	31.7	195114.5	0.0	0.0	0.	0.	0.0	0.0	0.0
13	80.8	408525.2	0.0	0.0	0.	0.	0.0	0.0	0.0
14	73.7	212816.1	0.0	0.0	0.	0.	0.0	0.0	0.0
15	9.5	21191.6	0.0	0.0	0.	0.	0.0	0.0	0.0
16	7.0	12635.4	0.0	0.0	0.	0.	0.0	0.0	0.0
17	6.9	8065.5	0.0	0.0	0.	0.	0.0	0.0	0.0
18	3.6	1902.2	0.0	0.0	0.	0.	0.0	0.0	0.0
19	1.1	117.0	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.280	611.000
2	171.123	607.290
3	178.759	600.833
4	188.029	597.083
5	421.288	688.057
6	427.044	696.235
7	433.936	703.480
8	434.559	711.622

Factor of Safety
*** 1.430 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	163.586	611.000
2	167.750	608.786
3	176.419	603.801
4	184.184	597.499
5	443.898	695.361
6	450.553	702.826
7	455.524	711.503
8	458.272	714.323

Factor of Safety
*** 1.481 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.794	611.000
2	152.459	604.342
3	161.538	600.151
4	168.985	593.477
5	178.647	590.899
6	426.057	687.080
7	428.838	696.686
8	435.503	704.141
9	440.695	712.687
10	440.944	713.036

Factor of Safety
*** 1.522 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	169.233	611.000
2	172.346	608.003
3	179.418	600.933
4	188.712	597.242
5	198.708	596.956
6	425.698	691.885
7	426.178	701.873
8	427.419	710.041

Factor of Safety
*** 1.523 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	169.694	611.000
2	175.162	606.576
3	183.085	600.476
4	450.358	688.877
5	456.548	696.731
6	457.637	706.672
7	462.338	714.425

Factor of Safety
*** 1.554 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.874	611.000
2	170.169	607.964
3	179.665	604.828
4	189.630	603.993
5	199.455	602.132
6	438.105	691.494
7	440.031	701.307
8	445.742	709.516
9	449.376	714.102

Factor of Safety
*** 1.565 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	137.468	611.000
2	144.097	605.867
3	152.959	601.233
4	161.824	596.606
5	171.638	594.686
6	408.471	682.510
7	415.532	689.591
8	422.279	696.971
9	429.293	704.099
10	431.979	711.051

Factor of Safety
*** 1.589 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.200	604.499
2	127.020	603.292
3	136.841	601.411
4	143.922	594.350
5	151.555	587.889
6	383.759	684.775
7	390.814	691.863
8	395.470	700.712
9	396.612	702.757

Factor of Safety

*** 1.598 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	179.956	611.000
2	184.829	607.392
3	192.292	600.736
4	455.024	696.416
5	456.645	706.284
6	463.399	713.658
7	464.054	714.468

Factor of Safety

*** 1.602 ***

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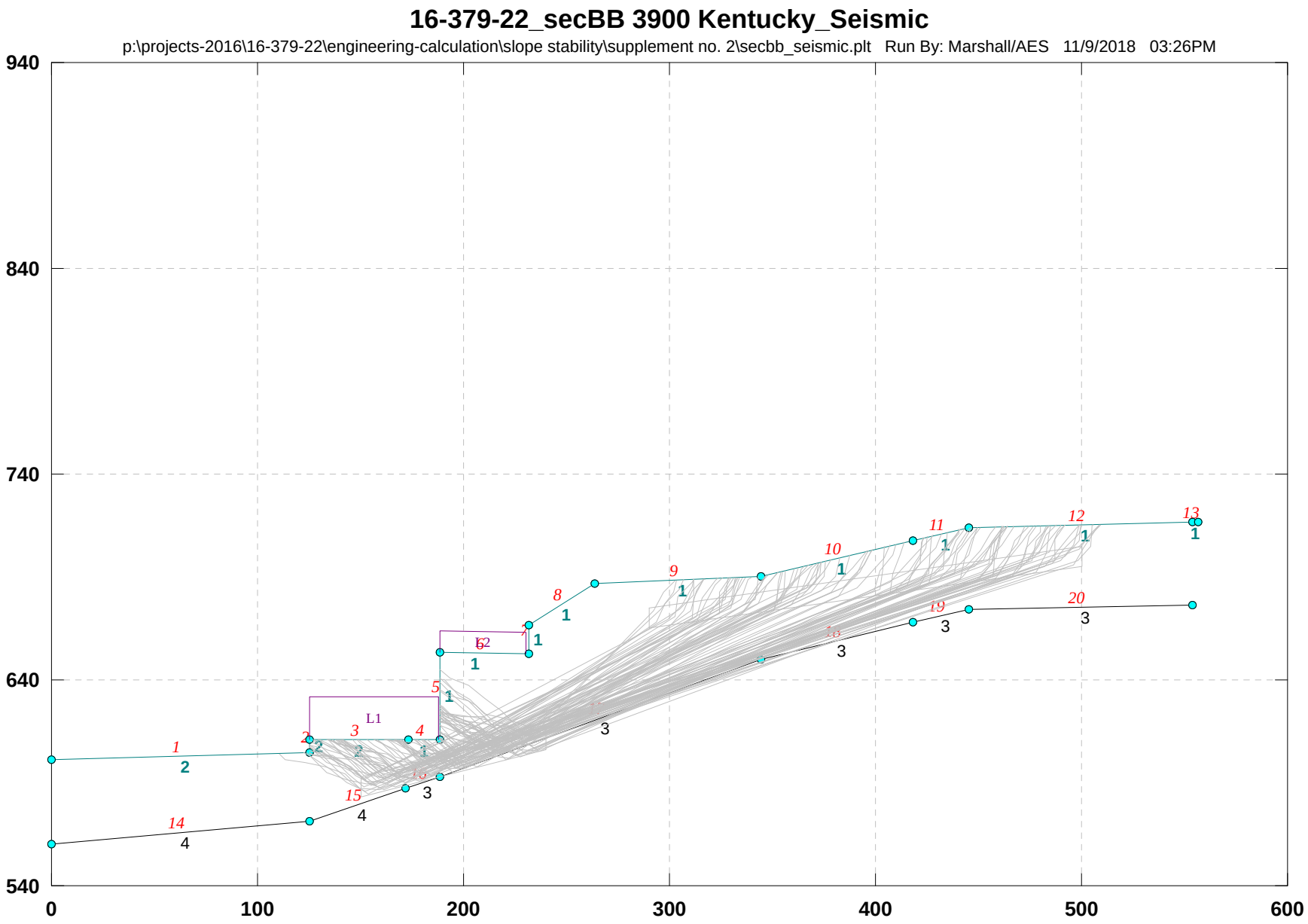
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840
740
640
540
0
100
200
300
400
500
600
L1
L2

16-379-22_secBB 3900 Kentucky_Seismic

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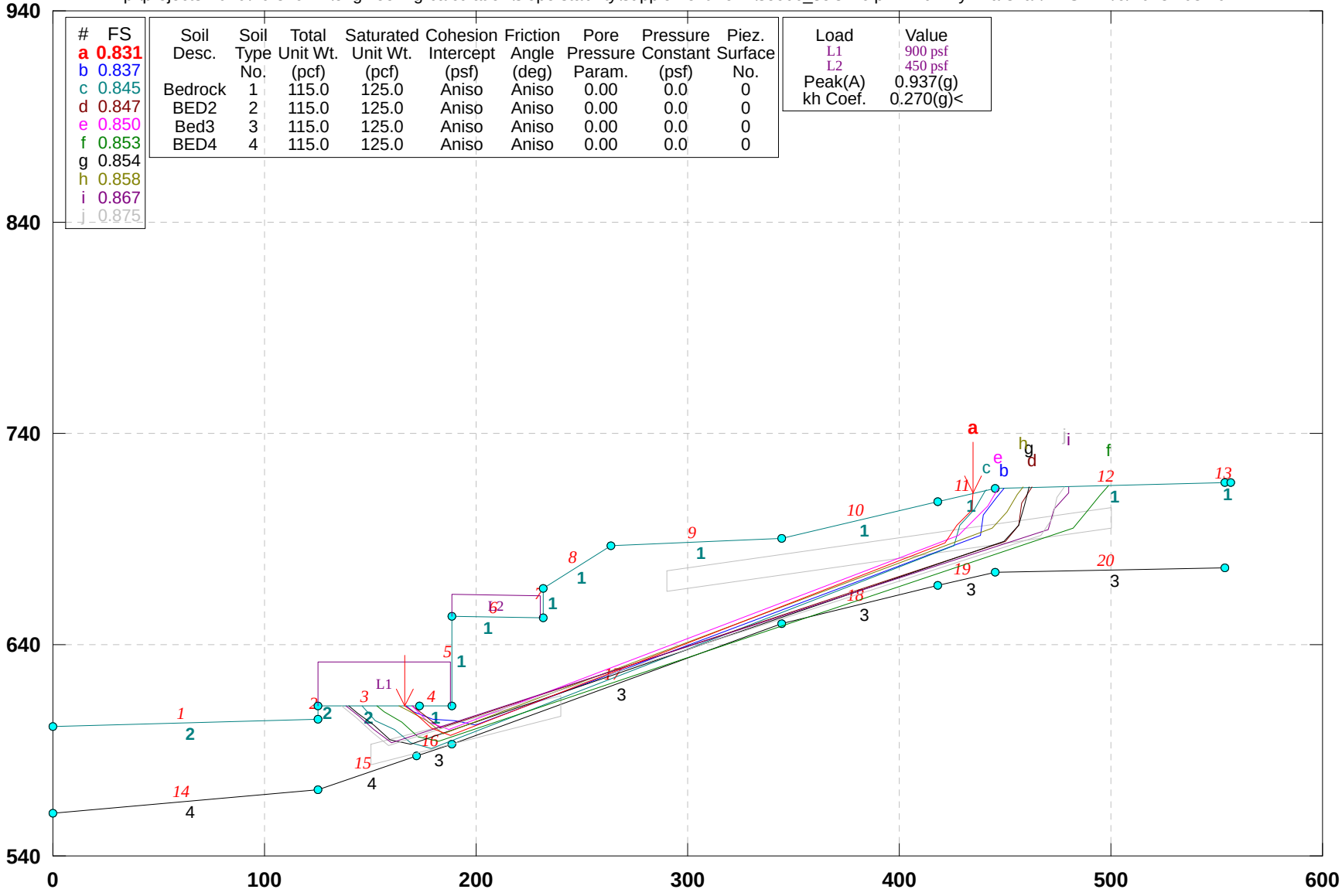

#	FS
a	0.831
b	0.837
c	0.845
d	0.847
e	0.850
f	0.853
g	0.854
h	0.858
i	0.867
j	0.875

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<

GSTABL7 v.2 FSmin=0.831

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 11/9/2018
Time of Run: 03:26PM
Run By: Marshall/AES
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Output Filename: p:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_seismic.OUT
Unit System: English
Plotted Output Filename: p:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_seismic.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)

1	150.00	588.00	240.00	611.00	10.00
2	290.00	670.00	500.00	700.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Simplified Janbu Method * *

Total Number of Trial Surfaces Attempted = 100

Number of Trial Surfaces With Valid FS = 100

Statistical Data On All Valid FS Values:

FS Max = 1.900 FS Min = 0.831 FS Ave = 1.202

Standard Deviation = 0.265 Coefficient of Variation = 22.03 %

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.280	611.000
2	171.123	607.290
3	178.759	600.833
4	188.029	597.083
5	421.288	688.057
6	427.044	696.235
7	433.936	703.480
8	434.559	711.622

Factor of Safety

*** 0.831 ***

Individual data on the 18 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	4.8	1033.1	0.0	0.0	0.	0.	278.9	0.0	4358.2
2	1.8	912.0	0.0	0.0	0.	0.	246.2	0.0	1599.7
3	5.9	5181.3	0.0	0.0	0.	0.	1398.9	0.0	5273.1
4	9.2	12790.8	0.0	0.0	0.	0.	3453.5	0.0	8317.0
5	0.0	46.7	0.0	0.0	0.	0.	12.6	0.0	0.0
6	0.4	590.4	0.0	0.0	0.	0.	159.4	0.0	0.0
7	0.0	40.3	0.0	0.0	0.	0.	10.9	0.0	0.0
8	0.1	582.3	0.0	0.0	0.	0.	157.2	0.0	0.0
9	41.5	227468.9	0.0	0.0	0.	0.	61416.6	0.0	18675.0
10	2.0	8896.6	0.0	0.0	0.	0.	2402.1	0.0	0.0
11	0.0	52.0	0.0	0.0	0.	0.	14.1	0.0	0.0
12	31.7	205301.3	0.0	0.0	0.	0.	55431.4	0.0	0.0
13	80.8	429271.7	0.0	0.0	0.	0.	*******	0.0	0.0
14	73.7	225192.1	0.0	0.0	0.	0.	60801.9	0.0	0.0
15	3.1	7418.6	0.0	0.0	0.	0.	2003.0	0.0	0.0
16	5.8	11367.2	0.0	0.0	0.	0.	3069.2	0.0	0.0
17	6.9	8610.4	0.0	0.0	0.	0.	2324.8	0.0	0.0
18	0.6	286.7	0.0	0.0	0.	0.	77.4	0.0	0.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.874	611.000
2	170.169	607.964
3	179.665	604.828
4	189.630	603.993
5	199.455	602.132
6	438.105	691.494
7	440.031	701.307
8	445.742	709.516
9	449.376	714.102

Factor of Safety

*** 0.837 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.794	611.000
2	152.459	604.342
3	161.538	600.151
4	168.985	593.477
5	178.647	590.899
6	426.057	687.080

7	428.838	696.686
8	435.503	704.141
9	440.695	712.687
10	440.944	713.036

Factor of Safety
*** 0.845 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	169.694	611.000
2	175.162	606.576
3	183.085	600.476
4	450.358	688.877
5	456.548	696.731
6	457.637	706.672
7	462.338	714.425

Factor of Safety
*** 0.847 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	169.661	611.000
2	170.346	610.350
3	177.487	603.350
4	186.931	600.059
5	427.748	691.572
6	434.731	698.731
7	441.675	705.927
8	446.397	714.027

Factor of Safety
*** 0.850 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.028	611.000
2	156.226	608.373
3	164.831	603.278
4	172.314	596.645
5	182.009	594.192
6	481.889	695.322
7	488.265	703.026
8	494.574	710.785
9	498.993	715.339

Factor of Safety
*** 0.853 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.723	611.000
2	143.682	607.606
3	151.820	601.795
4	159.139	594.981
5	168.913	592.867
6	449.692	689.229
7	456.266	696.763
8	459.263	706.304
9	461.294	714.399

Factor of Safety
*** 0.854 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	163.586	611.000
2	167.750	608.786
3	176.419	603.801
4	184.184	597.499
5	443.898	695.361
6	450.553	702.826
7	455.524	711.503
8	458.272	714.323

Factor of Safety
*** 0.858 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	138.684	611.000
2	144.481	606.280
3	151.944	599.624
4	159.728	593.347
5	470.097	694.619
6	473.229	704.116
7	479.778	711.673
8	479.842	714.861

Factor of Safety
*** 0.867 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	136.436	611.000
2	143.641	605.197
3	150.726	598.140
4	158.806	592.247
5	467.123	691.572
6	472.231	700.169
7	474.548	709.897
8	477.773	714.810

Factor of Safety
*** 0.875 ***
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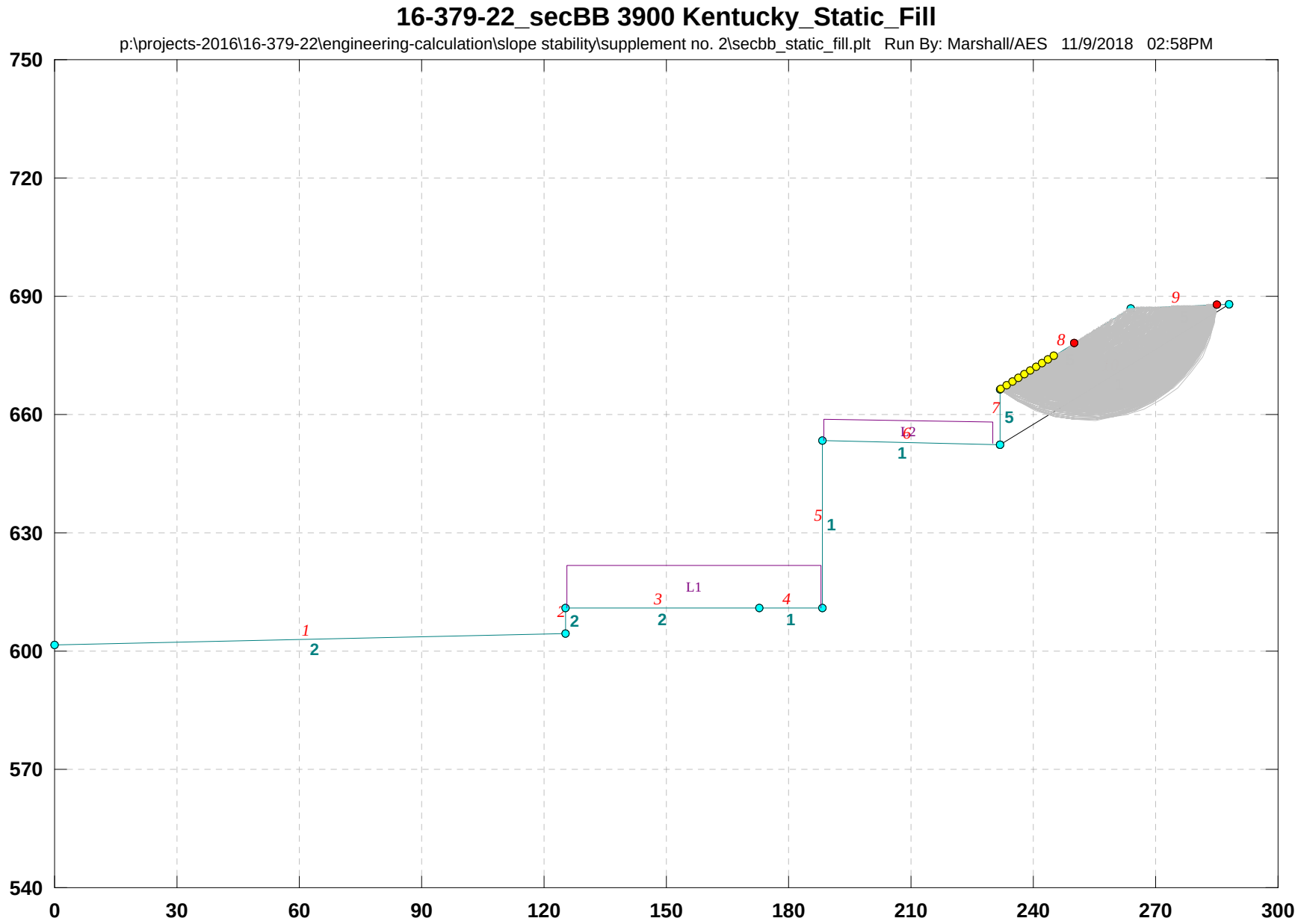
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690
660
630
600
570
540
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60
90
120
150
180
210
240
270
300
L1
1
2
3
4
5
6
7
8
9

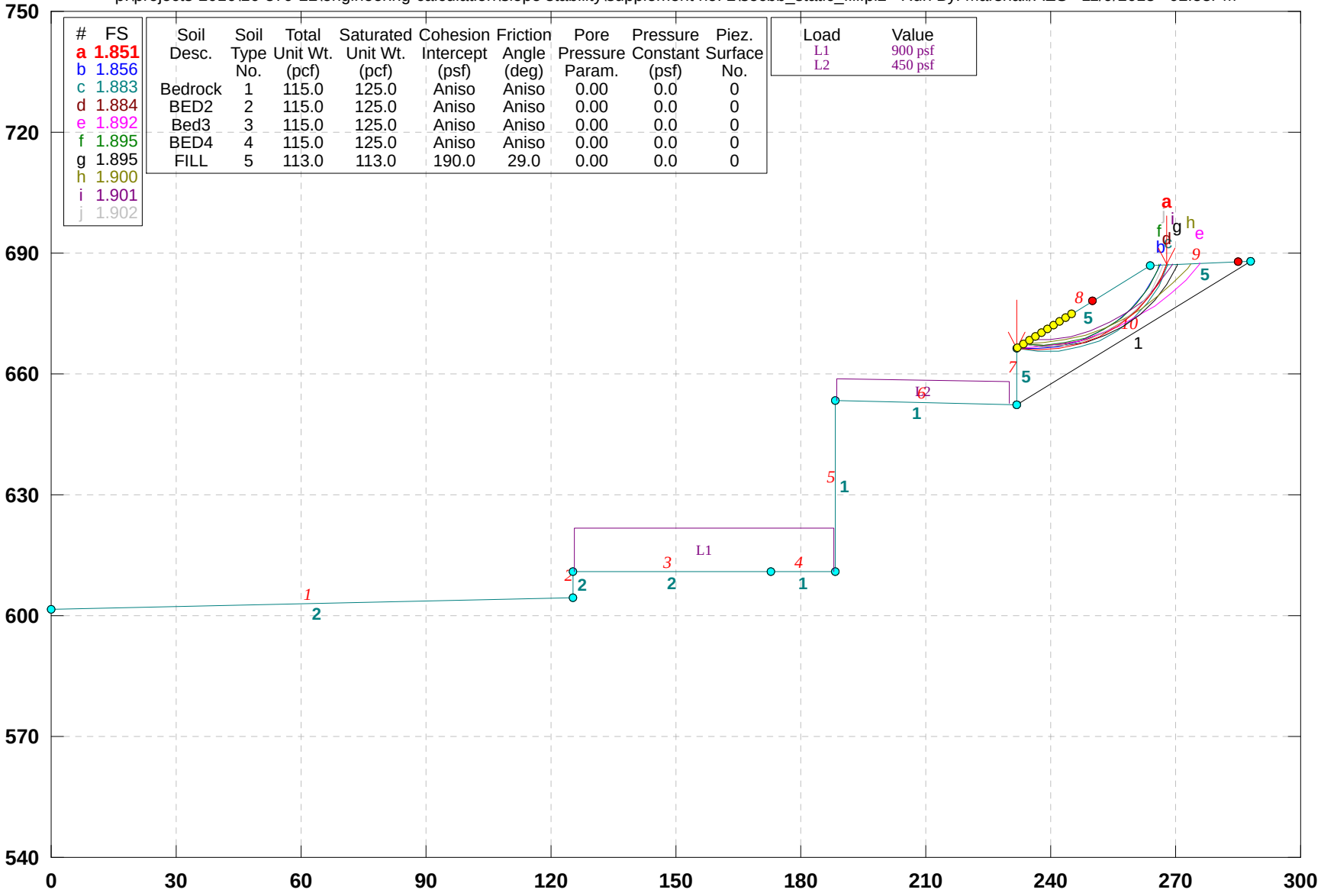
16-379-22_secBB 3900 Kentucky_Static_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\supplement no. 2\secbb_static_fill.pl2 Run By: Marshall/AES 11/9/2018 02:58PM

#	FS
a	1.851
b	1.856
c	1.883
d	1.884
e	1.892
f	1.895
g	1.895
h	1.900
i	1.901
j	1.902

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	190.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf



GSTABL7 v.2 FSmin=1.851

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 11/9/2018
Time of Run: 02:58PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_Fill
BOUNDARY COORDINATES

9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	190.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00

3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 232.01(ft)
and X = 245.00(ft)
Each Surface Terminates Between X = 250.00(ft)
and X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.524 FS Min = 1.851 FS Ave = 3.147
Standard Deviation = 1.026 Coefficient of Variation = 32.59 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.990	666.051
3	241.980	666.367
4	246.863	667.442
5	251.524	669.251
6	255.855	671.750
7	259.753	674.881
8	263.127	678.571
9	265.898	682.733
10	267.956	687.175

Circle Center At X = 237.427 ; Y = 698.668 ; and Radius = 32.621

Factor of Safety
*** 1.851 ***

Individual data on the 10 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	1032.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	5.0	2890.6	0.0	0.0	0.	0.	0.0	0.0	0.0
3	4.9	4206.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	4.7	4882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
5	4.3	4905.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	3.9	4347.7	0.0	0.0	0.	0.	0.0	0.0	0.0
7	3.4	3359.6	0.0	0.0	0.	0.	0.0	0.0	0.0

8	0.6	506.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	2.2	1480.6	0.0	0.0	0.	0.	0.0	0.0	0.0
10	2.1	506.8	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.295
3	241.975	666.851
4	246.801	668.157
5	251.373	670.181
6	255.584	672.877
7	259.337	676.181
8	262.543	680.018
9	265.129	684.297
10	266.287	687.106

Circle Center At X = 235.890 ; Y = 698.858 ; and Radius = 32.590

Factor of Safety

*** 1.856 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.949	665.719
3	241.948	665.762
4	246.873	666.629
5	251.587	668.294
6	255.963	670.714
7	259.880	673.822
8	263.231	677.532
9	265.926	681.744
10	267.889	686.342
11	268.093	687.181

Circle Center At X = 239.188 ; Y = 695.882 ; and Radius = 30.246

Factor of Safety

*** 1.883 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.431	666.966
3	243.420	667.299
4	248.292	668.425
5	252.922	670.313
6	257.190	672.917
7	260.989	676.168
8	264.219	679.985
9	266.799	684.268
10	267.966	687.176

Circle Center At X = 238.882 ; Y = 697.982 ; and Radius = 31.027

Factor of Safety

*** 1.884 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834
6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 1.892 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.444	667.132
3	243.417	667.654
4	248.236	668.986
5	252.771	671.091
6	256.899	673.913
7	260.506	677.375
8	263.496	681.383
9	265.787	685.827
10	266.197	687.103

Circle Center At X = 237.809 ; Y = 697.271 ; and Radius = 30.154

Factor of Safety

*** 1.895 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.836
3	243.415	666.992
4	248.333	667.896
5	253.059	669.529
6	257.486	671.852
7	261.513	674.815
8	265.051	678.349
9	268.017	682.374
10	270.344	686.799
11	270.511	687.280

Circle Center At X = 239.889 ; Y = 699.996 ; and Radius = 33.192

Factor of Safety

*** 1.895 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.446	667.700
3	243.389	668.456
4	248.233	669.695
5	252.932	671.404
6	257.439	673.568
7	261.712	676.164
8	265.709	679.168
9	269.391	682.551
10	272.723	686.279
11	273.545	687.405

Circle Center At X = 233.249 ; Y = 718.195 ; and Radius = 50.762

Factor of Safety

*** 1.900 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	234.897	668.367
2	239.896	668.473
3	244.837	669.235
4	249.636	670.640
5	254.208	672.663
6	258.475	675.270
7	262.362	678.415
8	265.802	682.043
9	268.735	686.093
10	269.350	687.233

Circle Center At X = 236.644 ; Y = 706.070 ; and Radius = 37.744

Factor of Safety

*** 1.901 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434

```
     2        238.418      666.839
     3        243.411      667.102
     4        248.286      668.214
     5        252.899      670.143
     6        257.114      672.832
     7        260.808      676.201
     8        263.872      680.153
     9        266.216      684.570
    10        267.056      687.138
Circle Center At X =   239.417 ; Y =   695.768 ; and Radius =    28.955
       Factor of Safety
      ***    1.902   ***
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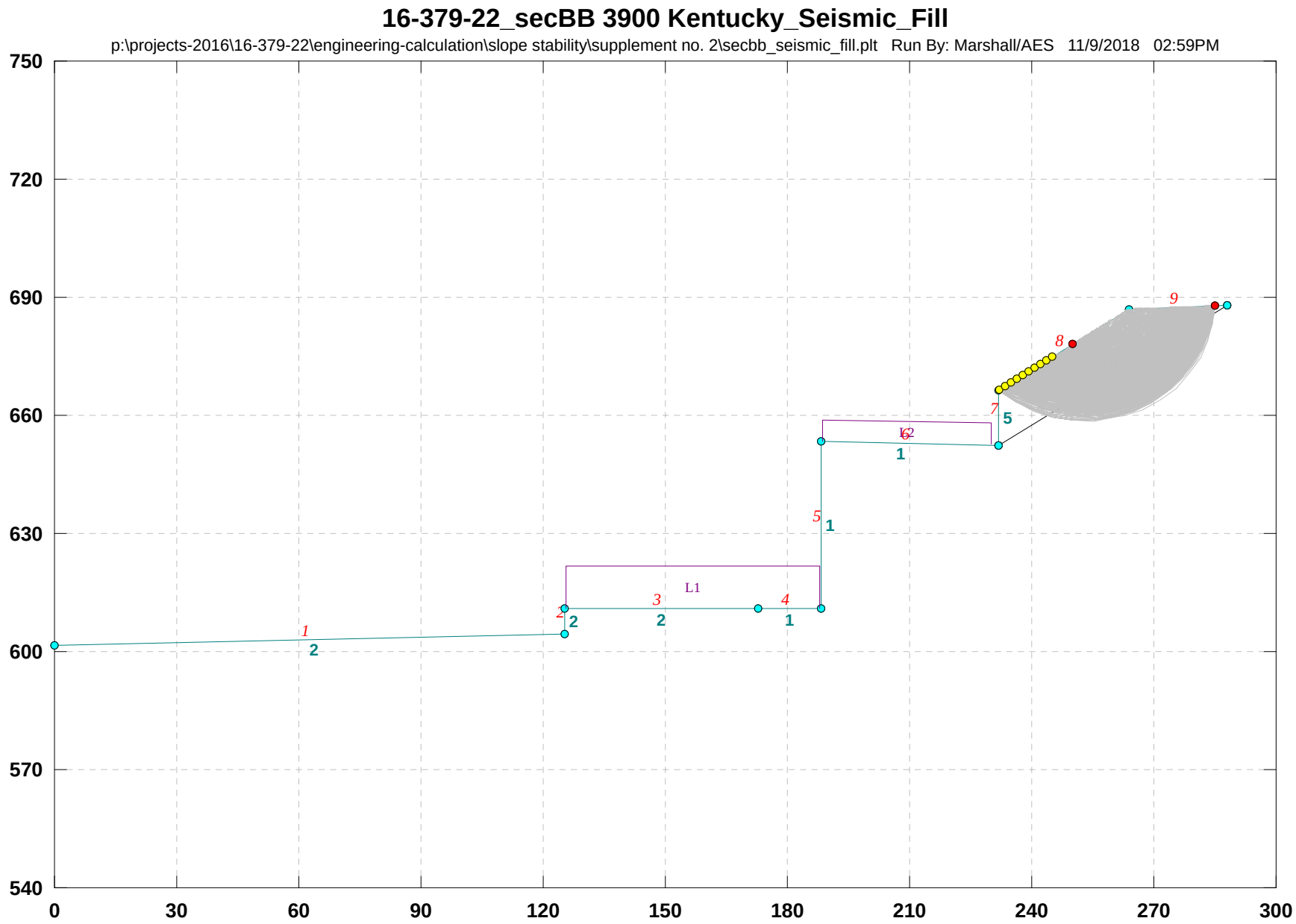
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60
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150
180
210
240
270
300
L1
L2
1
2
3
4
5
6
7
8
9

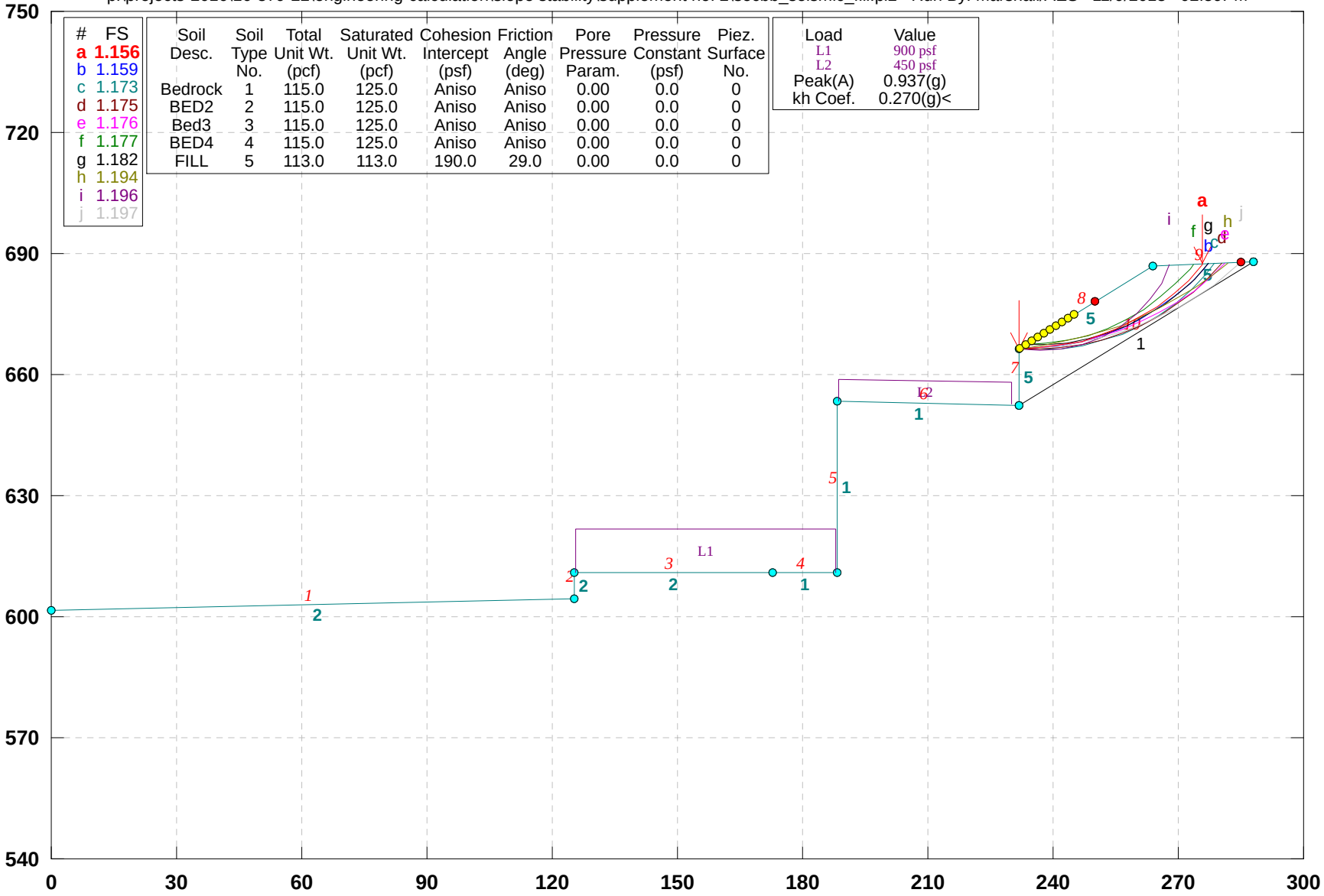
16-379-22_secBB 3900 Kentucky_Seismic_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\supplement no. 2\secbb_seismic_fill.pl2 Run By: Marshall/AES 11/9/2018 02:59PM

#	FS
a	1.156
b	1.159
c	1.173
d	1.175
e	1.176
f	1.177
g	1.182
h	1.194
i	1.196
j	1.197

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	190.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.156

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 11/9/2018
Time of Run: 02:59PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_seismic_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_seismic_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\Supplement No. 2\secbb_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_Fill

BOUNDARY COORDINATES
9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	190.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00

2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 232.01(ft)
and X = 245.00(ft)
Each Surface Terminates Between X = 250.00(ft)
and X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 8.018 FS Min = 1.156 FS Ave = 1.907

Standard Deviation = 0.686 Coefficient of Variation = 35.99 %

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834
6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 1.156 ***

Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	868.1	0.0	0.0	0.	0.	234.4	0.0	0.0
2	5.0	2452.2	0.0	0.0	0.	0.	662.1	0.0	0.0
3	4.9	3711.1	0.0	0.0	0.	0.	1002.0	0.0	0.0
4	4.8	4614.8	0.0	0.0	0.	0.	1246.0	0.0	0.0
5	4.6	5151.0	0.0	0.0	0.	0.	1390.8	0.0	0.0
6	4.4	5326.0	0.0	0.0	0.	0.	1438.0	0.0	0.0
7	3.0	3755.4	0.0	0.0	0.	0.	1013.9	0.0	0.0
8	1.1	1363.6	0.0	0.0	0.	0.	368.2	0.0	0.0
9	3.9	3871.7	0.0	0.0	0.	0.	1045.4	0.0	0.0
10	3.6	2300.1	0.0	0.0	0.	0.	621.0	0.0	0.0
11	3.3	802.9	0.0	0.0	0.	0.	216.8	0.0	0.0
12	0.3	5.0	0.0	0.0	0.	0.	1.4	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 1.159 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691

Factor of Safety
*** 1.173 ***
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.009	666.397
3	241.998	666.727
4	246.940	667.486
5	251.798	668.669
6	256.536	670.268
7	261.117	672.269
8	265.509	674.660
9	269.678	677.420
10	273.593	680.531
11	277.224	683.968
12	280.534	687.693

Circle Center At X = 235.698 ; Y = 724.204 ; and Radius = 57.821
Factor of Safety
*** 1.175 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.705
3	241.973	667.273
4	246.886	668.202
5	251.719	669.486
6	256.445	671.119
7	261.039	673.091
8	265.478	675.393
9	269.737	678.012
10	273.794	680.935
11	277.627	684.145
12	281.216	687.626
13	281.304	687.724

Circle Center At X = 231.698 ; Y = 735.096 ; and Radius = 68.596
Factor of Safety
*** 1.176 ***
Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.446	667.700
3	243.389	668.456
4	248.233	669.695
5	252.932	671.404
6	257.439	673.568
7	261.712	676.164
8	265.709	679.168
9	269.391	682.551
10	272.723	686.279
11	273.545	687.405

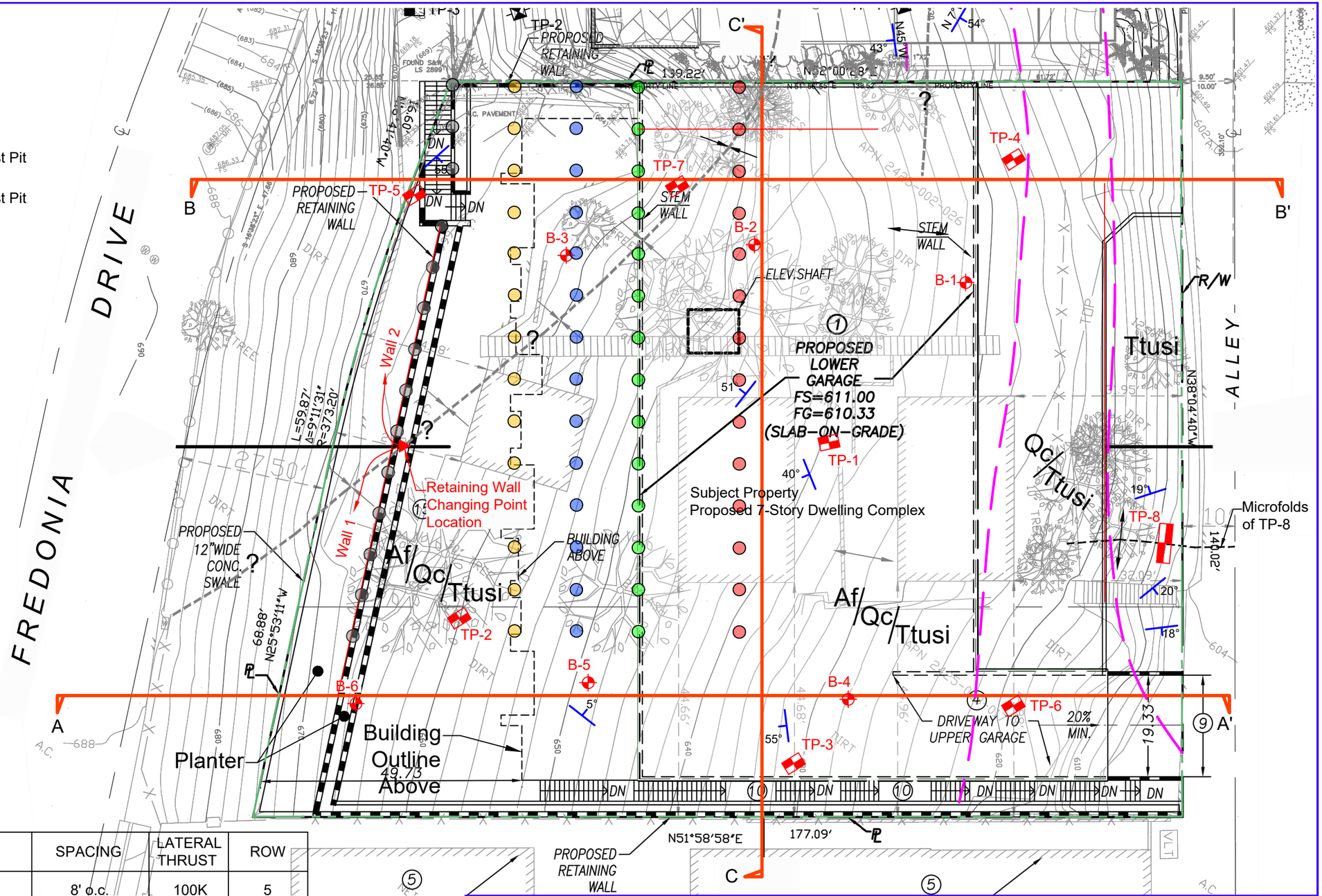
Circle Center At X = 233.249 ; Y = 718.195 ; and Radius = 50.762
Factor of Safety
*** 1.177 ***
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.453	667.462
3	243.428	667.961
4	248.334	668.926
5	253.128	670.347
6	257.767	672.213
7	262.209	674.507
8	266.417	677.209
9	270.351	680.294
10	273.978	683.736
11	277.266	687.503

```
   12        277.306      687.560
Circle Center At X =   235.651 ; Y =   720.483 ; and Radius =    53.095
       Factor of Safety
      ***    1.182   ***
Failure Surface Specified By 13 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        232.010      666.500
    2        236.973      667.105
    3        241.895      667.986
    4        246.760      669.141
    5        251.553      670.565
    6        256.259      672.255
    7        260.863      674.204
    8        265.351      676.408
    9        269.709      678.858
   10        273.924      681.548
   11        277.982      684.470
   12        281.871      687.613
   13        282.027      687.754
Circle Center At X =   223.660 ; Y =   755.651 ; and Radius =    89.541
       Factor of Safety
      ***    1.194   ***
Failure Surface Specified By 10 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        232.010      666.500
    2        236.990      666.051
    3        241.980      666.367
    4        246.863      667.442
    5        251.524      669.251
    6        255.855      671.750
    7        259.753      674.881
    8        263.127      678.571
    9        265.898      682.733
   10        267.956      687.175
Circle Center At X =   237.427 ; Y =   698.668 ; and Radius =    32.621
       Factor of Safety
      ***    1.196   ***
Failure Surface Specified By 13 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        232.010      666.500
    2        237.006      666.692
    3        241.980      667.205
    4        246.910      668.038
    5        251.776      669.187
    6        256.558      670.647
    7        261.236      672.412
    8        265.791      674.475
    9        270.203      676.828
   10        274.454      679.460
   11        278.527      682.360
   12        282.404      685.517
   13        284.946      687.874
Circle Center At X =   231.537 ; Y =   744.034 ; and Radius =    77.535
       Factor of Safety
      ***    1.197   ***
          **** END OF GSTABL7 OUTPUT ****
```

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Test Pit (AES, 2018)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located



SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

GEOTECHNICAL SITE PLAN

PROJECT No: 16-379-22

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

DATE:	11 / 09 / 2018
DRAWN BY:	VM
CHECKED BY:	SM
DRAWING No:	2
SUPP. No:	2

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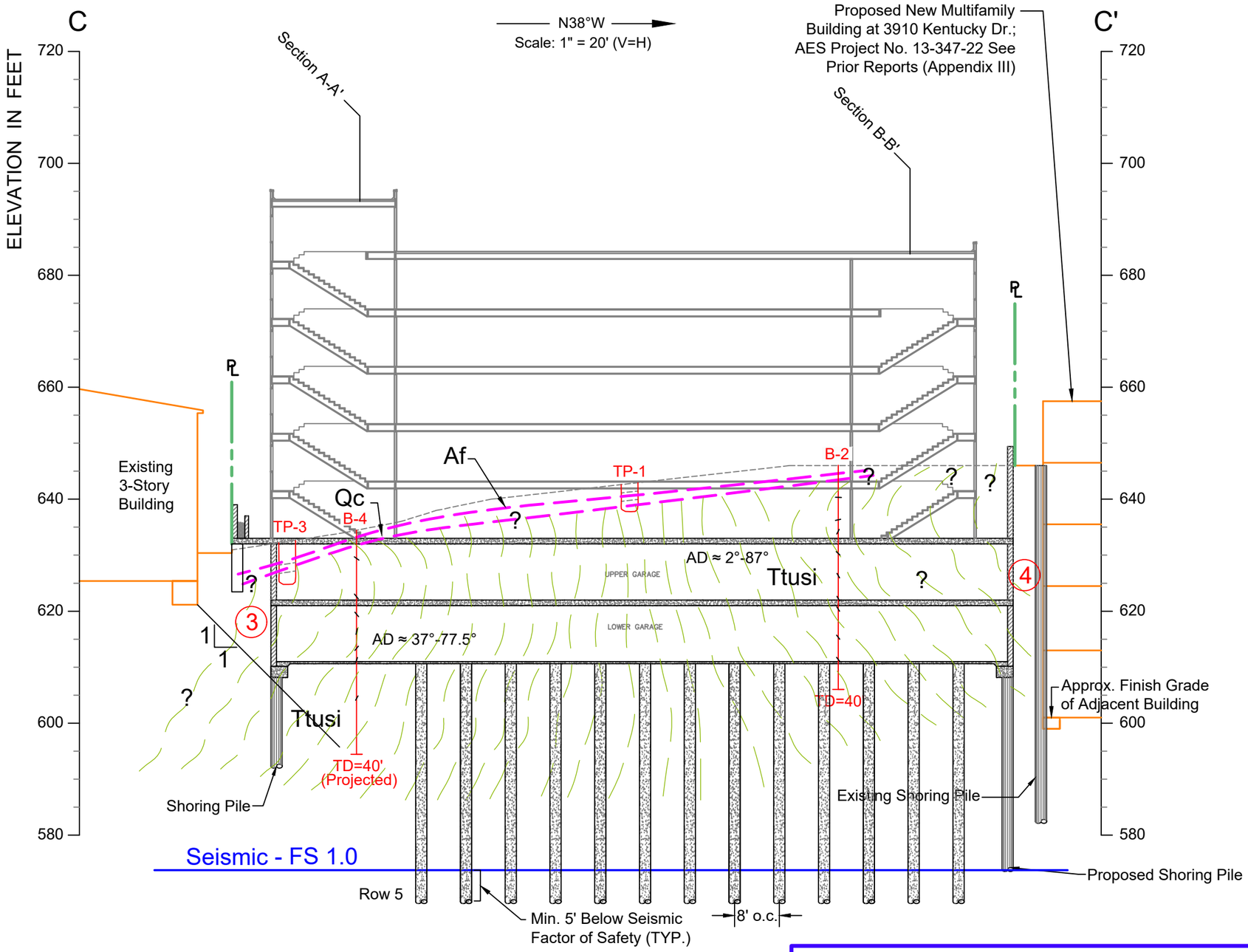

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018
- TD=40' (Projected)

Apparent Dips & Directions

B-4		B-2	
37°	@ 5'	2°	@ 6'
56°	@ 12'	10.9°	@ 10'
52°	@ 15'	61.8°	@ 12'
78°	@ 18'	87°	@ 14'
52°	@ 21'	45°	@ 16'
71°	@ 23'	60°	@ 20'
62°	@ 30'	59°	@ 24'
		58°	@ 26'
		51°	@ 31'
		55°	@ 35'

GEOLOGIC CROSS SECTION C-C'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	11 / 09 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM

PROJECT No: 16-379-22

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DRAWING No: 5

SUPP. No: 2

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

GEOLOGY AND SOILS REPORT REVIEW LETTER

October 12, 2018

LOG # 97819-01
SOILS/GEOLOGY FILE - 2
LAN

To: Vincent P. Bertoni, AICP, Deputy Advisory Agency
c/o Mary.Crowell@lacity.org & Tom.Glick@lacity.org
Department of City Planning
200 N. Spring Street, 7th Floor, Room 750

From: Jesus Adolfo Acosta, Grading Division Chief
Department of Building and Safety

PROPOSED LEGAL: Vesting Tentative Tract VTT-73784-CN, Lot 1, 21 condominium units
CURRENT LEGAL: Tract 5593, Lots 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report No. 1	16-379-22	08/03/2018	Applied Earth Sciences
Oversized Documents	"	"	"
Addendum Report No. A	16-379-22	08/04/2018	"
Oversized Documents	"	"	"

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	97819	05/10/2017	LADBS
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed Vesting Tentative Tract VTT-73784-CN with Los Angeles Department of City Planning receipt stamp dated 05/15/2017 and the referenced reports that provide recommendations for the proposed demolition of all site improvements and construction of a 7-story condominium complex including 2 levels of subterranean parking and retaining walls up to 40 feet in height. The subject lot is located on an approximately 80 foot high slope with gradients as steep as 1.1H:1V per the geologic map.

The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone, claystone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to stabilize the slope with 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips) and support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

The site is located in a designated seismically induced landslide hazard zone as shown on the Seismic Hazard Zones map issued by the State of California.

The review of the subject report cannot be completed at this time and will be continued upon submittal of an addendum to the report, which shall include, but not be limited to, the following:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2017 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. Revise the static and seismic slope stability analyses of the upper portion of Section B-B'. The existing fill strength used was c=290 PCF instead of 190 PCF.

2. Provide additional static and seismic slope stability analyses for Section B-B' showing the lowest factor of safety without any reinforcement and without constraining the search.

3. Show on the plan the location where the basement wall design changes from retaining wall 2 (EFP=78 PCF) to retaining wall 1 (EFP=53 PCF).

4. The calculations for restrained walls does not include any surcharges. Provide recommendations for surcharges on restrained walls.

The geologist and soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer and/or geologist may be contacted. Two copies of the response report, including one unbound wet-signed original for archiving purposes, a pdf-copy of the complete report in a CD or flash drive, and the appropriate fees will be required for submittal.

SP DLS
FOR:CLJ/DLS:clj/dls
Log No. 97819-01
213-482-0480

cc: 3900 Kentucky LLC, Owner
Zaven Ghnimian, Applicant
Applied Earth Sciences, Project Consultant
LA District Office

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

GEOLOGY AND SOILS REPORT REVIEW LETTER

October 12, 2018

LOG # 97819-01
SOILS/GEOLOGY FILE - 2
LAN

To: Vincent P. Bertoni, AICP, Deputy Advisory Agency
c/o Mary.Crowell@lacity.org & Tom.Glick@lacity.org
Department of City Planning
200 N. Spring Street, 7th Floor, Room 750

From: Jesus Adolfo Acosta, Grading Division Chief
Department of Building and Safety

PROPOSED LEGAL: Vesting Tentative Tract VTT-73784-CN, Lot 1, 21 condominium units
CURRENT LEGAL: Tract 5593, Lots 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report No. 1	16-379-22	08/03/2018	Applied Earth Sciences
Oversized Documents	"	"	"
Addendum Report No. A	16-379-22	08/04/2018	"
Oversized Documents	"	"	"

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	97819	05/10/2017	LADBS
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences

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SP DLS
for:CLJ/DLS:clj/dls
Log No. 97819-01
213-482-0480

cc: 3900 Kentucky LLC, Owner
Zaven Ghnimian, Applicant
Applied Earth Sciences, Project Consultant
LA District Office

August 3, 2018 16-379-22

3900 Kentucky LLC
528 State Street
Glendale, California 91203

Subject: Supplement No. 1
Geotechnical Investigation
Proposed 7-Story Condominium Building Complex
Lots 116 and FR117 Of Tract No. 5593
3902 North Kentucky Drive
(aka 3900 North Fredonia Drive & 3894 North Fredonia Drive)
Los Angeles, California 90068

Gentlemen:

INTRODUCTION

We are pleased to submit this Supplement No. A report presenting the results of our additional geotechnical evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 10, 2016.

This submittal is in response to comments in a Geology And Soils Report Review Letter dated May 10, 2017 prepared by the Grading Section Of The Department Of Building And Safety of the City of Los Angeles (Log # 97819).

It should be noted that as part of preparation of this update report we have utilized the latest architectural and civil plans from Kamran Tabrizi and Greystone Engineering Group, respectively.

We have also enclosed with this Supplement No. 1, a Review Letter by the Geotechnical Engineering Group of the Department of Public Works Of The City of Los Angeles and our response report (Supplement No. A) as a PDF soft copy, for further reference. The responses to the comments from the Geotechnical Engineering Group have also utilized the revised geologic map and cross sections based on the results of

the updated building plan, our extensive additional field exploration as well as supplemental engineering calculations performed in April 2018.

ADDITIONAL FIELD EXPLORATION AND REVISED GEOLOGIC MODEL

Prior to the preparation of this report, engineer representatives of this office met with city reviewers Messrs. Casey Lee Jensen and Dan L. Stoica in January 2018 to discuss the comments (project architect and owner were also present at this meeting). It was decided to perform additional field exploration of the site, in the form of deep large diameter borings, to get a better resolution of the complex subsurface geologic strata and folds that were previously reported.

To that effect, in April 2018, over the course of three workdays, six large diameter borings were advanced on the property with the use of a Lo-Dril drill rig, by Leon Krous Drilling, to depths ranging from 40-43 feet below ground surface. The approximate locations of the old and new test holes (test pits and borings) are shown on the enclosed Geologic Map and Site Plan drawings.

All borings were sampled and downhole logged by the engineering geologist. Detailed boring logs are attached to this submittal. Borings 1 through 3 were advanced roughly along the alignment of section B, whereas Boring 4 through 6 were advanced along the alignment of section A.

Relatively undisturbed samples of the subsurface materials were obtained by driving a steel sampler with successive drops of the telescopic kelly bar having weights of 1767 pounds from 0-15', 1182 pounds from 15-30', and 757 pounds from 30-45'. The number of blows required for one foot of sampler penetration was recorded at the time of drilling and are shown on the log of exploratory borings. The relatively undisturbed soil samples were retained in brass liner rings 2.5 inches in diameter and 1.0 inch in height.

In light of the additional field exploration, we have revised the Geologic Map as well as all three Geologic Cross Sections; see Drawings Nos. 1 through 5. Based on our additional field geologic data, the prominent synclinal fold that was first found during our characterization of the adjacent property at 3910 Kentucky now appears to bend and extend toward the south and off-site through the subject property. Geologic Cross

Section B-B' now looks similar to the Cross Section D-D' from the report for the adjacent site (AES Project No. 13-347-22), which was the section through the adjacent building closest to the subject site.

Geologic Cross Section A-A', however, is different from section B. Along section A, we noted steeply northeast-dipping true bedding in all three borings, similar to what is presented in regional maps, whereas the upper 5-10 feet of the bedrock appears to be creep-affected with shallow to moderate south dips.

Overall, the strata are folded considerably throughout the study area, but no landslide or slippage planes were noted in any of the bore holes, nor was there any seepage or excessive moisture.

The results of our additional field and laboratory investigations indicated that the bedrock within the upper 10 feet are creep effected. Below the creep effected bedrock extending to a depth of about 20 feet, the bedrock was found to be moderately weathered. Below this depth, the bedrock was found to be less weathered. For the purpose of our new engineering analysis and slope stability evaluation, however, and for added safety, we have assumed that the top 40 feet of the bedrock is weathered. The strength of the deeper bedrock was found to be somewhat higher.

As part of preparation of this Supplement No. 1, the weakest bedrock sample from the new borings (Boring No. 2 at a depth of 40 feet), was tested in our laboratory to determine the shear strengths of the deeper bedrock for cross bedding and re-shear strengths conditions. The results of our new laboratory shear testing is shown on the enclosed Figure No. II-1A. Our previous slope stability analysis had used the bedrock strengths of a sample from a depth of 6 feet (creep prone zone) from our Test Pit No. 2.

Considering that the potential slip surface occurs considerably lower than 40 feet, our new slope stability sections, have been remodeled to show two different types of bedrock. The bedrock below 40 feet, therefore, was assigned the new strength parameters.

As part of our response report, the undersigned geologist visited the adjacent-north site at 3910 Kentucky Drive, AES Project No. 13-347-22, which is currently under construction under AES observation and testing. As of April 2018, the adjacent property has been excavated down to the approximate grade of the alleyway

at ~603' elevation, which is the rough finished grade of that project. We have depicted this in our revised Geologic Cross Section C-C' drawing.

A copy of the City Review Letter is enclosed with this Supplement No. 1 report. Our response is presented below using the original order of the comments.

RESPONSE TO THE GEOTECHNICAL ENGINEERING GROUP COMMENTS

Comment No. 1

The engineering calculations using the new section and obtained field and laboratory data are enclosed with this Supplement No. 1 report. As can be seen, the previously recommended values for temporary excavation (cantilevered and restrained systems) have changed.

Comment No. 2

The enclosed new engineering calculations for temporary support systems consider surcharge from off-site improvements (traffic, structures, etc.).

Comment No. 3

The enclosed new engineering calculations for permanent support systems consider earth pressure and surcharge effects from off-site improvements (traffic, structures, etc.).

Comment No. 4

The cantilevered retaining walls on sections A-A' and B-B' should be designed based on the enclosed Summary No. I.

It should be noted that all given lateral earth pressures consider surcharge effects of off-site improvements.

Comment No. 5

The base of the existing structure to the north (currently under construction) occurs below the base of the proposed building. Therefore, the north property line foundations of the proposed building should be extended below the base of the existing

off-site building to the north. In order to avoid surcharge effects, the upper portion of the pile (above a 1:1 projection from the base of the off-site building to the north) should be sleeved. See the enclosed Cross Section C-C' Drawing No. 5.

Comment No. 6

The new seismic lateral earth pressures for cantilevered and basement walls are enclosed with this Supplement No. 1 report. As can be seen, the magnitudes of the seismic lateral earth pressures for both cantilevered and restrained systems should be at rates of 30 pounds per square foot.

Comment No. 7

As part of preparation of this Supplement No. 1, samples of the fill and native soil, (projecting upward above the site to Fredonia Drive) were tested in our laboratory to determine the shear strengths of the soil cover on the slope. The results of new direct shear tests on soil is presented on Figure No. II-1B enclosed with this Supplement No. 1.

The results of our analysis indicated that the slope above the subject site, extending to Fredonia Drive is grossly and surficially stable. See the enclosed supporting engineering calculation sheets. For the purpose of this project, however, the wall along the west property line should have a freeboard of a least 3 feet to catch normal erosion and divert surface water coming down from the slope. The freeboard should be cleaned after rainy seasons. The freeboard portion of the wall should be designed based on an equivalent fluid pressure of 125 pounds per square foot per foot of depth.

The results of our new slope stability analysis using the new models of subsurface and supplemental laboratory test results of deeper bedrock indicated that, in order to maintain the Code required factors of safeties of 1.5 and 1.0 for static and seismic loading conditions, 5 rows of "shear pins" should be incorporated into the proposed building. The approximate locations of the "shear pin" rows are shown on the enclosed Area Geologic Map and Geotechnical Maps; Drawing Nos. 1 and 2. The profiles of the "shear pins" is shows on the Cross Sections B-B' through C-C'.

Slope Stability calculations along Geologic Cross Section A indicate adequate factor of safety along this section (based on local subsurface geology), such that shear pins are not needed along this section to bring up to adequate factor of safety. Therefore, the 5 rows of shear pins terminate approximately 10 feet north of where Geologic Cross Section A crosses through the proposed building; please see our map and section drawings and accompanying calculations for a graphical depiction.

The “shear pins” should have center-to-center spacing of 8 feet. Each one of the “shear pins” in Rows 1 through 4, should be designed based on a sustained unbalance force of 214 kips. The individual “shear pins” in Row 5 should be designed based on a sustained unbalance force of 100 kips. See the enclosed supporting engineering calculations. The point of application of the lateral sustained loads should be assumed at mid-height of the earth mass above the slip surface having a static factor of safety of 1.5 (without pile reinforcement).

The lateral passive pressure should be assumed below a plane having a static factor of safety of 1.5 without the pile reinforcing. All piles should be extended at least 5 feet below the slip plane (Seismic F.S.=1.0) having a factor of safety of unity without the pile reinforcing. Such planes are shown on the enclosed Geologic Cross Sections B-B’ and C-C’.

It is noted that, if the magnitude of the lateral loads can not be taken by cantilevered system, the “shear pins” should be laterally connected with grade beams or 8-inch thick slabs to create “moment frame” conditions for higher degree of stiffness.

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. 1, or wish to discuss the project further, please do not hesitate to call us.

Respectfully Submitted,

APPLIED EARTH SCIENCES

Arsham "Marshall" Hayrikian
Staff Engineer

Caro J. Minas, President
Geotechnical Engineer
GE 601



Shant Minas
Engineering Geologist
EG 2607



AH/CJM/SM/la

Enclosure: Engineering Calculations
Drawing No. 1 - Area Geologic Map
Drawing No. 2 - Geotechnical Site Plan
Drawing No. 3 Through 5 - Cross Sections A-A' Through C-C'
Boring Logs, B-1 through B-6, Figures Nos. I-1.1 through I-6.2
Direct Shear Test Results - Figure No. II-1A
Direct Shear Test Results - Figure No. II-1B
LADBS Review Letter dated May 10, 2017 (Log # 97819)

PDF Only-
Review Letter By The Geotechnical Engineering Group Of The Department of Public Works Of The City of Los Angeles, dated 5/19/2017
Supplement No. A Report, Dated 6/13/2018

Distribution: (3)

Section	Wall #	Wall Height (Ft.)	Bedding	At-Rest (PCF)	Seismic (PCF)	Active		Reference
						Temporary (PCF)	Permanent (PCF)	
A-A'	1	45	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 1, CALC SHEET No. 3
B-B'	2	45	Along	78	30	35	45	CALC SHEET No. 2, TABLE No. 2, CALC SHEET No. 4
C-C'	3	25	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 3, CALC SHEET No. 3
C-C'	4	40	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 4, CALC SHEET No. 3

WALL PRESSURES SUMMARY

FOR: 6900 Kentucky Drive | DATE: 8/1/2018 | PROJECT NO.: 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

SUMMARY No. 1

Cross Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 35 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 35^\circ$$

$$K_o = 1 - 0.57$$

$$K_o = 0.43$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.43 * 125$$

$$\gamma_o = 53.3$$

At-Rest Equivalent Fluid Density, γ_o = 53 PCF

AT-REST LATERAL EARTH PRESSURE

Sec A-A' - Wall #1, Sec C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

Along Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 22 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 22^\circ$$

$$K_o = 1 - 0.37$$

$$K_o = 0.63$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.63 * 125$$

$$\gamma_o = 78.2$$

At-Rest Equivalent Fluid Density, γ_o = 78 PCF

AT-REST LATERAL EARTH PRESSURE

Sec B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

Cross Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section A-A' - Wall #1, Section C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 3**

Along Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 4**

FILL STRENGTHS

Saturated Unit Weight	γ_s	113	pcf
Cohesion	C	190	psf
Friction Angle	ϕ	29	^{o}
Slope Angle	α	35	^{o}
Depth of Soil	d	3	ft
Unit Weight of Water	γ_w	62.4	pcf

$$F.S. = \frac{[C + (\gamma_S - \gamma_W) * d * cos^2\alpha * \tan\varphi]}{\gamma_S * d * sin\alpha * cos\alpha}$$

F.S. = 190 + 56.46 / 159.28

F.S. = 1.55 > 1.5 **O.K.**

SURFICIAL SLOPE STABILITY CALCULATIONS

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	527.1	65.9	50.73	62.5	27.1	9.9	8.0
					27.1	17.8	

F.S. = ∑ RF / ∑ DF = 17.85 / 27.11 = 0.66

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 27.11 = 17.85 + UBF

UBF = 33.88 - 17.85 = 16.04 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 15.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

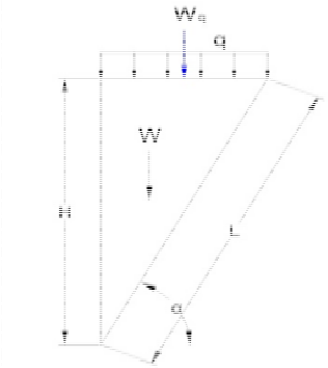
1.5 * 27.11 = 17.85 + UBF

UBF = 40.66 - 17.85 = 22.82 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 22.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION A-A' - Wall #1

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 1

Along Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 250 psf

ϕ = 22 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	2506.0	313.3	120.13	22	108.9	108.9	27.8
					108.9	136.8	

F.S. = ∑ RF / ∑ DF = 136.75 / 108.91 = 1.26

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 108.91 = 136.75 + UBF

UBF = 136.13 - 136.75 = -0.62 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = -0.6 pcf

Therefore use Recommended value of 35 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

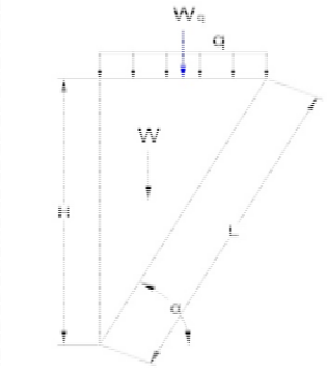
1.5 * 108.91 = 136.75 + UBF

UBF = 163.36 - 136.75 = 26.61 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 26.3 pcf

Therefore use Recommended value of 45 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION B-B' - Wall #2

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 2

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 25 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	162.7	20.3	28.18	62.5	8.5	3.1	4.4
					8.5	7.5	

F.S. = ∑ RF / ∑ DF = 7.51 / 8.45 = 0.89

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 8.45 = 7.51 + UBF

UBF = 10.56 - 7.51 = 3.06 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 9.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

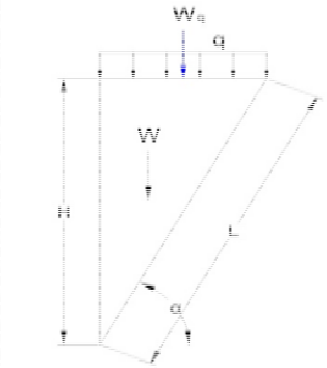
1.5 * 8.45 = 7.51 + UBF

UBF = 12.68 - 7.51 = 5.17 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 16.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION C-C' - Wall #3

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 3

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 40 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	416.5	52.1	45.10	62.5	21.4	7.8	7.1
					21.4	14.9	

F.S. = ∑ RF / ∑ DF = 14.90 / 21.44 = 0.69

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 21.44 = 14.90 + UBF

UBF = 26.81 - 14.90 = 11.91 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 14.9 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

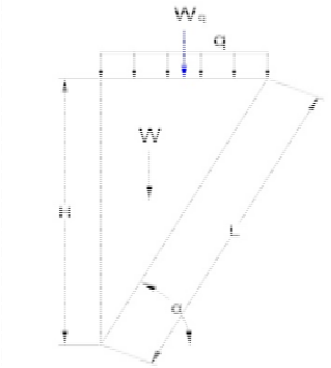
1.5 * 21.44 = 14.90 + UBF

UBF = 32.17 - 14.90 = 17.27 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 21.6 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

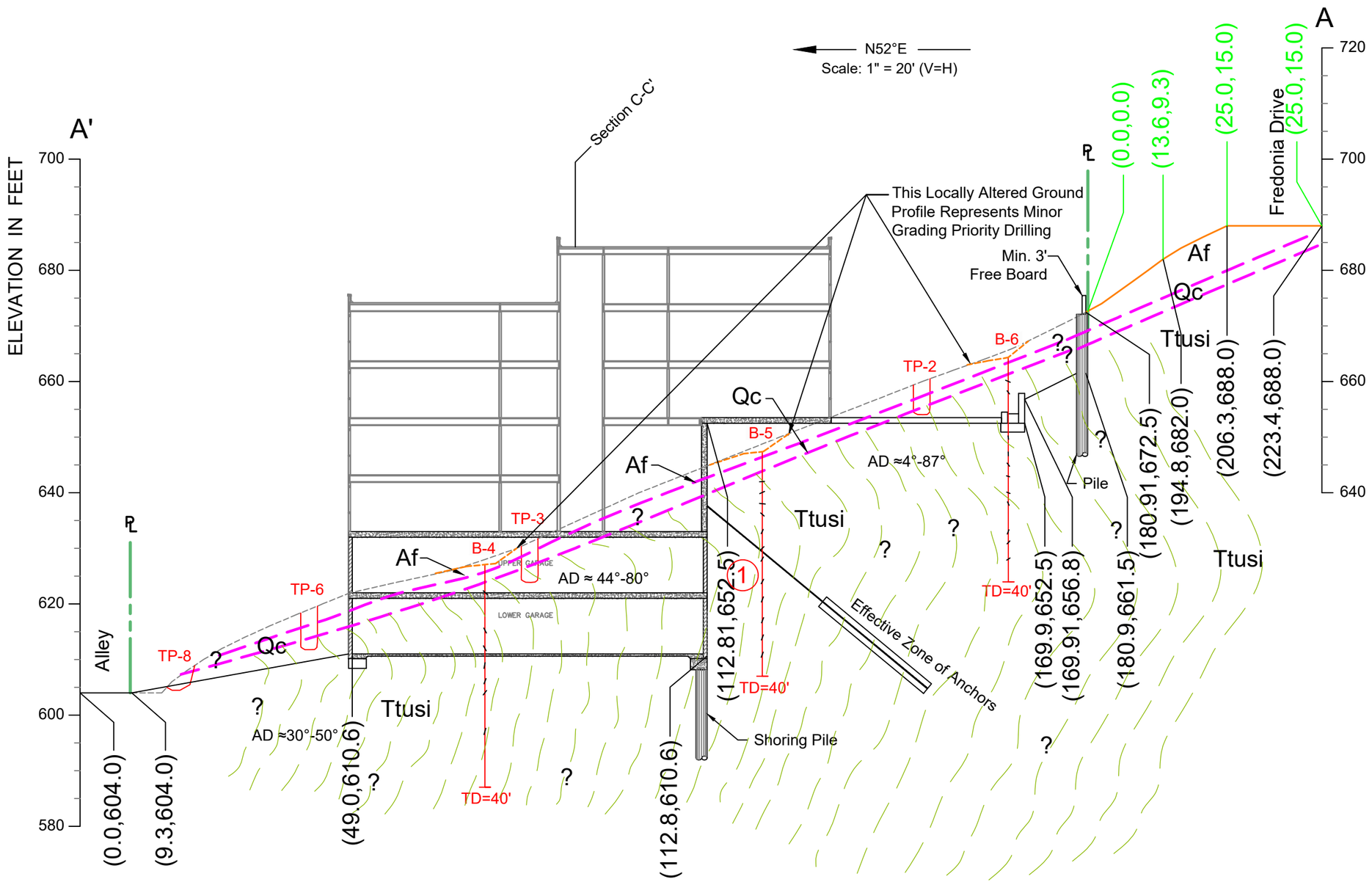
SECTION C-C' - Wall #4

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 4



Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018)
- TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 03 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		SHEET No:	1
		SUPP. No:	1

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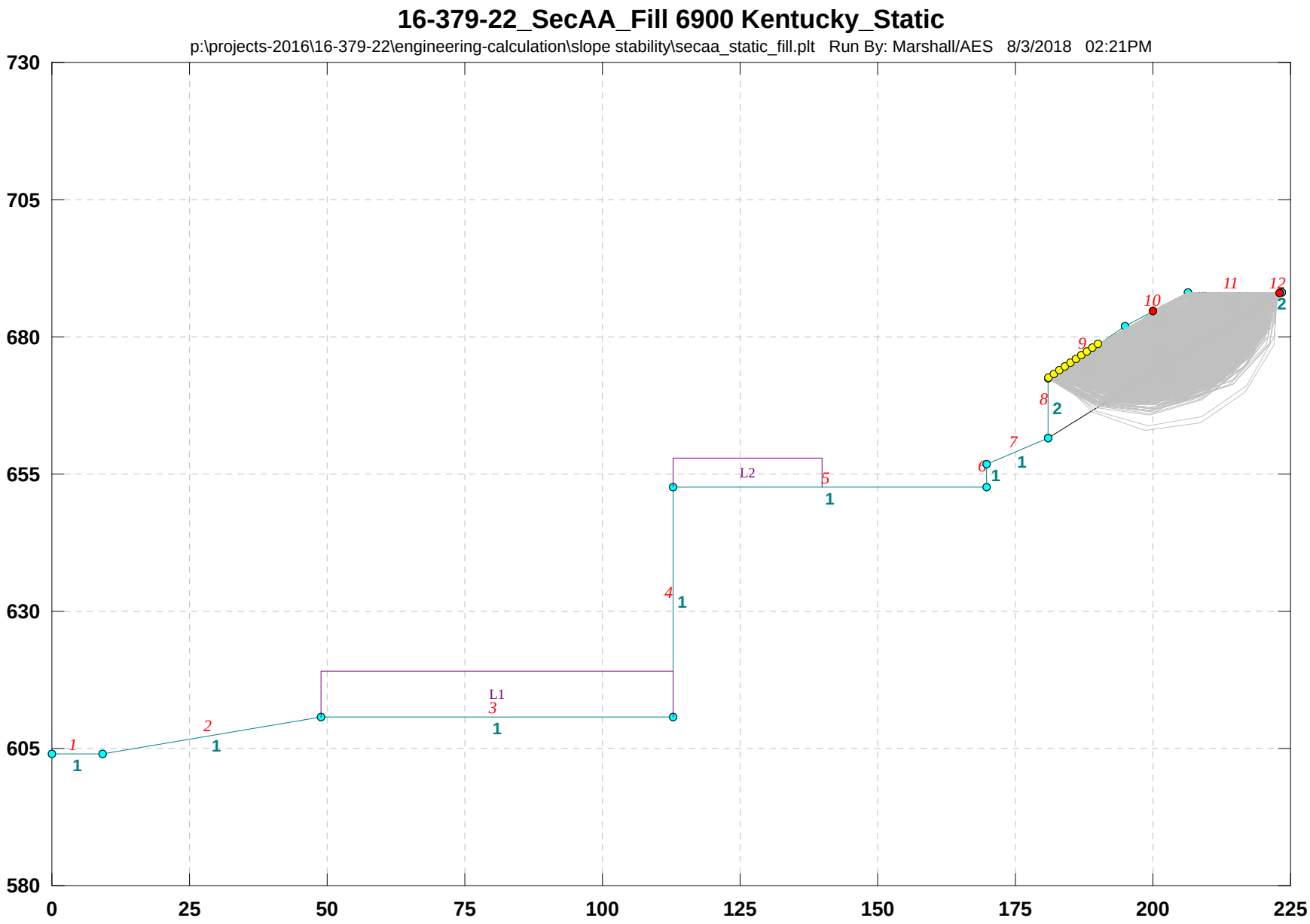
16-379-22_SecAA_Fill 6900 Kentucky_Static
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680
655
630
605
580
0
25
50
75
100
125
150
175
200
225
L1
L2
1
2
3
4
5
6
7
8
9
10
11
12

16-379-22_SecAA_Fill 6900 Kentucky_Static

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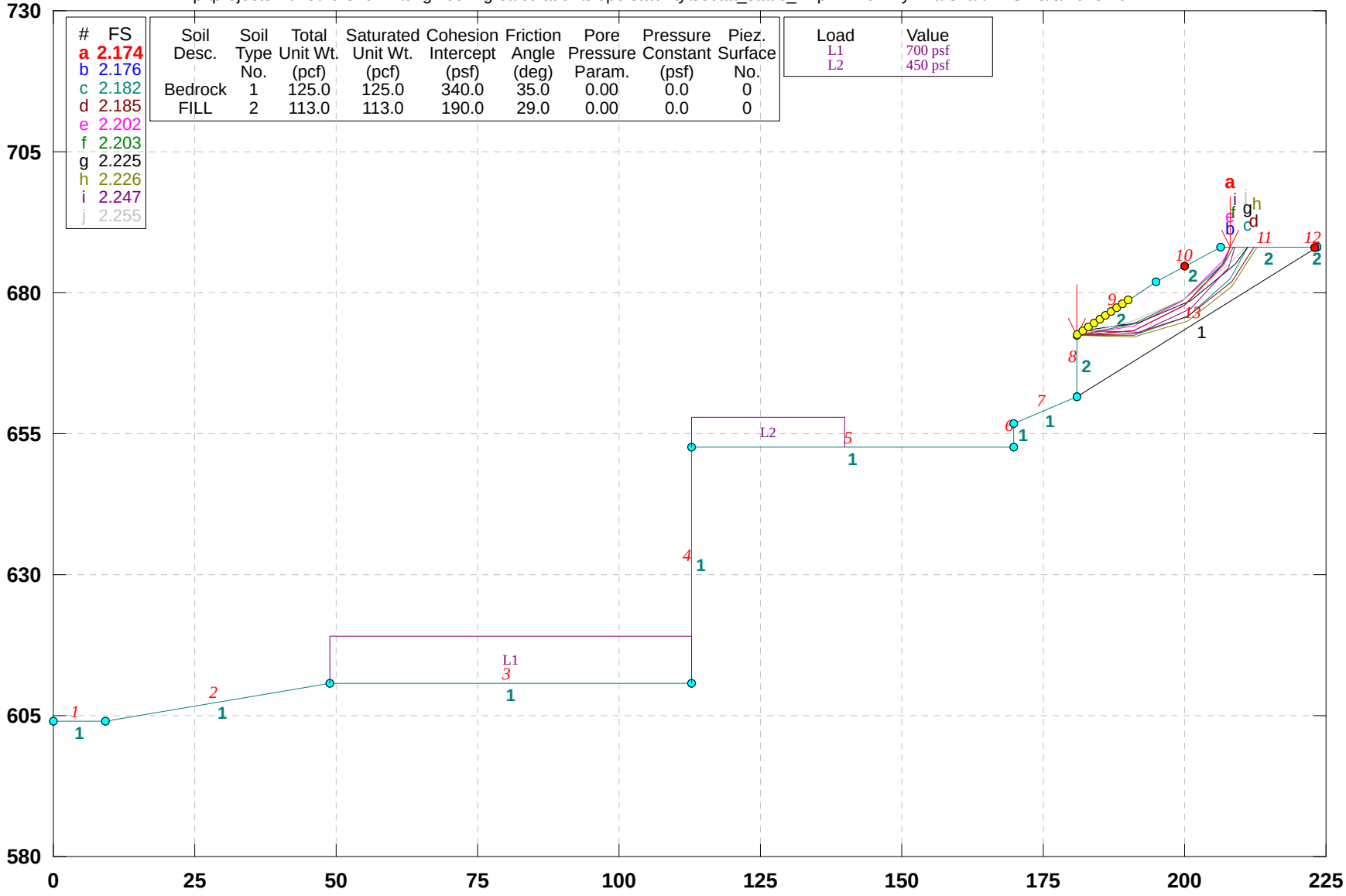

GSTABL7 v.2 FSmin=2.174

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

Analysis Run Date: 8/3/2018
Time of Run: 02:21PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Static

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	**X-Left (ft)**	**X-Right (ft)**	**Intensity (psf)**	**Deflection (deg)**
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)
and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.360 FS Min = 2.174 FS Ave = 3.913
Standard Deviation = 1.209 Coefficient of Variation = 30.90 %
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.966	673.380
3	199.973	677.724
4	206.817	685.015
5	208.031	688.000

Circle Center At X = 183.783 ; Y = 699.780 ; and Radius = 27.360
Factor of Safety
*** 2.174 ***
Individual data on the 6 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	10.0	3377.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	3.8	2765.8	0.0	0.0	0.	0.	0.0	0.0	0.0
3	5.2	4017.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	6.3	3757.2	0.0	0.0	0.	0.	0.0	0.0	0.0
5	0.5	190.6	0.0	0.0	0.	0.	0.0	0.0	0.0
6	1.2	204.7	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.970	673.332
3	199.975	677.682
4	206.776	685.013
5	207.952	688.000

Circle Center At X = 183.942 ; Y = 699.377 ; and Radius = 26.976
Factor of Safety
*** 2.176 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.486
3	200.399	675.901
4	208.018	682.377
5	211.166	688.000

Circle Center At X = 186.209 ; Y = 700.316 ; and Radius = 28.239
Factor of Safety
*** 2.182 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 2.185 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562

```
    2        190.884      674.080
    3        199.791      678.625
    4        206.821      685.738
    5        207.941      688.000
Circle Center At X =   181.230 ; Y =   703.997 ; and Radius =    31.437
       Factor of Safety
      ***    2.202   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.844      674.319
    3        199.814      678.741
    4        207.202      685.479
    5        208.748      688.000
Circle Center At X =   179.717 ; Y =   708.196 ; and Radius =    35.658
       Factor of Safety
      ***    2.203   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.895      674.691
    3        201.056      678.701
    4        208.831      684.989
    5        210.996      688.000
Circle Center At X =   181.576 ; Y =   710.740 ; and Radius =    37.497
       Factor of Safety
      ***    2.225   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    2.226   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.999      673.103
    3        201.166      677.099
    4        207.866      684.522
    5        208.976      688.000
Circle Center At X =   187.330 ; Y =   696.324 ; and Radius =    23.686
       Factor of Safety
      ***    2.247   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.740      674.826
    3        199.832      678.991
    4        207.908      684.887
    5        210.745      688.000
Circle Center At X =   174.644 ; Y =   721.971 ; and Radius =    49.816
       Factor of Safety
      ***    2.255   ***
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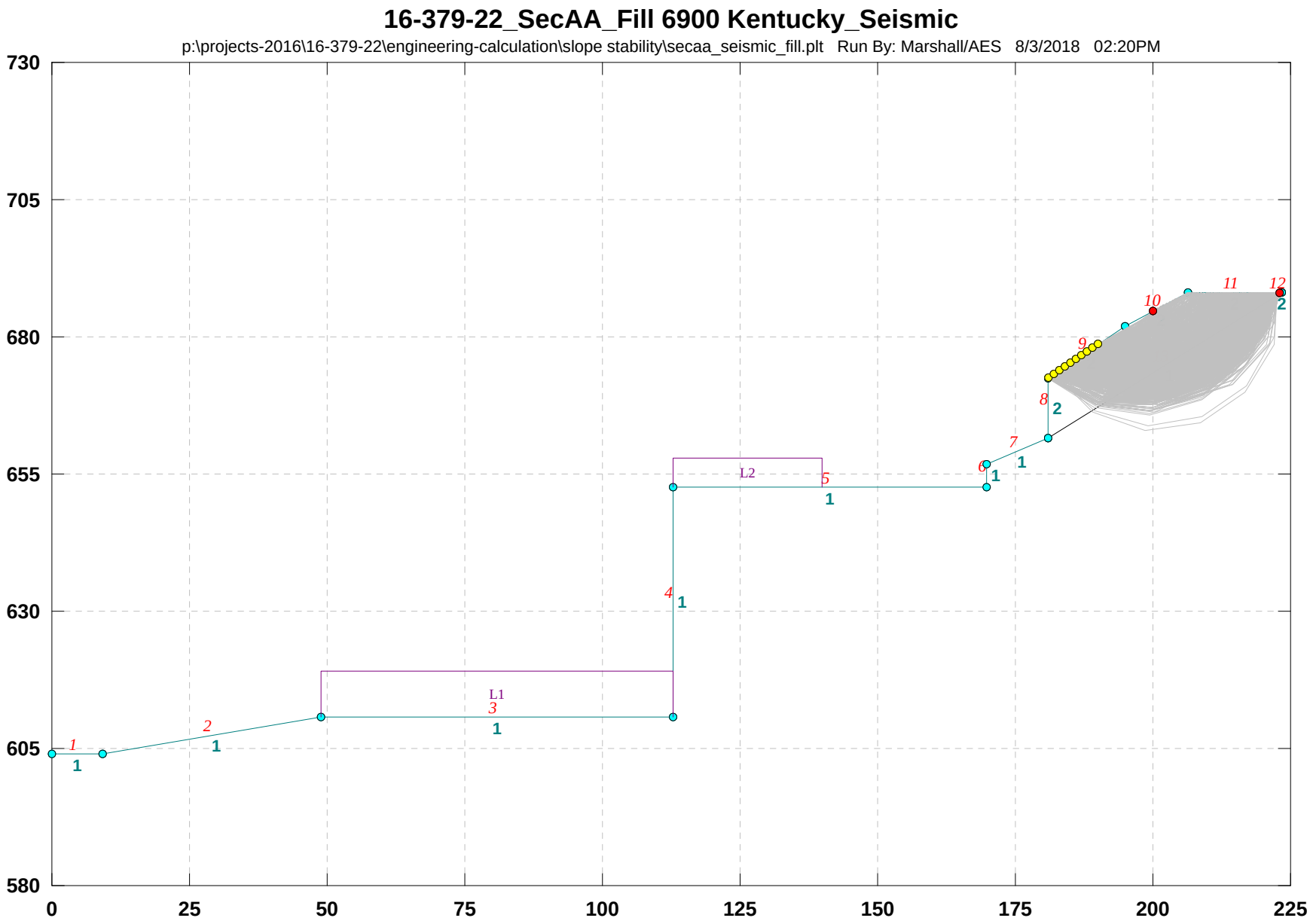
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630
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580
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25
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75
100
125
150
175
200
225
L1
L2
1
2
3
4
5
6
7
8
9
10
11
12

16-379-22_SecAA_Fill 6900 Kentucky_Seismic

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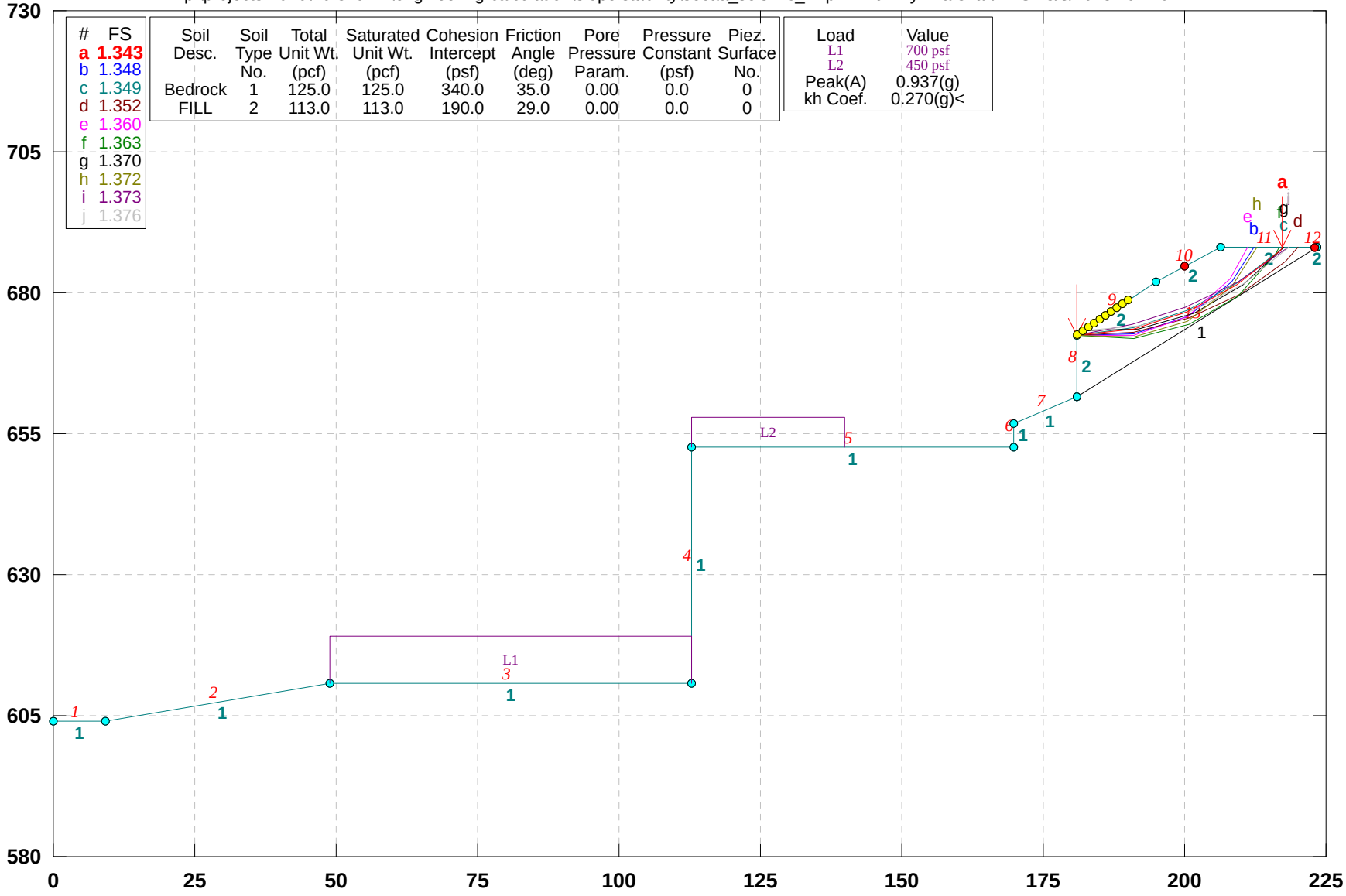

GSTABL7 v.2 FSmin=1.343

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/3/2018
Time of Run: 02:20PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Seismic

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)

and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 7.645 FS Min = 1.343 FS Ave = 2.230
Standard Deviation = 0.696 Coefficient of Variation = 31.23 %
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.936	673.689
3	200.484	676.661
4	209.305	681.372
5	217.085	687.655
6	217.377	688.000

Circle Center At X = 180.074 ; Y = 725.320 ; and Radius = 52.766
Factor of Safety
*** 1.343 ***
Individual data on the 7 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	9.9	3182.3	0.0	0.0	0.	0.	859.2	0.0	0.0
2	3.9	2789.3	0.0	0.0	0.	0.	753.1	0.0	0.0
3	5.7	4950.4	0.0	0.0	0.	0.	1336.6	0.0	0.0
4	5.8	5434.1	0.0	0.0	0.	0.	1467.2	0.0	0.0
5	3.0	2523.3	0.0	0.0	0.	0.	681.3	0.0	0.0
6	7.8	3065.1	0.0	0.0	0.	0.	827.6	0.0	0.0
7	0.3	5.7	0.0	0.0	0.	0.	1.5	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 1.348 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.913	673.877
3	200.444	676.904
4	209.299	681.550
5	217.207	687.671
6	217.505	688.000

Circle Center At X = 178.552 ; Y = 729.229 ; and Radius = 56.720
Factor of Safety
*** 1.349 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.988	673.060
3	200.693	675.469
4	209.755	679.699
5	217.834	685.591

```
    6        220.067      688.000
Circle Center At X =   183.591 ; Y =   723.154 ; and Radius =    50.659
       Factor of Safety
      ***    1.352   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        191.000      672.486
    3        200.399      675.901
    4        208.018      682.377
    5        211.166      688.000
Circle Center At X =   186.209 ; Y =   700.316 ; and Radius =    28.239
       Factor of Safety
      ***    1.360   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.984      672.005
    3        200.701      674.371
    4        209.311      679.456
    5        216.074      686.822
    6        216.641      688.000
Circle Center At X =   187.912 ; Y =   705.464 ; and Radius =    33.621
       Factor of Safety
      ***    1.363   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.992      673.657
    3        201.610      676.392
    4        210.322      681.301
    5        217.527      688.000
Circle Center At X =   185.261 ; Y =   715.597 ; and Radius =    42.476
       Factor of Safety
      ***    1.370   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    1.372   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.849      674.295
    3        200.356      677.394
    4        209.335      681.797
    5        217.607      687.416
    6        218.249      688.000
Circle Center At X =   173.794 ; Y =   742.605 ; and Radius =    70.413
       Factor of Safety
      ***    1.373   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.963      674.105
    3        201.564      676.903
    4        210.428      681.531
    5        218.212      687.809
    6        218.371      688.000
```

```
Circle Center At X =   182.673 ; Y =   723.791 ; and Radius =    50.550
       Factor of Safety
      ***    1.376   ***
          **** END OF GSTABL7 OUTPUT ****
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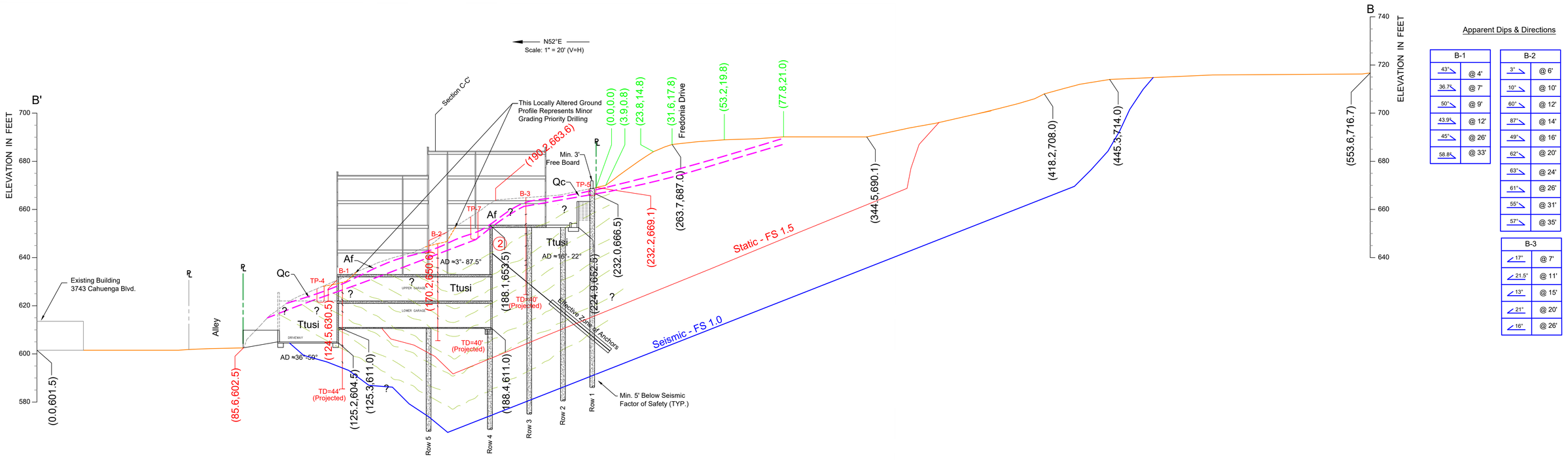


Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

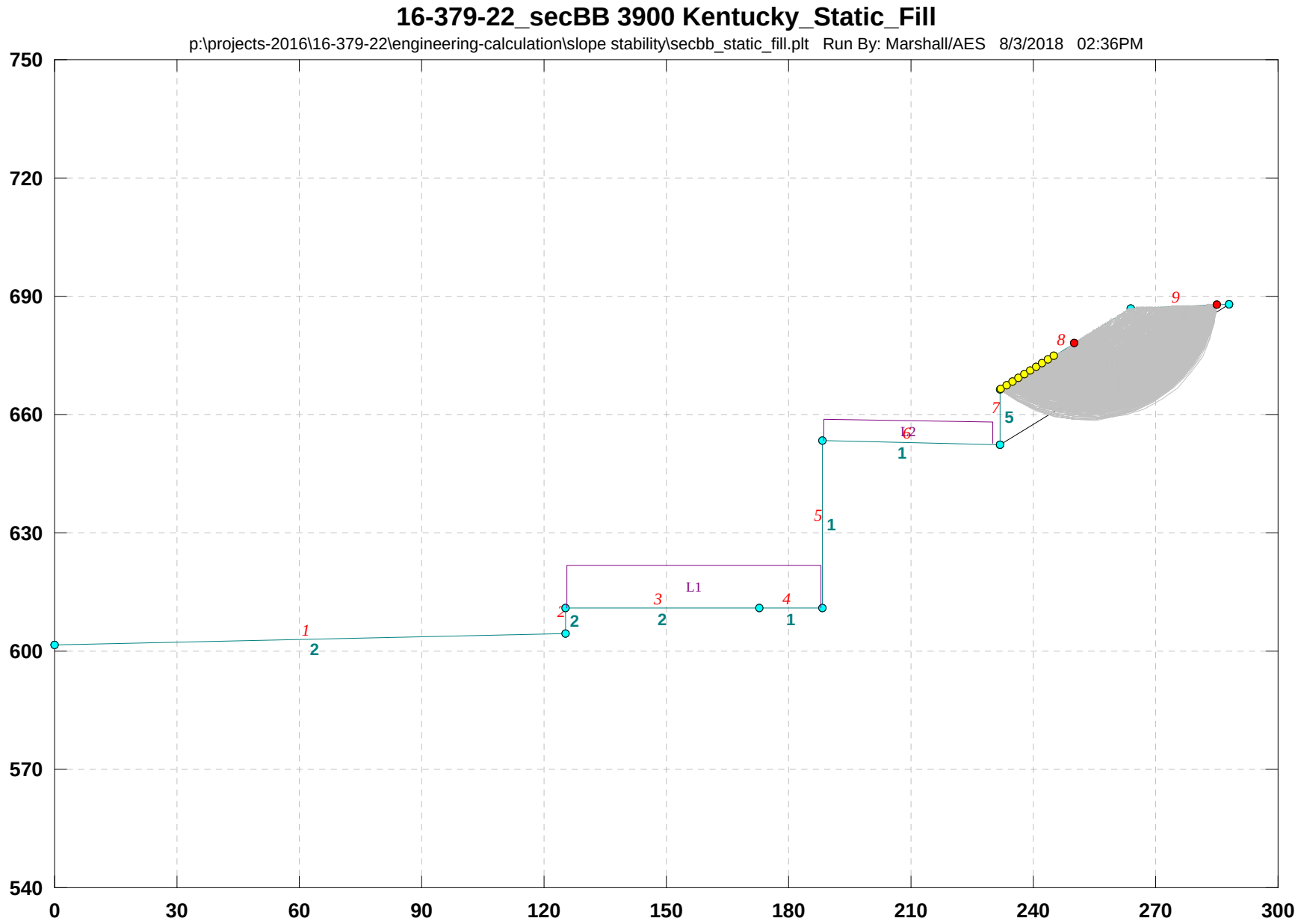
B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION B-B'

PROJECT No:	16-379-22
DESCRIPTION: Proposed 7-Story Condominium Building Complex	DATE: 08 / 03 / 2018
FOR: 3900 Kentucky LLC	DRAWN BY: VM & TG
ADDRESS: 3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY: SM
SHEET No: 2	SUPP. No: 1

Applied Earth Sciences
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS
www.aessoil.com (818) 552-6000


16-379-22_secBB 3900 Kentucky_Static_Fill
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750
720
690
660
630
600
570
540
0
30
60
90
120
150
180
210
240
270
300
L1
L2
1
2
3
4
5
6
7
8
9

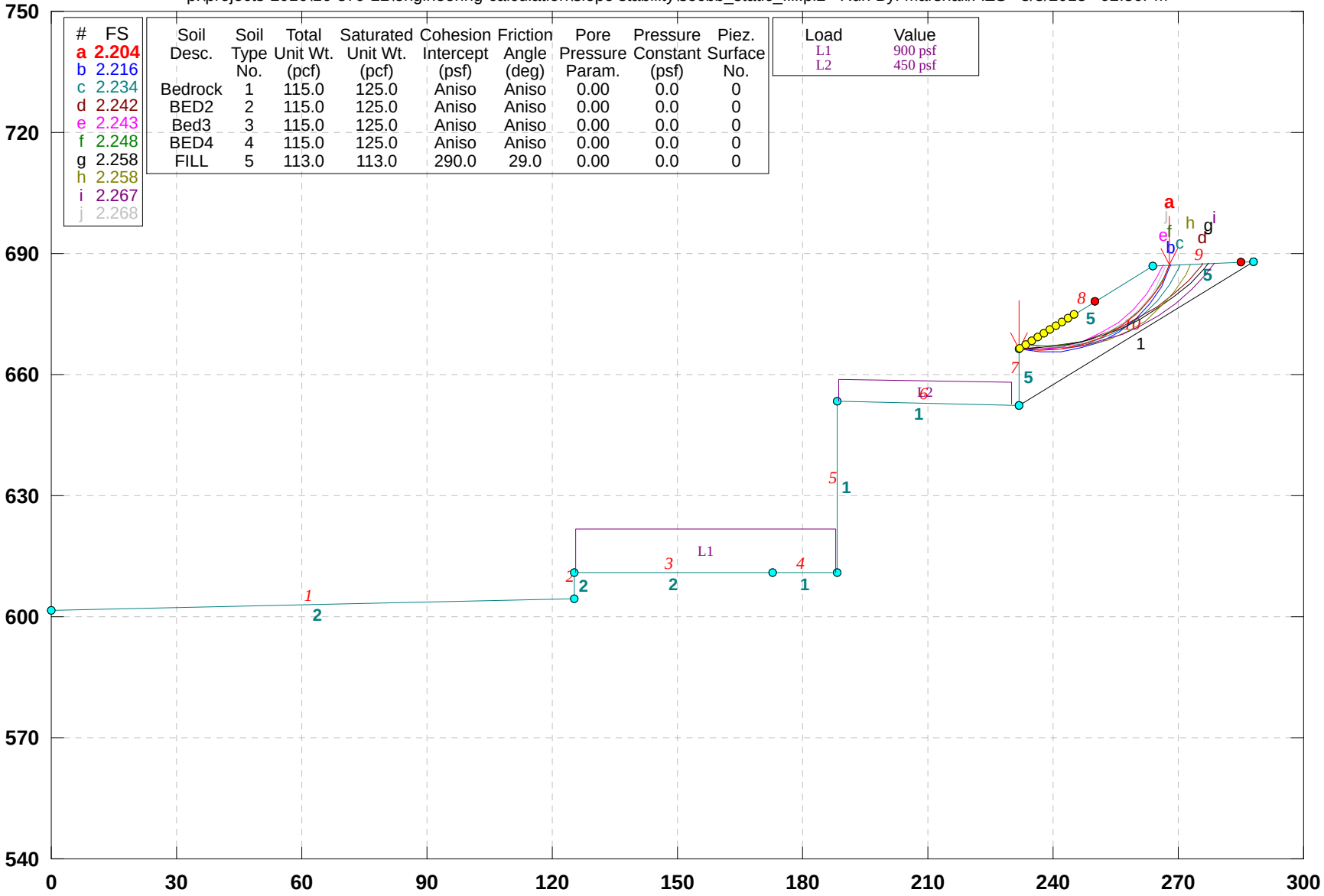
16-379-22_secBB 3900 Kentucky_Static_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\secbb_static_fill.pl2 Run By: Marshall/AES 8/3/2018 02:36PM

#	FS
a	2.204
b	2.216
c	2.234
d	2.242
e	2.243
f	2.248
g	2.258
h	2.258
i	2.267
j	2.268

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf



GSTABL7 v.2 FSmin=2.204

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

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Analysis Run Date: 8/3/2018
Time of Run: 02:36PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_Fill

BOUNDARY COORDINATES
9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00

2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
   (1) An input value of 0.01 for C and/or Phi will cause Aniso
       C and/or Phi to be ignored in that range.
   (2) An input value of 0.02 for Phi will set both Phi and
       C equal to zero, with no water weight in the tension crack.
   (3) An input value of 0.03 for Phi will set both Phi and
       C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
    2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
       Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
 100 Surface(s) Initiate(s) From Each Of   10 Points Equally Spaced
Along The Ground Surface Between X = 232.01(ft)
                            and X = 245.00(ft)
Each Surface Terminates Between   X = 250.00(ft)
                            and   X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y =   0.00(ft)
 5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
      Failure Surfaces Evaluated. They Are
      Ordered - Most Critical First.
      * * Safety Factors Are Calculated By The Modified Bishop Method * *
      Total Number of Trial Surfaces Attempted = 1000
      Number of Trial Surfaces With Valid FS = 1000
      Statistical Data On All Valid FS Values:
         FS Max = 17.133   FS Min =   2.204   FS Ave =   3.631
         Standard Deviation =   1.507   Coefficient of Variation =   41.50 %
      Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	232.010	666.500
2	236.990	666.051
3	241.980	666.367
4	246.863	667.442
5	251.524	669.251
6	255.855	671.750
7	259.753	674.881
8	263.127	678.571
9	265.898	682.733
10	267.956	687.175

Circle Center At X = 237.427 ; Y = 698.668 ; and Radius = 32.621

Factor of Safety

*** 2.204 ***

Individual data on the 10 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	1032.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	5.0	2890.6	0.0	0.0	0.	0.	0.0	0.0	0.0
3	4.9	4206.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	4.7	4882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
5	4.3	4905.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	3.9	4347.7	0.0	0.0	0.	0.	0.0	0.0	0.0
7	3.4	3359.6	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.6	506.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	2.2	1480.6	0.0	0.0	0.	0.	0.0	0.0	0.0
10	2.1	506.8	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.949	665.719
3	241.948	665.762
4	246.873	666.629
5	251.587	668.294
6	255.963	670.714
7	259.880	673.822
8	263.231	677.532
9	265.926	681.744
10	267.889	686.342
11	268.093	687.181

Circle Center At X = 239.188 ; Y = 695.882 ; and Radius = 30.246

Factor of Safety

*** 2.216 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.836
3	243.415	666.992
4	248.333	667.896
5	253.059	669.529
6	257.486	671.852
7	261.513	674.815
8	265.051	678.349
9	268.017	682.374
10	270.344	686.799
11	270.511	687.280

Circle Center At X = 239.889 ; Y = 699.996 ; and Radius = 33.192

Factor of Safety

*** 2.234 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834

6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 2.242 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.295
3	241.975	666.851
4	246.801	668.157
5	251.373	670.181
6	255.584	672.877
7	259.337	676.181
8	262.543	680.018
9	265.129	684.297
10	266.287	687.106

Circle Center At X = 235.890 ; Y = 698.858 ; and Radius = 32.590

Factor of Safety

*** 2.243 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.431	666.966
3	243.420	667.299
4	248.292	668.425
5	252.922	670.313
6	257.190	672.917
7	260.989	676.168
8	264.219	679.985
9	266.799	684.268
10	267.966	687.176

Circle Center At X = 238.882 ; Y = 697.982 ; and Radius = 31.027

Factor of Safety

*** 2.248 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372

8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691

Factor of Safety

*** 2.267 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.839
3	243.411	667.102
4	248.286	668.214
5	252.899	670.143
6	257.114	672.832
7	260.808	676.201
8	263.872	680.153
9	266.216	684.570
10	267.056	687.138

Circle Center At X = 239.417 ; Y = 695.768 ; and Radius = 28.955

Factor of Safety

*** 2.268 ***

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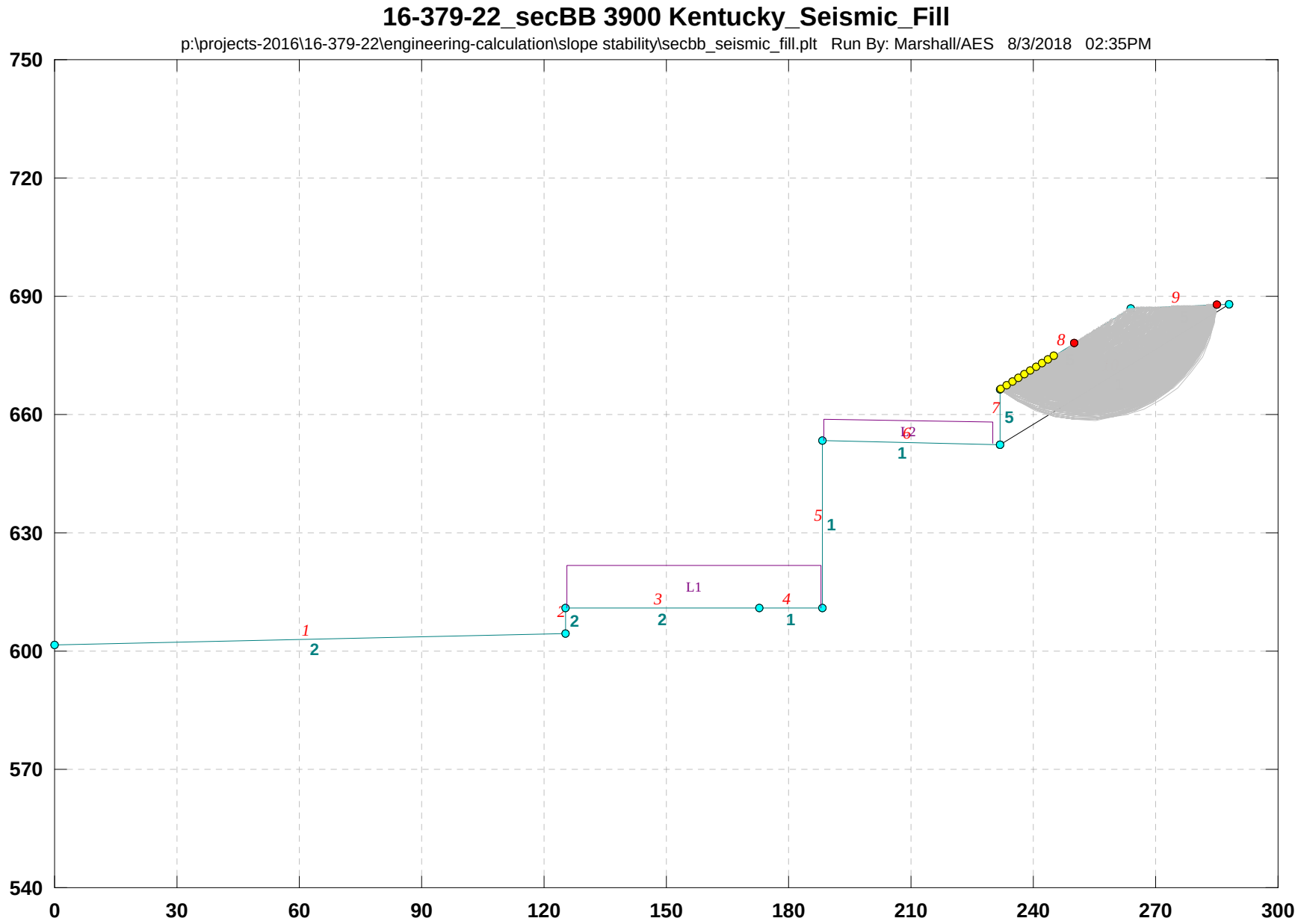
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720
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660
630
600
570
540
0
30
60
90
120
150
180
210
240
270
300
L1
1
2
3
4
5
6
7
8
9

16-379-22_secBB 3900 Kentucky_Seismic_Fill

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#	FS
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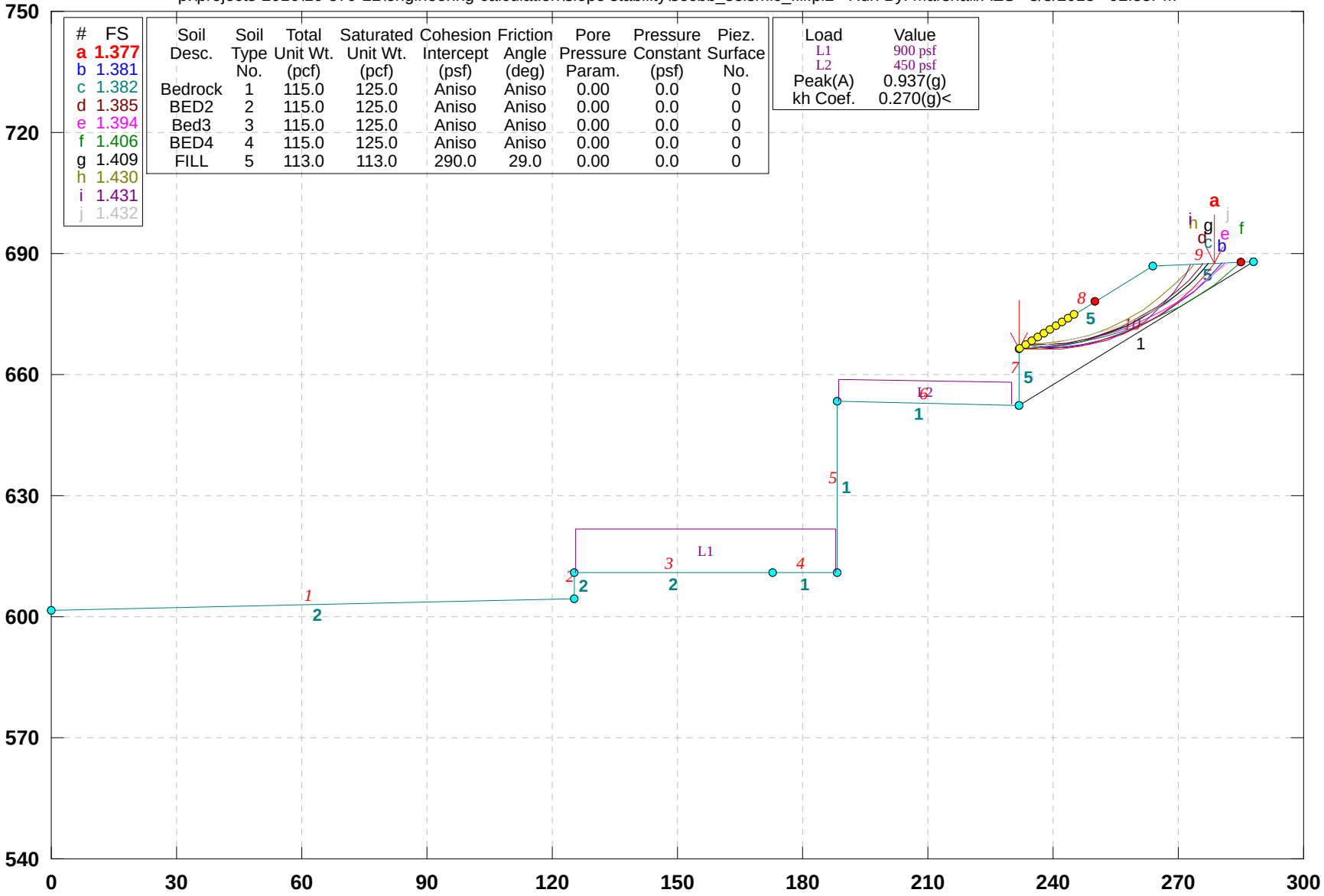
b	1.381
c	1.382
d	1.385
e	1.394
f	1.406
g	1.409
h	1.430
i	1.431
j	1.432

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.377

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

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Unit System: English
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PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_Fill
BOUNDARY COORDINATES

9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00

3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	**188.50**	**230.00**	**450.0**	**0.0**

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 232.01(ft)
and X = 245.00(ft)
Each Surface Terminates Between X = 250.00(ft)
and X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.973 FS Min = 1.377 FS Ave = 2.232
Standard Deviation = 1.072 Coefficient of Variation = 48.03 %
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691
Factor of Safety
*** 1.377 ***
Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	986.7	0.0	0.0	0.	0.	266.4	0.0	0.0

2	5.0	2822.9	0.0	0.0	0.	0.	762.2	0.0	0.0
3	4.9	4333.5	0.0	0.0	0.	0.	1170.0	0.0	0.0
4	4.9	5467.3	0.0	0.0	0.	0.	1476.2	0.0	0.0
5	4.7	6195.1	0.0	0.0	0.	0.	1672.7	0.0	0.0
6	4.5	6510.5	0.0	0.0	0.	0.	1757.8	0.0	0.0
7	2.7	3962.0	0.0	0.0	0.	0.	1069.7	0.0	0.0
8	1.6	2375.9	0.0	0.0	0.	0.	641.5	0.0	0.0
9	4.0	4985.7	0.0	0.0	0.	0.	1346.1	0.0	0.0
10	3.7	3343.0	0.0	0.0	0.	0.	902.6	0.0	0.0
11	3.4	1746.5	0.0	0.0	0.	0.	471.6	0.0	0.0
12	2.2	343.4	0.0	0.0	0.	0.	92.7	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.009	666.397
3	241.998	666.727
4	246.940	667.486
5	251.798	668.669
6	256.536	670.268
7	261.117	672.269
8	265.509	674.660
9	269.678	677.420
10	273.593	680.531
11	277.224	683.968
12	280.534	687.693

Circle Center At X = 235.698 ; Y = 724.204 ; and Radius = 57.821

Factor of Safety

*** 1.381 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 1.382 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834
6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 1.385 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.705

3	241.973	667.273
4	246.886	668.202
5	251.719	669.486
6	256.445	671.119
7	261.039	673.091
8	265.478	675.393
9	269.737	678.012
10	273.794	680.935
11	277.627	684.145
12	281.216	687.626
13	281.304	687.724

Circle Center At X = 231.698 ; Y = 735.096 ; and Radius = 68.596

Factor of Safety

*** 1.394 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.692
3	241.980	667.205
4	246.910	668.038
5	251.776	669.187
6	256.558	670.647
7	261.236	672.412
8	265.791	674.475
9	270.203	676.828
10	274.454	679.460
11	278.527	682.360
12	282.404	685.517
13	284.946	687.874

Circle Center At X = 231.537 ; Y = 744.034 ; and Radius = 77.535

Factor of Safety

*** 1.406 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.453	667.462
3	243.428	667.961
4	248.334	668.926
5	253.128	670.347
6	257.767	672.213
7	262.209	674.507
8	266.417	677.209
9	270.351	680.294
10	273.978	683.736
11	277.266	687.503
12	277.306	687.560

Circle Center At X = 235.651 ; Y = 720.483 ; and Radius = 53.095

Factor of Safety

*** 1.409 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.446	667.700
3	243.389	668.456
4	248.233	669.695
5	252.932	671.404
6	257.439	673.568
7	261.712	676.164
8	265.709	679.168
9	269.391	682.551
10	272.723	686.279
11	273.545	687.405

Circle Center At X = 233.249 ; Y = 718.195 ; and Radius = 50.762

Factor of Safety

*** 1.430 ***

Failure Surface Specified By 11 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372
8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 1.431 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.973	667.105
3	241.895	667.986
4	246.760	669.141
5	251.553	670.565
6	256.259	672.255
7	260.863	674.204
8	265.351	676.408
9	269.709	678.858
10	273.924	681.548
11	277.982	684.470
12	281.871	687.613
13	282.027	687.754

Circle Center At X = 223.660 ; Y = 755.651 ; and Radius = 89.541

Factor of Safety

*** 1.432 ***

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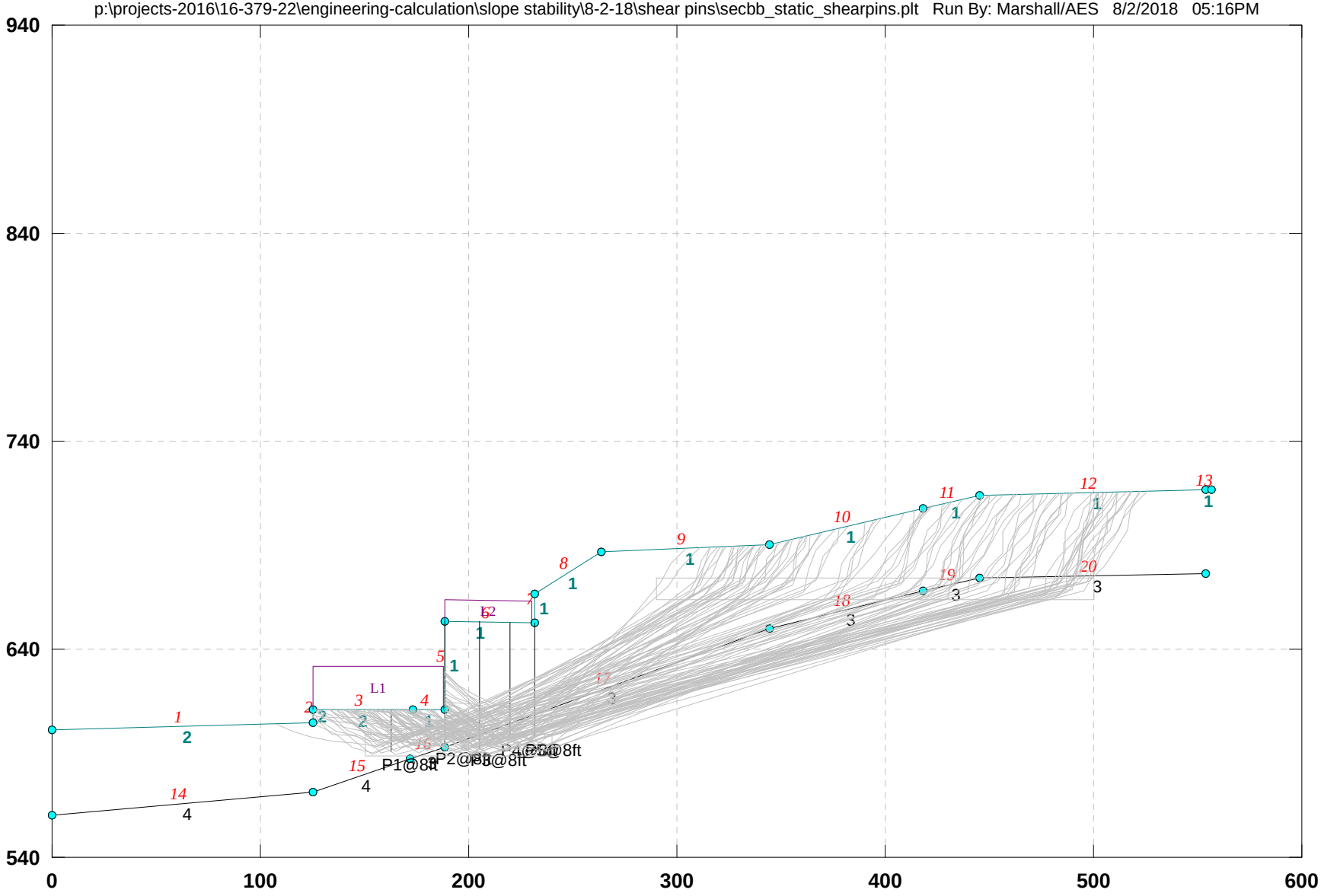
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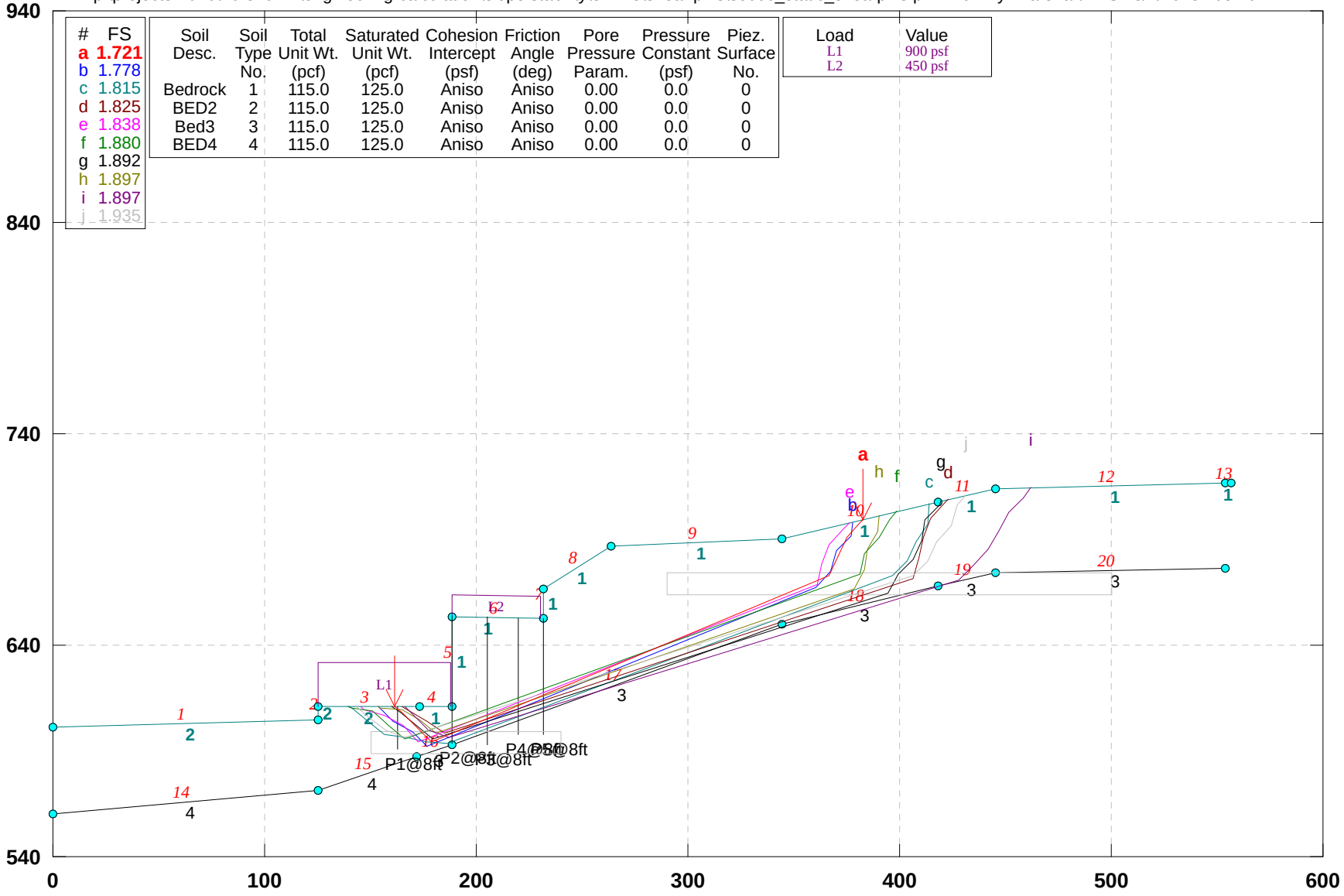

GSTABL7 v.2 FSmin=1.721

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

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Time of Run: 05:16PM
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PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile No.	X-Pos (ft)	Y-Pos (ft)	Load (lbs)	Spacing (ft)	Inclination (deg)	Length (ft)
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles Assuming A Uniform Distribution Of Load Horizontally Between Individual Piers/Piles.

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.786 FS Min = 1.721 FS Ave = 2.450
Standard Deviation = 0.413 Coefficient of Variation = 16.87 %
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.721 ***

Individual data on the 18 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.0	497.2	0.0	0.0	0.	0.	0.0	0.0	2666.3
2	7.1	5248.5	0.0	0.0	0.	0.	0.0	0.0	6364.4
3	1.2	1511.0	0.0	0.0	0.	0.	0.0	0.0	1115.5
4	5.9	9540.7	0.0	0.0	0.	0.	0.0	0.0	5290.8
5	9.2	15990.1	0.0	0.0	0.	0.	0.0	0.0	8299.2
6	0.4	600.8	0.0	0.0	0.	0.	0.0	0.0	0.0
7	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	41.5	220734.8	0.0	0.0	0.	0.	0.0	0.0	18675.0
10	2.0	8424.4	0.0	0.0	0.	0.	0.0	0.0	0.0
11	0.0	49.6	0.0	0.0	0.	0.	0.0	0.0	0.0
12	31.7	196007.4	0.0	0.0	0.	0.	0.0	0.0	0.0
13	80.8	390151.7	0.0	0.0	0.	0.	0.0	0.0	0.0
14	22.0	62306.1	0.0	0.0	0.	0.	0.0	0.0	0.0
15	4.6	9947.5	0.0	0.0	0.	0.	0.0	0.0	0.0
16	3.7	4503.6	0.0	0.0	0.	0.	0.0	0.0	0.0
17	6.9	2931.6	0.0	0.0	0.	0.	0.0	0.0	0.0
18	1.2	62.5	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

Factor of Safety
*** 1.778 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716
5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.815 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.825 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.838 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421
10	398.492	703.214

Factor of Safety
*** 1.880 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586

5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.892 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.935 ***

**** END OF GSTABL7 OUTPUT ****

16-379-22_secBB 3900 Kentucky_Seismic_ShearPins

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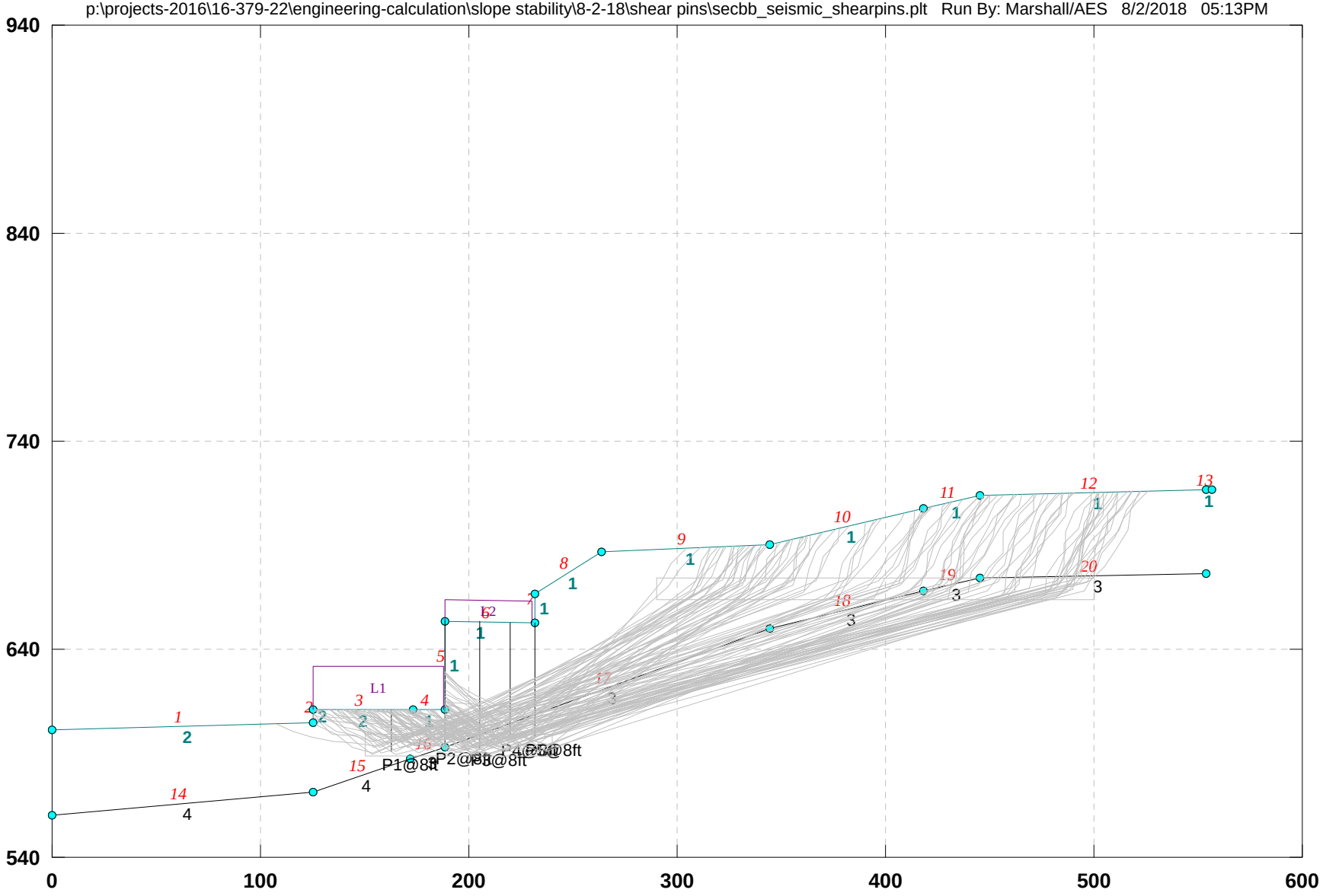

16-379-22_secBB 3900 Kentucky_Seismic_ShearPins

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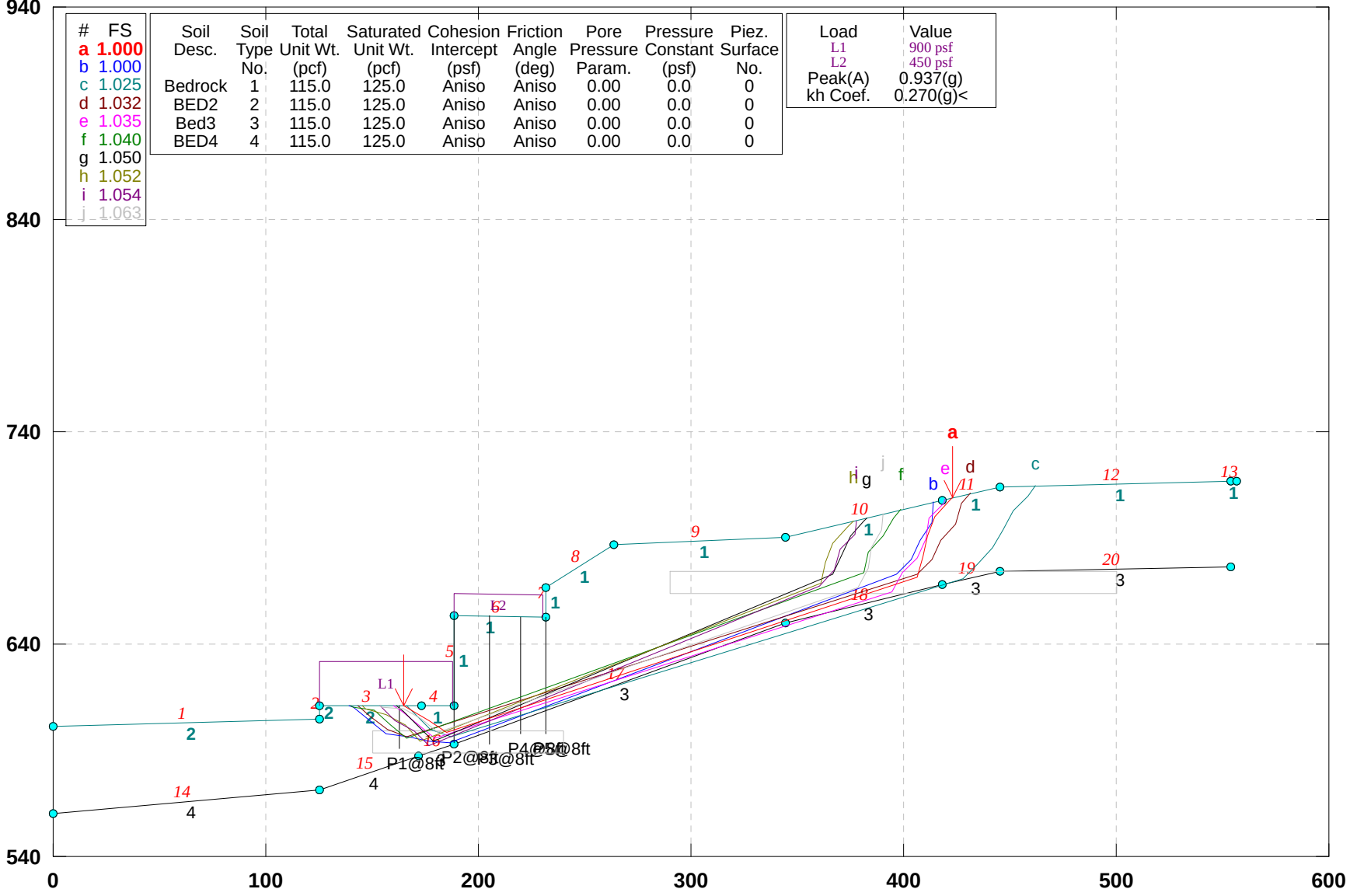
#	FS
a	1.000
b	1.000
c	1.025
d	1.032
e	1.035
f	1.040
g	1.050
h	1.052
i	1.054
j	1.063

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.000

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:13PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile **No.**	X-Pos **(ft)**	Y-Pos **(ft)**	Load **(lbs)**	Spacing **(ft)**	Inclination **(deg)**	Length **(ft)**
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles
Assuming A Uniform Distribution Of Load Horizontally Between
Individual Piers/Piles.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Sliding Block Surfaces, Has Been
Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of
Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.100 FS Min = 1.000 FS Ave = 1.342
Standard Deviation = 0.261 Coefficient of Variation = 19.46 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.000 ***
Individual data on the 20 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.3	374.7	0.0	0.0	0.	0.	101.2	0.0	2970.7
2	4.9	1930.2	0.0	0.0	0.	0.	521.2	0.0	4386.0
3	3.7	2557.2	0.0	0.0	0.	0.	690.4	0.0	3320.7
4	8.3	9475.3	0.0	0.0	0.	0.	2558.3	0.0	7467.7
5	3.1	4369.5	0.0	0.0	0.	0.	1179.8	0.0	2801.6
6	0.4	534.7	0.0	0.0	0.	0.	144.4	0.0	0.0
7	0.0	37.7	0.0	0.0	0.	0.	10.2	0.0	0.0
8	0.1	559.4	0.0	0.0	0.	0.	151.0	0.0	0.0
9	41.5	222776.5	0.0	0.0	0.	0.	60149.7	0.0	18675.0
10	2.0	8965.7	0.0	0.0	0.	0.	2420.8	0.0	0.0
11	0.0	52.5	0.0	0.0	0.	0.	14.2	0.0	0.0
12	31.7	210023.8	0.0	0.0	0.	0.	56706.4	0.0	0.0
13	80.8	472165.6	0.0	0.0	0.	0.	*******	0.0	0.0
14	61.7	257249.4	0.0	0.0	0.	0.	69457.3	0.0	0.0
15	2.7	8949.6	0.0	0.0	0.	0.	2416.4	0.0	0.0
16	2.3	5303.6	0.0	0.0	0.	0.	1432.0	0.0	0.0
17	3.6	4599.2	0.0	0.0	0.	0.	1241.8	0.0	0.0
18	3.5	2210.6	0.0	0.0	0.	0.	596.9	0.0	0.0
19	3.4	1069.9	0.0	0.0	0.	0.	288.9	0.0	0.0
20	1.4	105.4	0.0	0.0	0.	0.	28.5	0.0	0.0

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716

5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.000 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.025 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.032 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586
5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421

10	398.492	703.214

Factor of Safety
*** 1.040 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.050 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.052 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

Factor of Safety
*** 1.054 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.063 ***

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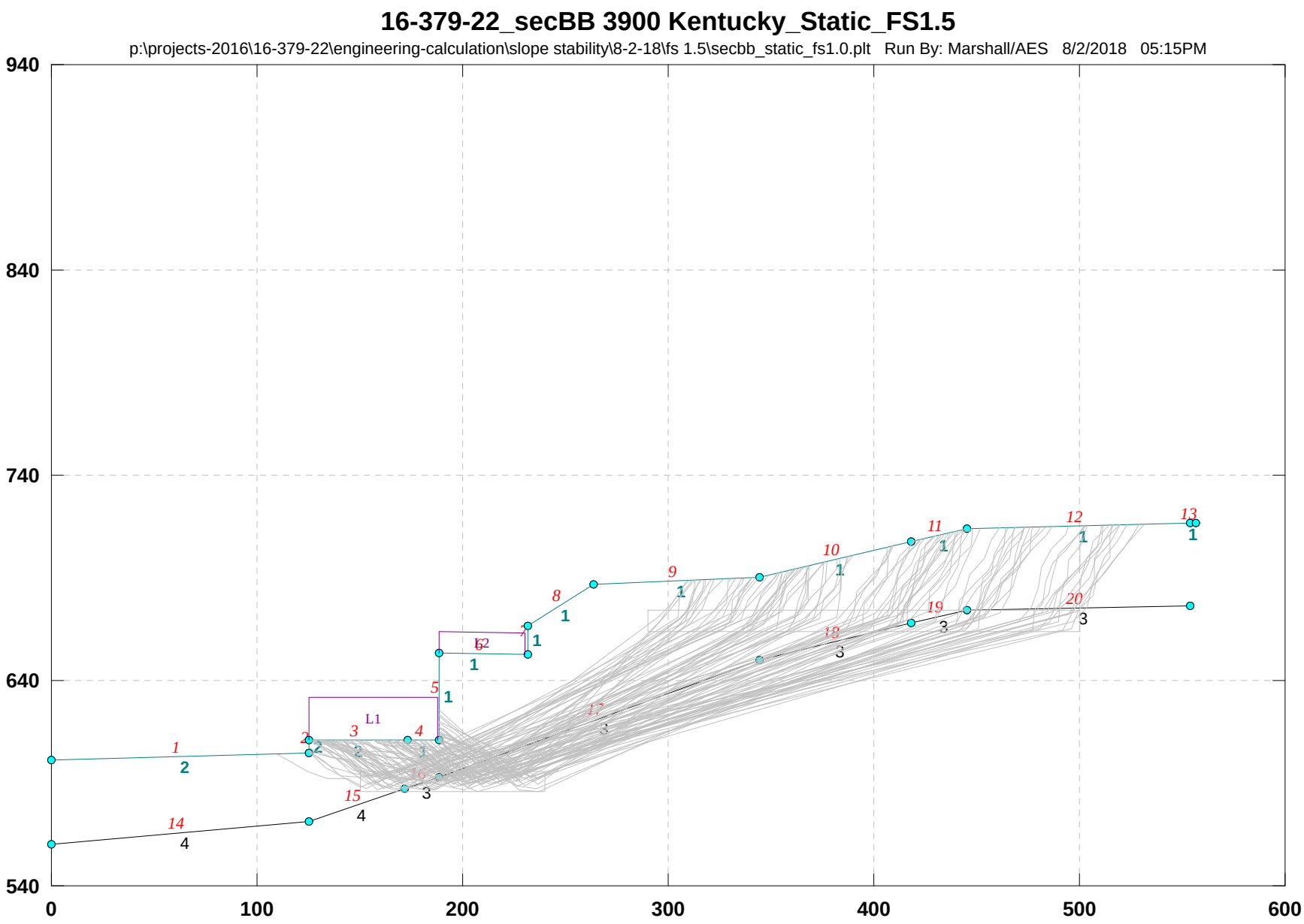
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L1
L2

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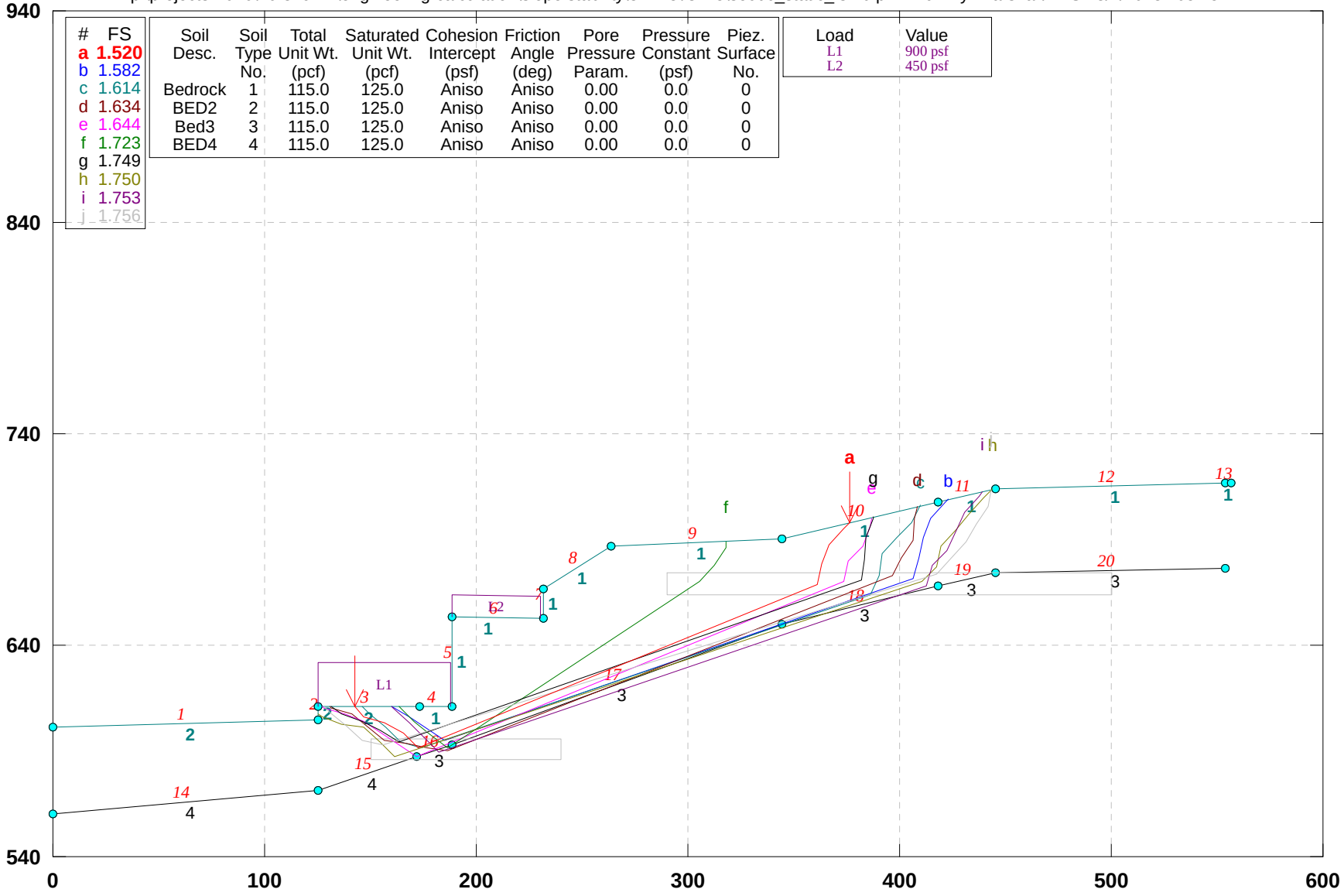

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Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

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3900 Kentucky_Static_FS1.5

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	591.00	240.00	591.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.458 FS Min = 1.520 FS Ave = 2.270
Standard Deviation = 0.414 Coefficient of Variation = 18.24 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	142.287	611.000
2	147.092	606.238
3	156.707	603.489
4	165.439	598.616
5	172.516	591.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.520 ***

Individual data on the 19 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	4.8	1315.7	0.0	0.0	0.	0.	0.0	0.0	4324.3
2	9.6	6785.4	0.0	0.0	0.	0.	0.0	0.0	8653.3
3	8.7	9989.5	0.0	0.0	0.	0.	0.0	0.0	7859.0
4	7.1	12954.9	0.0	0.0	0.	0.	0.0	0.0	6369.9
5	0.4	854.3	0.0	0.0	0.	0.	0.0	0.0	345.2
6	15.1	28156.9	0.0	0.0	0.	0.	0.0	0.0	13590.0
7	0.4	600.5	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
9	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
10	41.5	221902.9	0.0	0.0	0.	0.	0.0	0.0	18675.0
11	2.0	8540.1	0.0	0.0	0.	0.	0.0	0.0	0.0
12	0.0	50.2	0.0	0.0	0.	0.	0.0	0.0	0.0
13	31.7	198568.5	0.0	0.0	0.	0.	0.0	0.0	0.0
14	80.8	402882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
15	16.8	52278.6	0.0	0.0	0.	0.	0.0	0.0	0.0
16	2.0	4732.1	0.0	0.0	0.	0.	0.0	0.0	0.0
17	3.5	4819.7	0.0	0.0	0.	0.	0.0	0.0	0.0
18	6.9	3954.3	0.0	0.0	0.	0.	0.0	0.0	0.0
19	2.7	344.9	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.711	611.000
2	168.027	606.025
3	176.590	600.861
4	184.887	595.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.582 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	146.093	611.000
2	149.678	607.679
3	157.270	601.169
4	164.351	594.109
5	174.011	591.522
6	386.118	664.185

7	390.376	673.233
8	391.946	683.109
9	398.353	690.787
10	405.286	697.994
11	410.129	706.040

Factor of Safety
*** 1.614 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.047	611.000
2	131.820	610.237
3	141.411	607.409
4	149.239	601.186
5	156.864	594.716
6	166.754	593.237
7	176.588	591.419
8	186.535	590.394
9	396.474	672.627
10	400.928	681.581
11	406.480	689.898
12	407.214	699.871
13	408.677	705.687

Factor of Safety
*** 1.634 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.155	611.000
2	127.933	610.249
3	137.490	607.305
4	146.980	604.152
5	155.097	598.311
6	163.378	592.706
7	171.791	587.301
8	373.967	670.022
9	375.909	679.832
10	382.915	686.967
11	385.871	696.521
12	386.677	700.344

Factor of Safety
*** 1.644 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	163.562	611.000
2	170.593	603.993
3	178.436	597.789
4	186.271	591.576
5	305.624	670.450
6	312.614	677.601
7	317.939	686.065
8	318.188	689.091

Factor of Safety
*** 1.723 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.534	611.000
2	136.581	607.824
3	145.812	603.978
4	154.798	599.590
5	163.332	594.378
6	381.708	670.987
7	383.569	680.812
8	384.405	690.777
9	387.540	700.273
10	387.873	700.634

Factor of Safety
*** 1.749 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.251	607.817
2	127.273	605.920
3	136.691	602.559
4	146.563	600.961
5	154.249	594.565
6	161.332	587.506
7	410.266	670.306
8	417.302	677.411
9	419.838	687.084
10	426.418	694.614
11	432.811	702.303
12	439.812	709.444
13	444.001	713.712

Factor of Safety
*** 1.750 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.818	611.000
2	160.716	610.113
3	168.072	603.338
4	175.144	596.269
5	182.316	589.300
6	412.880	667.784
7	415.253	677.498
8	422.126	684.762
9	426.329	693.836
10	430.640	702.859
11	437.476	710.156
12	438.822	712.566

Factor of Safety
*** 1.753 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.807	611.000
2	131.054	608.112
3	138.779	601.762
4	145.974	594.817
5	155.817	593.055
6	417.495	673.921
7	424.232	681.311
8	431.069	688.608
9	436.496	697.008
10	441.799	705.486
11	442.984	713.487

Factor of Safety
*** 1.756 ***

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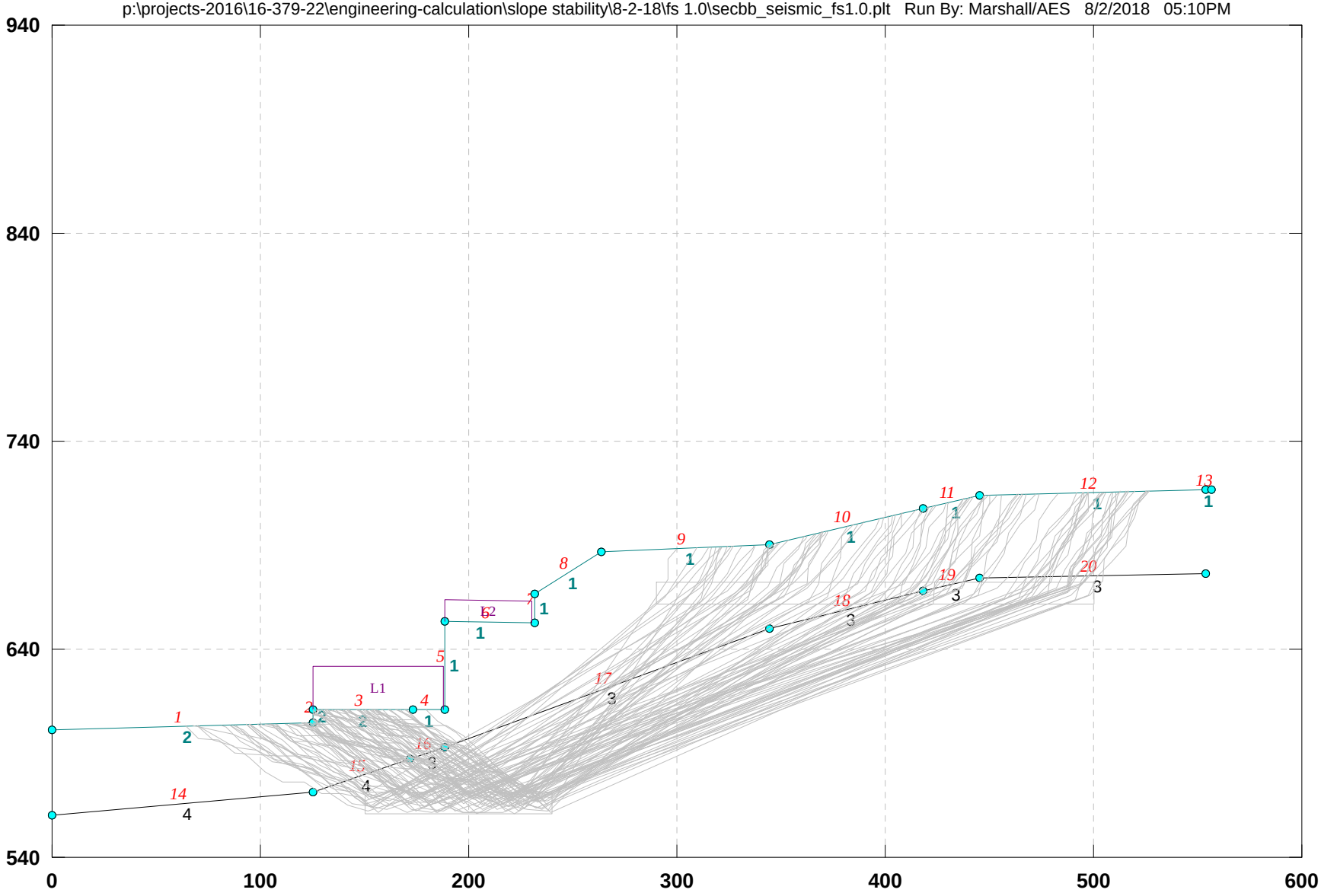
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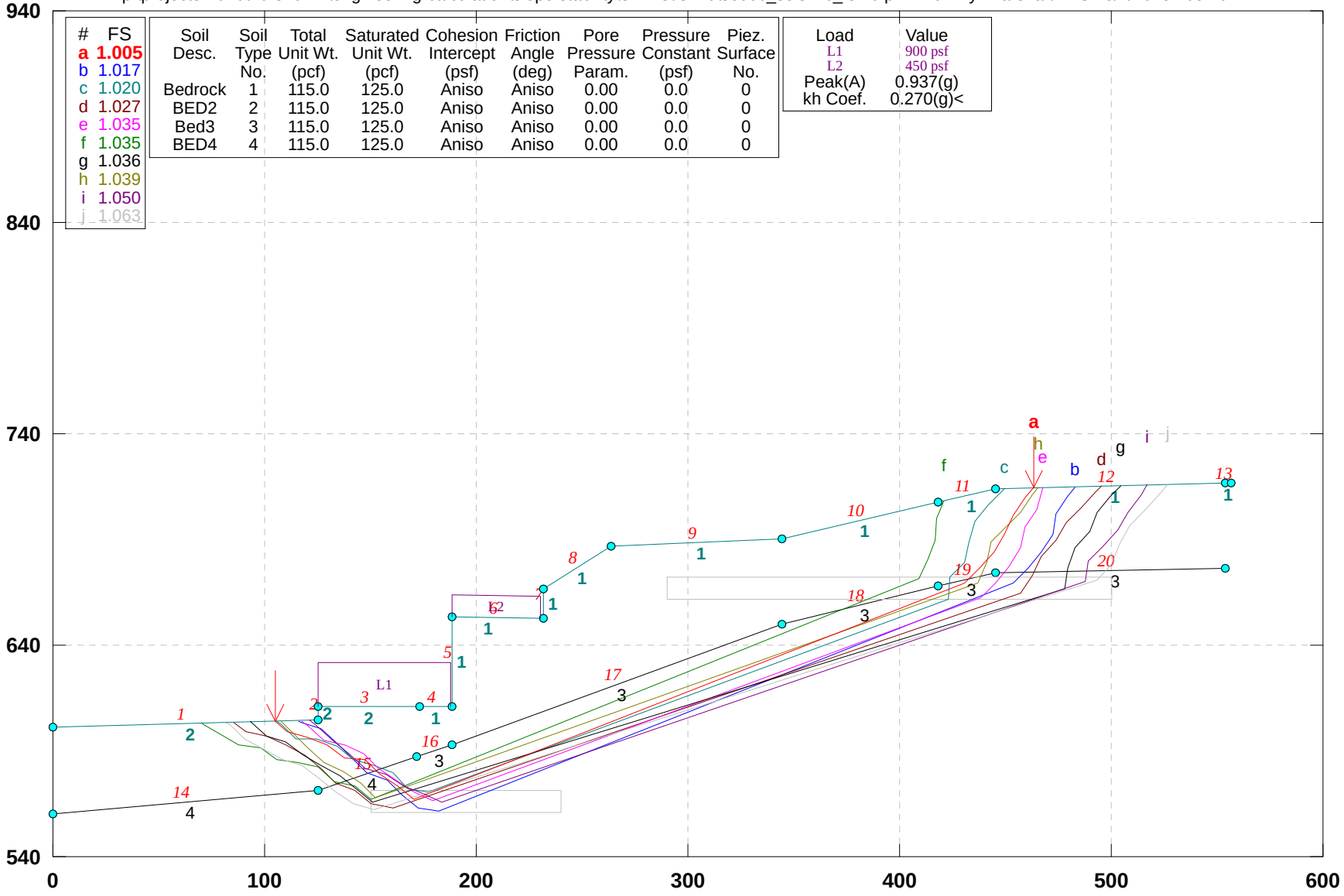

GSTABL7 v.2 FSmin=1.005

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **

** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **

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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:10PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_FS1.0
BOUNDARY COORDINATES
13 Top Boundaries

20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS

4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00

5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	566.00	240.00	566.00	10.00
2	290.00	667.00	500.00	667.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.198 FS Min = 1.005 FS Ave = 1.478
Standard Deviation = 0.286 Coefficient of Variation = 19.35 %
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	105.017	604.016
2	110.840	599.284
3	120.299	596.040
4	129.711	592.662
5	137.614	586.535
6	147.596	585.929
7	154.674	578.865
8	163.110	573.495
9	170.737	567.027
10	430.568	669.311
11	437.386	676.627
12	444.455	683.700
13	449.304	692.446

14	453.351	701.590
15	458.856	709.939
16	463.317	714.449

Factor of Safety
*** 1.005 ***

Individual data on the 33 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.8	1631.4	0.0	0.0	0.	0.	440.5	0.0	0.0
2	9.5	7187.9	0.0	0.0	0.	0.	1940.7	0.0	0.0
3	4.9	5230.7	0.0	0.0	0.	0.	1412.3	0.0	0.0
4	0.1	155.1	0.0	0.0	0.	0.	41.9	0.0	0.0
5	0.2	386.2	0.0	0.0	0.	0.	104.3	0.0	0.0
6	4.2	8515.3	0.0	0.0	0.	0.	2299.1	0.0	3790.3
7	7.9	19450.4	0.0	0.0	0.	0.	5251.6	0.0	7112.5
8	10.0	28431.2	0.0	0.0	0.	0.	7676.4	0.0	8983.5
9	5.4	17374.8	0.0	0.0	0.	0.	4691.2	0.0	4893.9
10	1.6	5907.7	0.0	0.0	0.	0.	1595.1	0.0	1476.3
11	8.4	33780.5	0.0	0.0	0.	0.	9120.7	0.0	7592.4
12	7.6	35730.8	0.0	0.0	0.	0.	9647.3	0.0	6864.0
13	1.3	6352.2	0.0	0.0	0.	0.	1715.1	0.0	1137.0
14	0.9	4481.3	0.0	0.0	0.	0.	1210.0	0.0	810.0
15	15.1	69719.0	0.0	0.0	0.	0.	18824.1	0.0	13590.0
16	0.4	1706.5	0.0	0.0	0.	0.	460.8	0.0	0.0
17	0.0	67.0	0.0	0.0	0.	0.	18.1	0.0	0.0
18	0.1	822.9	0.0	0.0	0.	0.	222.2	0.0	0.0
19	41.5	338053.8	0.0	0.0	0.	0.	91274.5	0.0	18675.0
20	2.0	14207.7	0.0	0.0	0.	0.	3836.1	0.0	0.0
21	0.0	78.6	0.0	0.0	0.	0.	21.2	0.0	0.0
22	31.7	289232.8	0.0	0.0	0.	0.	78092.9	0.0	0.0
23	80.8	641366.8	0.0	0.0	0.	0.	*******	0.0	0.0
24	73.7	416262.8	0.0	0.0	0.	0.	*******	0.0	0.0
25	12.4	60438.6	0.0	0.0	0.	0.	16318.4	0.0	0.0
26	1.7	7844.4	0.0	0.0	0.	0.	2118.0	0.0	0.0
27	5.1	22358.6	0.0	0.0	0.	0.	6036.8	0.0	0.0
28	7.1	26719.6	0.0	0.0	0.	0.	7214.3	0.0	0.0
29	0.8	2861.2	0.0	0.0	0.	0.	772.5	0.0	0.0
30	4.0	11611.7	0.0	0.0	0.	0.	3135.2	0.0	0.0
31	4.0	7972.8	0.0	0.0	0.	0.	2152.6	0.0	0.0
32	5.5	5383.8	0.0	0.0	0.	0.	1453.6	0.0	0.0
33	4.5	1128.6	0.0	0.0	0.	0.	304.7	0.0	0.0

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	116.193	604.284
2	117.303	603.479
3	126.801	600.352
4	134.072	593.487
5	141.165	586.438
6	148.245	579.375
7	157.687	576.082
8	165.163	569.440
9	172.597	562.752
10	182.536	561.649
11	453.588	669.265
12	460.370	676.614
13	466.993	684.107
14	472.411	692.511
15	473.835	702.409
16	479.401	710.717
17	483.099	714.942

Factor of Safety
*** 1.017 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	106.017	604.040
2	107.515	602.865

3	114.764	595.976
4	124.745	595.359
5	134.311	592.446
6	141.985	586.034
7	151.648	583.459
8	160.768	579.358
9	167.850	572.298
10	177.724	570.714
11	423.083	662.021
12	423.747	671.999
13	430.533	679.345
14	432.837	689.076
15	435.577	698.693
16	442.146	706.232
17	448.934	713.576
18	449.257	714.099

Factor of Safety
*** 1.020 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.401	603.546
2	90.908	599.077
3	100.634	596.755
4	109.981	593.198
5	118.636	588.190
6	126.461	581.964
7	133.565	574.926
8	142.818	571.133
9	150.608	564.863
10	160.453	563.111
11	457.433	664.380
12	462.418	673.049
13	467.113	681.878
14	473.767	689.343
15	478.738	698.020
16	485.716	705.183
17	492.724	712.316
18	495.591	715.254

Factor of Safety
*** 1.027 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	117.680	604.320
2	120.649	602.154
3	127.809	595.173
4	137.553	592.926
5	146.760	589.023
6	153.884	582.005
7	161.883	576.003
8	170.149	570.377
9	179.394	566.563
10	438.464	662.480
11	445.521	669.565
12	451.793	677.354
13	456.901	685.951
14	459.217	695.679
15	464.705	704.038
16	467.274	713.703
17	467.864	714.563

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	70.245	603.183
2	70.627	602.814
3	79.124	597.541
4	87.792	592.555

5	97.761	591.759
6	105.825	585.845
7	115.709	584.326
8	125.581	582.735
9	132.814	575.829
10	142.549	573.541
11	150.104	566.991
12	409.086	671.404
13	413.503	680.375
14	416.873	689.791
15	417.158	699.787
16	420.635	708.539

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	93.203	603.733
2	100.701	597.318
3	110.235	594.301
4	118.088	588.110
5	126.559	582.795
6	135.377	578.080
7	143.383	572.087
8	151.269	565.938
9	477.839	666.855
10	479.574	676.704
11	483.077	686.070
12	489.605	693.646
13	492.964	703.065
14	499.601	710.545
15	504.232	715.469

Factor of Safety
*** 1.036 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.510	604.076
2	113.402	598.230
3	120.612	591.300
4	128.010	584.572
5	137.093	580.388
6	145.450	574.896
7	152.521	567.826
8	436.874	669.700
9	440.878	678.863
10	443.290	688.568
11	450.056	695.932
12	457.050	703.079
13	462.573	711.416
14	465.310	714.499

Factor of Safety
*** 1.039 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.932	604.398
2	124.772	601.636
3	132.398	595.168
4	140.000	588.672
5	147.472	582.025
6	156.956	578.854
7	165.477	573.620
8	174.750	569.878
9	183.854	565.741
10	487.836	670.154
11	489.094	680.074
12	496.161	687.149
13	503.230	694.223
14	507.836	703.099

15	514.167	710.840
16	516.915	715.785

Factor of Safety

*** 1.050 ***

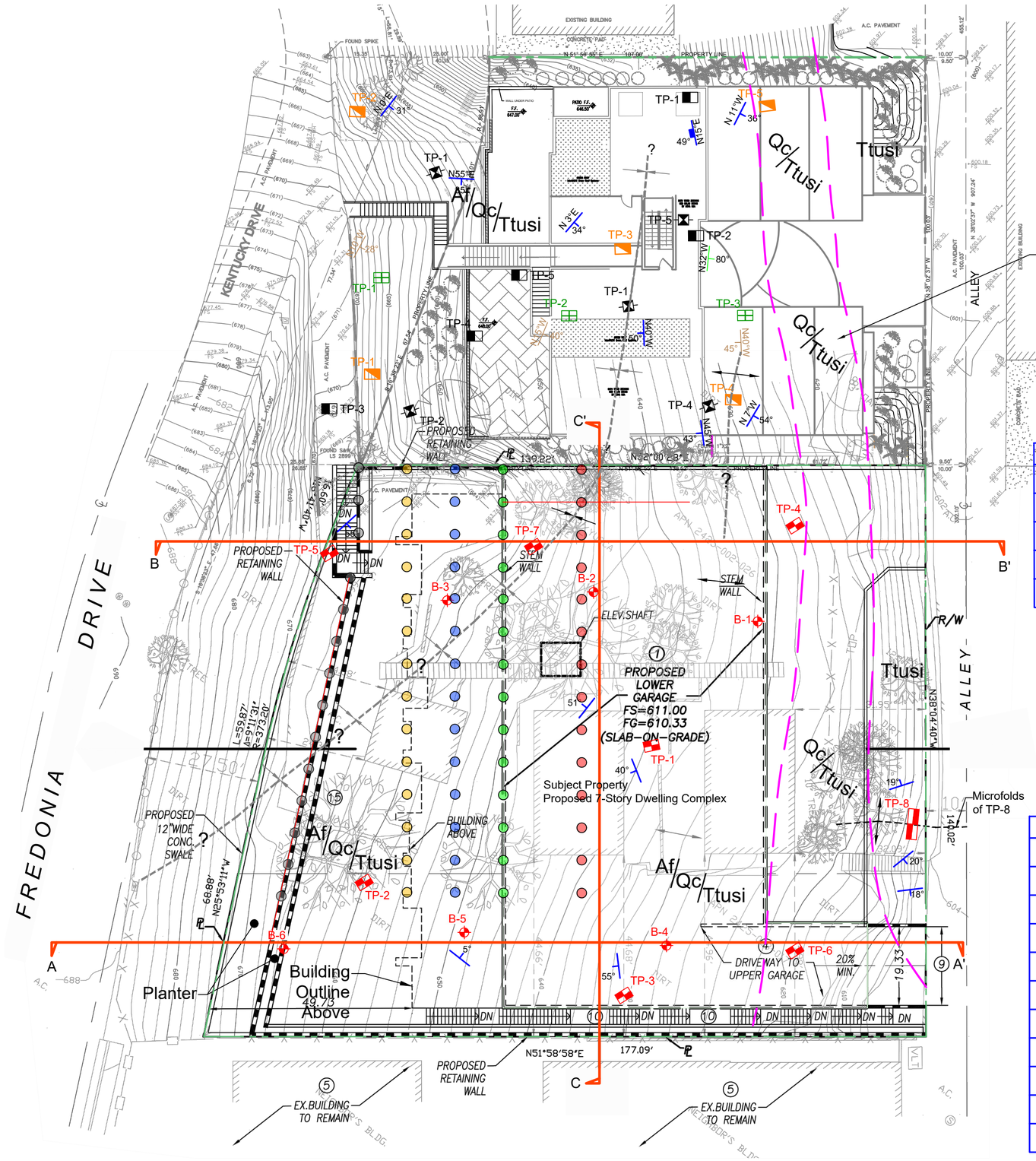
Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	81.345	603.449
2	83.480	602.430
3	90.590	595.399
4	99.281	590.453
5	108.354	586.247
6	117.856	583.129
7	125.904	577.194
8	133.322	570.487
9	141.835	565.241
10	151.467	562.552
11	493.476	670.989
12	500.107	678.474
13	503.883	687.734
14	508.772	696.457
15	515.580	703.781
16	522.571	710.932
17	526.589	716.027

Factor of Safety

*** 1.063 ***

**** END OF GSTABL7 OUTPUT ****



LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Test Pit (AES, 2018)
- 20° = Strike & Dip of Bedding
- TP-5 = Location & Number of Test Pit (AES, 2013)
- TP-3 = Location & Number of Test Pit (AES, 1990)

  } AES Project No. 13-347-22
- TP-5 = Location & Number of Test Pit (S & G INC, 1998)
- TP-5 = Location & Number of Test Pit (Don Soils Engineering, 2004)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located

B-3	
N20W 18°	@ 7'
N24W 22°	@ 11'
N11W 44°	@ 15'
N2W 25°	@ 20'
N7E 22°	@ 26'

B-2	
5° N1E	@ 6'
11° N69W	@ 10'
62° N69W	@ 12'
88° N6W	@ 14'
51° N16W	@ 16'
64° N16W	@ 20'
66° N10W	@ 24'
64° N12W	@ 26'
57° N16W	@ 31'
58° N23W	@ 35'

B-1	
47° N10W	@ 4'
38° N21W	@ 7'
52° N16W	@ 9'
44° N41W	@ 12'
46° N22W	@ 26'
59° N31W	@ 33'

B-6	
25° N31W	@ 4'
55° N31W	@ 6'
81° N34W	@ 14'
87° N41W	@ 17'
62° N71W	@ 19'
28° N18E	@ 21'
21° N31W	@ 24'
69° N0W	@ 26'
N17E 75°	@ 31'
N4E 56°	@ 33'
N27E 57°	@ 36'

B-5	
5° N80W	@ 5'
N31W 25°	@ 7'
17° N36E	@ 9'
54° N10E	@ 11'
N38W 66°	@ 14'
N18E 59°	@ 17'
N11E 71°	@ 19'
N2E 69°	@ 23'
N8E 75°	@ 26'
N12W 67°	@ 30'
N9W 72°	@ 33'
N8E 75°	@ 36'

B-4	
51° N0W	@ 5'
68° N2E	@ 12'
77° N27E	@ 15'
N9W 81°	@ 18'
N14W 58°	@ 21'
N16W 74°	@ 23'
N12W 66°	@ 30'

SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

AREA GEOLOGIC MAP

PROJECT No:	16-379-22
DESCRIPTION:	Proposed 7-Story Condominium Building Complex
DATE:	08 / 03 / 2018
FOR:	3900 Kentucky LLC
DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068
CHECKED BY:	SM
DRAWING No:	1
SUPP. No:	1

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LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

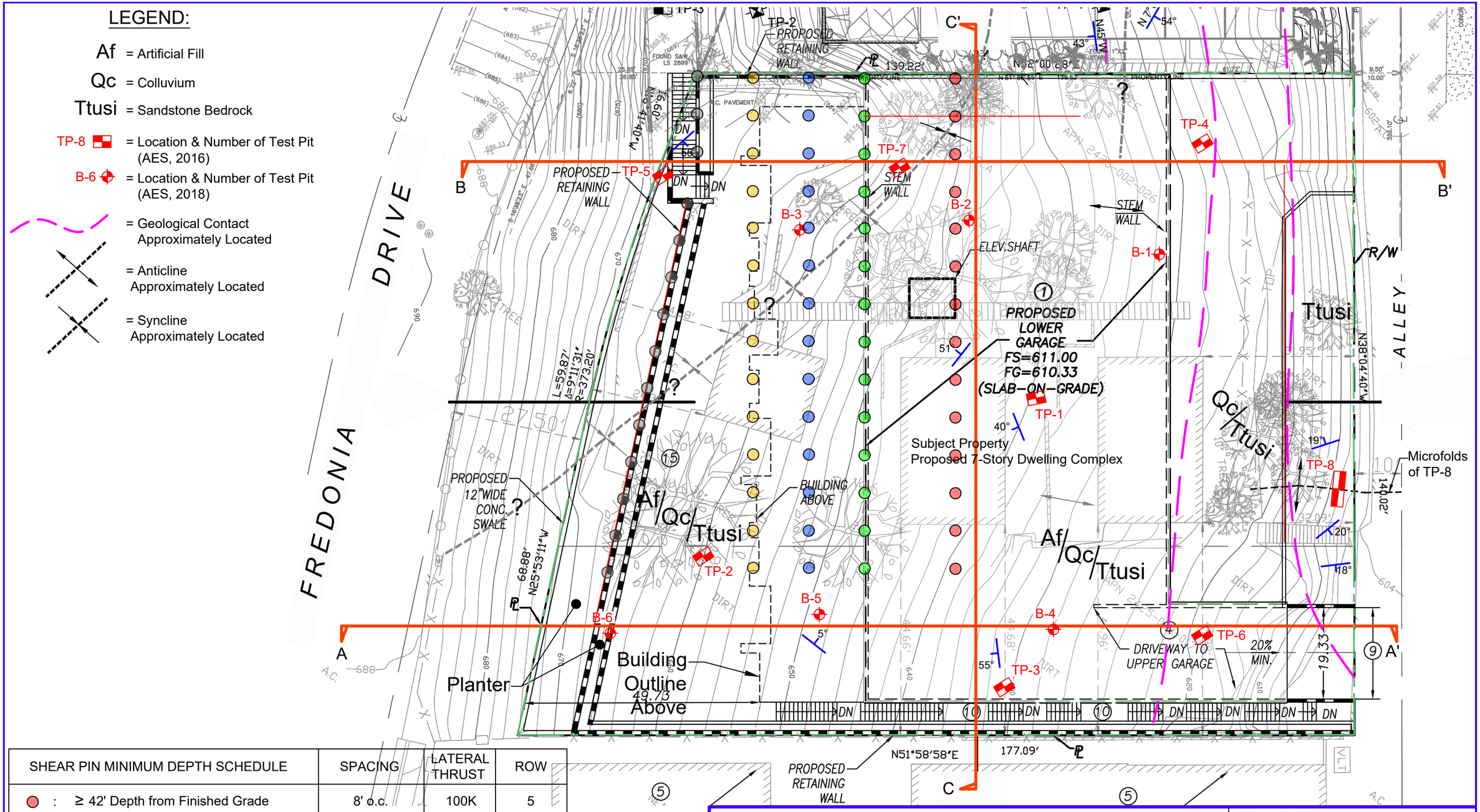
TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Test Pit (AES, 2018)

= Geological Contact Approximately Located

= Anticline Approximately Located

= Syncline Approximately Located



SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
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: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

GEOTECHNICAL SITE PLAN

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 03 / 2018
DRAWN BY:	VM
CHECKED BY:	SM
DRAWING No:	2
SUPP. No:	1

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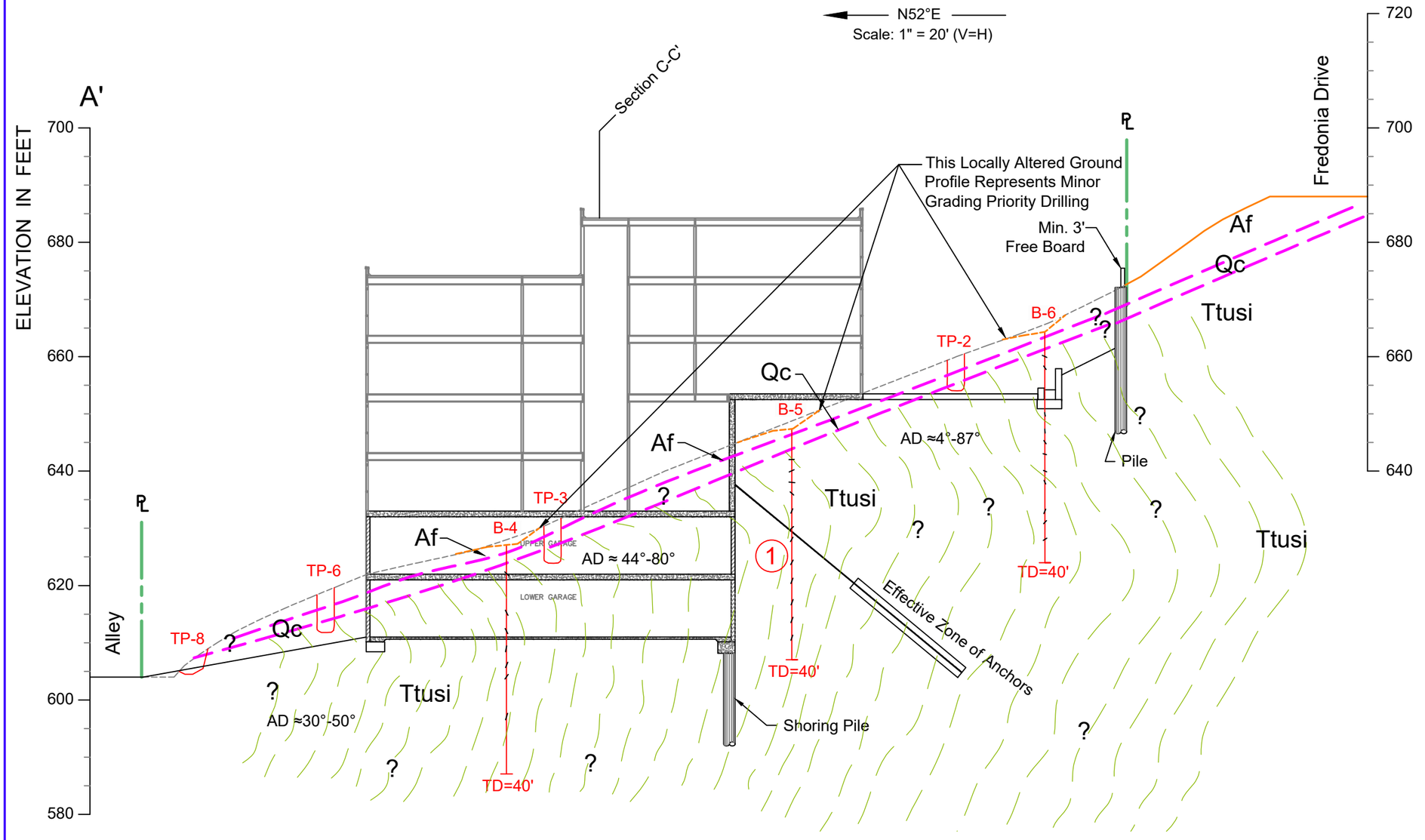

Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 03 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
PROJECT No:	16-379-22		
DRAWING No:	3	SUPP. No:	1

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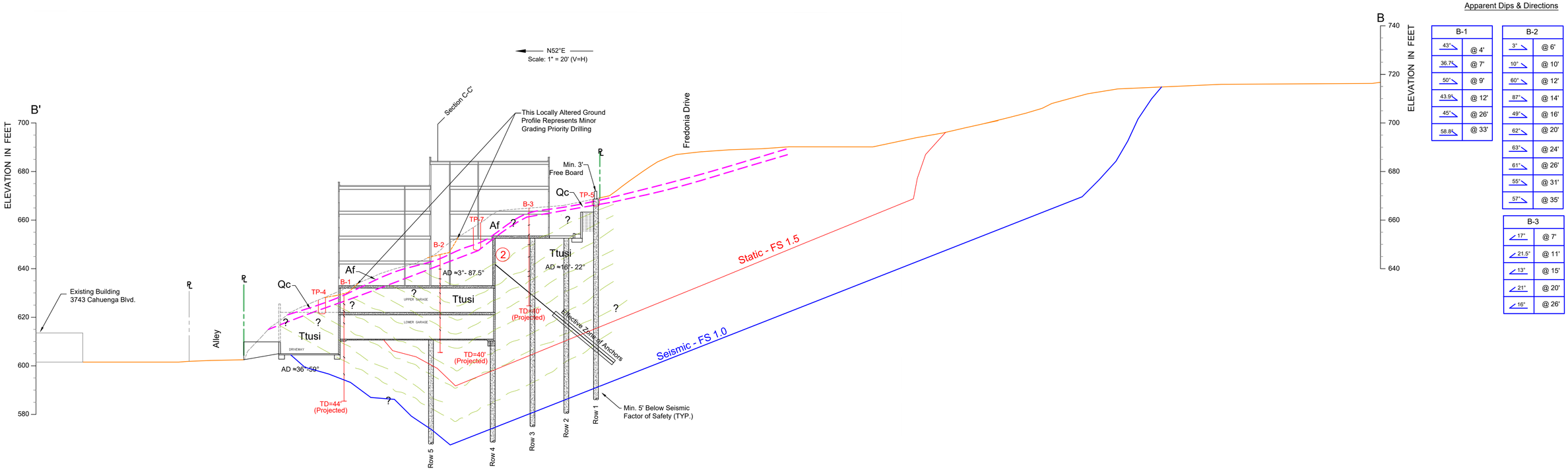

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION B-B'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 03 / 2018
DRAWN BY:	VM & TG
CHECKED BY:	SM
DRAWING No:	4
SUPP. No:	1

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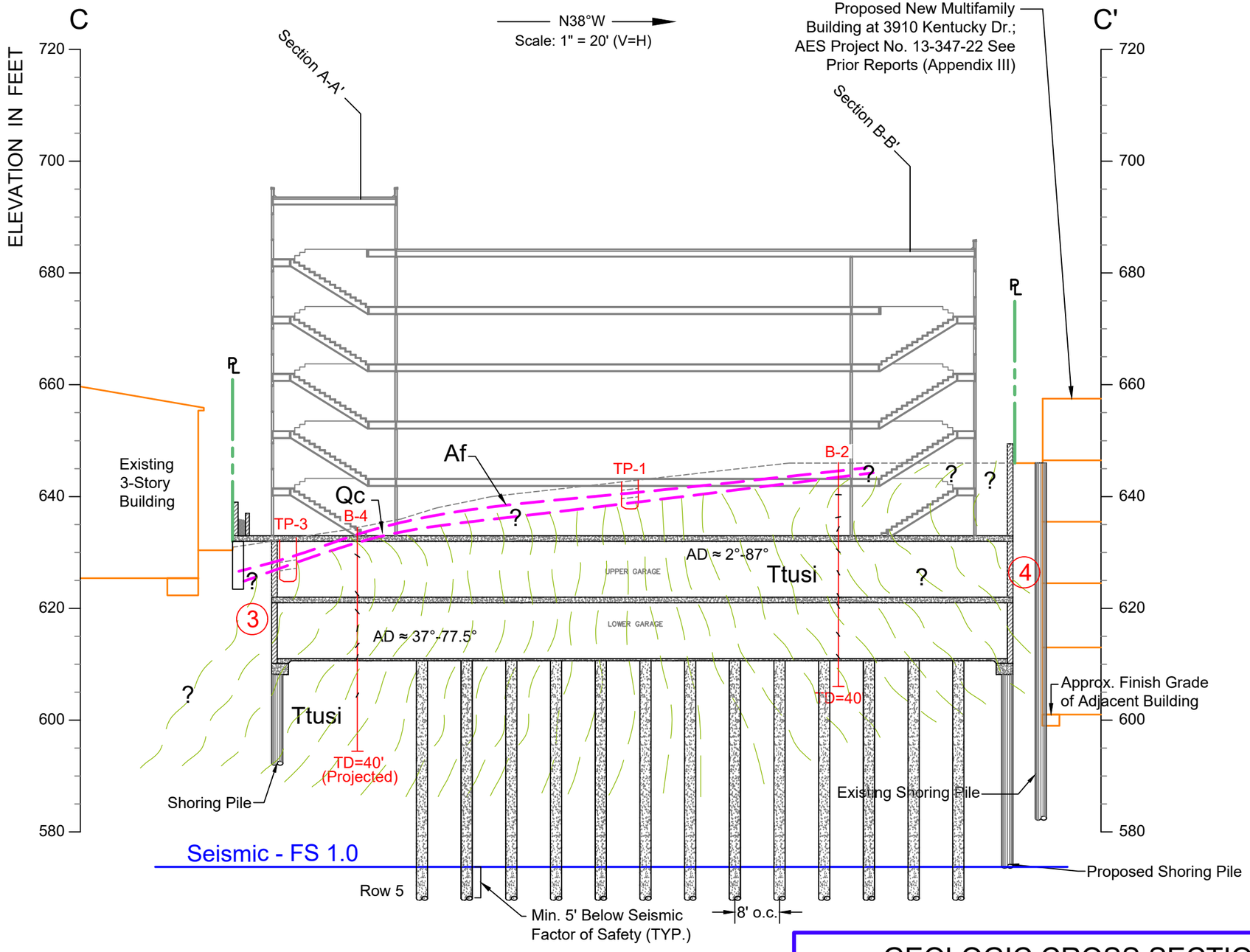

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018
- TD=40' (Projected)

Apparent Dips & Directions

B-4		B-2	
37°	@ 5'	2°	@ 6'
56°	@ 12'	10.9°	@ 10'
52°	@ 15'	61.8°	@ 12'
78°	@ 18'	87°	@ 14'
52°	@ 21'	45°	@ 16'
71°	@ 23'	60°	@ 20'
62°	@ 30'	59°	@ 24'
		58°	@ 26'
		51°	@ 31'
		55°	@ 35'

GEOLOGIC CROSS SECTION C-C'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 03 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		DRAWING No:	5
		SUPP. No:	1

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BORING No. 1

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML) Bedrock (Tt)		**Earth cover, disturbed surficial soils (SM-ML)** @ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
			N10W				@3' weathered sandstone bedrock with interbdd siltstone and shale
5			47SW				
			N21W				Bedding in interbdd shale layers
			38SW				
			N18W				Consistent SW dipping beds
10	107	5	52SW	5			Damp, orange to light brown, sandstone, fine to medium grained, silty, medium dense
			N41W				@12' changes to light grey, medium to coarse grained sandstone
			44SW				
15							Massive sandstone, slightly fractured, slightly weathered
20	94	7		6			Slightly silty, sandy siltstone
25							
			N22W				Bedding in interbdd shale
			46SW				
30	111	7		6			Medium dense, damp to slightly moist, light brown to tan, sandstone, moderately indurated, massive to thick-bdd, no discernable orientation in thick beds.

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
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FIGURE NO : I-1.1

BORING No. 1 (continued)

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35			N31W 59SW		Tt Bedrock		**Continued from previous page** Bedding @33' @35' tight, dense
40							Continued massive, coarse sandstone, slightly moist to moist
45	111	8		13			**End of Boring @ 44 feet** Downhole Logged to 40' No Groundwater, no caving
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-1.2

BORING No. 2

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed surficial soils (SM-ML)**
							@ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments, rootlets
					Bedrock (Tt)		@4' weathered sandstone bedrock with interbdd siltstone and shale
5			N19E 5NW				Soft, undulating shale and claystone beds, near-horizontal to shallow northwest dipping beds in upper bedrock
10	110	12	N58W 11SW	7			
			N58W 62SW				@12' tight microfolds, change from near horizontal bedding to steeply dipping, near vertical beds, to steep southwest dips.
			N6W				Folded strata, tight folds,
15			88W N16W 51SW				
20			N18W 64SW				Tan to light brown, fine to medium grained sandstone, slightly silty to silty, laminated beds
			N10W				@24' multicolored shale, fine ss and siltstone beds, brown to pinkish grey to buff to orange
25			66SW N12W 64SW				
30			N16W 57SW				

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-2.1

BORING No. 2 (continued)

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					Tt Bedrock		**Continued from previous page**
35			N23W 58SW				@35' tight, dense, thick-bdd sandstone, orange to tan brown with black speckles
40	104	10		8			
							End of Boring @ 40 feet Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-2.2

BORING No. 3

DATE EXCAVATED: 4/10/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1.5' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
5					Bedrock (Tt)		@4.5' weathered thick-bdd sandstone bedrock
			N20W 18NE				@6.5' fine-grained siltstone, shale and fine ss Folded beds
10	104	7					Sandstone, fine to medium grained, orange brown, interbdd shale and siltstone
			N24W 22NE				Bedding in shale @11'
15			N11W 14NE				
							undulating beds in shale, claystone and silty ss
20	109	10	N2W 25NE				Medium dense to dense in place, moist, competent, tight
25							
			N7E 22				Thick bdd medium to coarse ss, light grey color
30	105	5					Slightly weathered to fresh

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-3.1

BORING No. 3 (continued)

DATE EXCAVATED: 4/10/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35					Tt Bedrock		**Continued from previous page** @35' tight, continued sandstone with interbdd shale, thick bdd, medium to coarse grained, fresh, moderately hard, competent
40	106	7		10			**End of Boring @ 40 feet** Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-3.2

BORING No. 4

DATE EXCAVATED: 4/10/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1.5' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
							Grades to residual soil
5			N0W 51W		Bedrock (Tt)		@5' weathered sandstone bedrock Bedding in shale
10	111	4		10			
			N2E 68W				@12' undulating bedding, monocline fold observed in place, tan sandstone with interbdd shale, undulating folded strata,
15			N21E 77NW				Continued steep to very steep dip
			N8W 81NE				@18' overturned beds, tan to yellow
20	101	5		10			Sandstone, medium grained, with pinkish grey claystone interbeds,
			N14W 58NE N18W 74NE				
25							
30			N17W 66NE				Siltstone interbdd in thick-bedded sandstone

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
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FIGURE NO : I-4.1

BORING No. 4 (continued)

DATE EXCAVATED: 4/10/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35					Tt Bedrock		**Continued from previous page** @35' tight, continued sandstone with interbdd shale, thick bdd
40	106	15		10			Grades to claystone, tight, moist to very moist **End of Boring @ 40 feet** Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
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FIGURE NO : I-4.2

BORING No. 5

DATE EXCAVATED: 4/11/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
							Grades to residual soil
					Bedrock (Tt)		
5			N90W 5N				@4' weathered sandstone bedrock, bedding in upper sandstone
			N51W 25NE				Bed. @7' @8' microfolds in siltstone and shale, soft sediment deformation, cross bedding
			N36E				
10			17NW N10E 54W				Monocline folded to steeply dipping, siltstone and shale sequence starting @10'
			N58W				
15			66NE				@16' tight closed folds in soft sedimentary rock,
			N18E 59SE				
			N11E				Steep east to southeast dipping bedding, slightly to medium dense shale, moist
20	99	11	71SE	10 (12")			
			N2E 69SE				Overturned beds?
25			N8E 75SE				Minor undulations in beds/laminations
30	110	11	N12W 67NE	10			Dense sandstone

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
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FIGURE NO : I-5.1

BORING No. 5 (continued)

DATE EXCAVATED: 4/11/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
			N9W 72NE		Tt Bedrock		**Continued from previous page**
35			N0E 75SE				@35' tight, continued sandstone with interbdd shale, thick bdd Steep east dipping beds
40	106	15		10			Grades to very moist **End of Boring @ 40 feet** Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
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FIGURE NO : I-5.2

BORING No. 6

DATE EXCAVATED: 4/11/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
							Grades to bedrock @3'
			N31W		Bedrock		Sandstone,
5			25SW		(Tt)		
			N31W				Undulation in fine-grained laminations, moderate to steep dip, 25-55 degree range
			55SW				
10	120	4		11			@11' massive sandstone, light grey to orange brown, thick bdd, medium to coarse grained
							@13' Grades to fine-grained claystone and shale beds, very steeply dipping beds, locally overturned/vertical
			N34W				
15			81SW				
							@16'Grades to near vertical beds, strata is thick bdd sandstone layers, with shale, mudstone and siltstone sequences. Repeating sequence.
			N41W				
			87SW				@18' Slight change in strike
			N11W				
20	109	18	62W	15			
							@21' Northwest dipping beds, orange brown
			N18E				
			28NW				@23' Significant undulation in bedding, numerous folds observed during downhole log
			N31W				
25			21SW				Cross beds appearing to be merging, some older underlying beds truncated by more recent beds
			N0W				
			69W				North-south strike, steep west dips
30	111	19		17			Multiple micro folds
			N17E				
			75SE				@31' depth steep SE dipping bedding

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-6.1

BORING No. 6 (continued)

DATE EXCAVATED: 4/11/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35			N4E 56SE N27E 57SE		Tt Bedrock		**Continued from previous page** consistent SE dips Soft sedimentary rock sequence Starrting at 35' Massive sandstone, orange to medium brown, with speckled black grains, medium to coarse grained, bedding in siltstone @37'
40	106	10		19			**End of Boring @ 40 feet** Downhole Logged to 37' No Groundwater, no caving
45							
50							

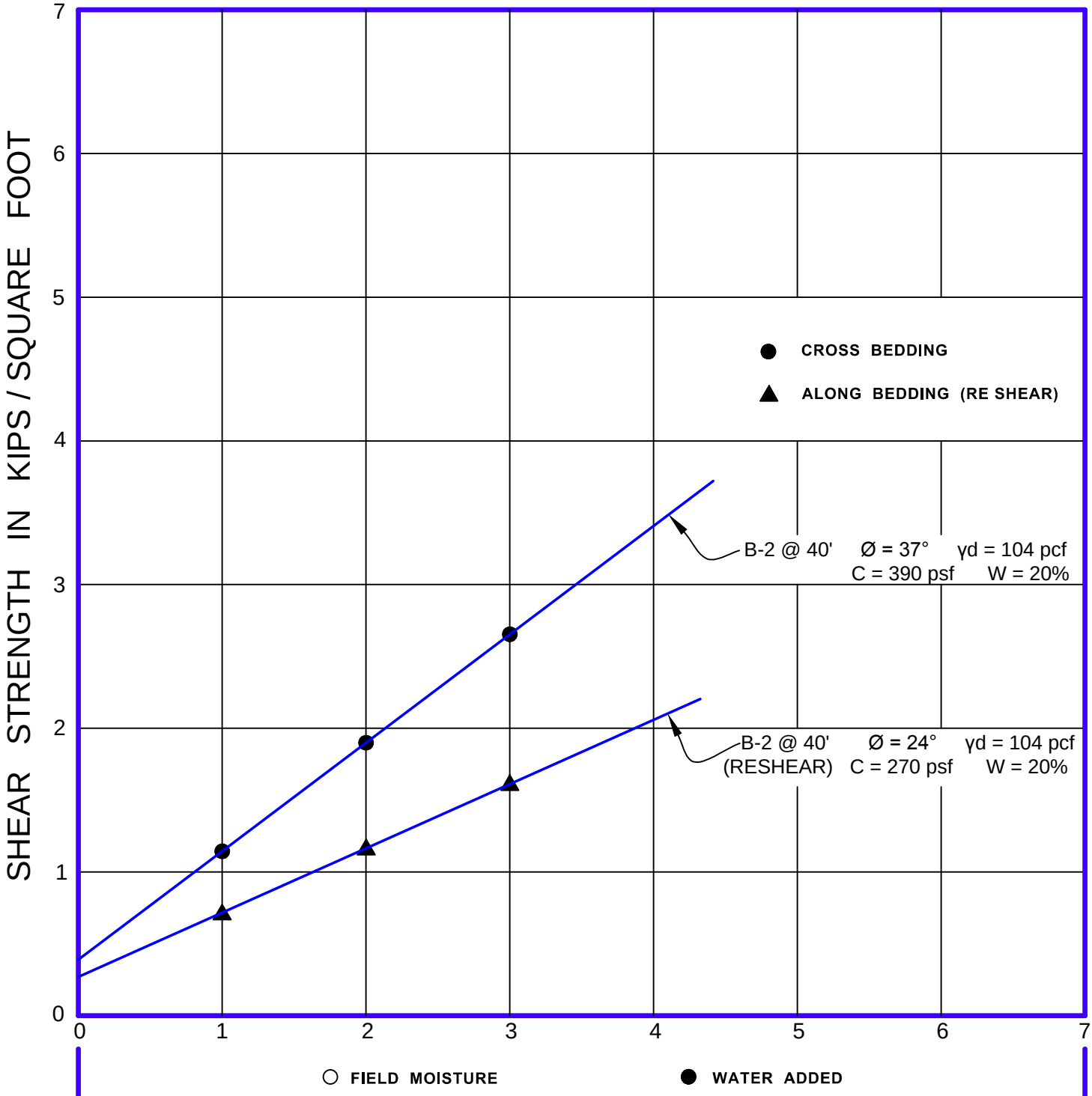
LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-6.2

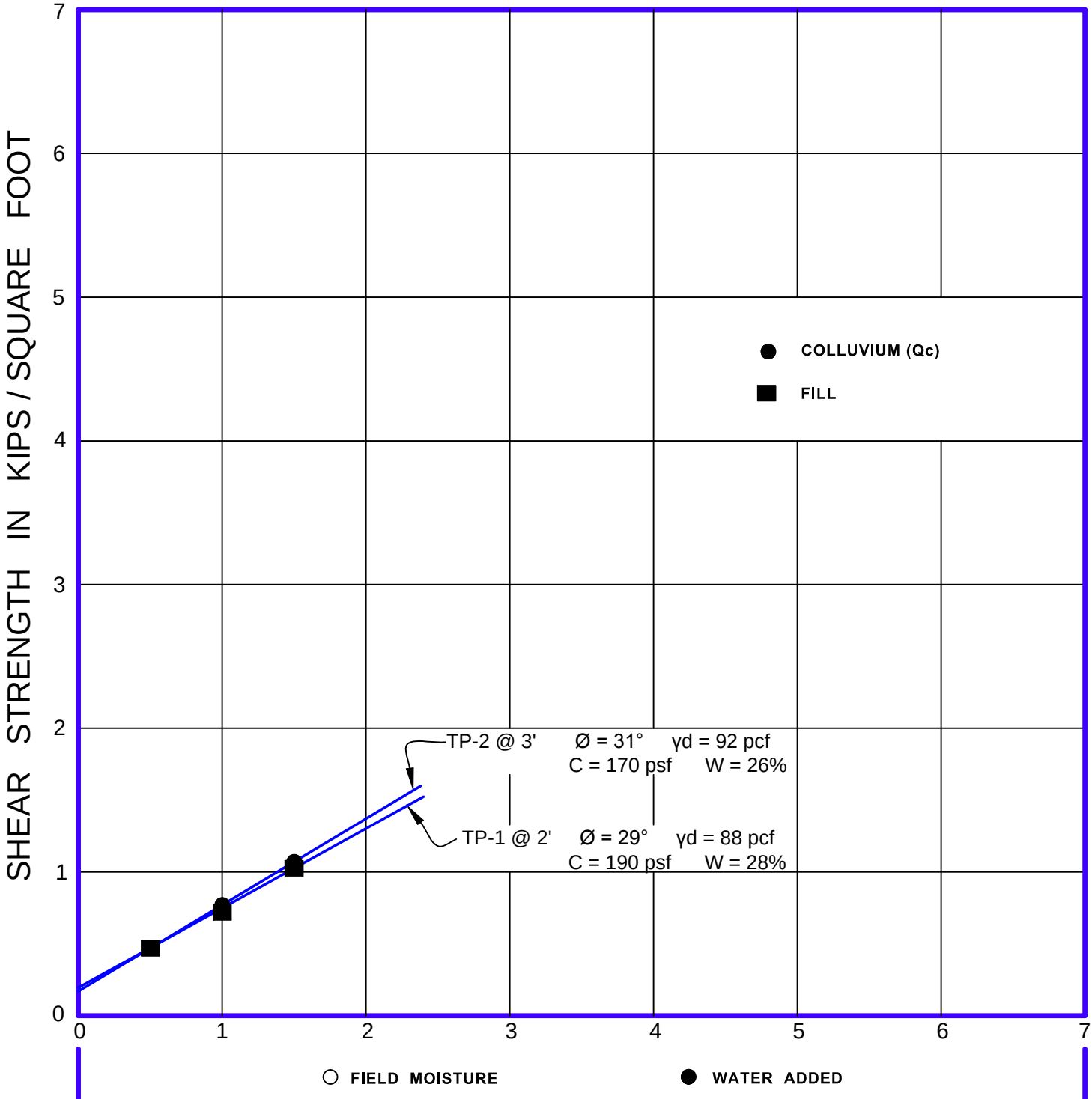
NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME : Proposed New Multifamily Residential Structure 3900 Kentucky Dr. & 3894 Fredonia Dr Los Angeles, CA 90068	JOB No. 16-379-22
Applied Earth Sciences GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS www.aessoil.com (818) 552-6000	FIGURE No. II - 1A

NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME : Proposed New Multifamily Residential Structure 3900 Kentucky Dr. & 3894 Fredonia Dr Los Angeles, CA 90068	JOB No. 16-379-22
Applied Earth Sciences GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS www.aessoil.com (818) 552-6000	FIGURE No. II - 1B

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GEOLOGY AND SOILS REPORT REVIEW LETTER

May 10, 2017

LOG # 97819
SOILS/GEOLOGY FILE - 2
LAN

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

TRACT: 5593
LOTS: 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences
Oversized Documents	"	"	"

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed demolition of all site improvements and construction of a 7-story condominium complex including 2 levels of subterranean parking and retaining walls up to 40 feet in height. The subject lot is located on an approximately 80 foot high slope with gradients as steep as 1.1H:1V per the geologic map.

The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

The review of the subject report cannot be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

Note: Numbers in parenthesis ( ) refer to applicable sections of the 2017 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.

1. Provide calculations to support the temporary excavation recommendations for excavations exposing soil and adverse bedding.

2. Provide calculations to support the temporary shoring lateral earth pressure recommendations, including the surcharges.

3. Provide complete recommendations for basement retaining walls to include surcharge pressures from adjacent structures, slopes and traffic (P/BC 2014-83, P/BC 2014-141).

4. Provide complete recommendations for cantilever retaining walls shown in sections A-A' and B-B' (P/BC 2014-83, P/BC 2014-141).

5. Revise the recommendations for the proposed structure foundation to avoid the surcharge on the adjacent structures. The existing building located on the adjacent lot north of the subject property appears to be surcharged by the proposed structure. To avoid the surcharge on the existing basement wall due to the pile lateral loading, the proposed pile shall be sleeved/cased above a 1H:1V line projected upwards from the bottom of the adjacent structure footing.

6. Clarify if the seismic increment of ½ of the recommended static pressure applies to cantilever and restrained wall.

7. Provide stability analyses for the slope located between proposed structure and Fredonia Drive, which exposes unfavorable geologic structure.

The geologist and soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer and/or geologist may be contacted. Two copies of the response report, including one unbound wet-signed original for archiving purposes, a pdf-copy of the complete report in a CD or flash drive, and the appropriate fees will be required for submittal.

CASEY LEE JENSEN
Engineering Geologist Associate II

DAN L. STOICA
Geotechnical Engineer I

CLJ/DLS:clj/dls
Log No. 97819
213-482-0480

cc: Applied Earth Sciences, Project Consultant
LA District Office

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1149 S. BROADWAY, SUITE 700
LOS ANGELES, CA 90015-2213

http://eng.lacity.org

May 19, 2017

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

GEOTECHNICAL REVIEW, VESTING TENTATIVE TRACT NO. 73784, PROJECT ADDRESS 3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE, LOS ANGELES CALIFORNIA, CALIFORNIA 90068, RECOMMENDATIONS RELATING TO GEOLOGIC AND SOIL CONDITIONS,
W.O. ETRACTEN ***GEO FILE NO. 17-103***

The City Engineer recommends **approval be withheld** for the proposed Vesting Tentative Tract No. 73784 with project address 3894 Fredonia Drive and 3902 Kentucky Drive until additional information is provided. This information is necessary to evaluate conditions that apply to public property and proposed site developments. Our recommendation is based on our review of the following:

1. Applied Earth Sciences, 2016, Report of Geotechnical Investigation, Proposed New Multifamily Residential Building Project, Lot 116 and Portion (NW40FT) Of Lot 117, Tract No. 5593, 3900 North Kentucky Drive and 3894 Fredonia Drive, Los Angeles, California, 90068, dated June 10, 2016, by the consulting geotechnical engineer Dan Daneshfar (RCE 68377) and certified engineering geologist Shant Minas (CEG 2607).

2. Vesting Tentative Tract No. 73784, prepared by Robert K. Kameoka (RCE No. 15429), with a Los Angeles Department of Building and Safety stamp date of April 28, 2017.

The review of this vesting tentative tract map will be continued following submittal of all project reports to this office (with exception to the reports listed above) that pertain to geology and soil engineering, and the subsequent addendums. The submittal should also include, but need not be limited to, the following:

- Updated slope stability analysis through section A-A' and B-B' reflecting the current project design.

- Based on section A-A' and section B-B' of the June 10, 2016 report, a retaining wall supported by deep piles is proposed along the southwestern property line. According to cross-section B-B', the tip of piles along that property line are depicted at an elevation above the "Lowest Unsupported Potential Slip Surface." Please provide a corrected section B-B' or, provide discussion justifying why the pile tips can be at a higher elevation than the "Lowest Unsupported Potential Slip Surface."

If you have any questions regarding this letter, please call Daniel Orris at (213) 847-0488.

Sincerely,

Gary L. Moore, PE, ENV SP
City Engineer

By:



Craig Kunesh, Engineering Geologist I
Geotechnical Engineering Group

cc: Georgic Avanesian, Land Development Group, Subdivision Engineering, Mail Stop 901
Jesus Adolfo Acosta, Department of Building and Safety, Mail Stop 115

August 4, 2018 16-379-22

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

Subject: **Supplement No. A Report (Response to GEO-FILE 17-103)**
Geotechnical Investigation
Proposed 7-story Condominium Complex
Lots 116 and FR117, Tract 5593
3902 N. Kentucky Drive
(aka 3900 N. Fredonia Drive & 3894 N. Fredonia Drive)
Los Angeles, CA 90068

Gentlemen:

INTRODUCTION

We are pleased to submit this Supplement No. A report presenting the results of our additional geotechnical evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 10, 2016.

This submittal is in response to a Geotechnical Review Letter by the Geotechnical Engineering Group of the Department of Public Works Of The City of Los Angeles. The letter was dated May 19, 2017 (GEO FILE No. 17-103).

It should be noted that as part of preparation of this report, we have utilized the latest architectural and civil plans from Kamran Tabrizi and Greystone Engineering Group, respectively.

For reference, we have also enclosed with this Supplement No. A, our Supplement No. 1 response report, responding to the LADBS Grading Division Review Letter dated May 10, 2017 (Log # 97819). The enclosure is in a form of PDF soft copy.

It should be noted that as part of our preparation of Supplement No. 1, responding to the comments of the Grading Division Review Letter, six additional large-diameter borings were advanced on the property in April 2018, resulting in higher

resolution subsurface data, supplemental engineering calculations, and significant changes to the geotechnical engineering recommendations for the proposed building. For more information, please see our response report to LADBS, attached to this report.

The responses to the Geotechnical Engineering Group comments have utilized the updated geologic map and cross sections as revised after the additional field exploration performed in April 2018. Our response, follows the original order of the comments.

RESPONSE TO THE GEOTECHNICAL ENGINEERING GROUP COMMENTS

Comment No. 1

The revised slope stability analysis using the new project plans and supplemental subsurface information is enclosed with this Supplement No. A report.

Comment No. 2

Based on the results of our new analysis, in order to maintain the Code required minimum factors of safety against static and seismic loading conditions, 5 rows of "shear pins" will be required for development of the subject site. The first row of the "shear pin" having a vertical length of approximately 83 feet, will be extended significantly deeper than the potential slip surface.

We have attached the full set of geotechnical and geologic drawings and supporting engineering calculations to this submittal, as presented in our Supplemental No. 1 response report to LADBS Grading Division comments. For supplemental boring logs and laboratory tests, please refer to the PDF enclosure of our Supplement No. 1 response report.

This concludes our Supplement No. A response report to Geotechnical Engineering Group Comments, GEO-FILE 17-103, dated 5/19/2017.

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. A, or wish to discuss the project further, please do not hesitate to call us.

Respectfully Submitted,

APPLIED EARTH SCIENCES

Caro J. Minas, President
Geotechnical Engineer
GE 601



Shant Minas
Engineering Geologist
EG 2607



CJM/SM/la

Enclosure: Engineering Calculations
Drawing No. 1 - Area Geologic Map
Drawing No. 2 - Geotechnical Site Plan
Drawing No. 3 Through 5 - Cross Sections A-A' Through C-C'
PWE-GEG Review Letter dated May 19, 2017 (Geo File No. 17-103)

PDF Copy Of Our Supplement No. 1 Report, Dated August 3, 2018
And 5/10/2017 LADBS Review Letter, Log No. 97819

Distribution: (3)

Section	Wall #	Wall Height (Ft.)	Bedding	At-Rest (PCF)	Seismic (PCF)	Active		Reference
						Temporary (PCF)	Permanent (PCF)	
A-A'	1	45	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 1, CALC SHEET No. 3
B-B'	2	45	Along	78	30	35	45	CALC SHEET No. 2, TABLE No. 2, CALC SHEET No. 4
C-C'	3	25	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 3, CALC SHEET No. 3
C-C'	4	40	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 4, CALC SHEET No. 3

WALL PRESSURES SUMMARY

FOR: 6900 Kentucky Drive | DATE: 8/1/2018 | PROJECT NO.: 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

SUMMARY No. 1

Cross Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 35 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 35^\circ$$

$$K_o = 1 - 0.57$$

$$K_o = 0.43$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.43 * 125$$

$$\gamma_o = 53.3$$

At-Rest Equivalent Fluid Density, γ_o = 53 PCF

AT-REST LATERAL EARTH PRESSURE

Sec A-A' - Wall #1, Sec C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

Along Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 22 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 22^\circ$$

$$K_o = 1 - 0.37$$

$$K_o = 0.63$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.63 * 125$$

$$\gamma_o = 78.2$$

At-Rest Equivalent Fluid Density, γ_o = 78 PCF

AT-REST LATERAL EARTH PRESSURE

Sec B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

Cross Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section A-A' - Wall #1, Section C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 3**

Along Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 4**

FILL STRENGTHS

Saturated Unit Weight	γ_s	113	pcf
Cohesion	C	190	psf
Friction Angle	ϕ	29	^{o}
Slope Angle	α	35	^{o}
Depth of Soil	d	3	ft
Unit Weight of Water	γ_w	62.4	pcf

$$F.S. = \frac{[C + (\gamma_S - \gamma_W) * d * cos^2\alpha * \tan\varphi]}{\gamma_S * d * sin\alpha * cos\alpha}$$

F.S. = 190 + 56.46 / 159.28

F.S. = 1.55 > 1.5 **O.K.**

SURFICIAL SLOPE STABILITY CALCULATIONS

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	527.1	65.9	50.73	62.5	27.1	9.9	8.0
					27.1	17.8	

F.S. = ∑ RF / ∑ DF = 17.85 / 27.11 = 0.66

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 27.11 = 17.85 + UBF

UBF = 33.88 - 17.85 = 16.04 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 15.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

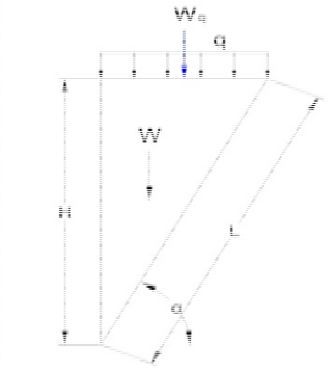
1.5 * 27.11 = 17.85 + UBF

UBF = 40.66 - 17.85 = 22.82 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 22.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION A-A' - Wall #1

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 1

Along Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 250 psf

ϕ = 22 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	2506.0	313.3	120.13	22	108.9	108.9	27.8
					108.9	136.8	

F.S. = ∑ RF / ∑ DF = 136.75 / 108.91 = 1.26

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 108.91 = 136.75 + UBF

UBF = 136.13 - 136.75 = -0.62 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = -0.6 pcf

Therefore use Recommended value of 35 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

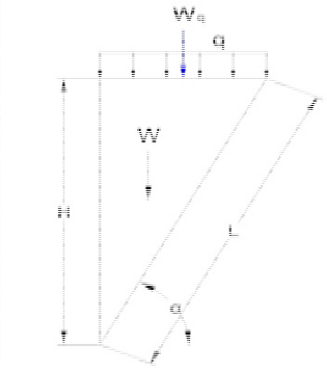
1.5 * 108.91 = 136.75 + UBF

UBF = 163.36 - 136.75 = 26.61 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 26.3 pcf

Therefore use Recommended value of 45 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION B-B' - Wall #2

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 2

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 25 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	162.7	20.3	28.18	62.5	8.5	3.1	4.4
					8.5	7.5	

F.S. = ∑ RF / ∑ DF = 7.51 / 8.45 = 0.89

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 8.45 = 7.51 + UBF

UBF = 10.56 - 7.51 = 3.06 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 9.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

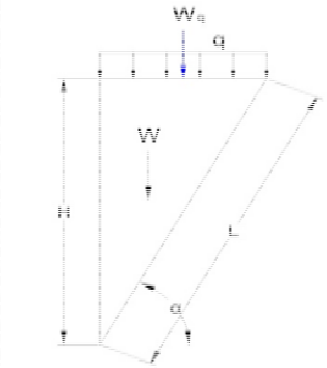
1.5 * 8.45 = 7.51 + UBF

UBF = 12.68 - 7.51 = 5.17 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 16.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION C-C' - Wall #3

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 3

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 40 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	416.5	52.1	45.10	62.5	21.4	7.8	7.1
					21.4	14.9	

F.S. = ∑ RF / ∑ DF = 14.90 / 21.44 = 0.69

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 21.44 = 14.90 + UBF

UBF = 26.81 - 14.90 = 11.91 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 14.9 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

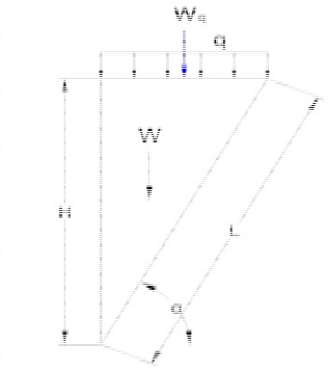
1.5 * 21.44 = 14.90 + UBF

UBF = 32.17 - 14.90 = 17.27 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 21.6 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

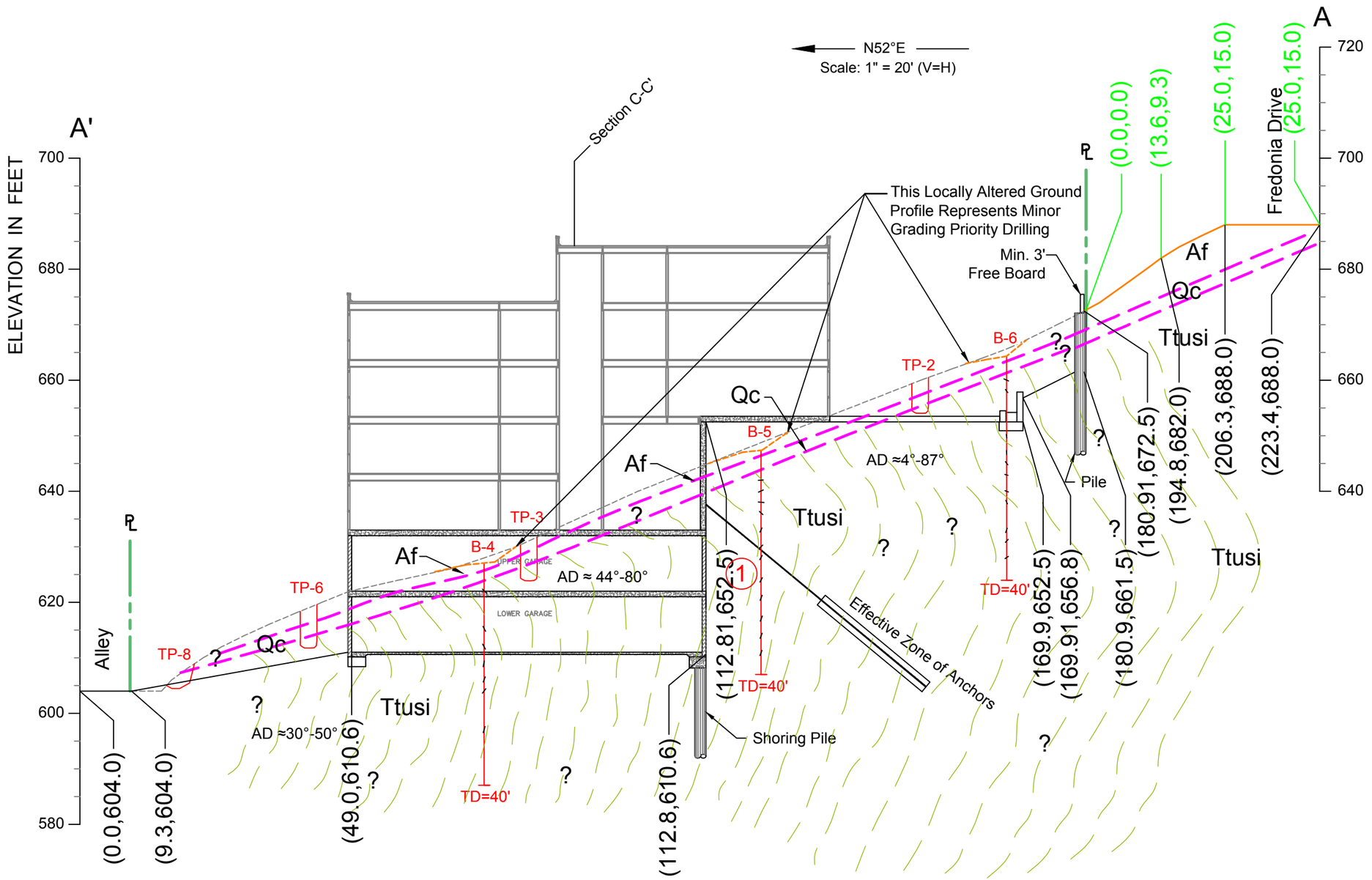
SECTION C-C' - Wall #4

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 4



Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018)
- TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 04 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		SHEET No:	1
		SUPP. No:	A

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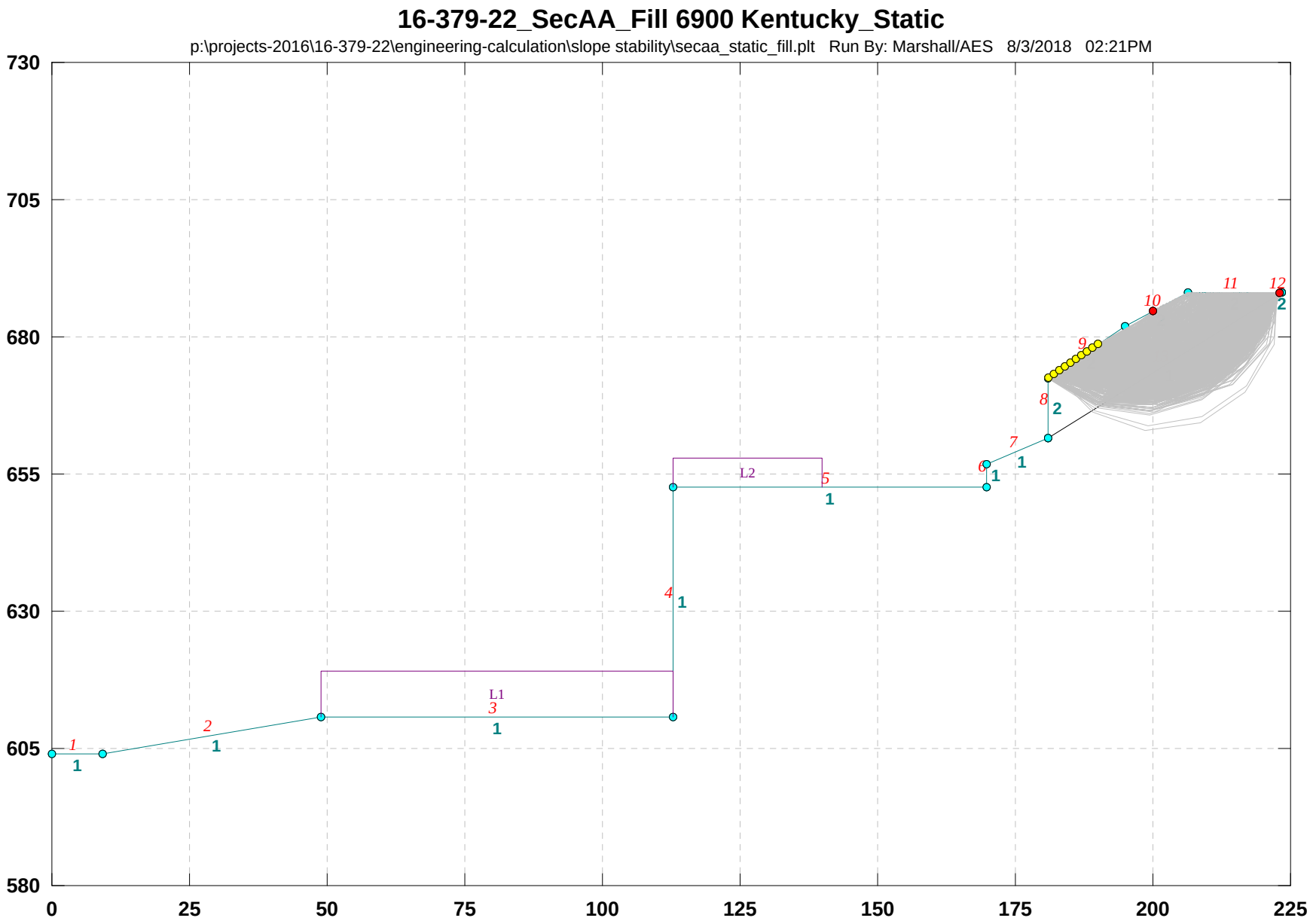
16-379-22_SecAA_Fill 6900 Kentucky_Static
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730
705
680
655
630
605
580
0
25
50
75
100
125
150
175
200
225
L1
L2
1
2
3
4
5
6
7
8
9
10
11
12

16-379-22_SecAA_Fill 6900 Kentucky_Static

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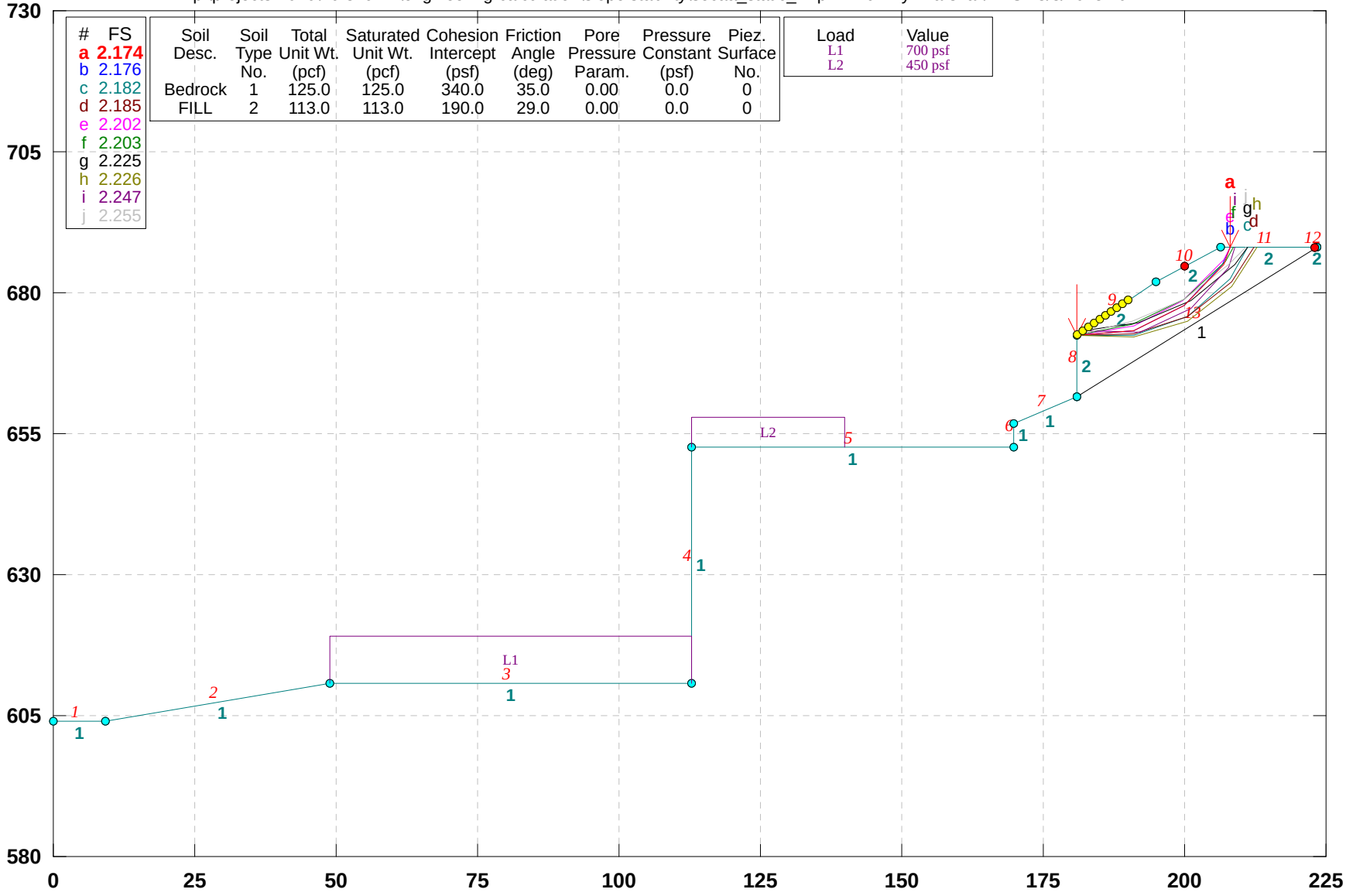

GSTABL7 v.2 FSmin=2.174

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
(All Rights Reserved-Unauthorized Use Prohibited)

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

Analysis Run Date: 8/3/2018
Time of Run: 02:21PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Static

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	**X-Left (ft)**	**X-Right (ft)**	**Intensity (psf)**	**Deflection (deg)**
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)
and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.360 FS Min = 2.174 FS Ave = 3.913
Standard Deviation = 1.209 Coefficient of Variation = 30.90 %
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.966	673.380
3	199.973	677.724
4	206.817	685.015
5	208.031	688.000

Circle Center At X = 183.783 ; Y = 699.780 ; and Radius = 27.360
Factor of Safety
*** 2.174 ***
Individual data on the 6 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	10.0	3377.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	3.8	2765.8	0.0	0.0	0.	0.	0.0	0.0	0.0
3	5.2	4017.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	6.3	3757.2	0.0	0.0	0.	0.	0.0	0.0	0.0
5	0.5	190.6	0.0	0.0	0.	0.	0.0	0.0	0.0
6	1.2	204.7	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.970	673.332
3	199.975	677.682
4	206.776	685.013
5	207.952	688.000

Circle Center At X = 183.942 ; Y = 699.377 ; and Radius = 26.976
Factor of Safety
*** 2.176 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.486
3	200.399	675.901
4	208.018	682.377
5	211.166	688.000

Circle Center At X = 186.209 ; Y = 700.316 ; and Radius = 28.239
Factor of Safety
*** 2.182 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 2.185 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562

```
    2        190.884      674.080
    3        199.791      678.625
    4        206.821      685.738
    5        207.941      688.000
Circle Center At X =   181.230 ; Y =   703.997 ; and Radius =    31.437
       Factor of Safety
      ***    2.202   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.844      674.319
    3        199.814      678.741
    4        207.202      685.479
    5        208.748      688.000
Circle Center At X =   179.717 ; Y =   708.196 ; and Radius =    35.658
       Factor of Safety
      ***    2.203   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.895      674.691
    3        201.056      678.701
    4        208.831      684.989
    5        210.996      688.000
Circle Center At X =   181.576 ; Y =   710.740 ; and Radius =    37.497
       Factor of Safety
      ***    2.225   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    2.226   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.999      673.103
    3        201.166      677.099
    4        207.866      684.522
    5        208.976      688.000
Circle Center At X =   187.330 ; Y =   696.324 ; and Radius =    23.686
       Factor of Safety
      ***    2.247   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.740      674.826
    3        199.832      678.991
    4        207.908      684.887
    5        210.745      688.000
Circle Center At X =   174.644 ; Y =   721.971 ; and Radius =    49.816
       Factor of Safety
      ***    2.255   ***
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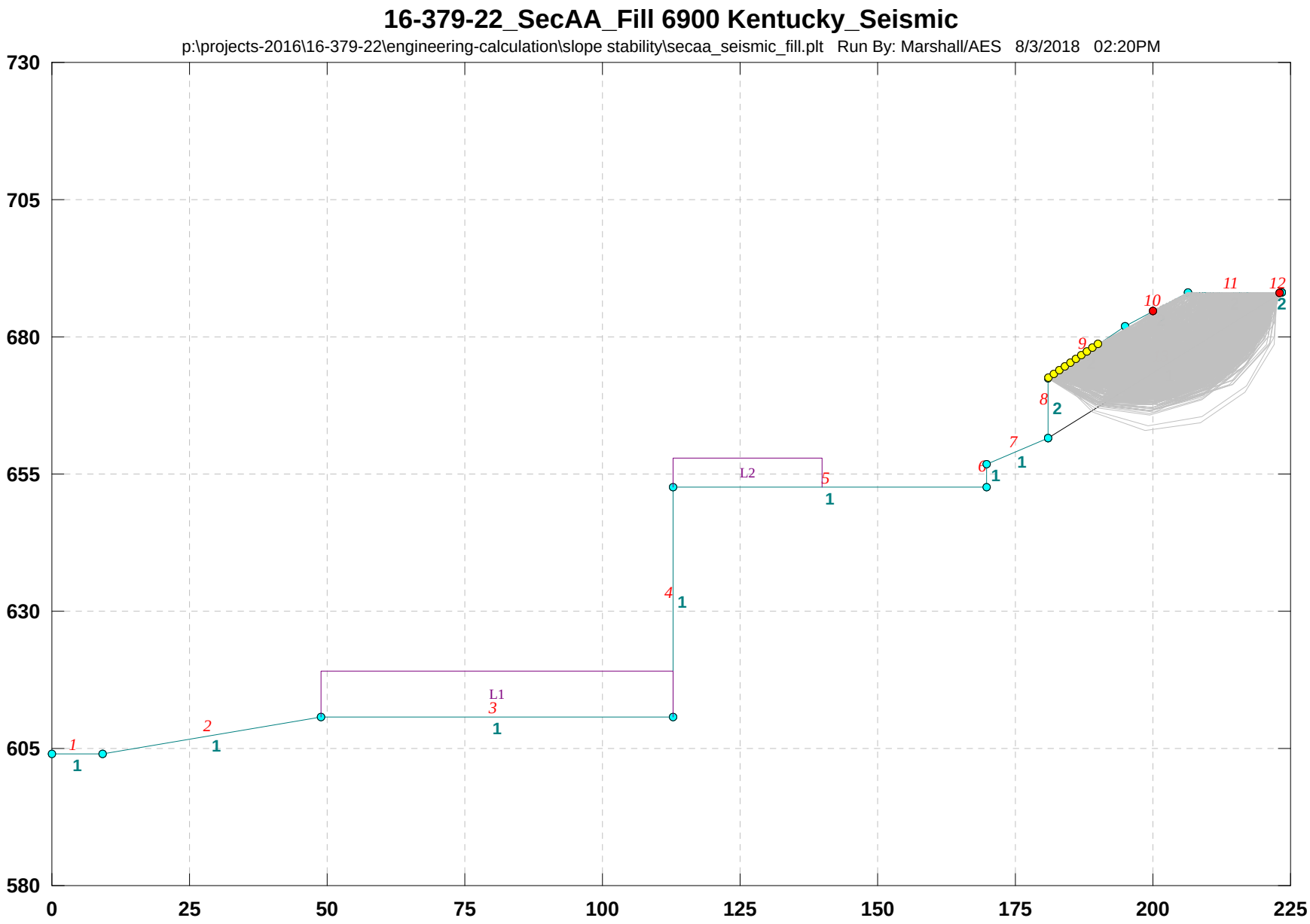
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580
0
25
50
75
100
125
150
175
200
225
L1
L2
1
2
3
4
5
6
7
8
9
10
11
12

16-379-22_SecAA_Fill 6900 Kentucky_Seismic

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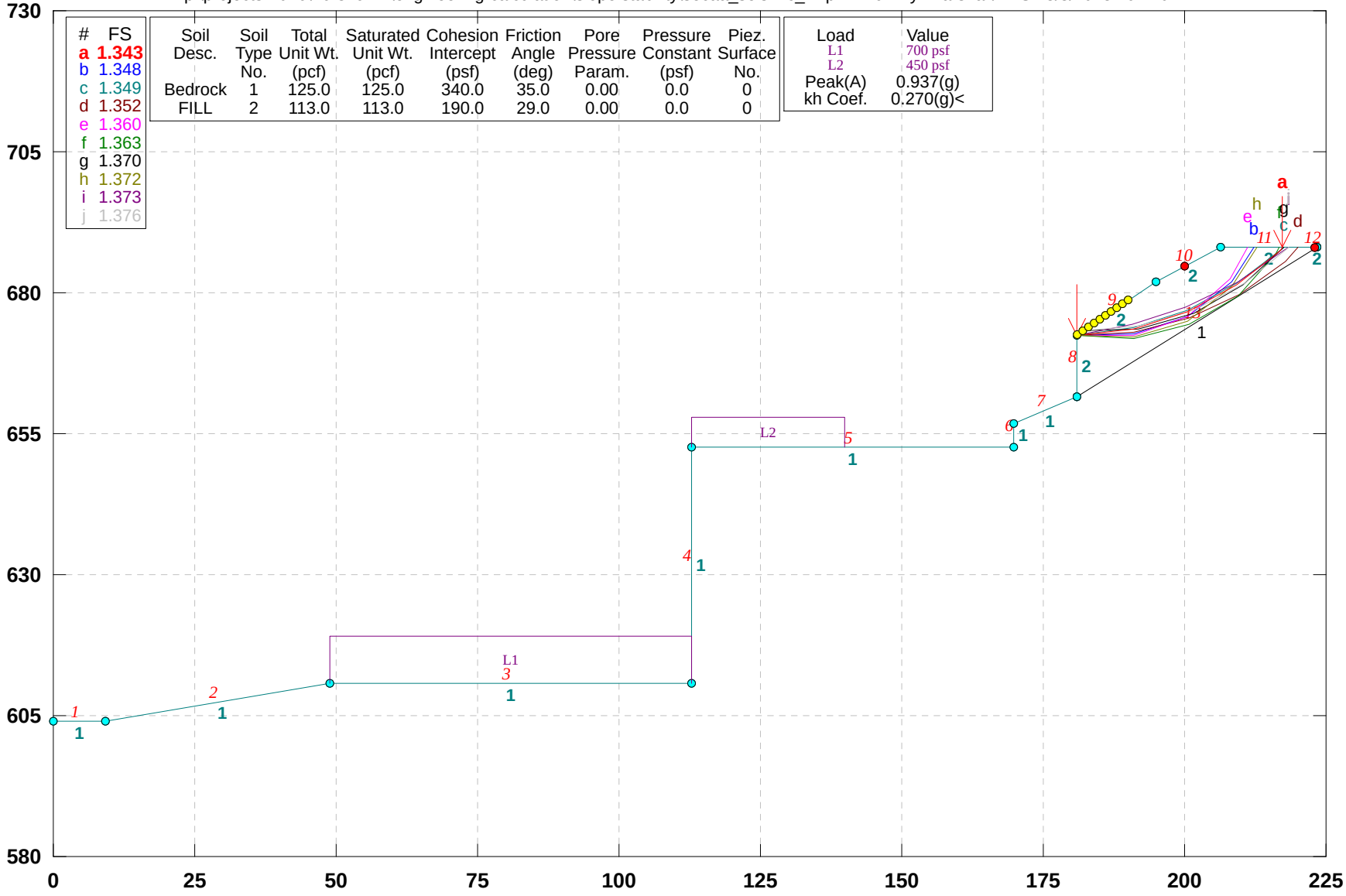

GSTABL7 v.2 FSmin=1.343

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/3/2018
Time of Run: 02:20PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Seismic

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)

and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 7.645 FS Min = 1.343 FS Ave = 2.230
Standard Deviation = 0.696 Coefficient of Variation = 31.23 %
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.936	673.689
3	200.484	676.661
4	209.305	681.372
5	217.085	687.655
6	217.377	688.000

Circle Center At X = 180.074 ; Y = 725.320 ; and Radius = 52.766
Factor of Safety
*** 1.343 ***
Individual data on the 7 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	9.9	3182.3	0.0	0.0	0.	0.	859.2	0.0	0.0
2	3.9	2789.3	0.0	0.0	0.	0.	753.1	0.0	0.0
3	5.7	4950.4	0.0	0.0	0.	0.	1336.6	0.0	0.0
4	5.8	5434.1	0.0	0.0	0.	0.	1467.2	0.0	0.0
5	3.0	2523.3	0.0	0.0	0.	0.	681.3	0.0	0.0
6	7.8	3065.1	0.0	0.0	0.	0.	827.6	0.0	0.0
7	0.3	5.7	0.0	0.0	0.	0.	1.5	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 1.348 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.913	673.877
3	200.444	676.904
4	209.299	681.550
5	217.207	687.671
6	217.505	688.000

Circle Center At X = 178.552 ; Y = 729.229 ; and Radius = 56.720
Factor of Safety
*** 1.349 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.988	673.060
3	200.693	675.469
4	209.755	679.699
5	217.834	685.591

```
    6        220.067      688.000
Circle Center At X =   183.591 ; Y =   723.154 ; and Radius =    50.659
       Factor of Safety
      ***    1.352   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        191.000      672.486
    3        200.399      675.901
    4        208.018      682.377
    5        211.166      688.000
Circle Center At X =   186.209 ; Y =   700.316 ; and Radius =    28.239
       Factor of Safety
      ***    1.360   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.984      672.005
    3        200.701      674.371
    4        209.311      679.456
    5        216.074      686.822
    6        216.641      688.000
Circle Center At X =   187.912 ; Y =   705.464 ; and Radius =    33.621
       Factor of Safety
      ***    1.363   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.992      673.657
    3        201.610      676.392
    4        210.322      681.301
    5        217.527      688.000
Circle Center At X =   185.261 ; Y =   715.597 ; and Radius =    42.476
       Factor of Safety
      ***    1.370   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    1.372   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.849      674.295
    3        200.356      677.394
    4        209.335      681.797
    5        217.607      687.416
    6        218.249      688.000
Circle Center At X =   173.794 ; Y =   742.605 ; and Radius =    70.413
       Factor of Safety
      ***    1.373   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.963      674.105
    3        201.564      676.903
    4        210.428      681.531
    5        218.212      687.809
    6        218.371      688.000
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```
Circle Center At X =   182.673 ; Y =   723.791 ; and Radius =    50.550
       Factor of Safety
      ***    1.376   ***
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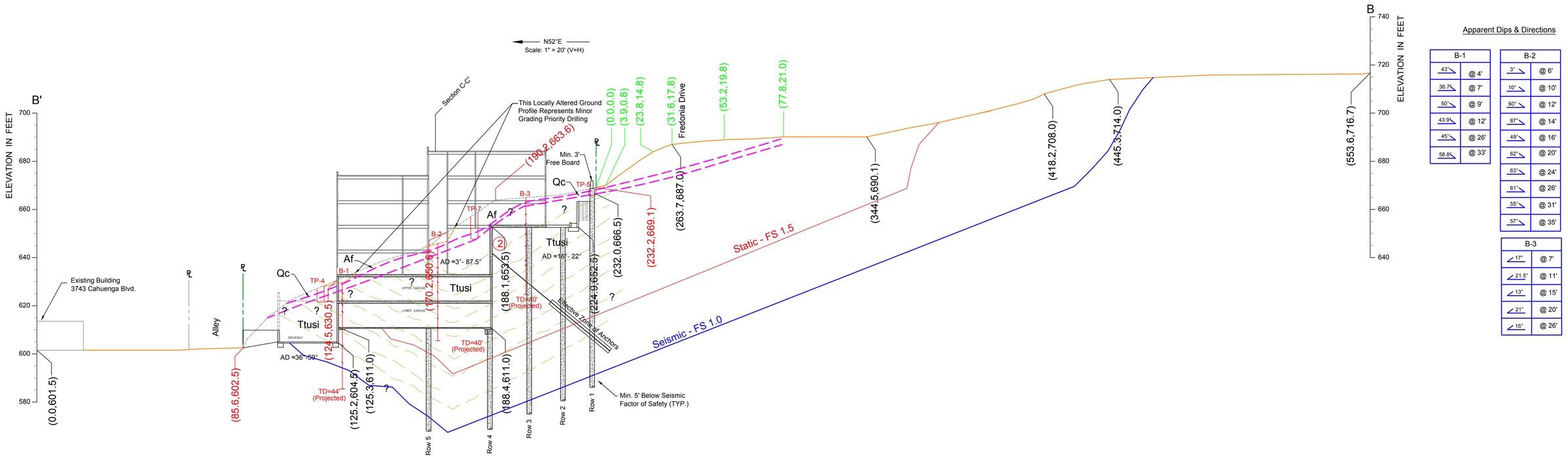

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION B-B'

		PROJECT No:	16-379-22
DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 04 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM

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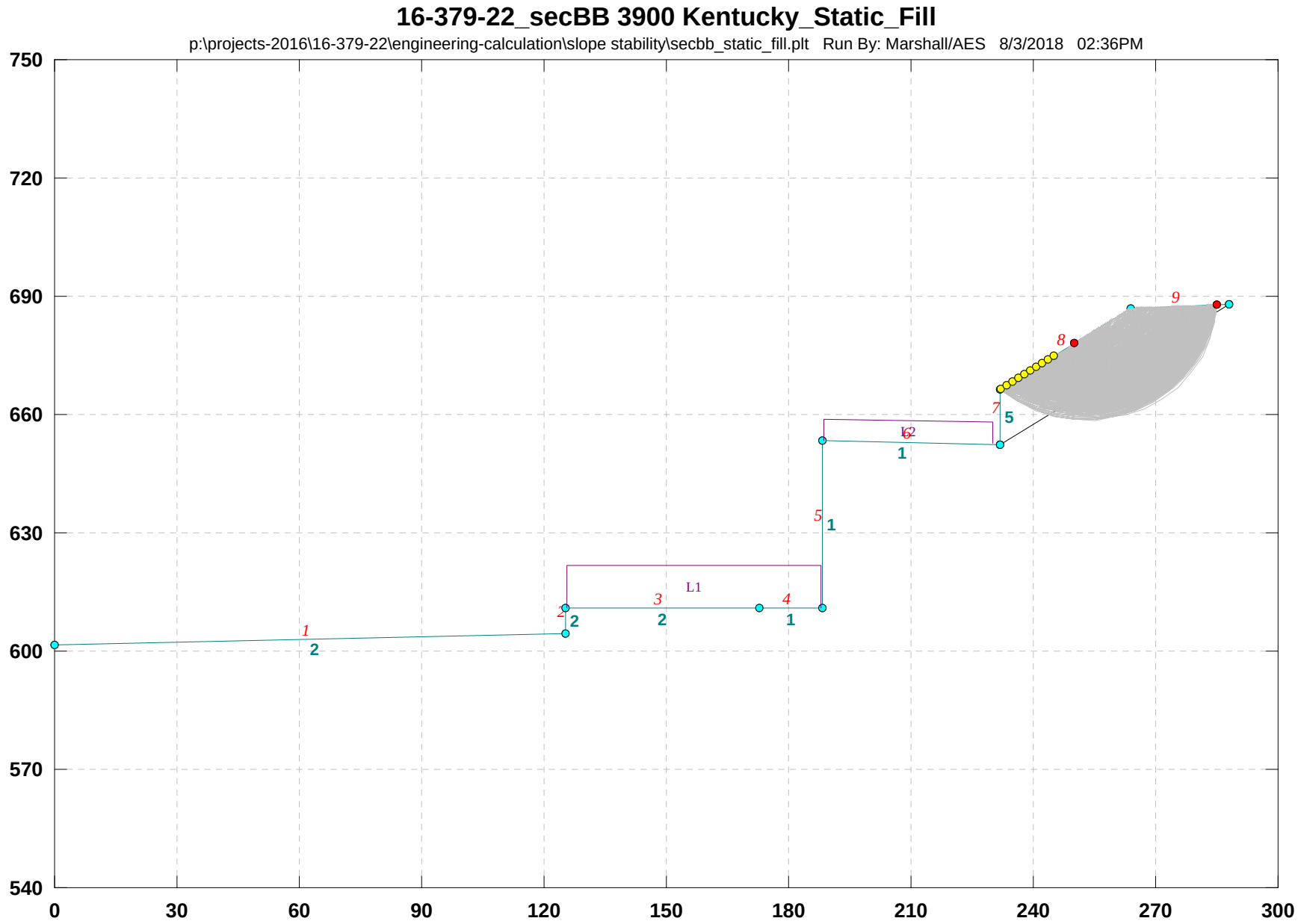
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS
www.aessoil.com (818) 552-6000

SHEET No: 2 | SUPP. No: A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660
630
600
570
540
0
30
60
90
120
150
180
210
240
270
300
L1
L2
1
2
3
4
5
6
7
8
9

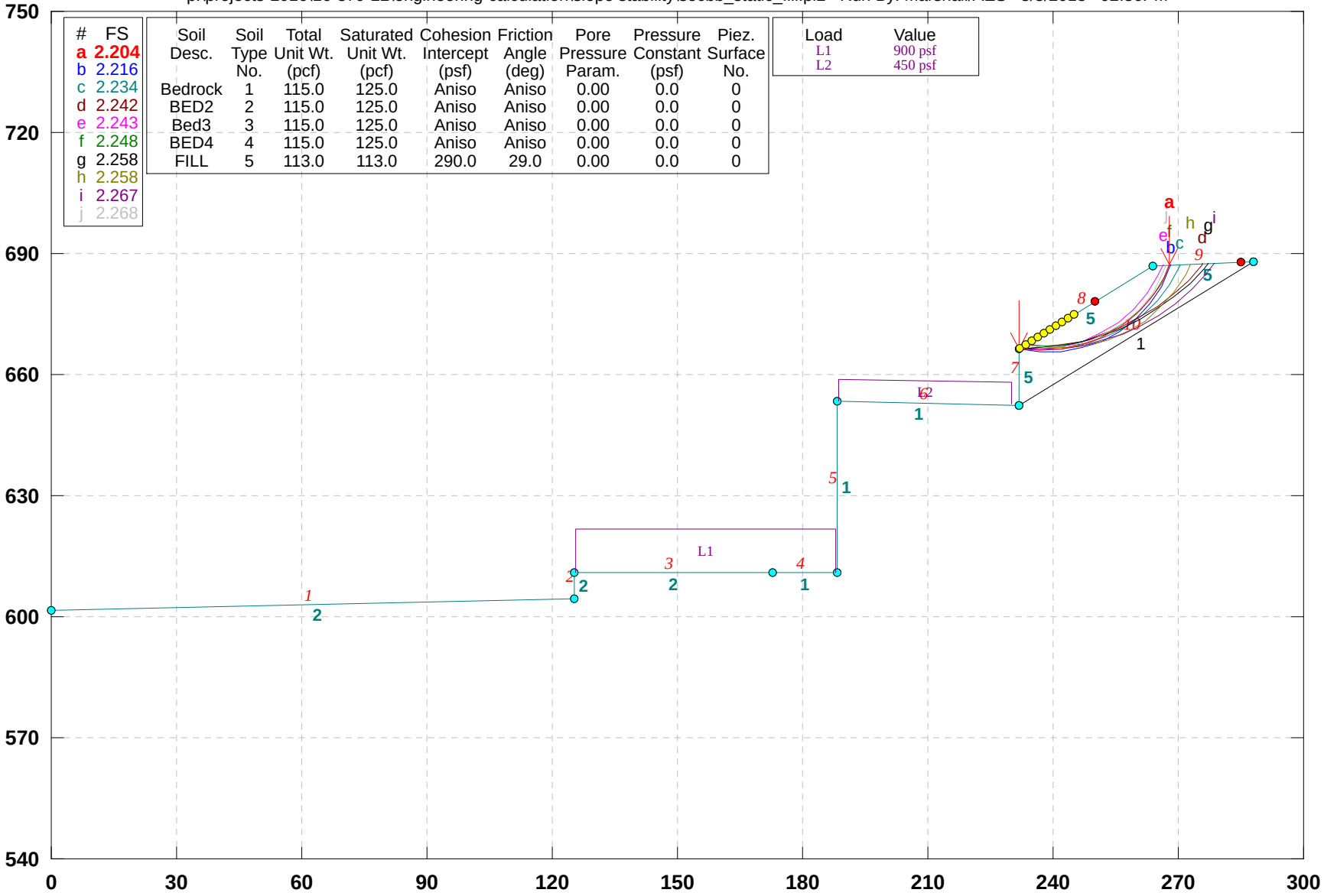
16-379-22_secBB 3900 Kentucky_Static_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\secbb_static_fill.pl2 Run By: Marshall/AES 8/3/2018 02:36PM

#	FS
a	2.204
b	2.216
c	2.234
d	2.242
e	2.243
f	2.248
g	2.258
h	2.258
i	2.267
j	2.268

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf



GSTABL7 v.2 FSmin=2.204

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

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Analysis Run Date: 8/3/2018
Time of Run: 02:36PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_Fill

BOUNDARY COORDINATES
9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00

2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
   (1) An input value of 0.01 for C and/or Phi will cause Aniso
       C and/or Phi to be ignored in that range.
   (2) An input value of 0.02 for Phi will set both Phi and
       C equal to zero, with no water weight in the tension crack.
   (3) An input value of 0.03 for Phi will set both Phi and
       C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
    2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
       Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
 100 Surface(s) Initiate(s) From Each Of   10 Points Equally Spaced
Along The Ground Surface Between X = 232.01(ft)
                            and X = 245.00(ft)
Each Surface Terminates Between   X = 250.00(ft)
                           and   X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y =   0.00(ft)
 5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
      Failure Surfaces Evaluated. They Are
      Ordered - Most Critical First.
      * * Safety Factors Are Calculated By The Modified Bishop Method * *
      Total Number of Trial Surfaces Attempted = 1000
      Number of Trial Surfaces With Valid FS = 1000
      Statistical Data On All Valid FS Values:
         FS Max = 17.133   FS Min =   2.204   FS Ave =   3.631
         Standard Deviation =   1.507   Coefficient of Variation =   41.50 %
      Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	232.010	666.500
2	236.990	666.051
3	241.980	666.367
4	246.863	667.442
5	251.524	669.251
6	255.855	671.750
7	259.753	674.881
8	263.127	678.571
9	265.898	682.733
10	267.956	687.175

Circle Center At X = 237.427 ; Y = 698.668 ; and Radius = 32.621

Factor of Safety

*** 2.204 ***

Individual data on the 10 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	1032.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	5.0	2890.6	0.0	0.0	0.	0.	0.0	0.0	0.0
3	4.9	4206.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	4.7	4882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
5	4.3	4905.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	3.9	4347.7	0.0	0.0	0.	0.	0.0	0.0	0.0
7	3.4	3359.6	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.6	506.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	2.2	1480.6	0.0	0.0	0.	0.	0.0	0.0	0.0
10	2.1	506.8	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.949	665.719
3	241.948	665.762
4	246.873	666.629
5	251.587	668.294
6	255.963	670.714
7	259.880	673.822
8	263.231	677.532
9	265.926	681.744
10	267.889	686.342
11	268.093	687.181

Circle Center At X = 239.188 ; Y = 695.882 ; and Radius = 30.246

Factor of Safety

*** 2.216 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.836
3	243.415	666.992
4	248.333	667.896
5	253.059	669.529
6	257.486	671.852
7	261.513	674.815
8	265.051	678.349
9	268.017	682.374
10	270.344	686.799
11	270.511	687.280

Circle Center At X = 239.889 ; Y = 699.996 ; and Radius = 33.192

Factor of Safety

*** 2.234 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834

6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 2.242 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.295
3	241.975	666.851
4	246.801	668.157
5	251.373	670.181
6	255.584	672.877
7	259.337	676.181
8	262.543	680.018
9	265.129	684.297
10	266.287	687.106

Circle Center At X = 235.890 ; Y = 698.858 ; and Radius = 32.590

Factor of Safety

*** 2.243 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.431	666.966
3	243.420	667.299
4	248.292	668.425
5	252.922	670.313
6	257.190	672.917
7	260.989	676.168
8	264.219	679.985
9	266.799	684.268
10	267.966	687.176

Circle Center At X = 238.882 ; Y = 697.982 ; and Radius = 31.027

Factor of Safety

*** 2.248 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372

8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691

Factor of Safety

*** 2.267 ***

Failure Surface Specified By 10 Coordinate Points

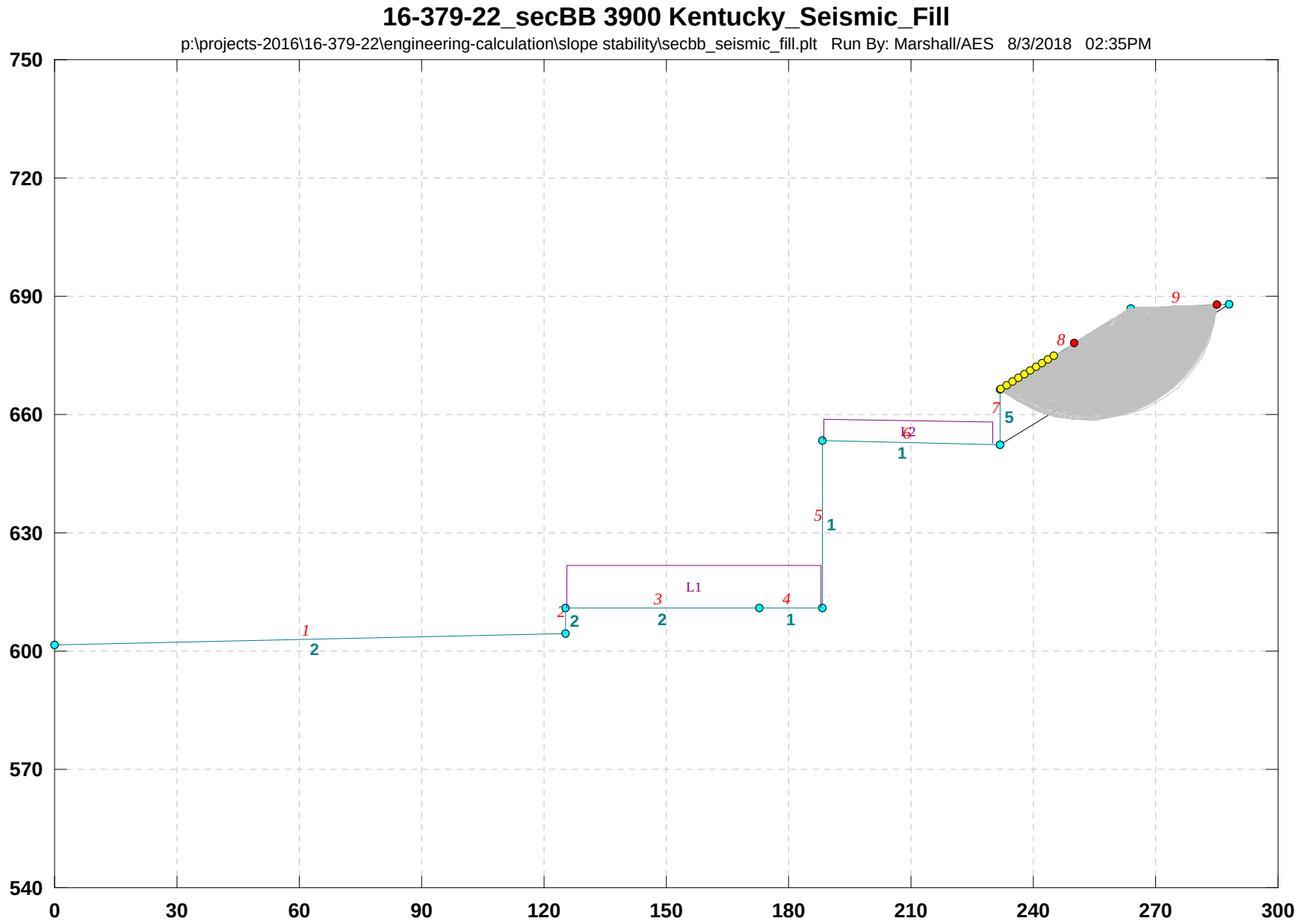
Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.839
3	243.411	667.102
4	248.286	668.214
5	252.899	670.143
6	257.114	672.832
7	260.808	676.201
8	263.872	680.153
9	266.216	684.570
10	267.056	687.138

Circle Center At X = 239.417 ; Y = 695.768 ; and Radius = 28.955

Factor of Safety

*** 2.268 ***

**** END OF GSTABL7 OUTPUT ****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720
690
660
630
600
570
540
0
30
60
90
120
150
180
210
240
270
300
L1
1
2
3
4
5
6
7
8
9

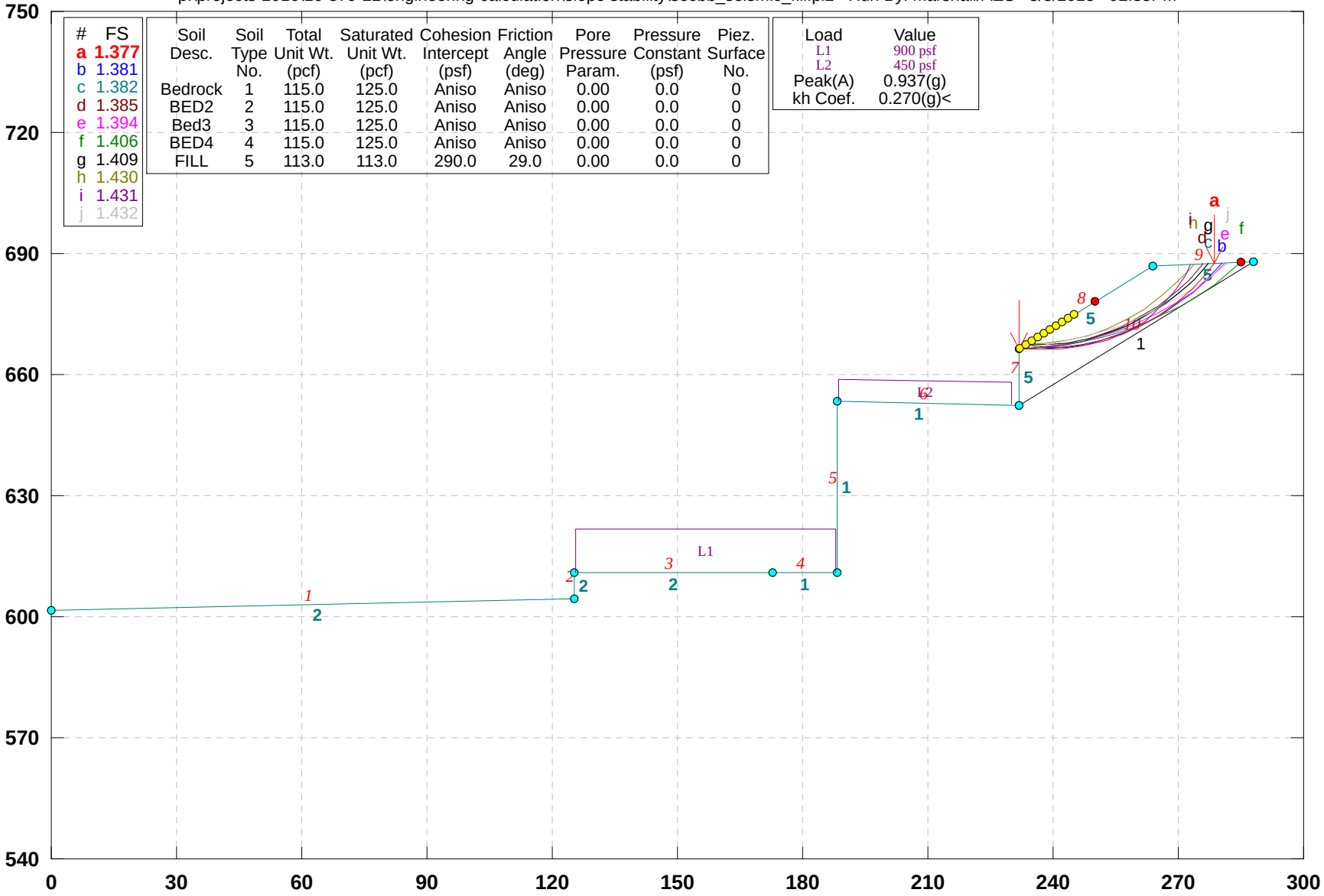
16-379-22_secBB 3900 Kentucky_Seismic_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\secbb_seismic_fill.pl2 Run By: Marshall/AES 8/3/2018 02:35PM

#	FS
a	1.377
b	1.381
c	1.382
d	1.385
e	1.394
f	1.406
g	1.409
h	1.430
i	1.431
j	1.432

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.377

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/3/2018
Time of Run: 02:35PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_Fill
BOUNDARY COORDINATES

9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00

3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	**188.50**	**230.00**	**450.0**	**0.0**

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 232.01(ft)
and X = 245.00(ft)
Each Surface Terminates Between X = 250.00(ft)
and X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.973 FS Min = 1.377 FS Ave = 2.232
Standard Deviation = 1.072 Coefficient of Variation = 48.03 %
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691
Factor of Safety
*** 1.377 ***
Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	986.7	0.0	0.0	0.	0.	266.4	0.0	0.0

2	5.0	2822.9	0.0	0.0	0.	0.	762.2	0.0	0.0
3	4.9	4333.5	0.0	0.0	0.	0.	1170.0	0.0	0.0
4	4.9	5467.3	0.0	0.0	0.	0.	1476.2	0.0	0.0
5	4.7	6195.1	0.0	0.0	0.	0.	1672.7	0.0	0.0
6	4.5	6510.5	0.0	0.0	0.	0.	1757.8	0.0	0.0
7	2.7	3962.0	0.0	0.0	0.	0.	1069.7	0.0	0.0
8	1.6	2375.9	0.0	0.0	0.	0.	641.5	0.0	0.0
9	4.0	4985.7	0.0	0.0	0.	0.	1346.1	0.0	0.0
10	3.7	3343.0	0.0	0.0	0.	0.	902.6	0.0	0.0
11	3.4	1746.5	0.0	0.0	0.	0.	471.6	0.0	0.0
12	2.2	343.4	0.0	0.0	0.	0.	92.7	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.009	666.397
3	241.998	666.727
4	246.940	667.486
5	251.798	668.669
6	256.536	670.268
7	261.117	672.269
8	265.509	674.660
9	269.678	677.420
10	273.593	680.531
11	277.224	683.968
12	280.534	687.693

Circle Center At X = 235.698 ; Y = 724.204 ; and Radius = 57.821

Factor of Safety

*** 1.381 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 1.382 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834
6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 1.385 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.705

3	241.973	667.273
4	246.886	668.202
5	251.719	669.486
6	256.445	671.119
7	261.039	673.091
8	265.478	675.393
9	269.737	678.012
10	273.794	680.935
11	277.627	684.145
12	281.216	687.626
13	281.304	687.724

Circle Center At X = 231.698 ; Y = 735.096 ; and Radius = 68.596

Factor of Safety

*** 1.394 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.692
3	241.980	667.205
4	246.910	668.038
5	251.776	669.187
6	256.558	670.647
7	261.236	672.412
8	265.791	674.475
9	270.203	676.828
10	274.454	679.460
11	278.527	682.360
12	282.404	685.517
13	284.946	687.874

Circle Center At X = 231.537 ; Y = 744.034 ; and Radius = 77.535

Factor of Safety

*** 1.406 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.453	667.462
3	243.428	667.961
4	248.334	668.926
5	253.128	670.347
6	257.767	672.213
7	262.209	674.507
8	266.417	677.209
9	270.351	680.294
10	273.978	683.736
11	277.266	687.503
12	277.306	687.560

Circle Center At X = 235.651 ; Y = 720.483 ; and Radius = 53.095

Factor of Safety

*** 1.409 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.446	667.700
3	243.389	668.456
4	248.233	669.695
5	252.932	671.404
6	257.439	673.568
7	261.712	676.164
8	265.709	679.168
9	269.391	682.551
10	272.723	686.279
11	273.545	687.405

Circle Center At X = 233.249 ; Y = 718.195 ; and Radius = 50.762

Factor of Safety

*** 1.430 ***

Failure Surface Specified By 11 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372
8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 1.431 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.973	667.105
3	241.895	667.986
4	246.760	669.141
5	251.553	670.565
6	256.259	672.255
7	260.863	674.204
8	265.351	676.408
9	269.709	678.858
10	273.924	681.548
11	277.982	684.470
12	281.871	687.613
13	282.027	687.754

Circle Center At X = 223.660 ; Y = 755.651 ; and Radius = 89.541

Factor of Safety

*** 1.432 ***

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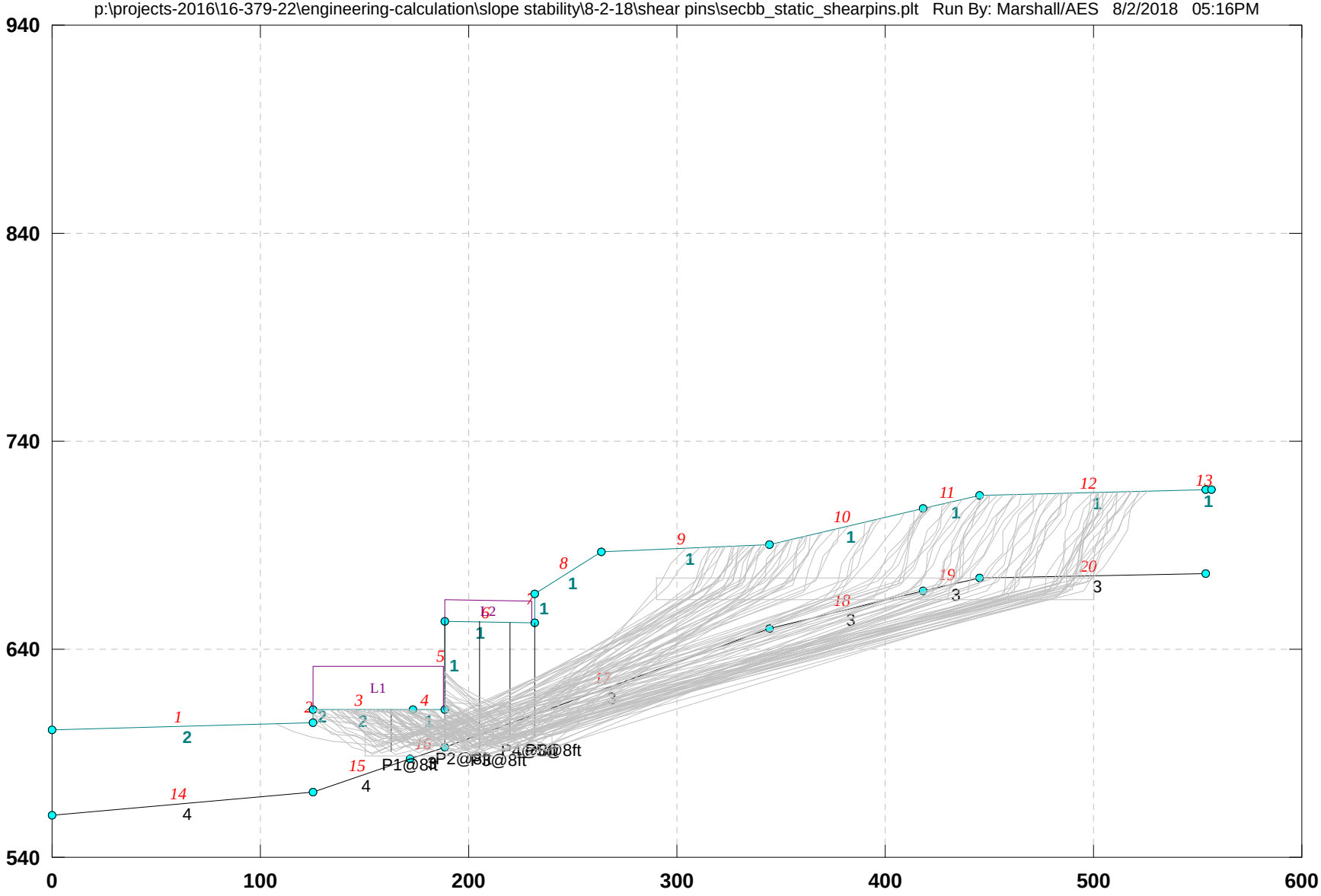
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840
740
640
540
0
100
200
300
400
500
600
L1
L2
P1@8ft
P2@8ft

16-379-22_secBB 3900 Kentucky_Static_ShearPins

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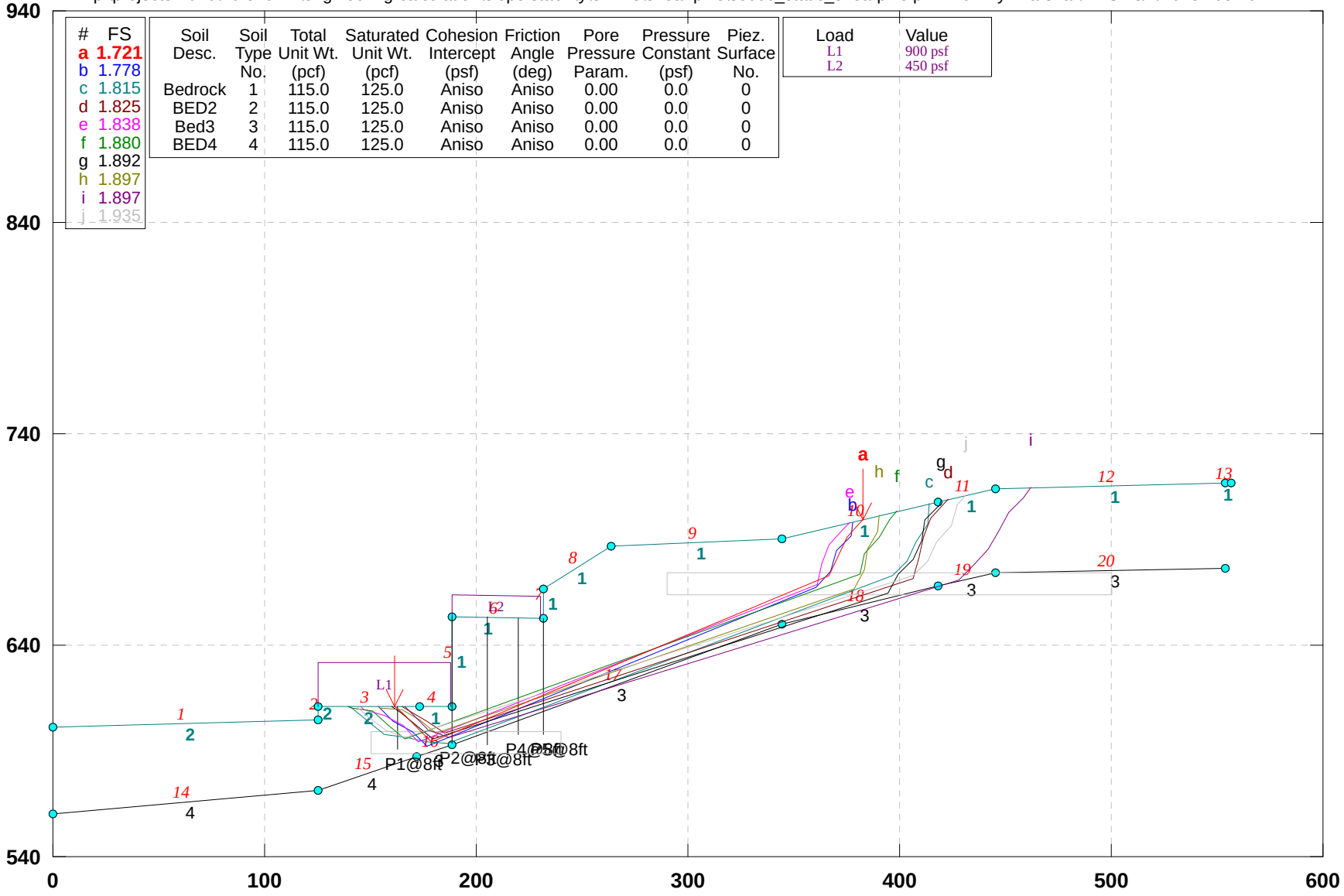

GSTABL7 v.2 FSmin=1.721

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:16PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile No.	X-Pos (ft)	Y-Pos (ft)	Load (lbs)	Spacing (ft)	Inclination (deg)	Length (ft)
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles Assuming A Uniform Distribution Of Load Horizontally Between Individual Piers/Piles.

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.786 FS Min = 1.721 FS Ave = 2.450
Standard Deviation = 0.413 Coefficient of Variation = 16.87 %
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.721 ***

Individual data on the 18 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.0	497.2	0.0	0.0	0.	0.	0.0	0.0	2666.3
2	7.1	5248.5	0.0	0.0	0.	0.	0.0	0.0	6364.4
3	1.2	1511.0	0.0	0.0	0.	0.	0.0	0.0	1115.5
4	5.9	9540.7	0.0	0.0	0.	0.	0.0	0.0	5290.8
5	9.2	15990.1	0.0	0.0	0.	0.	0.0	0.0	8299.2
6	0.4	600.8	0.0	0.0	0.	0.	0.0	0.0	0.0
7	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	41.5	220734.8	0.0	0.0	0.	0.	0.0	0.0	18675.0
10	2.0	8424.4	0.0	0.0	0.	0.	0.0	0.0	0.0
11	0.0	49.6	0.0	0.0	0.	0.	0.0	0.0	0.0
12	31.7	196007.4	0.0	0.0	0.	0.	0.0	0.0	0.0
13	80.8	390151.7	0.0	0.0	0.	0.	0.0	0.0	0.0
14	22.0	62306.1	0.0	0.0	0.	0.	0.0	0.0	0.0
15	4.6	9947.5	0.0	0.0	0.	0.	0.0	0.0	0.0
16	3.7	4503.6	0.0	0.0	0.	0.	0.0	0.0	0.0
17	6.9	2931.6	0.0	0.0	0.	0.	0.0	0.0	0.0
18	1.2	62.5	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

Factor of Safety
*** 1.778 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716
5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.815 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.825 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.838 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421
10	398.492	703.214

Factor of Safety
*** 1.880 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586

5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.892 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.935 ***

**** END OF GSTABL7 OUTPUT ****

16-379-22_secBB 3900 Kentucky_Seismic_ShearPins

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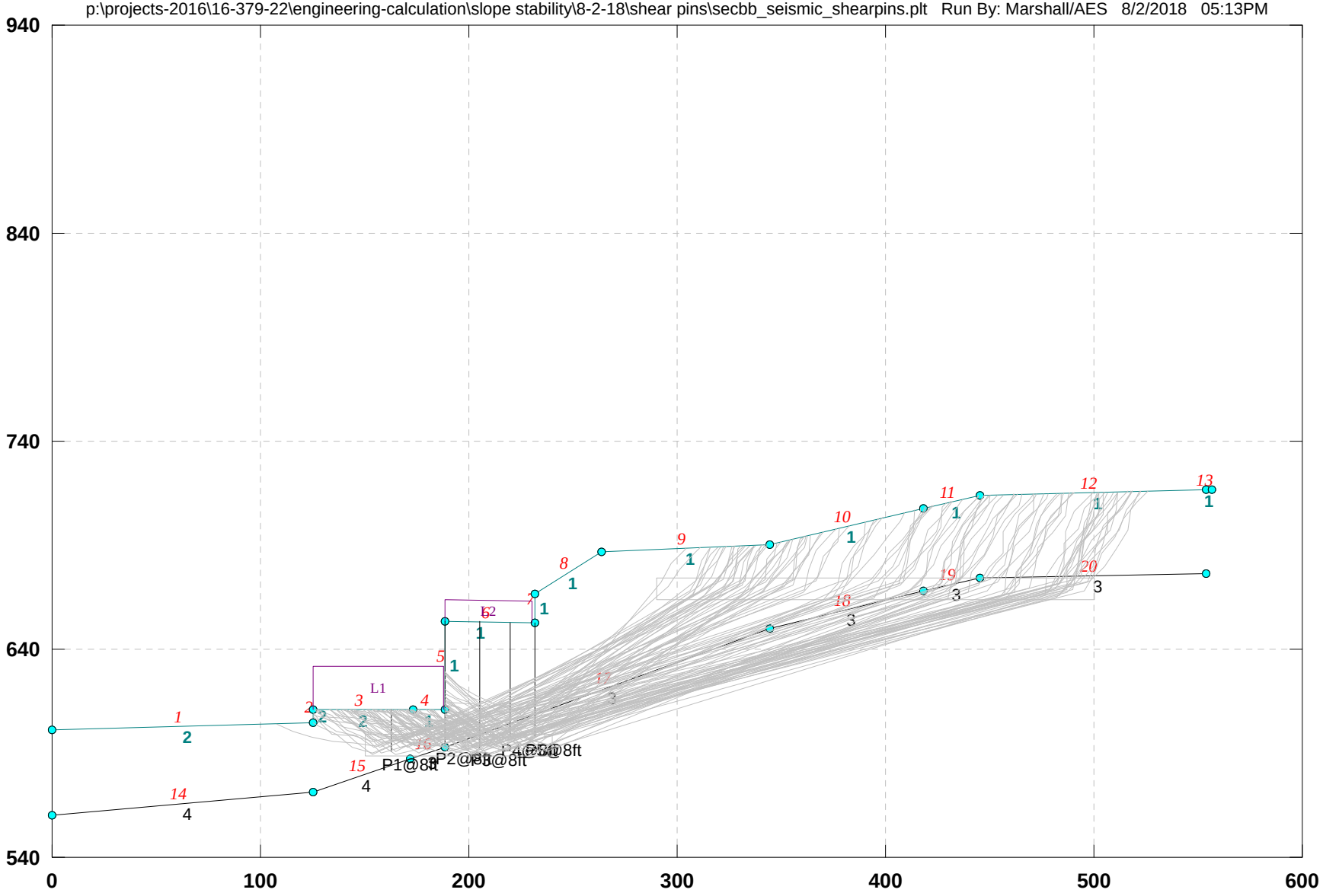

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#	FS
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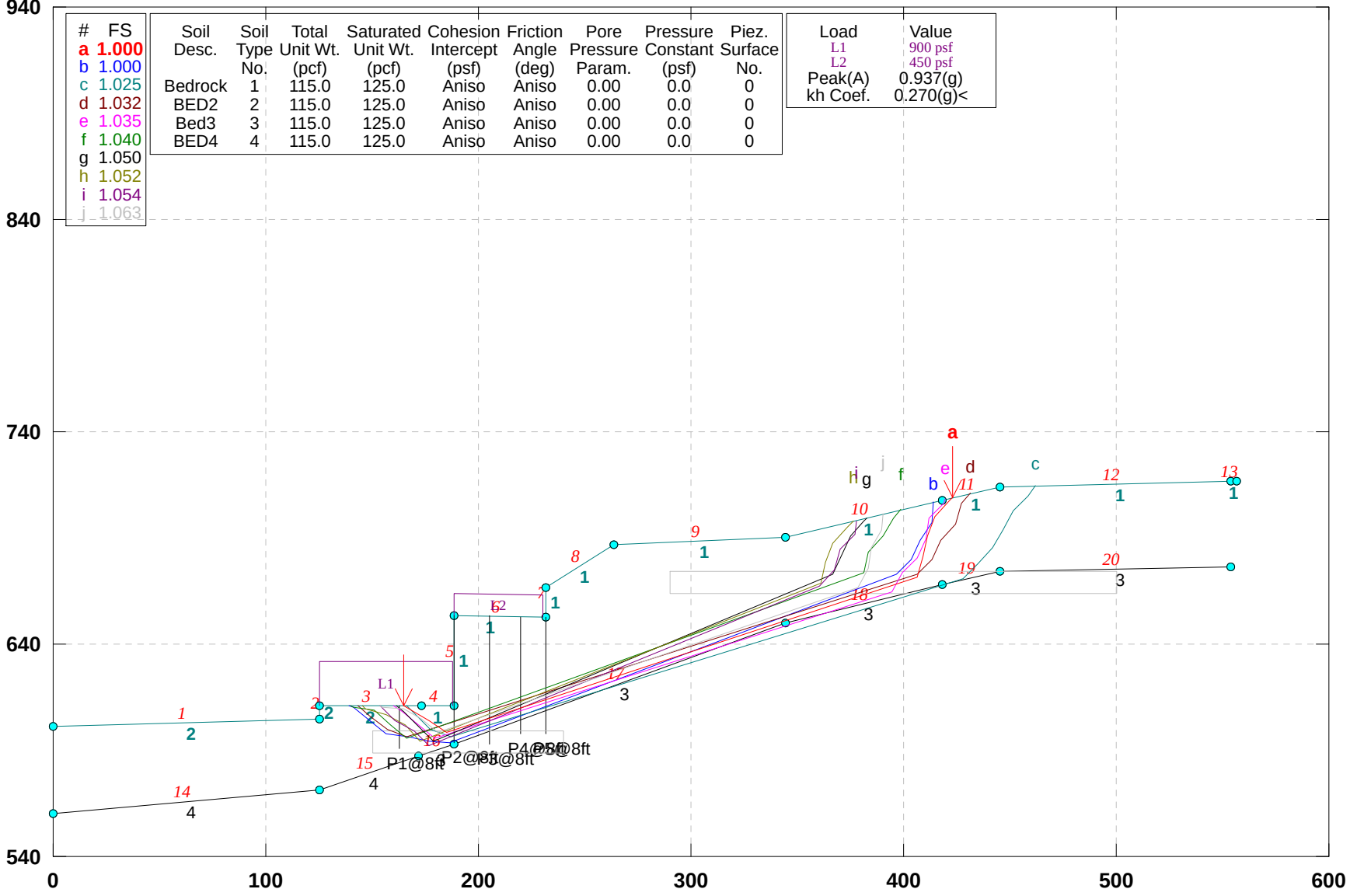
b	1.000
c	1.025
d	1.032
e	1.035
f	1.040
g	1.050
h	1.052
i	1.054
j	1.063

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.000

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

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Time of Run: 05:13PM
Run By: Marshall/AES
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Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile **No.**	X-Pos **(ft)**	Y-Pos **(ft)**	Load **(lbs)**	Spacing **(ft)**	Inclination **(deg)**	Length **(ft)**
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles
Assuming A Uniform Distribution Of Load Horizontally Between
Individual Piers/Piles.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Sliding Block Surfaces, Has Been
Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of
Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.100 FS Min = 1.000 FS Ave = 1.342
Standard Deviation = 0.261 Coefficient of Variation = 19.46 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.000 ***
Individual data on the 20 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.3	374.7	0.0	0.0	0.	0.	101.2	0.0	2970.7
2	4.9	1930.2	0.0	0.0	0.	0.	521.2	0.0	4386.0
3	3.7	2557.2	0.0	0.0	0.	0.	690.4	0.0	3320.7
4	8.3	9475.3	0.0	0.0	0.	0.	2558.3	0.0	7467.7
5	3.1	4369.5	0.0	0.0	0.	0.	1179.8	0.0	2801.6
6	0.4	534.7	0.0	0.0	0.	0.	144.4	0.0	0.0
7	0.0	37.7	0.0	0.0	0.	0.	10.2	0.0	0.0
8	0.1	559.4	0.0	0.0	0.	0.	151.0	0.0	0.0
9	41.5	222776.5	0.0	0.0	0.	0.	60149.7	0.0	18675.0
10	2.0	8965.7	0.0	0.0	0.	0.	2420.8	0.0	0.0
11	0.0	52.5	0.0	0.0	0.	0.	14.2	0.0	0.0
12	31.7	210023.8	0.0	0.0	0.	0.	56706.4	0.0	0.0
13	80.8	472165.6	0.0	0.0	0.	0.	*******	0.0	0.0
14	61.7	257249.4	0.0	0.0	0.	0.	69457.3	0.0	0.0
15	2.7	8949.6	0.0	0.0	0.	0.	2416.4	0.0	0.0
16	2.3	5303.6	0.0	0.0	0.	0.	1432.0	0.0	0.0
17	3.6	4599.2	0.0	0.0	0.	0.	1241.8	0.0	0.0
18	3.5	2210.6	0.0	0.0	0.	0.	596.9	0.0	0.0
19	3.4	1069.9	0.0	0.0	0.	0.	288.9	0.0	0.0
20	1.4	105.4	0.0	0.0	0.	0.	28.5	0.0	0.0

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716

5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.000 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.025 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.032 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586
5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421

10	398.492	703.214

Factor of Safety
*** 1.040 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.050 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.052 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

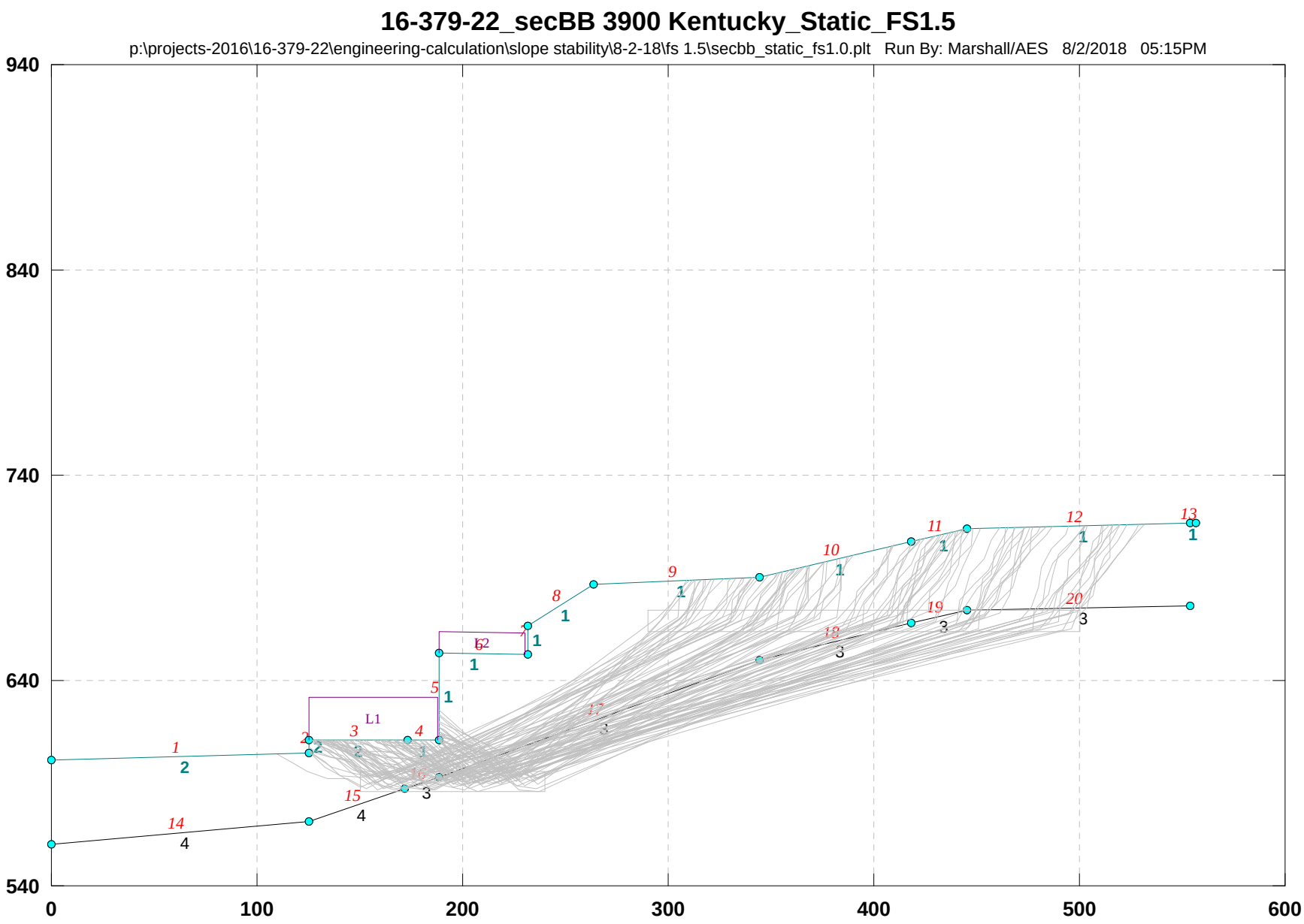
Factor of Safety
*** 1.054 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.063 ***

**** END OF GSTABL7 OUTPUT ****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640
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500
600
L1
L2

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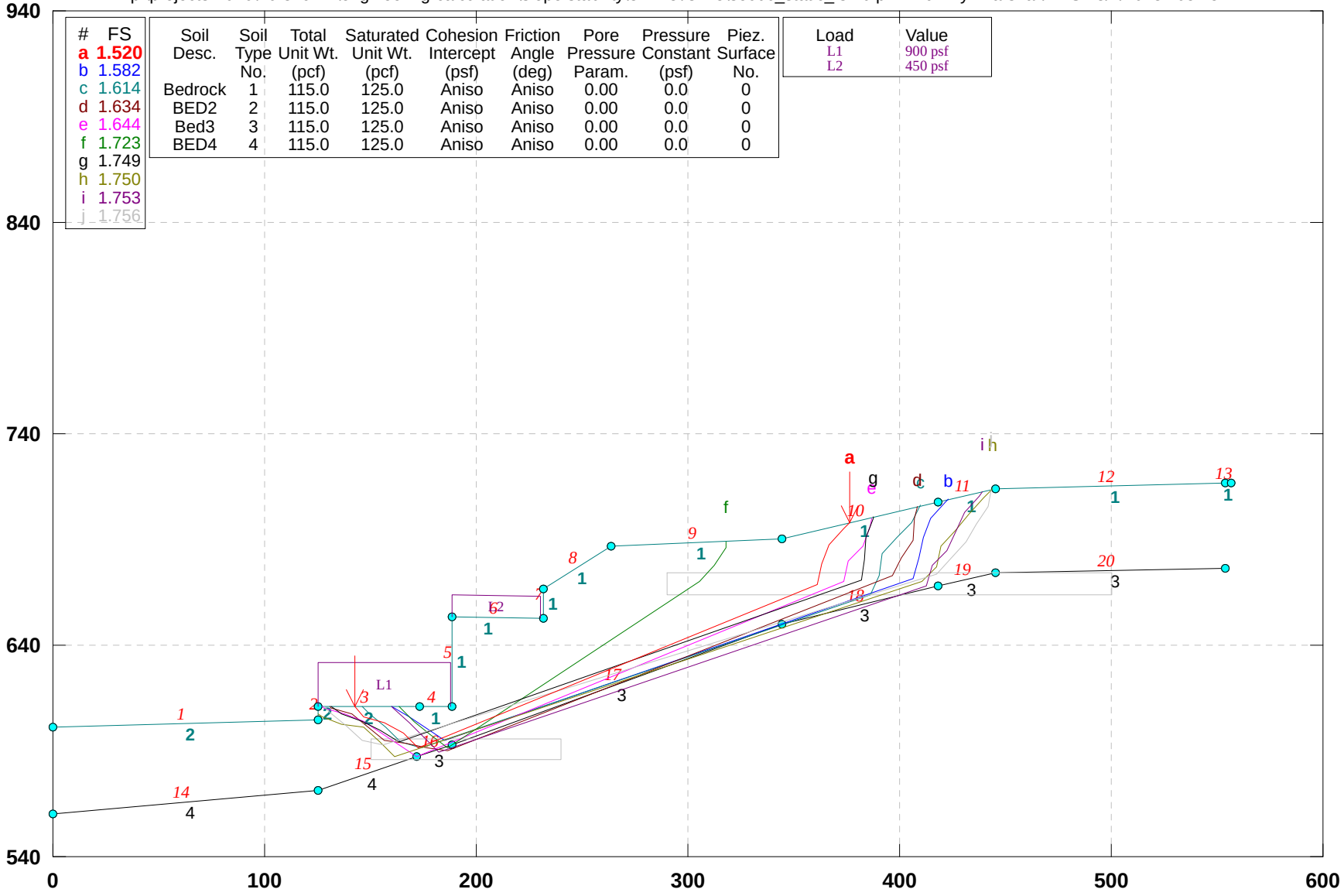

GSTABL7 v.2 FSmin=1.520

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:15PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_FS1.5

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	591.00	240.00	591.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.458 FS Min = 1.520 FS Ave = 2.270
Standard Deviation = 0.414 Coefficient of Variation = 18.24 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	142.287	611.000
2	147.092	606.238
3	156.707	603.489
4	165.439	598.616
5	172.516	591.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.520 ***

Individual data on the 19 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	4.8	1315.7	0.0	0.0	0.	0.	0.0	0.0	4324.3
2	9.6	6785.4	0.0	0.0	0.	0.	0.0	0.0	8653.3
3	8.7	9989.5	0.0	0.0	0.	0.	0.0	0.0	7859.0
4	7.1	12954.9	0.0	0.0	0.	0.	0.0	0.0	6369.9
5	0.4	854.3	0.0	0.0	0.	0.	0.0	0.0	345.2
6	15.1	28156.9	0.0	0.0	0.	0.	0.0	0.0	13590.0
7	0.4	600.5	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
9	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
10	41.5	221902.9	0.0	0.0	0.	0.	0.0	0.0	18675.0
11	2.0	8540.1	0.0	0.0	0.	0.	0.0	0.0	0.0
12	0.0	50.2	0.0	0.0	0.	0.	0.0	0.0	0.0
13	31.7	198568.5	0.0	0.0	0.	0.	0.0	0.0	0.0
14	80.8	402882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
15	16.8	52278.6	0.0	0.0	0.	0.	0.0	0.0	0.0
16	2.0	4732.1	0.0	0.0	0.	0.	0.0	0.0	0.0
17	3.5	4819.7	0.0	0.0	0.	0.	0.0	0.0	0.0
18	6.9	3954.3	0.0	0.0	0.	0.	0.0	0.0	0.0
19	2.7	344.9	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.711	611.000
2	168.027	606.025
3	176.590	600.861
4	184.887	595.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.582 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	146.093	611.000
2	149.678	607.679
3	157.270	601.169
4	164.351	594.109
5	174.011	591.522
6	386.118	664.185

7	390.376	673.233
8	391.946	683.109
9	398.353	690.787
10	405.286	697.994
11	410.129	706.040

Factor of Safety
*** 1.614 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.047	611.000
2	131.820	610.237
3	141.411	607.409
4	149.239	601.186
5	156.864	594.716
6	166.754	593.237
7	176.588	591.419
8	186.535	590.394
9	396.474	672.627
10	400.928	681.581
11	406.480	689.898
12	407.214	699.871
13	408.677	705.687

Factor of Safety
*** 1.634 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.155	611.000
2	127.933	610.249
3	137.490	607.305
4	146.980	604.152
5	155.097	598.311
6	163.378	592.706
7	171.791	587.301
8	373.967	670.022
9	375.909	679.832
10	382.915	686.967
11	385.871	696.521
12	386.677	700.344

Factor of Safety
*** 1.644 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	163.562	611.000
2	170.593	603.993
3	178.436	597.789
4	186.271	591.576
5	305.624	670.450
6	312.614	677.601
7	317.939	686.065
8	318.188	689.091

Factor of Safety
*** 1.723 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.534	611.000
2	136.581	607.824
3	145.812	603.978
4	154.798	599.590
5	163.332	594.378
6	381.708	670.987
7	383.569	680.812
8	384.405	690.777
9	387.540	700.273
10	387.873	700.634

Factor of Safety
*** 1.749 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.251	607.817
2	127.273	605.920
3	136.691	602.559
4	146.563	600.961
5	154.249	594.565
6	161.332	587.506
7	410.266	670.306
8	417.302	677.411
9	419.838	687.084
10	426.418	694.614
11	432.811	702.303
12	439.812	709.444
13	444.001	713.712

Factor of Safety
*** 1.750 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.818	611.000
2	160.716	610.113
3	168.072	603.338
4	175.144	596.269
5	182.316	589.300
6	412.880	667.784
7	415.253	677.498
8	422.126	684.762
9	426.329	693.836
10	430.640	702.859
11	437.476	710.156
12	438.822	712.566

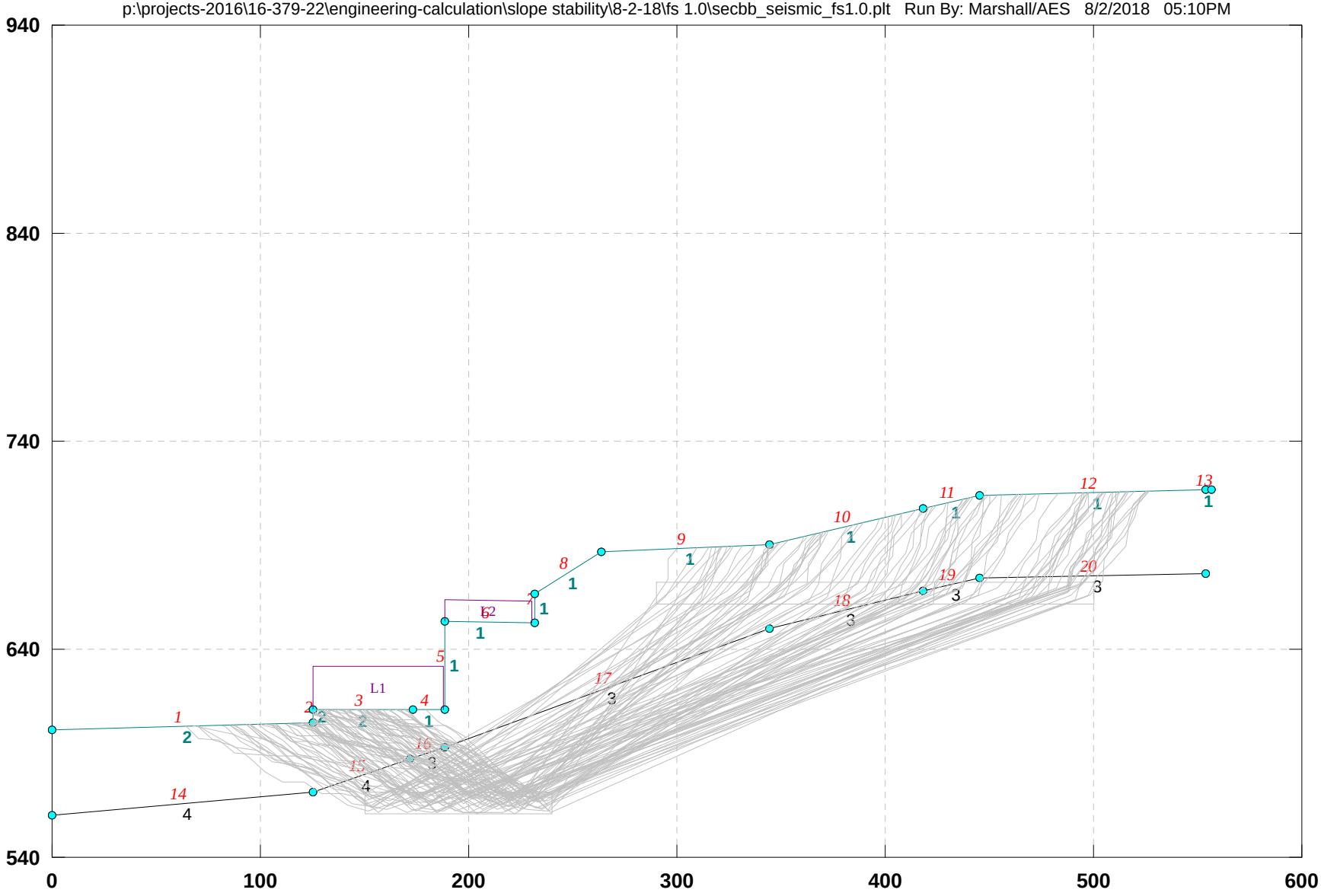
Factor of Safety
*** 1.753 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.807	611.000
2	131.054	608.112
3	138.779	601.762
4	145.974	594.817
5	155.817	593.055
6	417.495	673.921
7	424.232	681.311
8	431.069	688.608
9	436.496	697.008
10	441.799	705.486
11	442.984	713.487

Factor of Safety
*** 1.756 ***

**** END OF GSTABL7 OUTPUT ****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100
200
300
400
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600
L1
L2

16-379-22_secBB 3900 Kentucky_Seismic_FS1.0

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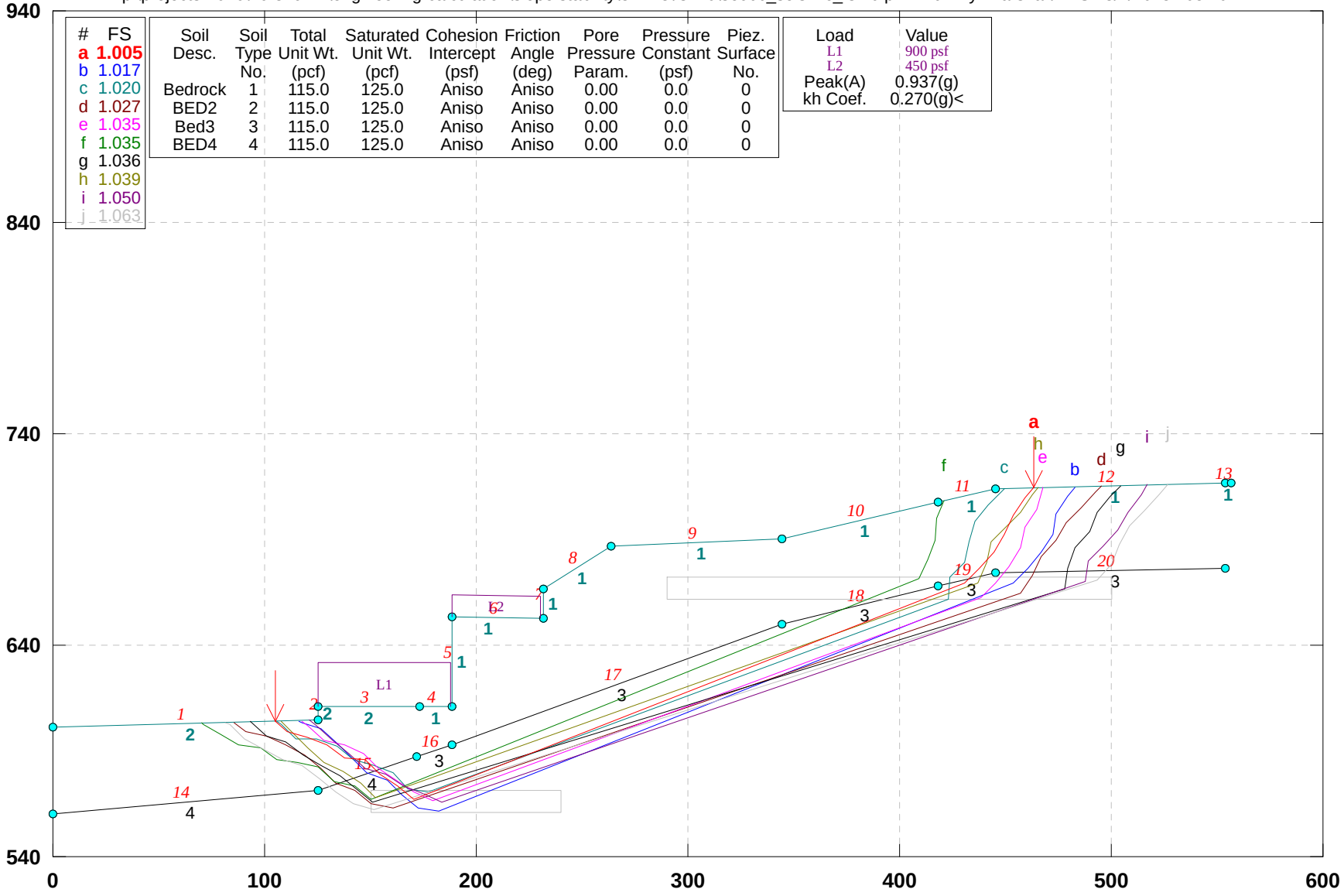

GSTABL7 v.2 FSmin=1.005

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **

** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:10PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_FS1.0
BOUNDARY COORDINATES
13 Top Boundaries

20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS

4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00

5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	566.00	240.00	566.00	10.00
2	290.00	667.00	500.00	667.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.198 FS Min = 1.005 FS Ave = 1.478
Standard Deviation = 0.286 Coefficient of Variation = 19.35 %
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	105.017	604.016
2	110.840	599.284
3	120.299	596.040
4	129.711	592.662
5	137.614	586.535
6	147.596	585.929
7	154.674	578.865
8	163.110	573.495
9	170.737	567.027
10	430.568	669.311
11	437.386	676.627
12	444.455	683.700
13	449.304	692.446

14	453.351	701.590
15	458.856	709.939
16	463.317	714.449

Factor of Safety
*** 1.005 ***

Individual data on the 33 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.8	1631.4	0.0	0.0	0.	0.	440.5	0.0	0.0
2	9.5	7187.9	0.0	0.0	0.	0.	1940.7	0.0	0.0
3	4.9	5230.7	0.0	0.0	0.	0.	1412.3	0.0	0.0
4	0.1	155.1	0.0	0.0	0.	0.	41.9	0.0	0.0
5	0.2	386.2	0.0	0.0	0.	0.	104.3	0.0	0.0
6	4.2	8515.3	0.0	0.0	0.	0.	2299.1	0.0	3790.3
7	7.9	19450.4	0.0	0.0	0.	0.	5251.6	0.0	7112.5
8	10.0	28431.2	0.0	0.0	0.	0.	7676.4	0.0	8983.5
9	5.4	17374.8	0.0	0.0	0.	0.	4691.2	0.0	4893.9
10	1.6	5907.7	0.0	0.0	0.	0.	1595.1	0.0	1476.3
11	8.4	33780.5	0.0	0.0	0.	0.	9120.7	0.0	7592.4
12	7.6	35730.8	0.0	0.0	0.	0.	9647.3	0.0	6864.0
13	1.3	6352.2	0.0	0.0	0.	0.	1715.1	0.0	1137.0
14	0.9	4481.3	0.0	0.0	0.	0.	1210.0	0.0	810.0
15	15.1	69719.0	0.0	0.0	0.	0.	18824.1	0.0	13590.0
16	0.4	1706.5	0.0	0.0	0.	0.	460.8	0.0	0.0
17	0.0	67.0	0.0	0.0	0.	0.	18.1	0.0	0.0
18	0.1	822.9	0.0	0.0	0.	0.	222.2	0.0	0.0
19	41.5	338053.8	0.0	0.0	0.	0.	91274.5	0.0	18675.0
20	2.0	14207.7	0.0	0.0	0.	0.	3836.1	0.0	0.0
21	0.0	78.6	0.0	0.0	0.	0.	21.2	0.0	0.0
22	31.7	289232.8	0.0	0.0	0.	0.	78092.9	0.0	0.0
23	80.8	641366.8	0.0	0.0	0.	0.	*******	0.0	0.0
24	73.7	416262.8	0.0	0.0	0.	0.	*******	0.0	0.0
25	12.4	60438.6	0.0	0.0	0.	0.	16318.4	0.0	0.0
26	1.7	7844.4	0.0	0.0	0.	0.	2118.0	0.0	0.0
27	5.1	22358.6	0.0	0.0	0.	0.	6036.8	0.0	0.0
28	7.1	26719.6	0.0	0.0	0.	0.	7214.3	0.0	0.0
29	0.8	2861.2	0.0	0.0	0.	0.	772.5	0.0	0.0
30	4.0	11611.7	0.0	0.0	0.	0.	3135.2	0.0	0.0
31	4.0	7972.8	0.0	0.0	0.	0.	2152.6	0.0	0.0
32	5.5	5383.8	0.0	0.0	0.	0.	1453.6	0.0	0.0
33	4.5	1128.6	0.0	0.0	0.	0.	304.7	0.0	0.0

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	116.193	604.284
2	117.303	603.479
3	126.801	600.352
4	134.072	593.487
5	141.165	586.438
6	148.245	579.375
7	157.687	576.082
8	165.163	569.440
9	172.597	562.752
10	182.536	561.649
11	453.588	669.265
12	460.370	676.614
13	466.993	684.107
14	472.411	692.511
15	473.835	702.409
16	479.401	710.717
17	483.099	714.942

Factor of Safety
*** 1.017 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	106.017	604.040
2	107.515	602.865

3	114.764	595.976
4	124.745	595.359
5	134.311	592.446
6	141.985	586.034
7	151.648	583.459
8	160.768	579.358
9	167.850	572.298
10	177.724	570.714
11	423.083	662.021
12	423.747	671.999
13	430.533	679.345
14	432.837	689.076
15	435.577	698.693
16	442.146	706.232
17	448.934	713.576
18	449.257	714.099

Factor of Safety
*** 1.020 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.401	603.546
2	90.908	599.077
3	100.634	596.755
4	109.981	593.198
5	118.636	588.190
6	126.461	581.964
7	133.565	574.926
8	142.818	571.133
9	150.608	564.863
10	160.453	563.111
11	457.433	664.380
12	462.418	673.049
13	467.113	681.878
14	473.767	689.343
15	478.738	698.020
16	485.716	705.183
17	492.724	712.316
18	495.591	715.254

Factor of Safety
*** 1.027 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	117.680	604.320
2	120.649	602.154
3	127.809	595.173
4	137.553	592.926
5	146.760	589.023
6	153.884	582.005
7	161.883	576.003
8	170.149	570.377
9	179.394	566.563
10	438.464	662.480
11	445.521	669.565
12	451.793	677.354
13	456.901	685.951
14	459.217	695.679
15	464.705	704.038
16	467.274	713.703
17	467.864	714.563

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	70.245	603.183
2	70.627	602.814
3	79.124	597.541
4	87.792	592.555

5	97.761	591.759
6	105.825	585.845
7	115.709	584.326
8	125.581	582.735
9	132.814	575.829
10	142.549	573.541
11	150.104	566.991
12	409.086	671.404
13	413.503	680.375
14	416.873	689.791
15	417.158	699.787
16	420.635	708.539

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	93.203	603.733
2	100.701	597.318
3	110.235	594.301
4	118.088	588.110
5	126.559	582.795
6	135.377	578.080
7	143.383	572.087
8	151.269	565.938
9	477.839	666.855
10	479.574	676.704
11	483.077	686.070
12	489.605	693.646
13	492.964	703.065
14	499.601	710.545
15	504.232	715.469

Factor of Safety
*** 1.036 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.510	604.076
2	113.402	598.230
3	120.612	591.300
4	128.010	584.572
5	137.093	580.388
6	145.450	574.896
7	152.521	567.826
8	436.874	669.700
9	440.878	678.863
10	443.290	688.568
11	450.056	695.932
12	457.050	703.079
13	462.573	711.416
14	465.310	714.499

Factor of Safety
*** 1.039 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.932	604.398
2	124.772	601.636
3	132.398	595.168
4	140.000	588.672
5	147.472	582.025
6	156.956	578.854
7	165.477	573.620
8	174.750	569.878
9	183.854	565.741
10	487.836	670.154
11	489.094	680.074
12	496.161	687.149
13	503.230	694.223
14	507.836	703.099

15	514.167	710.840
16	516.915	715.785

Factor of Safety

*** 1.050 ***

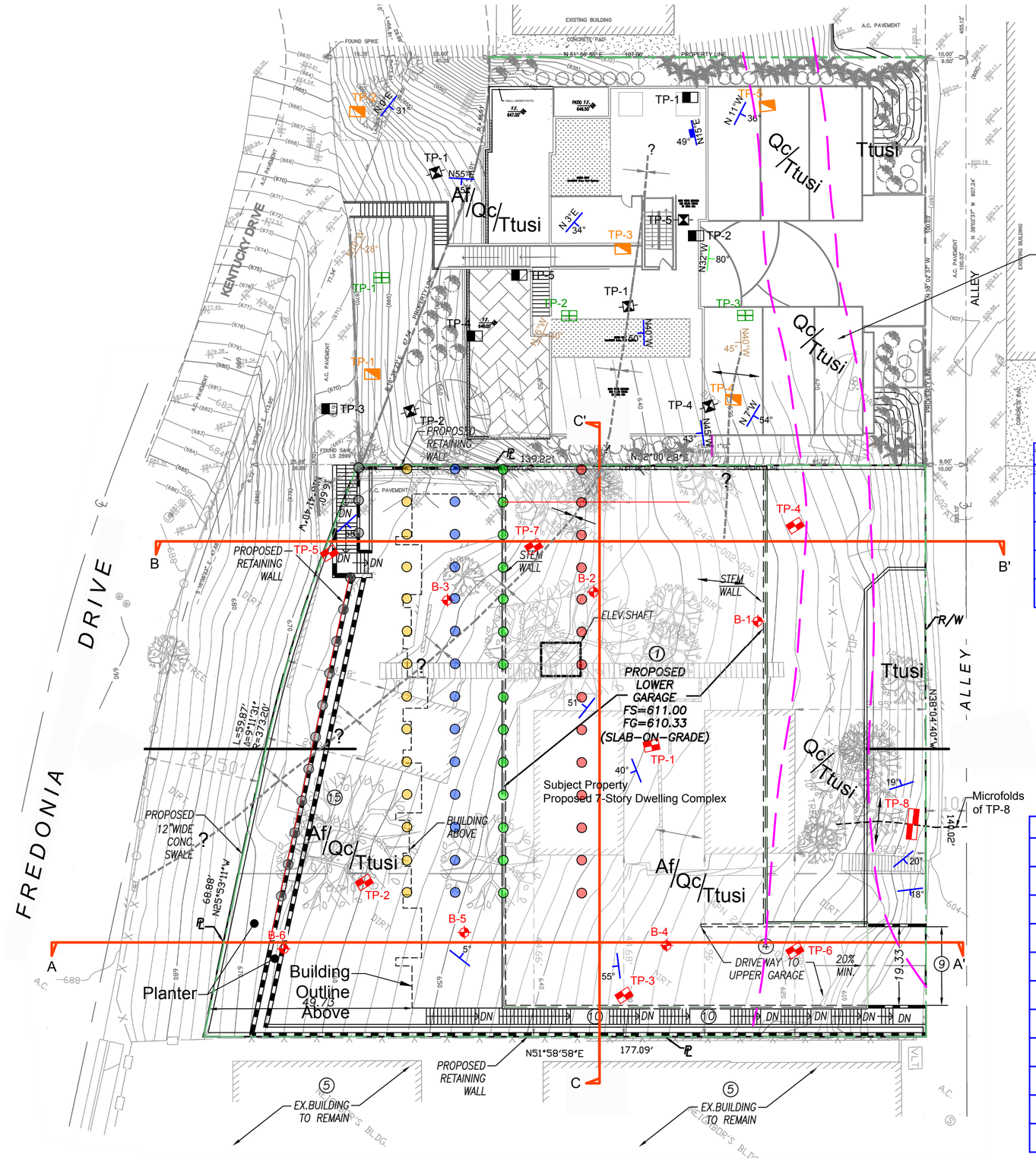
Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	81.345	603.449
2	83.480	602.430
3	90.590	595.399
4	99.281	590.453
5	108.354	586.247
6	117.856	583.129
7	125.904	577.194
8	133.322	570.487
9	141.835	565.241
10	151.467	562.552
11	493.476	670.989
12	500.107	678.474
13	503.883	687.734
14	508.772	696.457
15	515.580	703.781
16	522.571	710.932
17	526.589	716.027

Factor of Safety

*** 1.063 ***

**** END OF GSTABL7 OUTPUT ****



LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Test Pit (AES, 2018)
- 20° = Strike & Dip of Bedding
- TP-5 = Location & Number of Test Pit (AES, 2013)
- TP-3 = Location & Number of Test Pit (AES, 1990)

  } AES Project No. 13-347-22
- TP-5 = Location & Number of Test Pit (S & G INC, 1998)
- TP-5 = Location & Number of Test Pit (Don Soils Engineering, 2004)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located

B-3	
N20W 18°	@ 7'
N24W 22°	@ 11'
N11W 14°	@ 15'
N2W 25°	@ 20'
N7E 22°	@ 26'

B-2	
5° N1E	@ 6'
11° N69W	@ 10'
62° N69W	@ 12'
88° N6W	@ 14'
51° N16W	@ 16'
64° N16W	@ 20'
66° N10W	@ 24'
64° N12W	@ 26'
57° N16W	@ 31'
58° N23W	@ 35'

B-1	
47° N10W	@ 4'
38° N21W	@ 7'
52° N18W	@ 9'
44° N41W	@ 12'
46° N22W	@ 26'
59° N31W	@ 33'

B-6	
25° N31W	@ 4'
55° N31W	@ 6'
81° N34W	@ 14'
87° N41W	@ 17'
62° N11W	@ 19'
28° N18E	@ 21'
21° N31W	@ 24'
69° N0W	@ 26'
N17E 75°	@ 31'
N4E 56°	@ 33'
N27E 57°	@ 36'

B-5	
5° N80W	@ 5'
N3W 25°	@ 7'
17° N36E	@ 9'
54° N10E	@ 11'
N28W 66°	@ 14'
N18E 59°	@ 17'
N11E 71°	@ 19'
N2E 69°	@ 23'
N8E 75°	@ 26'
N12W 67°	@ 30'
N9W 72°	@ 33'
N8E 75°	@ 36'

B-4	
51° N0W	@ 5'
68° N2E	@ 12'
77° N27E	@ 15'
N9W 81°	@ 18'
N14W 58°	@ 21'
N16W 74°	@ 23'
N12W 66°	@ 30'

SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

AREA GEOLOGIC MAP

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 04 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		DRAWING No:	1
		SUPP. No:	A

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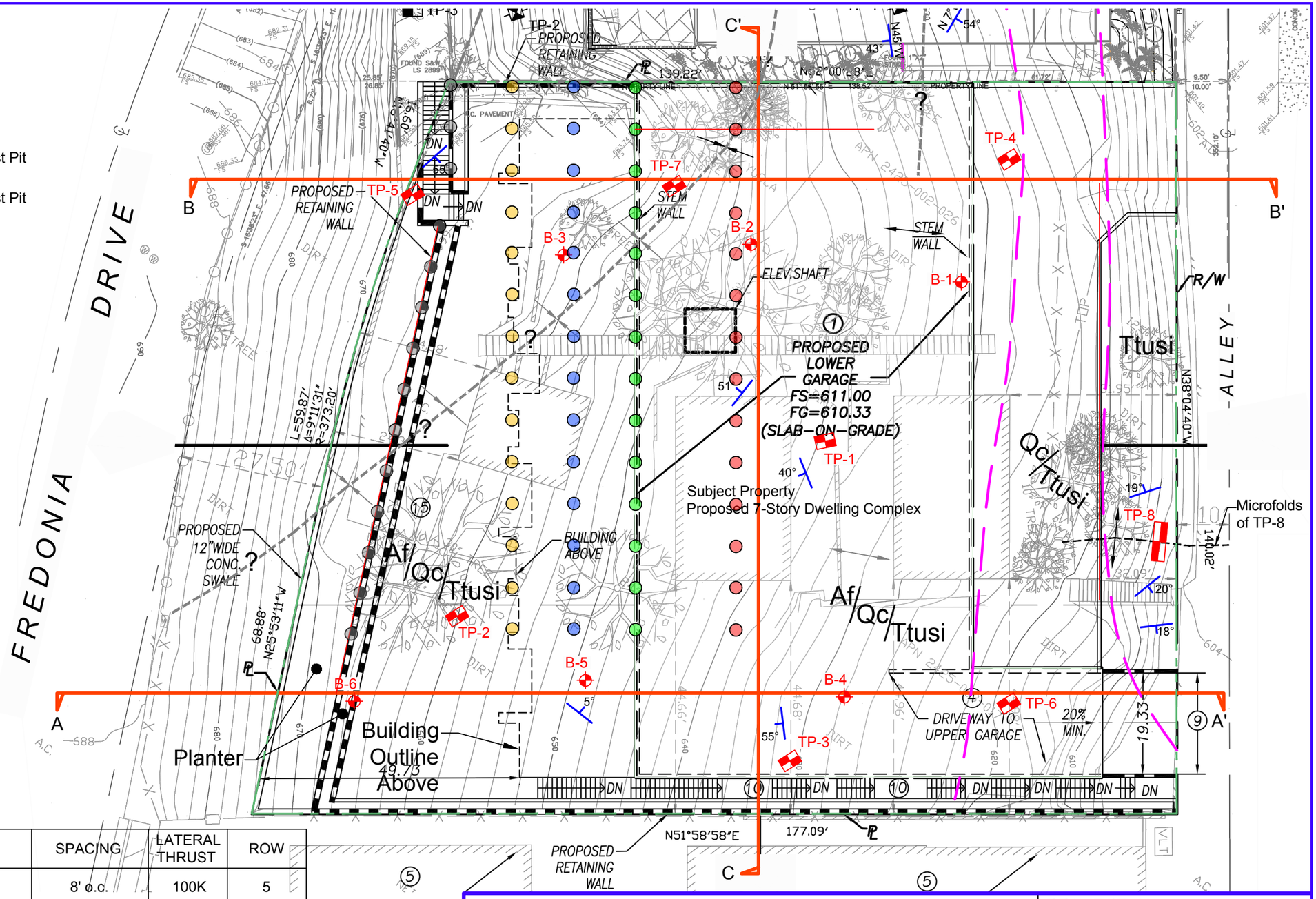
LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Test Pit (AES, 2018)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located



SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

GEOTECHNICAL SITE PLAN

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 04 / 2018
DRAWN BY:	VM
CHECKED BY:	SM
DRAWING No:	2
SUPP. No:	A

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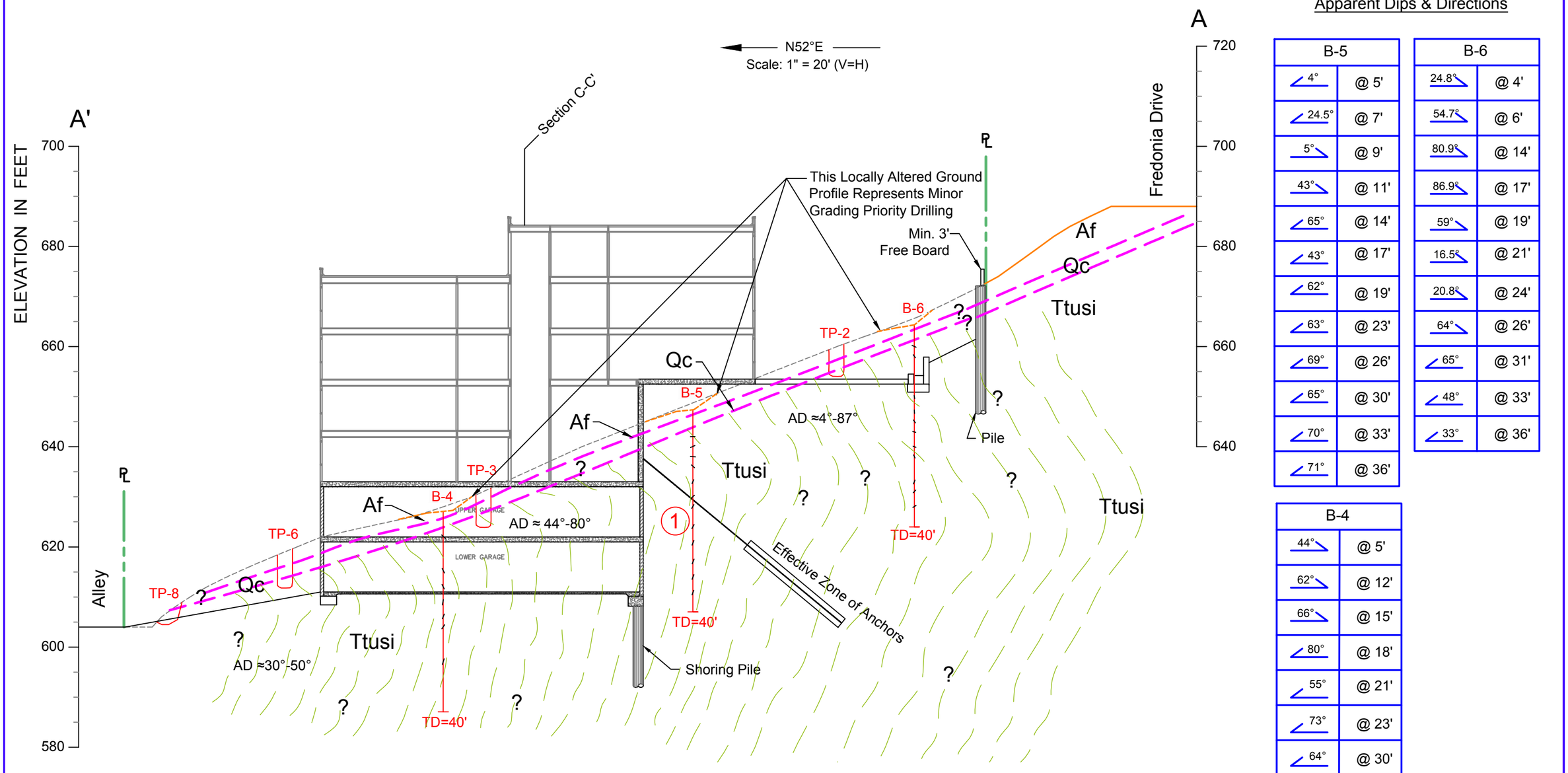

Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 04 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
		DRAWING No:	3
		SUPP. No:	A
PROJECT No:			16-379-22

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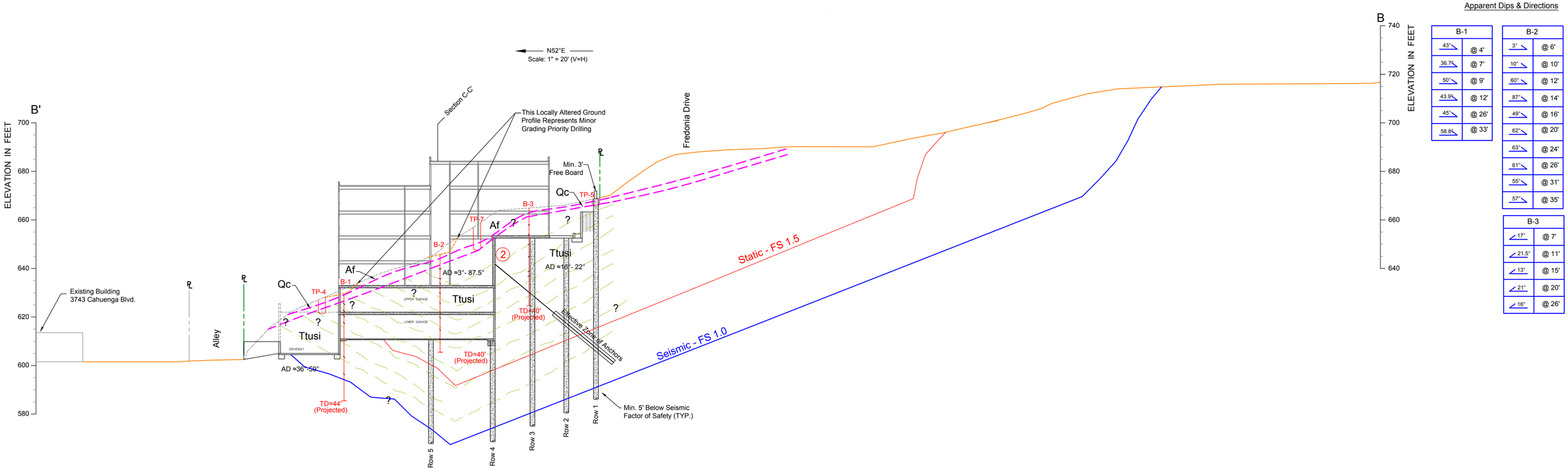

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION B-B'		PROJECT No:	16-379-22
DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 04 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
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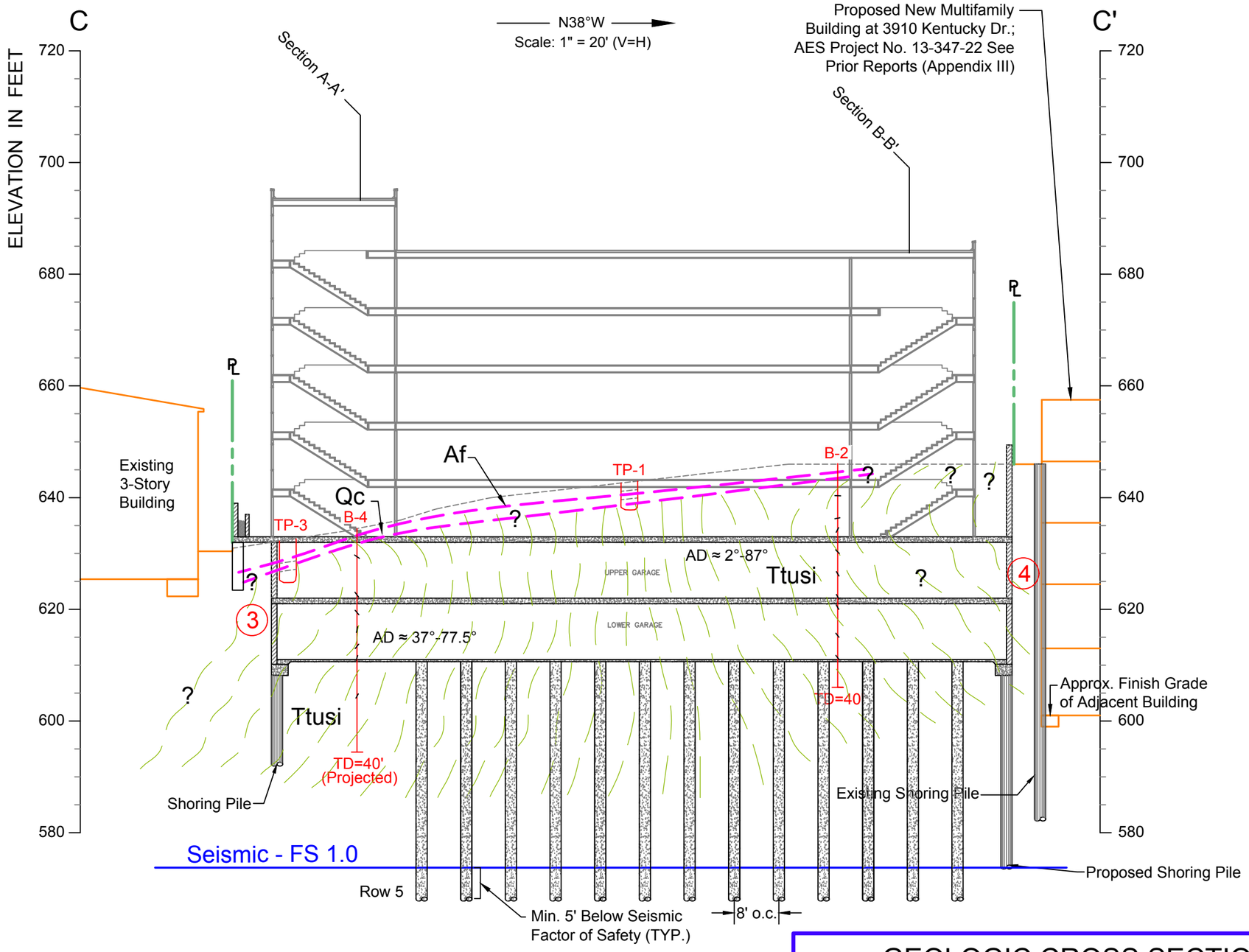

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018
- TD=40' (Projected)

Apparent Dips & Directions

B-4		B-2	
37°	@ 5'	2°	@ 6'
56°	@ 12'	10.9°	@ 10'
52°	@ 15'	61.8°	@ 12'
78°	@ 18'	87°	@ 14'
52°	@ 21'	45°	@ 16'
71°	@ 23'	60°	@ 20'
62°	@ 30'	59°	@ 24'
		58°	@ 26'
		51°	@ 31'
		55°	@ 35'

GEOLOGIC CROSS SECTION C-C'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 04 / 2018
DRAWN BY:	VM & TG
CHECKED BY:	SM
DRAWING No:	5
SUPP. No:	A

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August 4, 2018 16-379-22

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

Subject: **Supplement No. A Report (Response to GEO-FILE 17-103)**
Geotechnical Investigation
Proposed 7-story Condominium Complex
Lots 116 and FR117, Tract 5593
3902 N. Kentucky Drive
(aka 3900 N. Fredonia Drive & 3894 N. Fredonia Drive)
Los Angeles, CA 90068

Gentlemen:

INTRODUCTION

We are pleased to submit this Supplement No. A report presenting the results of our additional geotechnical evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 10, 2016.

This submittal is in response to a Geotechnical Review Letter by the Geotechnical Engineering Group of the Department of Public Works Of The City of Los Angeles. The letter was dated May 19, 2017 (GEO FILE No. 17-103).

It should be noted that as part of preparation of this report, we have utilized the latest architectural and civil plans from Kamran Tabrizi and Greystone Engineering Group, respectively.

For reference, we have also enclosed with this Supplement No. A, our Supplement No. 1 response report, responding to the LADBS Grading Division Review Letter dated May 10, 2017 (Log # 97819). The enclosure is in a form of PDF soft copy.

It should be noted that as part of our preparation of Supplement No. 1, responding to the comments of the Grading Division Review Letter, six additional large-diameter borings were advanced on the property in April 2018, resulting in higher

resolution subsurface data, supplemental engineering calculations, and significant changes to the geotechnical engineering recommendations for the proposed building. For more information, please see our response report to LADBS, attached to this report.

The responses to the Geotechnical Engineering Group comments have utilized the updated geologic map and cross sections as revised after the additional field exploration performed in April 2018. Our response, follows the original order of the comments.

RESPONSE TO THE GEOTECHNICAL ENGINEERING GROUP COMMENTS

Comment No. 1

The revised slope stability analysis using the new project plans and supplemental subsurface information is enclosed with this Supplement No. A report.

Comment No. 2

Based on the results of our new analysis, in order to maintain the Code required minimum factors of safety against static and seismic loading conditions, 5 rows of "shear pins" will be required for development of the subject site. The first row of the "shear pin" having a vertical length of approximately 83 feet, will be extended significantly deeper than the potential slip surface.

We have attached the full set of geotechnical and geologic drawings and supporting engineering calculations to this submittal, as presented in our Supplemental No. 1 response report to LADBS Grading Division comments. For supplemental boring logs and laboratory tests, please refer to the PDF enclosure of our Supplement No. 1 response report.

This concludes our Supplement No. A response report to Geotechnical Engineering Group Comments, GEO-FILE 17-103, dated 5/19/2017.

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. A, or wish to discuss the project further, please do not hesitate to call us.

Respectfully Submitted,

APPLIED EARTH SCIENCES

Caro J. Minas, President
Geotechnical Engineer
GE 601



Shant Minas
Engineering Geologist
EG 2607



CJM/SM/la

Enclosure: Engineering Calculations
Drawing No. 1 - Area Geologic Map
Drawing No. 2 - Geotechnical Site Plan
Drawing No. 3 Through 5 - Cross Sections A-A' Through C-C'
PWE-GEG Review Letter dated May 19, 2017 (Geo File No. 17-103)

PDF Copy Of Our Supplement No. 1 Report, Dated August 3, 2018
And 5/10/2017 LADBS Review Letter, Log No. 97819

Distribution: (3)

Section	Wall #	Wall Height (Ft.)	Bedding	At-Rest (PCF)	Seismic (PCF)	Active		Reference
						Temporary (PCF)	Permanent (PCF)	
A-A'	1	45	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 1, CALC SHEET No. 3
B-B'	2	45	Along	78	30	35	45	CALC SHEET No. 2, TABLE No. 2, CALC SHEET No. 4
C-C'	3	25	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 3, CALC SHEET No. 3
C-C'	4	40	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 4, CALC SHEET No. 3

WALL PRESSURES SUMMARY

FOR: 6900 Kentucky Drive | DATE: 8/1/2018 | PROJECT NO.: 16-379-22

APPLIED EARTH SCIENCES
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SUMMARY No. 1

Cross Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 35 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 35^\circ$$

$$K_o = 1 - 0.57$$

$$K_o = 0.43$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.43 * 125$$

$$\gamma_o = 53.3$$

At-Rest Equivalent Fluid Density, γ_o = 53 PCF

AT-REST LATERAL EARTH PRESSURE

Sec A-A' - Wall #1, Sec C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
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Along Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 22 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 22^\circ$$

$$K_o = 1 - 0.37$$

$$K_o = 0.63$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.63 * 125$$

$$\gamma_o = 78.2$$

At-Rest Equivalent Fluid Density, γ_o = 78 PCF

AT-REST LATERAL EARTH PRESSURE

Sec B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
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Cross Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section A-A' - Wall #1, Section C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 3**

Along Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 4**

FILL STRENGTHS

Saturated Unit Weight	γ_s	113	pcf
Cohesion	C	190	psf
Friction Angle	ϕ	29	^{o}
Slope Angle	α	35	^{o}
Depth of Soil	d	3	ft
Unit Weight of Water	γ_w	62.4	pcf

$$F.S. = \frac{[C + (\gamma_S - \gamma_W) * d * cos^2\alpha * \tan\varphi]}{\gamma_S * d * sin\alpha * cos\alpha}$$

F.S. = 190 + 56.46 / 159.28

F.S. = 1.55 > 1.5 **O.K.**

SURFICIAL SLOPE STABILITY CALCULATIONS

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	527.1	65.9	50.73	62.5	27.1	9.9	8.0
					27.1	17.8	

F.S. = ∑ RF / ∑ DF = 17.85 / 27.11 = 0.66

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 27.11 = 17.85 + UBF

UBF = 33.88 - 17.85 = 16.04 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 15.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

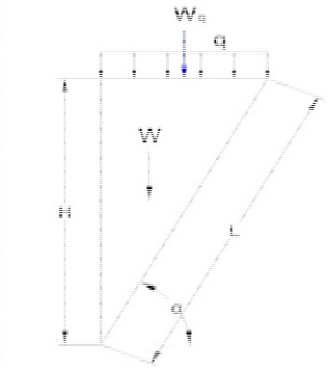
1.5 * 27.11 = 17.85 + UBF

UBF = 40.66 - 17.85 = 22.82 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 22.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION A-A' - Wall #1

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

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TABLE No. 1

Along Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 250 psf

ϕ = 22 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	2506.0	313.3	120.13	22	108.9	108.9	27.8
					108.9	136.8	

F.S. = ∑ RF / ∑ DF = 136.75 / 108.91 = 1.26

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 108.91 = 136.75 + UBF

UBF = 136.13 - 136.75 = -0.62 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = -0.6 pcf

Therefore use Recommended value of 35 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

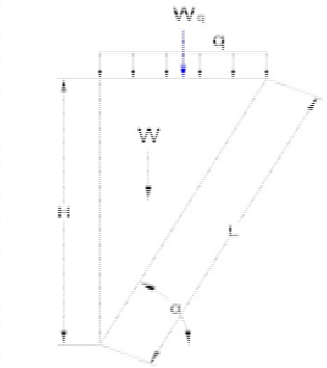
1.5 * 108.91 = 136.75 + UBF

UBF = 163.36 - 136.75 = 26.61 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 26.3 pcf

Therefore use Recommended value of 45 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION B-B' - Wall #2

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

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TABLE No. 2

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 25 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	162.7	20.3	28.18	62.5	8.5	3.1	4.4
					8.5	7.5	

F.S. = ∑ RF / ∑ DF = 7.51 / 8.45 = 0.89

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 8.45 = 7.51 + UBF

UBF = 10.56 - 7.51 = 3.06 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 9.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

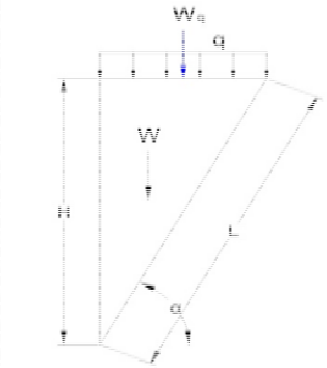
1.5 * 8.45 = 7.51 + UBF

UBF = 12.68 - 7.51 = 5.17 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 16.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION C-C' - Wall #3

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 3

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 40 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	416.5	52.1	45.10	62.5	21.4	7.8	7.1
					21.4	14.9	

F.S. = ∑ RF / ∑ DF = 14.90 / 21.44 = 0.69

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 21.44 = 14.90 + UBF

UBF = 26.81 - 14.90 = 11.91 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 14.9 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

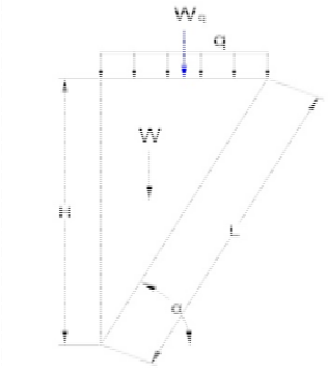
1.5 * 21.44 = 14.90 + UBF

UBF = 32.17 - 14.90 = 17.27 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 21.6 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

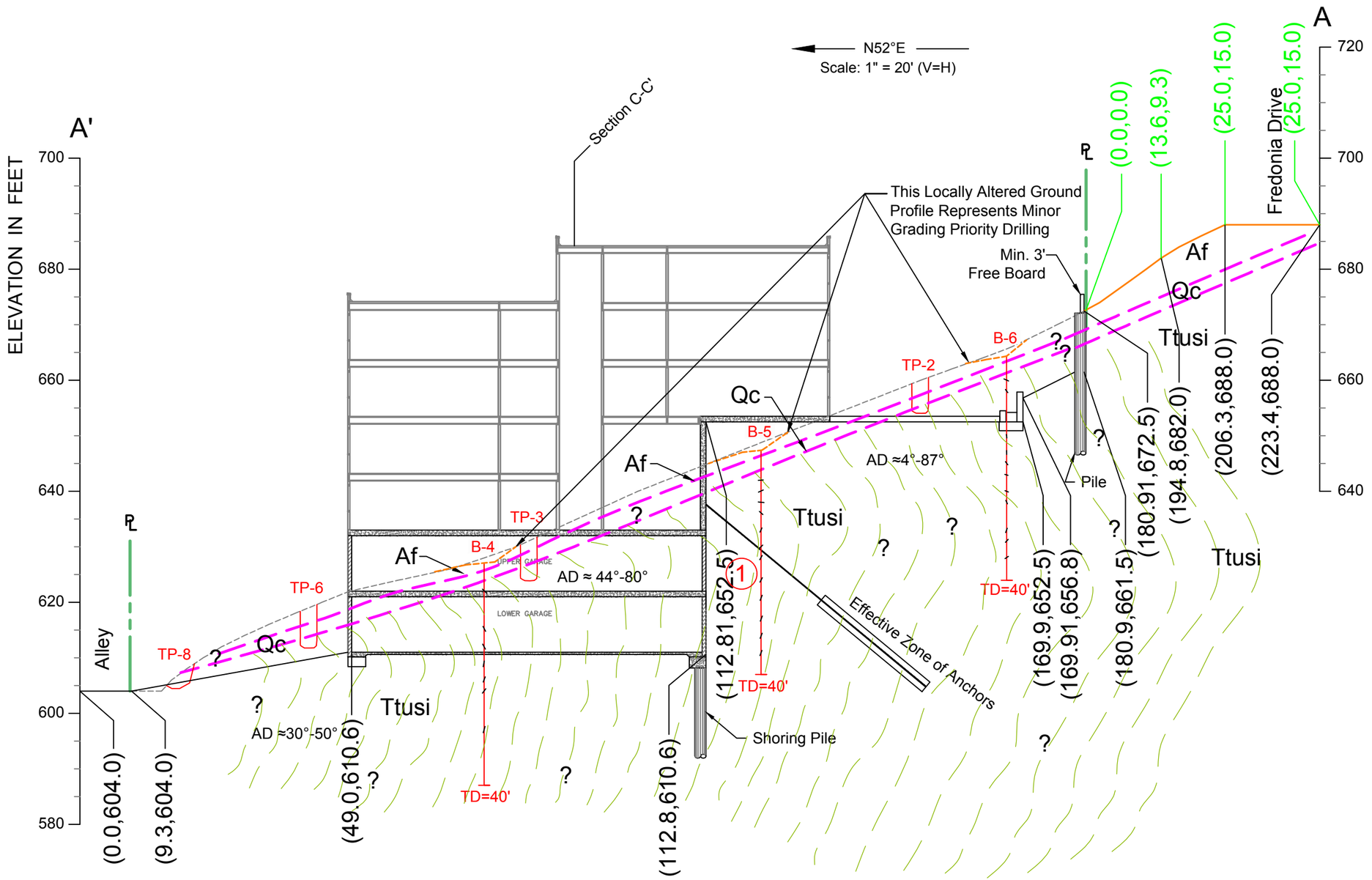
SECTION C-C' - Wall #4

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 4



Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018)
- TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 04 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		SHEET No:	1
		SUPP. No:	A

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GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL
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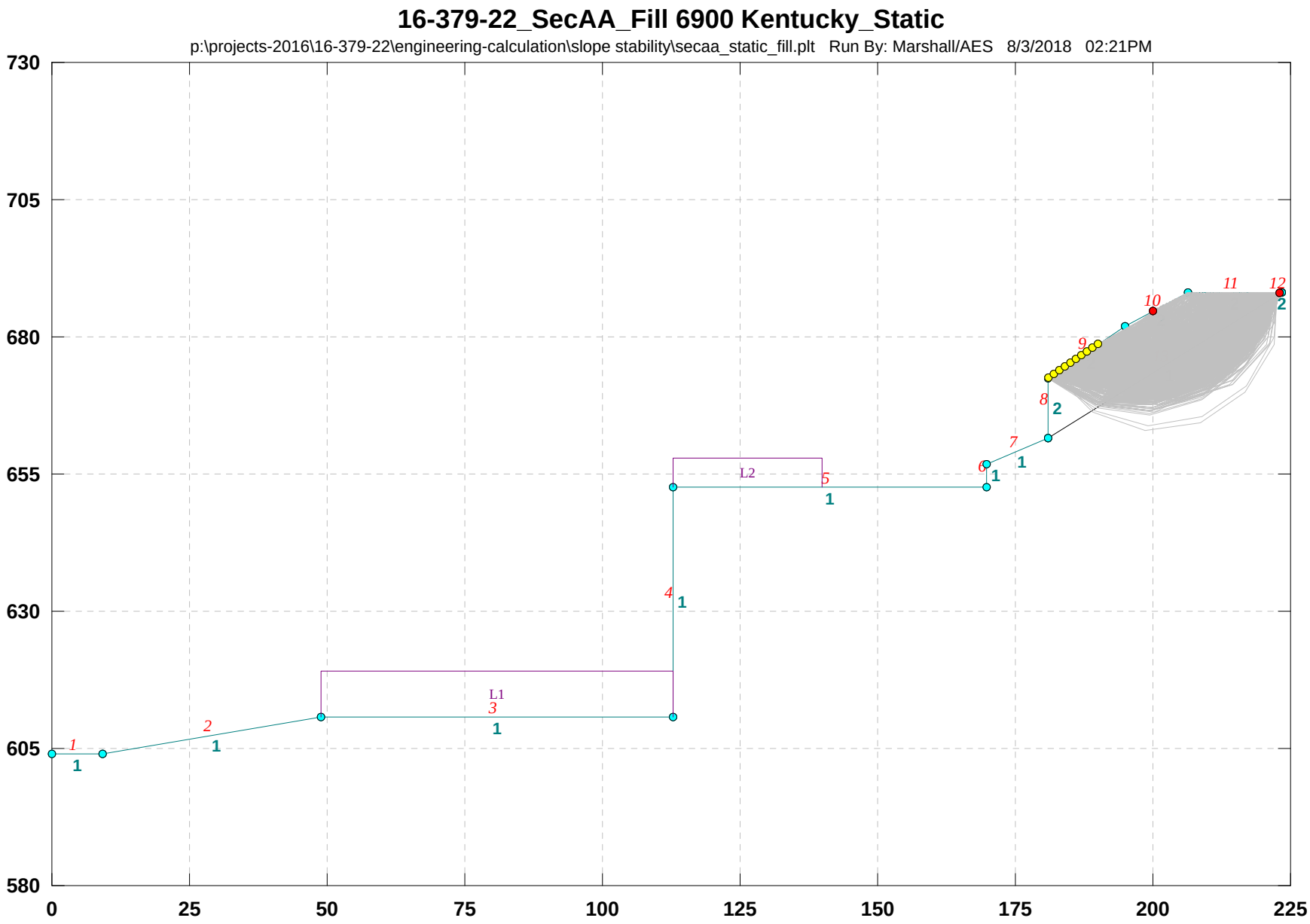
16-379-22_SecAA_Fill 6900 Kentucky_Static
p:\projects-2016\16-379-22\engineering-calculation\slope stability\secaa_static_fill.plt Run By: Marshall/AES 8/3/2018 02:21PM
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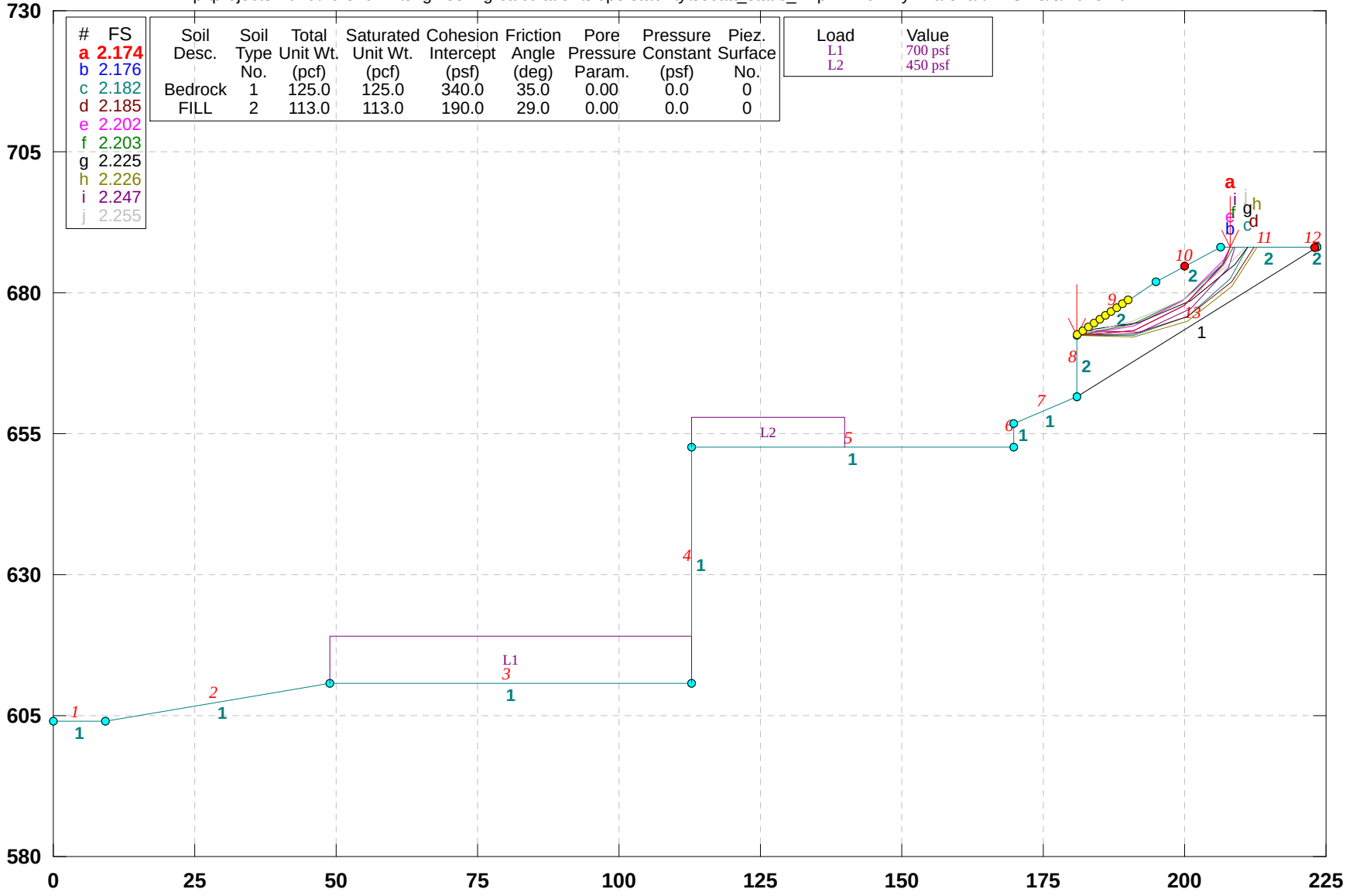
655
630
605
580
0
25
50
75
100
125
150
175
200
225
L1
L2
1
2
3
4
5
6
7
8
9
10
11
12

16-379-22_SecAA_Fill 6900 Kentucky_Static

p:\projects-2016\16-379-22\engineering-calculation\slope stability\secaa_static_fill.pl2 Run By: Marshall/AES 8/3/2018 02:21PM



GSTABL7 v.2 FSmin=2.174

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

Analysis Run Date: 8/3/2018
Time of Run: 02:21PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Static

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	**X-Left (ft)**	**X-Right (ft)**	**Intensity (psf)**	**Deflection (deg)**
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)
and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.360 FS Min = 2.174 FS Ave = 3.913
Standard Deviation = 1.209 Coefficient of Variation = 30.90 %
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.966	673.380
3	199.973	677.724
4	206.817	685.015
5	208.031	688.000

Circle Center At X = 183.783 ; Y = 699.780 ; and Radius = 27.360
Factor of Safety
*** 2.174 ***
Individual data on the 6 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	10.0	3377.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	3.8	2765.8	0.0	0.0	0.	0.	0.0	0.0	0.0
3	5.2	4017.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	6.3	3757.2	0.0	0.0	0.	0.	0.0	0.0	0.0
5	0.5	190.6	0.0	0.0	0.	0.	0.0	0.0	0.0
6	1.2	204.7	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.970	673.332
3	199.975	677.682
4	206.776	685.013
5	207.952	688.000

Circle Center At X = 183.942 ; Y = 699.377 ; and Radius = 26.976
Factor of Safety
*** 2.176 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.486
3	200.399	675.901
4	208.018	682.377
5	211.166	688.000

Circle Center At X = 186.209 ; Y = 700.316 ; and Radius = 28.239
Factor of Safety
*** 2.182 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 2.185 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562

```
    2        190.884      674.080
    3        199.791      678.625
    4        206.821      685.738
    5        207.941      688.000
Circle Center At X =   181.230 ; Y =   703.997 ; and Radius =    31.437
       Factor of Safety
      ***    2.202   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.844      674.319
    3        199.814      678.741
    4        207.202      685.479
    5        208.748      688.000
Circle Center At X =   179.717 ; Y =   708.196 ; and Radius =    35.658
       Factor of Safety
      ***    2.203   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.895      674.691
    3        201.056      678.701
    4        208.831      684.989
    5        210.996      688.000
Circle Center At X =   181.576 ; Y =   710.740 ; and Radius =    37.497
       Factor of Safety
      ***    2.225   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    2.226   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.999      673.103
    3        201.166      677.099
    4        207.866      684.522
    5        208.976      688.000
Circle Center At X =   187.330 ; Y =   696.324 ; and Radius =    23.686
       Factor of Safety
      ***    2.247   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.740      674.826
    3        199.832      678.991
    4        207.908      684.887
    5        210.745      688.000
Circle Center At X =   174.644 ; Y =   721.971 ; and Radius =    49.816
       Factor of Safety
      ***    2.255   ***
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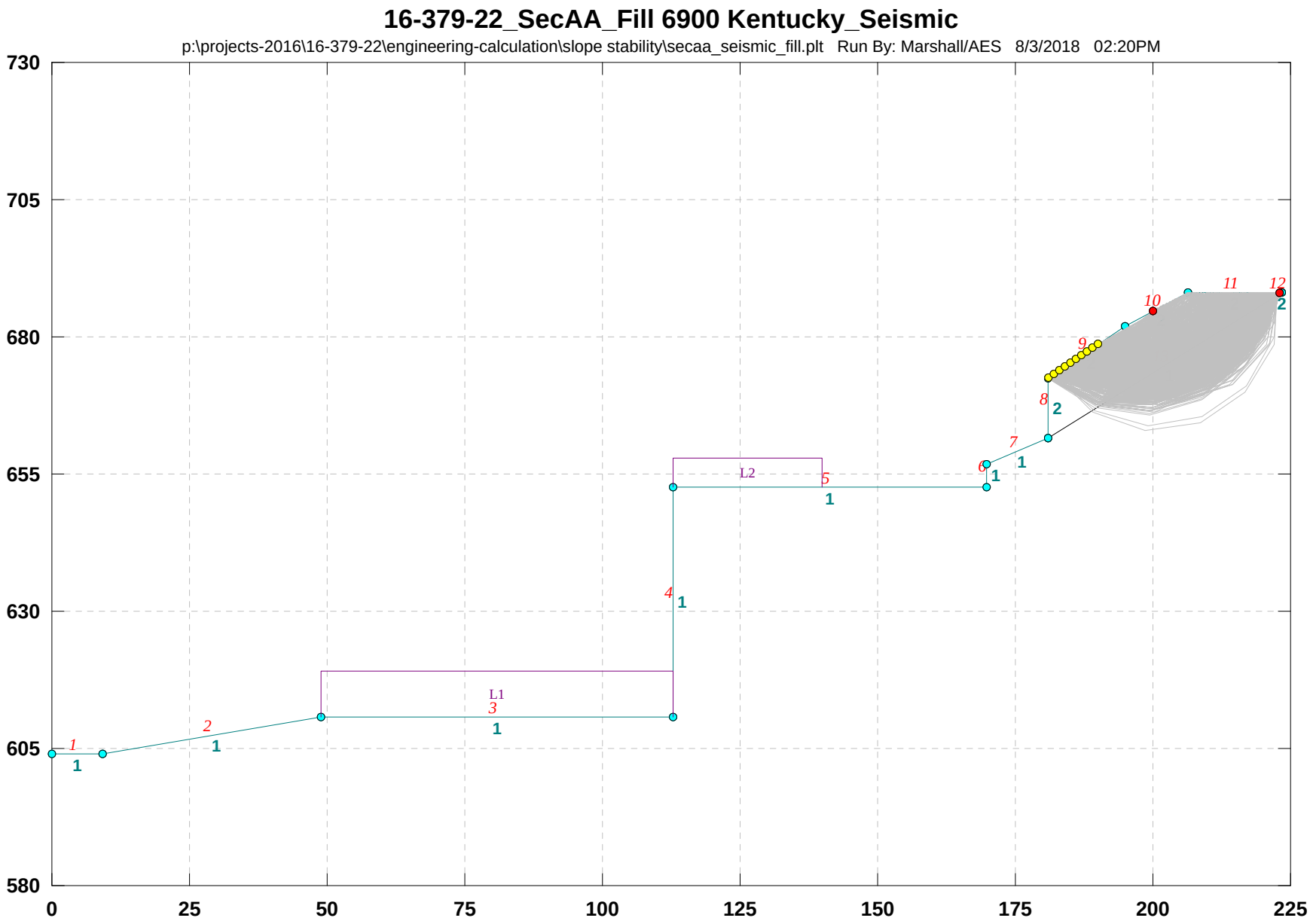
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580
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75
100
125
150
175
200
225
L1
L2
1
2
3
4
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6
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12

16-379-22_SecAA_Fill 6900 Kentucky_Seismic

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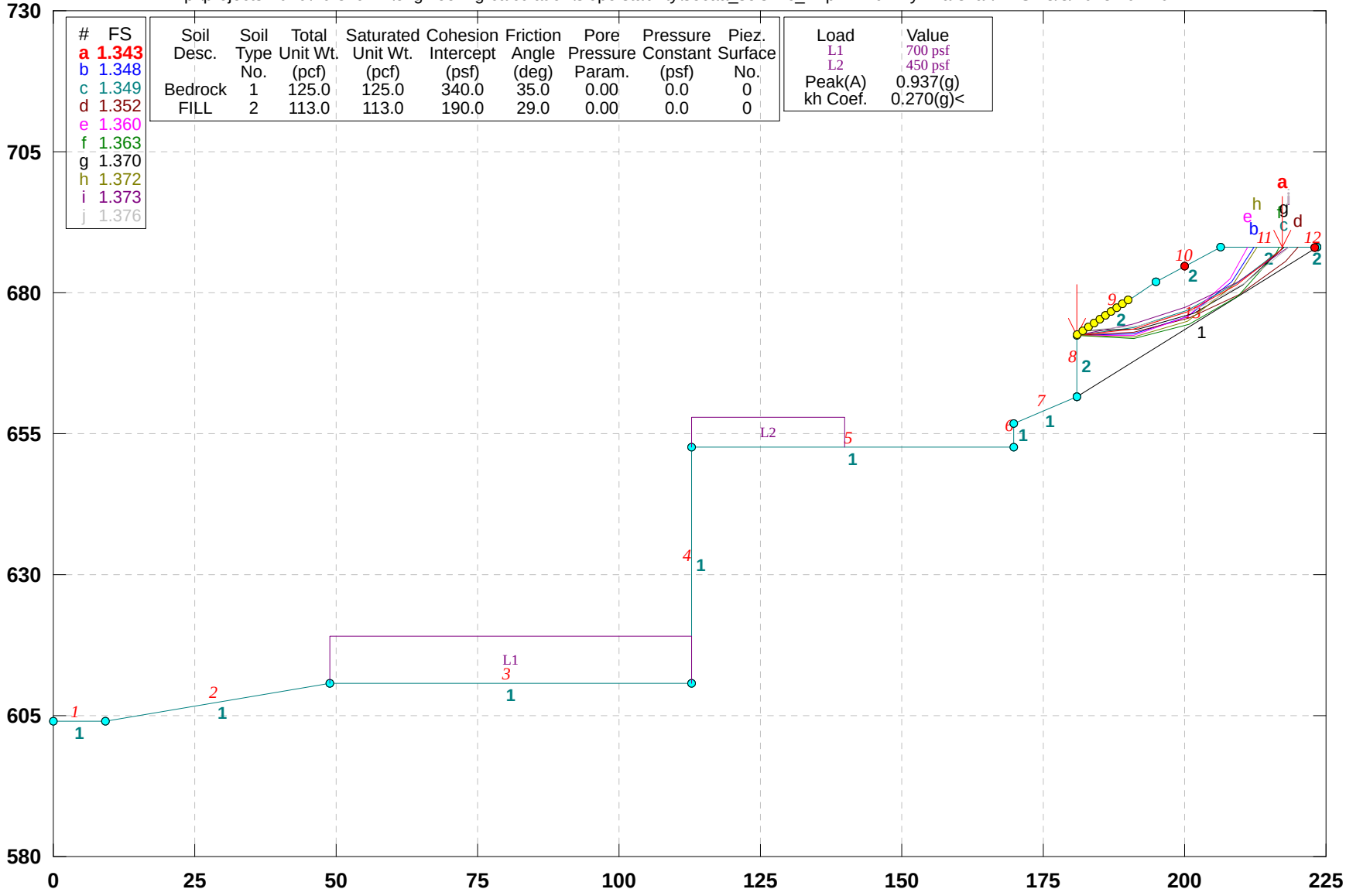

GSTABL7 v.2 FSmin=1.343

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

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Time of Run: 02:20PM
Run By: Marshall/AES
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Unit System: English
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PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Seismic

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)

and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 7.645 FS Min = 1.343 FS Ave = 2.230
Standard Deviation = 0.696 Coefficient of Variation = 31.23 %
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.936	673.689
3	200.484	676.661
4	209.305	681.372
5	217.085	687.655
6	217.377	688.000

Circle Center At X = 180.074 ; Y = 725.320 ; and Radius = 52.766
Factor of Safety
*** 1.343 ***
Individual data on the 7 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	9.9	3182.3	0.0	0.0	0.	0.	859.2	0.0	0.0
2	3.9	2789.3	0.0	0.0	0.	0.	753.1	0.0	0.0
3	5.7	4950.4	0.0	0.0	0.	0.	1336.6	0.0	0.0
4	5.8	5434.1	0.0	0.0	0.	0.	1467.2	0.0	0.0
5	3.0	2523.3	0.0	0.0	0.	0.	681.3	0.0	0.0
6	7.8	3065.1	0.0	0.0	0.	0.	827.6	0.0	0.0
7	0.3	5.7	0.0	0.0	0.	0.	1.5	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 1.348 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.913	673.877
3	200.444	676.904
4	209.299	681.550
5	217.207	687.671
6	217.505	688.000

Circle Center At X = 178.552 ; Y = 729.229 ; and Radius = 56.720
Factor of Safety
*** 1.349 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.988	673.060
3	200.693	675.469
4	209.755	679.699
5	217.834	685.591

```
    6        220.067      688.000
Circle Center At X =   183.591 ; Y =   723.154 ; and Radius =    50.659
       Factor of Safety
      ***    1.352   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        191.000      672.486
    3        200.399      675.901
    4        208.018      682.377
    5        211.166      688.000
Circle Center At X =   186.209 ; Y =   700.316 ; and Radius =    28.239
       Factor of Safety
      ***    1.360   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.984      672.005
    3        200.701      674.371
    4        209.311      679.456
    5        216.074      686.822
    6        216.641      688.000
Circle Center At X =   187.912 ; Y =   705.464 ; and Radius =    33.621
       Factor of Safety
      ***    1.363   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.992      673.657
    3        201.610      676.392
    4        210.322      681.301
    5        217.527      688.000
Circle Center At X =   185.261 ; Y =   715.597 ; and Radius =    42.476
       Factor of Safety
      ***    1.370   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    1.372   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.849      674.295
    3        200.356      677.394
    4        209.335      681.797
    5        217.607      687.416
    6        218.249      688.000
Circle Center At X =   173.794 ; Y =   742.605 ; and Radius =    70.413
       Factor of Safety
      ***    1.373   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.963      674.105
    3        201.564      676.903
    4        210.428      681.531
    5        218.212      687.809
    6        218.371      688.000
```

```
Circle Center At X =   182.673 ; Y =   723.791 ; and Radius =    50.550
       Factor of Safety
      ***    1.376   ***
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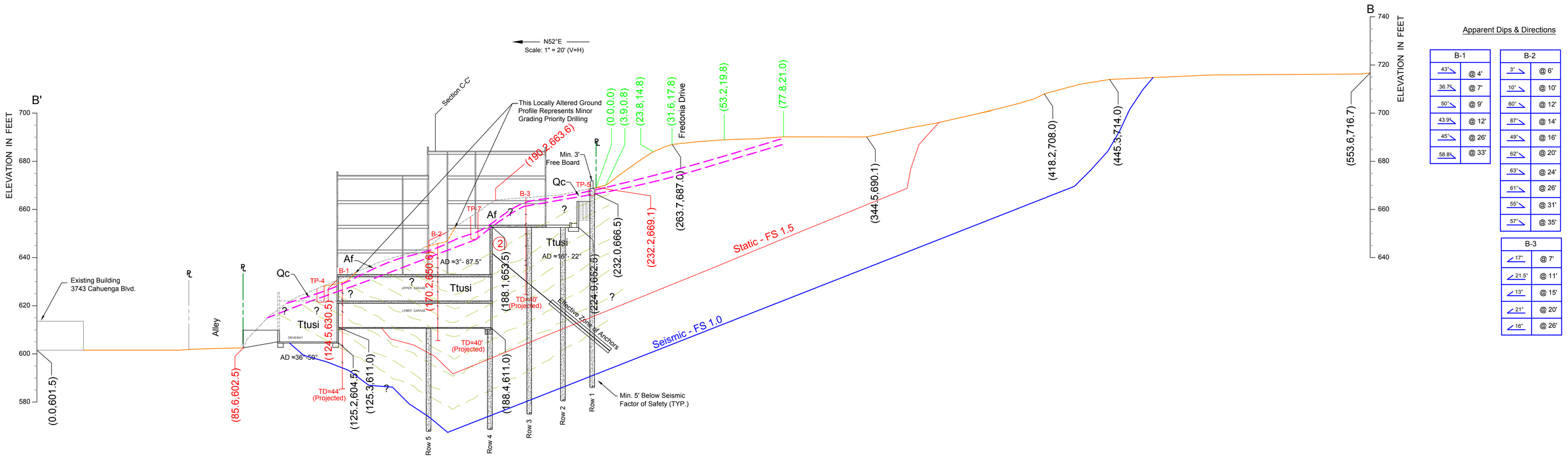

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION B-B'

		PROJECT No:	16-379-22
DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 04 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM

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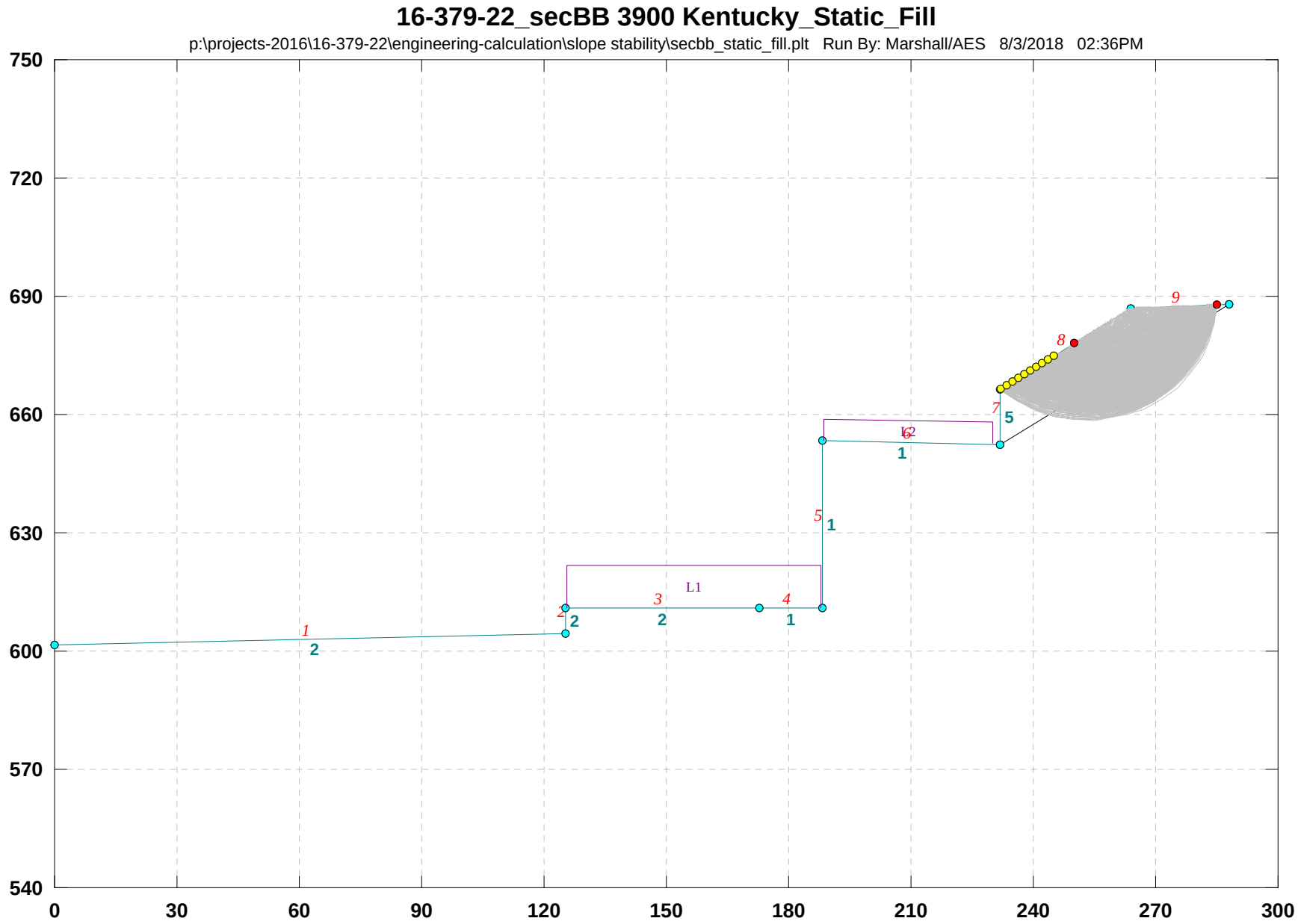
www.aessoil.com (818) 552-6000

SHEET No: 2 | SUPP. No: A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690
660
630
600
570
540
0
30
60
90
120
150
180
210
240
270
300
L1
L2
1
2
3
4
5
6
7
8
9

16-379-22_secBB 3900 Kentucky_Static_Fill

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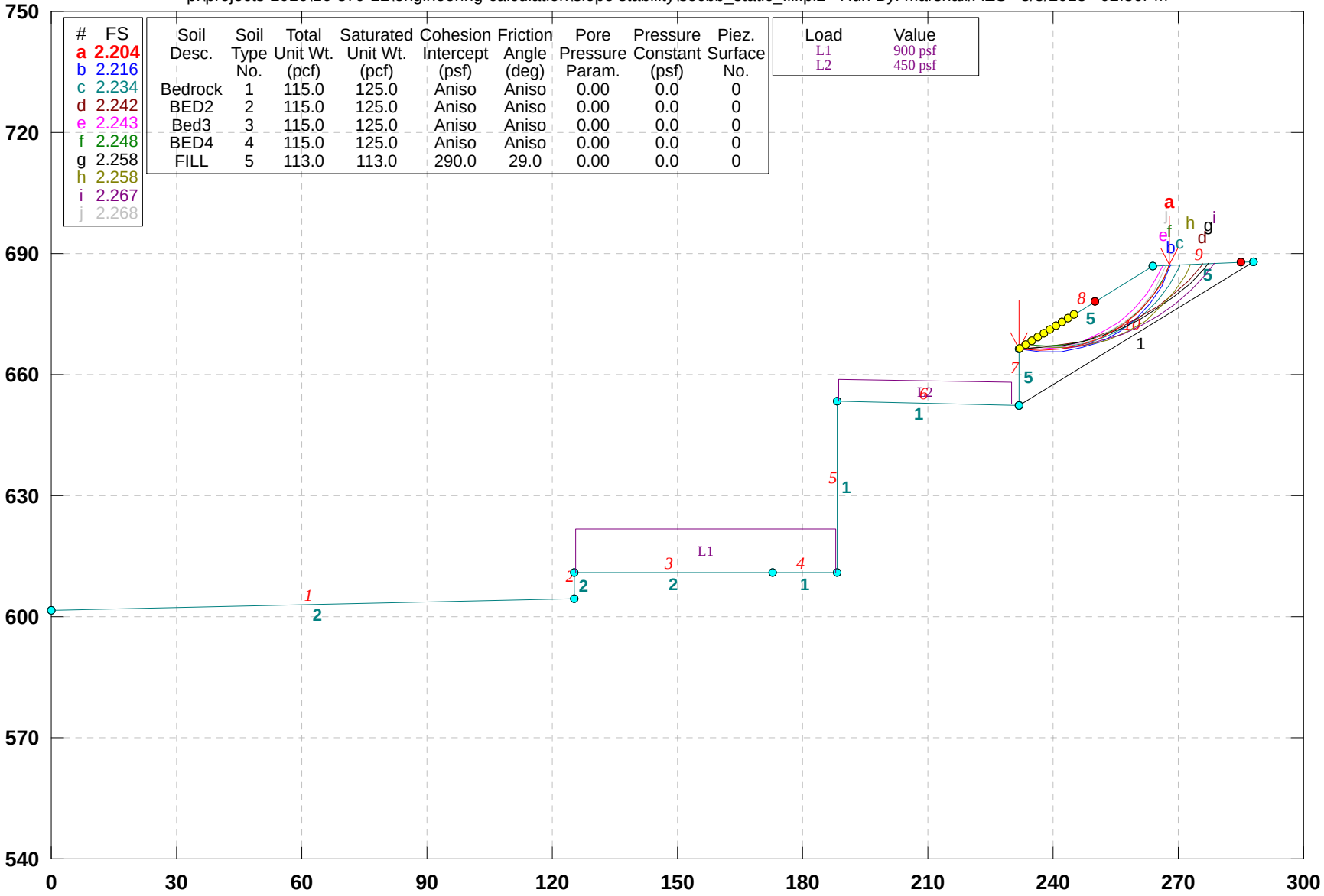
#	FS
a	2.204
b	2.216
c	2.234
d	2.242
e	2.243
f	2.248
g	2.258
h	2.258
i	2.267
j	2.268

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf



GSTABL7 v.2 FSmin=2.204

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

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Time of Run: 02:36PM
Run By: Marshall/AES
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Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_Fill

BOUNDARY COORDINATES
9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00

2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
   (1) An input value of 0.01 for C and/or Phi will cause Aniso
       C and/or Phi to be ignored in that range.
   (2) An input value of 0.02 for Phi will set both Phi and
       C equal to zero, with no water weight in the tension crack.
   (3) An input value of 0.03 for Phi will set both Phi and
       C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
    2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
       Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
 100 Surface(s) Initiate(s) From Each Of   10 Points Equally Spaced
Along The Ground Surface Between X = 232.01(ft)
                            and X = 245.00(ft)
Each Surface Terminates Between   X = 250.00(ft)
                            and   X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y =   0.00(ft)
 5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
      Failure Surfaces Evaluated. They Are
      Ordered - Most Critical First.
      * * Safety Factors Are Calculated By The Modified Bishop Method * *
      Total Number of Trial Surfaces Attempted = 1000
      Number of Trial Surfaces With Valid FS = 1000
      Statistical Data On All Valid FS Values:
         FS Max = 17.133   FS Min =   2.204   FS Ave =   3.631
         Standard Deviation =   1.507   Coefficient of Variation =   41.50 %
      Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	232.010	666.500
2	236.990	666.051
3	241.980	666.367
4	246.863	667.442
5	251.524	669.251
6	255.855	671.750
7	259.753	674.881
8	263.127	678.571
9	265.898	682.733
10	267.956	687.175

Circle Center At X = 237.427 ; Y = 698.668 ; and Radius = 32.621

Factor of Safety

*** 2.204 ***

Individual data on the 10 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	1032.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	5.0	2890.6	0.0	0.0	0.	0.	0.0	0.0	0.0
3	4.9	4206.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	4.7	4882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
5	4.3	4905.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	3.9	4347.7	0.0	0.0	0.	0.	0.0	0.0	0.0
7	3.4	3359.6	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.6	506.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	2.2	1480.6	0.0	0.0	0.	0.	0.0	0.0	0.0
10	2.1	506.8	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.949	665.719
3	241.948	665.762
4	246.873	666.629
5	251.587	668.294
6	255.963	670.714
7	259.880	673.822
8	263.231	677.532
9	265.926	681.744
10	267.889	686.342
11	268.093	687.181

Circle Center At X = 239.188 ; Y = 695.882 ; and Radius = 30.246

Factor of Safety

*** 2.216 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.836
3	243.415	666.992
4	248.333	667.896
5	253.059	669.529
6	257.486	671.852
7	261.513	674.815
8	265.051	678.349
9	268.017	682.374
10	270.344	686.799
11	270.511	687.280

Circle Center At X = 239.889 ; Y = 699.996 ; and Radius = 33.192

Factor of Safety

*** 2.234 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834

6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 2.242 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.295
3	241.975	666.851
4	246.801	668.157
5	251.373	670.181
6	255.584	672.877
7	259.337	676.181
8	262.543	680.018
9	265.129	684.297
10	266.287	687.106

Circle Center At X = 235.890 ; Y = 698.858 ; and Radius = 32.590

Factor of Safety

*** 2.243 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.431	666.966
3	243.420	667.299
4	248.292	668.425
5	252.922	670.313
6	257.190	672.917
7	260.989	676.168
8	264.219	679.985
9	266.799	684.268
10	267.966	687.176

Circle Center At X = 238.882 ; Y = 697.982 ; and Radius = 31.027

Factor of Safety

*** 2.248 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372

8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691

Factor of Safety

*** 2.267 ***

Failure Surface Specified By 10 Coordinate Points

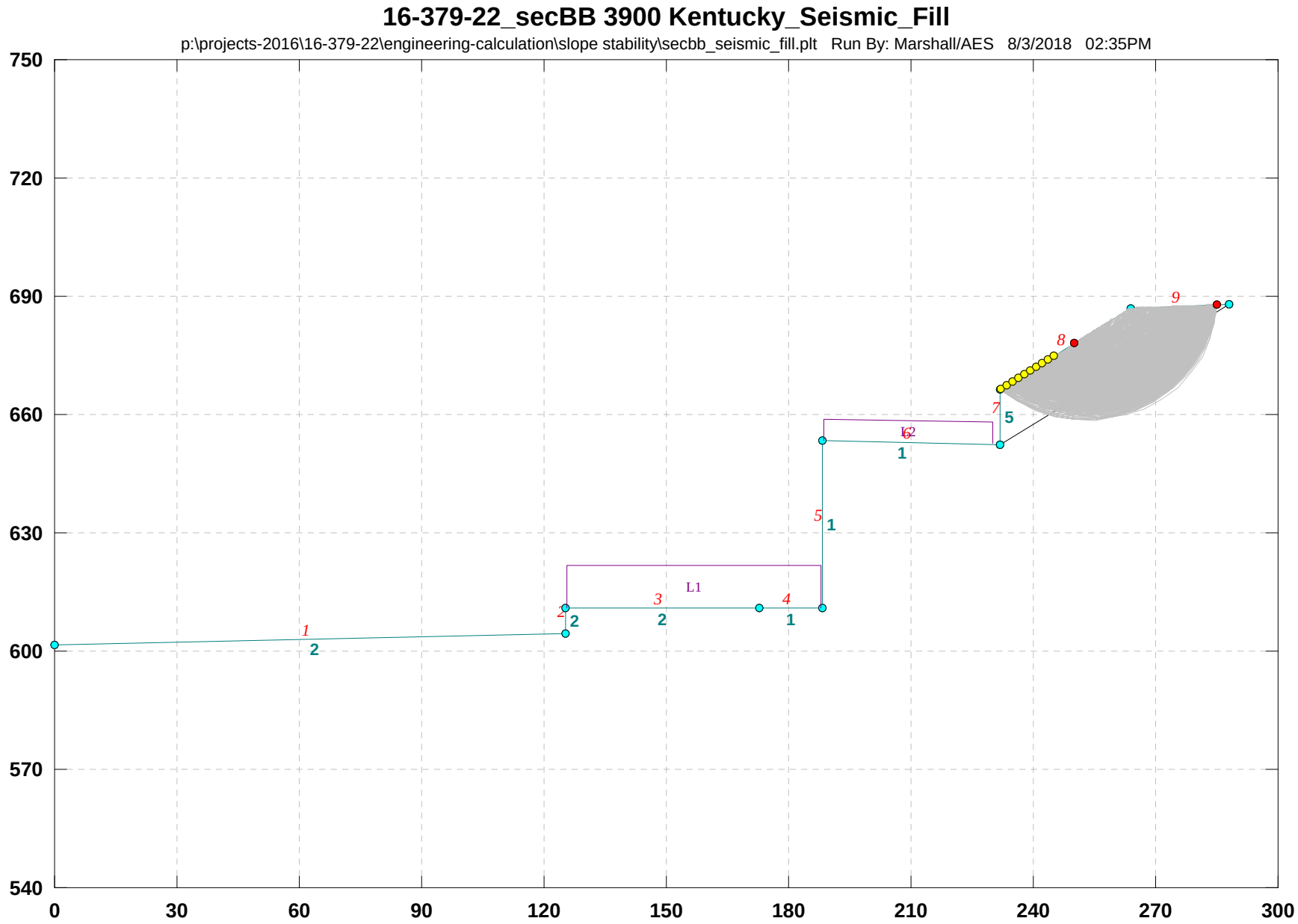
Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.839
3	243.411	667.102
4	248.286	668.214
5	252.899	670.143
6	257.114	672.832
7	260.808	676.201
8	263.872	680.153
9	266.216	684.570
10	267.056	687.138

Circle Center At X = 239.417 ; Y = 695.768 ; and Radius = 28.955

Factor of Safety

*** 2.268 ***

**** END OF GSTABL7 OUTPUT ****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16-379-22_secBB 3900 Kentucky_Seismic_Fill

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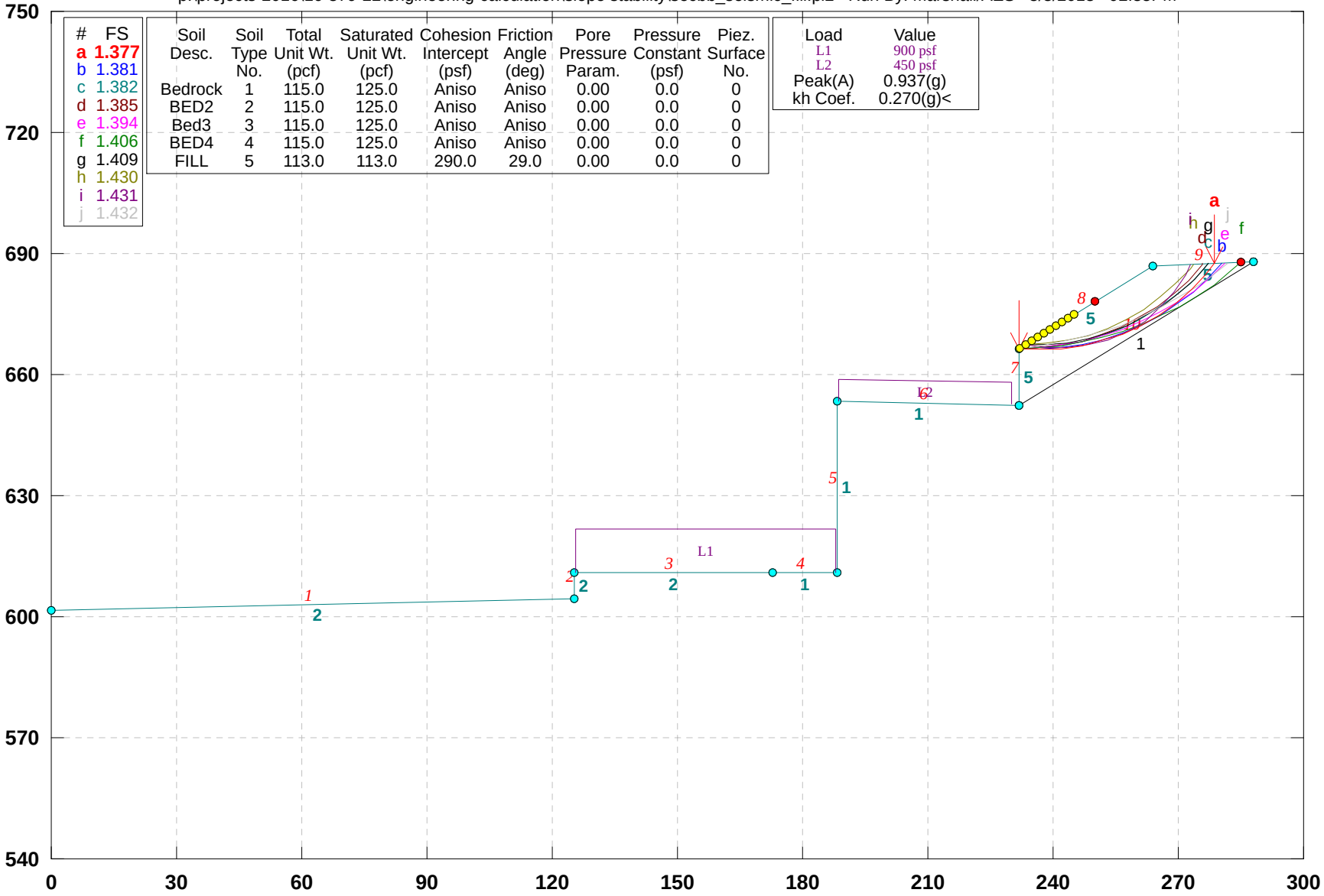
#	FS
a	1.377
b	1.381
c	1.382
d	1.385
e	1.394
f	1.406
g	1.409
h	1.430
i	1.431
j	1.432

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.377

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/3/2018
Time of Run: 02:35PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_Fill
BOUNDARY COORDINATES

9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00

3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	**188.50**	**230.00**	**450.0**	**0.0**

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 232.01(ft)
and X = 245.00(ft)
Each Surface Terminates Between X = 250.00(ft)
and X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.973 FS Min = 1.377 FS Ave = 2.232
Standard Deviation = 1.072 Coefficient of Variation = 48.03 %
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691
Factor of Safety
*** 1.377 ***
Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	986.7	0.0	0.0	0.	0.	266.4	0.0	0.0

2	5.0	2822.9	0.0	0.0	0.	0.	762.2	0.0	0.0
3	4.9	4333.5	0.0	0.0	0.	0.	1170.0	0.0	0.0
4	4.9	5467.3	0.0	0.0	0.	0.	1476.2	0.0	0.0
5	4.7	6195.1	0.0	0.0	0.	0.	1672.7	0.0	0.0
6	4.5	6510.5	0.0	0.0	0.	0.	1757.8	0.0	0.0
7	2.7	3962.0	0.0	0.0	0.	0.	1069.7	0.0	0.0
8	1.6	2375.9	0.0	0.0	0.	0.	641.5	0.0	0.0
9	4.0	4985.7	0.0	0.0	0.	0.	1346.1	0.0	0.0
10	3.7	3343.0	0.0	0.0	0.	0.	902.6	0.0	0.0
11	3.4	1746.5	0.0	0.0	0.	0.	471.6	0.0	0.0
12	2.2	343.4	0.0	0.0	0.	0.	92.7	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.009	666.397
3	241.998	666.727
4	246.940	667.486
5	251.798	668.669
6	256.536	670.268
7	261.117	672.269
8	265.509	674.660
9	269.678	677.420
10	273.593	680.531
11	277.224	683.968
12	280.534	687.693

Circle Center At X = 235.698 ; Y = 724.204 ; and Radius = 57.821

Factor of Safety

*** 1.381 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 1.382 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834
6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 1.385 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.705

3	241.973	667.273
4	246.886	668.202
5	251.719	669.486
6	256.445	671.119
7	261.039	673.091
8	265.478	675.393
9	269.737	678.012
10	273.794	680.935
11	277.627	684.145
12	281.216	687.626
13	281.304	687.724

Circle Center At X = 231.698 ; Y = 735.096 ; and Radius = 68.596

Factor of Safety

*** 1.394 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.692
3	241.980	667.205
4	246.910	668.038
5	251.776	669.187
6	256.558	670.647
7	261.236	672.412
8	265.791	674.475
9	270.203	676.828
10	274.454	679.460
11	278.527	682.360
12	282.404	685.517
13	284.946	687.874

Circle Center At X = 231.537 ; Y = 744.034 ; and Radius = 77.535

Factor of Safety

*** 1.406 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.453	667.462
3	243.428	667.961
4	248.334	668.926
5	253.128	670.347
6	257.767	672.213
7	262.209	674.507
8	266.417	677.209
9	270.351	680.294
10	273.978	683.736
11	277.266	687.503
12	277.306	687.560

Circle Center At X = 235.651 ; Y = 720.483 ; and Radius = 53.095

Factor of Safety

*** 1.409 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.446	667.700
3	243.389	668.456
4	248.233	669.695
5	252.932	671.404
6	257.439	673.568
7	261.712	676.164
8	265.709	679.168
9	269.391	682.551
10	272.723	686.279
11	273.545	687.405

Circle Center At X = 233.249 ; Y = 718.195 ; and Radius = 50.762

Factor of Safety

*** 1.430 ***

Failure Surface Specified By 11 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372
8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 1.431 ***

Failure Surface Specified By 13 Coordinate Points

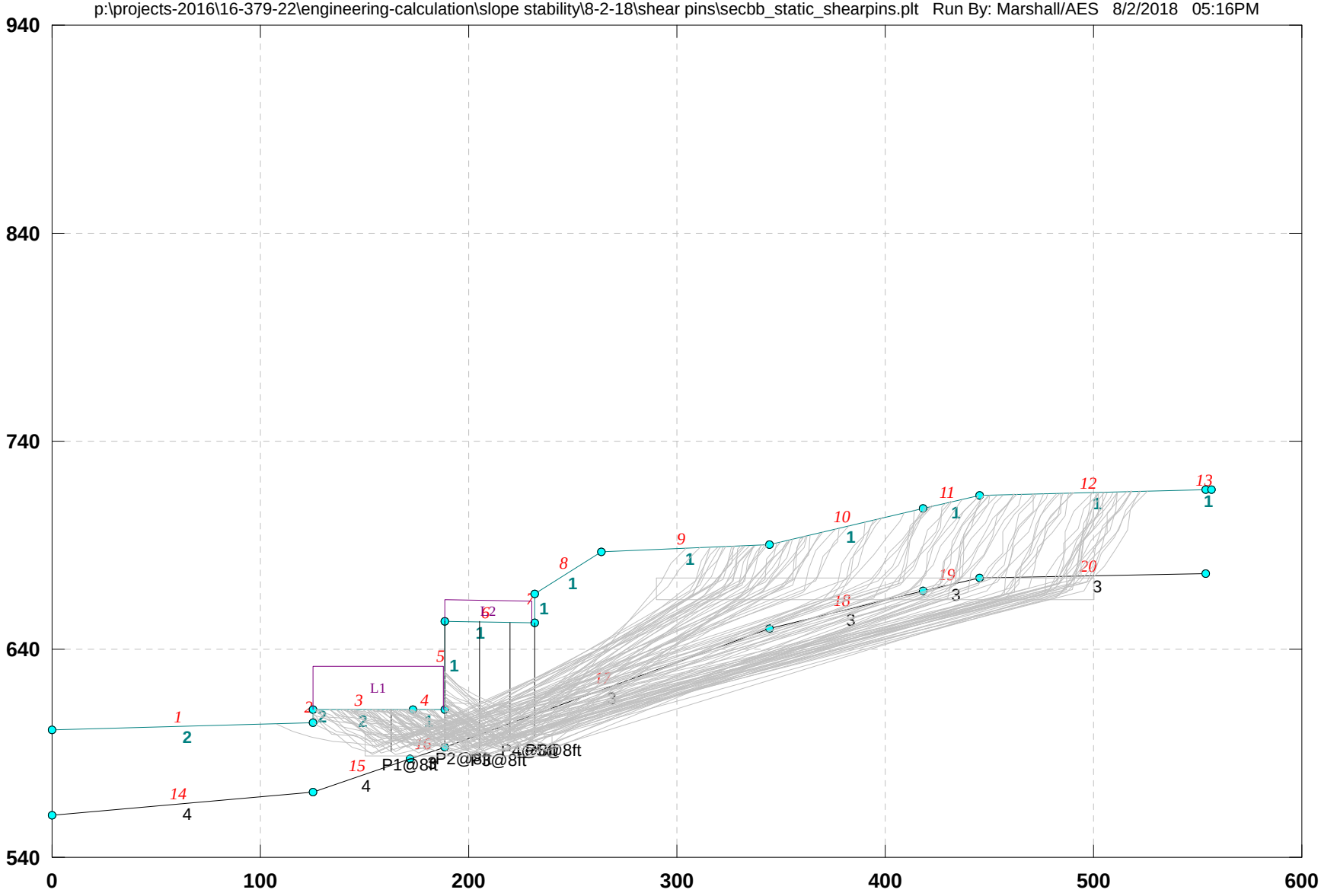
Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.973	667.105
3	241.895	667.986
4	246.760	669.141
5	251.553	670.565
6	256.259	672.255
7	260.863	674.204
8	265.351	676.408
9	269.709	678.858
10	273.924	681.548
11	277.982	684.470
12	281.871	687.613
13	282.027	687.754

Circle Center At X = 223.660 ; Y = 755.651 ; and Radius = 89.541

Factor of Safety

*** 1.432 ***

**** END OF GSTABL7 OUTPUT ****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840
740
640
540
0
100
200
300
400
500
600
L1
L2
P1@8ft
P2@8ft

16-379-22_secBB 3900 Kentucky_Static_ShearPins

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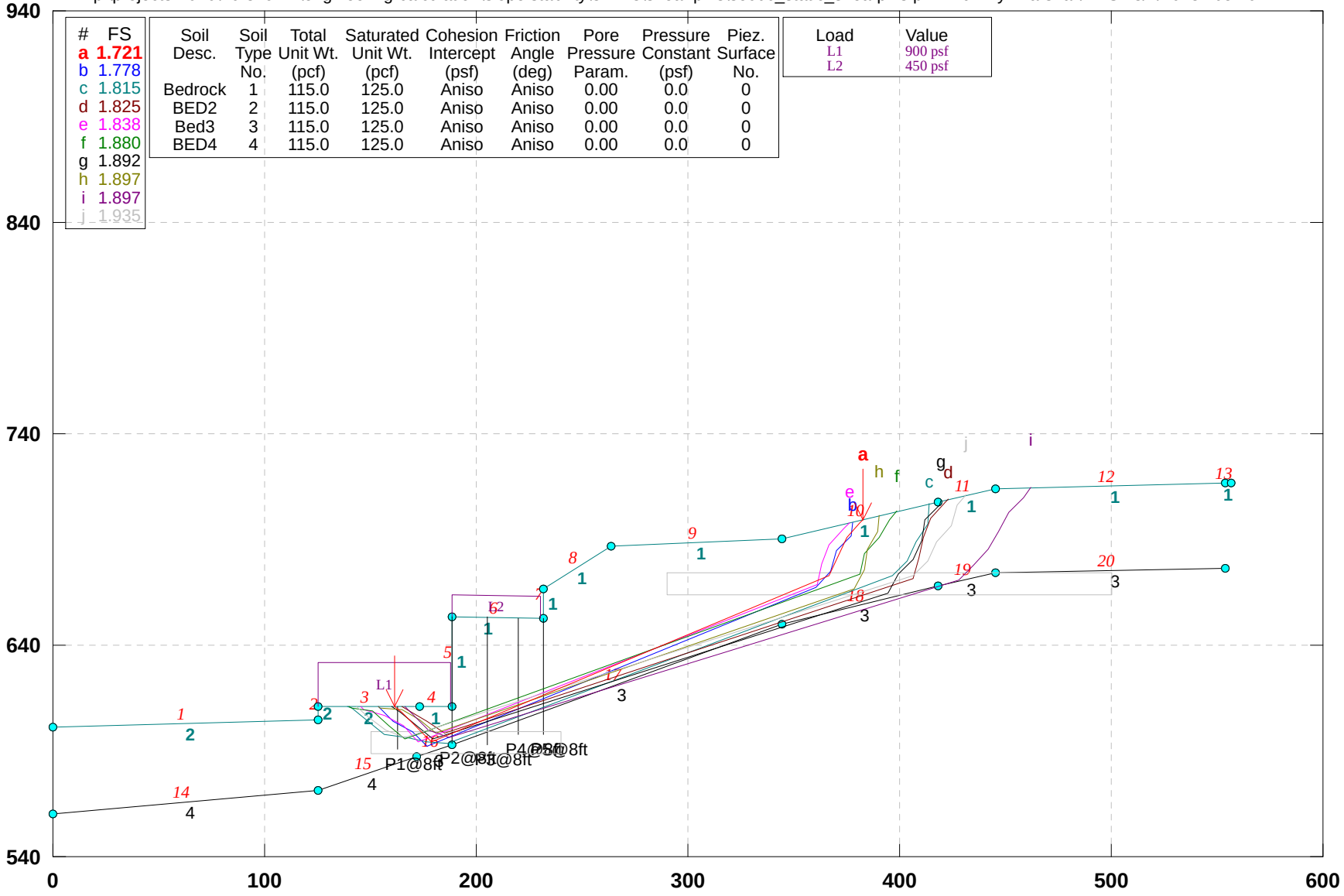

GSTABL7 v.2 FSmin=1.721

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

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Analysis Run Date: 8/2/2018
Time of Run: 05:16PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile No.	X-Pos (ft)	Y-Pos (ft)	Load (lbs)	Spacing (ft)	Inclination (deg)	Length (ft)
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles Assuming A Uniform Distribution Of Load Horizontally Between Individual Piers/Piles.

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.786 FS Min = 1.721 FS Ave = 2.450
Standard Deviation = 0.413 Coefficient of Variation = 16.87 %
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.721 ***

Individual data on the 18 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.0	497.2	0.0	0.0	0.	0.	0.0	0.0	2666.3
2	7.1	5248.5	0.0	0.0	0.	0.	0.0	0.0	6364.4
3	1.2	1511.0	0.0	0.0	0.	0.	0.0	0.0	1115.5
4	5.9	9540.7	0.0	0.0	0.	0.	0.0	0.0	5290.8
5	9.2	15990.1	0.0	0.0	0.	0.	0.0	0.0	8299.2
6	0.4	600.8	0.0	0.0	0.	0.	0.0	0.0	0.0
7	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	41.5	220734.8	0.0	0.0	0.	0.	0.0	0.0	18675.0
10	2.0	8424.4	0.0	0.0	0.	0.	0.0	0.0	0.0
11	0.0	49.6	0.0	0.0	0.	0.	0.0	0.0	0.0
12	31.7	196007.4	0.0	0.0	0.	0.	0.0	0.0	0.0
13	80.8	390151.7	0.0	0.0	0.	0.	0.0	0.0	0.0
14	22.0	62306.1	0.0	0.0	0.	0.	0.0	0.0	0.0
15	4.6	9947.5	0.0	0.0	0.	0.	0.0	0.0	0.0
16	3.7	4503.6	0.0	0.0	0.	0.	0.0	0.0	0.0
17	6.9	2931.6	0.0	0.0	0.	0.	0.0	0.0	0.0
18	1.2	62.5	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

Factor of Safety
*** 1.778 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716
5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.815 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.825 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.838 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421
10	398.492	703.214

Factor of Safety
*** 1.880 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586

5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.892 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.935 ***

**** END OF GSTABL7 OUTPUT ****

16-379-22_secBB 3900 Kentucky_Seismic_ShearPins

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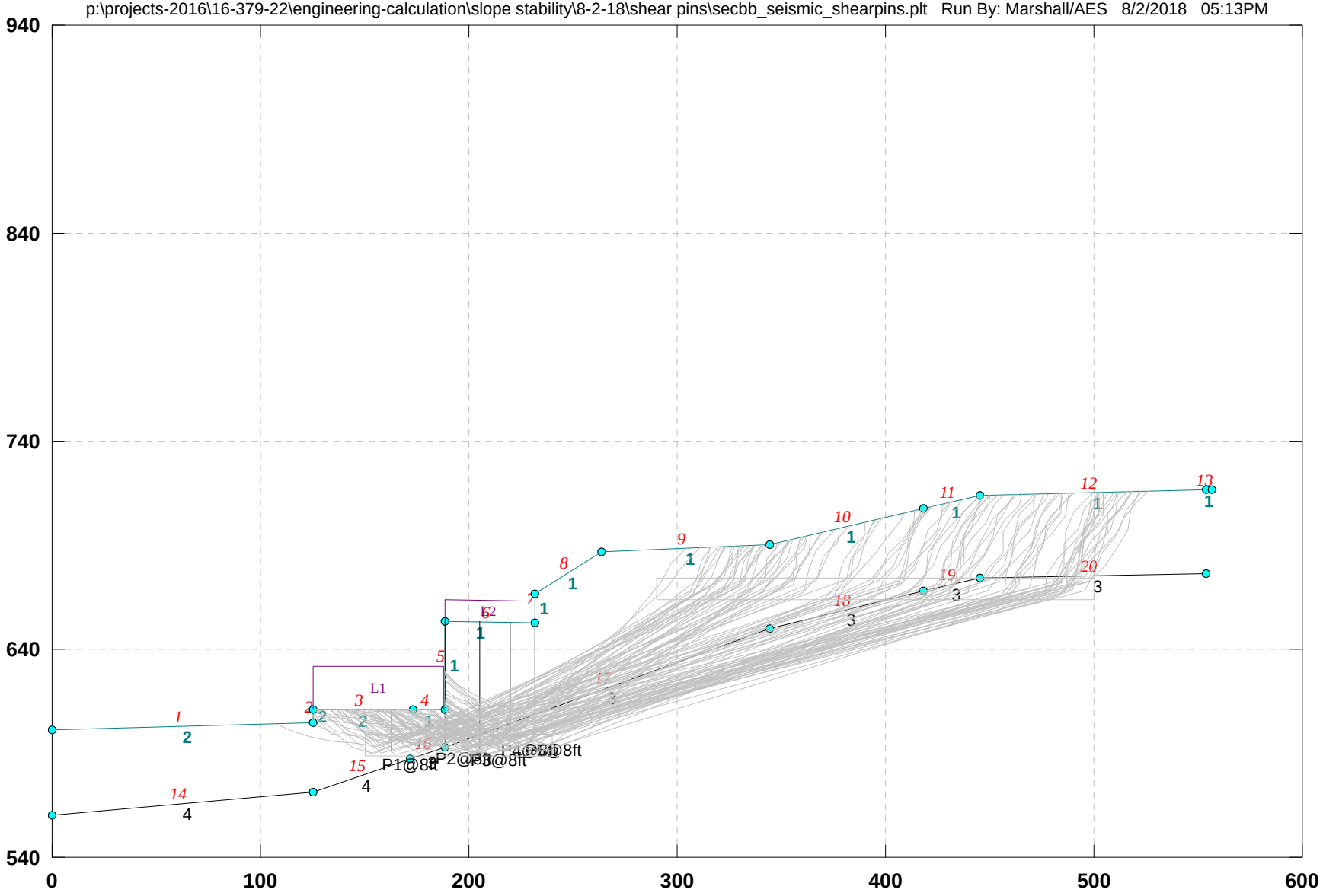

16-379-22_secBB 3900 Kentucky_Seismic_ShearPins

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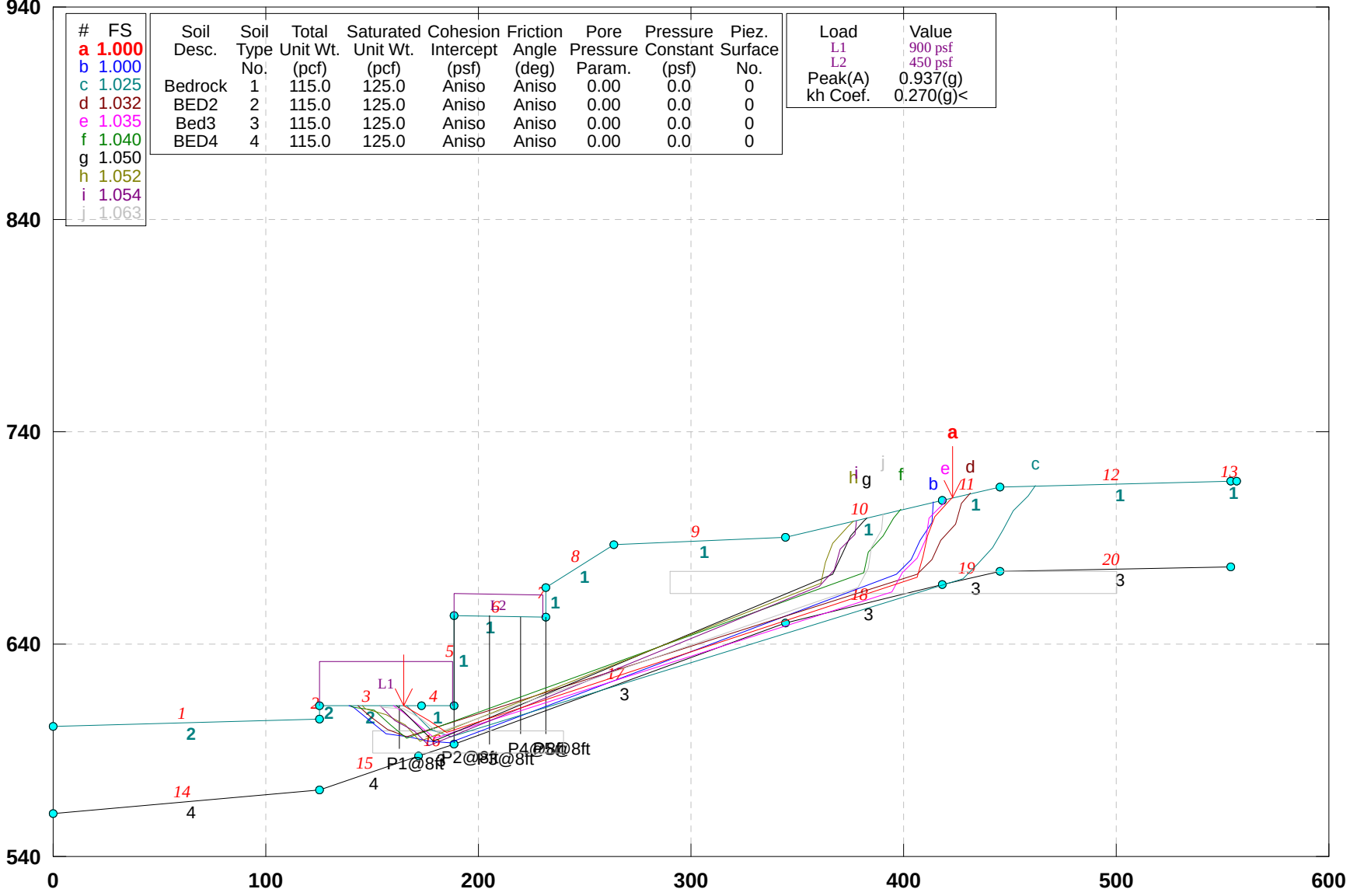
#	FS
a	1.000
b	1.000
c	1.025
d	1.032
e	1.035
f	1.040
g	1.050
h	1.052
i	1.054
j	1.063

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.000

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:13PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile **No.**	X-Pos **(ft)**	Y-Pos **(ft)**	Load **(lbs)**	Spacing **(ft)**	Inclination **(deg)**	Length **(ft)**
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles
Assuming A Uniform Distribution Of Load Horizontally Between
Individual Piers/Piles.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Sliding Block Surfaces, Has Been
Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of
Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.100 FS Min = 1.000 FS Ave = 1.342
Standard Deviation = 0.261 Coefficient of Variation = 19.46 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.000 ***
Individual data on the 20 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.3	374.7	0.0	0.0	0.	0.	101.2	0.0	2970.7
2	4.9	1930.2	0.0	0.0	0.	0.	521.2	0.0	4386.0
3	3.7	2557.2	0.0	0.0	0.	0.	690.4	0.0	3320.7
4	8.3	9475.3	0.0	0.0	0.	0.	2558.3	0.0	7467.7
5	3.1	4369.5	0.0	0.0	0.	0.	1179.8	0.0	2801.6
6	0.4	534.7	0.0	0.0	0.	0.	144.4	0.0	0.0
7	0.0	37.7	0.0	0.0	0.	0.	10.2	0.0	0.0
8	0.1	559.4	0.0	0.0	0.	0.	151.0	0.0	0.0
9	41.5	222776.5	0.0	0.0	0.	0.	60149.7	0.0	18675.0
10	2.0	8965.7	0.0	0.0	0.	0.	2420.8	0.0	0.0
11	0.0	52.5	0.0	0.0	0.	0.	14.2	0.0	0.0
12	31.7	210023.8	0.0	0.0	0.	0.	56706.4	0.0	0.0
13	80.8	472165.6	0.0	0.0	0.	0.	*******	0.0	0.0
14	61.7	257249.4	0.0	0.0	0.	0.	69457.3	0.0	0.0
15	2.7	8949.6	0.0	0.0	0.	0.	2416.4	0.0	0.0
16	2.3	5303.6	0.0	0.0	0.	0.	1432.0	0.0	0.0
17	3.6	4599.2	0.0	0.0	0.	0.	1241.8	0.0	0.0
18	3.5	2210.6	0.0	0.0	0.	0.	596.9	0.0	0.0
19	3.4	1069.9	0.0	0.0	0.	0.	288.9	0.0	0.0
20	1.4	105.4	0.0	0.0	0.	0.	28.5	0.0	0.0

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716

5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.000 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.025 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.032 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586
5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421

10	398.492	703.214

Factor of Safety
*** 1.040 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.050 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.052 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

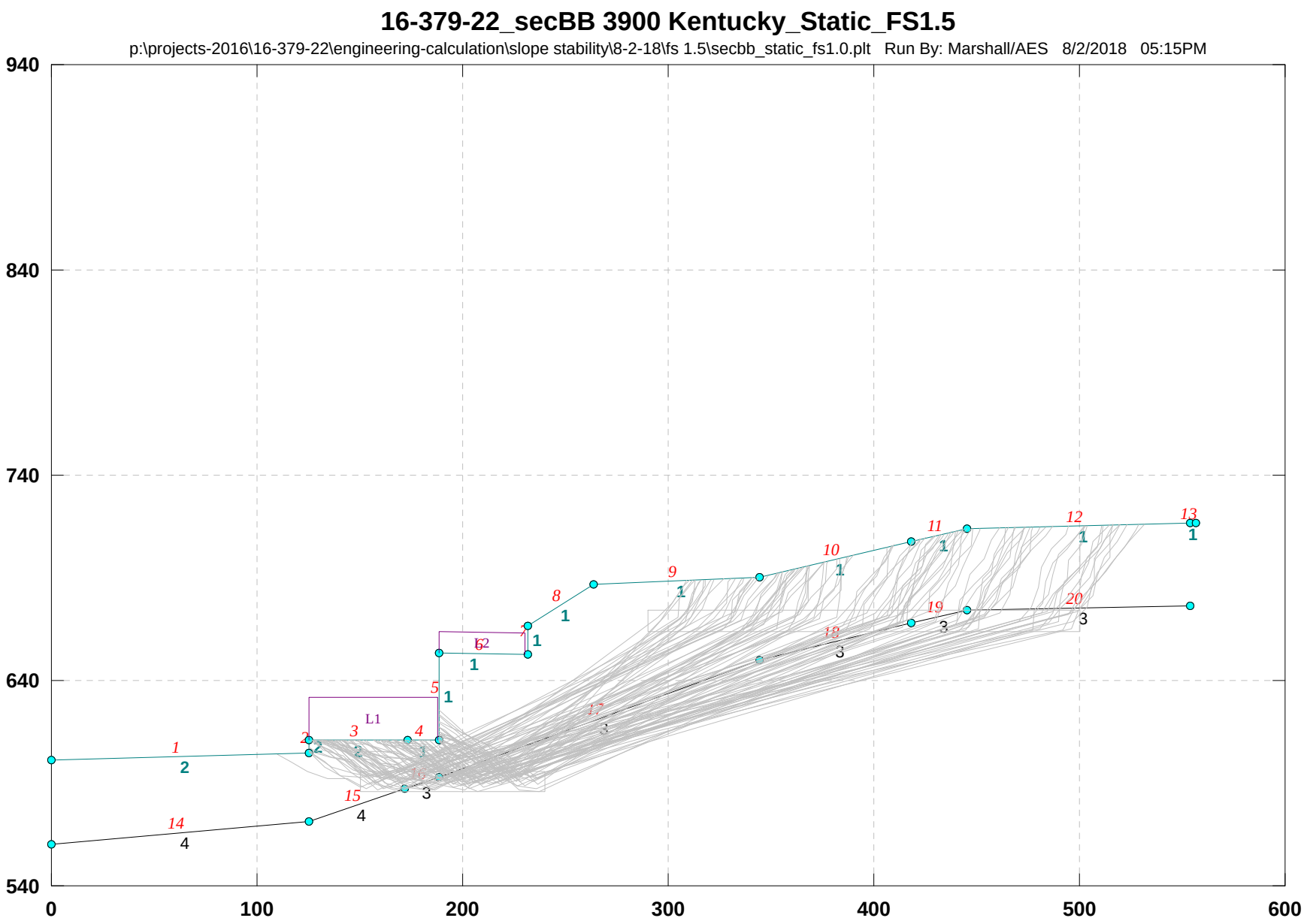
Factor of Safety
*** 1.054 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.063 ***

**** END OF GSTABL7 OUTPUT ****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740
640
540
0
100
200
300
400
500
600
L1
L2

16-379-22_secBB 3900 Kentucky_Static_FS1.5

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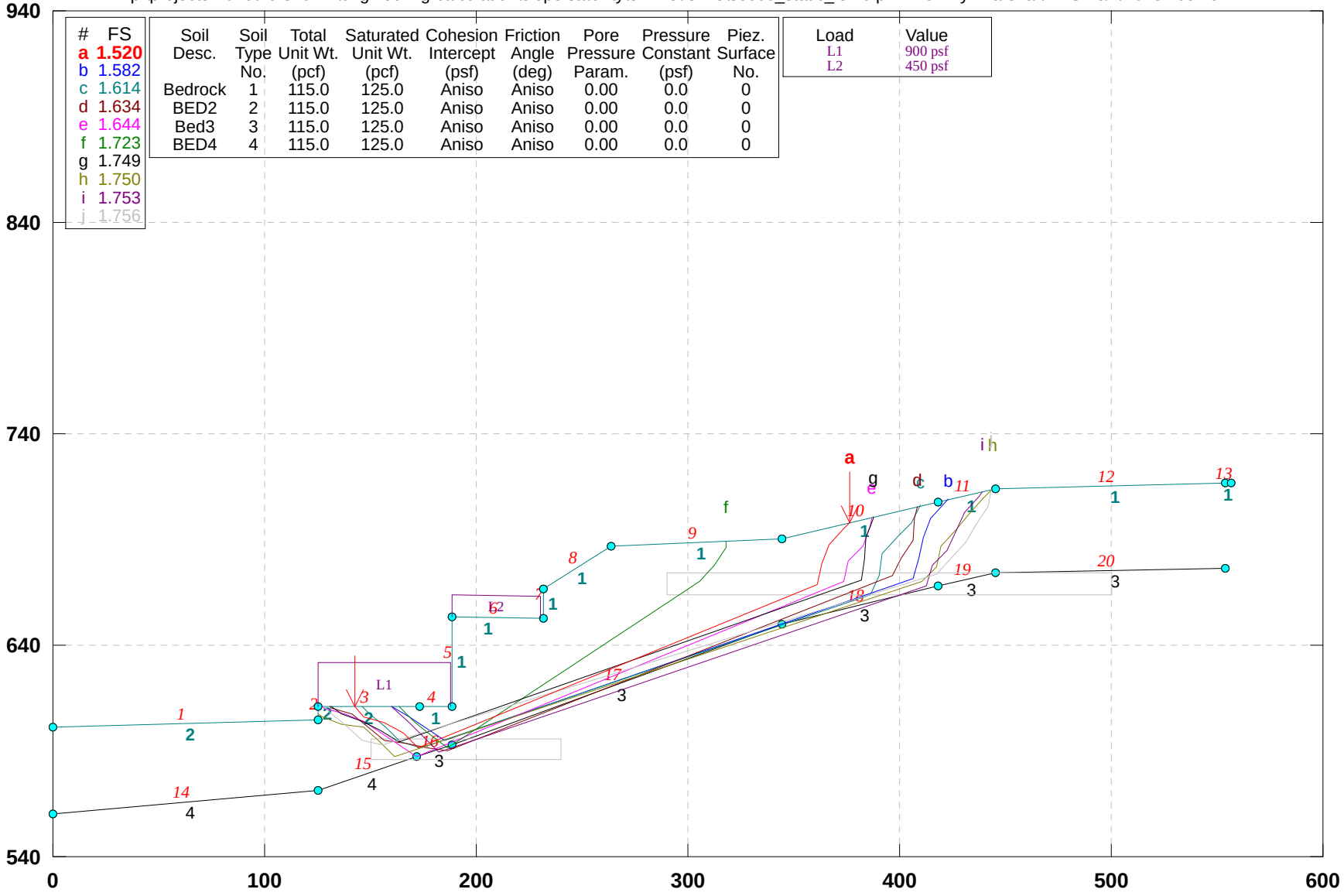

GSTABL7 v.2 FSmin=1.520

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:15PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_FS1.5

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	591.00	240.00	591.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.458 FS Min = 1.520 FS Ave = 2.270
Standard Deviation = 0.414 Coefficient of Variation = 18.24 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	142.287	611.000
2	147.092	606.238
3	156.707	603.489
4	165.439	598.616
5	172.516	591.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.520 ***

Individual data on the 19 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	4.8	1315.7	0.0	0.0	0.	0.	0.0	0.0	4324.3
2	9.6	6785.4	0.0	0.0	0.	0.	0.0	0.0	8653.3
3	8.7	9989.5	0.0	0.0	0.	0.	0.0	0.0	7859.0
4	7.1	12954.9	0.0	0.0	0.	0.	0.0	0.0	6369.9
5	0.4	854.3	0.0	0.0	0.	0.	0.0	0.0	345.2
6	15.1	28156.9	0.0	0.0	0.	0.	0.0	0.0	13590.0
7	0.4	600.5	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
9	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
10	41.5	221902.9	0.0	0.0	0.	0.	0.0	0.0	18675.0
11	2.0	8540.1	0.0	0.0	0.	0.	0.0	0.0	0.0
12	0.0	50.2	0.0	0.0	0.	0.	0.0	0.0	0.0
13	31.7	198568.5	0.0	0.0	0.	0.	0.0	0.0	0.0
14	80.8	402882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
15	16.8	52278.6	0.0	0.0	0.	0.	0.0	0.0	0.0
16	2.0	4732.1	0.0	0.0	0.	0.	0.0	0.0	0.0
17	3.5	4819.7	0.0	0.0	0.	0.	0.0	0.0	0.0
18	6.9	3954.3	0.0	0.0	0.	0.	0.0	0.0	0.0
19	2.7	344.9	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.711	611.000
2	168.027	606.025
3	176.590	600.861
4	184.887	595.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.582 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	146.093	611.000
2	149.678	607.679
3	157.270	601.169
4	164.351	594.109
5	174.011	591.522
6	386.118	664.185

7	390.376	673.233
8	391.946	683.109
9	398.353	690.787
10	405.286	697.994
11	410.129	706.040

Factor of Safety
*** 1.614 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.047	611.000
2	131.820	610.237
3	141.411	607.409
4	149.239	601.186
5	156.864	594.716
6	166.754	593.237
7	176.588	591.419
8	186.535	590.394
9	396.474	672.627
10	400.928	681.581
11	406.480	689.898
12	407.214	699.871
13	408.677	705.687

Factor of Safety
*** 1.634 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.155	611.000
2	127.933	610.249
3	137.490	607.305
4	146.980	604.152
5	155.097	598.311
6	163.378	592.706
7	171.791	587.301
8	373.967	670.022
9	375.909	679.832
10	382.915	686.967
11	385.871	696.521
12	386.677	700.344

Factor of Safety
*** 1.644 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	163.562	611.000
2	170.593	603.993
3	178.436	597.789
4	186.271	591.576
5	305.624	670.450
6	312.614	677.601
7	317.939	686.065
8	318.188	689.091

Factor of Safety
*** 1.723 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.534	611.000
2	136.581	607.824
3	145.812	603.978
4	154.798	599.590
5	163.332	594.378
6	381.708	670.987
7	383.569	680.812
8	384.405	690.777
9	387.540	700.273
10	387.873	700.634

Factor of Safety
*** 1.749 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.251	607.817
2	127.273	605.920
3	136.691	602.559
4	146.563	600.961
5	154.249	594.565
6	161.332	587.506
7	410.266	670.306
8	417.302	677.411
9	419.838	687.084
10	426.418	694.614
11	432.811	702.303
12	439.812	709.444
13	444.001	713.712

Factor of Safety
*** 1.750 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.818	611.000
2	160.716	610.113
3	168.072	603.338
4	175.144	596.269
5	182.316	589.300
6	412.880	667.784
7	415.253	677.498
8	422.126	684.762
9	426.329	693.836
10	430.640	702.859
11	437.476	710.156
12	438.822	712.566

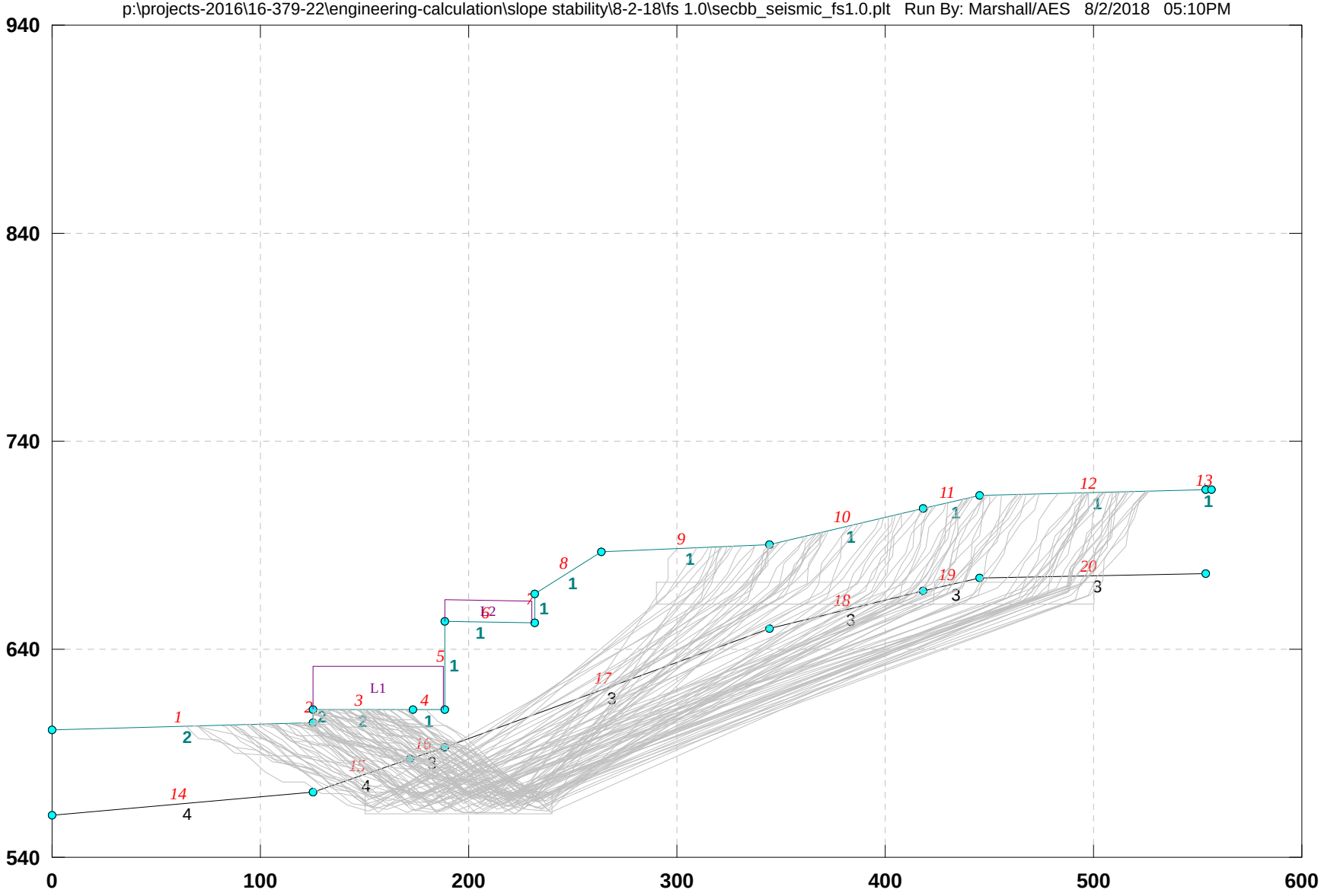
Factor of Safety
*** 1.753 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.807	611.000
2	131.054	608.112
3	138.779	601.762
4	145.974	594.817
5	155.817	593.055
6	417.495	673.921
7	424.232	681.311
8	431.069	688.608
9	436.496	697.008
10	441.799	705.486
11	442.984	713.487

Factor of Safety
*** 1.756 ***

**** END OF GSTABL7 OUTPUT ****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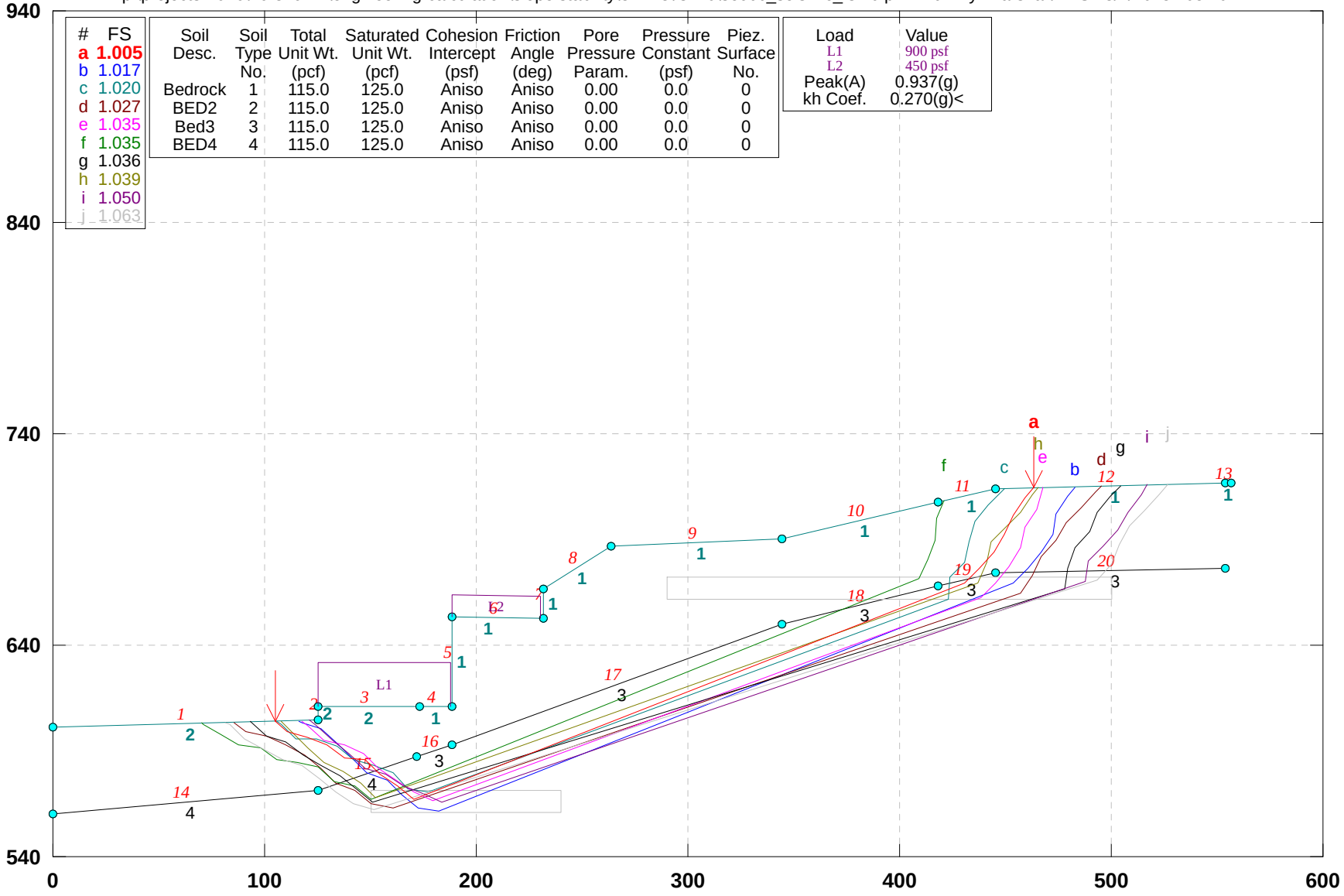
940
840
740
640
540
0
100
200
300
400
500
600
L1
L2

16-379-22_secBB 3900 Kentucky_Seismic_FS1.0

p:\projects-2016\16-379-22\engineering-calculation\slope stability\8-2-18\fs 1.0\secbb_seismic_fs1.0.pl2 Run By: Marshall/AES 8/2/2018 05:10PM



GSTABL7 v.2 FSmin=1.005

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **

** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **

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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:10PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_FS1.0
BOUNDARY COORDINATES
13 Top Boundaries

20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
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9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS

4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00

5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	566.00	240.00	566.00	10.00
2	290.00	667.00	500.00	667.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.198 FS Min = 1.005 FS Ave = 1.478
Standard Deviation = 0.286 Coefficient of Variation = 19.35 %
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	105.017	604.016
2	110.840	599.284
3	120.299	596.040
4	129.711	592.662
5	137.614	586.535
6	147.596	585.929
7	154.674	578.865
8	163.110	573.495
9	170.737	567.027
10	430.568	669.311
11	437.386	676.627
12	444.455	683.700
13	449.304	692.446

14	453.351	701.590
15	458.856	709.939
16	463.317	714.449

Factor of Safety
*** 1.005 ***

Individual data on the 33 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.8	1631.4	0.0	0.0	0.	0.	440.5	0.0	0.0
2	9.5	7187.9	0.0	0.0	0.	0.	1940.7	0.0	0.0
3	4.9	5230.7	0.0	0.0	0.	0.	1412.3	0.0	0.0
4	0.1	155.1	0.0	0.0	0.	0.	41.9	0.0	0.0
5	0.2	386.2	0.0	0.0	0.	0.	104.3	0.0	0.0
6	4.2	8515.3	0.0	0.0	0.	0.	2299.1	0.0	3790.3
7	7.9	19450.4	0.0	0.0	0.	0.	5251.6	0.0	7112.5
8	10.0	28431.2	0.0	0.0	0.	0.	7676.4	0.0	8983.5
9	5.4	17374.8	0.0	0.0	0.	0.	4691.2	0.0	4893.9
10	1.6	5907.7	0.0	0.0	0.	0.	1595.1	0.0	1476.3
11	8.4	33780.5	0.0	0.0	0.	0.	9120.7	0.0	7592.4
12	7.6	35730.8	0.0	0.0	0.	0.	9647.3	0.0	6864.0
13	1.3	6352.2	0.0	0.0	0.	0.	1715.1	0.0	1137.0
14	0.9	4481.3	0.0	0.0	0.	0.	1210.0	0.0	810.0
15	15.1	69719.0	0.0	0.0	0.	0.	18824.1	0.0	13590.0
16	0.4	1706.5	0.0	0.0	0.	0.	460.8	0.0	0.0
17	0.0	67.0	0.0	0.0	0.	0.	18.1	0.0	0.0
18	0.1	822.9	0.0	0.0	0.	0.	222.2	0.0	0.0
19	41.5	338053.8	0.0	0.0	0.	0.	91274.5	0.0	18675.0
20	2.0	14207.7	0.0	0.0	0.	0.	3836.1	0.0	0.0
21	0.0	78.6	0.0	0.0	0.	0.	21.2	0.0	0.0
22	31.7	289232.8	0.0	0.0	0.	0.	78092.9	0.0	0.0
23	80.8	641366.8	0.0	0.0	0.	0.	*******	0.0	0.0
24	73.7	416262.8	0.0	0.0	0.	0.	*******	0.0	0.0
25	12.4	60438.6	0.0	0.0	0.	0.	16318.4	0.0	0.0
26	1.7	7844.4	0.0	0.0	0.	0.	2118.0	0.0	0.0
27	5.1	22358.6	0.0	0.0	0.	0.	6036.8	0.0	0.0
28	7.1	26719.6	0.0	0.0	0.	0.	7214.3	0.0	0.0
29	0.8	2861.2	0.0	0.0	0.	0.	772.5	0.0	0.0
30	4.0	11611.7	0.0	0.0	0.	0.	3135.2	0.0	0.0
31	4.0	7972.8	0.0	0.0	0.	0.	2152.6	0.0	0.0
32	5.5	5383.8	0.0	0.0	0.	0.	1453.6	0.0	0.0
33	4.5	1128.6	0.0	0.0	0.	0.	304.7	0.0	0.0

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	116.193	604.284
2	117.303	603.479
3	126.801	600.352
4	134.072	593.487
5	141.165	586.438
6	148.245	579.375
7	157.687	576.082
8	165.163	569.440
9	172.597	562.752
10	182.536	561.649
11	453.588	669.265
12	460.370	676.614
13	466.993	684.107
14	472.411	692.511
15	473.835	702.409
16	479.401	710.717
17	483.099	714.942

Factor of Safety
*** 1.017 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	106.017	604.040
2	107.515	602.865

3	114.764	595.976
4	124.745	595.359
5	134.311	592.446
6	141.985	586.034
7	151.648	583.459
8	160.768	579.358
9	167.850	572.298
10	177.724	570.714
11	423.083	662.021
12	423.747	671.999
13	430.533	679.345
14	432.837	689.076
15	435.577	698.693
16	442.146	706.232
17	448.934	713.576
18	449.257	714.099

Factor of Safety
*** 1.020 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.401	603.546
2	90.908	599.077
3	100.634	596.755
4	109.981	593.198
5	118.636	588.190
6	126.461	581.964
7	133.565	574.926
8	142.818	571.133
9	150.608	564.863
10	160.453	563.111
11	457.433	664.380
12	462.418	673.049
13	467.113	681.878
14	473.767	689.343
15	478.738	698.020
16	485.716	705.183
17	492.724	712.316
18	495.591	715.254

Factor of Safety
*** 1.027 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	117.680	604.320
2	120.649	602.154
3	127.809	595.173
4	137.553	592.926
5	146.760	589.023
6	153.884	582.005
7	161.883	576.003
8	170.149	570.377
9	179.394	566.563
10	438.464	662.480
11	445.521	669.565
12	451.793	677.354
13	456.901	685.951
14	459.217	695.679
15	464.705	704.038
16	467.274	713.703
17	467.864	714.563

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	70.245	603.183
2	70.627	602.814
3	79.124	597.541
4	87.792	592.555

5	97.761	591.759
6	105.825	585.845
7	115.709	584.326
8	125.581	582.735
9	132.814	575.829
10	142.549	573.541
11	150.104	566.991
12	409.086	671.404
13	413.503	680.375
14	416.873	689.791
15	417.158	699.787
16	420.635	708.539

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	93.203	603.733
2	100.701	597.318
3	110.235	594.301
4	118.088	588.110
5	126.559	582.795
6	135.377	578.080
7	143.383	572.087
8	151.269	565.938
9	477.839	666.855
10	479.574	676.704
11	483.077	686.070
12	489.605	693.646
13	492.964	703.065
14	499.601	710.545
15	504.232	715.469

Factor of Safety
*** 1.036 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.510	604.076
2	113.402	598.230
3	120.612	591.300
4	128.010	584.572
5	137.093	580.388
6	145.450	574.896
7	152.521	567.826
8	436.874	669.700
9	440.878	678.863
10	443.290	688.568
11	450.056	695.932
12	457.050	703.079
13	462.573	711.416
14	465.310	714.499

Factor of Safety
*** 1.039 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.932	604.398
2	124.772	601.636
3	132.398	595.168
4	140.000	588.672
5	147.472	582.025
6	156.956	578.854
7	165.477	573.620
8	174.750	569.878
9	183.854	565.741
10	487.836	670.154
11	489.094	680.074
12	496.161	687.149
13	503.230	694.223
14	507.836	703.099

15	514.167	710.840
16	516.915	715.785

Factor of Safety

*** 1.050 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	81.345	603.449
2	83.480	602.430
3	90.590	595.399
4	99.281	590.453
5	108.354	586.247
6	117.856	583.129
7	125.904	577.194
8	133.322	570.487
9	141.835	565.241
10	151.467	562.552
11	493.476	670.989
12	500.107	678.474
13	503.883	687.734
14	508.772	696.457
15	515.580	703.781
16	522.571	710.932
17	526.589	716.027

Factor of Safety

*** 1.063 ***

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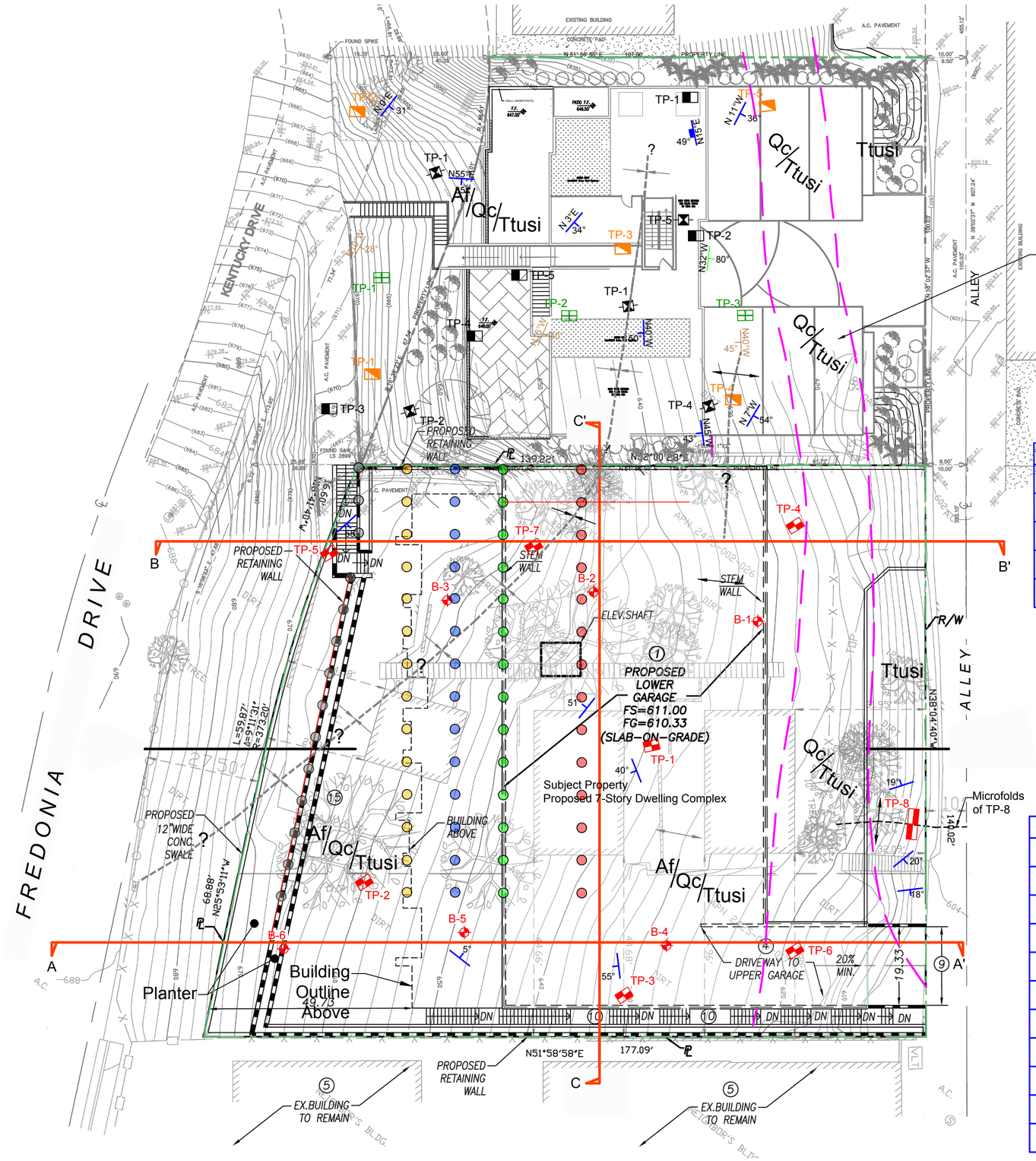

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Test Pit (AES, 2018)
- 20° = Strike & Dip of Bedding
- TP-5 = Location & Number of Test Pit (AES, 2013)
- TP-3 = Location & Number of Test Pit (AES, 1990)

  } AES Project No. 13-347-22
- TP-5 = Location & Number of Test Pit (S & G INC, 1998)
- TP-5 = Location & Number of Test Pit (Don Soils Engineering, 2004)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located

B-3	
N20W 18°	@ 7'
N24W 22°	@ 11'
N11W 14°	@ 15'
N2W 25°	@ 20'
N7E 22°	@ 26'

B-2	
5° N1E	@ 6'
11° N69W	@ 10'
62° N69W	@ 12'
88° N6W	@ 14'
51° N16W	@ 16'
64° N16W	@ 20'
66° N10W	@ 24'
64° N12W	@ 26'
57° N16W	@ 31'
58° N23W	@ 35'

B-1	
47° N10W	@ 4'
38° N21W	@ 7'
52° N18W	@ 9'
44° N41W	@ 12'
46° N22W	@ 26'
59° N31W	@ 33'

B-6	
25° N31W	@ 4'
55° N31W	@ 6'
81° N34W	@ 14'
87° N41W	@ 17'
62° N11W	@ 19'
28° N18E	@ 21'
21° N31W	@ 24'
69° N0W	@ 26'
N17E 75°	@ 31'
N4E 56°	@ 33'
N27E 57°	@ 36'

B-5	
5° N80W	@ 5'
N3W 25°	@ 7'
17° N36E	@ 9'
54° N10E	@ 11'
N28W 66°	@ 14'
N18E 59°	@ 17'
N11E 71°	@ 19'
N2E 69°	@ 23'
N8E 75°	@ 26'
N12W 67°	@ 30'
N9W 72°	@ 33'
N8E 75°	@ 36'

B-4	
51° N0W	@ 5'
68° N2E	@ 12'
77° N27E	@ 15'
N9W 81°	@ 18'
N14W 58°	@ 21'
N16W 74°	@ 23'
N12W 66°	@ 30'

SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

AREA GEOLOGIC MAP

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 04 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		DRAWING No:	1
		SUPP. No:	A

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LEGEND:

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- B-6 = Location & Number of Test Pit (AES, 2018)
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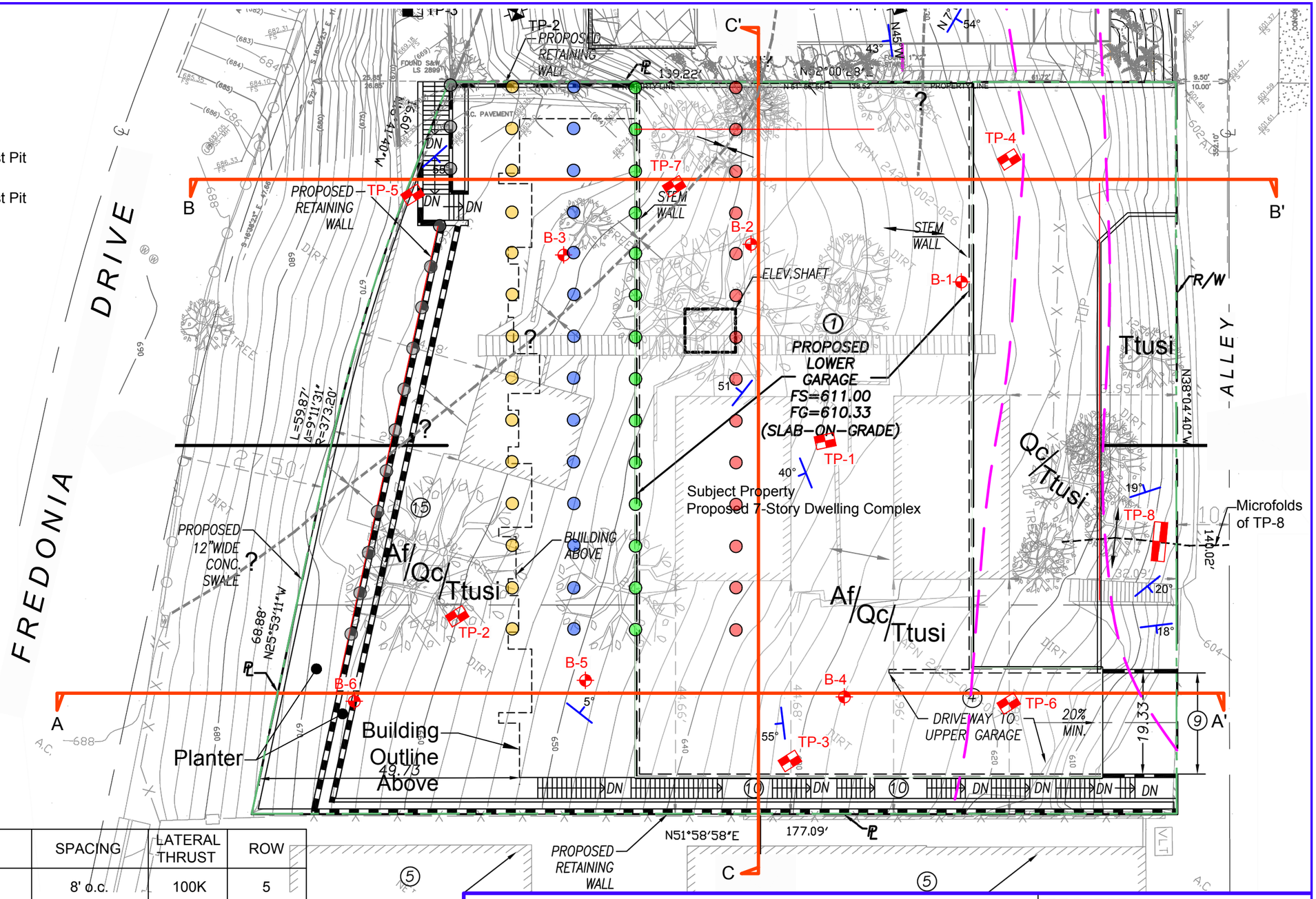
- = Syncline Approximately Located



SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

GEOTECHNICAL SITE PLAN

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 04 / 2018
DRAWN BY:	VM
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DRAWING No:	2
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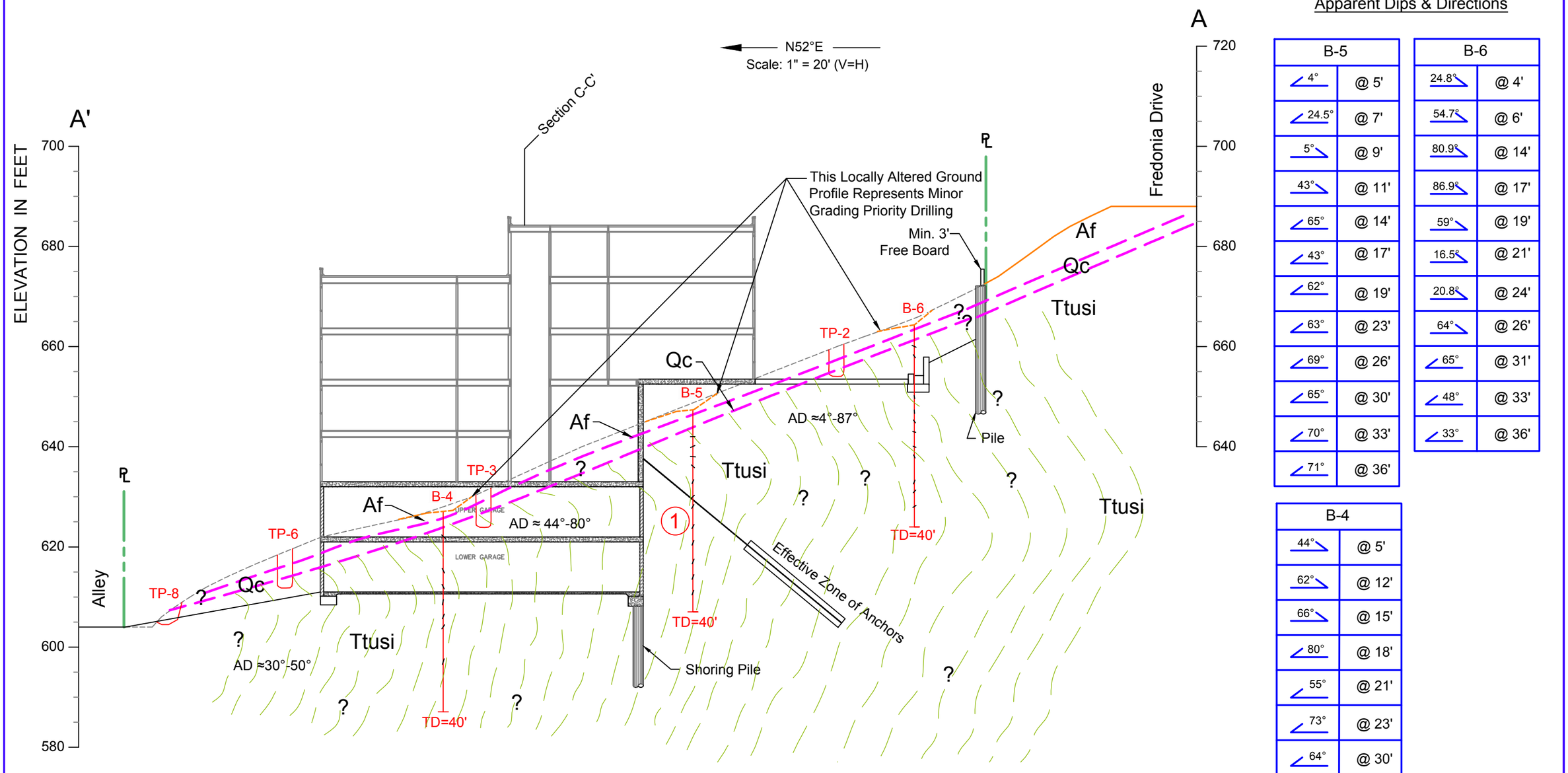

Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 04 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
		DRAWING No:	3
		SUPP. No:	A
PROJECT No:			16-379-22

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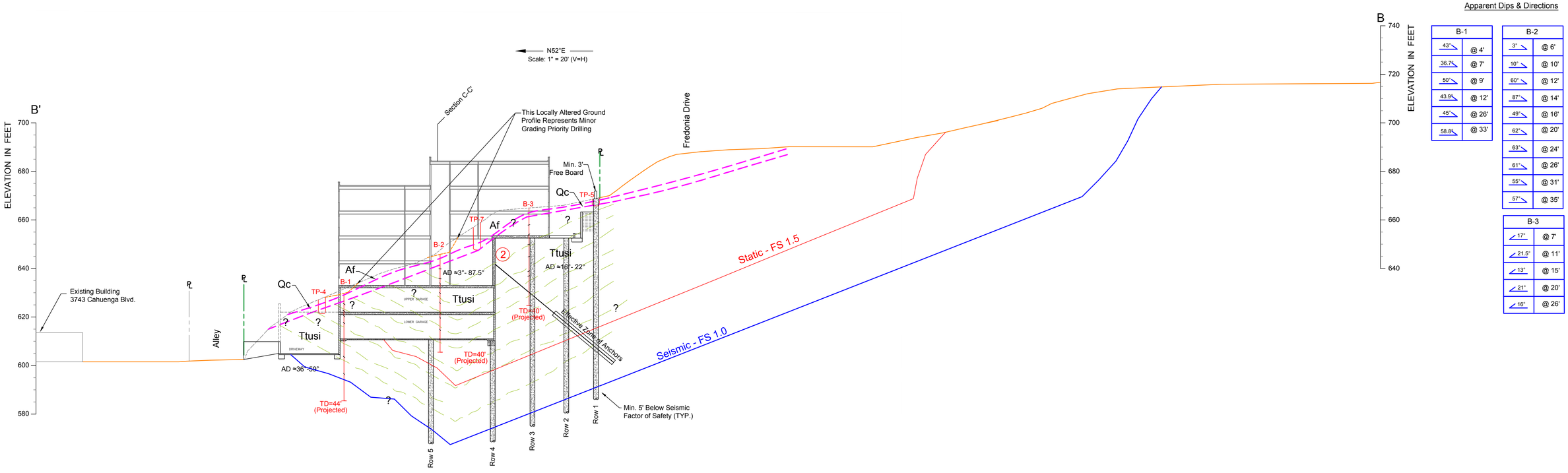

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION B-B'		PROJECT No:	16-379-22
DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 04 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
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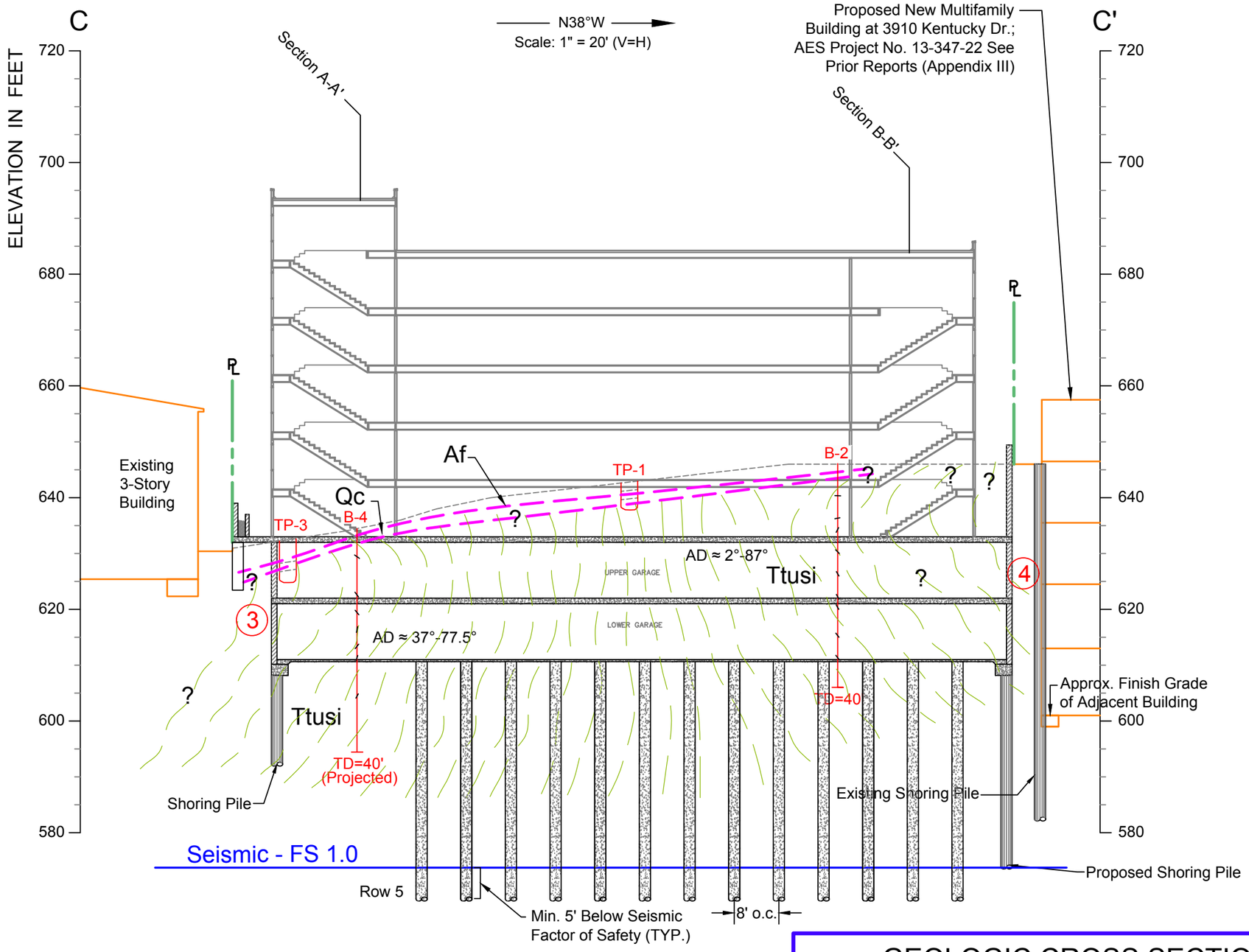

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- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018
- TD=40' (Projected)

Apparent Dips & Directions

B-4		B-2	
37°	@ 5'	2°	@ 6'
56°	@ 12'	10.9°	@ 10'
52°	@ 15'	61.8°	@ 12'
78°	@ 18'	87°	@ 14'
52°	@ 21'	45°	@ 16'
71°	@ 23'	60°	@ 20'
62°	@ 30'	59°	@ 24'
		58°	@ 26'
		51°	@ 31'
		55°	@ 35'

GEOLOGIC CROSS SECTION C-C'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 04 / 2018
DRAWN BY:	VM & TG
CHECKED BY:	SM
DRAWING No:	5
SUPP. No:	A

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http://eng.lacity.org

May 19, 2017

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

GEOTECHNICAL REVIEW, VESTING TENTATIVE TRACT NO. 73784, PROJECT ADDRESS 3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE, LOS ANGELES CALIFORNIA, CALIFORNIA 90068, RECOMMENDATIONS RELATING TO GEOLOGIC AND SOIL CONDITIONS,
W.O. ETRACTEN ***GEO FILE NO. 17-103***

The City Engineer recommends **approval be withheld** for the proposed Vesting Tentative Tract No. 73784 with project address 3894 Fredonia Drive and 3902 Kentucky Drive until additional information is provided. This information is necessary to evaluate conditions that apply to public property and proposed site developments. Our recommendation is based on our review of the following:

1. Applied Earth Sciences, 2016, Report of Geotechnical Investigation, Proposed New Multifamily Residential Building Project, Lot 116 and Portion (NW40FT) Of Lot 117, Tract No. 5593, 3900 North Kentucky Drive and 3894 Fredonia Drive, Los Angeles, California, 90068, dated June 10, 2016, by the consulting geotechnical engineer Dan Daneshfar (RCE 68377) and certified engineering geologist Shant Minas (CEG 2607).

2. Vesting Tentative Tract No. 73784, prepared by Robert K. Kameoka (RCE No. 15429), with a Los Angeles Department of Building and Safety stamp date of April 28, 2017.

The review of this vesting tentative tract map will be continued following submittal of all project reports to this office (with exception to the reports listed above) that pertain to geology and soil engineering, and the subsequent addendums. The submittal should also include, but need not be limited to, the following:

- Updated slope stability analysis through section A-A' and B-B' reflecting the current project design.

- Based on section A-A' and section B-B' of the June 10, 2016 report, a retaining wall supported by deep piles is proposed along the southwestern property line. According to cross-section B-B', the tip of piles along that property line are depicted at an elevation above the "Lowest Unsupported Potential Slip Surface." Please provide a corrected section B-B' or, provide discussion justifying why the pile tips can be at a higher elevation than the "Lowest Unsupported Potential Slip Surface."

If you have any questions regarding this letter, please call Daniel Orris at (213) 847-0488.

Sincerely,

Gary L. Moore, PE, ENV SP
City Engineer

By:



Craig Kunesh, Engineering Geologist I
Geotechnical Engineering Group

cc: Georgic Avanesian, Land Development Group, Subdivision Engineering, Mail Stop 901
Jesus Adolfo Acosta, Department of Building and Safety, Mail Stop 115

August 3, 2018 16-379-22

3900 Kentucky LLC
528 State Street
Glendale, California 91203

Subject: Supplement No. 1
Geotechnical Investigation
Proposed 7-Story Condominium Building Complex
Lots 116 and FR117 Of Tract No. 5593
3902 North Kentucky Drive
(aka 3900 North Fredonia Drive & 3894 North Fredonia Drive)
Los Angeles, California 90068

Gentlemen:

INTRODUCTION

We are pleased to submit this Supplement No. A report presenting the results of our additional geotechnical evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 10, 2016.

This submittal is in response to comments in a Geology And Soils Report Review Letter dated May 10, 2017 prepared by the Grading Section Of The Department Of Building And Safety of the City of Los Angeles (Log # 97819).

It should be noted that as part of preparation of this update report we have utilized the latest architectural and civil plans from Kamran Tabrizi and Greystone Engineering Group, respectively.

We have also enclosed with this Supplement No. 1, a Review Letter by the Geotechnical Engineering Group of the Department of Public Works Of The City of Los Angeles and our response report (Supplement No. A) as a PDF soft copy, for further reference. The responses to the comments from the Geotechnical Engineering Group have also utilized the revised geologic map and cross sections based on the results of

the updated building plan, our extensive additional field exploration as well as supplemental engineering calculations performed in April 2018.

ADDITIONAL FIELD EXPLORATION AND REVISED GEOLOGIC MODEL

Prior to the preparation of this report, engineer representatives of this office met with city reviewers Messrs. Casey Lee Jensen and Dan L. Stoica in January 2018 to discuss the comments (project architect and owner were also present at this meeting). It was decided to perform additional field exploration of the site, in the form of deep large diameter borings, to get a better resolution of the complex subsurface geologic strata and folds that were previously reported.

To that effect, in April 2018, over the course of three workdays, six large diameter borings were advanced on the property with the use of a Lo-Dril drill rig, by Leon Krous Drilling, to depths ranging from 40-43 feet below ground surface. The approximate locations of the old and new test holes (test pits and borings) are shown on the enclosed Geologic Map and Site Plan drawings.

All borings were sampled and downhole logged by the engineering geologist. Detailed boring logs are attached to this submittal. Borings 1 through 3 were advanced roughly along the alignment of section B, whereas Boring 4 through 6 were advanced along the alignment of section A.

Relatively undisturbed samples of the subsurface materials were obtained by driving a steel sampler with successive drops of the telescopic kelly bar having weights of 1767 pounds from 0-15', 1182 pounds from 15-30', and 757 pounds from 30-45'. The number of blows required for one foot of sampler penetration was recorded at the time of drilling and are shown on the log of exploratory borings. The relatively undisturbed soil samples were retained in brass liner rings 2.5 inches in diameter and 1.0 inch in height.

In light of the additional field exploration, we have revised the Geologic Map as well as all three Geologic Cross Sections; see Drawings Nos. 1 through 5. Based on our additional field geologic data, the prominent synclinal fold that was first found during our characterization of the adjacent property at 3910 Kentucky now appears to bend and extend toward the south and off-site through the subject property. Geologic Cross

Section B-B' now looks similar to the Cross Section D-D' from the report for the adjacent site (AES Project No. 13-347-22), which was the section through the adjacent building closest to the subject site.

Geologic Cross Section A-A', however, is different from section B. Along section A, we noted steeply northeast-dipping true bedding in all three borings, similar to what is presented in regional maps, whereas the upper 5-10 feet of the bedrock appears to be creep-affected with shallow to moderate south dips.

Overall, the strata are folded considerably throughout the study area, but no landslide or slippage planes were noted in any of the bore holes, nor was there any seepage or excessive moisture.

The results of our additional field and laboratory investigations indicated that the bedrock within the upper 10 feet are creep effected. Below the creep effected bedrock extending to a depth of about 20 feet, the bedrock was found to be moderately weathered. Below this depth, the bedrock was found to be less weathered. For the purpose of our new engineering analysis and slope stability evaluation, however, and for added safety, we have assumed that the top 40 feet of the bedrock is weathered. The strength of the deeper bedrock was found to be somewhat higher.

As part of preparation of this Supplement No. 1, the weakest bedrock sample from the new borings (Boring No. 2 at a depth of 40 feet), was tested in our laboratory to determine the shear strengths of the deeper bedrock for cross bedding and re-shear strengths conditions. The results of our new laboratory shear testing is shown on the enclosed Figure No. II-1A. Our previous slope stability analysis had used the bedrock strengths of a sample from a depth of 6 feet (creep prone zone) from our Test Pit No. 2.

Considering that the potential slip surface occurs considerably lower than 40 feet, our new slope stability sections, have been remodeled to show two different types of bedrock. The bedrock below 40 feet, therefore, was assigned the new strength parameters.

As part of our response report, the undersigned geologist visited the adjacent-north site at 3910 Kentucky Drive, AES Project No. 13-347-22, which is currently under construction under AES observation and testing. As of April 2018, the adjacent property has been excavated down to the approximate grade of the alleyway

at ~603' elevation, which is the rough finished grade of that project. We have depicted this in our revised Geologic Cross Section C-C' drawing.

A copy of the City Review Letter is enclosed with this Supplement No. 1 report. Our response is presented below using the original order of the comments.

RESPONSE TO THE GEOTECHNICAL ENGINEERING GROUP COMMENTS

Comment No. 1

The engineering calculations using the new section and obtained field and laboratory data are enclosed with this Supplement No. 1 report. As can be seen, the previously recommended values for temporary excavation (cantilevered and restrained systems) have changed.

Comment No. 2

The enclosed new engineering calculations for temporary support systems consider surcharge from off-site improvements (traffic, structures, etc.).

Comment No. 3

The enclosed new engineering calculations for permanent support systems consider earth pressure and surcharge effects from off-site improvements (traffic, structures, etc.).

Comment No. 4

The cantilevered retaining walls on sections A-A' and B-B' should be designed based on the enclosed Summary No. I.

It should be noted that all given lateral earth pressures consider surcharge effects of off-site improvements.

Comment No. 5

The base of the existing structure to the north (currently under construction) occurs below the base of the proposed building. Therefore, the north property line foundations of the proposed building should be extended below the base of the existing

off-site building to the north. In order to avoid surcharge effects, the upper portion of the pile (above a 1:1 projection from the base of the off-site building to the north) should be sleeved. See the enclosed Cross Section C-C' Drawing No. 5.

Comment No. 6

The new seismic lateral earth pressures for cantilevered and basement walls are enclosed with this Supplement No. 1 report. As can be seen, the magnitudes of the seismic lateral earth pressures for both cantilevered and restrained systems should be at rates of 30 pounds per square foot.

Comment No. 7

As part of preparation of this Supplement No. 1, samples of the fill and native soil, (projecting upward above the site to Fredonia Drive) were tested in our laboratory to determine the shear strengths of the soil cover on the slope. The results of new direct shear tests on soil is presented on Figure No. II-1B enclosed with this Supplement No. 1.

The results of our analysis indicated that the slope above the subject site, extending to Fredonia Drive is grossly and surficially stable. See the enclosed supporting engineering calculation sheets. For the purpose of this project, however, the wall along the west property line should have a freeboard of a least 3 feet to catch normal erosion and divert surface water coming down from the slope. The freeboard should be cleaned after rainy seasons. The freeboard portion of the wall should be designed based on an equivalent fluid pressure of 125 pounds per square foot per foot of depth.

The results of our new slope stability analysis using the new models of subsurface and supplemental laboratory test results of deeper bedrock indicated that, in order to maintain the Code required factors of safeties of 1.5 and 1.0 for static and seismic loading conditions, 5 rows of "shear pins" should be incorporated into the proposed building. The approximate locations of the "shear pin" rows are shown on the enclosed Area Geologic Map and Geotechnical Maps; Drawing Nos. 1 and 2. The profiles of the "shear pins" is shows on the Cross Sections B-B' through C-C'.

Slope Stability calculations along Geologic Cross Section A indicate adequate factor of safety along this section (based on local subsurface geology), such that shear pins are not needed along this section to bring up to adequate factor of safety. Therefore, the 5 rows of shear pins terminate approximately 10 feet north of where Geologic Cross Section A crosses through the proposed building; please see our map and section drawings and accompanying calculations for a graphical depiction.

The “shear pins” should have center-to-center spacing of 8 feet. Each one of the “shear pins” in Rows 1 through 4, should be designed based on a sustained unbalance force of 214 kips. The individual “shear pins” in Row 5 should be designed based on a sustained unbalance force of 100 kips. See the enclosed supporting engineering calculations. The point of application of the lateral sustained loads should be assumed at mid-height of the earth mass above the slip surface having a static factor of safety of 1.5 (without pile reinforcement).

The lateral passive pressure should be assumed below a plane having a static factor of safety of 1.5 without the pile reinforcing. All piles should be extended at least 5 feet below the slip plane (Seismic F.S.=1.0) having a factor of safety of unity without the pile reinforcing. Such planes are shown on the enclosed Geologic Cross Sections B-B’ and C-C’.

It is noted that, if the magnitude of the lateral loads can not be taken by cantilevered system, the “shear pins” should be laterally connected with grade beams or 8-inch thick slabs to create “moment frame” conditions for higher degree of stiffness.

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. 1, or wish to discuss the project further, please do not hesitate to call us.

Respectfully Submitted,

APPLIED EARTH SCIENCES

Arsham "Marshall" Hayrikian
Staff Engineer

Caro J. Minas, President
Geotechnical Engineer
GE 601



Shant Minas
Engineering Geologist
EG 2607



AH/CJM/SM/la

Enclosure: Engineering Calculations
Drawing No. 1 - Area Geologic Map
Drawing No. 2 - Geotechnical Site Plan
Drawing No. 3 Through 5 - Cross Sections A-A' Through C-C'
Boring Logs, B-1 through B-6, Figures Nos. I-1.1 through I-6.2
Direct Shear Test Results - Figure No. II-1A
Direct Shear Test Results - Figure No. II-1B
LADBS Review Letter dated May 10, 2017 (Log # 97819)

PDF Only-
Review Letter By The Geotechnical Engineering Group Of The Department of Public Works Of The City of Los Angeles, dated 5/19/2017
Supplement No. A Report, Dated 6/13/2018

Distribution: (3)

Section	Wall #	Wall Height (Ft.)	Bedding	At-Rest (PCF)	Seismic (PCF)	Active		Reference
						Temporary (PCF)	Permanent (PCF)	
A-A'	1	45	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 1, CALC SHEET No. 3
B-B'	2	45	Along	78	30	35	45	CALC SHEET No. 2, TABLE No. 2, CALC SHEET No. 4
C-C'	3	25	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 3, CALC SHEET No. 3
C-C'	4	40	Cross	53	30	30	35	CALC SHEET No. 1, TABLE No. 4, CALC SHEET No. 3

WALL PRESSURES SUMMARY

FOR: 6900 Kentucky Drive | DATE: 8/1/2018 | PROJECT NO.: 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

SUMMARY No. 1

Cross Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 35 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 35^\circ$$

$$K_o = 1 - 0.57$$

$$K_o = 0.43$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.43 * 125$$

$$\gamma_o = 53.3$$

At-Rest Equivalent Fluid Density, γ_o = 53 PCF

AT-REST LATERAL EARTH PRESSURE

Sec A-A' - Wall #1, Sec C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

Along Bedding Strength Parameters

Saturated Unit Weight = γs = 125 pcf

Value of Friction Angle = ϕ = 22 °

$$K_o = 1 - \sin(\phi)$$

$$K_o = 1 - \sin 22^\circ$$

$$K_o = 1 - 0.37$$

$$K_o = 0.63$$

$$\gamma_o = K_o * \gamma$$

$$\gamma_o = 0.63 * 125$$

$$\gamma_o = 78.2$$

At-Rest Equivalent Fluid Density, γ_o = 78 PCF

AT-REST LATERAL EARTH PRESSURE

Sec B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

Cross Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section A-A' - Wall #1, Section C-C' - Wall #3 & #4

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 3**

Along Bedding Strength Parameters

* FIGURE 2 of Naval Facilities Engineering Command

Saturated Unit Weight γ= 125 PCF

Height of Wall H= 45 Ft.

PGA_M= 0.937

$$P_{AE} = \frac{3}{8}\gamma H^2(K_h) \quad \text{*7.2-78}$$

$$K_h = \frac{\frac{2}{3} * PGA_M}{2}$$

K_h= 2/3 * 0.937 / 2

K_h= 0.31

P_{AE} = 3/8 * 125 * 2025 * 0.31

P_{AE} = 29647 lb.

Equivelent Fliud Pressure (EFP)

$$EFP = (\frac{2xP_{AE}}{H^2})$$

EFP= 2 * 29647 / 2025

EFP= **29.28 PCF**

SEISMIC LATERAL EARTH PRESSURE

Section B-B' - Wall #2

FOR: 3900 Kentucky Drive	**DATE:** 8/1/18	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**CALC SHEET NO. 4**

FILL STRENGTHS

Saturated Unit Weight	γ_s	113	pcf
Cohesion	C	190	psf
Friction Angle	ϕ	29	^{o}
Slope Angle	α	35	^{o}
Depth of Soil	d	3	ft
Unit Weight of Water	γ_w	62.4	pcf

$$F.S. = \frac{[C + (\gamma_S - \gamma_W) * d * cos^2\alpha * \tan\varphi]}{\gamma_S * d * sin\alpha * cos\alpha}$$

F.S. = 190 + 56.46 / 159.28

F.S. = 1.55 > 1.5 **O.K.**

SURFICIAL SLOPE STABILITY CALCULATIONS

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	527.1	65.9	50.73	62.5	27.1	9.9	8.0
					27.1	17.8	

F.S. = ∑ RF / ∑ DF = 17.85 / 27.11 = 0.66

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 27.11 = 17.85 + UBF

UBF = 33.88 - 17.85 = 16.04 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 15.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

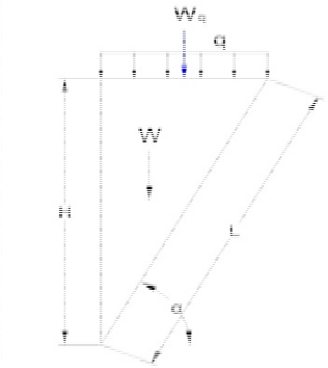
1.5 * 27.11 = 17.85 + UBF

UBF = 40.66 - 17.85 = 22.82 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 22.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION A-A' - Wall #1

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 1

Along Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 250 psf

ϕ = 22 °

Height of Wall

H= 45 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	2506.0	313.3	120.13	22	108.9	108.9	27.8
					108.9	136.8	

F.S. = ∑ RF / ∑ DF = 136.75 / 108.91 = 1.26

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 108.91 = 136.75 + UBF

UBF = 136.13 - 136.75 = -0.62 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = -0.6 pcf

Therefore use Recommended value of 35 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

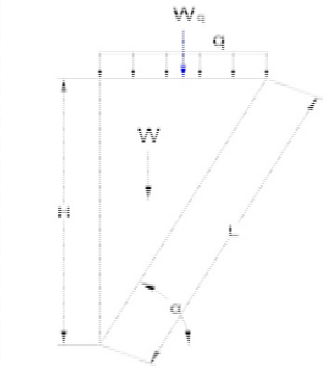
1.5 * 108.91 = 136.75 + UBF

UBF = 163.36 - 136.75 = 26.61 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 26.3 pcf

Therefore use Recommended value of 45 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION B-B' - Wall #2

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 2

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 25 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	162.7	20.3	28.18	62.5	8.5	3.1	4.4
					8.5	7.5	

F.S. = ∑ RF / ∑ DF = 7.51 / 8.45 = 0.89

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 8.45 = 7.51 + UBF

UBF = 10.56 - 7.51 = 3.06 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 9.8 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

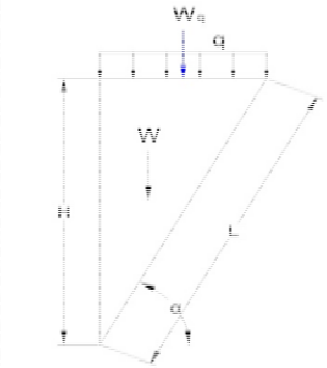
1.5 * 8.45 = 7.51 + UBF

UBF = 12.68 - 7.51 = 5.17 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 16.5 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

SECTION C-C' - Wall #3

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 3

Cross Bedding Strength Parameters

Saturated Unit Weight γ = 125 pcf

C = 340 psf

ϕ = 35 °

Height of Wall

H= 40 ft

Weight of Surcharge Load on Wedge

W_q= 0.3 K

					Driving Force	*Resisting Force*	
SECTION	**A (sf)**	**W (K)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	416.5	52.1	45.10	62.5	21.4	7.8	7.1
					21.4	14.9	

F.S. = ∑ RF / ∑ DF = 14.90 / 21.44 = 0.69

FOR FACTOR OF SAFETY = 1.25 (TEMPORARY)

1.25 (DF) = (RF) + UBF

1.25 * 21.44 = 14.90 + UBF

UBF = 26.81 - 14.90 = 11.91 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 14.9 pcf

Therefore use Recommended value of 30 pcf

FOR FACTOR OF SAFETY = 1.5 (PERMANENT)

1.5 (DF) = (RF) + UBF

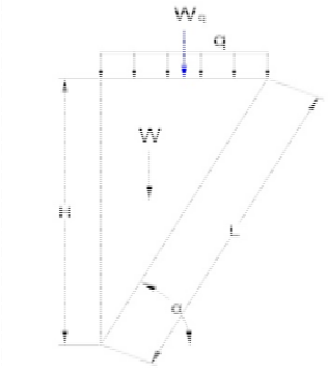
1.5 * 21.44 = 14.90 + UBF

UBF = 32.17 - 14.90 = 17.27 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 21.6 pcf

Therefore use Recommended value of 35 pcf



LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM

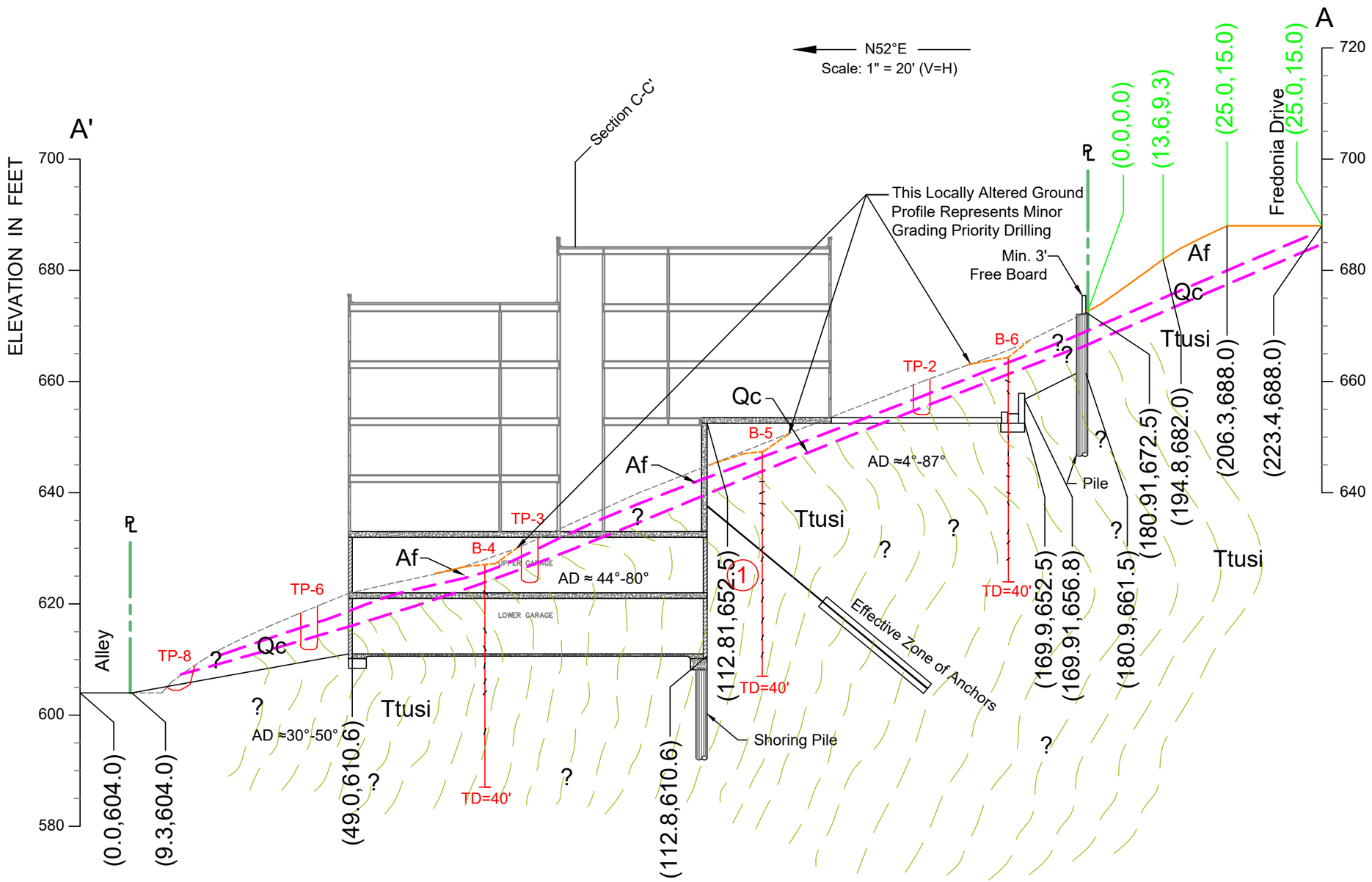
SECTION C-C' - Wall #4

FOR: 3900 Kentucky Drive | **DATE:** 8/1/18 | **PROJECT NO.:** 16-379-22

APPLIED EARTH SCIENCES

GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

TABLE No. 4



Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018)
- TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 03 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		SHEET No:	1
		SUPP. No:	1

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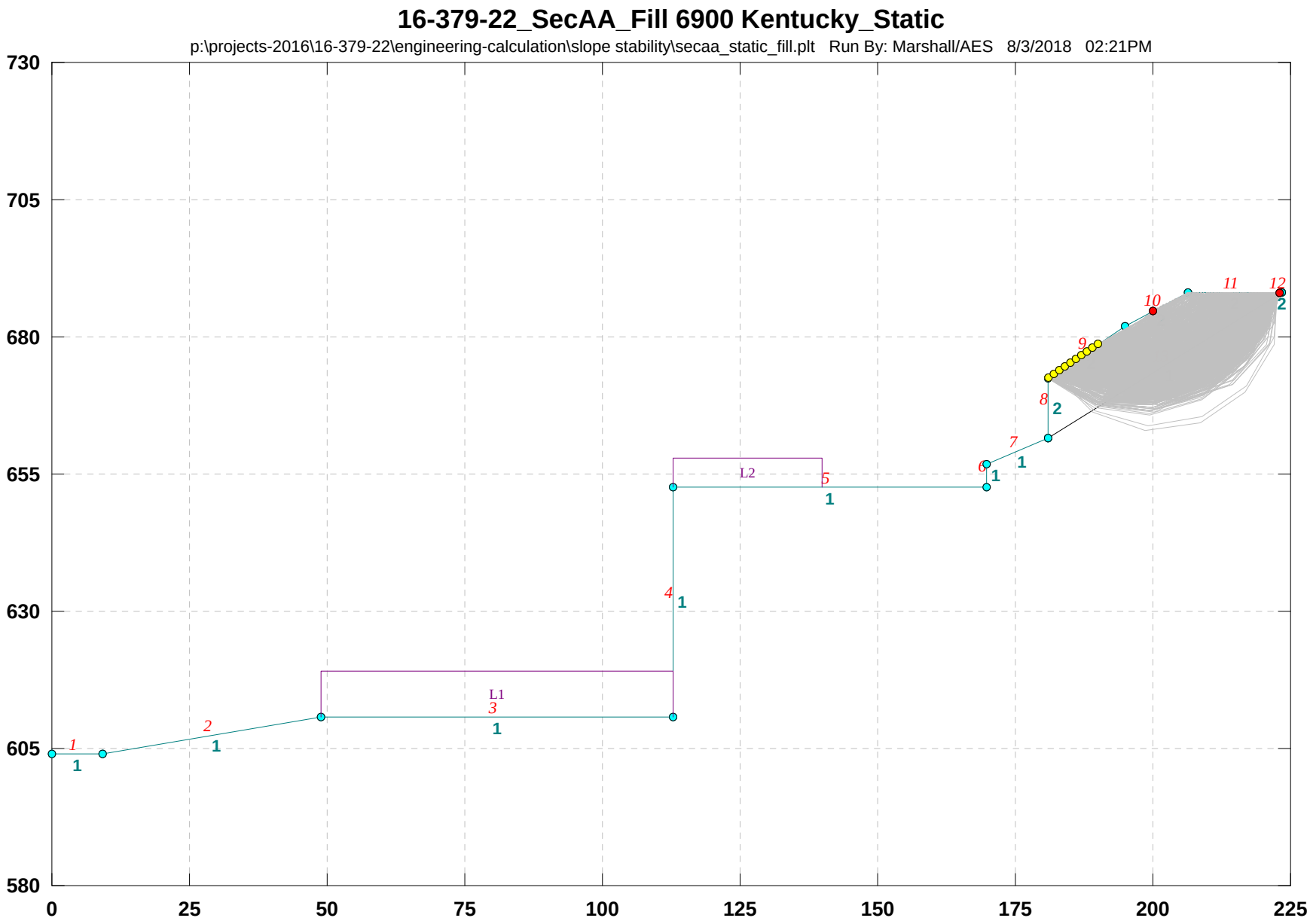
16-379-22_SecAA_Fill 6900 Kentucky_Static
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655
630
605
580
0
25
50
75
100
125
150
175
200
225
L1
L2
1
2
3
4
5
6
7
8
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11
12

16-379-22_SecAA_Fill 6900 Kentucky_Static

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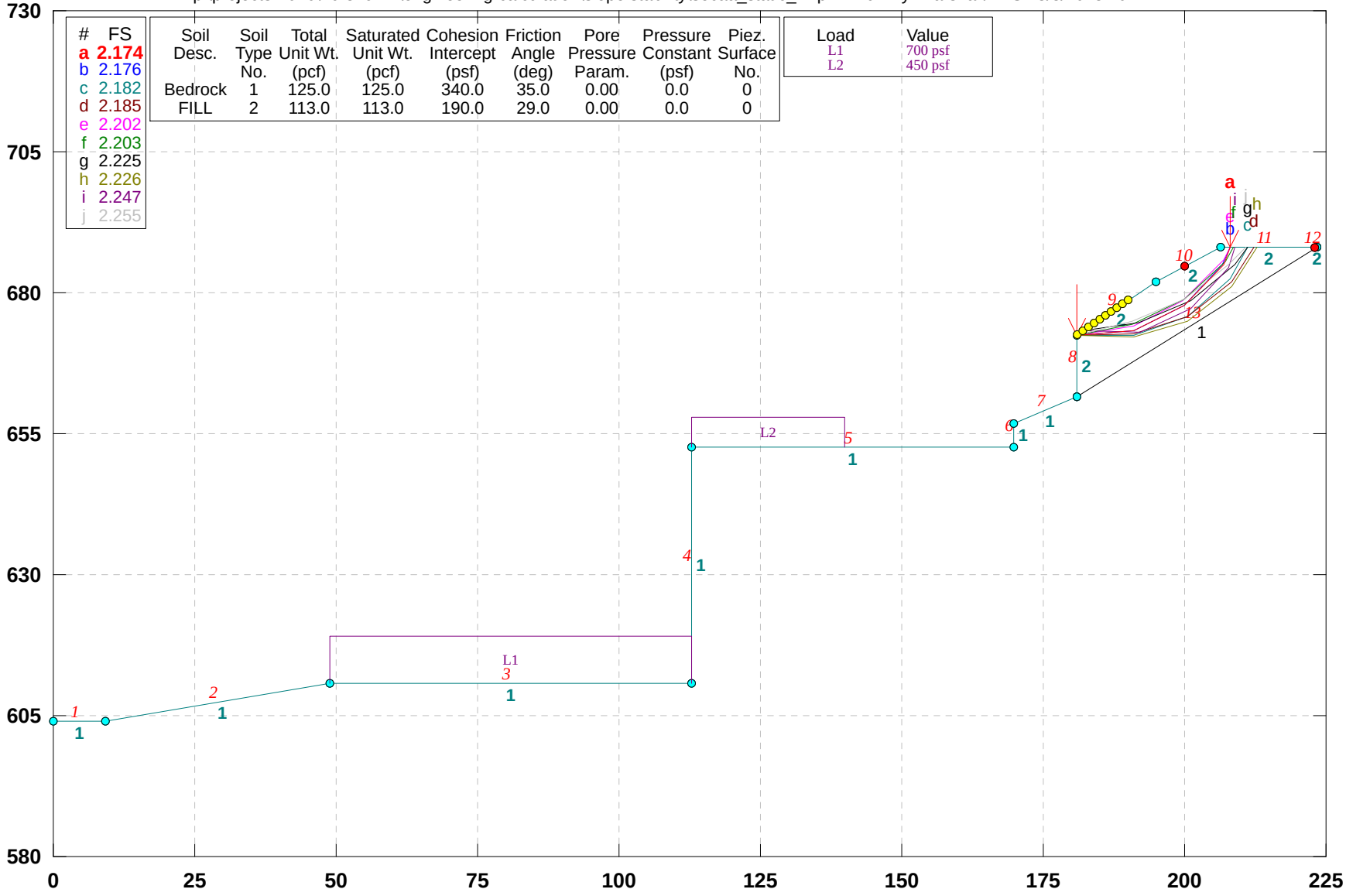

GSTABL7 v.2 FSmin=2.174

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

Analysis Run Date: 8/3/2018
Time of Run: 02:21PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Static

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	**X-Left (ft)**	**X-Right (ft)**	**Intensity (psf)**	**Deflection (deg)**
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)
and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.360 FS Min = 2.174 FS Ave = 3.913
Standard Deviation = 1.209 Coefficient of Variation = 30.90 %
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.966	673.380
3	199.973	677.724
4	206.817	685.015
5	208.031	688.000

Circle Center At X = 183.783 ; Y = 699.780 ; and Radius = 27.360
Factor of Safety
*** 2.174 ***
Individual data on the 6 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	10.0	3377.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	3.8	2765.8	0.0	0.0	0.	0.	0.0	0.0	0.0
3	5.2	4017.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	6.3	3757.2	0.0	0.0	0.	0.	0.0	0.0	0.0
5	0.5	190.6	0.0	0.0	0.	0.	0.0	0.0	0.0
6	1.2	204.7	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.970	673.332
3	199.975	677.682
4	206.776	685.013
5	207.952	688.000

Circle Center At X = 183.942 ; Y = 699.377 ; and Radius = 26.976
Factor of Safety
*** 2.176 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.486
3	200.399	675.901
4	208.018	682.377
5	211.166	688.000

Circle Center At X = 186.209 ; Y = 700.316 ; and Radius = 28.239
Factor of Safety
*** 2.182 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 2.185 ***
Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562

```
    2        190.884      674.080
    3        199.791      678.625
    4        206.821      685.738
    5        207.941      688.000
Circle Center At X =   181.230 ; Y =   703.997 ; and Radius =    31.437
       Factor of Safety
      ***    2.202   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.844      674.319
    3        199.814      678.741
    4        207.202      685.479
    5        208.748      688.000
Circle Center At X =   179.717 ; Y =   708.196 ; and Radius =    35.658
       Factor of Safety
      ***    2.203   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.895      674.691
    3        201.056      678.701
    4        208.831      684.989
    5        210.996      688.000
Circle Center At X =   181.576 ; Y =   710.740 ; and Radius =    37.497
       Factor of Safety
      ***    2.225   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    2.226   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.999      673.103
    3        201.166      677.099
    4        207.866      684.522
    5        208.976      688.000
Circle Center At X =   187.330 ; Y =   696.324 ; and Radius =    23.686
       Factor of Safety
      ***    2.247   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.740      674.826
    3        199.832      678.991
    4        207.908      684.887
    5        210.745      688.000
Circle Center At X =   174.644 ; Y =   721.971 ; and Radius =    49.816
       Factor of Safety
      ***    2.255   ***
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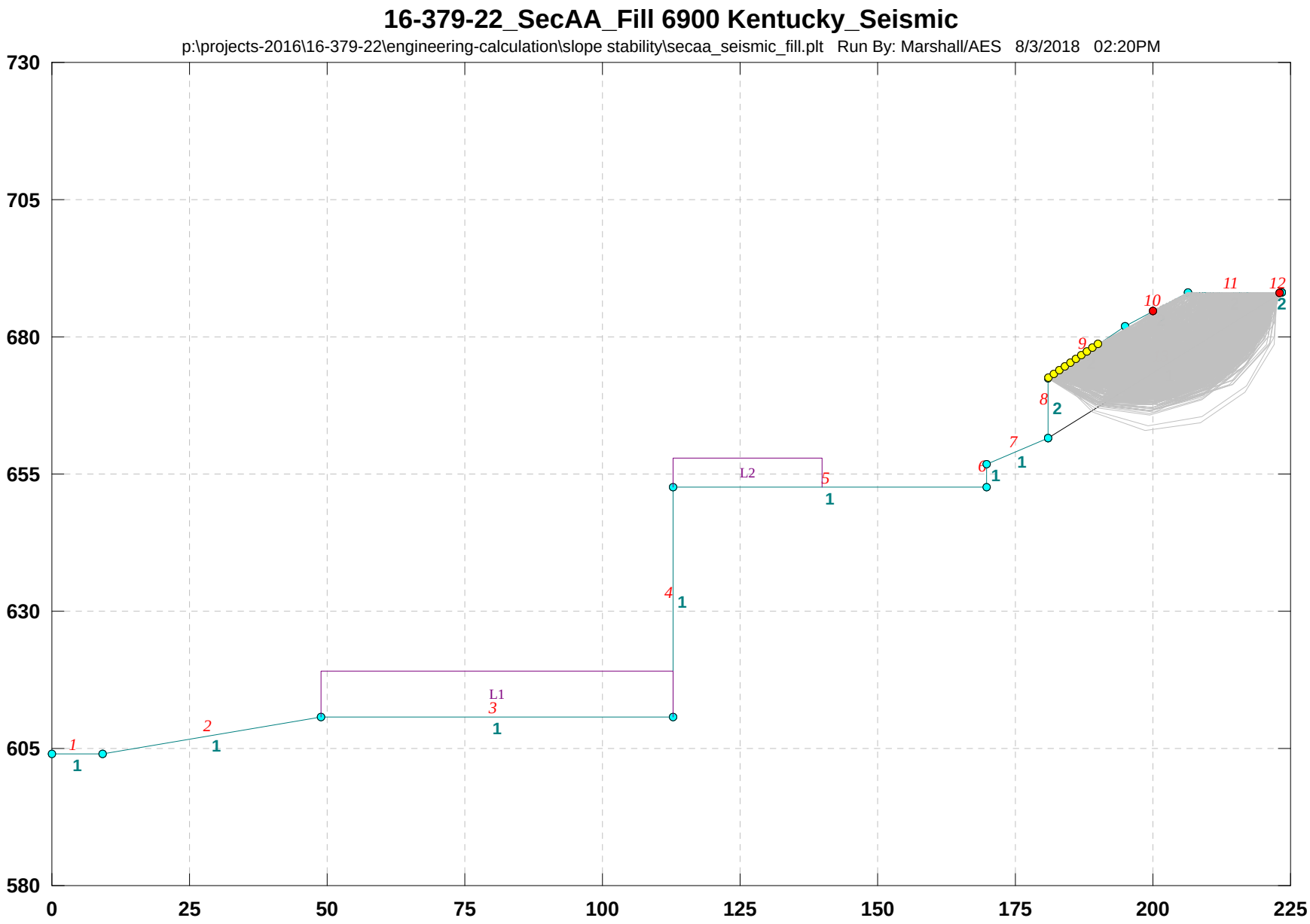
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16-379-22_SecAA_Fill 6900 Kentucky_Seismic

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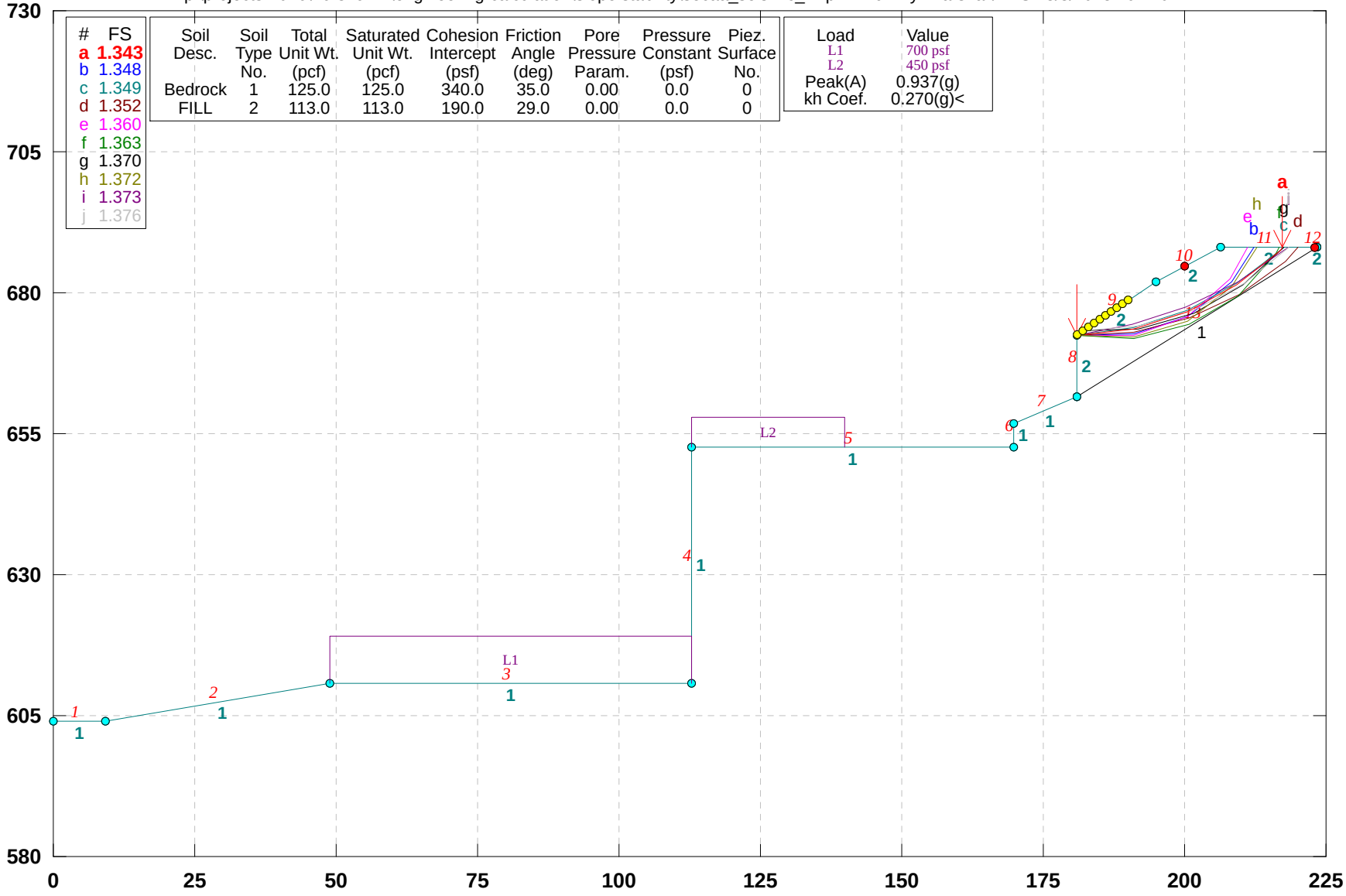

GSTABL7 v.2 FSmin=1.343

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/3/2018
Time of Run: 02:20PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.in
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Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secaa_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_SecAA_Fill
6900 Kentucky_Seismic

BOUNDARY COORDINATES
12 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	604.00	9.30	604.00	1
2	9.30	604.00	49.00	610.60	1
3	49.00	610.60	112.80	610.60	1
4	112.80	610.60	112.81	652.50	1
5	112.81	652.50	169.90	652.50	1
6	169.90	652.50	169.91	656.80	1
7	169.91	656.80	180.90	661.50	1
8	180.90	661.50	180.91	672.50	2
9	180.91	672.50	194.80	682.00	2
10	194.80	682.00	206.30	688.00	2
11	206.30	688.00	223.40	688.00	2
12	223.40	688.00	223.41	688.01	2
13	180.90	661.50	223.40	688.00	1

User Specified Y-Origin = 580.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	340.0	35.0	0.00	0.0	0
2	113.0	113.0	190.0	29.0	0.00	0.0	0

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	49.00	112.70	700.0	0.0
2	112.82	140.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 181.00(ft)

and X = 190.00(ft)
Each Surface Terminates Between X = 200.00(ft)
and X = 223.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 7.645 FS Min = 1.343 FS Ave = 2.230
Standard Deviation = 0.696 Coefficient of Variation = 31.23 %
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.936	673.689
3	200.484	676.661
4	209.305	681.372
5	217.085	687.655
6	217.377	688.000

Circle Center At X = 180.074 ; Y = 725.320 ; and Radius = 52.766
Factor of Safety
*** 1.343 ***
Individual data on the 7 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	9.9	3182.3	0.0	0.0	0.	0.	859.2	0.0	0.0
2	3.9	2789.3	0.0	0.0	0.	0.	753.1	0.0	0.0
3	5.7	4950.4	0.0	0.0	0.	0.	1336.6	0.0	0.0
4	5.8	5434.1	0.0	0.0	0.	0.	1467.2	0.0	0.0
5	3.0	2523.3	0.0	0.0	0.	0.	681.3	0.0	0.0
6	7.8	3065.1	0.0	0.0	0.	0.	827.6	0.0	0.0
7	0.3	5.7	0.0	0.0	0.	0.	1.5	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	191.000	672.580
3	200.456	675.834
4	208.350	681.973
5	212.301	688.000

Circle Center At X = 185.944 ; Y = 702.640 ; and Radius = 30.482
Factor of Safety
*** 1.348 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.913	673.877
3	200.444	676.904
4	209.299	681.550
5	217.207	687.671
6	217.505	688.000

Circle Center At X = 178.552 ; Y = 729.229 ; and Radius = 56.720
Factor of Safety
*** 1.349 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	181.000	672.562
2	190.988	673.060
3	200.693	675.469
4	209.755	679.699
5	217.834	685.591

```
    6        220.067      688.000
Circle Center At X =   183.591 ; Y =   723.154 ; and Radius =    50.659
       Factor of Safety
      ***    1.352   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        191.000      672.486
    3        200.399      675.901
    4        208.018      682.377
    5        211.166      688.000
Circle Center At X =   186.209 ; Y =   700.316 ; and Radius =    28.239
       Factor of Safety
      ***    1.360   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.984      672.005
    3        200.701      674.371
    4        209.311      679.456
    5        216.074      686.822
    6        216.641      688.000
Circle Center At X =   187.912 ; Y =   705.464 ; and Radius =    33.621
       Factor of Safety
      ***    1.363   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.992      673.657
    3        201.610      676.392
    4        210.322      681.301
    5        217.527      688.000
Circle Center At X =   185.261 ; Y =   715.597 ; and Radius =    42.476
       Factor of Safety
      ***    1.370   ***
Failure Surface Specified By  5 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.986      672.036
    3        200.529      675.025
    4        208.431      681.153
    5        212.677      688.000
Circle Center At X =   187.453 ; Y =   700.045 ; and Radius =    28.231
       Factor of Safety
      ***    1.372   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        181.000      672.562
    2        190.849      674.295
    3        200.356      677.394
    4        209.335      681.797
    5        217.607      687.416
    6        218.249      688.000
Circle Center At X =   173.794 ; Y =   742.605 ; and Radius =    70.413
       Factor of Safety
      ***    1.373   ***
Failure Surface Specified By  6 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        182.000      673.245
    2        191.963      674.105
    3        201.564      676.903
    4        210.428      681.531
    5        218.212      687.809
    6        218.371      688.000
```

```
Circle Center At X =   182.673 ; Y =   723.791 ; and Radius =    50.550
       Factor of Safety
      ***    1.376   ***
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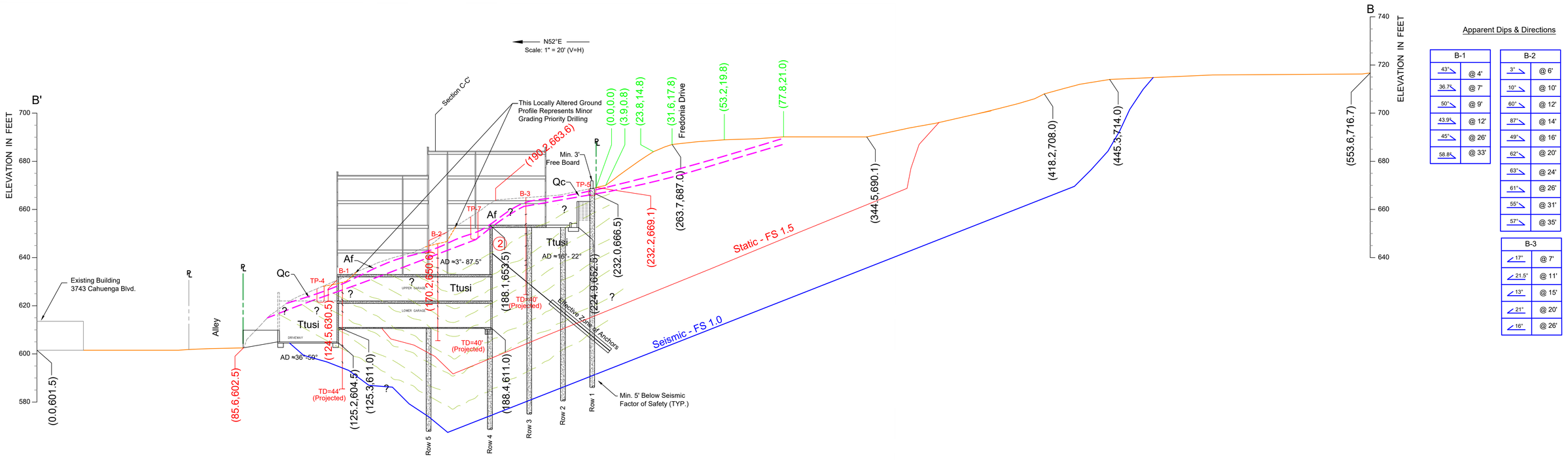

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

SLOPE STABILITY ANALYSIS SECTION B-B'

PROJECT No:	16-379-22
DESCRIPTION: Proposed 7-Story Condominium Building Complex	DATE: 08 / 03 / 2018
FOR: 3900 Kentucky LLC	DRAWN BY: VM & TG
ADDRESS: 3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY: SM
SHEET No: 2	SUPP. No: 1

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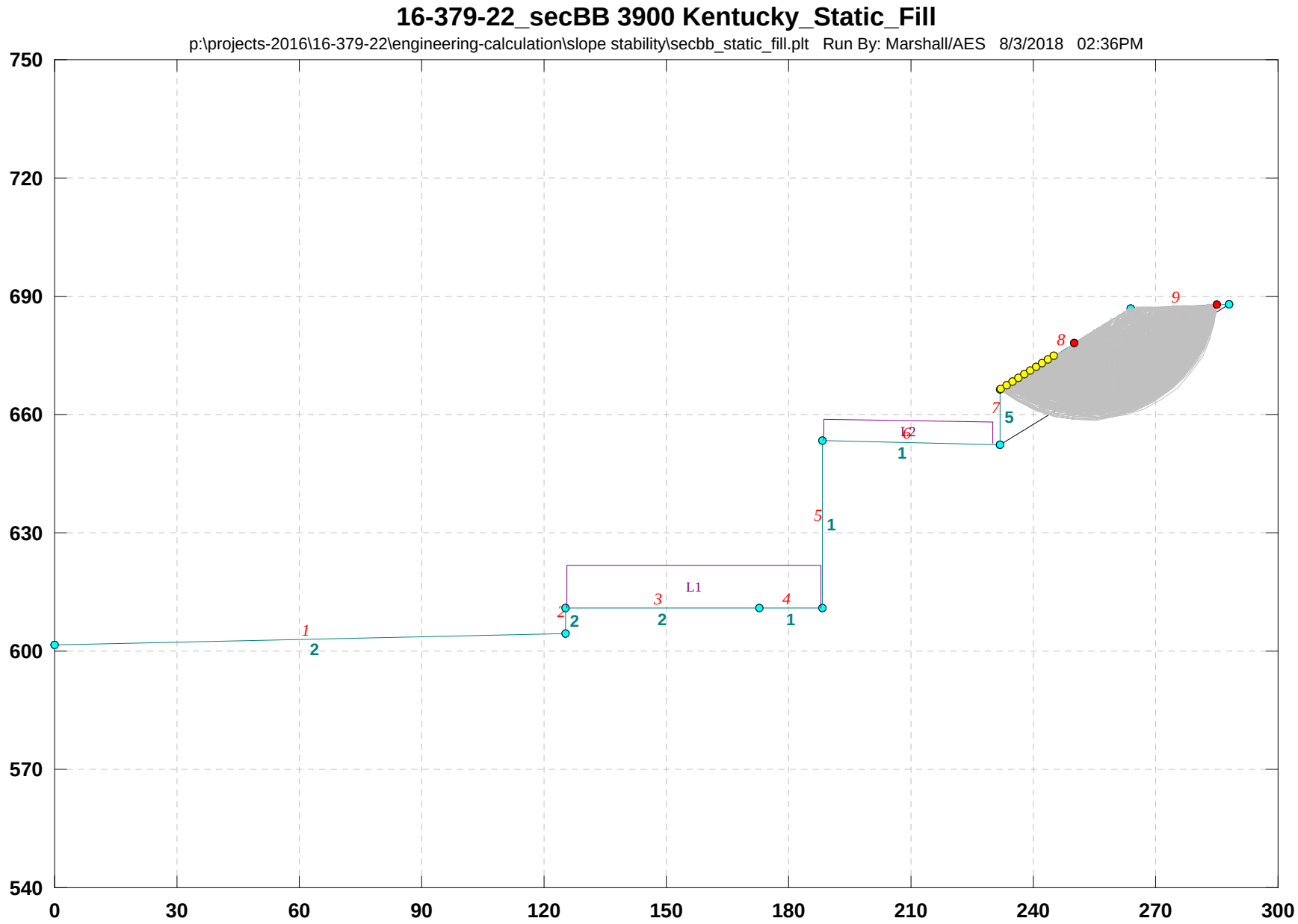
16-379-22_secBB 3900 Kentucky_Static_Fill
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750
720
690
660
630
600
570
540
0
30
60
90
120
150
180
210
240
270
300
L1
L2
1
2
3
4
5
6
7
8
9

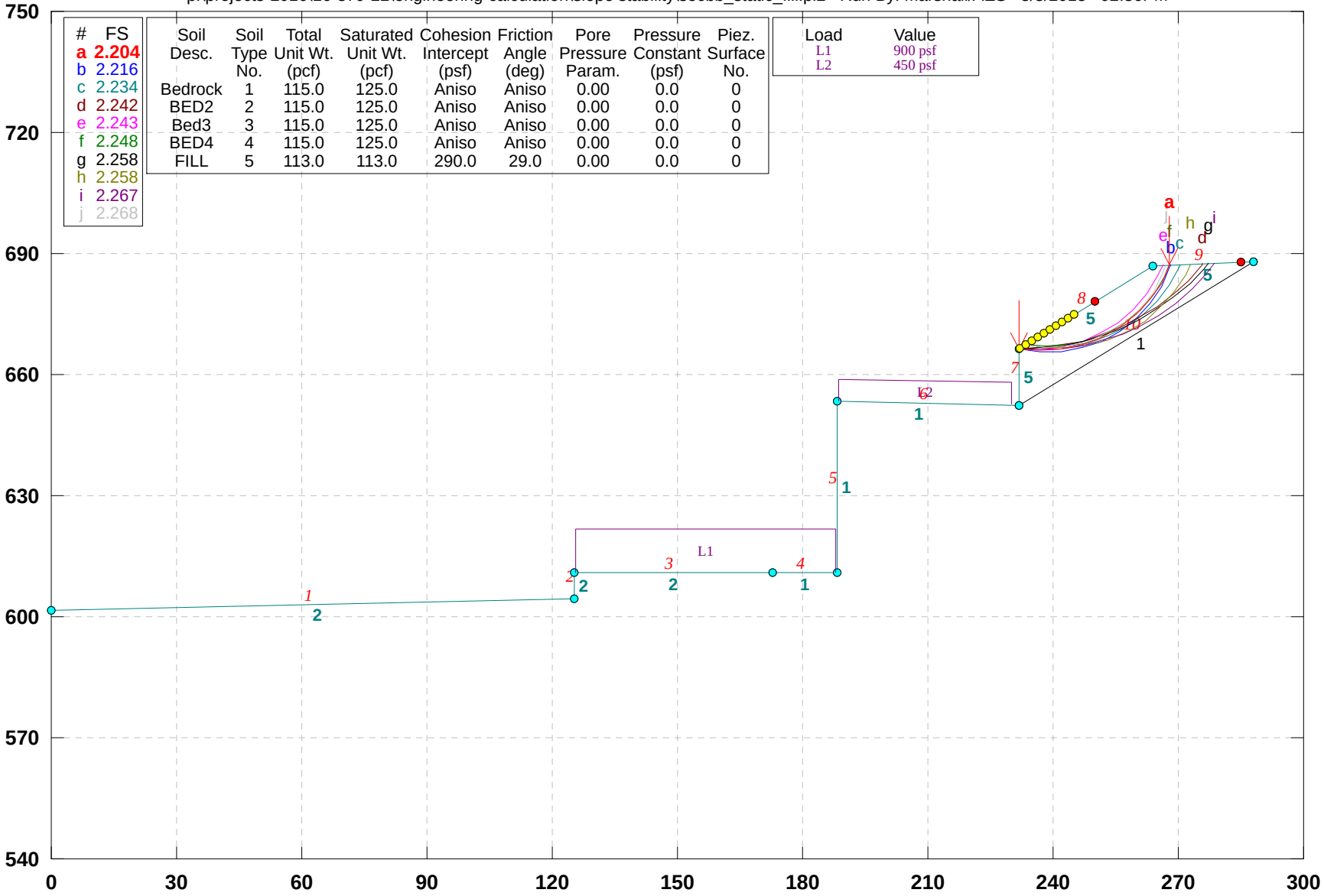
16-379-22_secBB 3900 Kentucky_Static_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\secbb_static_fill.pl2 Run By: Marshall/AES 8/3/2018 02:36PM

#	FS
a	2.204
b	2.216
c	2.234
d	2.242
e	2.243
f	2.248
g	2.258
h	2.258
i	2.267
j	2.268

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf



GSTABL7 v.2 FSmin=2.204

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/3/2018
Time of Run: 02:36PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_static_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_Fill

BOUNDARY COORDINATES
9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00

2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
   (1) An input value of 0.01 for C and/or Phi will cause Aniso
       C and/or Phi to be ignored in that range.
   (2) An input value of 0.02 for Phi will set both Phi and
       C equal to zero, with no water weight in the tension crack.
   (3) An input value of 0.03 for Phi will set both Phi and
       C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
    2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
       Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
 100 Surface(s) Initiate(s) From Each Of   10 Points Equally Spaced
Along The Ground Surface Between X = 232.01(ft)
                            and X = 245.00(ft)
Each Surface Terminates Between   X = 250.00(ft)
                            and   X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y =   0.00(ft)
 5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
      Failure Surfaces Evaluated. They Are
      Ordered - Most Critical First.
      * * Safety Factors Are Calculated By The Modified Bishop Method * *
      Total Number of Trial Surfaces Attempted = 1000
      Number of Trial Surfaces With Valid FS = 1000
      Statistical Data On All Valid FS Values:
         FS Max = 17.133   FS Min =   2.204   FS Ave =   3.631
         Standard Deviation =   1.507   Coefficient of Variation =   41.50 %
      Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	232.010	666.500
2	236.990	666.051
3	241.980	666.367
4	246.863	667.442
5	251.524	669.251
6	255.855	671.750
7	259.753	674.881
8	263.127	678.571
9	265.898	682.733
10	267.956	687.175

Circle Center At X = 237.427 ; Y = 698.668 ; and Radius = 32.621

Factor of Safety

*** 2.204 ***

Individual data on the 10 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	1032.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	5.0	2890.6	0.0	0.0	0.	0.	0.0	0.0	0.0
3	4.9	4206.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	4.7	4882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
5	4.3	4905.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	3.9	4347.7	0.0	0.0	0.	0.	0.0	0.0	0.0
7	3.4	3359.6	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.6	506.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	2.2	1480.6	0.0	0.0	0.	0.	0.0	0.0	0.0
10	2.1	506.8	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.949	665.719
3	241.948	665.762
4	246.873	666.629
5	251.587	668.294
6	255.963	670.714
7	259.880	673.822
8	263.231	677.532
9	265.926	681.744
10	267.889	686.342
11	268.093	687.181

Circle Center At X = 239.188 ; Y = 695.882 ; and Radius = 30.246

Factor of Safety

*** 2.216 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.836
3	243.415	666.992
4	248.333	667.896
5	253.059	669.529
6	257.486	671.852
7	261.513	674.815
8	265.051	678.349
9	268.017	682.374
10	270.344	686.799
11	270.511	687.280

Circle Center At X = 239.889 ; Y = 699.996 ; and Radius = 33.192

Factor of Safety

*** 2.234 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834

6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 2.242 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.295
3	241.975	666.851
4	246.801	668.157
5	251.373	670.181
6	255.584	672.877
7	259.337	676.181
8	262.543	680.018
9	265.129	684.297
10	266.287	687.106

Circle Center At X = 235.890 ; Y = 698.858 ; and Radius = 32.590

Factor of Safety

*** 2.243 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.431	666.966
3	243.420	667.299
4	248.292	668.425
5	252.922	670.313
6	257.190	672.917
7	260.989	676.168
8	264.219	679.985
9	266.799	684.268
10	267.966	687.176

Circle Center At X = 238.882 ; Y = 697.982 ; and Radius = 31.027

Factor of Safety

*** 2.248 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372

8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 2.258 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691

Factor of Safety

*** 2.267 ***

Failure Surface Specified By 10 Coordinate Points

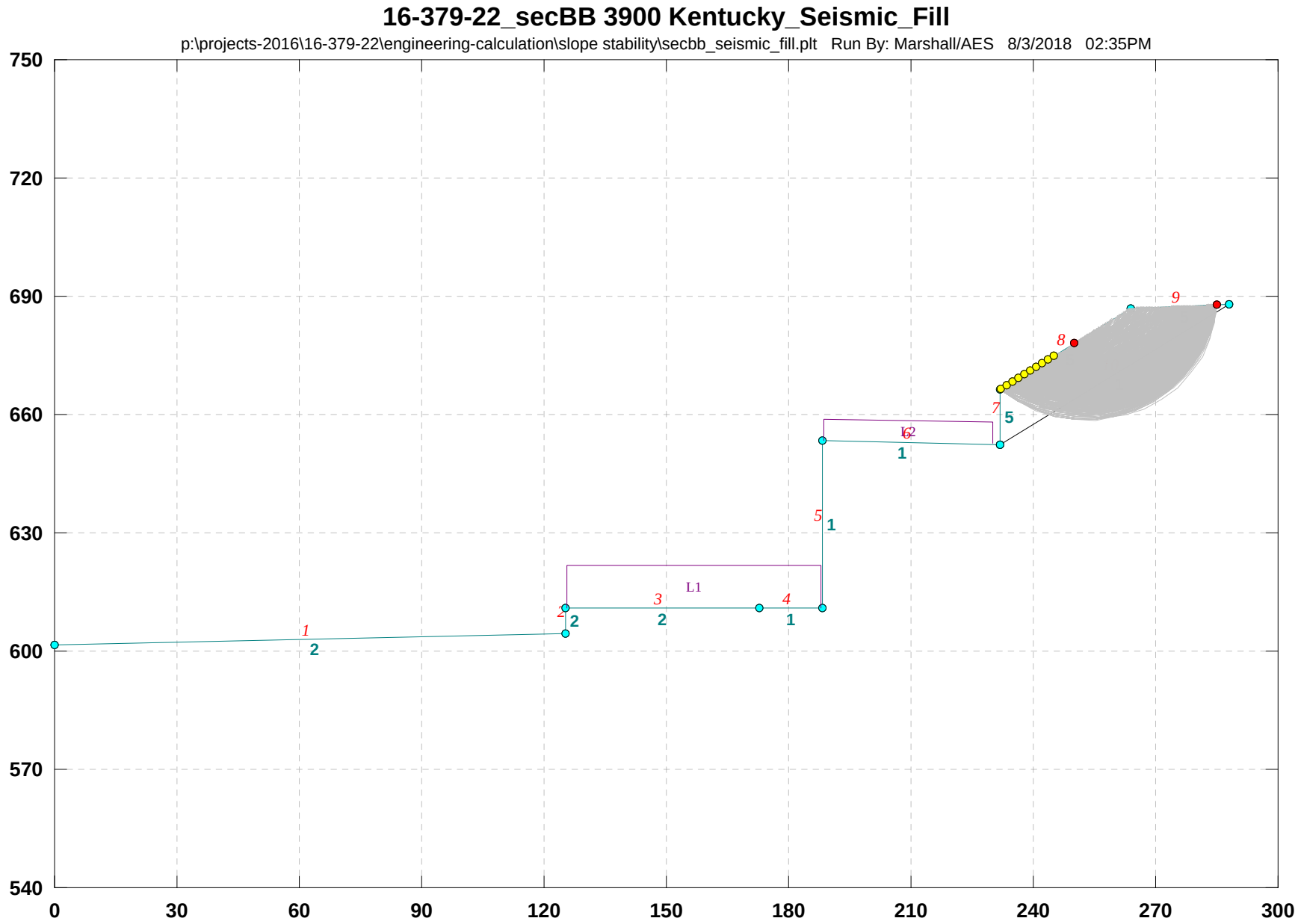
Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.418	666.839
3	243.411	667.102
4	248.286	668.214
5	252.899	670.143
6	257.114	672.832
7	260.808	676.201
8	263.872	680.153
9	266.216	684.570
10	267.056	687.138

Circle Center At X = 239.417 ; Y = 695.768 ; and Radius = 28.955

Factor of Safety

*** 2.268 ***

**** END OF GSTABL7 OUTPUT ****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750
720
690
660
630
600
570
540
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30
60
90
120
150
180
210
240
270
300
L1
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4
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6
7
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9

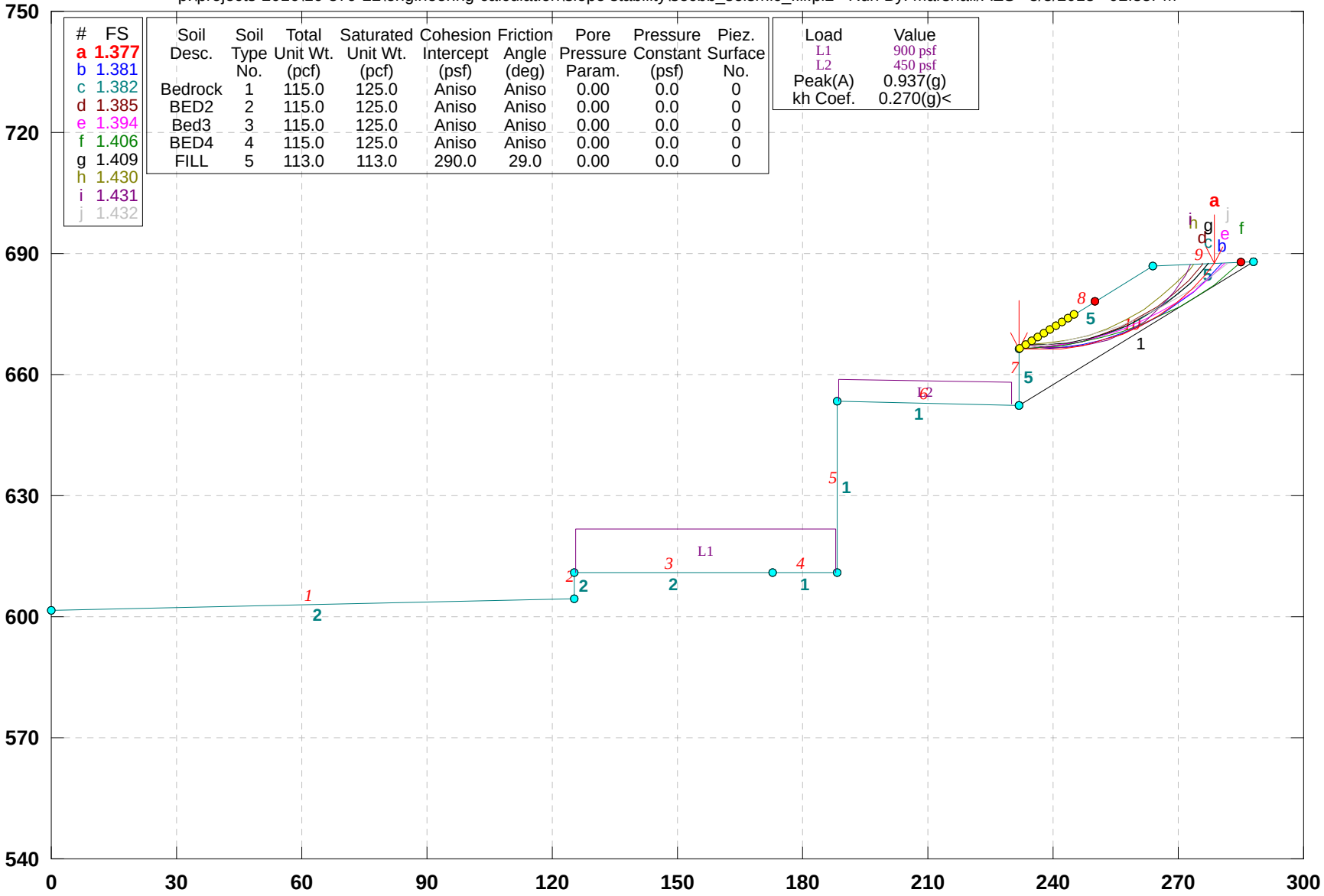
16-379-22_secBB 3900 Kentucky_Seismic_Fill

p:\projects-2016\16-379-22\engineering-calculation\slope stability\secbb_seismic_fill.pl2 Run By: Marshall/AES 8/3/2018 02:35PM

#	FS
a	1.377
b	1.381
c	1.382
d	1.385
e	1.394
f	1.406
g	1.409
h	1.430
i	1.431
j	1.432

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0
FILL	5	113.0	113.0	290.0	29.0	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.377

Safety Factors Are Calculated By The Modified Bishop Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

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Analysis Run Date: 8/3/2018
Time of Run: 02:35PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\secbb_seismic_fill.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_Fill
BOUNDARY COORDINATES

9 Top Boundaries
10 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	5
8	232.01	666.50	263.70	687.00	5
9	263.70	687.00	288.00	688.00	5
10	232.00	652.50	288.00	688.00	1

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0
5	113.0	113.0	290.0	29.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00

3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	**188.50**	**230.00**	**450.0**	**0.0**

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
1000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 232.01(ft)
and X = 245.00(ft)
Each Surface Terminates Between X = 250.00(ft)
and X = 285.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 1000
Number of Trial Surfaces With Valid FS = 1000
Statistical Data On All Valid FS Values:
FS Max = 11.973 FS Min = 1.377 FS Ave = 2.232
Standard Deviation = 1.072 Coefficient of Variation = 48.03 %
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.003	666.232
3	241.998	666.456
4	246.947	667.169
5	251.802	668.365
6	256.516	670.031
7	261.043	672.153
8	265.341	674.708
9	269.367	677.674
10	273.082	681.020
11	276.451	684.715
12	278.613	687.614

Circle Center At X = 237.252 ; Y = 716.919 ; and Radius = 50.691
Factor of Safety
*** 1.377 ***
Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	986.7	0.0	0.0	0.	0.	266.4	0.0	0.0

2	5.0	2822.9	0.0	0.0	0.	0.	762.2	0.0	0.0
3	4.9	4333.5	0.0	0.0	0.	0.	1170.0	0.0	0.0
4	4.9	5467.3	0.0	0.0	0.	0.	1476.2	0.0	0.0
5	4.7	6195.1	0.0	0.0	0.	0.	1672.7	0.0	0.0
6	4.5	6510.5	0.0	0.0	0.	0.	1757.8	0.0	0.0
7	2.7	3962.0	0.0	0.0	0.	0.	1069.7	0.0	0.0
8	1.6	2375.9	0.0	0.0	0.	0.	641.5	0.0	0.0
9	4.0	4985.7	0.0	0.0	0.	0.	1346.1	0.0	0.0
10	3.7	3343.0	0.0	0.0	0.	0.	902.6	0.0	0.0
11	3.4	1746.5	0.0	0.0	0.	0.	471.6	0.0	0.0
12	2.2	343.4	0.0	0.0	0.	0.	92.7	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.009	666.397
3	241.998	666.727
4	246.940	667.486
5	251.798	668.669
6	256.536	670.268
7	261.117	672.269
8	265.509	674.660
9	269.678	677.420
10	273.593	680.531
11	277.224	683.968
12	280.534	687.693

Circle Center At X = 235.698 ; Y = 724.204 ; and Radius = 57.821

Factor of Safety

*** 1.381 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.008	666.628
3	241.976	667.196
4	246.875	668.198
5	251.666	669.627
6	256.313	671.473
7	260.780	673.719
8	265.032	676.350
9	269.036	679.345
10	272.761	682.680
11	276.178	686.330
12	277.135	687.553

Circle Center At X = 233.099 ; Y = 723.054 ; and Radius = 56.565

Factor of Safety

*** 1.382 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.007	666.659
3	241.970	667.271
4	246.856	668.332
5	251.625	669.834
6	256.238	671.763
7	260.656	674.104
8	264.843	676.837
9	268.764	679.940
10	272.386	683.387
11	275.680	687.149
12	275.937	687.504

Circle Center At X = 232.789 ; Y = 721.307 ; and Radius = 54.812

Factor of Safety

*** 1.385 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.705

3	241.973	667.273
4	246.886	668.202
5	251.719	669.486
6	256.445	671.119
7	261.039	673.091
8	265.478	675.393
9	269.737	678.012
10	273.794	680.935
11	277.627	684.145
12	281.216	687.626
13	281.304	687.724

Circle Center At X = 231.698 ; Y = 735.096 ; and Radius = 68.596

Factor of Safety

*** 1.394 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	237.006	666.692
3	241.980	667.205
4	246.910	668.038
5	251.776	669.187
6	256.558	670.647
7	261.236	672.412
8	265.791	674.475
9	270.203	676.828
10	274.454	679.460
11	278.527	682.360
12	282.404	685.517
13	284.946	687.874

Circle Center At X = 231.537 ; Y = 744.034 ; and Radius = 77.535

Factor of Safety

*** 1.406 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.453	667.462
3	243.428	667.961
4	248.334	668.926
5	253.128	670.347
6	257.767	672.213
7	262.209	674.507
8	266.417	677.209
9	270.351	680.294
10	273.978	683.736
11	277.266	687.503
12	277.306	687.560

Circle Center At X = 235.651 ; Y = 720.483 ; and Radius = 53.095

Factor of Safety

*** 1.409 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	233.453	667.434
2	238.446	667.700
3	243.389	668.456
4	248.233	669.695
5	252.932	671.404
6	257.439	673.568
7	261.712	676.164
8	265.709	679.168
9	269.391	682.551
10	272.723	686.279
11	273.545	687.405

Circle Center At X = 233.249 ; Y = 718.195 ; and Radius = 50.762

Factor of Safety

*** 1.430 ***

Failure Surface Specified By 11 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	233.453	667.434
2	238.394	666.663
3	243.393	666.610
4	248.349	667.276
5	253.158	668.646
6	257.720	670.692
7	261.941	673.372
8	265.734	676.630
9	269.019	680.399
10	271.730	684.600
11	273.002	687.383

Circle Center At X = 241.261 ; Y = 701.281 ; and Radius = 34.736

Factor of Safety

*** 1.431 ***

Failure Surface Specified By 13 Coordinate Points

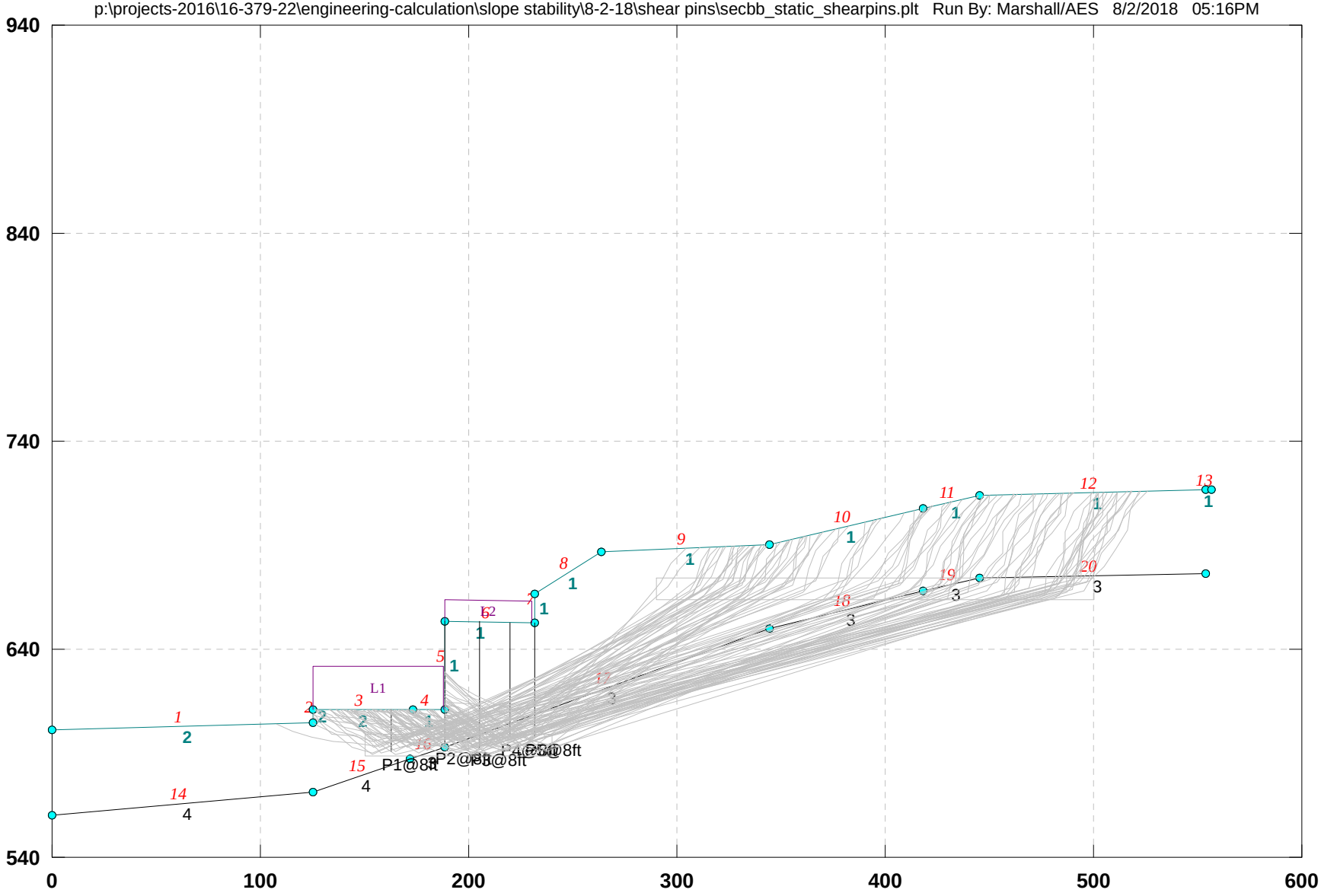
Point No.	X-Surf (ft)	Y-Surf (ft)
1	232.010	666.500
2	236.973	667.105
3	241.895	667.986
4	246.760	669.141
5	251.553	670.565
6	256.259	672.255
7	260.863	674.204
8	265.351	676.408
9	269.709	678.858
10	273.924	681.548
11	277.982	684.470
12	281.871	687.613
13	282.027	687.754

Circle Center At X = 223.660 ; Y = 755.651 ; and Radius = 89.541

Factor of Safety

*** 1.432 ***

**** END OF GSTABL7 OUTPUT ****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100
200
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400
500
600
L1
L2
P1@8ft
P2@8ft

16-379-22_secBB 3900 Kentucky_Static_ShearPins

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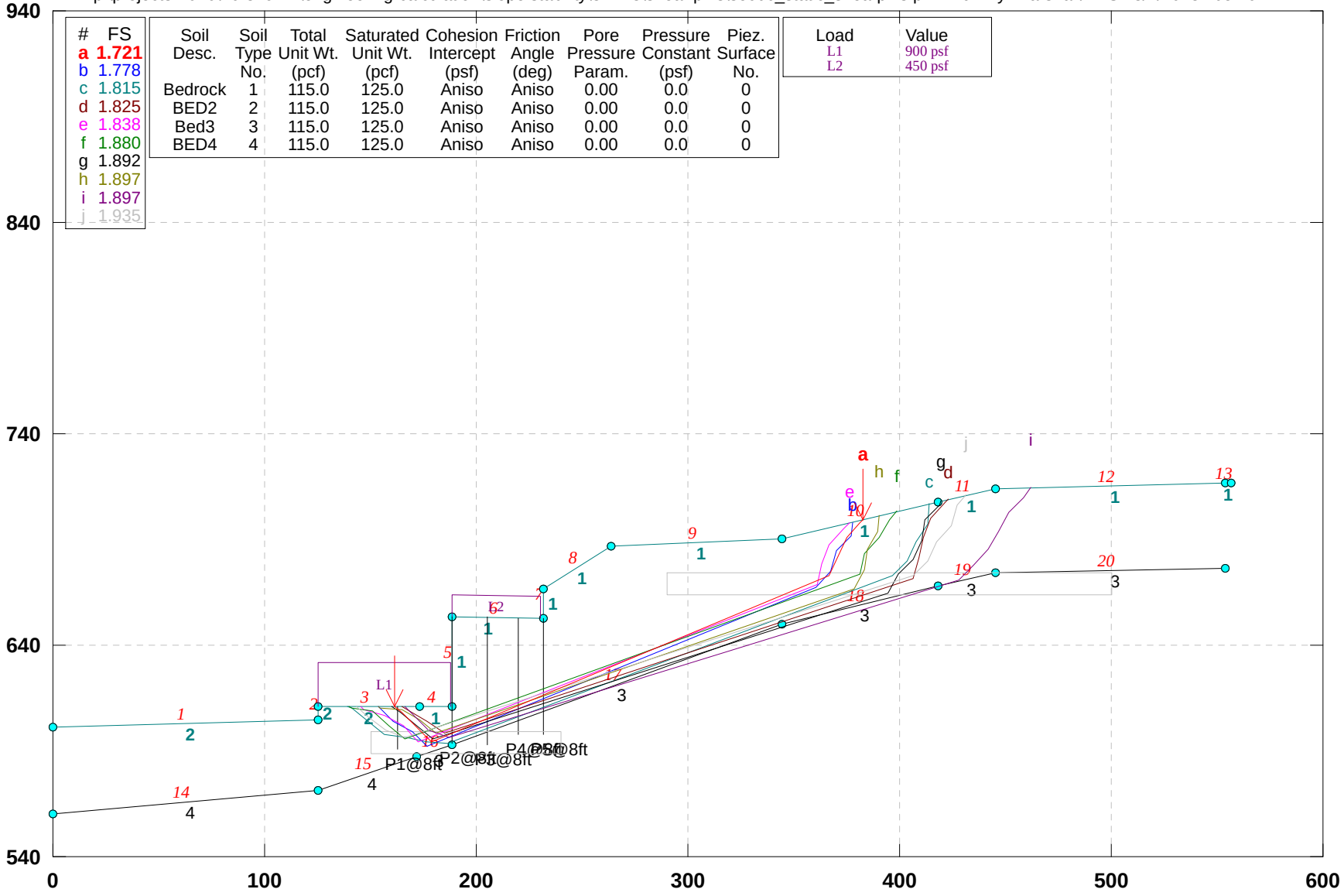

GSTABL7 v.2 FSmin=1.721

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:16PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\secbb_static_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile No.	X-Pos (ft)	Y-Pos (ft)	Load (lbs)	Spacing (ft)	Inclination (deg)	Length (ft)
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles Assuming A Uniform Distribution Of Load Horizontally Between Individual Piers/Piles.

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.786 FS Min = 1.721 FS Ave = 2.450
Standard Deviation = 0.413 Coefficient of Variation = 16.87 %
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.721 ***

Individual data on the 18 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.0	497.2	0.0	0.0	0.	0.	0.0	0.0	2666.3
2	7.1	5248.5	0.0	0.0	0.	0.	0.0	0.0	6364.4
3	1.2	1511.0	0.0	0.0	0.	0.	0.0	0.0	1115.5
4	5.9	9540.7	0.0	0.0	0.	0.	0.0	0.0	5290.8
5	9.2	15990.1	0.0	0.0	0.	0.	0.0	0.0	8299.2
6	0.4	600.8	0.0	0.0	0.	0.	0.0	0.0	0.0
7	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	41.5	220734.8	0.0	0.0	0.	0.	0.0	0.0	18675.0
10	2.0	8424.4	0.0	0.0	0.	0.	0.0	0.0	0.0
11	0.0	49.6	0.0	0.0	0.	0.	0.0	0.0	0.0
12	31.7	196007.4	0.0	0.0	0.	0.	0.0	0.0	0.0
13	80.8	390151.7	0.0	0.0	0.	0.	0.0	0.0	0.0
14	22.0	62306.1	0.0	0.0	0.	0.	0.0	0.0	0.0
15	4.6	9947.5	0.0	0.0	0.	0.	0.0	0.0	0.0
16	3.7	4503.6	0.0	0.0	0.	0.	0.0	0.0	0.0
17	6.9	2931.6	0.0	0.0	0.	0.	0.0	0.0	0.0
18	1.2	62.5	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

Factor of Safety
*** 1.778 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716
5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.815 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.825 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.838 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421
10	398.492	703.214

Factor of Safety
*** 1.880 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586

5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.892 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.897 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.935 ***

**** END OF GSTABL7 OUTPUT ****

16-379-22_secBB 3900 Kentucky_Seismic_ShearPins

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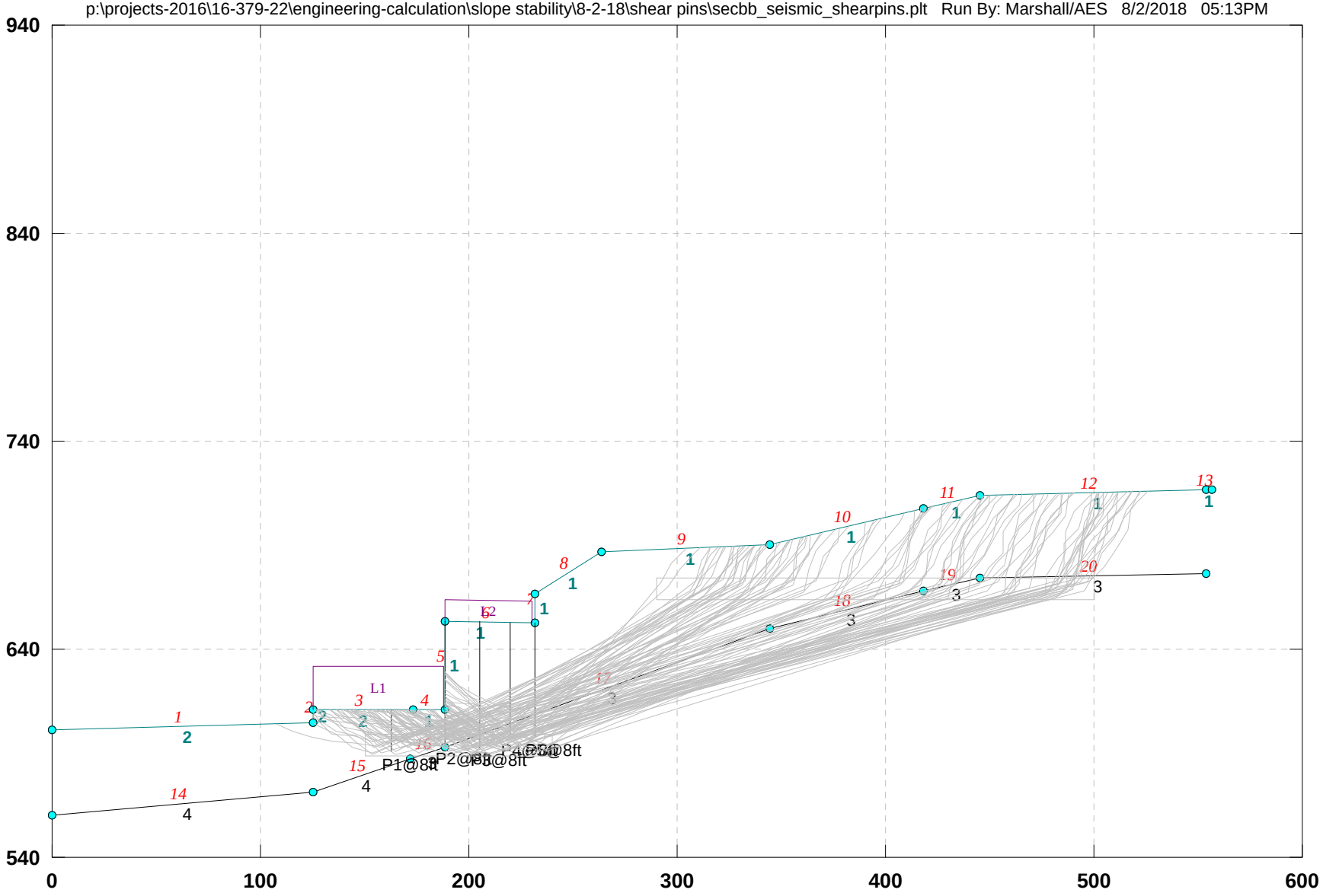

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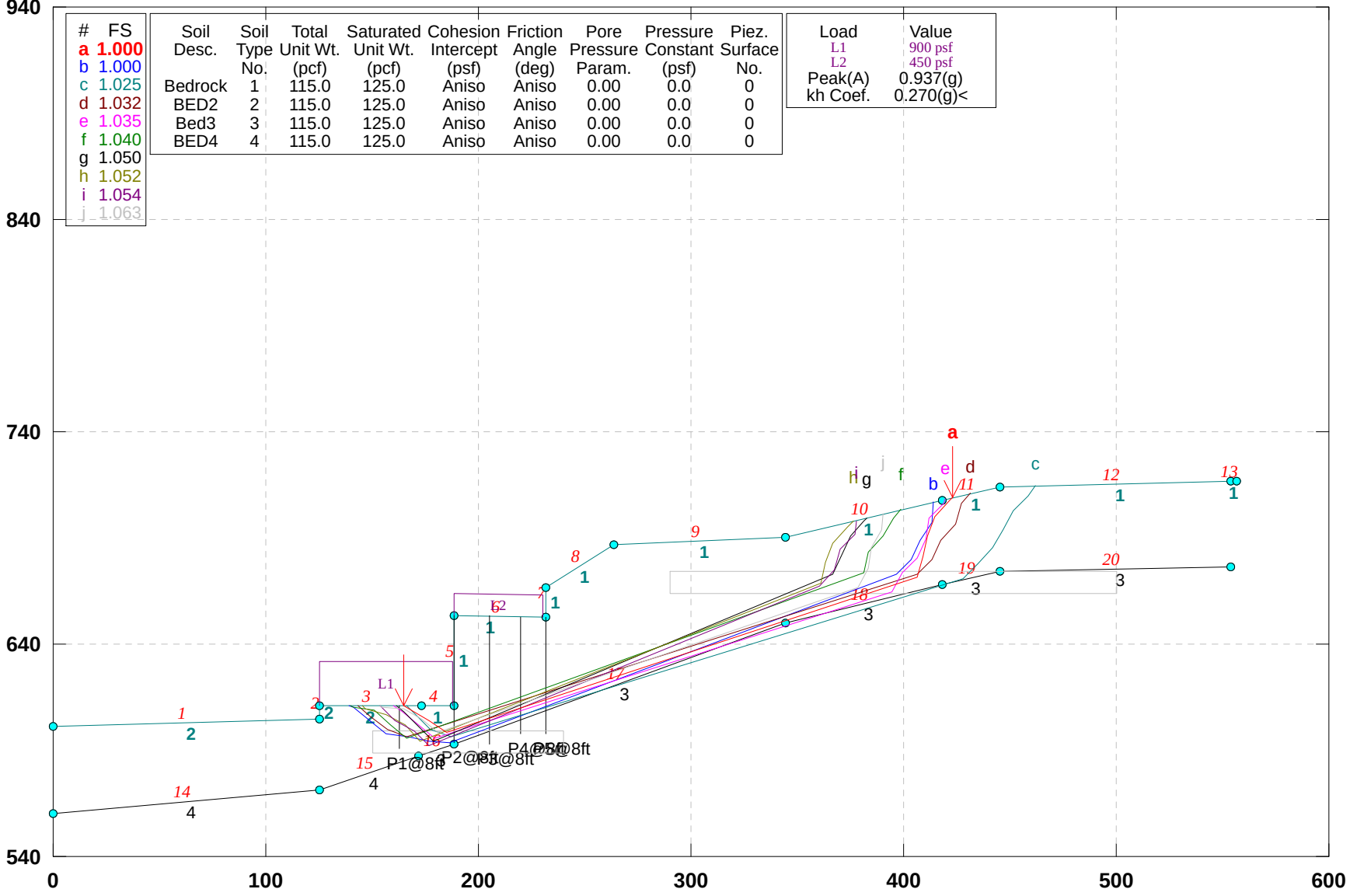
#	FS
a	1.000
b	1.000
c	1.025
d	1.032
e	1.035
f	1.040
g	1.050
h	1.052
i	1.054
j	1.063

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Bedrock	1	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED2	2	115.0	125.0	Aniso	Aniso	0.00	0.0	0
Bed3	3	115.0	125.0	Aniso	Aniso	0.00	0.0	0
BED4	4	115.0	125.0	Aniso	Aniso	0.00	0.0	0

Load	Value
L1	900 psf
L2	450 psf
Peak(A)	0.937(g)
kh Coef.	0.270(g)<



GSTABL7 v.2 FSmin=1.000

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:13PM
Run By: Marshall/AES
Input Data Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.in
Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\Shear Pins\SecBB_seismic_shearpins.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_ShearPins

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000

PIER/PILE LOAD(S)
5 Pier/Pile Load(s) Specified

Pier/Pile **No.**	X-Pos **(ft)**	Y-Pos **(ft)**	Load **(lbs)**	Spacing **(ft)**	Inclination **(deg)**	Length **(ft)**
1	162.70	611.00	100000.0	8.0	90.00	20.0
2	188.41	653.50	214000.0	8.0	90.00	60.0
3	205.00	653.12	214000.0	8.0	90.00	60.0
4	220.00	652.78	214000.0	8.0	90.00	55.0
5	232.00	652.50	214000.0	8.0	90.00	55.0

NOTE - An Equivalent Line Load Is Calculated For Each Row Of Piers/Piles
Assuming A Uniform Distribution Of Load Horizontally Between
Individual Piers/Piles.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Sliding Block Surfaces, Has Been
Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of
Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	594.00	240.00	594.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.100 FS Min = 1.000 FS Ave = 1.342
Standard Deviation = 0.261 Coefficient of Variation = 19.46 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	164.726	611.000
2	168.027	609.025
3	176.590	603.861
4	184.887	598.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.000 ***
Individual data on the 20 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.3	374.7	0.0	0.0	0.	0.	101.2	0.0	2970.7
2	4.9	1930.2	0.0	0.0	0.	0.	521.2	0.0	4386.0
3	3.7	2557.2	0.0	0.0	0.	0.	690.4	0.0	3320.7
4	8.3	9475.3	0.0	0.0	0.	0.	2558.3	0.0	7467.7
5	3.1	4369.5	0.0	0.0	0.	0.	1179.8	0.0	2801.6
6	0.4	534.7	0.0	0.0	0.	0.	144.4	0.0	0.0
7	0.0	37.7	0.0	0.0	0.	0.	10.2	0.0	0.0
8	0.1	559.4	0.0	0.0	0.	0.	151.0	0.0	0.0
9	41.5	222776.5	0.0	0.0	0.	0.	60149.7	0.0	18675.0
10	2.0	8965.7	0.0	0.0	0.	0.	2420.8	0.0	0.0
11	0.0	52.5	0.0	0.0	0.	0.	14.2	0.0	0.0
12	31.7	210023.8	0.0	0.0	0.	0.	56706.4	0.0	0.0
13	80.8	472165.6	0.0	0.0	0.	0.	*******	0.0	0.0
14	61.7	257249.4	0.0	0.0	0.	0.	69457.3	0.0	0.0
15	2.7	8949.6	0.0	0.0	0.	0.	2416.4	0.0	0.0
16	2.3	5303.6	0.0	0.0	0.	0.	1432.0	0.0	0.0
17	3.6	4599.2	0.0	0.0	0.	0.	1241.8	0.0	0.0
18	3.5	2210.6	0.0	0.0	0.	0.	596.9	0.0	0.0
19	3.4	1069.9	0.0	0.0	0.	0.	288.9	0.0	0.0
20	1.4	105.4	0.0	0.0	0.	0.	28.5	0.0	0.0

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.406	611.000
2	141.411	610.409
3	149.239	604.186
4	156.864	597.716

5	166.754	596.237
6	176.588	594.419
7	186.535	593.394
8	396.474	672.627
9	403.499	679.744
10	407.953	688.697
11	413.505	697.015
12	414.238	706.988
13	414.252	707.041

Factor of Safety
*** 1.000 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	166.039	611.000
2	170.346	606.912
3	177.487	599.912
4	186.931	596.621
5	427.748	670.894
6	434.731	678.052
7	441.675	685.248
8	446.711	693.888
9	451.268	702.789
10	458.327	709.872
11	462.111	714.419

Factor of Safety
*** 1.025 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	143.214	611.000
2	148.942	606.118
3	156.944	600.120
4	166.298	596.585
5	406.266	672.986
6	413.319	680.076
7	417.720	689.055
8	424.393	696.504
9	426.971	706.166
10	431.193	710.877

Factor of Safety
*** 1.032 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.797	611.000
2	164.110	608.083
3	171.839	601.737
4	179.724	595.586
5	394.526	664.703
6	399.339	673.468
7	406.410	680.539
8	410.730	689.558
9	412.078	699.467
10	419.075	706.611
11	419.279	708.239

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	139.954	611.000
2	141.066	610.027
3	150.982	608.735
4	158.539	602.185
5	166.276	595.850
6	381.196	673.638
7	383.648	683.333
8	390.282	690.816
9	395.376	699.421

10	398.492	703.214

Factor of Safety
*** 1.040 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.626	611.000
2	164.589	608.081
3	171.661	601.011
4	178.779	593.987
5	366.481	672.732
6	371.077	681.614
7	374.727	690.924
8	381.590	698.197
9	382.783	699.398

Factor of Safety
*** 1.050 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	145.314	611.000
2	147.092	609.238
3	156.707	606.489
4	165.439	601.616
5	172.516	594.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.052 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.802	611.000
2	160.909	604.042
3	169.540	598.993
4	176.933	592.259
5	360.534	667.488
6	367.353	674.802
7	370.176	684.396
8	376.925	691.774
9	378.078	698.255

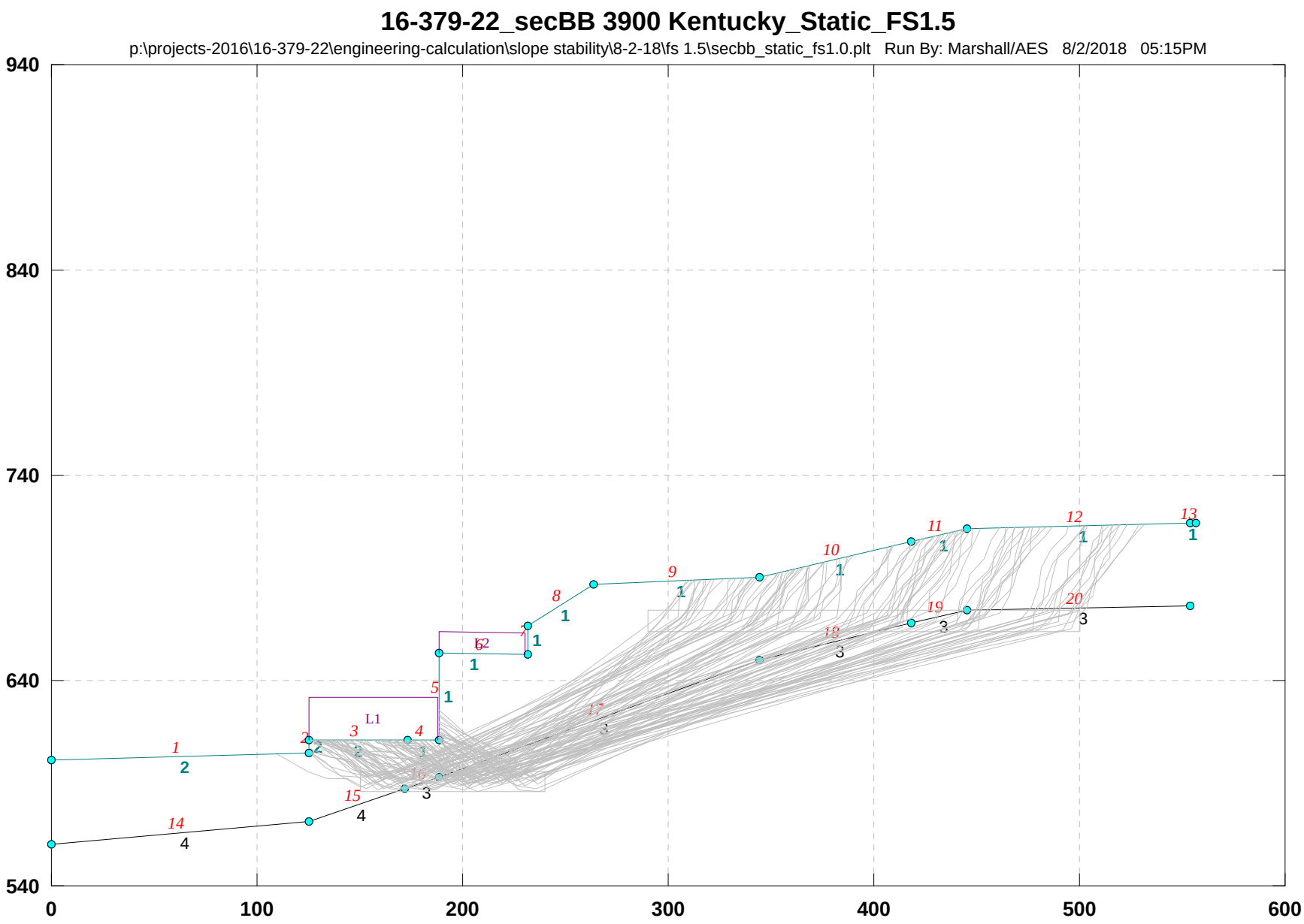
Factor of Safety
*** 1.054 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	153.785	611.000
2	154.587	610.205
3	164.564	609.534
4	173.148	604.404
5	180.998	598.208
6	378.632	666.895
7	383.447	675.659
8	384.441	685.610
9	389.741	694.089
10	390.015	701.155

Factor of Safety
*** 1.063 ***

**** END OF GSTABL7 OUTPUT ****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940
840
740
640
540
0
100
200
300
400
500
600
L1
L2

16-379-22_secBB 3900 Kentucky_Static_FS1.5

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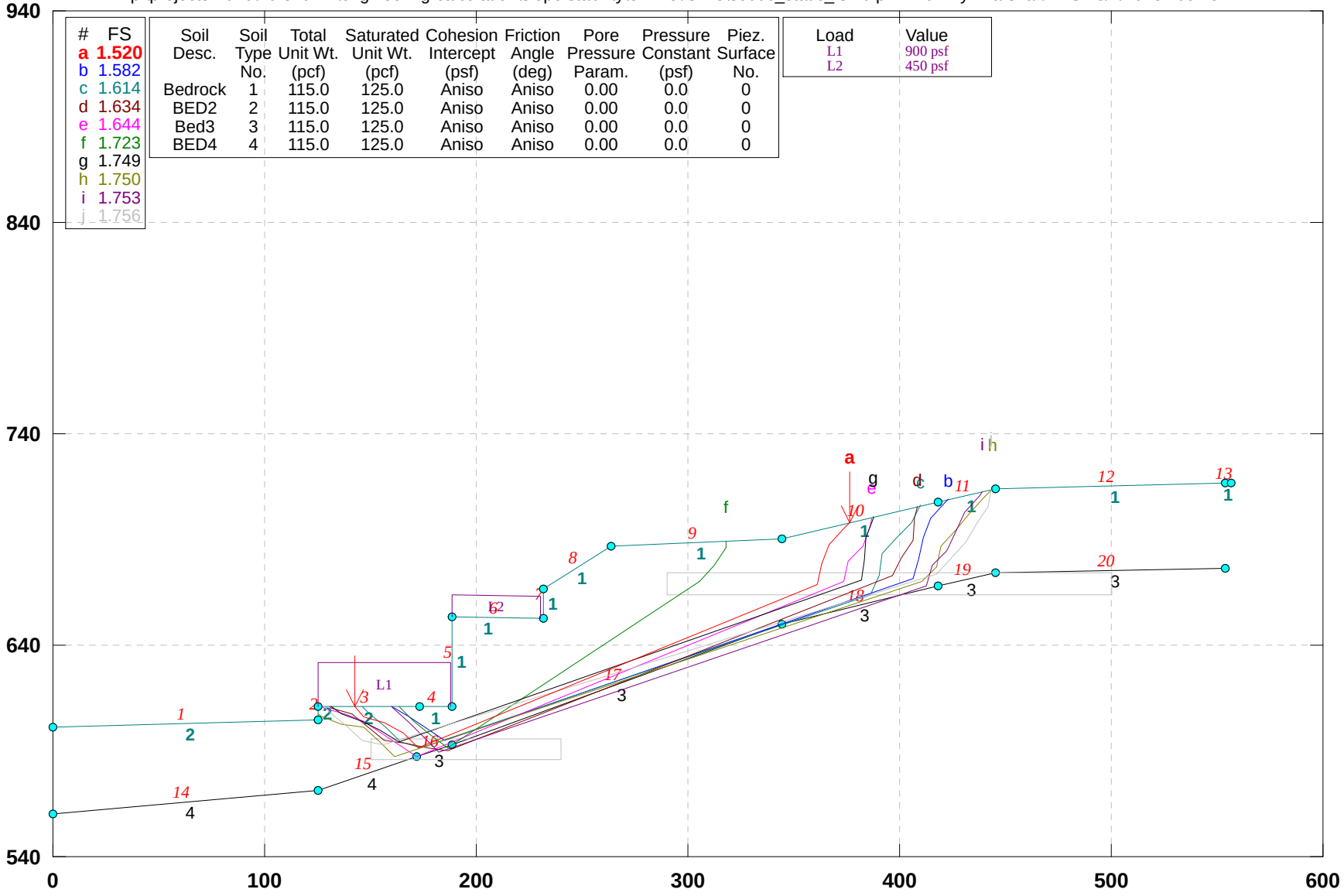

GSTABL7 v.2 FSmin=1.520

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **
** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **
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SLOPE STABILITY ANALYSIS SYSTEM
Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:15PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.5\SecBB_static_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Static_FS1.5

BOUNDARY COORDINATES
13 Top Boundaries
20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
4 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00

2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00
5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	591.00	240.00	591.00	10.00
2	290.00	669.00	500.00	669.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 3.458 FS Min = 1.520 FS Ave = 2.270
Standard Deviation = 0.414 Coefficient of Variation = 18.24 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	142.287	611.000
2	147.092	606.238
3	156.707	603.489
4	165.439	598.616
5	172.516	591.551
6	361.303	668.511
7	363.262	678.317
8	366.734	687.695
9	373.603	694.962
10	376.322	697.829

Factor of Safety
*** 1.520 ***

Individual data on the 19 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	4.8	1315.7	0.0	0.0	0.	0.	0.0	0.0	4324.3
2	9.6	6785.4	0.0	0.0	0.	0.	0.0	0.0	8653.3
3	8.7	9989.5	0.0	0.0	0.	0.	0.0	0.0	7859.0
4	7.1	12954.9	0.0	0.0	0.	0.	0.0	0.0	6369.9
5	0.4	854.3	0.0	0.0	0.	0.	0.0	0.0	345.2
6	15.1	28156.9	0.0	0.0	0.	0.	0.0	0.0	13590.0
7	0.4	600.5	0.0	0.0	0.	0.	0.0	0.0	0.0
8	0.0	39.4	0.0	0.0	0.	0.	0.0	0.0	0.0
9	0.1	574.0	0.0	0.0	0.	0.	0.0	0.0	0.0
10	41.5	221902.9	0.0	0.0	0.	0.	0.0	0.0	18675.0
11	2.0	8540.1	0.0	0.0	0.	0.	0.0	0.0	0.0
12	0.0	50.2	0.0	0.0	0.	0.	0.0	0.0	0.0
13	31.7	198568.5	0.0	0.0	0.	0.	0.0	0.0	0.0
14	80.8	402882.8	0.0	0.0	0.	0.	0.0	0.0	0.0
15	16.8	52278.6	0.0	0.0	0.	0.	0.0	0.0	0.0
16	2.0	4732.1	0.0	0.0	0.	0.	0.0	0.0	0.0
17	3.5	4819.7	0.0	0.0	0.	0.	0.0	0.0	0.0
18	6.9	3954.3	0.0	0.0	0.	0.	0.0	0.0	0.0
19	2.7	344.9	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.711	611.000
2	168.027	606.025
3	176.590	600.861
4	184.887	595.279
5	406.164	671.516
6	408.841	681.151
7	411.148	690.882
8	414.728	700.219
9	421.625	707.460
10	423.037	709.071

Factor of Safety
*** 1.582 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	146.093	611.000
2	149.678	607.679
3	157.270	601.169
4	164.351	594.109
5	174.011	591.522
6	386.118	664.185

7	390.376	673.233
8	391.946	683.109
9	398.353	690.787
10	405.286	697.994
11	410.129	706.040

Factor of Safety
*** 1.614 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.047	611.000
2	131.820	610.237
3	141.411	607.409
4	149.239	601.186
5	156.864	594.716
6	166.754	593.237
7	176.588	591.419
8	186.535	590.394
9	396.474	672.627
10	400.928	681.581
11	406.480	689.898
12	407.214	699.871
13	408.677	705.687

Factor of Safety
*** 1.634 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.155	611.000
2	127.933	610.249
3	137.490	607.305
4	146.980	604.152
5	155.097	598.311
6	163.378	592.706
7	171.791	587.301
8	373.967	670.022
9	375.909	679.832
10	382.915	686.967
11	385.871	696.521
12	386.677	700.344

Factor of Safety
*** 1.644 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	163.562	611.000
2	170.593	603.993
3	178.436	597.789
4	186.271	591.576
5	305.624	670.450
6	312.614	677.601
7	317.939	686.065
8	318.188	689.091

Factor of Safety
*** 1.723 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	131.534	611.000
2	136.581	607.824
3	145.812	603.978
4	154.798	599.590
5	163.332	594.378
6	381.708	670.987
7	383.569	680.812
8	384.405	690.777
9	387.540	700.273
10	387.873	700.634

Factor of Safety
*** 1.749 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.251	607.817
2	127.273	605.920
3	136.691	602.559
4	146.563	600.961
5	154.249	594.565
6	161.332	587.506
7	410.266	670.306
8	417.302	677.411
9	419.838	687.084
10	426.418	694.614
11	432.811	702.303
12	439.812	709.444
13	444.001	713.712

Factor of Safety
*** 1.750 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	159.818	611.000
2	160.716	610.113
3	168.072	603.338
4	175.144	596.269
5	182.316	589.300
6	412.880	667.784
7	415.253	677.498
8	422.126	684.762
9	426.329	693.836
10	430.640	702.859
11	437.476	710.156
12	438.822	712.566

Factor of Safety
*** 1.753 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.807	611.000
2	131.054	608.112
3	138.779	601.762
4	145.974	594.817
5	155.817	593.055
6	417.495	673.921
7	424.232	681.311
8	431.069	688.608
9	436.496	697.008
10	441.799	705.486
11	442.984	713.487

Factor of Safety
*** 1.756 ***

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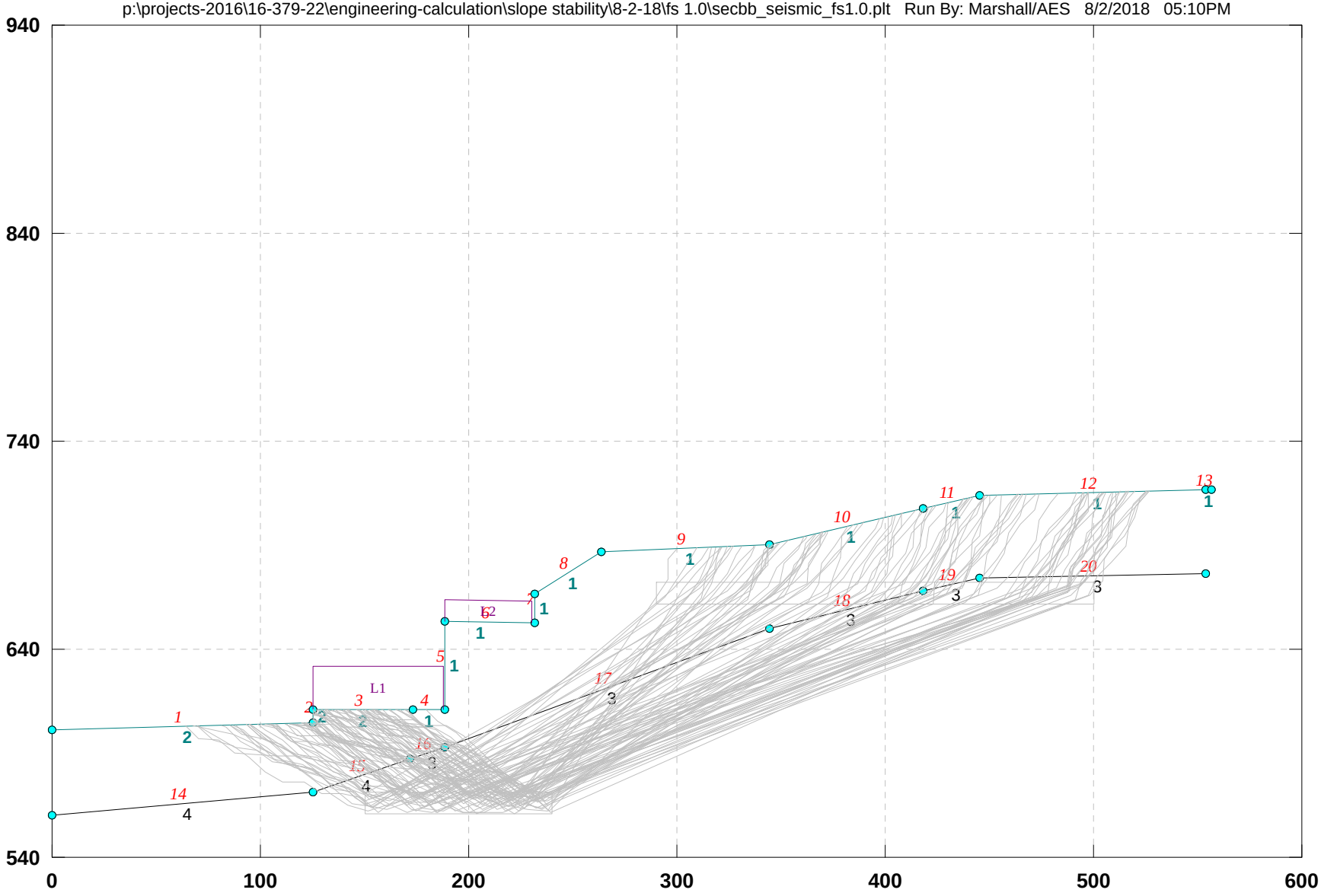
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L1
L2

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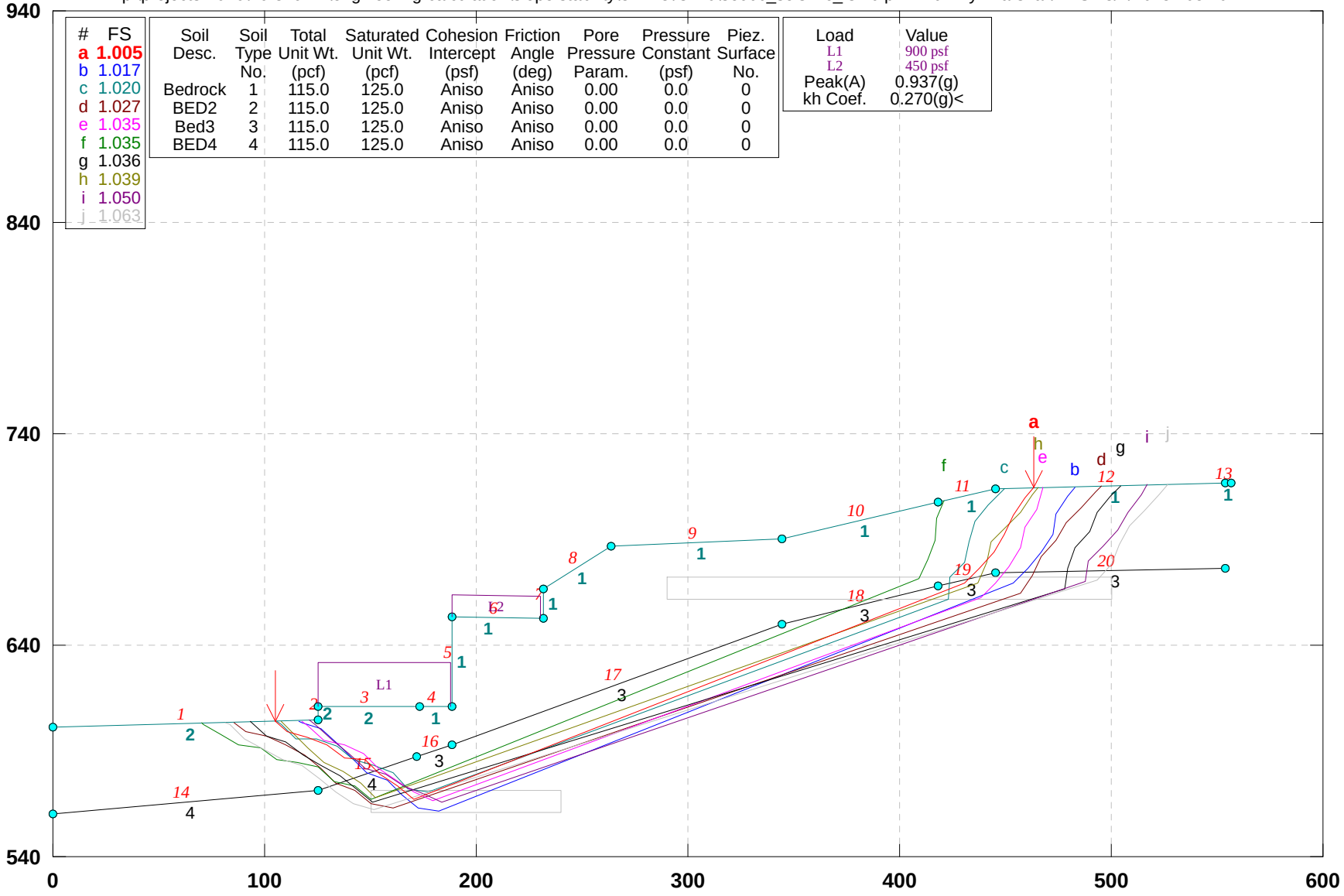

GSTABL7 v.2 FSmin=1.005

Safety Factors Are Calculated By The Simplified Janbu Method

***** GSTABL7 *****

** GSTABL7 by Dr. Garry H. Gregory, Ph.D.,P.E.,D.GE **

** Original Version 1.0, January 1996; Current Ver. 2.005.3, Feb. 2013 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 8/2/2018
Time of Run: 05:10PM
Run By: Marshall/AES
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Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.OUT
Unit System: English
Plotted Output Filename: P:\Projects-2016\16-379-22\Engineering-Calculation\Slope Stability\8-2-18\FS 1.0\SecBB_seismic_FS1.0.PLT
PROBLEM DESCRIPTION: 16-379-22_secBB
3900 Kentucky_Seismic_FS1.0
BOUNDARY COORDINATES
13 Top Boundaries

20 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	601.50	125.20	604.50	2
2	125.20	604.50	125.30	611.00	2
3	125.30	611.00	172.90	611.00	2
4	172.90	611.00	188.40	611.00	1
5	188.40	611.00	188.41	653.50	1
6	188.41	653.50	232.00	652.50	1
7	232.00	652.50	232.01	666.50	1
8	232.01	666.50	263.70	687.00	1
9	263.70	687.00	344.50	690.10	1
10	344.50	690.10	418.20	708.00	1
11	418.20	708.00	445.30	714.00	1
12	445.30	714.00	553.60	716.70	1
13	553.60	716.70	556.61	716.71	1
14	0.00	560.00	125.30	571.00	4
15	125.30	571.00	172.00	587.00	4
16	172.00	587.00	188.40	593.00	3
17	188.40	593.00	344.50	650.10	3
18	344.50	650.10	418.20	668.00	3
19	418.20	668.00	445.30	674.00	3
20	445.30	674.00	553.60	676.70	3

User Specified Y-Origin = 540.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	125.0	340.0	35.0	0.00	0.0	0
2	115.0	125.0	340.0	35.0	0.00	0.0	0
3	115.0	125.0	390.0	37.0	0.00	0.0	0
4	115.0	125.0	390.0	37.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS

4 soil type(s)

Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	340.00	35.00
2	15.0	250.00	22.00
3	19.0	250.00	22.00
4	23.0	250.00	22.00
5	90.0	340.00	35.00

Soil Type 2 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	340.00	35.00
2	-60.0	250.00	22.00
3	-55.0	250.00	22.00
4	-50.0	250.00	22.00
5	-45.0	250.00	22.00
6	-40.0	250.00	22.00
7	-35.0	250.00	22.00
8	0.0	340.00	35.00
9	90.0	340.00	35.00

Soil Type 3 Is Anisotropic
Number Of Direction Ranges Specified = 5

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	0.0	390.00	37.00
2	15.0	270.00	24.00
3	19.0	270.00	24.00
4	23.0	270.00	24.00

5	90.0	390.00	37.00

Soil Type 4 Is Anisotropic
Number Of Direction Ranges Specified = 9

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	-90.0	390.00	37.00
2	-60.0	270.00	24.00
3	-55.0	270.00	24.00
4	-50.0	270.00	24.00
5	-45.0	270.00	24.00
6	-40.0	270.00	24.00
7	-35.0	270.00	24.00
8	0.0	390.00	37.00
9	90.0	390.00	37.00

ANISOTROPIC SOIL NOTES:
(1) An input value of 0.01 for C and/or Phi will cause Aniso C and/or Phi to be ignored in that range.
(2) An input value of 0.02 for Phi will set both Phi and C equal to zero, with no water weight in the tension crack.
(3) An input value of 0.03 for Phi will set both Phi and C equal to zero, with water weight in the tension crack.

BOUNDARY LOAD(S)
2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	125.50	188.00	900.0	0.0
2	188.50	230.00	450.0	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
Specified Peak Ground Acceleration Coefficient (A) = 0.937(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.270(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
2 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	150.00	566.00	240.00	566.00	10.00
2	290.00	667.00	500.00	667.00	10.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Simplified Janbu Method * *
Total Number of Trial Surfaces Attempted = 100
Number of Trial Surfaces With Valid FS = 100
Statistical Data On All Valid FS Values:
FS Max = 2.198 FS Min = 1.005 FS Ave = 1.478
Standard Deviation = 0.286 Coefficient of Variation = 19.35 %
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	105.017	604.016
2	110.840	599.284
3	120.299	596.040
4	129.711	592.662
5	137.614	586.535
6	147.596	585.929
7	154.674	578.865
8	163.110	573.495
9	170.737	567.027
10	430.568	669.311
11	437.386	676.627
12	444.455	683.700
13	449.304	692.446

14	453.351	701.590
15	458.856	709.939
16	463.317	714.449

Factor of Safety
*** 1.005 ***

Individual data on the 33 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.8	1631.4	0.0	0.0	0.	0.	440.5	0.0	0.0
2	9.5	7187.9	0.0	0.0	0.	0.	1940.7	0.0	0.0
3	4.9	5230.7	0.0	0.0	0.	0.	1412.3	0.0	0.0
4	0.1	155.1	0.0	0.0	0.	0.	41.9	0.0	0.0
5	0.2	386.2	0.0	0.0	0.	0.	104.3	0.0	0.0
6	4.2	8515.3	0.0	0.0	0.	0.	2299.1	0.0	3790.3
7	7.9	19450.4	0.0	0.0	0.	0.	5251.6	0.0	7112.5
8	10.0	28431.2	0.0	0.0	0.	0.	7676.4	0.0	8983.5
9	5.4	17374.8	0.0	0.0	0.	0.	4691.2	0.0	4893.9
10	1.6	5907.7	0.0	0.0	0.	0.	1595.1	0.0	1476.3
11	8.4	33780.5	0.0	0.0	0.	0.	9120.7	0.0	7592.4
12	7.6	35730.8	0.0	0.0	0.	0.	9647.3	0.0	6864.0
13	1.3	6352.2	0.0	0.0	0.	0.	1715.1	0.0	1137.0
14	0.9	4481.3	0.0	0.0	0.	0.	1210.0	0.0	810.0
15	15.1	69719.0	0.0	0.0	0.	0.	18824.1	0.0	13590.0
16	0.4	1706.5	0.0	0.0	0.	0.	460.8	0.0	0.0
17	0.0	67.0	0.0	0.0	0.	0.	18.1	0.0	0.0
18	0.1	822.9	0.0	0.0	0.	0.	222.2	0.0	0.0
19	41.5	338053.8	0.0	0.0	0.	0.	91274.5	0.0	18675.0
20	2.0	14207.7	0.0	0.0	0.	0.	3836.1	0.0	0.0
21	0.0	78.6	0.0	0.0	0.	0.	21.2	0.0	0.0
22	31.7	289232.8	0.0	0.0	0.	0.	78092.9	0.0	0.0
23	80.8	641366.8	0.0	0.0	0.	0.	*******	0.0	0.0
24	73.7	416262.8	0.0	0.0	0.	0.	*******	0.0	0.0
25	12.4	60438.6	0.0	0.0	0.	0.	16318.4	0.0	0.0
26	1.7	7844.4	0.0	0.0	0.	0.	2118.0	0.0	0.0
27	5.1	22358.6	0.0	0.0	0.	0.	6036.8	0.0	0.0
28	7.1	26719.6	0.0	0.0	0.	0.	7214.3	0.0	0.0
29	0.8	2861.2	0.0	0.0	0.	0.	772.5	0.0	0.0
30	4.0	11611.7	0.0	0.0	0.	0.	3135.2	0.0	0.0
31	4.0	7972.8	0.0	0.0	0.	0.	2152.6	0.0	0.0
32	5.5	5383.8	0.0	0.0	0.	0.	1453.6	0.0	0.0
33	4.5	1128.6	0.0	0.0	0.	0.	304.7	0.0	0.0

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	116.193	604.284
2	117.303	603.479
3	126.801	600.352
4	134.072	593.487
5	141.165	586.438
6	148.245	579.375
7	157.687	576.082
8	165.163	569.440
9	172.597	562.752
10	182.536	561.649
11	453.588	669.265
12	460.370	676.614
13	466.993	684.107
14	472.411	692.511
15	473.835	702.409
16	479.401	710.717
17	483.099	714.942

Factor of Safety
*** 1.017 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	106.017	604.040
2	107.515	602.865

3	114.764	595.976
4	124.745	595.359
5	134.311	592.446
6	141.985	586.034
7	151.648	583.459
8	160.768	579.358
9	167.850	572.298
10	177.724	570.714
11	423.083	662.021
12	423.747	671.999
13	430.533	679.345
14	432.837	689.076
15	435.577	698.693
16	442.146	706.232
17	448.934	713.576
18	449.257	714.099

Factor of Safety
*** 1.020 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.401	603.546
2	90.908	599.077
3	100.634	596.755
4	109.981	593.198
5	118.636	588.190
6	126.461	581.964
7	133.565	574.926
8	142.818	571.133
9	150.608	564.863
10	160.453	563.111
11	457.433	664.380
12	462.418	673.049
13	467.113	681.878
14	473.767	689.343
15	478.738	698.020
16	485.716	705.183
17	492.724	712.316
18	495.591	715.254

Factor of Safety
*** 1.027 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	117.680	604.320
2	120.649	602.154
3	127.809	595.173
4	137.553	592.926
5	146.760	589.023
6	153.884	582.005
7	161.883	576.003
8	170.149	570.377
9	179.394	566.563
10	438.464	662.480
11	445.521	669.565
12	451.793	677.354
13	456.901	685.951
14	459.217	695.679
15	464.705	704.038
16	467.274	713.703
17	467.864	714.563

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	70.245	603.183
2	70.627	602.814
3	79.124	597.541
4	87.792	592.555

5	97.761	591.759
6	105.825	585.845
7	115.709	584.326
8	125.581	582.735
9	132.814	575.829
10	142.549	573.541
11	150.104	566.991
12	409.086	671.404
13	413.503	680.375
14	416.873	689.791
15	417.158	699.787
16	420.635	708.539

Factor of Safety
*** 1.035 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	93.203	603.733
2	100.701	597.318
3	110.235	594.301
4	118.088	588.110
5	126.559	582.795
6	135.377	578.080
7	143.383	572.087
8	151.269	565.938
9	477.839	666.855
10	479.574	676.704
11	483.077	686.070
12	489.605	693.646
13	492.964	703.065
14	499.601	710.545
15	504.232	715.469

Factor of Safety
*** 1.036 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.510	604.076
2	113.402	598.230
3	120.612	591.300
4	128.010	584.572
5	137.093	580.388
6	145.450	574.896
7	152.521	567.826
8	436.874	669.700
9	440.878	678.863
10	443.290	688.568
11	450.056	695.932
12	457.050	703.079
13	462.573	711.416
14	465.310	714.499

Factor of Safety
*** 1.039 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.932	604.398
2	124.772	601.636
3	132.398	595.168
4	140.000	588.672
5	147.472	582.025
6	156.956	578.854
7	165.477	573.620
8	174.750	569.878
9	183.854	565.741
10	487.836	670.154
11	489.094	680.074
12	496.161	687.149
13	503.230	694.223
14	507.836	703.099

15	514.167	710.840
16	516.915	715.785

Factor of Safety

*** 1.050 ***

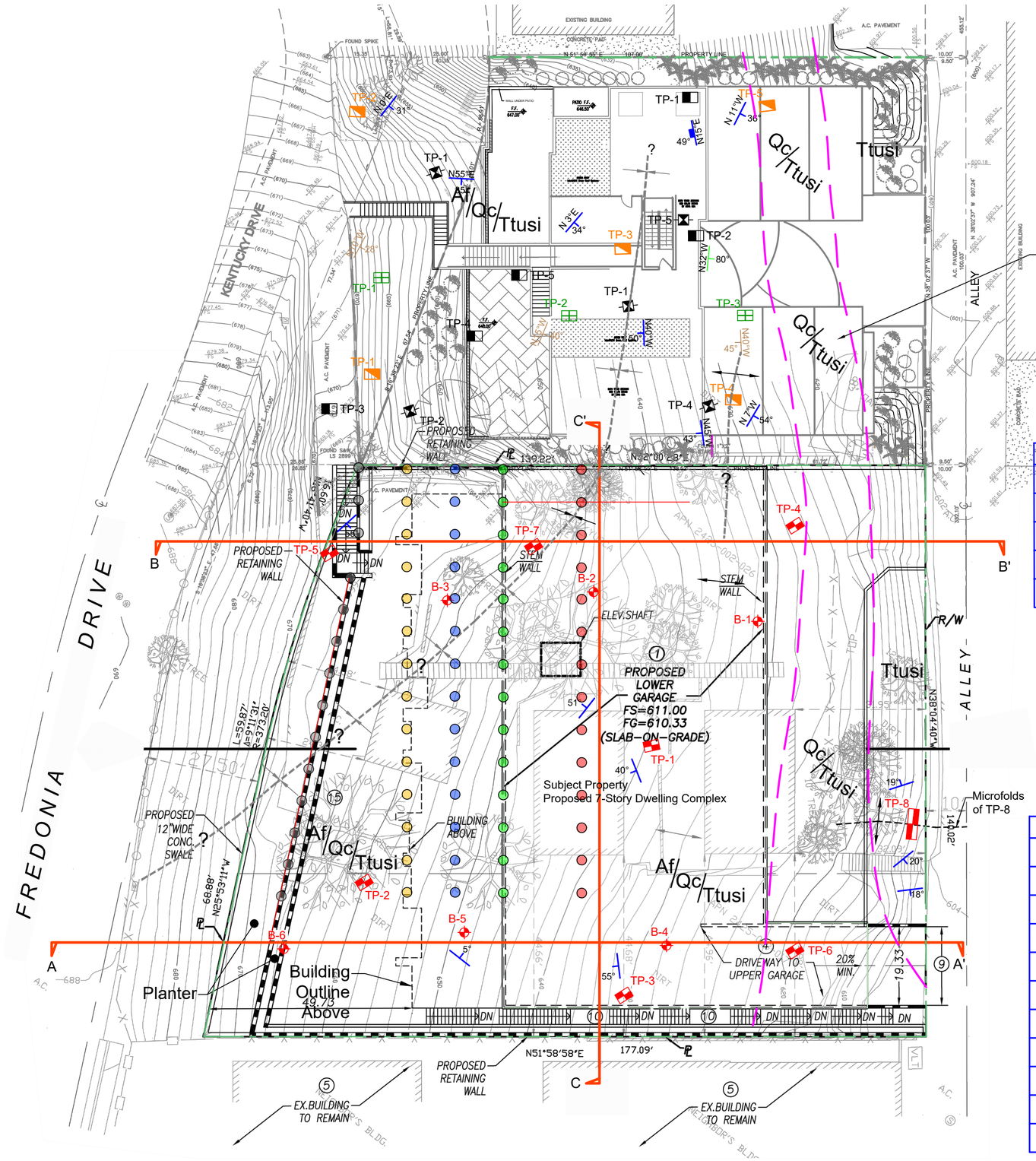
Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	81.345	603.449
2	83.480	602.430
3	90.590	595.399
4	99.281	590.453
5	108.354	586.247
6	117.856	583.129
7	125.904	577.194
8	133.322	570.487
9	141.835	565.241
10	151.467	562.552
11	493.476	670.989
12	500.107	678.474
13	503.883	687.734
14	508.772	696.457
15	515.580	703.781
16	522.571	710.932
17	526.589	716.027

Factor of Safety

*** 1.063 ***

**** END OF GSTABL7 OUTPUT ****



LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Test Pit (AES, 2018)
- 20° = Strike & Dip of Bedding
- TP-5 = Location & Number of Test Pit (AES, 2013)
- TP-3 = Location & Number of Test Pit (AES, 1990)

  } AES Project No. 13-347-22
- TP-5 = Location & Number of Test Pit (S & G INC, 1998)
- TP-5 = Location & Number of Test Pit (Don Soils Engineering, 2004)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located

B-3	
N20W 18°	@ 7'
N24W 22°	@ 11'
N11W 44°	@ 15'
N2W 25°	@ 20'
N7E 22°	@ 26'

B-2	
5° N1E	@ 6'
11° N69W	@ 10'
62° N69W	@ 12'
88° N6W	@ 14'
51° N16W	@ 16'
64° N16W	@ 20'
66° N10W	@ 24'
64° N12W	@ 26'
57° N16W	@ 31'
58° N23W	@ 35'

B-1	
47° N10W	@ 4'
38° N21W	@ 7'
52° N16W	@ 9'
44° N41W	@ 12'
46° N22W	@ 26'
59° N31W	@ 33'

B-6	
25° N31W	@ 4'
55° N31W	@ 6'
81° N34W	@ 14'
87° N41W	@ 17'
62° N71W	@ 19'
28° N18E	@ 21'
21° N31W	@ 24'
69° N0W	@ 26'
N17E 75°	@ 31'
N4E 56°	@ 33'
N27E 57°	@ 36'

B-5	
5° N80W	@ 5'
N31W 25°	@ 7'
17° N36E	@ 9'
54° N10E	@ 11'
N38W 66°	@ 14'
N18E 59°	@ 17'
N11E 71°	@ 19'
N2E 69°	@ 23'
N8E 75°	@ 26'
N12W 67°	@ 30'
N9W 72°	@ 33'
N8E 75°	@ 36'

B-4	
51° N0W	@ 5'
68° N2E	@ 12'
77° N27E	@ 15'
N9W 81°	@ 18'
N14W 58°	@ 21'
N16W 74°	@ 23'
N12W 66°	@ 30'

SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

AREA GEOLOGIC MAP

PROJECT No:	16-379-22
DESCRIPTION:	Proposed 7-Story Condominium Building Complex
DATE:	08 / 03 / 2018
FOR:	3900 Kentucky LLC
DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068
CHECKED BY:	SM
DRAWING No:	1
SUPP. No:	1

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LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

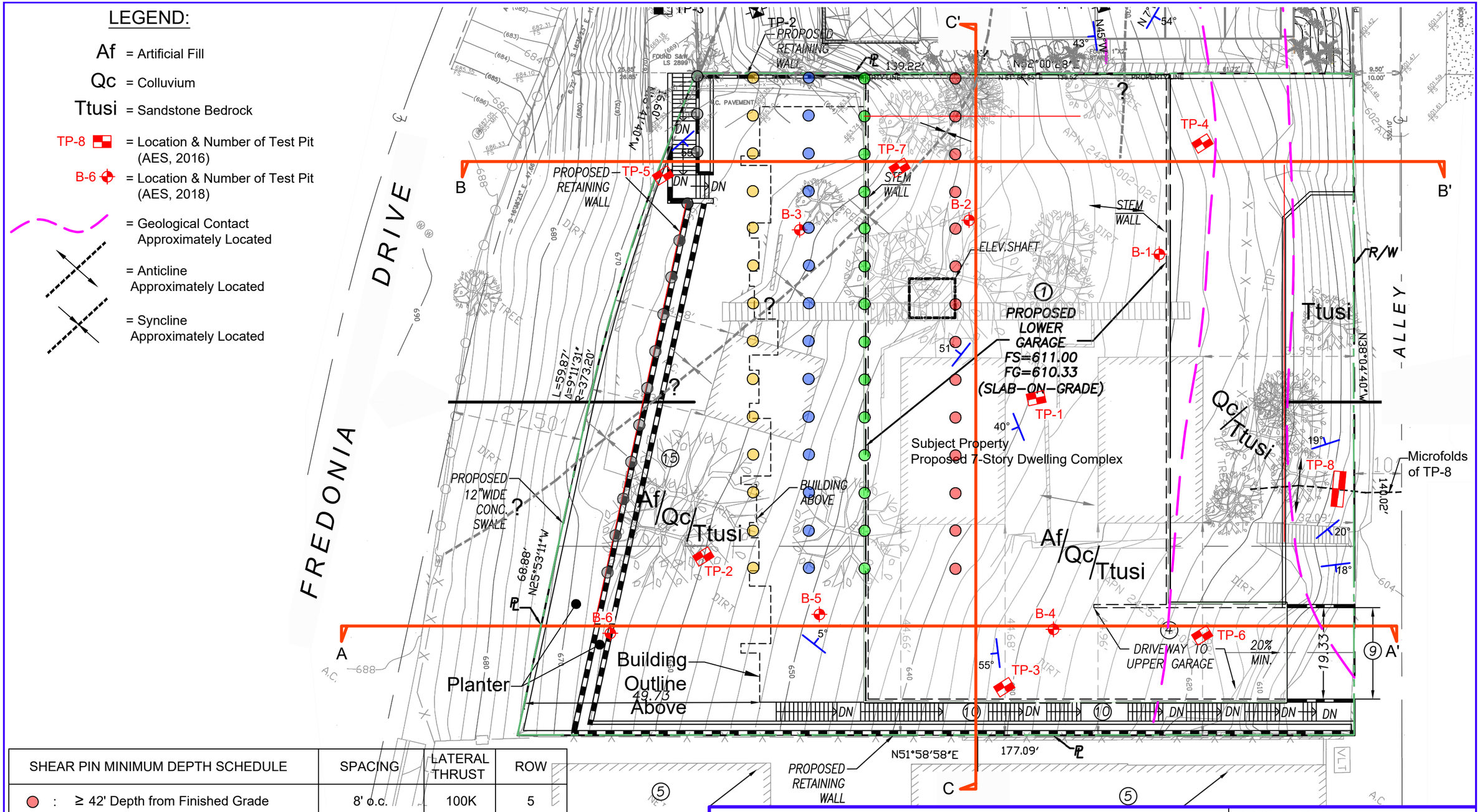
TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Test Pit (AES, 2018)

= Geological Contact Approximately Located

= Anticline Approximately Located

= Syncline Approximately Located



SHEAR PIN MINIMUM DEPTH SCHEDULE	SPACING	LATERAL THRUST	ROW
: ≥ 42' Depth from Finished Grade	8' o.c.	100K	5
: ≥ 84' Depth from Finished Grade	8' o.c.	214K	4
: ≥ 77' Depth from Finished Grade	8' o.c.	214K	3
: ≥ 72' Depth from Finished Grade	8' o.c.	214K	2
: ≥ 83' Depth from Finished Grade	8' o.c.	214K	1

Scale: 1" = 20'

GEOTECHNICAL SITE PLAN

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 03 / 2018
DRAWN BY:	VM
CHECKED BY:	SM
DRAWING No:	2
SUPP. No:	1

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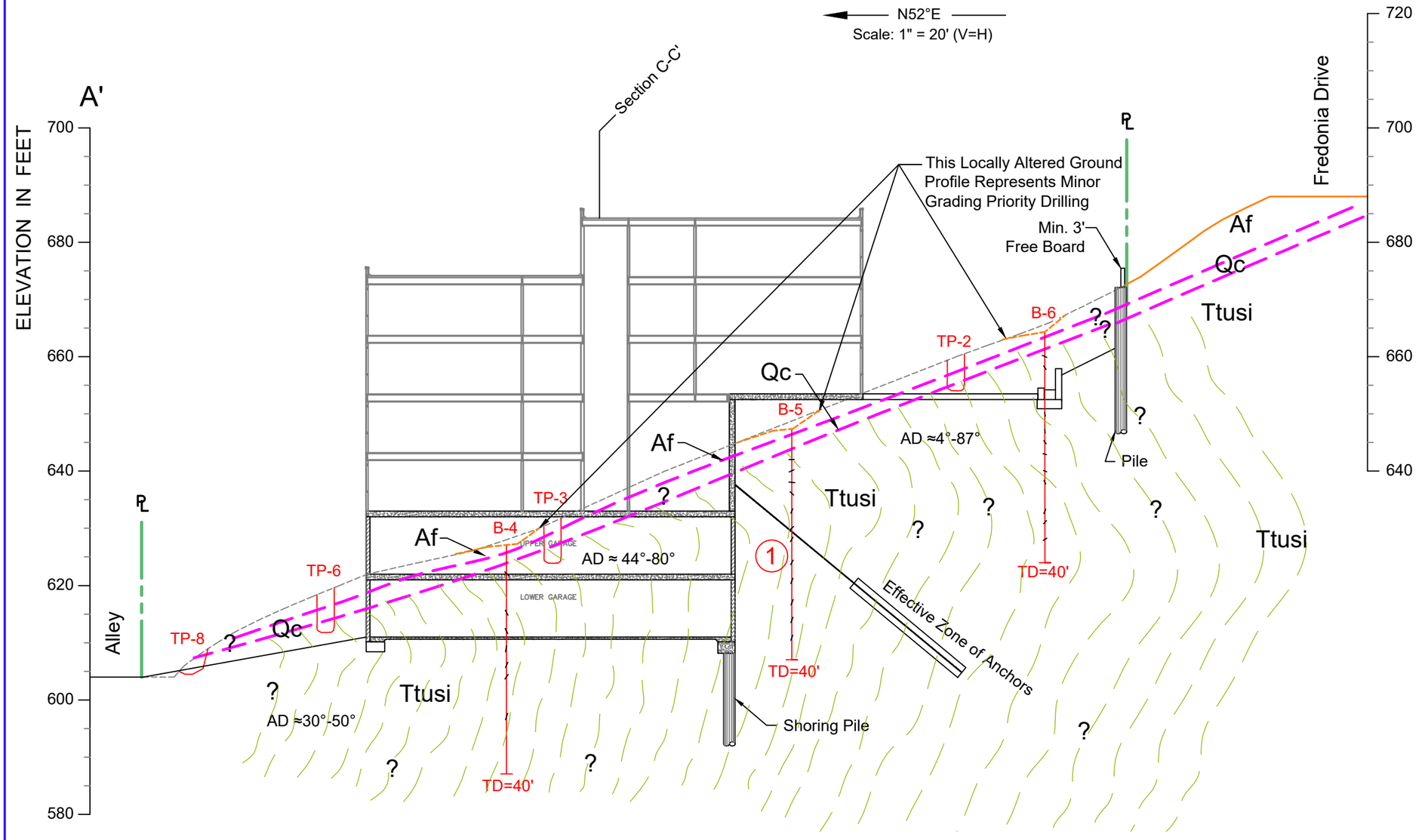

Apparent Dips & Directions

B-5	
4°	@ 5'
24.5°	@ 7'
5°	@ 9'
43°	@ 11'
65°	@ 14'
43°	@ 17'
62°	@ 19'
63°	@ 23'
69°	@ 26'
65°	@ 30'
70°	@ 33'
71°	@ 36'

B-6	
24.8°	@ 4'
54.7°	@ 6'
80.9°	@ 14'
86.9°	@ 17'
59°	@ 19'
16.5°	@ 21'
20.8°	@ 24'
64°	@ 26'
65°	@ 31'
48°	@ 33'
33°	@ 36'

B-4	
44°	@ 5'
62°	@ 12'
66°	@ 15'
80°	@ 18'
55°	@ 21'
73°	@ 23'
64°	@ 30'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION A-A'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	DATE:	08 / 03 / 2018
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & TG
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
PROJECT No:	16-379-22		
DRAWING No:	3	SUPP. No:	1

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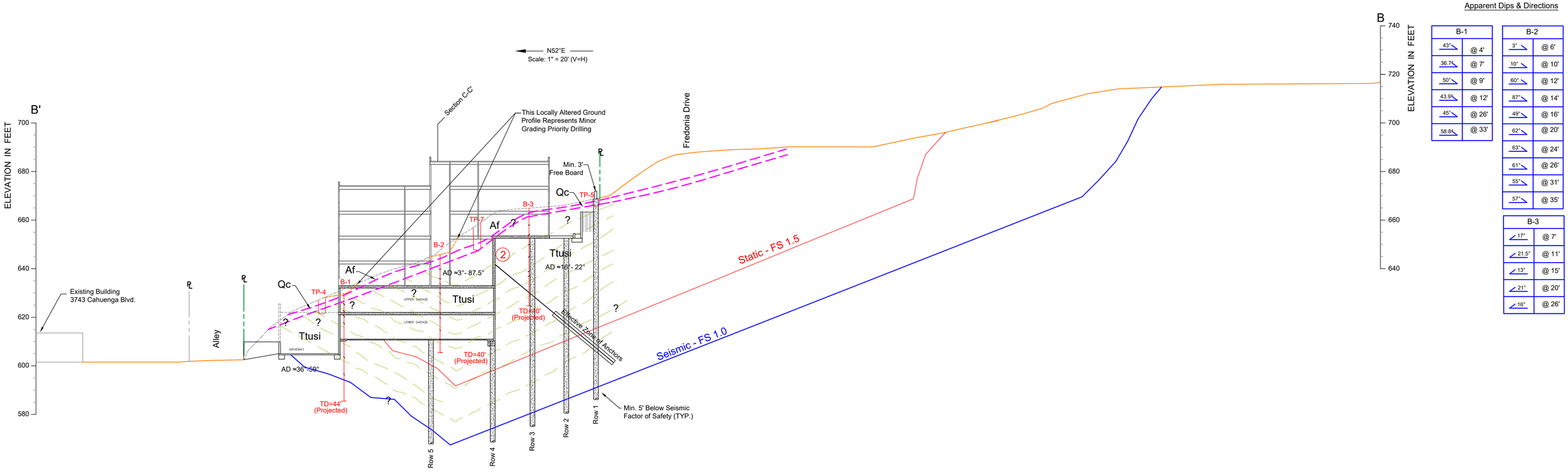

Apparent Dips & Directions

B-1	
43°	@ 4'
36.7°	@ 7'
50°	@ 9'
43.9°	@ 12'
45°	@ 26'
58.8°	@ 33'

B-2	
3°	@ 6'
10°	@ 10'
60°	@ 12'
87°	@ 14'
49°	@ 16'
62°	@ 20'
63°	@ 24'
61°	@ 26'
55°	@ 31'
57°	@ 35'

B-3	
17°	@ 7'
21.5°	@ 11'
13°	@ 15'
21°	@ 20'
16°	@ 26'

LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Geological Contact Approximately Located

TP-8 = Location & Number of Test Pit (AES, 2016)

B-6 = Location & Number of Boring (AES, 2018

TD=40' (Projected)

GEOLOGIC CROSS SECTION B-B'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	08 / 03 / 2018
DRAWN BY:	VM & TG
CHECKED BY:	SM
DRAWING No:	4
SUPP. No:	1

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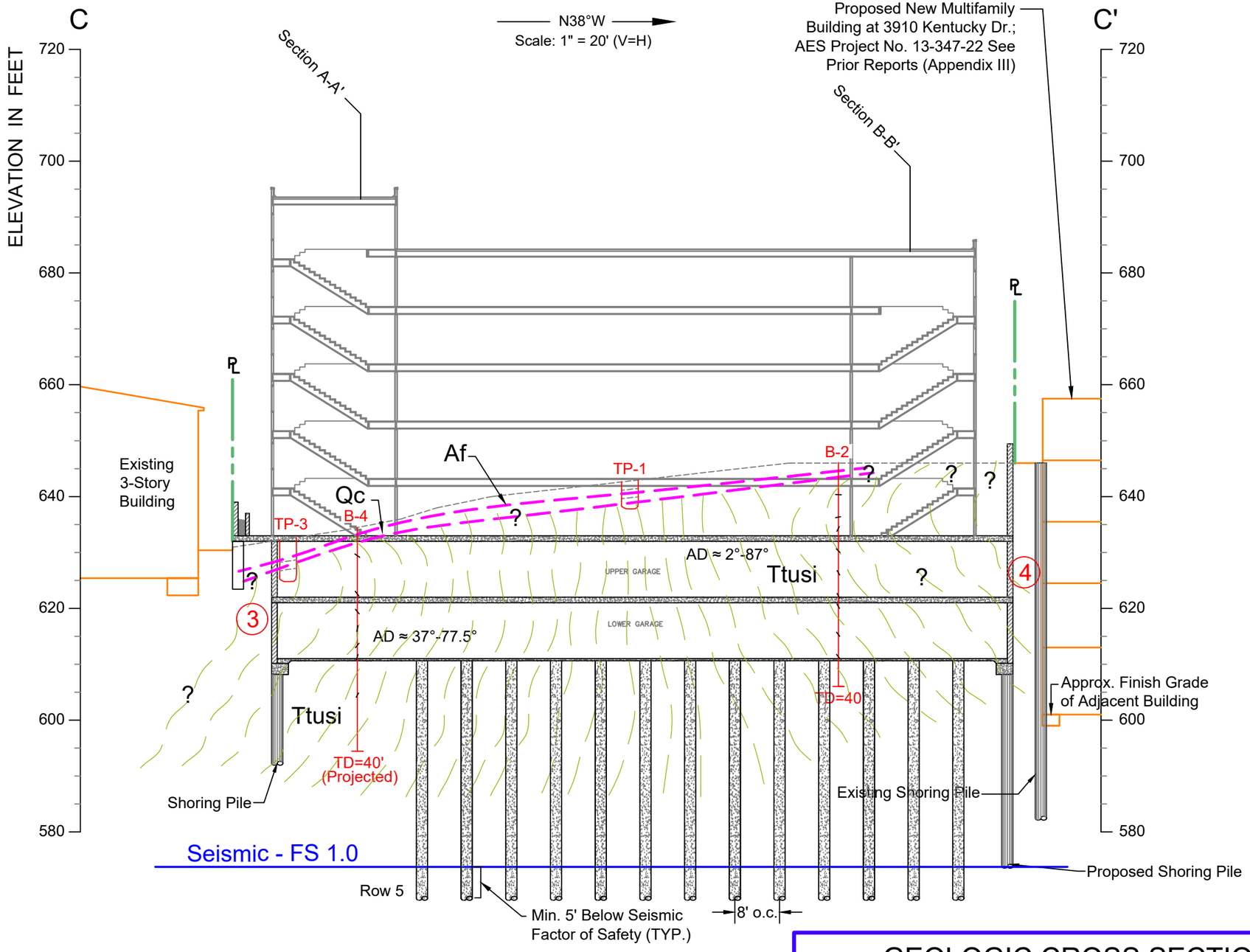

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Geological Contact Approximately Located
- TP-8 = Location & Number of Test Pit (AES, 2016)
- B-6 = Location & Number of Boring (AES, 2018
- TD=40' (Projected)

Apparent Dips & Directions

B-4		B-2	
37°	@ 5'	2°	@ 6'
56°	@ 12'	10.9°	@ 10'
52°	@ 15'	61.8°	@ 12'
78°	@ 18'	87°	@ 14'
52°	@ 21'	45°	@ 16'
71°	@ 23'	60°	@ 20'
62°	@ 30'	59°	@ 24'
		58°	@ 26'
		51°	@ 31'
		55°	@ 35'

GEOLOGIC CROSS SECTION C-C'

DESCRIPTION:	Proposed 7-Story Condominium Building Complex	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	08 / 03 / 2018
ADDRESS:	3900 Kentucky Dr. & 3894 & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM & TG
		CHECKED BY:	SM
		DRAWING No:	5
		SUPP. No:	1

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BORING No. 1

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML) Bedrock (Tt)		**Earth cover, disturbed surficial soils (SM-ML)** @ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
			N10W				@3' weathered sandstone bedrock with interbdd siltstone and shale
5			47SW				
			N21W				Bedding in interbdd shale layers
			38SW				
			N18W				Consistent SW dipping beds
10	107	5	52SW	5			Damp, orange to light brown, sandstone, fine to medium grained, silty, medium dense
			N41W				@12' changes to light grey, medium to coarse grained sandstone
			44SW				
15							Massive sandstone, slightly fractured, slightly weathered
20	94	7		6			Slightly silty, sandy siltstone
25							
			N22W				Bedding in interbdd shale
			46SW				
30	111	7		6			Medium dense, damp to slightly moist, light brown to tan, sandstone, moderately indurated, massive to thick-bdd, no discernable orientation in thick beds.

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

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FIGURE NO : I-1.1

BORING No. 1 (continued)

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35			N31W 59SW		Tt Bedrock		**Continued from previous page** Bedding @33' @35' tight, dense
40							Continued massive, coarse sandstone, slightly moist to moist
45	111	8		13			**End of Boring @ 44 feet** Downhole Logged to 40' No Groundwater, no caving
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-1.2

BORING No. 2

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed surficial soils (SM-ML)**
							@ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments, rootlets
					Bedrock (Tt)		@4' weathered sandstone bedrock with interbdd siltstone and shale
5			N19E 5NW				Soft, undulating shale and claystone beds, near-horizontal to shallow northwest dipping beds in upper bedrock
10	110	12	N58W 11SW	7			
			N58W 62SW				@12' tight microfolds, change from near horizontal bedding to steeply dipping, near vertical beds, to steep southwest dips.
			N6W				Folded strata, tight folds,
15			88W N16W 51SW				
20			N18W 64SW				Tan to light brown, fine to medium grained sandstone, slightly silty to silty, laminated beds
			N10W				@24' multicolored shale, fine ss and siltstone beds, brown to pinkish grey to buff to orange
25			66SW N12W 64SW				
30			N16W 57SW				

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-2.1

BORING No. 2 (continued)

DATE EXCAVATED: 4/9/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					Tt Bedrock		**Continued from previous page**
35			N23W 58SW				@35' tight, dense, thick-bdd sandstone, orange to tan brown with black speckles
40	104	10		8			
							End of Boring @ 40 feet Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-2.2

BORING No. 3

DATE EXCAVATED: 4/10/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1.5' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
5					Bedrock (Tt)		@4.5' weathered thick-bdd sandstone bedrock
			N20W 18NE				@6.5' fine-grained siltstone, shale and fine ss Folded beds
10	104	7					Sandstone, fine to medium grained, orange brown, interbdd shale and siltstone
			N24W 22NE				Bedding in shale @11'
15			N11W 14NE				
							undulating beds in shale, claystone and silty ss
20	109	10	N2W 25NE				Medium dense to dense in place, moist, competent, tight
25							
			N7E 22				Thick bdd medium to coarse ss, light grey color
30	105	5					Slightly weathered to fresh

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-3.1

BORING No. 3 (continued)

DATE EXCAVATED: 4/10/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35					Tt Bedrock		**Continued from previous page** @35' tight, continued sandstone with interbdd shale, thick bdd, medium to coarse grained, fresh, moderately hard, competent
40	106	7		10			**End of Boring @ 40 feet** Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-3.2

BORING No. 4

DATE EXCAVATED: 4/10/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1.5' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
							Grades to residual soil
5			N0W 51W		Bedrock (Tt)		@5' weathered sandstone bedrock Bedding in shale
10	111	4		10			
			N2E 68W				@12' undulating bedding, monocline fold observed in place, tan sandstone with interbdd shale, undulating folded strata,
15			N21E 77NW				Continued steep to very steep dip
			N8W 81NE				@18' overturned beds, tan to yellow
20	101	5		10			Sandstone, medium grained, with pinkish grey claystone interbeds,
			N14W 58NE N18W 74NE				
25							
30			N17W 66NE				Siltstone interbdd in thick-bedded sandstone

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-4.1

BORING No. 4 (continued)

DATE EXCAVATED: 4/10/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35					Tt Bedrock		**Continued from previous page** @35' tight, continued sandstone with interbdd shale, thick bdd
40	106	15		10			Grades to claystone, tight, moist to very moist **End of Boring @ 40 feet** Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-4.2

BORING No. 5

DATE EXCAVATED: 4/11/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
							Grades to residual soil
					Bedrock (Tt)		
5			N90W 5N				@4' weathered sandstone bedrock, bedding in upper sandstone
			N51W 25NE				Bed. @7' @8' microfolds in siltstone and shale, soft sediment deformation, cross bedding
			N36E				
10			17NW N10E 54W				Monocline folded to steeply dipping, siltstone and shale sequence starting @10'
			N58W				
15			66NE				@16' tight closed folds in soft sedimentary rock,
			N18E 59SE				
			N11E				Steep east to southeast dipping bedding, slightly to medium dense shale, moist
20	99	11	71SE	10 (12")			
			N2E 69SE				Overturned beds?
25			N8E 75SE				Minor undulations in beds/laminations
30	110	11	N12W 67NE	10			Dense sandstone

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-5.1

BORING No. 5 (continued)

DATE EXCAVATED: 4/11/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
			N9W 72NE		Tt Bedrock		**Continued from previous page**
35			N0E 75SE				@35' tight, continued sandstone with interbdd shale, thick bdd Steep east dipping beds
40	106	15		10			Grades to very moist **End of Boring @ 40 feet** Downhole Logged to 36' No Groundwater, no caving
45							
50							

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-5.2

BORING No. 6

DATE EXCAVATED: 4/11/2018, Lo-Drill, Leon Krause Drilling **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
					(SM) (ML)		**Earth cover, disturbed slough and surficial soils (ML)** @ 1' colluvium, brown to dark brown, sandy silt (ML), slightly clayey, scattered rock fragments
							Grades to bedrock @3'
			N31W		Bedrock		Sandstone,
5			25SW		(Tt)		
			N31W				Undulation in fine-grained laminations, moderate to steep dip, 25-55 degree range
			55SW				
10	120	4		11			@11' massive sandstone, light grey to orange brown, thick bdd, medium to coarse grained
							@13' Grades to fine-grained claystone and shale beds, very steeply dipping beds, locally overturned/vertical
			N34W				
15			81SW				
							@16'Grades to near vertical beds, strata is thick bdd sandstone layers, with shale, mudstone and siltstone sequences. Repeating sequence.
			N41W				
			87SW				@18' Slight change in strike
			N11W				
20	109	18	62W	15			
							@21' Northwest dipping beds, orange brown
			N18E				
			28NW				@23' Significant undulation in bedding, numerous folds observed during downhole log
			N31W				
25			21SW				Cross beds appearing to be merging, some older underlying beds truncated by more recent beds
			N0W				
			69W				North-south strike, steep west dips
30	111	19		17			Multiple micro folds
			N17E				
			75SE				@31' depth steep SE dipping bedding

LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-6.1

BORING No. 6 (continued)

DATE EXCAVATED: 4/11/2018 **LOGGED BY: Shant Minas, EG**

DEPTH IN FEET	DRY DENSITY (PCF)	FIELD MOISTURE (%DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
35			N4E 56SE N27E 57SE		Tt Bedrock		**Continued from previous page** consistent SE dips Soft sedimentary rock sequence Starrting at 35' Massive sandstone, orange to medium brown, with speckled black grains, medium to coarse grained, bedding in siltstone @37'
40	106	10		19			**End of Boring @ 40 feet** Downhole Logged to 37' No Groundwater, no caving
45							
50							

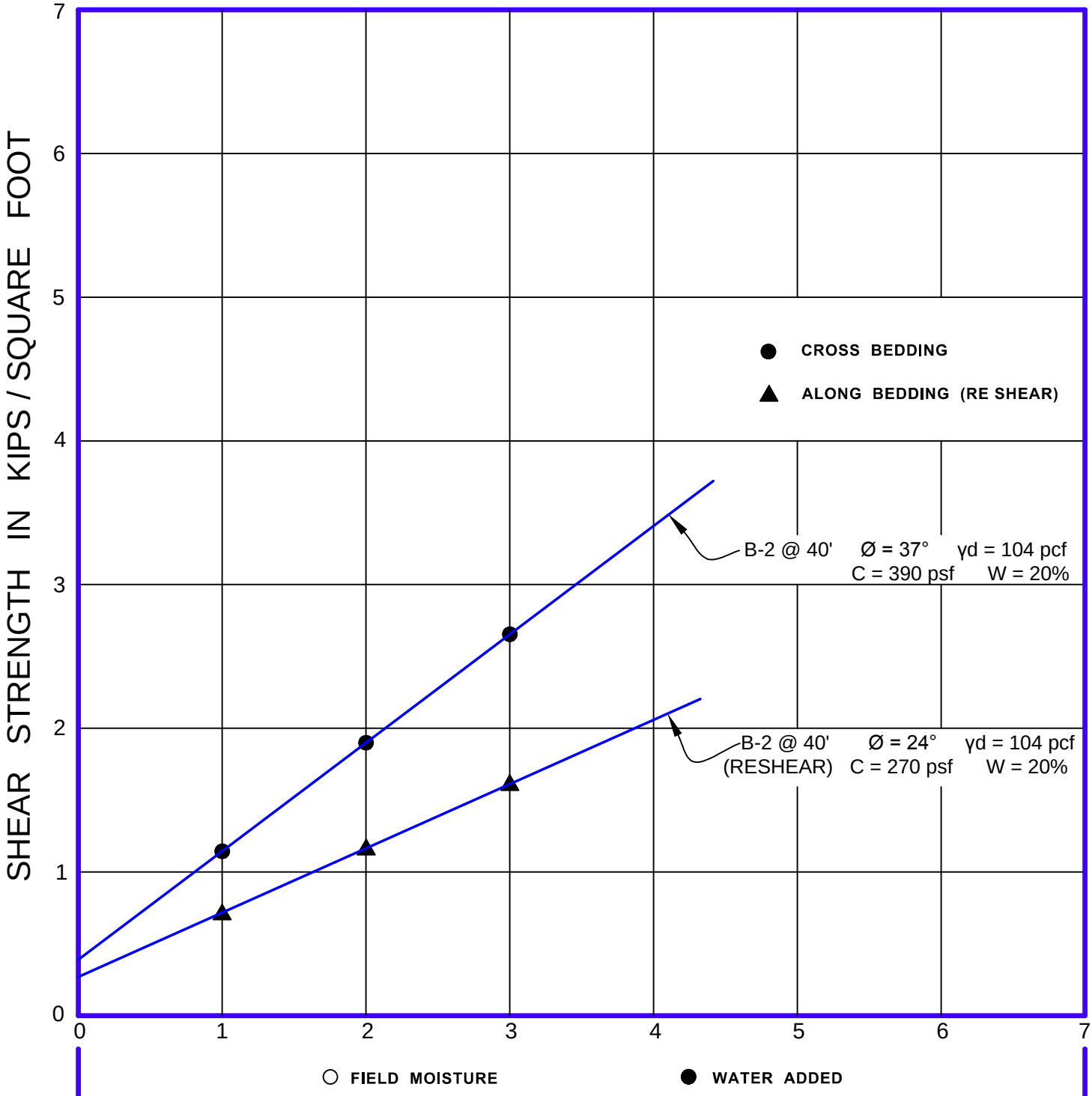
LOG OF BORING

JOB NAME: 3900 Kentucky Drive, LA, CA JOB No. 16-379-22

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO : I-6.2

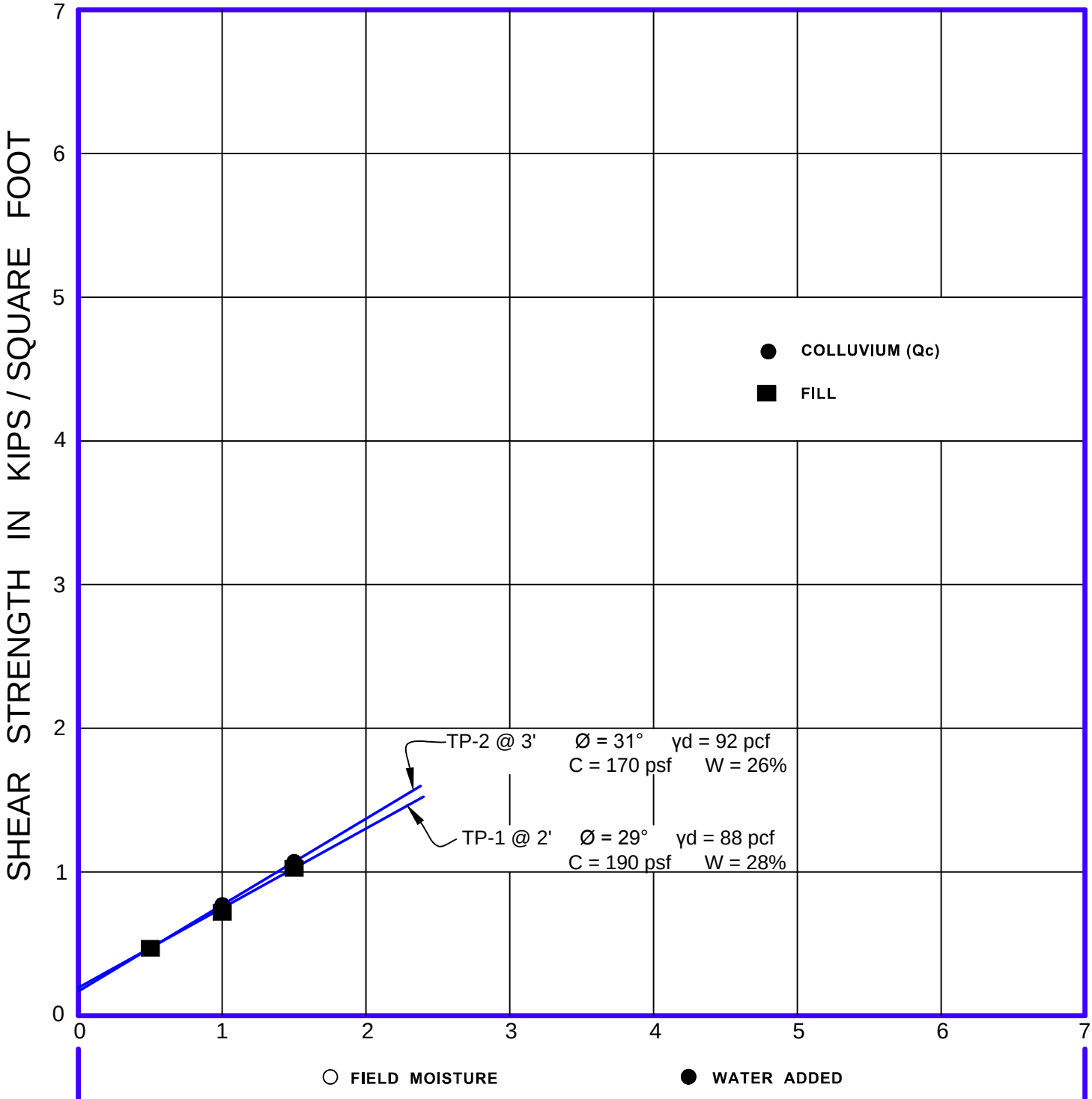
NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME : Proposed New Multifamily Residential Structure 3900 Kentucky Dr. & 3894 Fredonia Dr Los Angeles, CA 90068	JOB No. 16-379-22
Applied Earth Sciences GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS www.aessoil.com (818) 552-6000	FIGURE No. II - 1A

NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME : Proposed New Multifamily Residential Structure 3900 Kentucky Dr. & 3894 Fredonia Dr Los Angeles, CA 90068	JOB No. 16-379-22
Applied Earth Sciences GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS www.aessoil.com (818) 552-6000	FIGURE No. II - 1B

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OSAMA YOUNAN, P.E.
EXECUTIVE OFFICER

GEOLOGY AND SOILS REPORT REVIEW LETTER

May 10, 2017

LOG # 97819
SOILS/GEOLOGY FILE - 2
LAN

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

TRACT: 5593
LOTS: 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences
Oversized Documents	"	"	"

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed demolition of all site improvements and construction of a 7-story condominium complex including 2 levels of subterranean parking and retaining walls up to 40 feet in height. The subject lot is located on an approximately 80 foot high slope with gradients as steep as 1.1H:1V per the geologic map.

The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

The review of the subject report cannot be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

Note: Numbers in parenthesis ( ) refer to applicable sections of the 2017 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.

1. Provide calculations to support the temporary excavation recommendations for excavations exposing soil and adverse bedding.

2. Provide calculations to support the temporary shoring lateral earth pressure recommendations, including the surcharges.

3. Provide complete recommendations for basement retaining walls to include surcharge pressures from adjacent structures, slopes and traffic (P/BC 2014-83, P/BC 2014-141).

4. Provide complete recommendations for cantilever retaining walls shown in sections A-A' and B-B' (P/BC 2014-83, P/BC 2014-141).

5. Revise the recommendations for the proposed structure foundation to avoid the surcharge on the adjacent structures. The existing building located on the adjacent lot north of the subject property appears to be surcharged by the proposed structure. To avoid the surcharge on the existing basement wall due to the pile lateral loading, the proposed pile shall be sleeved/cased above a 1H:1V line projected upwards from the bottom of the adjacent structure footing.

6. Clarify if the seismic increment of ½ of the recommended static pressure applies to cantilever and restrained wall.

7. Provide stability analyses for the slope located between proposed structure and Fredonia Drive, which exposes unfavorable geologic structure.

The geologist and soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer and/or geologist may be contacted. Two copies of the response report, including one unbound wet-signed original for archiving purposes, a pdf-copy of the complete report in a CD or flash drive, and the appropriate fees will be required for submittal.

CASEY LEE JENSEN
Engineering Geologist Associate II

DAN L. STOICA
Geotechnical Engineer I

CLJ/DLS:clj/dls
Log No. 97819
213-482-0480

cc: Applied Earth Sciences, Project Consultant
LA District Office

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BUREAU OF ENGINEERING

GARY LEE MOORE, PE, ENV SP
CITY ENGINEER

1149 S. BROADWAY, SUITE 700
LOS ANGELES, CA 90015-2213

http://eng.lacity.org

May 19, 2017

3900 Kentucky LLC
528 State Street
Glendale, CA 91203

GEOTECHNICAL REVIEW, VESTING TENTATIVE TRACT NO. 73784, PROJECT ADDRESS 3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE, LOS ANGELES CALIFORNIA, CALIFORNIA 90068, RECOMMENDATIONS RELATING TO GEOLOGIC AND SOIL CONDITIONS,
W.O. ETRACTEN ***GEO FILE NO. 17-103***

The City Engineer recommends **approval be withheld** for the proposed Vesting Tentative Tract No. 73784 with project address 3894 Fredonia Drive and 3902 Kentucky Drive until additional information is provided. This information is necessary to evaluate conditions that apply to public property and proposed site developments. Our recommendation is based on our review of the following:

1. Applied Earth Sciences, 2016, Report of Geotechnical Investigation, Proposed New Multifamily Residential Building Project, Lot 116 and Portion (NW40FT) Of Lot 117, Tract No. 5593, 3900 North Kentucky Drive and 3894 Fredonia Drive, Los Angeles, California, 90068, dated June 10, 2016, by the consulting geotechnical engineer Dan Daneshfar (RCE 68377) and certified engineering geologist Shant Minas (CEG 2607).

2. Vesting Tentative Tract No. 73784, prepared by Robert K. Kameoka (RCE No. 15429), with a Los Angeles Department of Building and Safety stamp date of April 28, 2017.

The review of this vesting tentative tract map will be continued following submittal of all project reports to this office (with exception to the reports listed above) that pertain to geology and soil engineering, and the subsequent addendums. The submittal should also include, but need not be limited to, the following:

- Updated slope stability analysis through section A-A' and B-B' reflecting the current project design.

- Based on section A-A' and section B-B' of the June 10, 2016 report, a retaining wall supported by deep piles is proposed along the southwestern property line. According to cross-section B-B', the tip of piles along that property line are depicted at an elevation above the "Lowest Unsupported Potential Slip Surface." Please provide a corrected section B-B' or, provide discussion justifying why the pile tips can be at a higher elevation than the "Lowest Unsupported Potential Slip Surface."

If you have any questions regarding this letter, please call Daniel Orris at (213) 847-0488.

Sincerely,

Gary L. Moore, PE, ENV SP
City Engineer

By:



Craig Kunesh, Engineering Geologist I
Geotechnical Engineering Group

cc: Georgic Avanesian, Land Development Group, Subdivision Engineering, Mail Stop 901
Jesus Adolfo Acosta, Department of Building and Safety, Mail Stop 115

Appendix H

CITY OF LOS ANGELES
CALIFORNIA

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EXECUTIVE OFFICER

GEOLOGY AND SOILS REPORT REVIEW LETTER

May 10, 2017

LOG # 97819
SOILS/GEOLOGY FILE - 2
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3900 Kentucky LLC
528 State Street
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LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

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Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences
Oversized Documents	"	"	"

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The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

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1. Provide calculations to support the temporary excavation recommendations for excavations exposing soil and adverse bedding.

2. Provide calculations to support the temporary shoring lateral earth pressure recommendations, including the surcharges.

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6. Clarify if the seismic increment of ½ of the recommended static pressure applies to cantilever and restrained wall.

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The geologist and soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer and/or geologist may be contacted. Two copies of the response report, including one unbound wet-signed original for archiving purposes, a pdf-copy of the complete report in a CD or flash drive, and the appropriate fees will be required for submittal.

CASEY LEE JENSEN
Engineering Geologist Associate II

DAN L. STOICA
Geotechnical Engineer I

CLJ/DLS:clj/dls
Log No. 97819
213-482-0480

cc: Applied Earth Sciences, Project Consultant
LA District Office

REPORT OF
GEOTECHNICAL INVESTIGATION
PROPOSED NEW MULTI FAMILY RESIDENTIAL BUILDING PROJECT
LOT 116 AND PORTION (NW40FT) OF LOT 117, OF TRACT NO. 5593
3900 NORTH KENTUCKY DRIVE
AND
3894 FREDONIA DRIVE
LOS ANGELES , CALIFORNIA

FOR

3900 KENTUCKY, LLC

PROJECT NO. 16-379-22

JUNE 10, 2016

June 10, 2016 16-379-22

3900 Kentucky, LLC
528 State Street
Glendale, CA 91203

Subject: Report Of Geotechnical Investigation
Proposed New Multifamily Residential Building Project
Lot 116 and Portion (NW40FT) Of Lot 117, Tract No. 5593
3900 North Kentucky Drive
And
3894 Fredonia Drive
Los Angeles, California 90068

Gentlemen:

INTRODUCTION

This report presents the results of a geotechnical investigation for the subject project. During the course of this investigation, the engineering properties of the subsurface materials, native soil and bedrock, were evaluated in order to evaluate slope stability and to provide recommendations for design and construction of temporary excavations, retaining walls, foundations, and grading. The investigation included geologic mapping, subsurface exploration, soil and bedrock sampling, laboratory testing, engineering and geological evaluation and analysis, consultation and preparation of this report.

During the course of this investigation, the provided project plans by the offices of Kamran Tabrizi & Associates, Inc., were used as reference. Also used was a topographic survey by Lawrence Schmall.

The enclosed Drawing No. 1 entitled Area Geologic Map, shows the surface geology of the subject site and the property to the north which was investigated by us in 2013. Drawing No. 2 entitled Geologic Map & Site Plan, shows the site specific Geologic Map and approximate locations of the exploratory test pits in relation to the site boundaries and proposed building. Drawing Nos. 1 and 2 also shows the approximate locations of the Geologic Cross Section A-A' through C-C'. Drawing Nos. 3 through 5 shows the profile of the Geologic Cross Section A-A' through C-C'.

Figure No. 1 shows the Site Vicinity Map. Figure No. 2 shows the Regional Topographic Map. Figure No. 3 shows the Regional Geologic Map, and Figure No. 4 shows the LA Preliminary Geologic Map, Sheet No. 94.

The attached Appendix I, describes the method of field exploration. Figure Nos. I-1 through I-8 present summaries of the materials encountered at the location of our exploratory test holes. Figure No. I-9 presents a key to the log of exploratory test holes (boring and test pits). The attached Appendix II describes the laboratory testing procedures. Figure No. II-1 presents the results of direct shear and reshear tests on selected undisturbed samples. The prior reports for the adjacent properties are provided in Appendix III.

PROJECT CONSIDERATIONS

It is our understanding that the proposed project will consist of constructing a multi-unit residential building at the subject site. The proposed building is expected to be a 5-story structure over two levels of subterranean parking garage. The proposed building is expected to have a vertical height of about 80 feet. The approximate location of the proposed building (on plan and profile) is shown on the enclosed Site Plan; and Cross Section A-A' through C-C'; Drawing Nos. 2 through 5.

It is anticipated that the finished grades for the proposed lower garage will be created through mainly cutting operations. The resulting vertical cuts will then be supported by retaining walls having maximum vertical heights of as high as 40 feet.

Based on the results of our study, it is expected that the planned cuts will be made through minor soils and bedrock. It is anticipated that bedrock will be exposed at the finished grades. See the enclosed Cross Section A-A' through C-C'.

The south and west-facing cuts are expected to expose daylighted bedding. The out-of-slope component of the true dip of bedding is expected to range from about 10 degrees to as high as 46 degrees. See the enclosed Drawing Nos. 1 through 5.

Because of the magnitude of the cut depths, close proximity to the property lines, and anticipated exposure of the daylighted bedding, during the course of site grading work, temporary shoring will be required. Such shoring system should consist of soldier piles with and without lateral support (tieback anchors or interior bracing).

For the north-facing cuts where the bedrock bedding will be supported, and the vertical height of excavation will be on the order of 20 feet, the temporary shoring can be in a form of cantilevered soldier piles. For the south-facing cuts where the out-of-slope dip component will be relatively shallow (about 10 degrees), however, the vertical height of cut will be on the order of 35 feet, a laterally supported (restrained) shoring system should be used. Due to the presence of an off-site building to the north that also has a subterranean parking garage, the soldier piles should be held back by internal bracing system.

The west-facing cuts on the upslope side will expose out-of-slope dip component with inclinations of about 35 to 46 degrees and a vertical height of about 40 feet. Here, the soldier piles should be tied back with anchor shafts.

For the lower west-facing cuts to create the finished grade at the existing alley level, the cuts can be made parallel to the angle of bedding. After the retaining walls are constructed, the over-excavation areas can be backfilled. The shaving of the bedrock parallel to bedding plane should be made under observation of the Project Engineering Geologist.

The soldier piles can be incorporated into the retaining walls and be part of the permanent structures. The lower portion of the piles (below the base of the excavation) can provide vertical support for the proposed retaining walls through skin friction. Therefore, the piles should be designed for both bending (temporary condition) and gravity loads (for permanent conditions). The longer pile will govern the design.

It is noted that where adequate horizontal space is available, unsupported/open excavation cuts can be made. Where possible, during this process, the out dipping bedding plane conditions can be eliminated through making the excavation slopes parallel to the inclination of the angle of bedding. After the retaining walls are constructed, the over-excavated zone can be backfilled with granular materials that is benched into bedrock.

Structural loading data was not available during this investigation. For the purpose of this report, it is assumed that maximum concentrated loads will be on the order of 600 kips, combined dead plus frequently applied live loads. The retaining wall footings are expected to have loads of on the order of 18 kips per lineal foot.

ANTICIPATED SITE GRADING WORK

Based on the provided project data, it is expected that the major grading work will involve cutting operations in order to create the proposed finished grades. As part of the site grading work, some wall backfilling will also be made. The backfill soils should consist of non-expansive and granular soils. Because the site soil materials are generally fine grained in nature and potentially expansive, imported material are expected to be required to accomplish the site grading work.

It is anticipated that, after completion of the site grading work, considerable amount of materials will be exported from the site.

SITE SURFACE CONDITIONS

The project site is a rectangular Lot 116 & portion of 117 of Tract 5593, located in the Universal City neighborhood of the San Fernando Valley. The project area consists of two adjacent lots with a combined surface area of 22,064 square feet. The grade descends down from Kentucky Drive and Fredonia Drive on the west side, toward an alley behind Cahuenga Boulevard toward the east. The approximate slope gradient is 1.7:1 H:V. The slope appears to be oversteepened along the alley as part of original grading.

The current proposed plan involves constructing a new 5 story and 2 level semi-subterranean multifamily residential structure. Driveway access to the new building will be from the alley. As part of the proposed new building, the existing structures will be removed. We are in receipt of a site survey by Lawrence Schmal as well as architectural drawings and cross sections from Kamran Tabrizi, which we have utilized as base maps for our geologic map and cross section drawings.

PRIOR REPORTS

This office previously explored the site to the north, 3910 Kentucky, also for a new multifamily apartment building. Our most recent reports were dated 6/9/2014, 1/17/2014, and 6/14/2013 (original investigation report). As part of our effort, other companies' reports were reviewed and incorporated into the analysis. The site was geologically characterized as being underlain by sedimentary bedrock of the Topanga

formation, and our analysis concluded that the site was also underlain by northwest-trending folds, discussed in further detail below. Our reports were eventually approved by the city in their 7/7/2014 Approval Letter (Log No. 81001-02).

Our Drawing No. 1 includes an Area Geologic Map which shows the adjacent site and its surface geology as presented in prior submitted reports.

Based on our site observation on May 23, 2016, this 3910 Kentucky site has not yet commenced construction. However, construction documents were recently reviewed and signed by the undersigned geologist and geotechnical engineer for the proposed new multifamily building at 3910 Kentucky. Therefore, it is likely that by the time the subject project enters the construction phase, the property to the north will possibly be under construction. We have depicted this in our Cross Section C drawing; however, the proposed offsite building does not affect the current design recommendations for the subject property development.

Prior reports for the adjacent property at 3910 Kentucky are included for review in Appendix III.

REGIONAL GEOLOGY

The site is situated in the northern foothills of the east-central portion of the Santa Monica Mountains, part of the Transverse Ranges Geomorphic Province of California. Regionally, the hills and mountains in this vicinity are underlain by Miocene-age sedimentary bedrock known as the Topanga formation, locally consisting mainly of siltstone and fine-grained sandstone. Bedrock in this area has been mapped by others to generally have an approximate strike in the northwest direction with a moderate to steep (30-60 degree) northeast dip (see Figure No. 3 – Regional Geologic Map by Dibblee).

The closest fault to the property is the Benedict Canyon Fault, which extends roughly northeast cutting through the Santa Monica Mountains and into the east San Fernando Valley, approximately 300-400 feet north of the subject site. The proximity of the site to this recognized fault zone is likely related to the folding and variable bedding orientation encountered in our test pits advanced on the subject site as well as on the adjacent site, which are discussed in further detail below.

This Benedict Canyon fault, however, is not considered active and this property is not located in an Earthquake Special Studies Zone. Nonetheless, owners of properties located near earthquake faults are encouraged to protect their homes from earthquake-related damage, possibly by purchasing earthquake insurance.

GEOLOGIC AND SOIL CONDITIONS

Our geologic investigation consisted of the excavation, inspection, sampling and geologic logging of a total of seven test pits, a review of published geologic maps and published reports, and on-site and near-site geologic reconnaissance and mapping. This activity indicates that the area of the proposed new apartment building is underlain by a thin veneer of fill, colluvial and residual soil overlying sedimentary bedrock of the Topanga formation. An area geologic map is provided in Drawing 1, a geologic map and site plan is provided in Drawing 2, and geologic cross-sections in Drawings 3 through 5. Test pit logs are provided in Appendix I. A description of the units and their distribution are as follows:

Artificial Fill (Af): Minor loose fill material (from road-cut) was found to overlie the native soil and bedrock on the site. It is generally composed of gravelly, medium to coarse silty fine sand, dry to slightly moist, gray to brown, creep-prone, and with scattered debris. This slough was found to range from 1- 2 feet in thickness in our excavations, but may be locally thicker where utility lines are buried.

Soil (Qc): Mixed colluvial and residual soil was encountered in several of the test pits, wedged between fill and underlying bedrock. It consists of silty medium sand to sandy silt, (SM-ML), slightly clayey, orange brown, containing rock fragments, and also creep-prone.

Sedimentary Bedrock (Ttusi): Bedrock underlying the site consists of fine to medium grained sandstone bedrock, moderately to well indurated, locally containing interbedded siltstone and shale, light and orange brown, medium to coarse grained, slightly moist, medium dense, locally hard, and generally competent. This bedrock is attributed to the middle-Miocene age Topanga formation.

Bedding was found to vary across the site. In TP-5, steep east dipping bedding was encountered. In TP-1 and TP-3 approximately midway down the slope, steep west dipping bedding was encountered, suggesting a synclinal fold in the western portion of the site, similar to our findings for the adjacent north property. In TP-6 and TP-4 in the eastern portion of the site, hard, massive to thick-bedded sandstone bedrock was encountered.

Test Pit 8 excavated with hand tools near the toe of the slope, exposed sandstone and siltstone bedrock which display undulating bedding and soft sediment deformation, with shallow dip directions to the northwest and southeast. This microfold axis is normal to the main fold axis across the site. See Geologic Map and Site Plan, Drawing No. 1, for a graphical depiction, and test pit logs in Appendix I for detailed logs of excavations.

ENGINEERING-GEOLOGIC CONSIDERATIONS

Groundwater was not observed in the test holes. No seeps or springs were noted onsite, nor does the site have any surface streams passing through it.

As we have depicted in our Geologic Map and Geologic Cross Sections, it is believed that some folding of the underlying sedimentary bedrock is present within the site. The folding consists of a closely spaced northwest trending syncline and anticline combination; see Geologic Cross Sections A and B. This characterization is aided by our findings for the adjacent north property as well as exploration on the subject site. The folding is attributed to close proximity to the Benedict Canyon fault zone and is in general agreement with regional geologic maps. The Dibblee geologic map (Figure No. 3) shows generally moderately to steeply dipping beds toward the northeast in this vicinity, but also less common southwest dipping beds. The LA Preliminary Geologic map also shows closely spaced folds in the sedimentary bedrock in this vicinity (Figure No. 4).

As indicated in our test pit logs, the sandstone bedrock onsite was found to be generally hard and locally difficult to excavate, which may pose excavation challenges during construction. The bedrock can be considered marginally to moderately rippable.

Fill and soils are not suitable for support of new structures. All new foundations for the proposed structure should be embedded in sedimentary bedrock according to the recommendations provided later in this report.

The new building will require shoring piles to support the excavation on at least three sides. Detailed recommendations are included in the next portion of this report.

From an engineering-geologic point of view, the proposed new apartment building project can proceed as planned, provided the new structures are founded in bedrock to sufficient depth, and with proper drainage; surface water runoff on the site is controlled; and preventive slope maintenance is regularly performed.

PREVENTIVE SLOPE MAINTENANCE

For all slopes in general, it is important to reduce the risk of problems relating to slope instability. It is recommended that the owners implement a program of normal slope maintenance. This maintenance program should include annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardant, deep rooted ground cover and proper irrigation.

Hillside properties are typically subject to potential geotechnical hazards including mudslides, spalling of slopes, erosion and concentrated flows. It must be emphasized that responsible maintenance of these slopes, and the property in general, by the owner, using proper methods, can reduce the risk of these hazards significantly.

SEISMIC DESIGN CONSIDERATIONS

In accordance with the 2010 California Building code (CBC 2010), the project site can be classified as site “C”. The mapped spectral accelerations of S_S=1.533 (short period) and S_1 =0.600 (1-second period) can be used for this project. These parameters corresponds to site Coefficients values of F_a =1.00 and F_V =1.3, respectively.

The seismic design parameters would be as follows:

Sms= Fa (Ss) = 1.0 (1.533) = 1.533,

Sm1=Fv (S1) = 1.3 (0.600) = 0.780

Sds=2/3 (Sms) = 2/3 (1.533) = 1.022 and

Sd1=2/3 (Sm1) = 2/3 (0.780) = 0.520

EVALUATION AND RECOMMENDATIONS

GENERAL

Based on the geotechnical engineering data derived during this investigation, it is believed that the proposed construction may be made as planned. Conventional spread footing foundation system can be used for support of the proposed building. The foundation bearing materials should consist of bedrock. Where the shoring piles are incorporated into the proposed building, they can also be used for foundation support in a form of friction piles.

As part of construction of the basement garage, vertical cuts ranging from about minimal along the alley to as much as 40 feet will be made. The south and west-facing cuts are expected to expose daylighted bedding. The out-of-slope component of the true dip of bedding is expected to range from about 10 degrees to as high as 46 degrees. See the enclosed Drawing Nos. 1 through 5.

During the course of site grading work associated with basement construction, temporary shoring will be required. Such shoring system should consist of soldier piles with and without lateral support (tieback anchors or interior bracing).

For the north-facing cuts where the bedrock bedding will be supported, and the vertical height of excavation will be on the order of 20 feet, the temporary shoring can be in a form of cantilevered soldier piles. For the south-facing cuts where the out-of-slope dip component will be relatively shallow (about 10 degrees), however, the vertical height of cut will be on the order of 35 feet, a laterally supported (restrained) shoring system should be used. Due to the presence of an off-site building to the north that also has a subterranean parking garage, the soldier piles should be held back by internal bracing system. The west-facing cuts on the upslope side will expose out-of-slope dip component with inclinations of about 35 to 46 degrees and a vertical height of about 40 feet. Here, the soldier piles should be tied back with anchor shafts.

For the lower west-facing cuts to create the finished grade at the existing alley level, the cuts can be made parallel to the angle of bedding. After the retaining walls are constructed, the over-excavation areas can be backfilled. The shaving of the bedrock parallel to bedding plane should be made under observation of the Project Engineering Geologist.

The soldier piles can be incorporated into the retaining walls and be part of the permanent structures. The lower portion of the piles (below the base of the excavation) can provide vertical support for the proposed retaining walls through skin friction. Therefore, the piles should be designed for both bending (temporary condition) and gravity loads (for permanent conditions). The longer pile will govern the design.

It is noted that where adequate horizontal space is available, unsupported/open excavation cuts can be made. Where possible, during this process, the out dipping bedding plane conditions can be eliminated through making the excavation slopes parallel to the inclination of the angle of bedding. After the retaining walls are constructed, the over-excavated zone can be backfilled with granular materials that is benched into bedrock.

Grade slabs may be cast on bedrock, or properly compacted fill soils. Where grade slabs span between soil and bedrock, the bedrock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at optimum moisture content).

The above recommended process will help create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements. Because of fine grained nature of the bedrock, the grade slabs for this project should be at least 5 inches thick and be reinforced with # 4 bars placed at every 18 inches on center.

The following sections present our specific recommendations for temporary excavations, site grading, site drainage, foundations, lateral design, grade slabs, retaining walls, and observations during construction.

TEMPORARY EXCAVATIONS

Unshored Excavations: It is expected that temporary excavations will be made during the course of site grading work. The excavation will be made through native soils and bedrock. The vertical height of such cuts are expected to range from minimal to as much as 40 feet.

Based upon the engineering characteristics of the subsurface materials, it is our opinion that temporary excavation slopes through soil and bedrock with supported bedding may be made in accordance with the following table:

Maximum Depth of Cut (FT)	Maximum Slope Ratio (Horizontal:Vertical)	
	Soil	Rock
5	Vertical	Vertical
5-10	3/4:1	Vertical
>10	1:1	1/2:1

It is recommended that the Engineering Geologist inspect the cut slopes within larger scale excavations as soon as five feet of bedrock is exposed in order to confirm the results of our findings. Modification to our recommendations may be necessary if variations are noted.

Water should not be allowed to flow over the top of the excavation in an uncontrolled manner. No surcharge should be allowed within a 45-degree line drawn from the bottom of the excavation. Excavation surfaces should be kept moist but not saturated to retard raveling and sloughing during construction.

It would be advantageous, particularly during wet season construction, to place polyethylene plastic sheeting over the slopes. This will reduce the chances of moisture changes within the soil banks and material wash into the excavation.

Cantilevered Soldier Piles:

For the north-facing cuts where supported bedding conditions will be exposed, the temporary shoring system can be in a form of cantilevered soldier piles. In order to limit local sloughing, lagging should be used between the soldier piles. All lumber left in ground should be pressure treated.

Soldier piles consist of structural steel beams encased in concrete (below the basement garage level) and slurry mix within the exposed depths of excavation. For the purpose of this project, steel cage can also be used for shoring piles.

The lateral resistance for cantilevered soldier piles may be assumed to be offered by available passive pressure below the base of the excavation. An allowable passive pressure of 600 pounds per square foot per foot of depth may be used below the base of the excavation (against bedrock) for soldier piles having center-to-center spacing of at least 2-1/2 times the pile diameter. Maximum allowable passive pressure should be limited to 6,000 pounds per square foot. The maximum center-to-center spacing of the vertical shafts should be maintained no greater than 10 feet.

For design of the north-facing cantilevered shoring piles supporting cuts of bedrock with supported bedding, the active earth pressure may be computed using an equivalent fluid density of 30 pounds per cubic foot. When using cantilevered soldier piles for temporary shoring, the point of fixity (for the purpose of moment calculations), may be assumed to occur at one foot below the base of the excavation (against bedrock).

It should be noted that the recommendations presented in this section are for use in design and for cost estimating purposes prior to construction. The contractor is solely responsible for safety during construction.

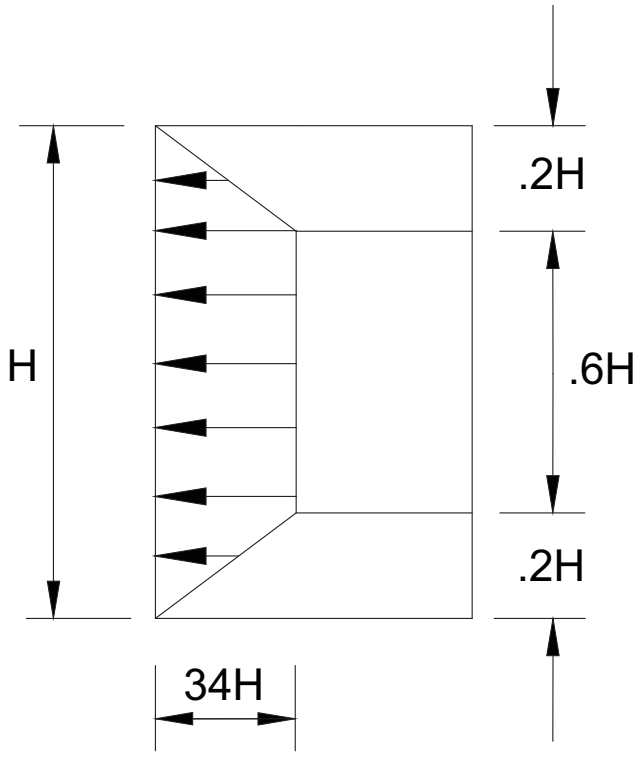
Laterally Supported Temporary Shoring: The south and west-facing cut slopes will require laterally supported (restrained) shoring system. The lateral support can be in a form of internal bracing for the south-facing cuts and tieback anchors for the west-facing cuts. In order to limit local sloughing, lagging (placed from the top, as excavation advances) should be used between the soldier piles. All lumber left in ground should be pressure treated.

It is anticipated that one to two rows of lateral support will be required for this project. The piles near the corner should be connected with corner bracing.

It should be noted that, if tie backs are used, permissions should be obtained to extend the anchor shafts beneath the adjacent properties. Also, the foundations of the off-site structures and utility lines within the anticipated lengths of the tie back anchors should be studied to assure that the existing substructures would not be interfered by the installation of the anchor shafts. The anchor shafts should be tested for the pullout capacities.

The anchors would consist of drilled, cast-in-place concrete shafts stressed against and tied to the vertical soldier piles. These elements are drilled in an inclined manner beneath the adjacent grounds after the basement excavation is reached to the levels of the anchor rows.

When internal bracing or tieback anchors are used against the vertical piles, trapezoidal pressure distribution should be used for design of the temporary shoring. The following sketch shows the recommended lateral earth pressure distribution behind the west and south-facing cuts for restrained shoring system against daylighted bedding condition (see Sections A-A', B-B' and C-C').



The above given pressures have considered the surcharge effects from the existing off-site improvements (buildings, roads, etc.).

For the purpose of design, it should be assumed that only the length of the anchor shafts beyond the lowest unsupported potential slip surface will be effective in resisting lateral loads. See the Cross Sections A-A- and B-B'.

The temporary shoring should be monitored during basement garage excavation. The report of monitoring should be provided to the Project Structural and Soil Engineers for review and comment. If excessive lateral movements are noted, additional lateral support system in a form of added tie back anchors or internal bracing may be required. Only the portion of the tieback anchor shafts beyond the potential failure wedges should be considered effective in resisting lateral loads.

The range of friction values to be used in design, is based on several factors, with the upper limit being the strength of the soils. Any disturbance in the soils, such as spauling would reduce the effective friction values around the anchor shafts.

For gravity pour, a unit friction value of 650 pounds per square foot may be used to calculate the load supporting capacities of the anchor tie backs. For post grouted anchors where the concrete is placed using high pressure (between 700 to 1,000 psi) a skin friction value of 2,400 pounds per square foot can be used.

It is possible that the calculated capacities of the anchors based on the given unit friction value would be significantly different from the actual capacities based on the developed friction values. It is, therefore, suggested that the first series of the installed anchors be tested to verify the calculated capacities. The friction value may then be modified based on the actual capacities of the anchor shafts.

Only the frictional resistance developed beyond the assumed failure plane should be used in resisting lateral loads. Concrete should be placed in the lower portion of the shafts to the assumed failure plane. This should be done by pumping the concrete into the bottom of the shaft. The anchor shaft between the failure plane and the face of the shoring may be backfilled with sand after concrete placement.

It should be noted that the recommendations presented in this section are for use in design and for cost estimating purposes prior to construction. The contractor is solely responsible for safety during construction.

CONSTRUCTION PROCEDURE FOR ANCHOR SHAFTS

This section presents a description of the construction procedure for installation and testing of concrete anchor shafts against vertical soldier piles. For design of the anchor shafts, refer to the body of the report for the recommended skin friction values.

EXCAVATION PROCEDURE

After the vertical soldier piles are installed, the initial excavation will be extended some 3 feet below the levels of the upper row of lateral support. After the anchor shafts are installed, tested and approved, the excavation will be extended to some 3 feet below the next level of lateral support. After the lower lateral support system is installed and approved, the excavation will be extended to the basement level.

TIEBACK CONSTRUCTION

Tieback anchors are normally designed to take loads through skin friction. The portion of the anchor shaft that is considered to be effective in taking pull out loads is the length of the member beyond the potential wedge of the failure. Refer to the body of the report for the recommended inclination of the potential wedge of the failure.

Installation and testing of the tieback anchors should be done under continuous observation and testing of the Soil Engineer. Should significant variations in the soil conditions be encountered during the installation of the anchor shafts, the Soil Engineer will modify the skin friction values to reflect the actual soil conditions.

During the course of our field exploration caving was not detected, due to the method of drilling. However, it should be noted that, if caving is experienced during the excavation of the tieback anchors, it would be necessary to modify the construction procedure (use of casing, etc.).

CONCRETING

After each of the anchors are drilled, foundation grade concrete is placed in the excavated holes using a pump. The concrete is placed only to the level of the potential wedge of failure. After the anchor is tested and approved, the portion of the anchor

between the face of the excavation and potential wedge of failure is filled with sand slurry mixture to help maintain the excavation.

SURFACE LOADS

The temporary shoring are designed for lateral earth pressure and any surcharge loads imposed by the existing improvements around the site. In addition, the temporary shoring system should be designed for future loads such as crane and other equipment which operate at close proximity of the top of excavation.

TESTING

The recommended shoring pressures in the report are based on a factor of safety of 1.5. If the anchors are successfully loaded to about 150 percent of the design loads, the overall factor of safety of the shoring system would be on the order of 2.

It is customary to test at least one anchor per face of excavation per rows of anchors, for long term loading conditions (24 -hour loading). Load-deflection data for each anchor should be maintained during the testing. Pull out loads are normally applied in increments of 50%, 100% and 150% of the design loads. Once the full 150% design load is applied, the test load is maintained and the deflection of the anchor is recorded. During this stage of testing, the deflection of the anchor during a 15 minute period should not exceed 1/10 of one inch. The total deflection of the anchor should be less than 12 inches, although larger deflections may be accepted provided that both the shoring Engineer and the Soil Engineer each approve such anchors. For long term anchor testing, the 150 percent of the design load is normally applied for a period of 24 hours. If the deflection of the anchor, under 150 percent of the design load, is less than 1/10 of one inch for a period of 4 hours, the test may be considered satisfactory provided that the 150% load has been applied for at least 8 hours.

FAILED ANCHORS

The anchors which do not pass the required pull out test as indicated above are considered to be failed anchors. The modified capacity of the failed anchors would be 2/3 of the available pull out force of the anchors. Additional resistance in a form of

supplemental anchors or rakers should then be installed to compensate for the difference between the design and available loads.

The failed anchors would then be locked off at 2/3 of the available capacity of the anchor which results a deflection of no more than 1/10 of one inch during a 15 minute period. Since it will be necessary to extend the excavation below the row of anchor in order to install a replacement anchor, it would be advisable to lock off the failed anchor at some value between 2/3 and full available capacity of the anchor. The Soil Engineer and the Shoring Engineer are to provide specific recommendations for the lock off loads for each failed anchor.

LOCK OFF LOADS

After each anchor has been tested and approved by the Soil Engineer, the anchor should be locked off at the design load. The lock off load should be maintained within 90 to 110 percent of the designed load.

CONTINUED EXCAVATION

After each and every anchor in a given face is tested and approved, the excavation can then be extended below the drill bench levels. The Soil Engineer may permit local excavations to be extended below the drill bench elevation where it would be required for construction of replacement anchors.

MONITORING

It is important that an accurate monitoring of the shoring system be maintained during basement construction. Both the horizontal and vertical deflections of the soldier piles should be recorded. The vertical and horizontal movement of the shoring system should be recorded on a weekly basis and the results be submitted to Soil and Shoring Engineers for review and comment. The accuracy of the reading should be within 0.01 of a foot. The record should be produced in a readily understandable form. The surveyor should submit to the Soil Engineer, prior to the start of excavation, a plan which would indicate the method selected for monitoring of the excavation.

Monitoring of the excavation performance should be initiated from the beginning of the initial excavation. The weekly monitoring may be modified as the job progresses.

Once the subterranean garage has been constructed and the tieback have been de-tensioned, monitoring of the performance will no longer be required.

DEFLECTIONS

The lateral support of the existing off-site buildings should be maintained though installation of proper shoring. The project Structural Engineer should use appropriate surcharge from the off-site buildings and add to the lateral earth pressure. Proper monitoring program should be maintained during basement garage excavation to assure the shoring pile deflections would not exceed the tolerable limits.

It is noted that, if off-site buildings occur within an equal distance to the depth of excavation, the temporary shoring piles should be designed to allow lateral deflection at the top of the piles not to exceed ½ of one inch. In the areas where the shoring system supports public right-of-way, or where the off-site buildings occur outside a horizontal distance equal to the depth of excavation, the tolerable lateral movement at the tops of the shoring piles could be increased to one inch.

It is possible that, locally, deflections at the top of the soldier piles may exceed the design values. For this case, the Soil and Shoring Engineers should be consulted to provide remedial measures such as installation of additional support system.

The survey of the conditions of the off-site improvements is strongly recommended before installation of the shoring piles and basement garage excavation. Any apparent distress (cracks, separations, settlement, etc.) should be identified on the survey map.

FOUNDATIONS

It is anticipated that, after the planned excavation is made, bedrock will be exposed at the finished grades. The bedrock is expected to provide very good support for the proposed building and the associated retaining walls through conventional spread footing foundation system. Where shoring piles are incorporated into the walls, the support system can be in a form of friction piles.

The retaining wall footings should be at least 24 inches wide and should be established at least 24 inches into bedrock. The footings of the proposed building

should be at least 18 inches wide and should be established at least 18 inches into bedrock.

Properly designed and constructed spread footings established in bedrock may be based on allowable maximum bearing pressure of 4,000 pounds per square foot.

For the purpose of estimating the vertical capacity of individual piles, an allowable maximum skin friction value of 750 pounds per square foot may be used for bedrock. Piles should have a minimum length of 15 feet. Uplift capacity may be assumed one half of the downward capacity.

For friction pile design, the weight of the shafts can be assumed to be taken by end-bearing, therefore, need not be added to the structural loads. All piles should be concreted as soon as they are excavated and, for safety, should not be left open overnight.

During the course of our field investigation, no caving was experienced. Caving, therefore, is expected not to be a problem at this site.

The above given allowable maximum bearing and skin friction values are for the total of dead, plus frequently applied live loads. For short duration transient loading; wind or seismic forces, the given values may be increased by one third.

Total and differential settlements of the proposed building and the associated retaining walls, supported through foundations established in bedrock are expected to be within tolerable limits; less than 1/2 and 1/4 of one inch, respectively. The major portion of the settlements are expected to occur during construction.

LATERAL DESIGN

Lateral resistance at the base of footings in contact with bedrock may be assumed to be the product of the dead load forces and a coefficient of friction of 0.40. Passive pressure on the face of footings or developed against the vertical shafts, may also be used to resist lateral forces.

For the purpose of the subject project, a passive pressure of 250 pounds per square foot at the surface of rock and increasing at a rate of 300 pounds per square foot per foot of depth to a maximum value of 3,600 pounds per square foot may be used for footings poured against bedrock.

It should be noted that, if the individual shafts are spaced at least 2.5 times the pile diameters the above given values can be doubled. For the purpose of moment calculations, the point of fixity of the vertical shafts on slope may be taken at some 12 inches into bedrock or 3 feet below soil (compacted fill/native soils) whichever is less.

GRADE SLABS

Grade slabs may be cast on rock, compacted fill soils or structurally supported. Where grade slabs span between soil and rock, the rock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at some 3 percent higher than the optimum moisture content). This will create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements.

Due to fine grained nature of the bedrock and soil, the grade slabs for this project should be at least 5 inches thick and be reinforced with # 3 bars placed at every 18 inches on center. As an alternative to over-excavation of bedrock, a 6-inch thick slab can be used for this project.

In the areas where moisture sensitive floor covering is used and slab dampness cannot be tolerated, a vapor-barrier should be used beneath the slabs. This normally consists of a 6-mil polyethylene film covered with 2 inches of clean sand.

BASEMENT WALLS

Static design of the retaining walls supporting cuts of bedrock with supported bedding (north-facing cuts) can be designed based on an equivalent fluid pressure of 45 pounds per square foot per foot of depth. The retaining walls supporting cuts with daylighted bedding should be based on an equivalent fluid pressure of 85 pounds per square foot per foot of depth.

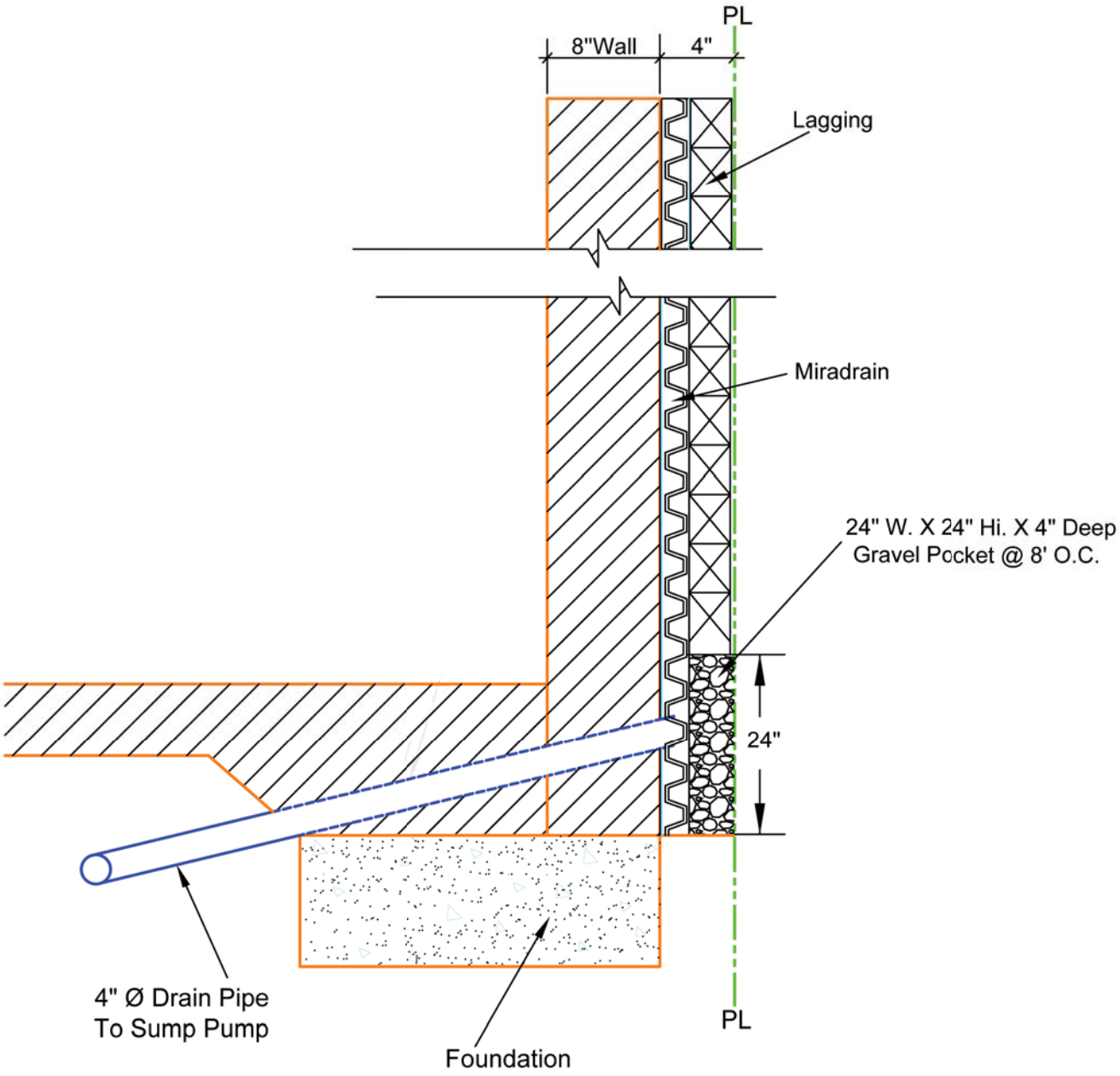
In addition to the lateral earth pressure, the cantilevered walls should also be designed for any applicable uniform surcharge loads imposed on the adjacent grounds. Uniform surcharge effects may be computed using a coefficient of 0.30 times the assumed uniform loads.

It is noted that, based on the new Code requirement, the basement walls greater than 6 feet should be designed not only for static, but also for seismic lateral earth pressures. For the purpose of this project, the magnitude of seismic lateral earth pressure should be assumed ½ of the above give static pressure values with maximum pressures occurring at top and decreasing to zero at the bottom of the wall. The point of application of the lateral thrust of the seismic pressure should be assumed 0.6 time the wall height, measured from the top of the wall.

The above given pressures assume that hydrostatic pressure will be relieved from the back of the walls through a properly designed and constructed backdrain. This will require that proper subdrain be installed behind the basement garage walls.

Wall backdrain consists of 4-inch diameter perforated pipes encased in gravel (at least one cubic foot per lineal foot of the pipes). In order to reduce the chances of siltation and drain clogging, the gravel should be wrapped in filter fabric proper for the site soils. The backs of all retaining walls should be properly waterproofed.

As an alternative to the use of standard pipe and gavel subdrain, and if adequate space is not available, “Mira-drain” system may be used behind the basement garage walls. The “Mira-drain” should be connected to a collector at the base of the cut. The collected water should then be carried through the basement garage walls into the garage sump and pumped out. For detail of alternative wall backdrain system, see following Sketch No. 1:


PL
8"Wall
4"
Lagging
Miradrain
24" W. X 24" Hi. X 4" Deep
Gravel Pocket @ 8' O.C.
24"
4" Ø Drain Pipe
To Sump Pump
Foundation
PL

It is noted that, when using an alternative wall subdrain, a “Request-For Modification” should be filed with the City.

Where adequate space is available, granular fill (silty sand soils) should be placed and compacted behind the retaining walls (after the subdrain is installed) to a relative compaction of at least 90 percent. At least one field density tests should be taken for each 2 feet of the backfill. The degree of compaction of the wall backfill should be verified by the Soil Engineer.

Where space is limited, free-draining gravel should be placed behind the retaining walls. The gravel should then be capped with at least 18 inch thick site soils also compacted to a relative compaction of at least 90 percent. It should be noted that the backfill placed behind the basement garage walls should be made after the concrete decking is cast. All grading surrounding the building should be such to ensure that water drains freely from the site and does not pond.

The retaining walls supporting all ascending slope should have a minimum freeboard of 24 inches and a paved drain to collect minor debris washed down during rainy season. The freeboard should then be cleaned after rainy seasons.

EXCAVATION

During the course of our field investigation, site materials, soils and upper bedrock were excavated using hand tools. Such materials were explored without significant difficulty. Therefore, it is anticipated that the bedrock at this site can be excavated with normal equipment.

GRADING RECOMMENDATIONS

The major portion of the site grading work will involve cutting operation. Minor removal and recompaction of the fill and native soils will also be made for the support of grade slabs and parking pavements. Also, some wall backfilling will be made. All wall backfill should be non-expansive and granular in nature.

Prior to placing any fill, the Soil Engineer and Engineering Geologist should observe the excavation bottoms. The areas to receive fill should be scarified and

compacted in-place to a relative compaction of at least 90 percent at some 3 percent higher than the optimum moisture content.

General guidelines regarding site grading are presented below in an itemized form which may be included in the earthwork specification. It is recommended that all fill be placed under engineering observation and in accordance with the following guidelines:

1. All vegetation should be shaved and removed from the site before site grading work is initiated;
2. Subdrain should be installed behind all retaining walls. All subdrain should be observed and approved by this office before backfilling. The subdrain pipes should be laid at a minimum grade of two percent for self cleaning.
3. The excavated materials from the site may be reused in the areas of new fill. Wall backfill, however, should consist of granular materials.
4. Rocks larger than 6 inches in diameter should be excluded from the areas of compacted fill.
5. Fill material, approved by the Soil Engineer, should be placed in controlled layers. Each layer should be compacted to at least 90 percent of the maximum unit weight as determined by ASTM designation D 1557-02 for the material used.
6. All wall backfill should be properly benched into bedrock. All new fill should be established in native ground;
7. The fill material shall be placed in layers which, when compacted, shall not exceed 8 inches per layer. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to insure uniformity of material in each layer.
8. When moisture content of the fill material is too low to obtain adequate compaction, water shall be added and thoroughly dispersed until the moisture content is near optimum. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material shall be aerated by blading or other satisfactory methods until near optimum moisture condition is achieved.
9. Inspection and field density tests should be conducted by the Soil Engineer during grading work to assure that adequate compaction is attained. Where compaction of less than 90 percent is indicated, additional compactive effort should be made with adjustment of the moisture content or layer thickness, as necessary, until at least 90 percent compaction is obtained.

SITE DRAINAGE

Site drainage should be provided to divert roof and surface waters from the property through non-erodible drainage devices to the street. In no case should the surface waters be allowed to pond adjacent to building or behind the basement garage walls. A minimum slope of one and two percent are recommended for paved and unpaved areas, respectively.

The site drainage recommendations should also be expanded to include the following:

1. Having positive slope away from the buildings, as recommended above;
2. Installation of roof drains, area drains and catch basins with appropriate connecting lines;
3. Managing landscape watering;
4. Regular maintenance of the drainage devices;
5. Installing waterproofing or damp proofing, whichever appropriate, beneath concrete grade slabs and behind the basement walls.
6. The owners should be familiar with the general maintenance guidelines of the City requirements.

OBSERVATION DURING CONSTRUCTION

The presented recommendations in this report assume that all structural foundations will be established in bedrock. All pile and spread footing excavations should be observed by a representative of this office before reinforcing is placed.

The project engineering geologist should observe the temporary cut slopes. Modification to our recommendations may be necessary if significant variations are noted in the geologic features of the underlying bedrock.

The depths of soldier piles and anchor tieback should be confirmed by a representative of this office before concrete is placed. It is essential to assure that soldier piles are drilled to proper depths and diameters, and in accordance with the project plans and specifications. The anchor tieback capacity test should be made under engineering observation to assure conformity with the requirements of the approved plans and specification.

Site grading work, such as wall backfilling, and subgrade preparation for basement slab support, should be conducted under observation and testing by a representative of this firm. All backfill soils should be properly compacted to at least 90 percent relative compaction. For proper scheduling, please notify this office at least 24 hours before any observation work is required.

CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either express or implied.

It is noted that the conclusions and recommendations presented are based on exploration "window" borings and excavations which is in conformance with accepted engineering practice. Some variations of subsurface conditions are common between "windows" and major variations are possible.

-oOo-

The following Plates and Appendices are attached and complete this report:

Engineering Calculation Sheets
Drawing Nos. 1 and 2 - Area Geologic Map and Site Plan
Drawing No. 2 through 5 - Geologic Cross Section A-A' through C-C'
Figure No. 1 - Site Vicinity Map
Figure No. 2 - Regional Topographic Map
Figure No. 3 - Regional Geologic Map
Figure No. 4 - LA Preliminary Geologic Map
Appendix I- Method of Field Exploration
Figure Nos. I-1 through I-9
Appendix II- Methods of Laboratory Testing
Figure No. II-1
Appendix III - Prior Reports for Adjacent Property (Single Hard Copy)

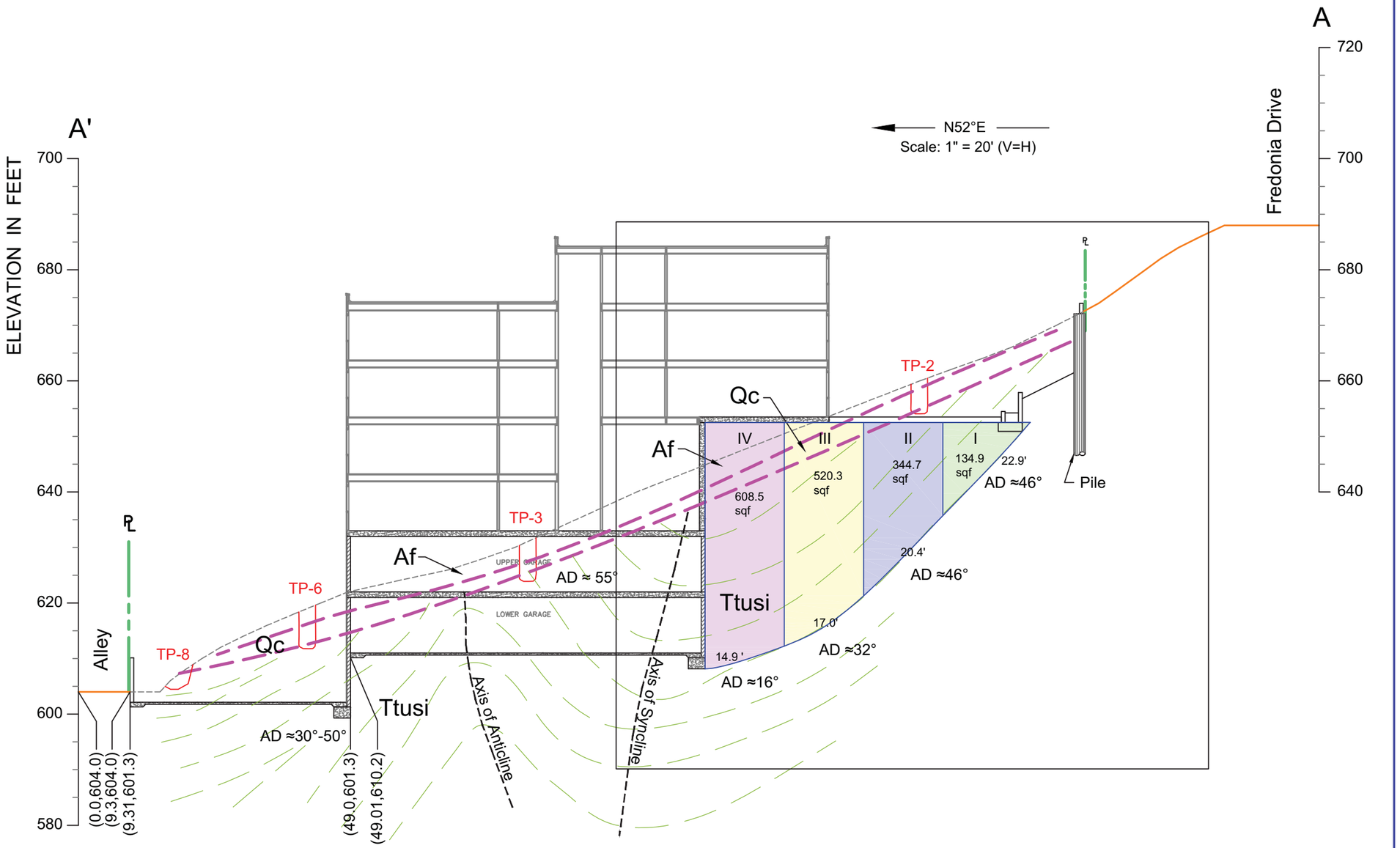
Respectfully Submitted,
APPLIED EARTH SCIENCES

Dan Daneshfar
Senior Project Engineer
RCE 68377

Shant Minas
Engineering Geologist
EG 2607

DD/SM/la

Distribution: (3)



LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

TP-8 = Location & Number of Test Pit (AES, 2016)

= Geological Contact Approximately Located

LATERAL EARTH PRESSURE CALCULATION

DESCRIPTION:	Proposed New Multifamily Residential Building Project	DATE:	06 / 10 / 2016
FOR:	3900 Kentucky LLC	DRAWN BY:	AH
ADDRESS:	3900 Kentucky Dr. & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM

PROJECT No: 16-379-22

SHEET No: 1

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					Driving Force	*Resisting Force*	
SECTION	**W (kips)**	**q (ksf)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$Wcos^2\alpha tan\phi$ (k)**	**CLcosα (k)**
I	16.86	0	22.9	46	8.4	3.3	4.0
II	43.09	0	20.4	46	21.5	8.4	3.5
III	65.04	0.3	17	32	31.2	18.9	3.6
IV	76.06	0.3	14.9	16	21.3	28.4	3.6

Along Bedding Parameters

Total Unit Weight γ = 125 pcf

C = 250 psf

ϕ = 22 °

Height of Wall

H= 35 ft

Length of Surcharge Load on Wedge

L_{SL}= 15 ft

∑ Resisting Forces= 73.7 K

∑ Driving Force= 82.6 K

F.S. = ∑ RF / ∑ DF = 73.69 / 82.55 = 0.89

FACTOR OF SAFETY = 1.25

1.25 (DF) = (RF) + x

1.25 * 82.55 = 73.69 + x

X = 103.19 - 73.69 = 29.5 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 48.2 pcf

Therefore use Recommended value of 50 pcf

LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM (TEMPORARY CONDITION)

North Facing Wall - Section A-A'

FOR: 3900 Kentucky LLC	**DATE:** 6/6/16	**PROJECT NO.:** 16-379-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**TABLE No. 1**

					Driving Force	*Resisting Force*	
SECTION	**W (kips)**	**q (ksf)**	**L (feet)**	**α (degrees)**	**Wsinαcosα (k)**	**$W\cos^2\alpha\tan\phi$ (k)**	**CLcosα (k)**
I	16.86	0	22.9	46	8.4	3.3	4.0
II	43.09	0	20.4	46	21.5	8.4	3.5
III	65.04	0.3	17	32	31.2	18.9	3.6
IV	76.06	0.3	14.9	16	21.3	28.4	3.6

Along Bedding Parameters

Total Unit Weight γ = 125 pcf

C = 250 psf

ϕ = 22 °

Height of Wall

H= 35 ft

Length of Surcharge Load on Wedge

L_{SL}= 15 ft

∑ Resisting Forces= 73.7 K

∑ Driving Force= 82.6 K

F.S. = ∑ RF / ∑ DF = 73.69 / 82.55 = 0.89

FACTOR OF SAFETY = 1.5

1.5 (DF) = (RF) + x

1.5 * 82.55 = 73.69 + x

X = 123.83 - 73.69 = 50.1 k/lft.

Equivalent Fluid Density $G_h = 2P/H^2$

G_h = 81.9 pcf

Therefore use Recommended value of 85 pcf

LATERAL EARTH PRESSURE CALCULATIONS

CANTILEVERED SYSTEM (PERMANENT CONDITION)

North Facing Wall - Section A-A'

FOR: 3900 Kentucky LLC | **DATE:** 6/6/16 | **PROJECT NO.:** 16-379-22

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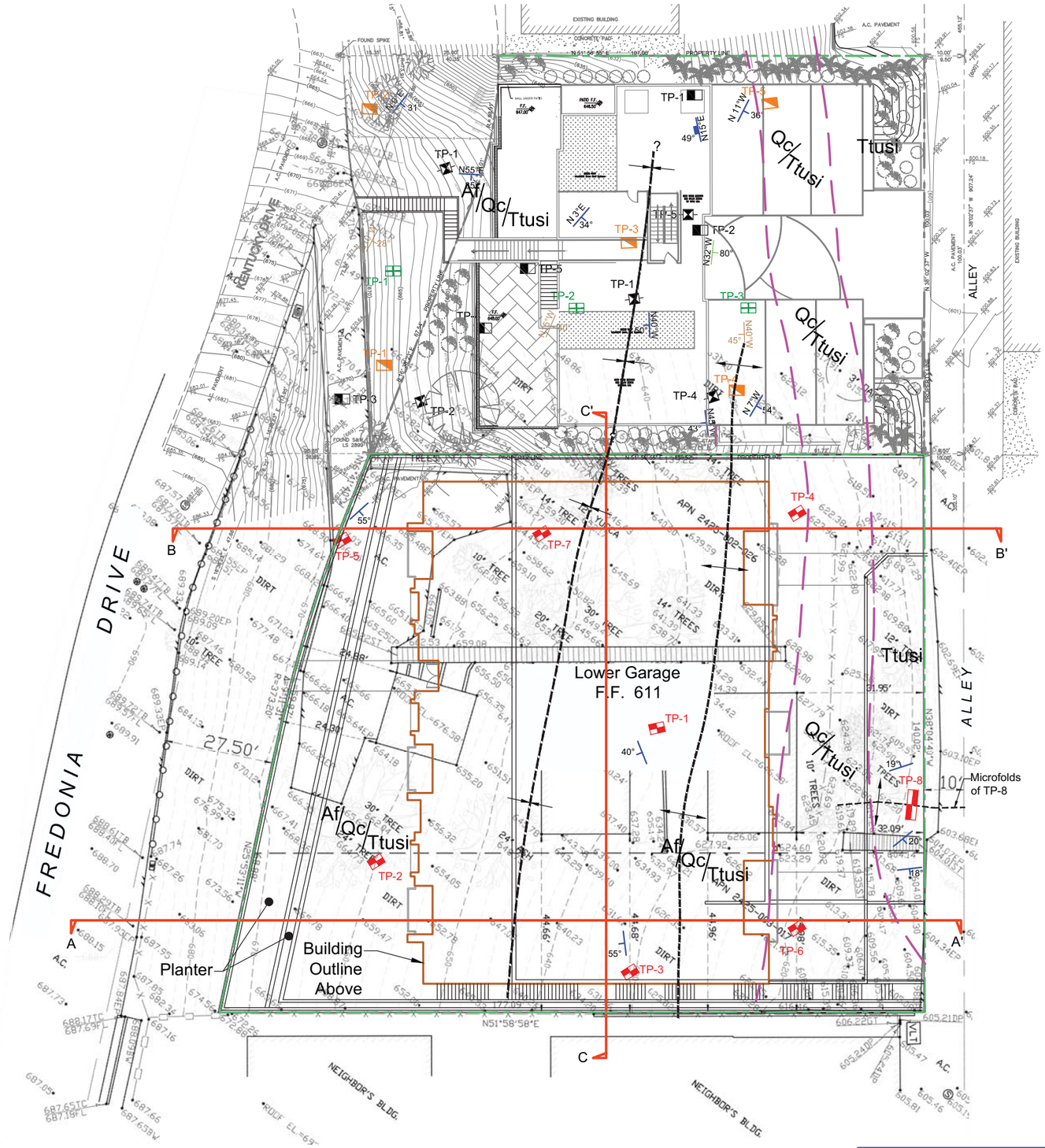
TABLE No. 2



LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- 20° = Strike & Dip of Bedding
- TP-5 = Location & Number of Test Pit (AES, 2013)
- TP-3 = Location & Number of Test Pit (AES, 1990)

  } AES Project No. 13-347-22

- TP-5 = Location & Number of Test Pit (S & G INC, 1998)
- TP-5 = Location & Number of Test Pit (Don Soils Engineering, 2004)
- = Geological Contact Approximately Located
- = Anticline Approximately Located
- = Syncline Approximately Located

Scale: 1" = 20'

AREA GEOLOGIC MAP

PROJECT No:	16-379-22		
DESCRIPTION:	Proposed New Multifamily Residential Building Project	DATE:	06 / 10 / 2016
FOR:	3900 Kentucky LLC	DRAWN BY:	VM & ZS
ADDRESS:	3900 Kentucky Dr. & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM
		DRAWING No:	1

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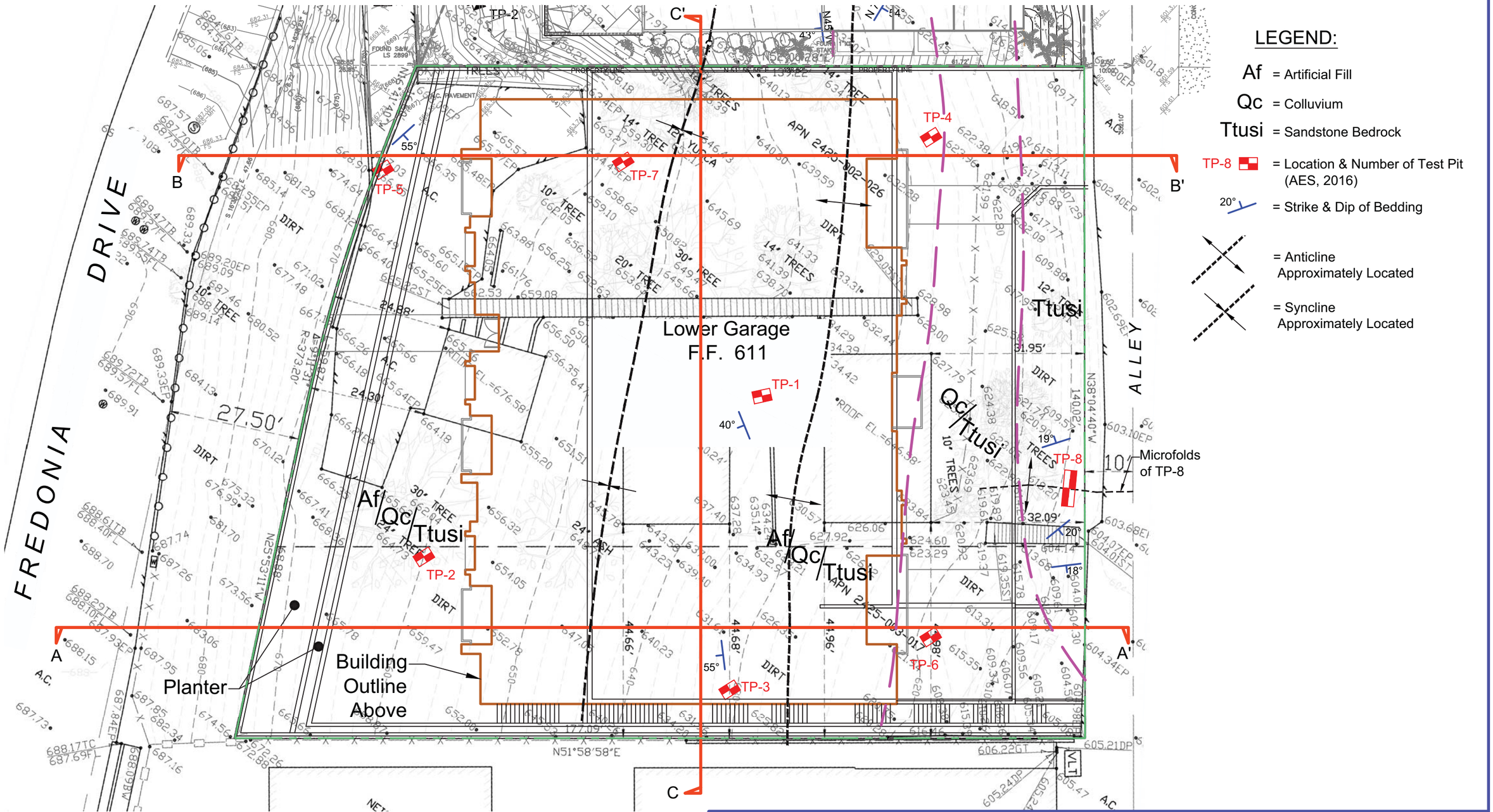

GEOLOGIC MAP & SITE PLAN

DESCRIPTION:	Proposed New Multifamily Residential Building Project	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	06 / 10 / 2016
ADDRESS:	3900 Kentucky Dr. & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM
		CHECKED BY:	SM
		DRAWING No:	2

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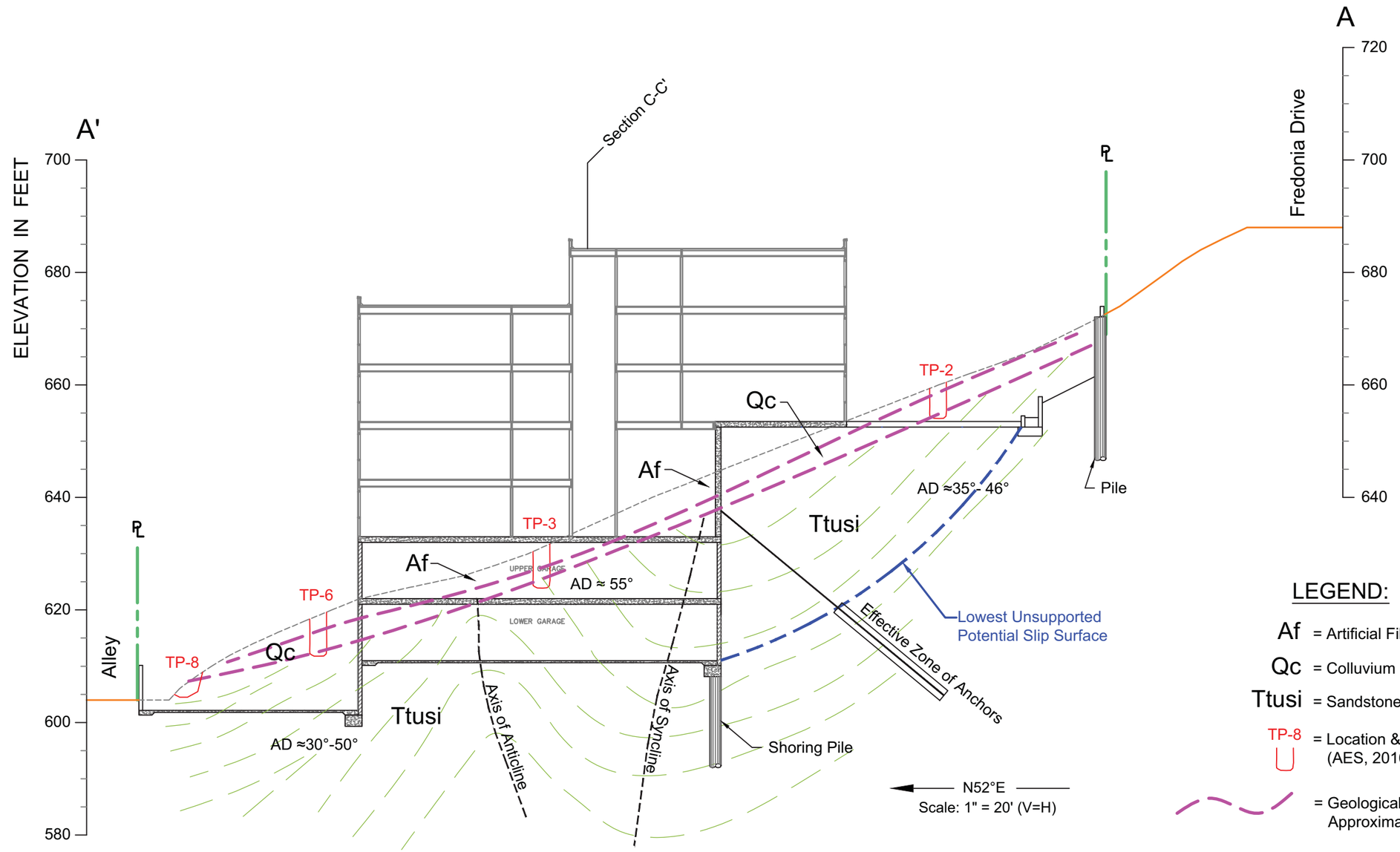

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- = Geological Contact Approximately Located

GEOLOGIC CROSS SECTION A-A'

DESCRIPTION:	Proposed New Multifamily Residential Building Project	PROJECT No:	16-379-22
FOR:	3900 Kentucky LLC	DATE:	06 / 10 / 2016
ADDRESS:	3900 Kentucky Dr. & 3894 Fredonia Dr., Los Angeles, CA 90068	DRAWN BY:	VM
		CHECKED BY:	SM

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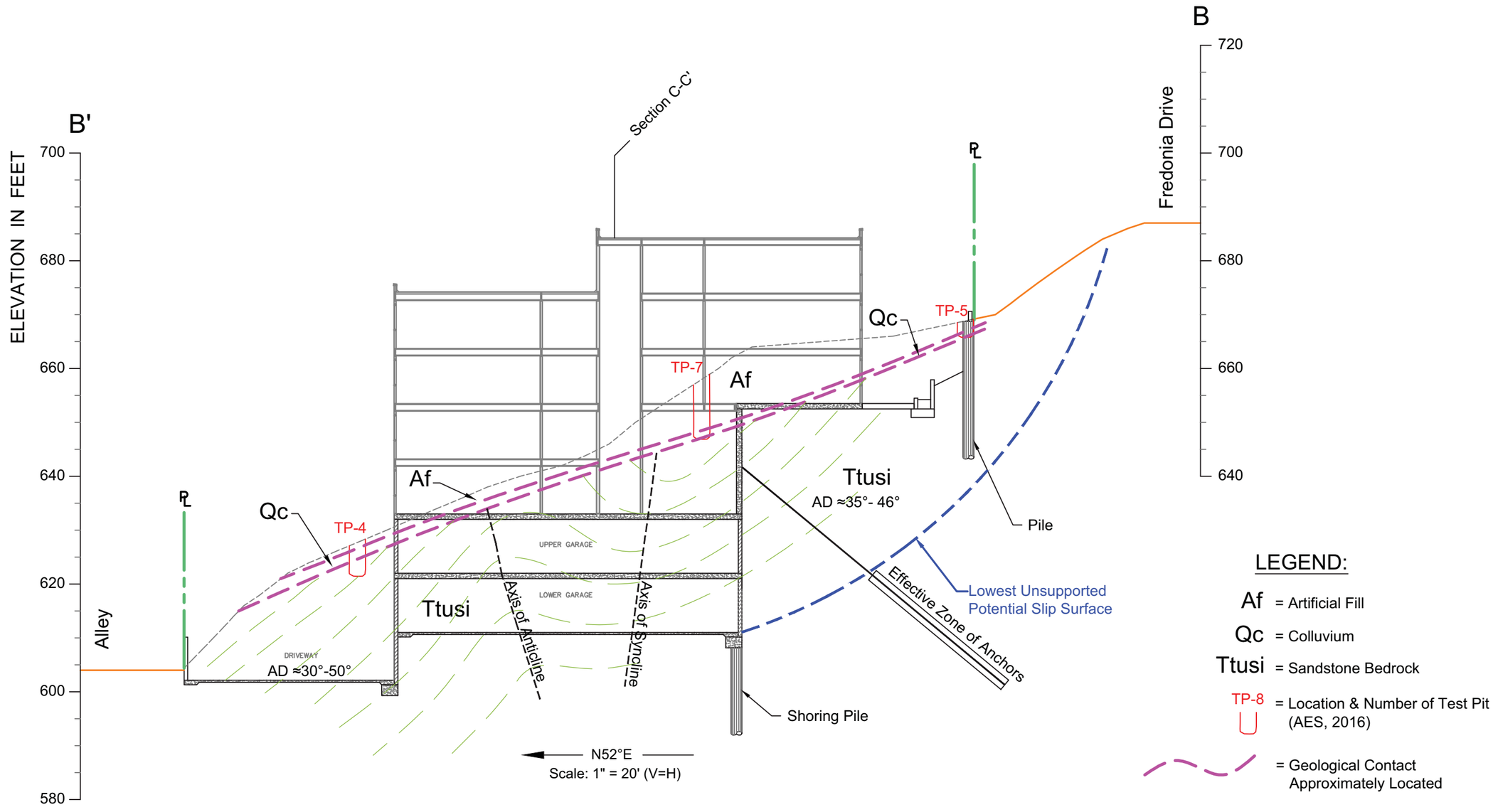
DRAWING No: 3



LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- = Geological Contact Approximately Located

GEOLOGIC CROSS SECTION B-B'

DESCRIPTION:	Proposed New Multifamily Residential Building Project	DATE:	06 / 10 / 2016
FOR:	3900 Kentucky LLC	DRAWN BY:	VM
ADDRESS:	3900 Kentucky Dr. & 3894 Fredonia Dr., Los Angeles, CA 90068	CHECKED BY:	SM

PROJECT No: 16-379-22

DRAWING No: 4

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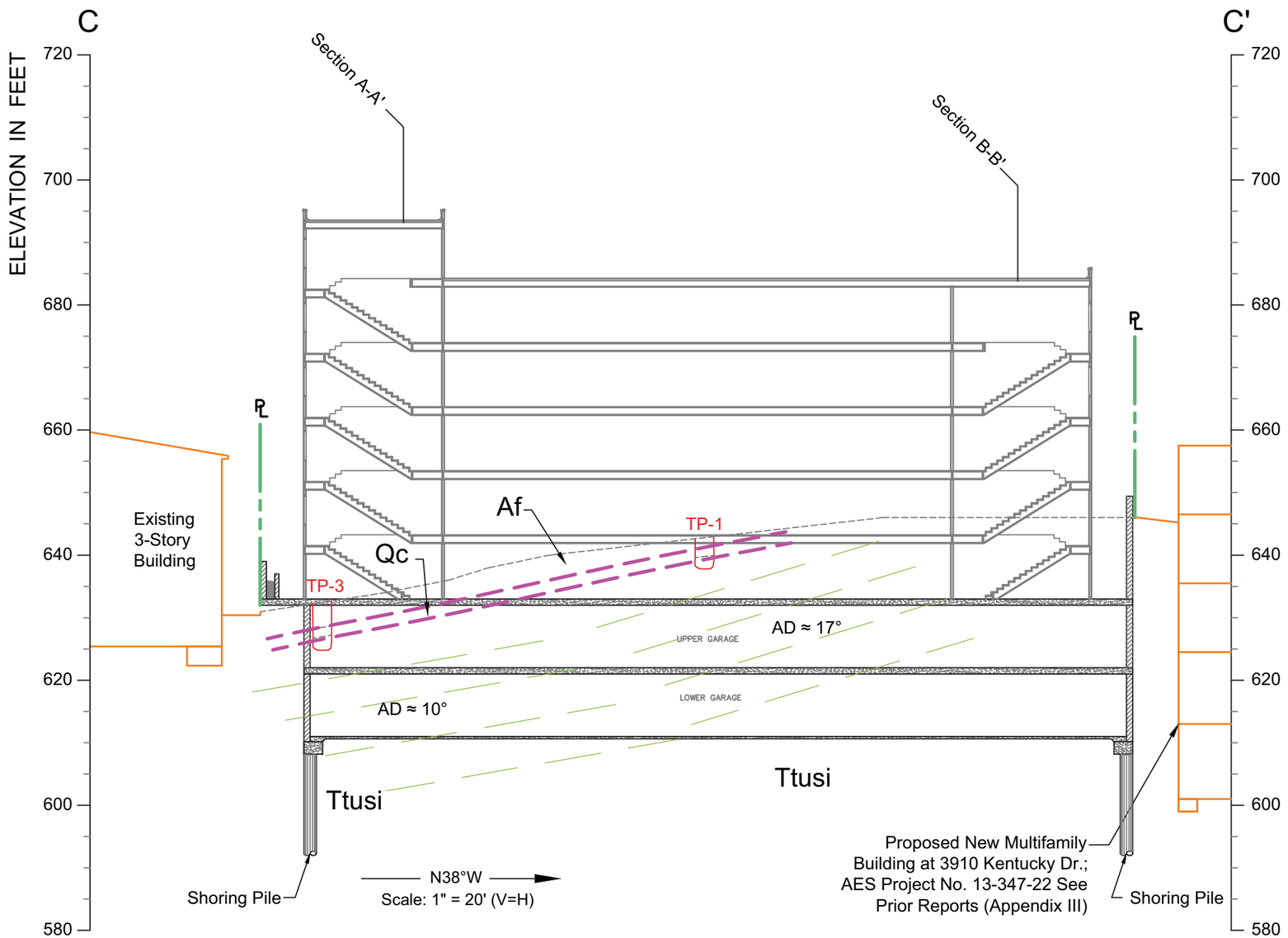

LEGEND:

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- TP-8 = Location & Number of Test Pit (AES, 2016)
- = Geological Contact Approximately Located

GEOLOGIC CROSS SECTION C-C'

DESCRIPTION:	Proposed New Multifamily Residential Building Project
FOR:	3900 Kentucky LLC
ADDRESS:	3900 Kentucky Dr. & 3894 Fredonia Dr., Los Angeles, CA 90068

PROJECT No:	16-379-22
DATE:	06 / 10 / 2016
DRAWN BY:	VM
CHECKED BY:	SM
DRAWING No:	5

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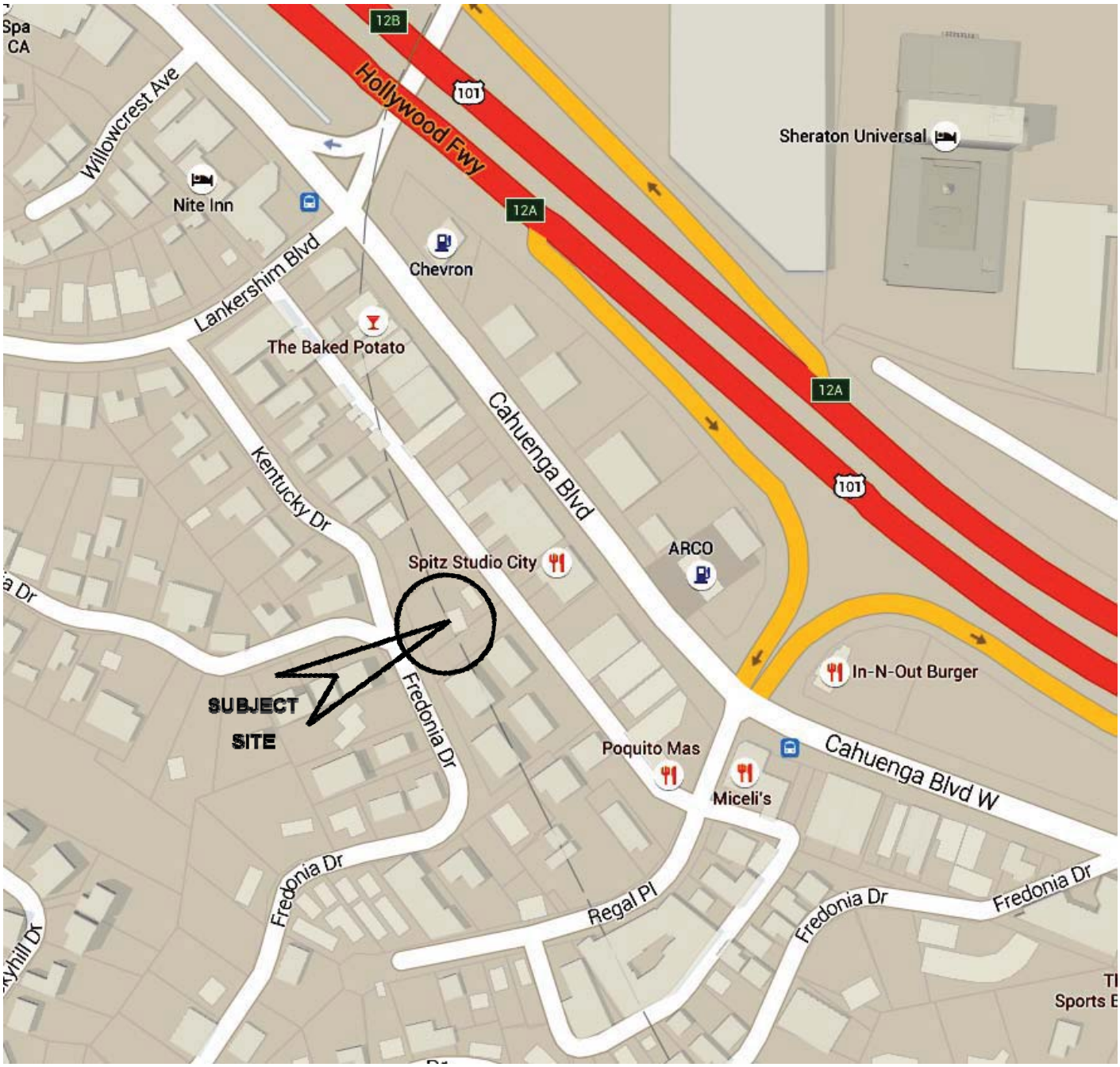

Reference: Portion of Google Maps

SITE VICINITY MAP

Proposed New Multifamily Residential Building Project	3900 Kentucky Drive & 3894 Fredonia Drive Los Angeles, CA 90068

FOR	DATE	PROJECT No.
3900 Kentucky LLC	06 / 10 / 2016	16-379-22

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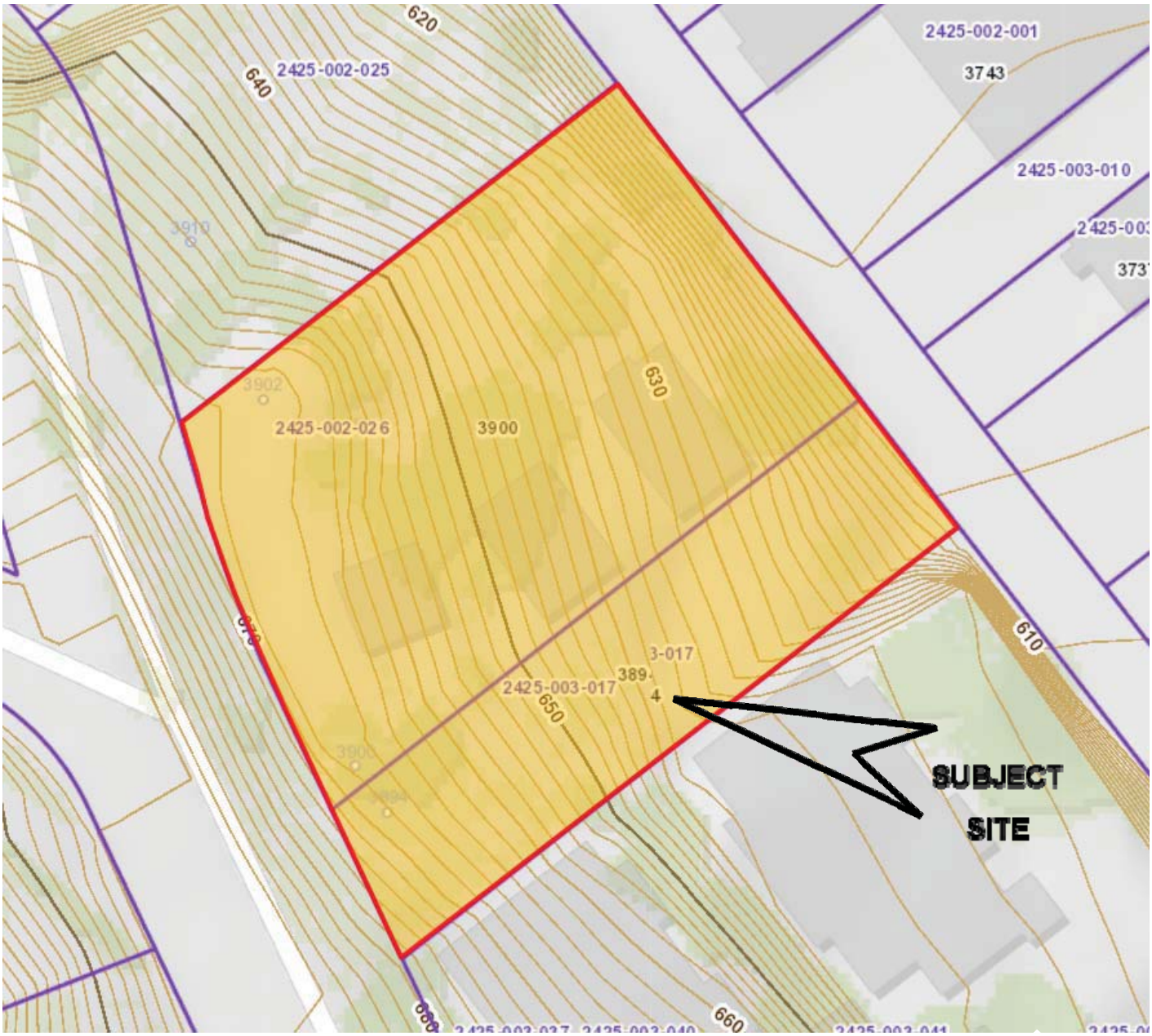
FIGURE No. 1



Reference: Los Angeles County GIS Map

REGIONAL TOPOGRAPHIC MAP

Proposed New Multifamily Residential Building Project

3900 Kentucky Drive & 3894 Fredonia Drive
Los Angeles, CA 90068

FOR	DATE	PROJECT No.
3900 Kentucky LLC	06 / 10 / 2016	16-379-22

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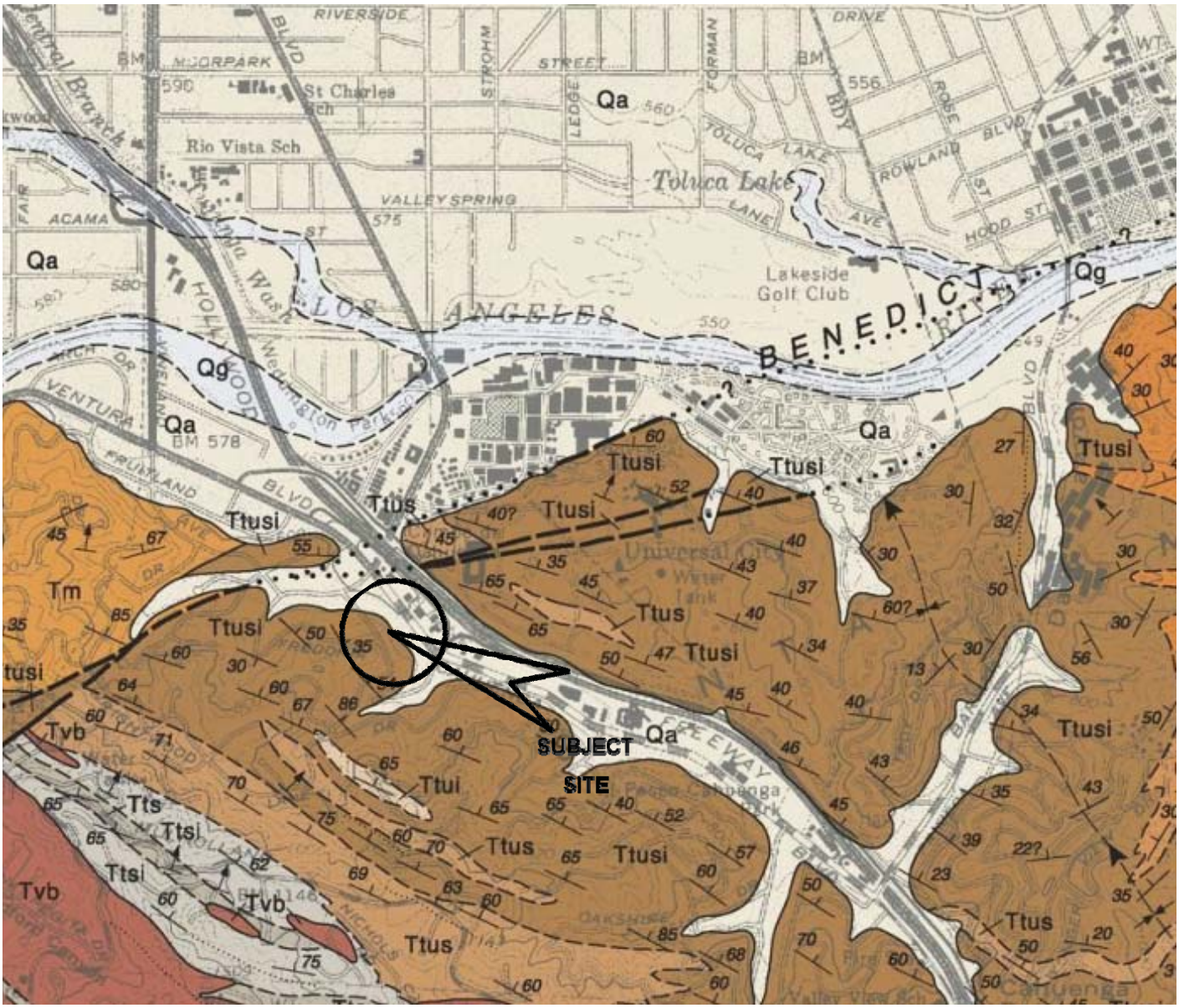
FIGURE No. 2



Qa *Alluvium: clay, sand and gravel; includes gravel and sand of minor stream channels*

Ttusi *Mostly gray micaceous clay shale or claystone, crumbly where weathered, and thin interbeds of gray to tan semi-friable sandstone*

N

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

Reference: Burbank 7.5 Minute Quadrangle

REGIONAL GEOLOGIC MAP

Proposed New Multifamily Residential Building Project

3900 Kentucky Drive & 3894 Fredonia Drive
Los Angeles, CA 90068

FOR	DATE	PROJECT No.
3900 Kentucky LLC	06 / 10 / 2016	16-379-22

APPLIED EARTH SCIENCES
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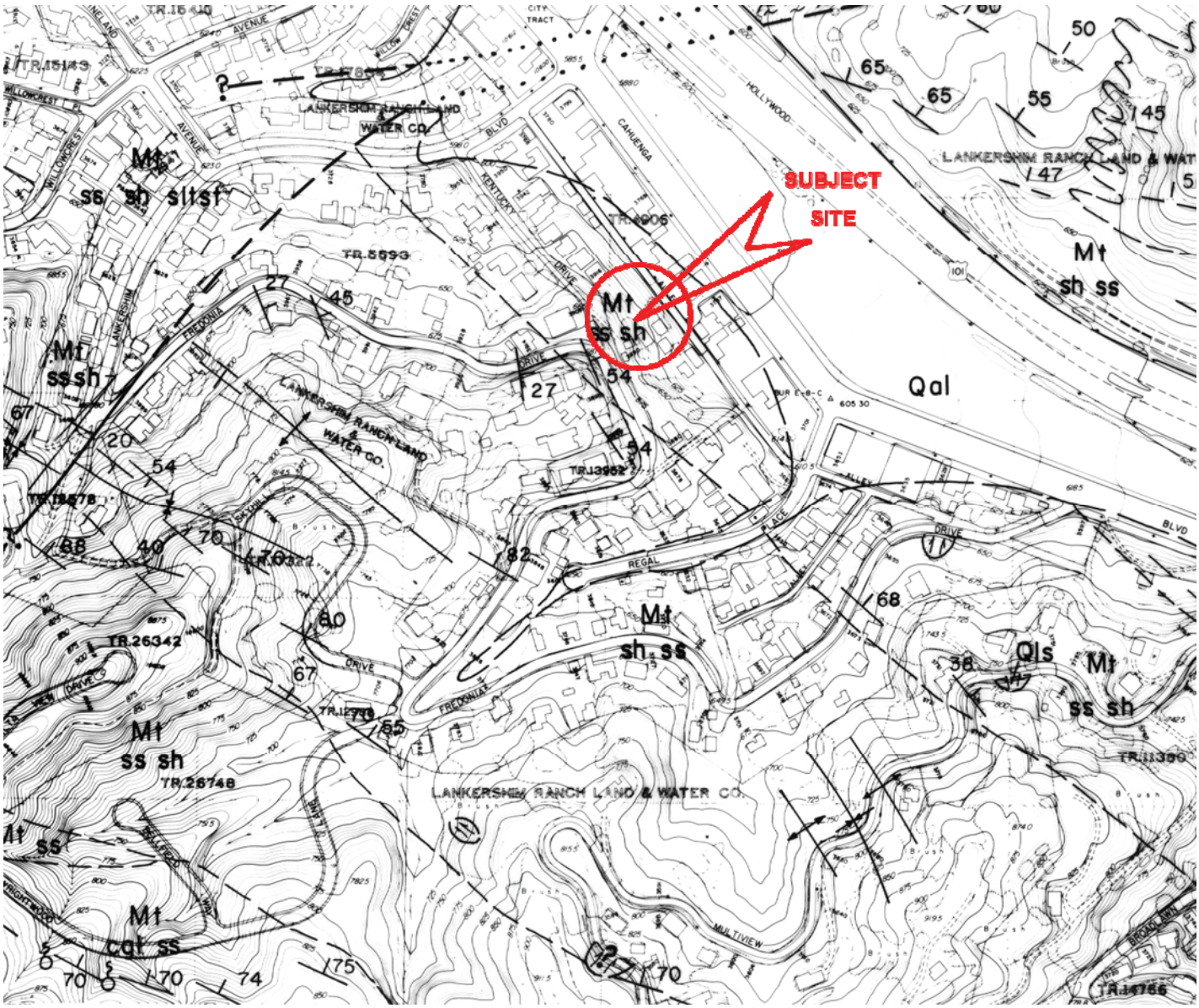
FIGURE No. 3



LA PRELIMINARY GEOLOGIC MAP

Proposed New Multifamily Residential Building Project

3900 Kentucky Drive & 3894 Fredonia Drive
Los Angeles, CA 90068

FOR	DATE	PROJECT No.
3900 Kentucky LLC	06 / 10 / 2016	16-379-22

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FIGURE No. 4

APPENDIX I
METHOD OF FIELD EXPLORATION

In order to define the subsurface conditions, eight test pits were excavated on the site. The approximate locations of the exploratory test holes are shown on the enclosed Site Plan; Drawing No. 1. The test holes were extended to a maximum depth of about 10 feet.

Continuous logs of the subsurface conditions, as encountered in the test pits, were recorded during the field work and are presented on Figure Nos. I-1 through I-8 within this Appendix. These figures also show the number and approximate depths of each of the recovered soil and rock samples.

Relatively undisturbed samples of the subsurface materials were obtained by driving successive drops of a 36-pound metal weight free-falling a vertical distance of about 30 inches. The relatively undisturbed soil and bedrock samples were retained in brass liner rings 2.5 inches in diameter and 1.0 inch in height.

Field investigation for this project was performed on April 12, 2016 and May 23, 2016. The material excavated from the test pits was placed back and compacted upon completion of the field work. Such material may settle. The owner should periodically inspect these areas and notify this office if the settlement creates a hazard to persons or property.

Date: May 6, 2016
Project No: 16-379-22

Figure No. I-1

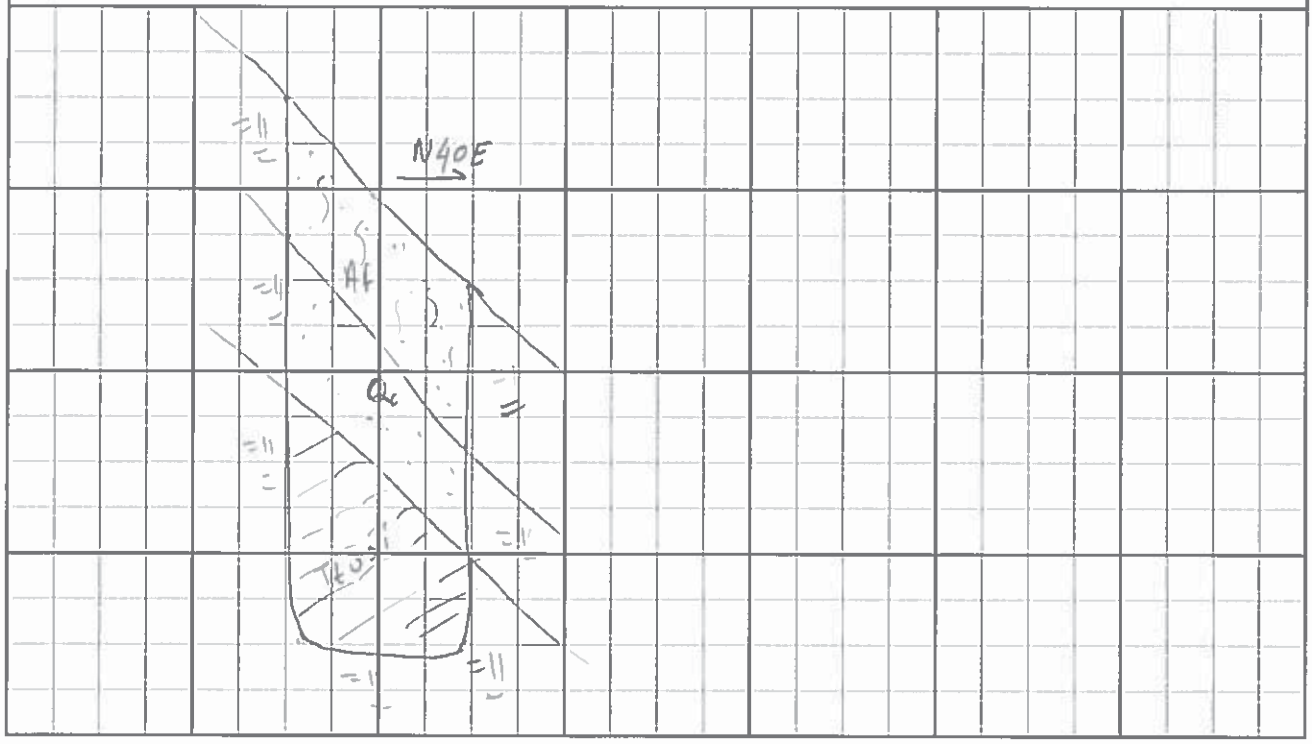
EXPLORATORY TEST PIT NO. 1

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
90 @ 2.0'	11			Artificial Fill (Af)	0' - 1.5': FILL: Silty Sand (SM), very fine to medium grained, grayish brown, moderately compact to compact, tight, slightly moist to moist, scattered roots
				Colluvium (Qc)	1.5' - 3.0': COLLUVIUM: Silty Sand (SM), very fine to medium grained, decomposed sandstone, interbedded layers of sandstone and shale, moderately compact to compact, soft to stiff, slightly moist to moist, yellowish brown to grayish brown.
101 @ 5.0'	14	N60W 40SW		Bedrock (Ttusi)	3.0' - 5.0': BEDROCK: Interbedded sandstone and shale layers, approximately 1.0" to 2.0", yellow to grayish tan, moderately weathered on the surface, crumbly where weathered, slightly moist to moist.
					Total Depth 5.0 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=2'



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Date: May 6, 2016
Project No: 16-379-22

Figure No. I-2

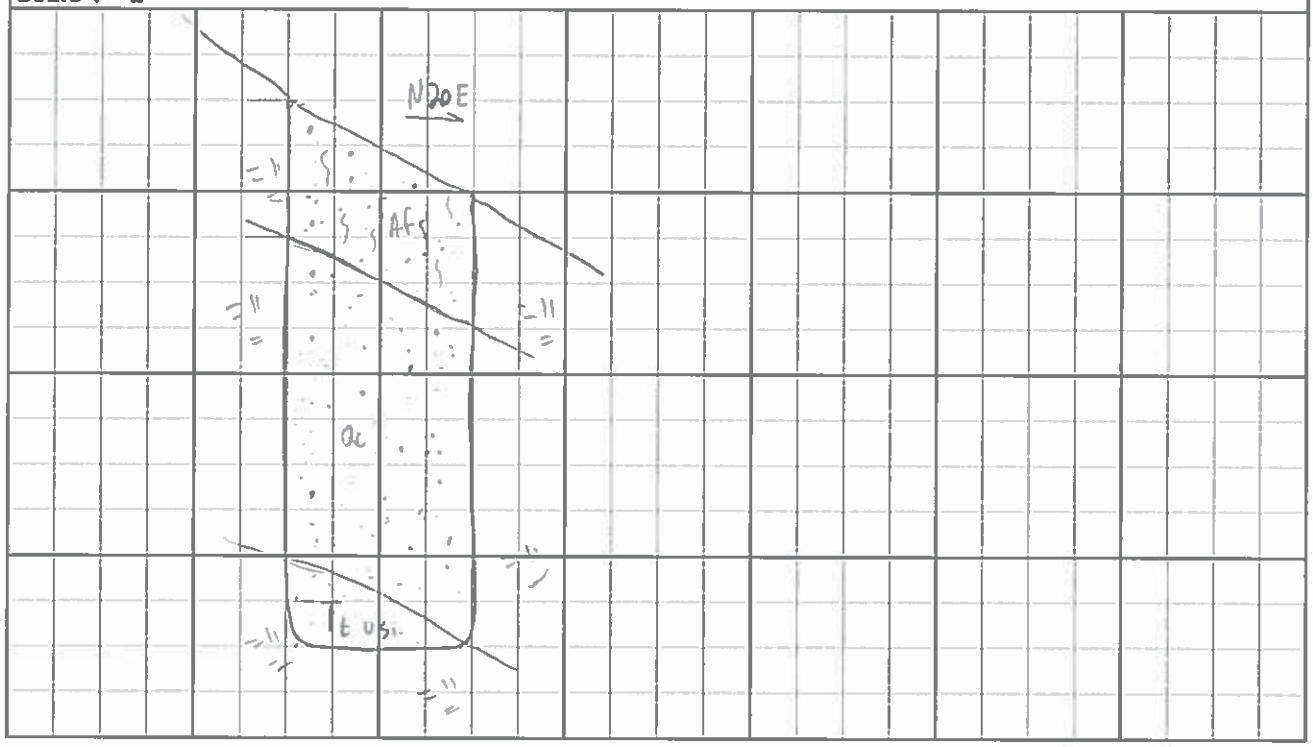
EXPLORATORY TEST PIT NO. 2

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
				Artificial Fill (Af)	0' - 1.5': FILL: Silty Sand (SM), very fine to medium grained, few scattered gravel fragments, asphalt and red brick fragments, grayish brown, loose to moderately compact, tight, slightly moist, scattered roots
94 @ 3.0'	9			Colluvium (Qc)	1.5' - 5.5': COLLUVIUM: Silty Sand (SM), very fine to fine grained, moderately compact to compact, stiff, slightly moist to moist, dark gray to grayish brown.
109 @ 6.0'	4			Bedrock (Ttusi)	5.5' - 6.0': BEDROCK: Fine to medium grained sandstone, tan to light gray, slightly moist, moderately weathered on the surface, crumbly and incoherent where weathered, no clear bedding surface for orientation measurement.
					Total Depth 6.0 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=2'



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Date: May 6, 2016
Project No: 16-379-22

Figure No. I-3

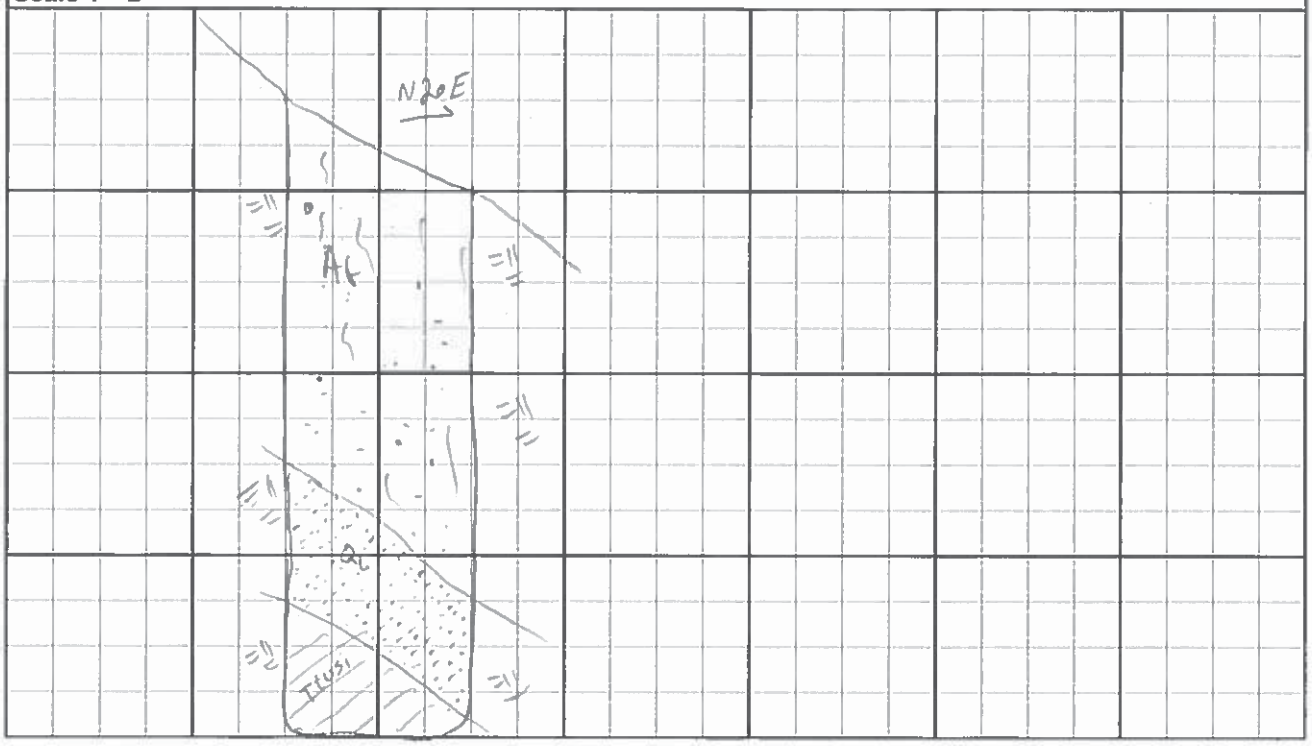
EXPLORATORY TEST PIT NO. 3

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
98 @ 3.0'	20			Artificial Fill (Af)	0' - 4.0': FILL: Silty Sand (SM), very fine to medium grained, few scattered gravel fragments, dark gray to dark brown, moderately compact to compact, slightly moist to very moist, scattered roots.
				Colluvium (Qc)	4.0' - 5.5': COLLUVIUM: Silty Sand (SM), very fine to fine grained, interbedded layers of sandstone and shale beds, approximately 1.0" layering, moderately compact to compact, moderately weathered to weathered, moist to very moist, gray to grayish brown.
		N45W 55SW			
53 @ 7.0'	6			Bedrock (Ttusi)	5.5' - 7.0': BEDROCK: Fine to medium grained sandstone, poorly graded, light yellowish brown to brown, massive, hard, slightly moist.
					Total Depth 7.0 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=2'



Date: May 6, 2016
Project No: 16-379-22

Figure No. I-4

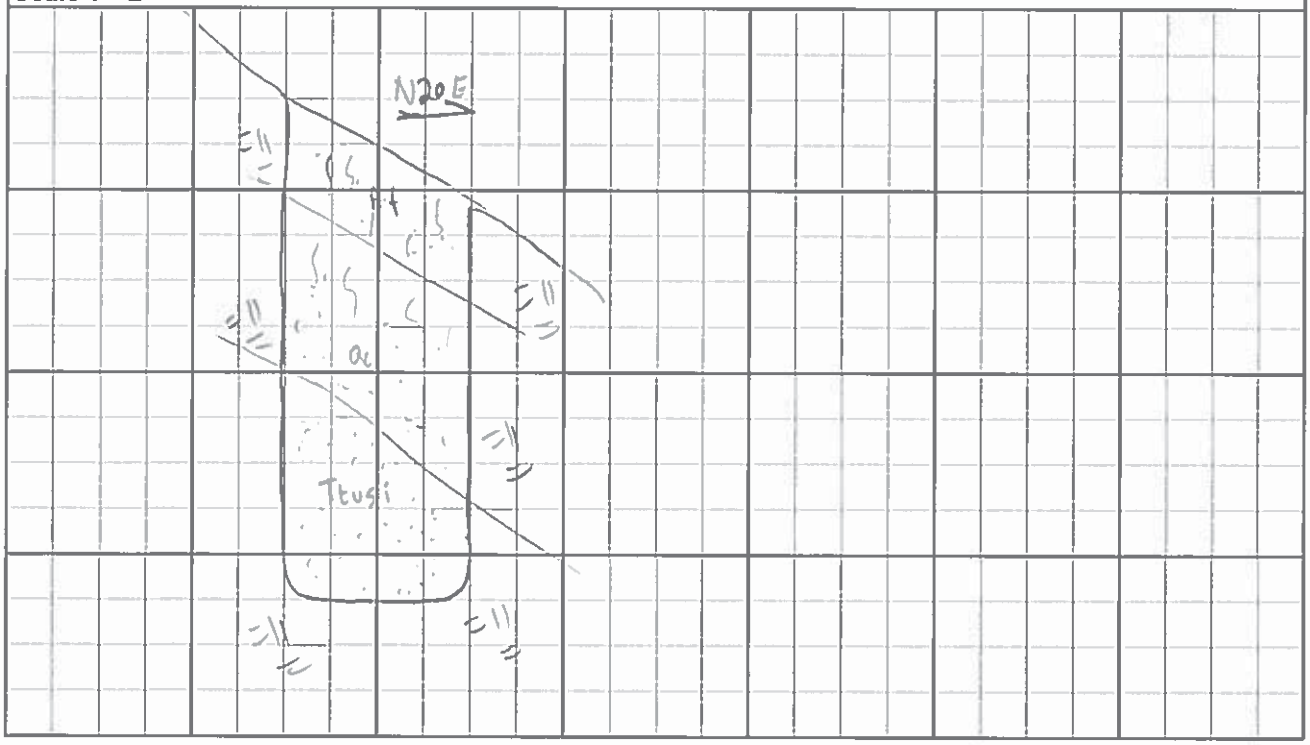
EXPLORATORY TEST PIT NO. 4

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
97 @ 3.0'	12			Artificial Fill (Af)	0' - 1.0': FILL: Silty Sand (SM), very fine to medium grained, few scattered gravel fragments, dark gray to dark brown, loose to moderately compact, slightly moist to moist, scattered roots.
				Colluvium (Qc)	1.0' - 3.0': COLLUVIUM: Silty Sand (SM), very fine to medium grained, moderately compact to compact, slightly moist to moist, dark brown, few scattered roots.
108 @ 5.5'	4			Bedrock (Ttusi)	3.0' - 5.5': BEDROCK: Fine to medium grained sandstone, poorly graded, light yellowish brown, massive, hard, slightly moist, no bedding orientation.
					Total Depth 5.5 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=2'



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Date: May 6, 2016
Project No: 16-379-22

Figure No. I-5

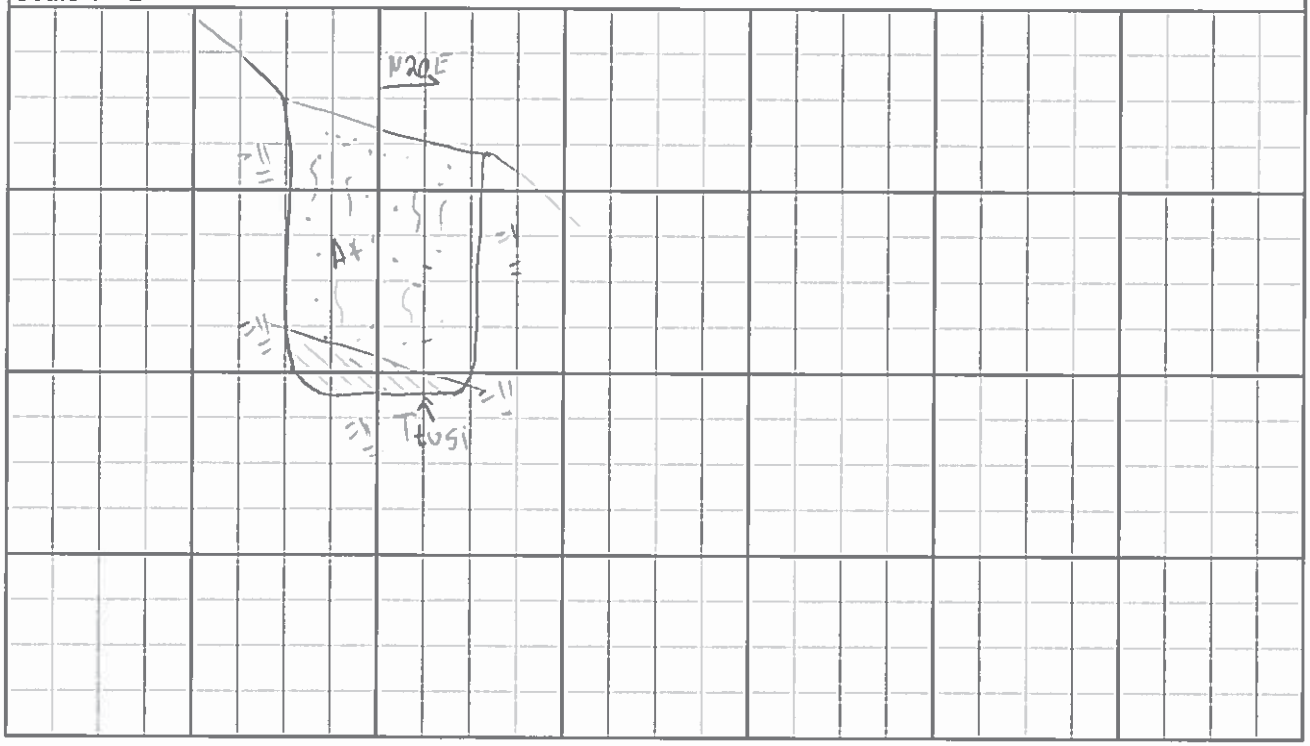
EXPLORATORY TEST PIT NO. 5

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
100 @ 1.0'	14			Artificial Fill (Af)	0' - 2.5': FILL: Silty Sand (SM), fine to medium grain with little gravel, dark gray to dark brown, loose to moderately compact, slightly moist to moist, scattered roots.
84 @ 3.0'	14	N10E 55E		Bedrock (Ttusi)	2.5' - 3.0': BEDROCK:Interbedded layers of thin sandstone and shale layering, tan to light gray, moderately weathered to weathered.
					Total Depth 3.0 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=2'



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Date: May 6, 2016
Project No: 16-379-22

Figure No. I-6

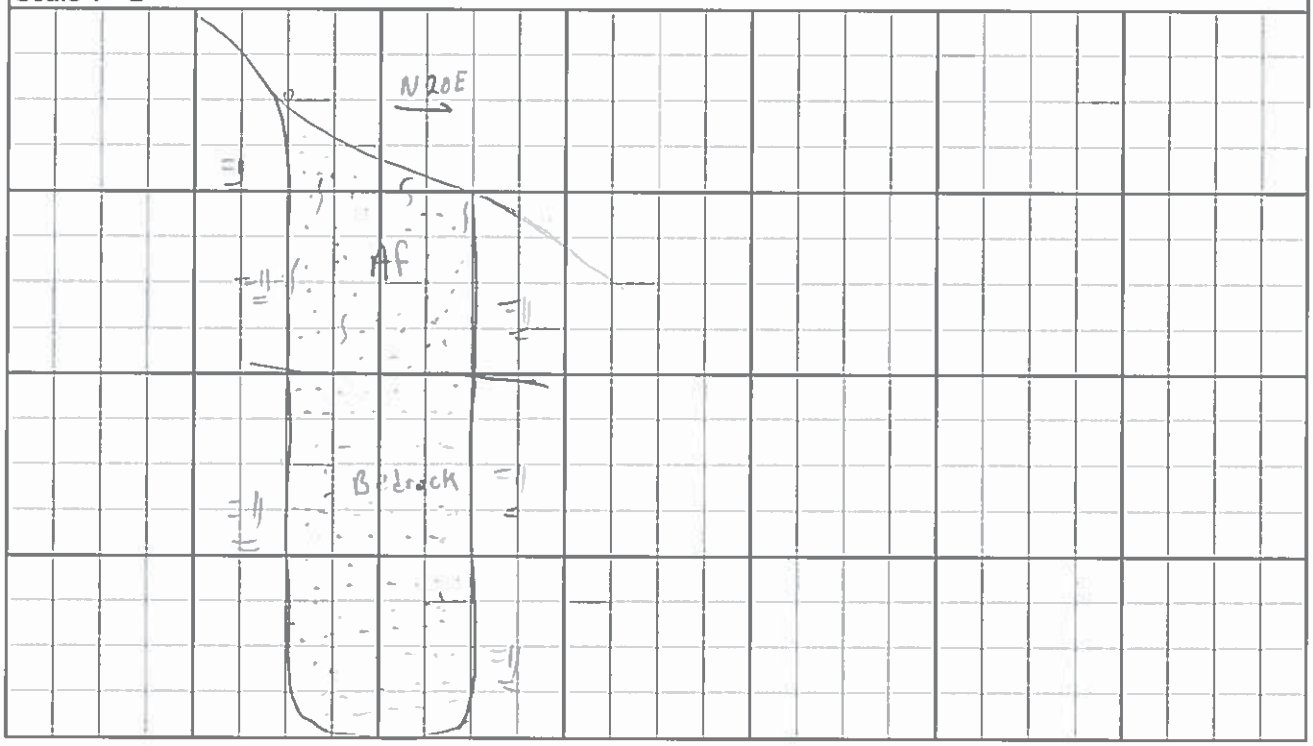
EXPLORATORY TEST PIT NO. 6

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
95 @ 3.0'	11			Artificial Fill (Af)	0' - 3.0': FILL: Silty Sand (SM), very fine to medium grain with little gravel, dark gray to dark brown, moderately compact to compact, slightly moist to moist, .
107 @ 6.5'	7			Bedrock (Ttusi)	3.0' - 7.0': BEDROCK: Fine to medium grained, poorly graded, yellowish brown to brown, slightly moist, hard, massive.
					Total Depth 7.0 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=2'



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Date: May 6, 2016
Project No: 16-379-22

Figure No. I-7

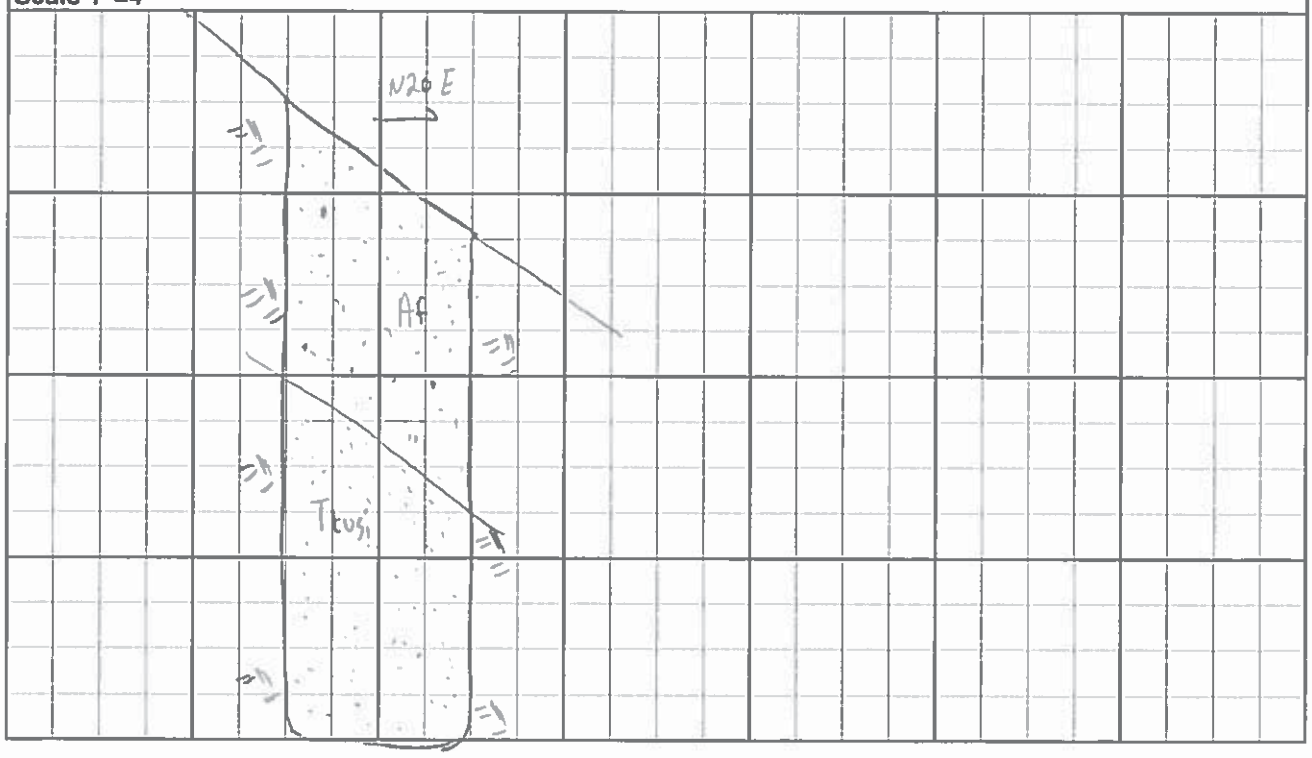
EXPLORATORY TEST PIT NO. 7

PROJECT LOCATION: 3900 Kentucky Dr, Los Angeles
DATE LOGGED: April 12, 2016

PROJECT TYPE: Proposed Apartment Unit
LOGGED BY: Ted Zeidan

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	GEOLOGIC UNIT	MATERIAL DESCRIPTION (USCS)
95 @ 1.0'	10			Artificial Fill (Af)	0' - 7.0': FILL: Silty Sand (SM), Fine to medium grain with little gravel, dark gray to dark brown, moderately compact to compact, slightly moist to moist, scattered roots.
				Bedrock (Ttusi)	7.0' - 10.0': SOIL: Fine to medium grained sand with little silts, grayish brown to brown, slightly moist, moderately compact to compact.
					Total Depth 10.0 Feet. No water, No caving. Test Pit backfilled to surface level.

Scale 1"=4'



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MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAME
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravels, gravel - sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Organic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Organic clay of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Organic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Organic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

NO. 200 NO. 40 NO. 10 NO. 4 3/4 in. 3 in. (12 in.)

U. S. STANDARD SIEVE SIZE

UNIFIED SOIL CLASSIFICATION SYSTEM

JOB NAME : Proposed New Multifamily Residential Structure
3900 Kentucky Dr. & 3894 Fredonia Dr
Los Angeles, CA 90068

JOB No. 16-379-22

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FIGURE No. I-9

APPENDIX II
LABORATORY TESTING PROCEDURES

MOISTURE DENSITY

The moisture-density information provides a summary of soil consistency for each stratum and can also provide a correlation between soils found on this site and other nearby sites. The tests were performed using ASTM D 2216 Laboratory Determination of water content Test Method The dry unit weight and field moisture content were determined for each undisturbed sample, and the results are shown on the log of exploratory borings.

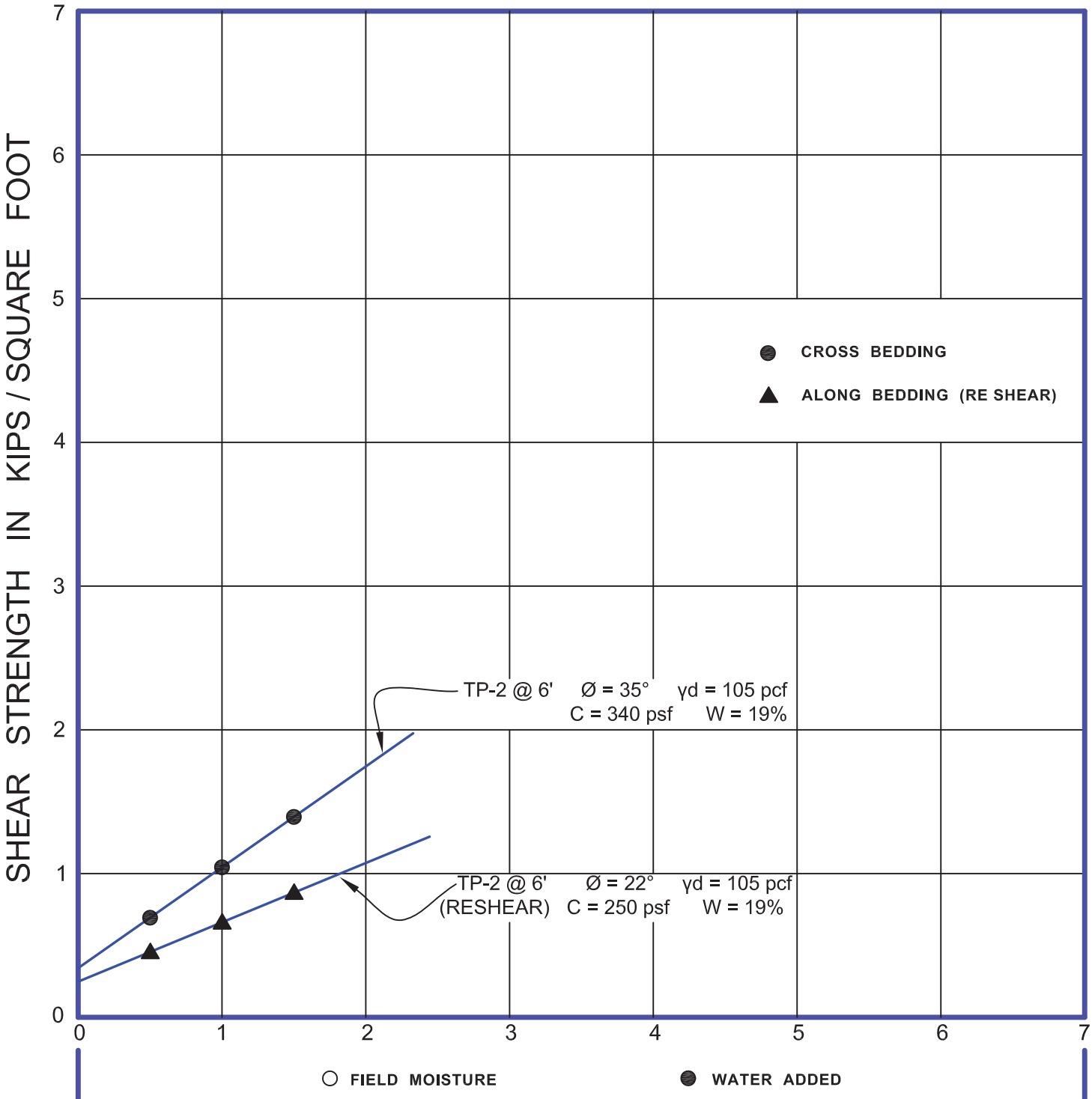
SHEAR AND RE-SHEAR TESTS

After the samples are pre-soaked overnight under initial confining pressure, a range of normal stresses are applied vertically, and the shear strengths are progressively determined under each load in order to determine the internal angle of friction and the cohesion of the sample. After application of each of the confining pressures, and before the shearing tests, sufficient amount of time is allowed for any excess pore pressure to dissipate. During the course of shear test, the sample is allowed to undergo volume change under a given confining pressure. Under each load, the direct sear tests are continued until the ultimate strength or about 3 percent strain (whichever is lower) is reached. The sample is then allowed to relax to remove the major portion of the viscous component of the shear strength. It should be noted that due to normal disturbance during sampling and laboratory extruding, the measured bedrock strengths are normally significantly lower than the actual values.

In order to determine the strength of the bedrock along bedding, foliation or joint planes or landslide debris strengths, the sample is soaked overnight under initial confining pressure. The sample is then re-sheared several times until the least strengths are obtained. During typical testing, the shearing of the samples are continued until the residual strengths are developed (the shear strengths remain constant, after the peak has been reached, or about 5 percent strain corresponding to approximately 0.100 inches of shearing deformation has occurred). At this point, the tests are stopped. The samples are then pushed back to their original position. The

shear test procedure is then repeated along the previously sheared plane. This procedure is repeated several times until constant residual strengths are obtained. The tests were performed using ASTM D 3080 Laboratory Direct Shear Test Method. The results of direct sheer and reshear tests are presented on Figure No. II-1 within this Appendix.

NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME : Proposed New Multifamily Residential Structure 3900 Kentucky Dr. & 3894 Fredonia Dr Los Angeles, CA 90068	JOB No. 16-379-22
Applied Earth Sciences GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS www.aessoil.com (818) 552-6000	FIGURE No. II - 1

APPENDIX III (SINGLE HARD COPY ONLY)

PRIOR REPORTS

AES PROJECT NO. 13-347-22

June 19, 2014 13-347-22

Mr. David Aviv
6626 Maryland Drive
Los Angeles, California 90048

Subject: Supplement No. 2
Geotechnical Investigation
Proposed Apartment Building Project
Lot 115 Of Tract No. 5593
3910 North Kentucky Drive
Los Angeles (Studio City) California

Dear Mr. Aviv:

INTRODUCTION

We are pleased to submit this Supplement No. 2 report presenting the results of our additional geotechnical engineering evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 14, 2013. Our Supplement No. 1 was issued on January 17, 2014, responding to the City Comments in Log # 81001, issued on August 5, 2013.

This submittal is in response to a comment in a Geology And Soils Report Correction Letter dated March 26, 2014, by the Grading Section Of the Department of Building and Safety of the City of Los Angeles (Log # 81001-01). For convenience, we have enclosed a copy of the City Review Letter with this Supplement No. 2 report. Our response follows to the comment is as follows.

RESPONSE TO THE COMMENT

In order to maintain the Code required clear horizontal setback of the proposed building from the ascending slope, the project plans have been revised to satisfy Code Section 1808.7.1. See the enclosed revised Site Plan and Cross Sections.

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. 2, or wish to discuss the project further, please do not hesitate to call us.

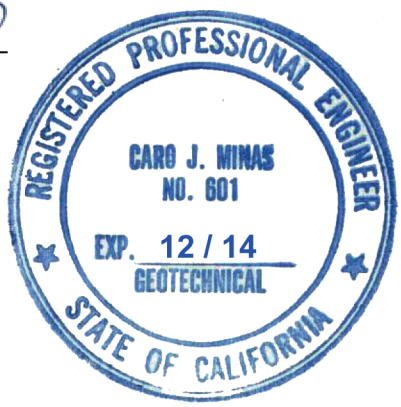
Respectfully Submitted,

APPLIED EARTH SCIENCES

Yasi Yarmo
Staff Engineer

Reviewed By:

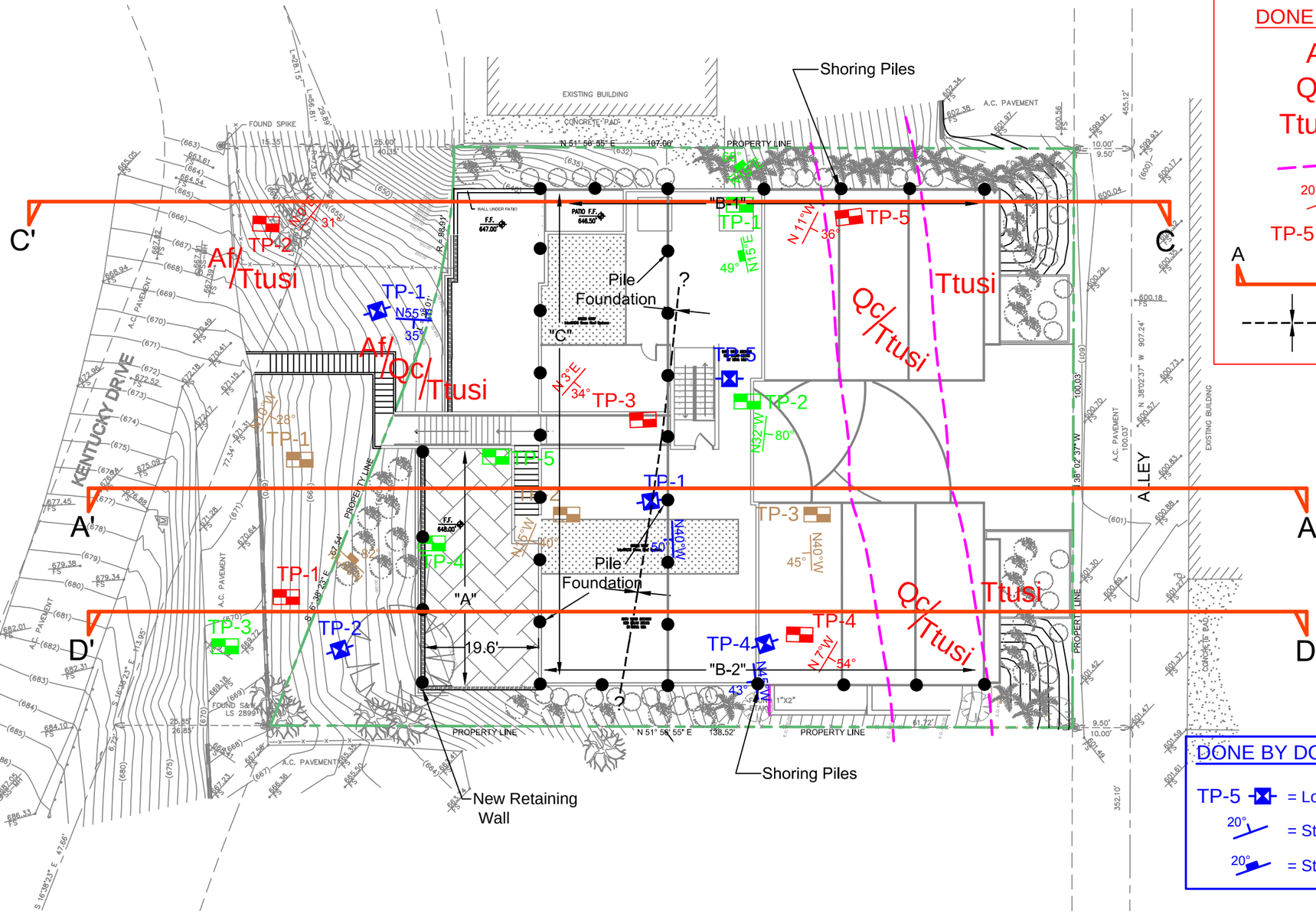
Caro J. Minas, President
Geotechnical Engineer
GE 601



YY/CJM/la

Distribution: (3)

Enclosure: Revised Geologic Map & Site Plan - Drawing No. 1.
Revised Cross Section A-A' - Drawing No. 2
Revised Cross Section C-C' - Drawing No. 4
Revised Cross Section D-D' - Drawing No. 5
Copy Of City Review Letter



DONE BY AES - 2013

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Contact, Approximately Located
- 20° = Strike & Dip of Bedding
- TP-5 = Location Of Test Pit
- A A' = Location Of Section
- = Approximate Location of Syncline

DONE BY AES - 1990

- TP-3 = Location Of Test Pit
- 20° = Strike & Dip of Bedding
- 20° = Strike & Dip of Joint

DONE BY S&G INC - 1998

- TP-5 = Location Of Test Pit
- 20° = Strike & Dip of Bedding
- 20° = Strike & Dip of Joint

DONE BY DON SOILS ENGINEERING- 2004

- TP-5 = Location Of Test Pit
- 20° = Strike & Dip of Bedding
- 20° = Strike & Dip of Joint

N

Scale: 1" = 20'

GEOLOGIC MAP & SITE PLAN

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	06 / 19 / 2014	13-347-22

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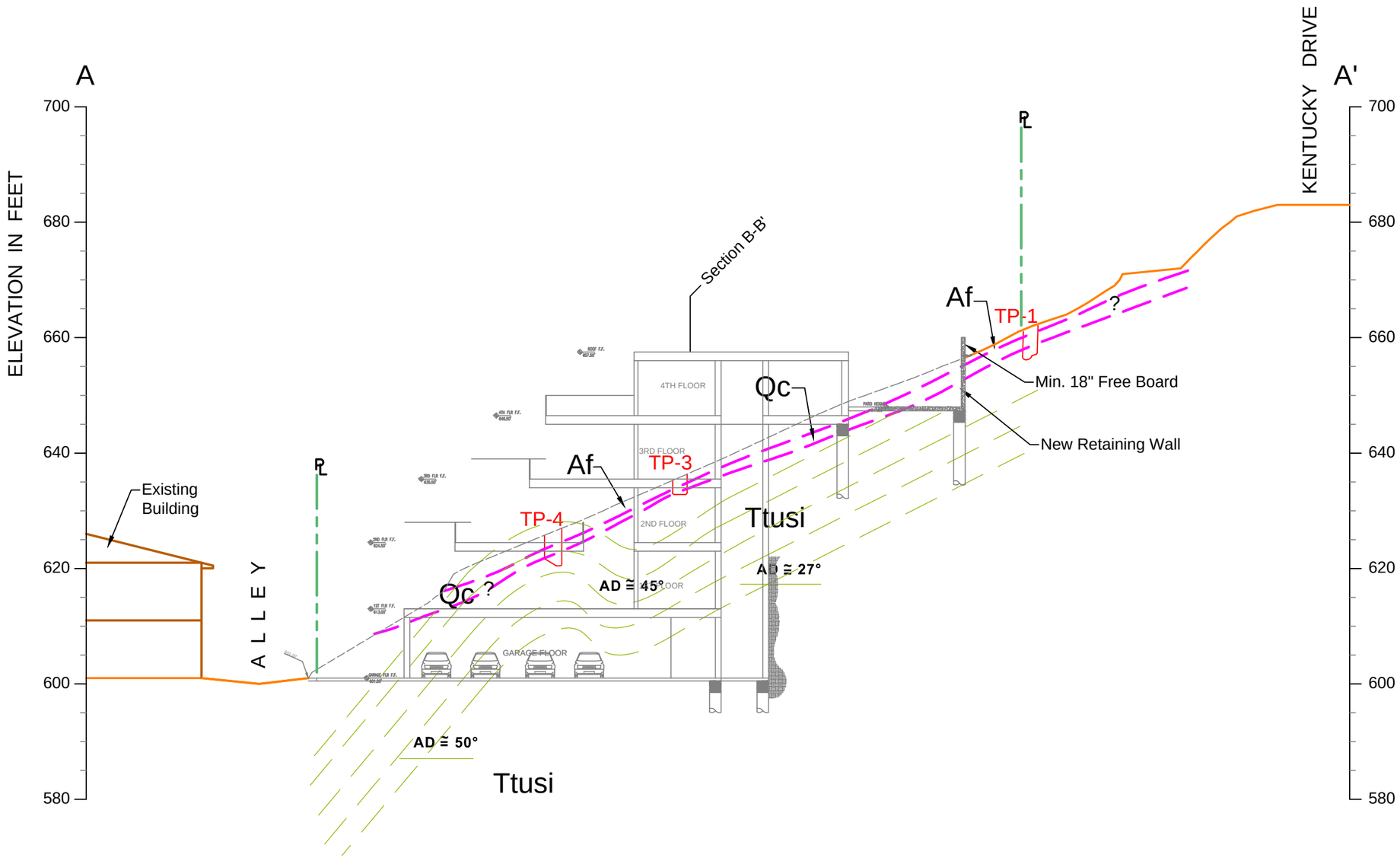
DRAWING No:	SUPP. No:
1	2



LEGEND:

Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
- - -	= Contact, Approximately Located
TP-3	= Location Of Test Pit

GEOLOGIC CROSS SECTION A-A'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	06 / 19 / 2014	13-347-22

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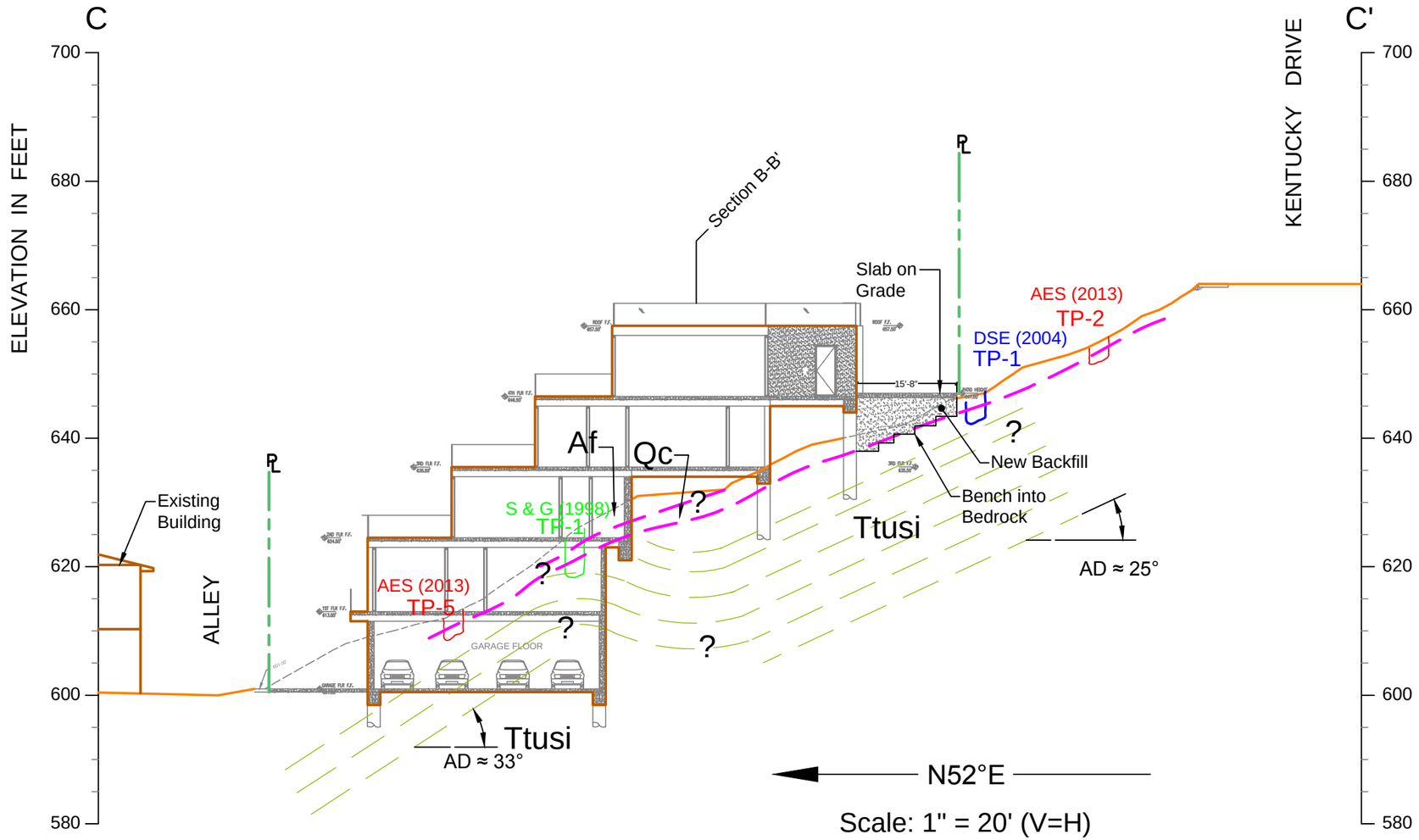

LEGEND:

Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
- - -	= Contact, Approximately Located
TP-3	= Location Of Test Pit

GEOLOGIC CROSS SECTION C-C'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	06 / 19 / 2014	13-347-22

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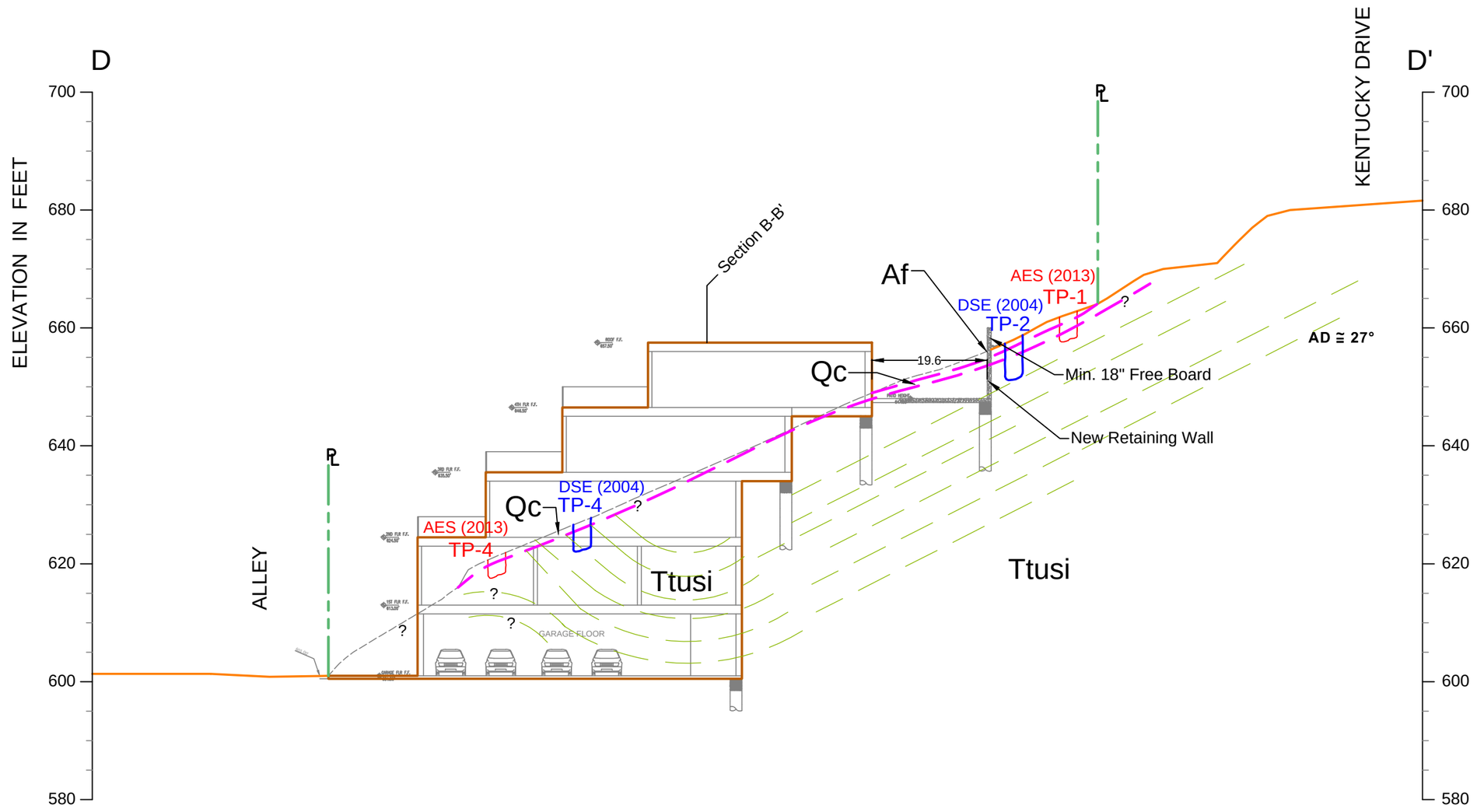
4	2



LEGEND:

Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
	= Contact, Approximately Located
TP-3	= Location Of Test Pit

N52°E

Scale: 1" = 20' (V=H)

GEOLOGIC CROSS SECTION D-D'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	06 / 19 / 2014	13-347-22

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DRAWING No:	SUPP. No:
5	2

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RAYMOND S. CHAN, C.E., S.E.
SUPERINTENDENT OF BUILDING
INTERIM GENERAL MANAGER

GEOLOGY AND SOILS REPORT CORRECTION LETTER

March 26, 2014

LOG # 81001-01
SOILS/GEOLOGY FILE - 2
LAN

David Aviv
6626 Maryland Drive
Los Angeles, CA 90048

TRACT: 5593
LOT(S): 115
LOCATION: 3910 N. Kentucky Drive

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE(S) OF DOCUMENT	PREPARED BY
Geology/Soils Report	13-347-22	01/17/2014	Applied Earth Sciences

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE(S) OF DOCUMENT	PREPARED BY
Dept. Correction Letter	81001	08/05/2013	LADBS
Geology/Soils Report	13-347-22	06/14/2013	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed the referenced reports that provides recommendations for a proposed 4-level apartment building with a lower garage level. According to the report, the site is situated on a slope about 75 feet high that descend northeast from Kentucky Drive to an alley. The earth materials at the subsurface exploration locations consist of up to 1.5 feet of uncertified fill underlain by about 2 feet of colluvial/residual soil and Topanga Formation bedrock. Bedding within the Topanga Formation is reported to dip moderately to the northeast. Apparent dips along the much of the slope is about 27 degrees.

The proposed structure will be partially subterranean. Retaining walls supported by piles will be located around the perimeter and the upper part of the interior of the structure. Unsupported bedding will be exposed in east- and south-facing excavations (see pages 9, 11, and 18 of the 06/14/2013 report). Soldier pile shoring is recommended during the construction, which will become part of the permanent retaining walls. The current report provides recommendations for a building setback from the adjacent ascending slope; including a retaining wall at the southeast part of the structure. At the southwesterly portion, a concrete deck is proposed with a 3-ft. high slough wall adjacent to the slope.

The site is located in a designated seismically induced landslide hazard zone as shown on the "Seismic Hazard Zones" map issued by the State of California. The review of the subject report(s)

AN EQUAL EMPLOYMENT OPPORTUNITY - AFFIRMATIVE ACTION EMPLOYER

can not be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2011 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. Provide recommendations and revise the plan and cross sections for providing the required building setback from the toe of the ascending slope as specified by Code Section 1808.7.1.

   The proposed deck, does not comply with the Building Code or the building setback requirements as outlined in the department's latest public information bulletin P/BC 2011-001. A level setback, backfilled or cut (not an elevated deck) shall be provided. In addition, the proposed deck as indicated does not appear to be viable based on the northwesterly to westerly sloping topography, which would place the deck significantly elevated northwest of Cross Section C-C' and the rear portion cut about 10 feet into the slope southeast of C-C'. Please review the bulletin (available on-line at www.ladbs.org), and revise the geologic map/plan and the geologic cross-section to comply with the Code and the current building setback requirements.

The geologist and soils engineer shall prepare a report containing the corrections indicated in this letter. The report shall be in the form of an itemized response. It is recommended that once all correction items have been addressed in a response report, to contact the report review engineer and/or geologist to schedule a verification appointment to demonstrate compliance with all the corrections. Do not schedule an appointment until all corrections have been addressed. Bring three copies of the response report, including one unbound wet-signed original for microfilming in the event that the report is found to be acceptable.

DANIEL C. SCHNEIDEREIT
Engineering Geologist Associate II

J. ADOLFO ACOSTA
Geotechnical Engineer I

DCS/JAA:dcs/jaa
Log No. 81001-01
213-482-0480

cc: Applied Earth Sciences, Project Consultant
LA District Office

January 17, 2014 13-347-22

Mr. David Aviv
6626 Maryland Drive
Los Angeles, California 90048

Subject: Supplement No. 1
Geotechnical Investigation
Proposed Apartment Building Project
Lot 115 Of Tract No. 5593
3910 North Kentucky Drive
Los Angeles (Studio City) California

Dear Mr. Aviv:

INTRODUCTION

We are pleased to submit this Supplement No. 1 report presenting the results of our additional geotechnical engineering evaluation and analysis for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on June 14, 2013.

This submittal is in response to comments in a Geology And Soils Report Correction Letter dated August 5, 2013, by the Grading Section Of the Department of Building and Safety of the City of Los Angeles (Log # 81001). For convenience, we have enclosed a copy of the City Review Letter with this Supplement No. 1 report. Our response follows the original order of comments.

RESPONSE TO THE COMMENT

Response To Comment No. 1

Several grading, soils and geology related files regarding the subject property as well as the adjacent properties at 3902 and 3916 Kentucky, were retrieved and reviewed as part of preparation of this Supplement No. 1. A summary of the reviewed data follows:

Lot 115, Tract 5593, 3910-12 Kentucky:

The earliest record of soils and geologic reports for this property date from 1979, when Harley Tucker Incorporated (HTI) prepared an engineering-geologic report dated 8/31/1979, to accompany the geotechnical report dated 9/12/1979 by T.K. Engineering Corp. (TKE). The reports were prepared to provide recommendations for construction of a new condominium structure.

As part of HTI's geologic evaluation, a total of five test pits were advanced on the subject property. HTI encountered Topanga sandstone and shale in all five test pits shallow (1-2.5') below ground surface. In their report, HTI noted "several surficial soil slumps" along the steep cut slope adjacent to the alley. HTI also characterized the geologic structure of the site as a synclinal structure, with northeast dips in the west portion of the site and southwest dips in the east portion of the site. On the basis of this site characterization, TKE gave foundation and grading recommendations in their 9/12/1979 report. It should be noted that a geologic map indicating the locations of the test pits advanced by HTI was not available in city records, and as such, the locations of HTI's five test pits are not known and thus are not shown on our revised Geologic Map attached.

On 5/16/1980, the City approved the tentative tract map for the proposed condominium. However, on 7/1/1980, the city issued another interdepartmental letter requested a follow-up letter to address the heavy storms of the winter of 1979-80. TKE responded with a one-page letter dated 7/24/1980 indicating that the site had not been affected by the storm damage. The city then followed up with an Approval Letter dated 9/16/1980.

TKE prepared an Addendum report dated 11/17/81 regarding surficial slope stability. The next correspondence regarding the development of this site was not until 6/18/86, at which time TKE prepared another Addendum addressing that the site had not been affected by then-recent heavy rains.

On 8/14/87, an application for inspection was filed for a new single family residence on the subject site. A GPI was also issued on 9/12/87.

On 10/1/87, Ray Eastman prepared an engineering geologic inspection report and effectively became the consulting engineering geologist of record for the project. Eastman's letter did not involve any additional subsurface exploration, instead Eastman mainly concurred with the previous findings. TKE then prepared an update report dated 10/20/87 for the proposed development, which in 1987 involved the proposed construction of two 3-story houses over garages accessed from the alley. On 12/12/87, the city issued a Correction Letter, requesting additional information and calculations. TKE followed up with an Addendum report dated 1/11/88, which was approved in the City's 2/3/88 Approval Letter.

The next consultant to be involved with this property was Applied Earth Sciences, which prepared a geotechnical report dated 12/11/89 for a proposed new single family residence on the site. AES advanced three test pits, and concurred with HTI's previous finding, mainly that the geologic structure of the underlying bedrock consisted of a synclinal fold. We have shown AES's three prior test pits on our revised geologic map, accompanied by their corresponding bedding attitudes. AES's report was approved by the city in their 2/20/90 Approval Letter.

The property remained undeveloped until 1999, at which time Soils and Geology Inc. (SGI) prepared a geotechnical report for the proposed construction of "single family apartments" on the two adjacent sites at 3902 and 3910 Kentucky. As part of their report, SGI advanced five test pits on the two sites. Their geologic characterization of the site indicated bedding in the slope direction, steeper than the slope gradient (a synclinal fold was not found or depicted in their cross section drawings.) These test pits and accompanying bedding attitudes are shown on our revised Geologic Map.

SGI's report was not approved by the city, as indicated in their 1/25/99 Correction Letter.

Lastly, Don Soils Engineering (DSE) prepared a geotechnical report for the site dated 6/21/04 for the development of a 6-unit residential building. The engineering geologist for DSE was Richard Crook, who was also the geologist for AES at the time that AES explored the site 1989. As part of their investigation, DSE advanced five test pits on the site, and once again, the subsurface structure was characterized as a synformal fold based on Crook's interpretation.

DSE's report was approved in the City's 8/24/04 Approval Letter.

Lot 116, Tract 5593, 3902 Kentucky:

The existing apartment buildings on this site were developed mainly in 1951 and as such, were not accompanied by soils reports. The only grading related file retrieved from city archives for 3902 Kentucky is the 1999 report by SGI mentioned above, in which 3902 and 3910 Kentucky were to be developed concurrently.

Lot 114, Tract 5593, 3916 Kentucky:

Regarding the property at 3916 Kentucky, the existing building was constructed in 1958. A compaction report by TKE dated 3/22/93 concerning retaining wall backfill and a certificate of approved backfill dated 10/18/95 were retrieved from city archives. No other grading records were found.

Response To Comment No. 2

SUMMARY OF RECORDS REVIEW

Several consultants have prepared reports for the development of the subject property. None of the prior proposed structures were ever built.

The main discrepancy in the existing reports is the interpretation of geologic structure of the site. Tucker, Eastman, and Crook (with both AES '89 and DSE in '04) mapped a synclinal fold through the property based on their field geologic logging. SGI and AES '13 did not find a fold and instead showed bedding orientation dipping in the same direction as the slope.

The Preliminary Geologic Map by the City of LA does show a synclinal fold in this vicinity, similar to what was shown in reports by Tucker, Eastman, and Crook.

In any case, as can be seen on our revised Cross Section A-A', enclosed with this Supplement No. 1, the location of the synclinal fold occurs within the zone of the planned excavation. Therefore, while we have shown other consultant's test pits and bedding orientations on our revised Geologic Map, with the planned grading (excavation) concept, the presence of the synclinal fold will not have effects on the slope stability analysis we have included in our original report.

Response To Comment No. 3

The referenced previous reports were reviewed and their field findings are included in our supplemental report. We generally concur with the findings from previous reports and take professional responsibility for the use of their data in our analysis. We have revised both the Geologic Map as well as Geologic Cross Section to show the synclinal fold feature as described by Crook and Tucker. However, for the sake of geotechnical engineering issues, our slope stability evaluation and foundation design recommendations presented in our original report will remain unchanged. This is because the area where discrepancies (fold) was found will be automatically excavated by the planned basement construction.

Response To Comment No. 4

Our previous Site Plan and Cross Section A-A' have been revised to show the Code required 15 feet clear horizontal setback behind the proposed building. Within the northern portion, this will be accomplished through extending a concrete deck (structural slab) over the slope and incorporating a 3-foot high slough wall at the western edge of the structural slab (at the slope toe) to retain normal erosion. The western edge of the structural slab will be supported through a deep foundation system consisting of friction piles.

Within the southern portion, the required 15 feet clear horizontal setback behind the proposed building will be accomplished through construction of a retaining wall with at least 18-inch high freeboard and a paved drain. See the enclosed Site Plan and Cross Sections A-A' and D-D' for the approximate location on the plan and profiles of the structural slab/slough wall and retaining walls.

Response To Comment No. 5

As part of preparation of this Supplement No. 1, samples of soil (fill and native soils) from the slope above the proposed building were tested in our laboratory for determination of shear strengths of the soil cover. The results of new laboratory tests are presented in the Figure No. II-1-A, enclosed with this Supplement No. 1.

For surficial slope stability analysis, we used the lowest strength envelope of the soils (fill). The results of our analysis indicated adequate factors of safety for surficial slope stability. The supporting engineering calculations are enclosed with this Supplement No. 1 report.

Although the results of our analysis have indicated adequate factor of safety against surficial slope instability, it is still recommended that the retaining walls supporting the ascending slope to have a minimum freeboard of 18 inches and a paved drain to collect debris associated with normal erosion, and divert the surface water. The freeboard should be cleaned after rainy seasons. For the purpose of this project, the freeboard should be designed based on an equivalent fluid pressure of 125 pounds per square foot per foot of depth.

Response To Comment No. 6

The results of supplemental slope stability analysis of the remaining portion of the slope above the proposed building is enclosed with this Supplement No. 1. As can be seen, the results of our supplemental slope stability analysis indicated that, in order to maintain the required minimum factor of safety of 1.25 and 1.5 for temporary and permanent conditions, the temporary and permanent support systems for the upper (new) wall (Wall A) should be designed based on equivalent fluid pressures of 75 and 160 pounds per square foot per foot of depth, respectively. In our original report, we had recommended use of 100 and 150 pounds per square foot per foot of depth for design of the back wall of the proposed building (Wall C). Therefore, for the purpose of this project, and for added safety, the upper wall (Wall A) should be designed based on equivalent fluid pressures of 100 and 160 pounds per square foot per foot of depth for temporary and permanent conditions, respectively. See Table I in our response to Comment No. 12. The details of the engineering calculations is enclosed with this Supplement No. 1. For locations of the different walls, refer to the enclosed Drawing No. 1.

Response To Comment No. 7

The new Code requires that basement walls be designed not only for static, but also for seismic lateral earth pressures. For the purpose of this project, the magnitude of seismic lateral earth pressure should be assumed ½ of static pressure (given in our report) with reverse triangular shape (maximum at top to zero at the bottom of the wall). The point of application of the lateral thrust of the seismic pressure should be assumed 0.6 time the wall height, measured from the bottom of the wall.

Response To Comment No. 8

Although included in our original report, due to the magnitude of the height of the planned excavation for creation of the proposed finished grades, all major cuts along the perimeter of the proposed building will need to be shored. Unsupported/open excavation cuts may be made at the basement level for deeper footings and elevator pits.

Response To Comment No. 9

Please refer to our response to Comment No. 8 above.

Response To Comment No. 10

For supporting calculations of lateral earth pressure of walls against cuts of bedrock with supported bedding conditions, see the calculation sheet no. 11 and 12 in our original report. The previous values have been revised in the enclosed Table No. 1 enclosed with this Supplement No. 1.

For determination of lateral “at-rest” pressure, using an angle of internal friction of 34 degrees for bedrock, the Ko factor would be as follows:

$$Ko = 1 - \sin(34) = 1 - 0.56 = 0.44$$

Assuming an average total density of 117 pounds per cubic feet, for bedrock, the density at rest would be equal to:

Density (at rest) = Density (total) * Ko

Density (at rest) = (117pcf)*(0.44)

Density (at rest) = 52 pcf

As can be seen, the above value is less than 65 pounds per square foot per foot of depth, as shown on Table No. 1, in our response to Comment No. 12.

Response To Comment No. 11

Calculation sheet no. 5 has been revised to use along bedding strengths. The revised calculation sheet is enclosed with this Supplement No. 1.

Based on the results of our new engineering calculations, the temporary shoring piles supporting the south-facing cuts (Wall B-1) with daylighted bedding should be designed based on an equivalent fluid pressure of 40 pounds per square foot per foot of depth. See the enclosed supporting calculations.

Response To Comment No. 12

To facilitate detail design of the various earth retaining structures (temporary and permanent) the following Table I has been prepared to include design values of all possible retaining walls.

TABLE I

SUMMARY OF LATERAL EARTH PRESSURE

FOR TEMPORARY AND PERMANENT SUPPORT SYSTEMS

WALL	TEMPORARY	PERMANENT	DEPTH TO PASSIVE PRESSURE
A	100 pcf	160 pcf	Bottom of the Cut
B-1	40 pcf	65 pcf	Bottom of the Cut
B-2	40 pcf	65 pcf	Bottom of the Cut
C	100 pcf	150 pcf	Bottom of the Cut

Note that, except for the western two retaining walls, the passive pressure can be taken below the lowest basement level. For the western retaining wall, the effective passive pressure should be assumed below a 45 degree line drawn from the bottom of excavation. See the enclosed revised Cross Section A-A'.

Response To Comment No. 13

As stated in the Review Letter, for the used of an alternative wall subdrain, the owners should file a Modifications with the City. The weep holes normally occur at mid distance of the vertical soldier piles (normally 10 feet on center).

-oOo-

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Supplement No. 1, or wish to discuss the project further, please do not hesitate to call us.

Respectfully Submitted,

APPLIED EARTH SCIENCES

Caro J. Minas, President
Geotechnical Engineer
GE 601



Shant Minas
Project Geologist
CEG 2607



CJM/SM/la

Distribution: (3)

Enclosure: Engineering Calculations
Revised Geologic Map & Site Plan - Drawing No. 1.
Revised Cross Section A- A' - Drawing No. 2
Revised Cross Section C-C' - Drawing No. 4
Revised Cross Section D-D' - Drawing No. 5
Figure No. II-1A - Direct Shear Tests
Copy Of City Review Letter
Prior Reports (Single Hard Copy Only)

SOIL STRENGTHS

Moisture Content	w	9	%
Dry Unit Weight	γ_d	107	pcf
Unit Weight of Water	γ_w	62.4	pcf
Saturated Unit Weight	γ_s	117	pcf
Cohesion	C	120	psf
Friction Angle	ϕ	20	^{o}
Slope Angle	α	15	^{o}
Depth of Soil	d	4	ft

$$F = [C + (\gamma_s-\gamma_w)*d*\cos^2\alpha*\tan\phi] / [\gamma_s*d*\sin\alpha*\cos\alpha]$$

$$F = \quad 120 \quad + \quad 74.17 \ / \quad 117$$

$$F = \quad 1.66 > 1.5 \quad \text{O.K.}$$

SURFICIAL SLOPE STABILITY CALCULATIONS

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv | **DATE:** 1 / 17 / 2014 | **PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

Average Unit Weight for Bedrock	γ	117	pcf
Cohesion Strength	C	150	psf
Angle of Internal Friction	ϕ	22	degrees

MOBILIZED STRENGTHS PARAMETERS

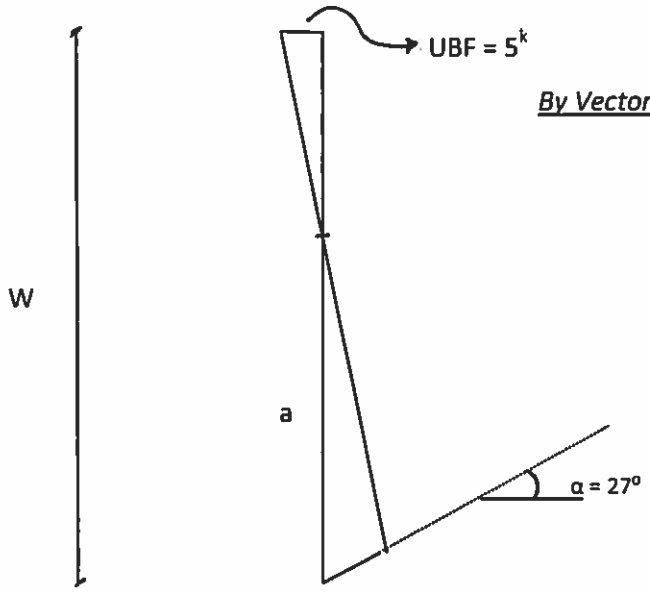
Factor of Safety	F.S.	1.25	TEMPORARY	
Mobilized Cohesion	C_m	C/F.S.	120	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	17.9	degrees

WEDGE PARAMETERS

Angle of Failure Plane	α	27	degrees
Length of Potential Sliding Surface	L	68	feet
Weight of Wedge	W	82.5	kips

$C_mL = (.120)*(68) = 8.2^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(8.2)*\sin(90+17.9)]/[\sin(27-17.9)] = 49.1^k$



For H = 12'

By Vector Method: $\gamma_e = [2(5{,}000)]/(12^2) =$ **69.4 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [82.5 - (8.2)\sin(27)][\tan(27-17.9)]-[(8.2)\cos(27)]$

$P = 5.3^k$

$\gamma_e = 2(5{,}300)/(12^2) =$ **73.61 pcf**

USE EQUIVALENT PRESSURE OF 100 PCF

SLOPE STABILITY CALCULATIONS - SECTION A-A' - WALL "A"

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv	**DATE:** 1 / 17 / 2014	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

Average Unit Weight for Bedrock	γ	117	pcf
Cohesion Strength	C	150	psf
Angle of Internal Friction	ϕ	22	degrees

MOBILIZED STRENGTHS PARAMETERS

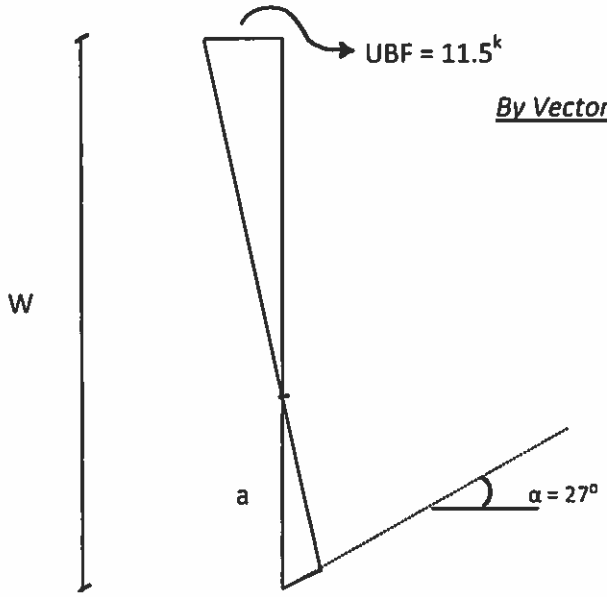
Factor of Safety	F.S.	1.5	**PERMANENT**	
Mobilized Cohesion	C_m	C/F.S.	100	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	15.1	degrees

WEDGE PARAMETERS

Angle of Failure Plane	α	27	degrees
Length of Potential Sliding Surface	L	68	feet
Weight of Wedge	W	82.5	kips

$C_mL = (.100)*(68) = 6.8^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(6.8)*\sin(90+15.1)]/[\sin(27-15.1)] = 31.8^k$



For H = 12'

By Vector Method: $\gamma_e = [2(11,500)]/(12^2) =$ **160 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [82.5 - (6.8)\sin(27)][\tan(27-15.1)]-[(6.8)\cos(27)]$

$P = 10.7^k$

$\gamma_e = 2(10,700)/(12^2) =$ **149 pcf**

USE EQUIVALENT PRESSURE OF 160 PCF

SLOPE STABILITY CALCULATIONS - SECTION A-A' - WALL "A"

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv | **DATE:** 1 / 17 / 2014 | **PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

Average Unit Weight for Bedrock	γ	117	pcf	
Cohesion Strength	C	150	psf	
Angle of Internal Friction	ϕ	22	degrees	

MOBILIZED STRENGTHS PARAMETERS

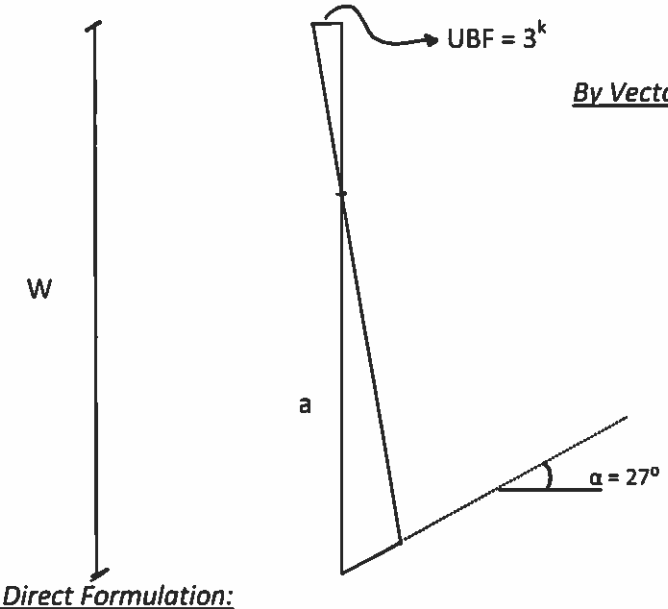
Factor of Safety	F.S.	1.25	**TEMPORARY**	
Mobilized Cohesion	C_m	C/F.S.	120	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	17.9	degrees

WEDGE PARAMETERS

Angle of Failure Plane	α	27	degrees
Length of Potential Sliding Surface	L	72	feet
Weight of Wedge	W	73.3	kips

$C_mL = (.120)*(72) = 8.6^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(8.6)*\sin(90+17.9)]/[\sin(27-17.9)] = 51.7^k$



For H = 12'

By Vector Method: $\gamma_e = [2(3,000)]/(12^2) =$ **42 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [73.3 - (8.6)\sin(27)][\tan(27-17.9)]-[(8.6)\cos(27)]$

$P = 3.5^k$

$\gamma_e = 2(3,500)/(12^2) =$ **48.6 pcf**

USE EQUIVALENT PRESSURE OF 100 PCF

SLOPE STABILITY CALCULATIONS - SECTION D-D' - WALL "A"

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv	**DATE:** 1 / 17 / 2014	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

Average Unit Weight for Bedrock	γ	117	pcf	
Cohesion Strength	C	150	psf	
Angle of Internal Friction	ϕ	22	degrees	

MOBILIZED STRENGTHS PARAMETERS

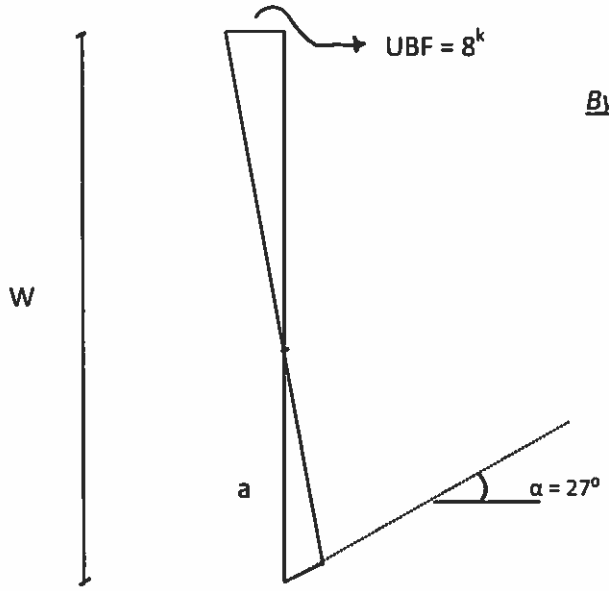
Factor of Safety	F.S.	1.5	**PERMANENT**	
Mobilized Cohesion	C_m	C/F.S.	100	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	15.1	degrees

WEDGE PARAMETERS

Angle of Failure Plane	α	27	degrees
Length of Potential Sliding Surface	L	72	feet
Weight of Wedge	W	73.3	kips

$C_mL = (.100)*(72) = 7.2^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(7.2)*\sin(90+15.1)]/[\sin(27-15.1)] = 33.7^k$



For H = 12'

By Vector Method: $\gamma_e = [2(8,000)]/(12^2) =$ **111 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [73.3 - (7.2)\sin(27)][\tan(27-15.1)]-[(7.2)\cos(27)]$

$P = 8.34^k$

$\gamma_e = 2(8,340)/(12^2) = 115$ pcf

USE EQUIVALENT PRESSURE OF 160 PCF

SLOPE STABILITY CALCULATIONS - SECTION D-D' - WALL "A"

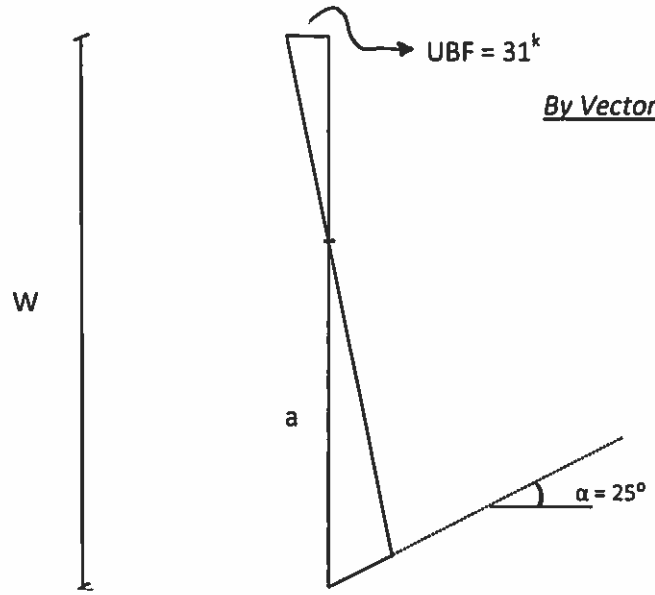
3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv	**DATE:** 1 / 17 / 2014	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS				
Average Unit Weight for Bedrock	γ	117	pcf	
Cohesion Strength	C	150	psf	
Angle of Internal Friction	ϕ	22	degrees	
MOBILIZED STRENGTHS PARAMETERS				
Factor of Safety	F.S.	1.25	**TEMPORARY**	
Mobilized Cohesion	C_m	C/F.S.	120	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	17.9	degrees
WEDGE PARAMETERS				
Angle of Failure Plane	α	25	degrees	
Length of Potential Sliding Surface	L	163	feet	
Weight of Wedge	W	430	kips	

$C_mL = (.120)*(163) = 19.6^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(19.6)*\sin(90+17.9)]/[\sin(25-17.9)] = 151^k$



For H = 30'

By Vector Method: $\gamma_e = [2(31,000)]/(30^2) = 69$ pcf

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [430 - (19.6)\sin(25)][\tan(25-17.9)]-[(19.6)\cos(25)]$

$P = 35^k$

$\gamma_e = 2(35,000)/(30^2) = 78$ pcf

USE EQUIVALENT PRESSURE OF 100 PCF

LATERAL EARTH PRESSURE CALCULATIONS FOR SECTION C-C' (WALL "C")

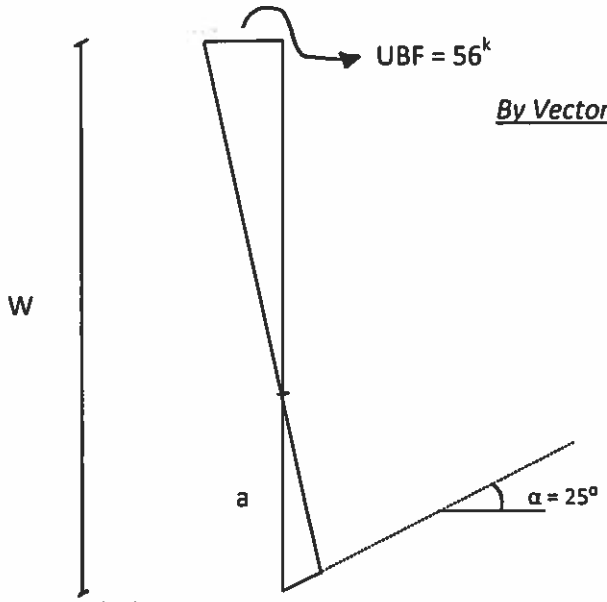
3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv	**DATE:** 1 / 17 / 2014	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS				
Average Unit Weight for Bedrock	γ	117	pcf	
Cohesion Strength	C	150	psf	
Angle of Internal Friction	ϕ	22	degrees	
MOBILIZED STRENGTHS PARAMETERS				
Factor of Safety	F.S.	1.5	**PERMANENT**	
Mobilized Cohesion	C_m	C/F.S.	100	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	15.1	degrees
WEDGE PARAMETERS				
Angle of Failure Plane	α	25	degrees	
Length of Potential Sliding Surface	L	163	feet	
Weight of Wedge	W	430	kips	

$C_mL = (.100)*(163) = 16.3^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(16.3)*\sin(90+15.1)]/[\sin(25-15.1)] = 91.5^k$



For H = 30'

By Vector Method: $\gamma_e = [2(56,000)]/(30^2) =$ **124 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [430 - (16.3)\sin(25)][\tan(25-15.1)]-[(16.3)\cos(25)]$

$P = 59^k$

$\gamma_e = 2(59,000)/(30^2) =$ **131 pcf**

USE EQUIVALENT PRESSURE OF 150 PCF

LATERAL EARTH PRESSURE CALCULATIONS FOR SECTION C-C' (WALL "C")

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv	**DATE:** 1 / 17 / 2014	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

Average Unit Weight for Bedrock	γ	117	pcf	
Cohesion Strength	C	150	psf	
Angle of Internal Friction	ϕ	22	degrees	

MOBILIZED STRENGTHS PARAMETERS

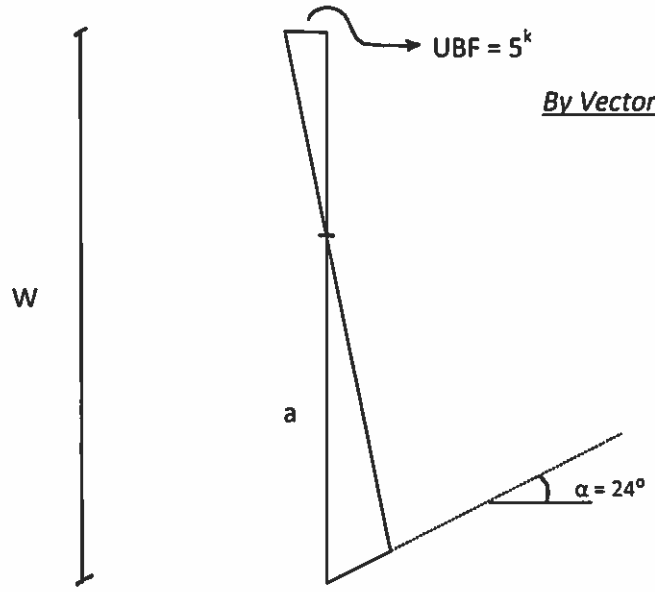
Factor of Safety	F.S.	1.25	**TEMPORARY**	
Mobilized Cohesion	C_m	C/F.S.	120	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	17.9	degrees

WEDGE PARAMETERS

Angle of Failure Plane	α	24	degrees	
Length of Potential Sliding Surface	L	79	feet	
Weight of Wedge	W	128	kips	(Includes 2^k surcharge)

$C_mL = (.120)*(79) = 9.5^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(9.5)*\sin(90+17.9)]/[\sin(24-17.9)] = 85^k$



For H = 30'

By Vector Method: $\gamma_e = [2(5,000)]/(30^2) =$ **11 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [128 - (9.5)\sin(24)][\tan(24-17.9)]-[(9.5)\cos(24)]$

$P = 4.6^k$

$\gamma_e = 2(4,600)/(30^2) =$ **10.2 pcf**

USE EQUIVALENT PRESSURE OF 40 PCF

REVISED LATERAL EARTH PRESSURE CALCULATIONS FOR SECTION B-B'

(WALLS SUPPORTING ADVERSE BEDDING - WALL "B-1")

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv	**DATE:** 1 / 17 / 2014	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

Average Unit Weight for Bedrock	γ	117	pcf	
Cohesion Strength	C	150	psf	
Angle of Internal Friction	ϕ	22	degrees	

MOBILIZED STRENGTHS PARAMETERS

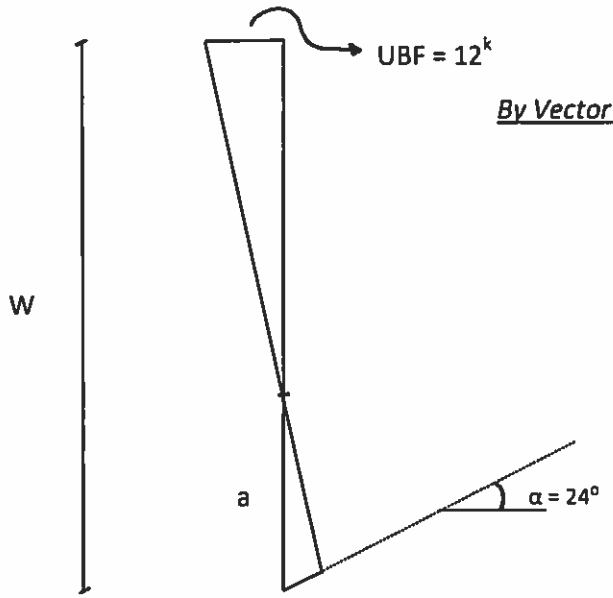
Factor of Safety	F.S.	1.5	**PERMANENT**	
Mobilized Cohesion	C_m	C/F.S.	100	psf
Mobilized Friction Angle	ϕ_m	$\tan^{-1}(\tan(\phi)/F.S.)$	15.1	degrees

WEDGE PARAMETERS

Angle of Failure Plane	α	24	degrees	
Length of Potential Sliding Surface	L	79	feet	
Weight of Wedge	W	128	kips	(Includes 2^k surcharge)

$C_mL = (.100)*(79) = 7.9^k$

$a = [C_mL*\sin(90+\phi_m)]/[\sin(\alpha-\phi_m)] = [(7.9)*\sin(90+15.1)]/[\sin(24-15.1)] = 49.3^k$



For H = 30'

By Vector Method: $\gamma_e = [2(12{,}000)]/(30^2) =$ **27 pcf**

By Direct Formulation:

$P = [(W-C_mL\sin\alpha)(\tan(\alpha-\phi_m)] - (C_mL\cos\alpha) = [128 - (7.9)\sin(24)][\tan(24-15.1)]-[(7.9)\cos(24)]$

$P = 12.3^k$

$\gamma_e = 2(12{,}300)/(30^2) =$ **27.3 pcf**

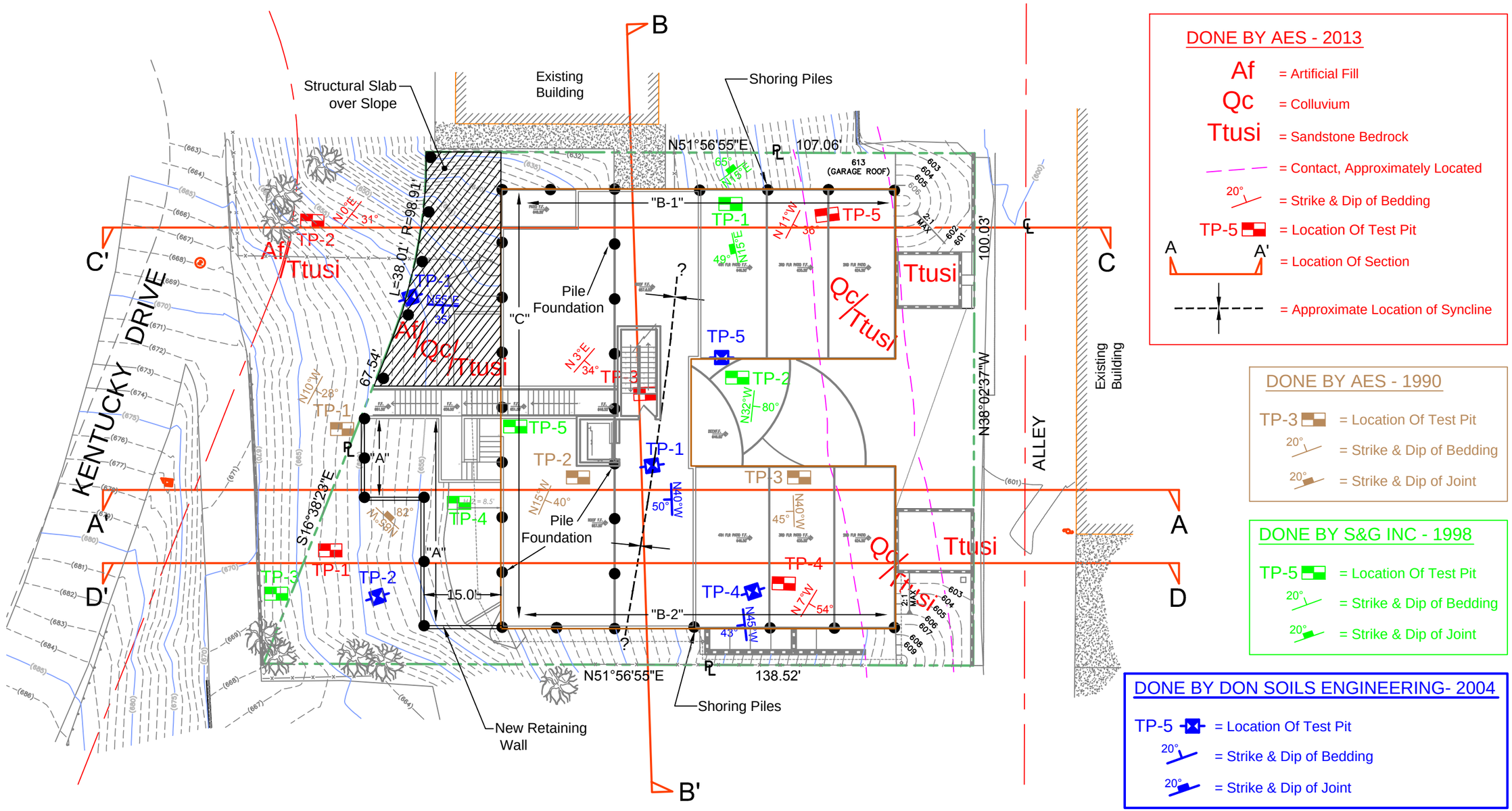
USE EQUIVALENT PRESSURE OF 65 PCF

REVISED LATERAL EARTH PRESSURE CALCULATIONS FOR SECTION B-B'

(WALLS SUPPORTING ADVERSE BEDDING - WALL "B-1")

3910 N. Kentucky Drive, Los Angeles

FOR: Mr. David Aviv | **DATE:** 1 / 17 / 2014 | **PROJECT NO.:** 13-347-22



DONE BY AES - 2013

- Af = Artificial Fill
- Qc = Colluvium
- Ttusi = Sandstone Bedrock
- = Contact, Approximately Located
- 20° = Strike & Dip of Bedding
- TP-5 = Location Of Test Pit
- A — A' = Location Of Section
- = Approximate Location of Syncline

DONE BY AES - 1990

- TP-3 = Location Of Test Pit
- 20° = Strike & Dip of Bedding
- 20° = Strike & Dip of Joint

DONE BY S&G INC - 1998

- TP-5 = Location Of Test Pit
- 20° = Strike & Dip of Bedding
- 20° = Strike & Dip of Joint

DONE BY DON SOILS ENGINEERING- 2004

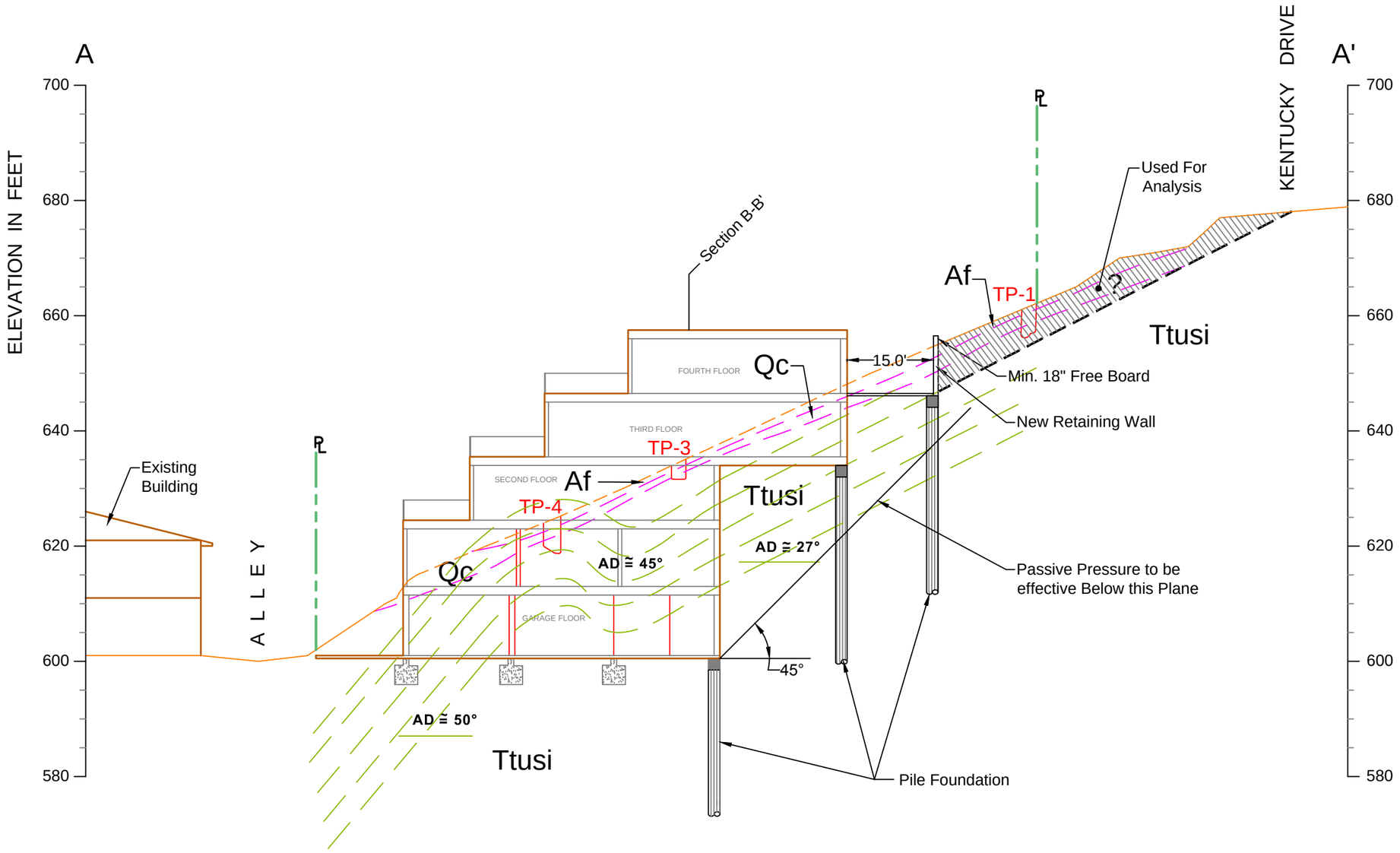
- TP-5 = Location Of Test Pit
- 20° = Strike & Dip of Bedding
- 20° = Strike & Dip of Joint

GEOLOGIC MAP & SITE PLAN

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:	
Mr. David Aviv	01 / 17 / 2014	13-347-22	
Applied Earth Sciences	GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS	www.aessoil.com (818) 552-6000	DRAWING No: 1 / SUPP. No: 1



LEGEND:

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Contact, Approximately Located

TP-3 = Location Of Test Pit

N52°E

Scale: 1" = 20' (V=H)

GEOLOGIC CROSS SECTION A-A'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	01 / 17 / 2014	13-347-22

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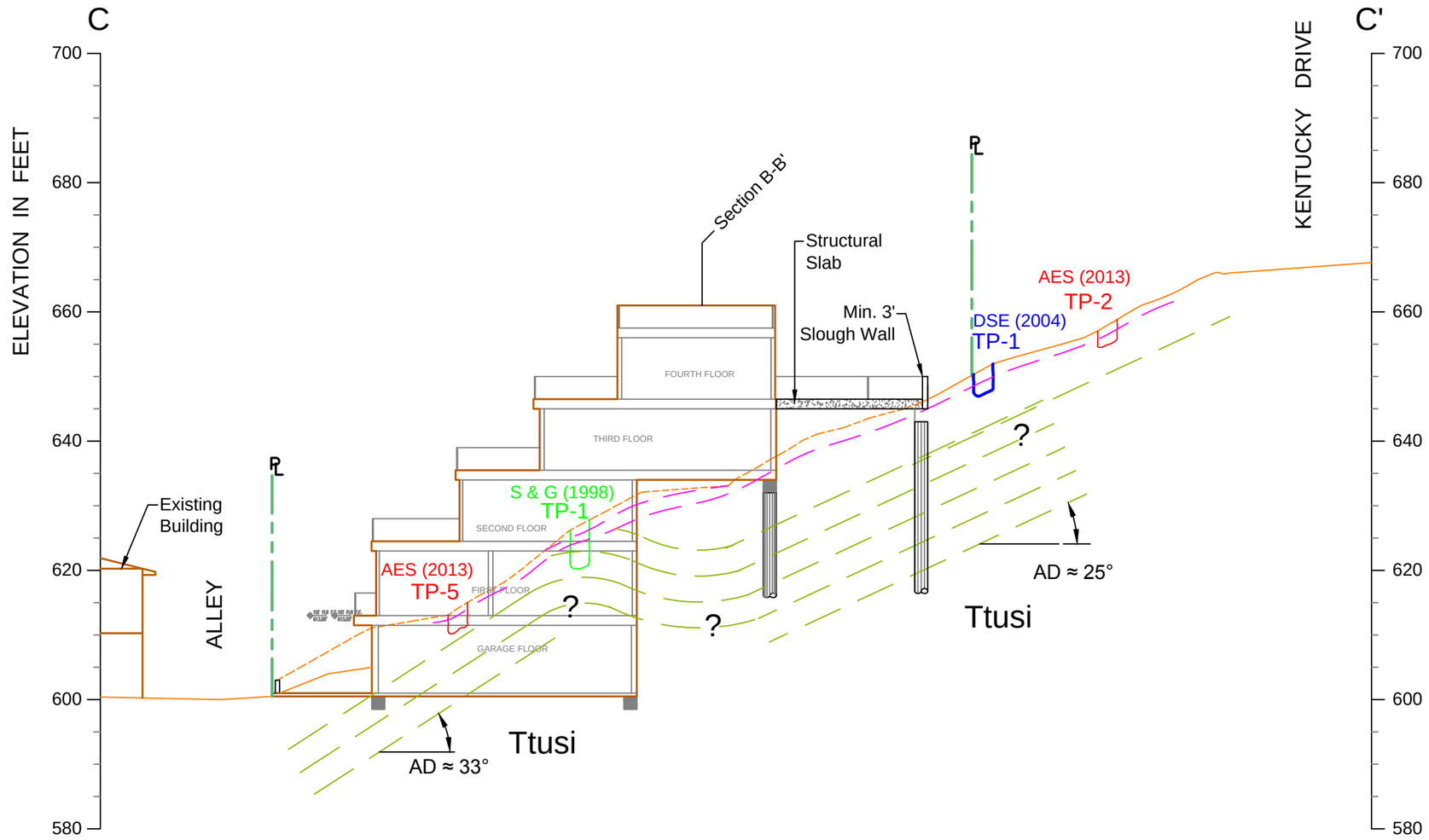
DRAWING No:	SUPP. No:
2	1



LEGEND:

Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
- - -	= Contact, Approximately Located
TP-3	= Location Of Test Pit

N52°E

Scale: 1" = 20' (V=H)

GEOLOGIC CROSS SECTION C-C'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	01 / 17 / 2014	13-347-22

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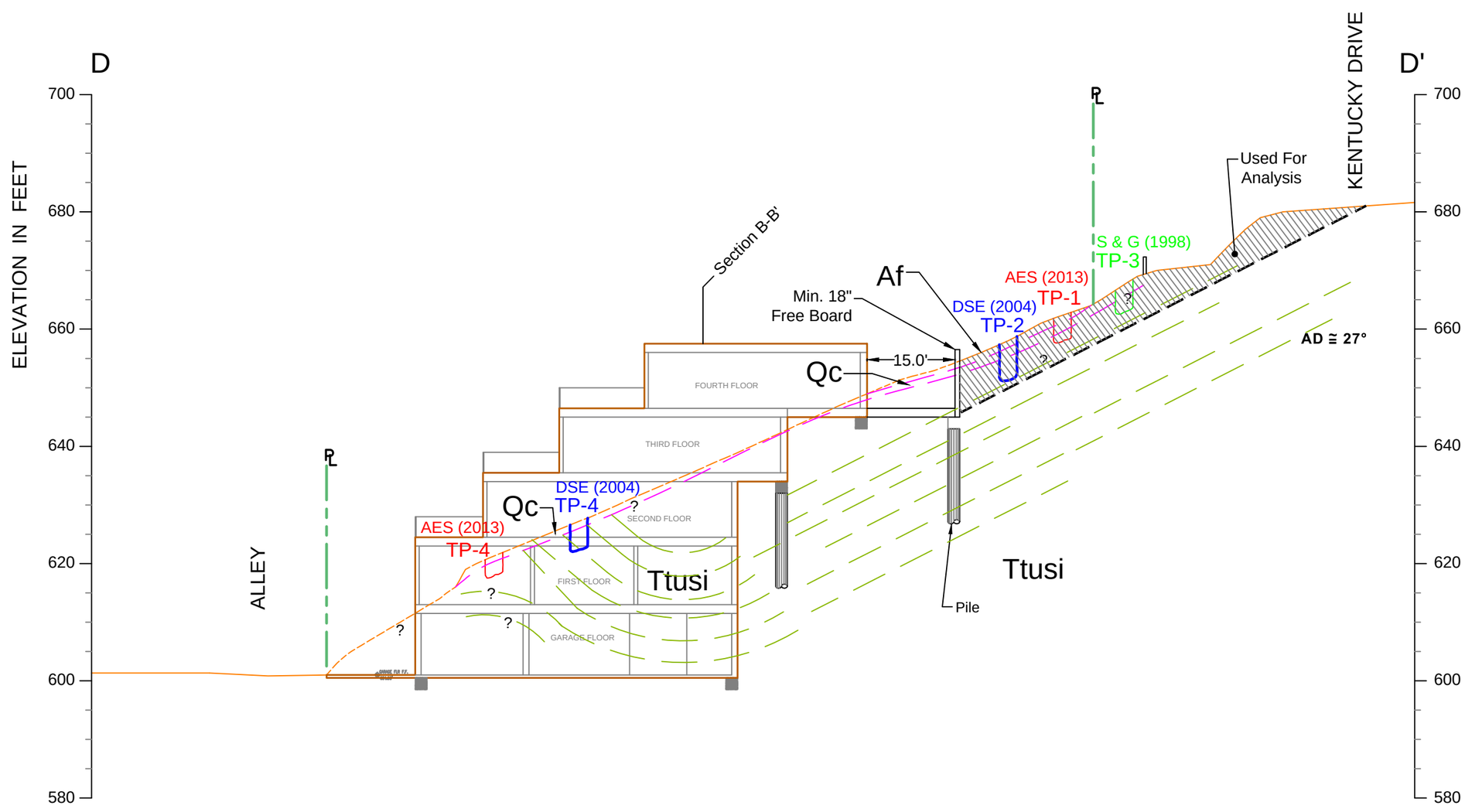
DRAWING No:	SUPP. No:
4	1



LEGEND:

Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
	= Contact, Approximately Located
TP-3	= Location Of Test Pit

GEOLOGIC CROSS SECTION D-D'

Proposed Apartment Building Project

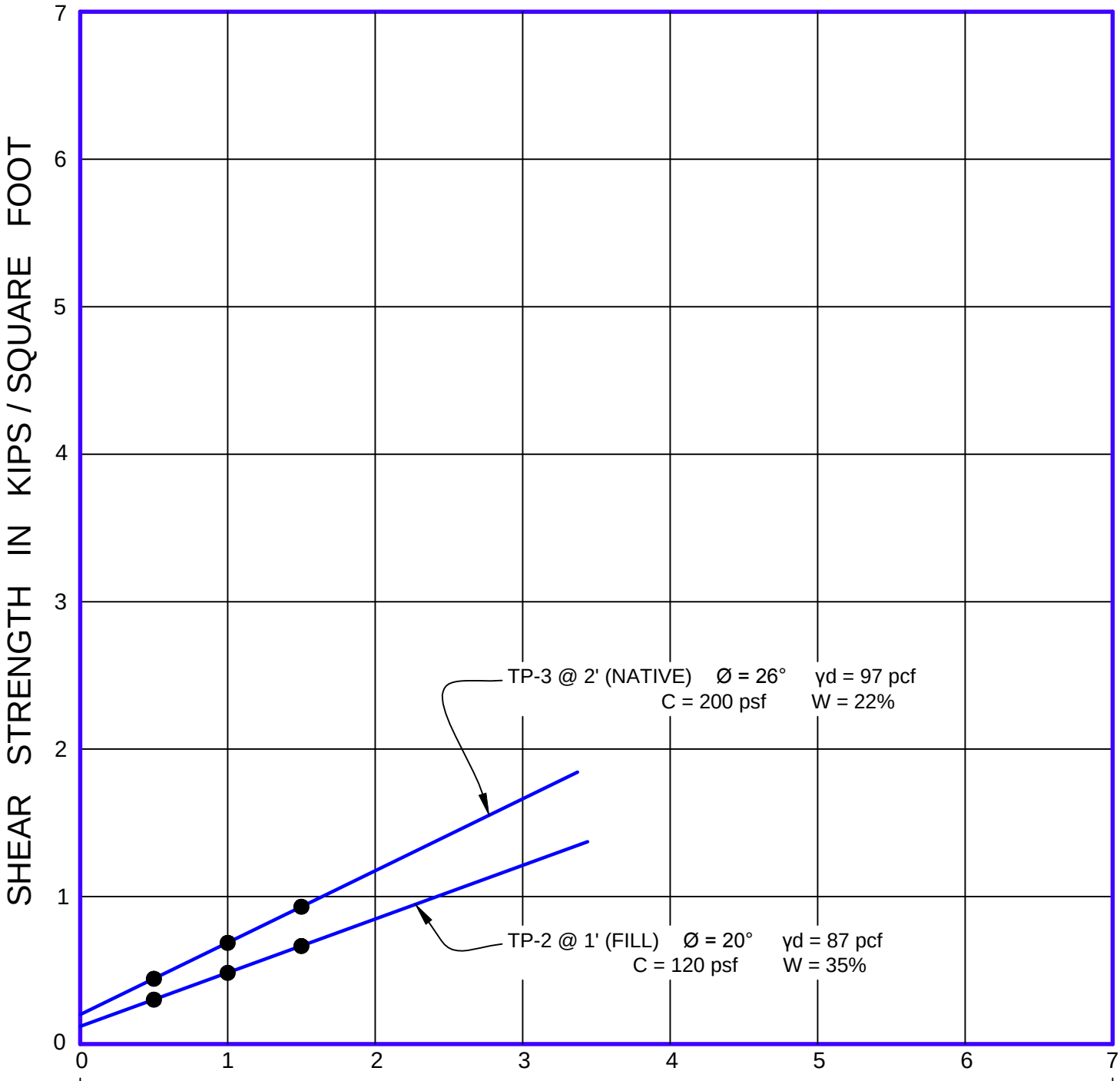
Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR:	DATE:	PROJECT No:
Mr. David Aviv	01 / 17 / 2014	13-347-22

Applied Earth Sciences
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL
ENGINEERING CONSULTANTS
www.aessoil.com
(818) 552-6000

DRAWING No:	SUPP. No:
5	1

NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME	Proposed Apartment Building Project Lot 115 of Tract # 5593 3910 Kentucky Drive, Los Angeles (Studio City), California	JOB No.	13-347-22
	APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS	FIGURE No.	II - 1A

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GEOLOGY AND SOILS REPORT CORRECTION LETTER

August 5, 2013

LOG # 81001
SOILS/GEOLOGY FILE - 2
LAN

David Aviv
6626 Maryland Drive
Los Angeles, CA 90048

TRACT: 5593
LOT(S): 115
LOCATION: 3910 N. Kentucky Drive

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE(S) OF DOCUMENT	PREPARED BY
Geology/Soils Report	13-347-22	06/14/2013	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for a proposed 4-level apartment building with a lower garage level. According to the report, the site is situated on a slope about 75 feet high that descend northeast from Kentucky Drive to an alley. The earth materials at the subsurface exploration locations consist of up to 1.5 feet of uncertified fill underlain by about 2 feet of colluvial/residual soil and Topanga Formation bedrock. Bedding within the Topanga Formation is reported to dip moderately to the northeast. Apparent dips along the much of the slope is about 27 degrees.

The proposed structure will be partially subterranean. Retaining walls supported by piles will be located around the perimeter and the upper part of the interior of the structure. Unsupported bedding will be exposed in east- and south-facing excavations (see pages 9, 11, and 18 of the report). Soldier pile shoring is recommended during the construction, which will become part of the permanent retaining walls.

The site is located in a designated seismically induced landslide hazard zone as shown on the "Seismic Hazard Zones" map issued by the State of California. The review of the subject report can not be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2011 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

AN EQUAL EMPLOYMENT OPPORTUNITY - AFFIRMATIVE ACTION EMPLOYER

1. Research, review and reference all existing records at the Research Division of the Department of Building and Safety for the subject and adjacent properties and incorporate the existing geologic data into the current evaluation. Include for review purposes a complete copy (including exploration logs, geologic map, cross-sections and lab data) of the previous report/s and the Department's review letter/s.

2. Summarize previous investigations/conclusions/recommendations, department approvals and clarify if construction as proposed (and approved), was achieved.

3. The consultants shall provide a statement that referenced previous reports were reviewed, that they either concur with or do not concur with the findings contained therein, and that they will accept professional responsibility for the use of any data from others.

4. Revise the plans and cross sections to provide the minimum Code required building setbacks (see cross section A-A').

5. Provide surficial slope stability analysis.

6. Provide slope stability of the slopes above the proposed building.

7. Provide calculations to justify the recommended seismic lateral earth pressures.

8. Clarify where unshored excavations are proposed. Verify the excavation, where recommended, could be backfilled with a gradient not steeper than 2:1. Revise the plans and cross sections to show where these excavations are proposed.

9. Provide calculations, considering maximum height of excavation, to justify the recommended maximum slope ratios presented on page 8 for temporary excavations greater than 10 feet on soil and bedrock.

10. Provide calculations to justify the at-rest EFP of 45 pcf for restrained walls supporting favorably bedding (see page 18 of the report).

11. Clarify/correct the shear strength values used in Calc Sheets No. 5 through No. 7. The header shows "Along bedding Strengths". However, the across bedding parameters are shown in the calculations. Revise recommendations as appropriate.

12. Revise the plans and cross sections to label all shoring/retaining walls and shown in a table the recommended temporary and permanent design lateral pressures. Include the passive pressures and the depth at which passive pressures can be considered, in particular for stacked retaining walls.

13. In the event the alternative subdrain shown on Sketch No. 1 of the report is planned, a request for modification with a letter from the soils consultant providing justification for the use of the subdrain shall be submitted. In addition, clarification shall be made on the recommended three dimensions of the weep holes and their maximum spacing.

The geologist and soils engineer shall prepare a report containing the corrections indicated in this letter. The report shall be in the form of an itemized response. It is recommended that once all

correction items have been addressed in a response report, to contact the report review engineer and/or geologist to schedule a verification appointment to demonstrate compliance with all the corrections. Do not schedule an appointment until all corrections have been addressed. Bring three copies of the response report, including one unbound wet-signed original for microfilming in the event that the report is found to be acceptable.

DANIEL C. SCHNEIDEREIT
Engineering Geologist Associate II

J. ADOLFO ACOSTA
Geotechnical Engineer I

DCS/JAA:dcs/jaa
Log No. 81001
213-482-0480

cc: Amit Apel Design Inc., Applicant
Applied Earth Sciences, Project Consultant
LA District Office

LADBS
DEPARTMENT OF BUILDING AND SAFETY

Research Request Form

DATE: 8/12/13 **Q-MATIC TICKET #** (office use only) 364.

NAME: YASI YARMO **COMPANY NAME:**

TELEPHONE #: 818-331-5392 **FAX #:**

REFERRED BY: _____ **PHONE #:** _____

FAXING OPTIONS: Records Counter, LADBS Fax to one of the numbers below (check one):

☐ (213) 482-6862
Metro Office
201 N. Figueroa St., 1st. Flr, Rm 110
Los Angeles, CA 90012

☐ (818) 374-5013
Van Nuys Office
6262 Van Nuys Bl.
Van Nuys, CA 91401

PROPERTY ADDRESS(ES): Please research the following addresses (IN PERSON: One Address submitted at a time) (FAXING: Up to 3 addresses per request)

3910 KENTUCKY DRIVE

3900, 3902, 3916, 3918 KENTUCKY DR.

Use of Existing Building:

COMMENTS: Reason for Records Request:

hi-lites.

Information Requested:

Copies of Documents range from **$0.10 to $1.50** per page (excluding blueprint copies)
Select from the following by checking the box next to it - for further clarification of request, use comments box

☐ BUILDING PERMITS ☐ PLOT PLAN	☐ CERTIFICATES OF OCCUPANCY	☐ GRADING DOCUMENTS	**For Office Use Only:** _____ PCIS
☐ MECHANICAL PERMITS ☐ ELECTRICAL PERMITS 1985 - 1990 and 1997 - Present	☐ VIOLATIONS	☐ MODIFICATIONS/BOARD FILES	_____ IDIS _____ Microfilm _____ Manual Search
AFFIDAVITS/Z.I.NO. _____			

☐ BLUEPRINTS ($8.00 Service Fee, plus a SD Surcharge Fee (Section 98.0416 of the LAMC) and $1.00 per page.

No plans available for Single Family Dwellings and Commercial buildings 3 stories and under, prior to 1978.

To obtain copies of blueprints on file, all of the following requirements must be submitted:
1. A release letter from the current owner.
2. A copy of the current owner's Grant Deed.
3. A release letter from the architect and engineer whose stamp is on the p...
   Letters must be on Letterhead and have engineer/architect's stamp and signature.

ee

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DEPARTMENT OF BUILDING AND SAFETY

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2) In person. Bring the following summary to one of the following Record counters.

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Address: 3910 KENTUCKY

Document Type	Sub Type	Document Date	Document Number	Reel Batch Frame	
ADMINISTRATIVE APPROVAL	MISCELLANEOUS	8/10/1988		HIST: B0157 001 0466	
AFFIDAVIT	OVERSIZED BUILDING	12/5/1986	AFF 62092	HIST: M0208 005 0082	
BUILDING PERMIT	GRADING	2/13/1958	1958LA93130	HIST: P1668 002 0976	
GRADING	GRADING PRE-INSP REPT	6/12/1980		HIST: G0147 005 0114 36	✓
GRADING	DEPARTMENT LETTER	7/1/1980		HIST: G0147 005 0075 2	✓
GRADING	SOILS & GEOLOGY FILE	7/24/1980		HIST: G0147 005 0077 37	✓
GRADING	DEPARTMENT LETTER	9/16/1980		HIST: G0147 005 0071 4	✓
GRADING	GRADING PRE-INSP REPT	9/12/1987		HIST: M0270 003 0347 1	✓
GRADING	SOILS & GEOLOGY FILE	2/3/1988		HIST: M0458 004 0028 8	✓
GRADING	GRADING PRE-INSP REPT	10/21/1989		HIST: M0690 007 0349 2	✓
GRADING	SOILS & GEOLOGY FILE	2/20/1990	SOILS : TK ENGR ✓	HIST: M0726 006 0067 no maps	
GRADING	SOILS & GEOLOGY FILE	1/25/1999		HIST: M1205 009 0315 30	
GRADING	GRADING PRE-INSP REPT	11/22/2003		IDIS: G603 00014 0000 thru G603 00014 0000	
GRADING	SOILS & GEOLOGY FILE	8/24/2004	70 pgs.	IDIS: G603 00012 0000 thru G603 00012 0069	
OVERSIZED DOCUMENT	GRADING	12/11/1989		HIST: J0627 001 0323 2	
OVERSIZED DOCUMENT	GRADING	6/21/2004		HIST: J2219 1 390 2	

Document Type	Sub Type	Document Date	Document Number	Reel Batch Frame	
RANGE FILE	MISCELLANEOUS	9/9/1991		HIST: M0667 008 0217	
RANGE FILE	MISCELLANEOUS	1/10/1992		HIST: M0708 004 0389	
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ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0359	
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ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0363	
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337

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DEPARTMENT OF BUILDING AND SAFETY

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Metro	Van Nuys
201, N. Figueroa St. 1st Floor, Room 110 Record Counter Los Angeles,CA 90012	6262 Van Nuys Blvd Record Counter Van Nuys,CA 91401

Address: 3900 - 3918 KENTUCKY

Document Type	Sub Type	Document Date	Document Number	Reel Batch Frame	
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BUILDING PERMIT	BLDG-NEW	2/6/1950	1950 03328	HIST: P1437 001 1509	
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BUILDING PERMIT	BLDG-NEW	2/6/1950	1950 03329	HIST: P1437 001 1510	
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BUILDING PERMIT	GRADING	2/13/1958	1958LA93130	HIST: P1668 002 0976	
BUILDING PERMIT	GRADING	2/10/1963	1963LA30005	HIST: P1711 002 2818	
BUILDING PERMIT	NEW CONSTRUCTION	2/10/1963	1963LA30006	HIST: P1711 002 2820	
BUILDING PERMIT	ALTERATION	4/10/1963	1963LA34633	HIST: P1713 002 0479	
BUILDING PERMIT	GRADING	2/17/1993	1993VN18194	HIST: P0395 003 0249	
BUILDING PERMIT	NEW CONSTRUCTION	2/17/1993	1993VN18195	HIST: P0395 003 0252	
BUILDING PERMIT	DEPT ERROR	3/26/1993	1993VN19448	HIST: P0399 002 0057	

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BUILDING PERMIT	BLDG-ALTER/REPAIR	2/5/2002	02016-20000-02251		
BUILDING PERMIT	BLDG-ALTER/REPAIR	7/9/2004	04016-20000-13195		
CERTIFICATE OF OCCUPANCY		10/27/1959	1958LA92588	IDIS: O0671 01153 0000 HIST: O411 HIST: O177 1 2358	
DISASTER INSPECTION FILE	EARTHQUAKE	2/15/1994		IDIS: E0036 1 937 thru E0036 1 938	
DISASTER INSPECTION FILE	EARTHQUAKE	2/15/1994		IDIS: E0036 1 939 thru E0036 1 940	
DISASTER INSPECTION FILE	STORM DAMAGE	2/22/2005	134253		
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GRADING	DEPARTMENT LETTER	9/16/1980		HIST: G0147 005 0071	
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GRADING	GRADING PRE-INSP REPT	10/21/1989		HIST: M0690 007 0349	
GRADING	SOILS & GEOLOGY FILE	2/20/1990		HIST: M0726 006 0067	
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GRADING	COMPACTION FILE	9/15/1993		HIST: M0864 005 0288	
GRADING	GRADING CERTIFICATE	10/18/1995	1993VN13194	HIST: M1135 005 0210	
GRADING	SOILS & GEOLOGY FILE	1/25/1999		~~HIST: M1205 009 0315~~	
GRADING	SOILS & GEOLOGY FILE	1/25/1999		HIST: M1205 009 0315	
GRADING	SOILS & GEOLOGY FILE	1/25/1999		HIST: M1205 009 0315	
GRADING	GRADING PRE-INSP REPT	11/22/2003		IDIS: G603 00014 0000 thru G603 00014 0000	
GRADING	SOILS & GEOLOGY FILE	8/24/2004		IDIS: G603 00012 0000 thru G603 00012 0069	
GRADING	GRADING PRE-INSP REPT	1/22/2005		IDIS: G603 00013 0000 thru G603 00013 0000	
OVERSIZED DOCUMENT	GRADING	12/11/1989		HIST: J0627 001 0323	
OVERSIZED DOCUMENT	GRADING	12/7/1998		HIST: J1115 001 0344	
OVERSIZED DOCUMENT	GRADING	12/7/1998		HIST: J1115 001 0344	
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Document Type	Sub Type	Document Date	Document Number	Reel Batch Frame	
OVERSIZED DOCUMENT	GRADING	12/7/1998		HIST: J1115 001 0344	
OVERSIZED DOCUMENT	GRADING	6/21/2004		HIST: J2219 1 390	
RANGE FILE	MISCELLANEOUS	9/9/1991		HIST: M0667 008 0217	
RANGE FILE	MISCELLANEOUS	9/20/1991		HIST: M0672 001 0159	
RANGE FILE	MISCELLANEOUS	9/20/1991		HIST: M0672 001 0163	
RANGE FILE	MISCELLANEOUS	9/20/1991		HIST: M0672 001 0167	
RANGE FILE	MISCELLANEOUS	1/10/1992		HIST: M0708 004 0389	
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ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0359	
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ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0361	
ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0361	
ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0363	
ZONING INFORMATION	FILE	10/6/1986	ZI 1022	HIST: M0200 010 0363	

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RAYMOND CHAN
EXECUTIVE OFFICER

GEOLOGY AND SOILS REPORT APPROVAL LETTER

August 24, 2004

Log # 44526
SOILS/GEOLOGY FILE - 2

Space Master
3600 Wilshire Boulevard, Suite 1008
Los Angeles, CA 90010

TRACT: 5593
LOT: 115
LOCATION: 3910 Kentucky Drive

CURRENT REFERENCE REPORT/LETTER(S)	REPORT NO.	DATE(S) OF DOCUMENT	PREPARED BY
Geology/Soil Report	SG-1140	06/21/2004	Don Soils Engin.
Oversized Document	"	"	"

The referenced report concerning the proposed construction on the subject lot of a 3-story, 6-unit residential building over a subterranean garage has been reviewed by the Grading Division of the Department of Building and Safety.

The report is acceptable, provided the following conditions are complied with during site development:

1. Footings may be designed with a minimum horizontal setback from the footing bottom to the competent bedrock surface on the descending slope of 10 feet, as recommended, in lieu of the standard setback prescribed by the Building Code.

2. Buildings adjacent to ascending slopes shall be set back from the toe of the slope a level distance equal to one half the vertical height of the slope, but need not exceed 15 feet in accordance with Code Section 1806.5.2.

3. Approval shall be obtained from the Department of Public Works, Bureau of Engineering, Constituent Service Division for the proposed removal of support and/or retaining of slopes adjoining the public way (3301.2.3.3)

4. Temporary excavations shall be shored or sloped back as recommended on pages 11 through 15 of the report.

5. The applicant is advised that the approval of this report does not waive the requirements for

excavations contained in the State Construction Safety Orders enforced by the State Division of Industrial Safety. (3301.1)

6. Prior to excavation, an initial inspection shall be called at which time sequence of shoring, protection fences and dust and traffic control will be scheduled.

7. Prior to the issuance of any permit which authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation. (3301.2.1)

8. Installation of shoring shall be performed under the inspection and approval of the soils engineer and deputy grading inspector. (7006.2)

9. The geologist and soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading. (7008.2)

10. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored. (7005.3)

11. All new graded slopes shall be no steeper than 2H:1V (7010.2 & 7011.2).

12. Existing uncertified fill or the existing soil shall not be used for support of footings, concrete slabs or new fill. (7011.3 & 1806.1)

13. All footings shall be founded in competent bedrock, as recommended.

14. All recommendations of the reports which are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

15. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans. Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit. (7006.1)

16. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans which clearly indicates that the geologist and soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in their reports.

17. Any unsupported bedding planes, either existing or exposed by grading, shall be supported by a designed retaining wall or buttress fill. (7010.2)

18. Pile and/or caisson shafts shall be designed for a lateral load of 1000 pounds per linear foot of shaft exposed to any fill and/or soil. (P/BC 2001-50)

19. Retaining walls up to a maximum height of 39 feet shall be designed for a minimum equivalent fluid pressure, as recommended, as specified on pages 8 & 9 of the report.

10104192005186886

20. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted to the street in an acceptable manner and in a non-erosive device. (7013.11)

21. The recommended equivalent fluid pressure (EFP) for the proposed retaining wall shall apply from the top of the freeboard to the bottom of the wall footing.

22. All retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soil report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record. (7015.5 & 108.9)

23. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector. (7015.5 & 108.9)

24. Basement walls and slab shall be waterproofed with an L.A. City approved "Below-grade waterproofing" material with a research report number.

25. Prefabricated drainage composites (Miradrain) (Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

26. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whatever is more restrictive. (Research Report #23835)

27. The dwelling shall be connected to the public sewer system. (P/BC 2001-27)

28. A grading permit shall be obtained. (106.1.2)

29. For grading involving import or export of more than 1000 cubic yards of earth materials within the *grading hillside area*, approval is required by the Board of Building and Safety. Application for approval of the haul route must be filed with the Grading Division. Processing time for application is approximately 8 weeks to hearing plus 10-day appeal period.

30. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Grading Inspection Division of the Department and the Department of Public Works, Bureau of Engineering, B-Permit Section, for any grading work in excess of 200 cu yd. (7007.1)
201 N. Figueroa Street Room 770, LA(213) 977-6039

31. All roof and pad drainage shall be conducted to the street in an acceptable manner. Water shall not be dispersed on to descending slopes without specific approval from the Grading Division and the consulting geologist and soils engineer. (7013.10)

32. All graded, brushed or bare slopes shall be planted with low-water consumption, native-type plant varieties. (7012)

33. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density (ASTM D 1556). (7011.3)

34. Prior to the placing of compacted fill, a representative of the consulting soils engineer shall inspect and approve the bottom excavations. He shall post a notice on the job site for the LADBS Grading Inspector and the Contractor stating that the soil inspected meets the conditions of the report, but that no fill shall be placed until the LADBS Grading Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be filed in the final compaction report filed with the Grading Engineering Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Engineering Division of the Department upon completion of the compaction. The engineer's certificate of compliance shall include the grading permit number and the legal description as described in the permit (7011.3).

35. Prior to the pouring of concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. He shall post a notice on the job site for the LADBS Building Inspector and the Contractor stating that the work so inspected meets the conditions of the report, but that no concrete shall be poured until the LADBS Building Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Department upon completion of the work. (108.9 & 7008.2)

36. The LABC Soil Type underlying the site is S_C. (1636A)

ROBERT STEINBACH
Chief of Grading Division

STEPHEN DAWSON
Engineering Geologist I

PASCAL CHALLITA
Geotechnical Engineer I

SD/PC:sd/pc
44526
(213) 482-0480

cc: Donghyun Yim
Don Soils Engineering Co.
LA District Office

LADBS B-17 (R 2/01)

City of Los Angeles
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District LA | Log No. 44526
ADDRESS APPROVED | Signature/Date

APPLICATION FOR REVIEW OF TECHNICAL REPORTS AND IMPORT-EXPORT ROUTES

INSTRUCTIONS

A. Address all communications to the Grading Division, Department of Building and Safety, 201 N. Figueroa St., 3rd Fl., Los Angeles, California 90012-4869. Phone (Area Code 213) 977-6329.
B. Obtain address approval from the Department of Public Works prior to submittal.
C. Submit 2 copies (4 for fault study zone) of reports and 3 copies of application with items (1) through (10) completed.
D. Check should be made to the Department of Building and Safety.

Note: Please Print

(1) LEGAL DESCRIPTION
Tract TR 5593
Blk — Lots 115

(2) PROJECT ADDRESS 3910 N. Kentucky Drive

(3) OWNER Space Master
Address 3600 W. Ishire Blvd. Suite 1008
City L.A Zip CA 90010
Phone (Daytime)

(4) APPLICANT Donghyun Yim
Address 2225 S La Brea Ave
City L.A
Phone (Daytime) 323-936-6763 Zip 90016
Fax 323-936-6581

(5) Report(s) Prepared by Don Soils Engineering, Co.

(6) Report Date(s) June 21, 2004

(7) Status of project: ☑ Proposed ☐ Under Construction ☐ Storm Damage

(8) Previous site reports? N If yes, give date(s) of report(s) and name of company(s) who prepared report(s).

(9) Previous Department actions? N If yes, please give dates and attach a copy to expedite processing.
Dates

(10) Signature of applicant Donghyun Yim Position Engineer

(DEPARTMENT USE ONLY)

REVIEW REQUESTED & PROCESSING	FEES	REVIEW REQUESTED & PROCESSING	FEES
☐ Foundation Investigation		☐ Seismology report per 91.2305(d)	
☐ Soils Engineering		☐ Environmental Assessment	
☐ Geology		☐ Import-Export Route	
☒ Combined Soils Engr. & Geol.	410	☐ Division of land	
☐ Supplemental		Sub-total	410.00
☐ Combined Supplement		One-Stop Surcharge	50.10
		TOTAL FEE	460.10

THE REPORT IS ☐ APPROVED WITH CONDITIONS ☐ NOT APPROVED

DEPARTMENT ACTION BY: _____ (For Geology) _____ (Date) _____ (For Soils & Foundation) _____ (Date)

☐ Conditions of Approval ☐ Reasons for Non-Approval ☐ See Attached letter ☐ Supplemental Sheet ____ Attached

LA Department of Building and Safety
LA 01 10 110563 07/06/04 11:17AM

GRADING REPORT	$410.00
ONE STOP SURCH	$8.20
SYSTEMS DEVT FEE	$24.60
CITY PLANNING SURCH	$12.30
MISCELLANEOUS	$5.00
Total Due:	$460.10
Credit Card (Cashier Use Only)	$460.10

(Continued Over)

DEPARTMENT USE ONLY
Fee Due 460.00
Fee Verified ml
Date 7/6/04

DISTRIBUTION
☐ Owner ☐ Applicant ☐ _____
☐ Soil Engineer ☐ Geologist ☐ Board files ☐ Tract file
☐ LA Plan Check ☐ VN ☐ WLA ☐ SP/WLA
☐ LA Inspection ☐ VN ☐ BMI ☐ WLA ☐ BI ☐ SP/WLA

PROJECT NO. SG-1140

SOIL AND GEOLOGY REPORT

Site of Proposed 6-unit Residential Building
3910 North Kentucky Drive
Los Angeles, California

DON SOILS ENGINEERING CO.

10104192005166886

DON SOILS ENGINEERING, CO.
CONSULTING GEOTECHNICAL ENGINEERS
2225 S. LA BREA AVE., LOS ANGELES, CA 90016 TEL. (323) 936-6763, FAX (323) 936-6581

June 21, 2004

Project No.: SG-1140

Space Master
3600 Wilshire Blvd., Suite No. 1008
Los Angeles, CA 90010

Attention: Mr. Michael Ko

Subject: Soils & Geology Investigation
Proposed 6-unit Residential building
Tract: TR 5593, Lot: 115
3910 North Kentucky Drive
Los Angeles, California

Dear Mr. Ko.:

Submitted herewith is our geotechnical report summarizing the results of the subject investigation we performed at the site of your proposed residential building.

The results of our subsurface investigation indicate that the subject site is suitable for the proposed construction provided that all recommendations presented herein are implemented. The proposed residential building may be supported by means of spread footing and friction piles founded in bedrock.

The accompanying report presents relevant conclusions and recommendations for preliminary planning and foundation design.

We appreciate the opportunity to be of service on this project and we look forward to serving you again. If any questions arise concerning the interpretation of this report, please feel free to call.

Very truly yours,

DON SOILS ENGINEERING, CO.
Donghyun Yim
Civil Engineer

REGISTERED PROFESSIONAL ENGINEER
DONGHYUN YIM
No. C59739
Exp. 12/31/05
CIVIL
STATE OF CALIFORNIA

Richard Crook Jr.
Richard Crook Jr.
Engineering Geologist

ENGINEERING GEOLOGIST
RICHARD CROOK, JR
E.G. 924
Exp. 5/31/05
STATE OF CALIFORNIA

1[illegible]19200516686

1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed at the site of your proposed residential building to be constructed at 3910 North Kentucky drive, in the Studio City Area of the City of Los Angeles, California.

The purpose of this investigation was to determine the nature and engineering properties of the subsurface materials and to provide recommendations for the design and construction of foundations, slabs, retaining structures and grading.

The locations of test pits are shown with respect to the property lines on Drawing 1.

It is understood that the proposed development will consist of a 6-unit residential building notched into the existing descending slope. The structure will be three-story, wood-frame construction over a subterranean garage with an alley access from the northeast.

Garage finish floor (F.F = 600') level will be at an approximate depth 6 to 37 feet below existing grade, see Sections A-A', B-B' and C-C' on Drawing 2 & 3.

2.0 SCOPE OF WORK

Our investigation included subsurface exploration, soil and rock sampling, laboratory testing, engineering analysis, stability calculations, site evaluation and preparation of this report. The scope of work included the following tasks:

1- Five (5) test pits were excavated by means of hand-held power tools to depths ranging from 4 to 7 feet below the existing ground surface at the locations shown on Drawing 1. Subsurface conditions encountered in the test pits were logged by the Engineering Geologist at the time of excavation. Relatively undisturbed samples of the subsurface materials were obtained from the test pits at various intervals for laboratory testing. Detailed descriptions of the

subsurface materials encountered during our field exploration procedures and test pit summaries are presented in Appendix A.

2- Laboratory tests were conducted on selected soil and rock samples. The tests included moisture-density determination and shear strength tests. Descriptions and results of the laboratory tests are presented in Appendix B.

3- Engineering analysis to evaluate the results of the field exploration, laboratory testing and development of recommendations for foundations, retaining structures and grading.

4- The findings and recommendations developed during our investigation are documented in this written report.

3.0 SITE LOCATION AND CONDITIONS

The subject site is located on a northeasterly-facing slope in the Studio City area of the City of Los Angeles, California. The approximate site location is shown on the Vicinity Map, Figure A and the regional geology is represented on Figure B.

The lot is nearly rectangular in shape and approximately 107 to 130 feet long in the northeasterly direction and approximately 100 feet wide in the northwesterly direction. The lot is bound on the southwest by Kentucky Drive, on the northeast by an alley, on the northwest by apartments and on the southeast by a residence. The subject lot is undeveloped but has had a minor amount of grading near the toe of the slope.

From the street the slope descends northeasterly some 55 feet, to a break-in-slope, on an average gradient of approximately 2.4:1 (horizontal to vertical). Below the break-in-slope the lot descends some 15 feet to the alley on a gradient of 1.2:1. Total relief on the lot is approximately 70 feet.

Runoff from the slopes is by sheetflow to the alley.

Vegetation on the lot slope consists of annual weeds and grasses, ivy and small to large size non-indigenous trees.

No evidence of shallow ground water, seepage or springs was observed anywhere on the site including within the test pits.

4.0 GIOLOGIC AND SOIL CONDITION

Inspection of the test pits and the site slope, as well as review of published geologic maps indicates that the lot is underlain by artificial fill, colluvial soil and bedrock of the Miocene age Topanga Formation. Descriptions and distribution of these units are as follows:

Colluvial Soil (Qsw) The colluvial soil consists of moderately dense, brown, porous, slightly clayey, silty, fine sand. This soil is one to four feet thick and rests on bedrock.

Bedrock (Tt) The bedrock beneath the site is primarily very firm to slightly hard, yellow-brown to brown, moderately well to well indurated, massive, fine-grained sandstone with some scattered thin intervals of thin-bedded, siltstone. Generally the bedrock is slightly to moderately fractured, moderately to highly weathered and competent.

Bedding on the site varies from northeasterly strikes and southeasterly dips of 10 to 35 degrees on the upper one-third of the site and northwesterly strikes and southwesterly dips of 43 to 55 degrees on the lower two-thirds of the site. The differences in the bedding attitudes are due to a small synclinal fold. This results in supported bedding over the entire site. In addition, no out-dipping bedding planes are expected to be exposed in the proposed temporary cuts.

No known faults cross or trend toward the site.

5.0 SUBSURFACE VARIATION

Based on the results of our subsurface exploration and experience, variations in the continuity and depth of subsurface materials should be anticipated in interpolating or extrapolating subsurface soils and rock conditions between or beyond test pits

6.0 LIQUEFACTION POTENTIAL

Due to the presence of bedrock material near the surface, liquefaction potential at the subject site is nill.

7.0 SLOPE STABILITY

Surficial stability of the existing collvial soil as well as stability along bedrock / colluvium contact above the uppermost retaining wall (section A-A') were analyzed. The results of calculations shown in Appendix D, Plates D-1, D-2 and D-3 indicate a factor of safety in excess of 1.5.

Deep-seated static and seismic slope stability analysis were performed utilizing shear strength values of the subsurface materials (colluvim and bedrock). The analysis utilizes a computer program called STABRG using Bishop method. The results of calculations shown in Appendix D, Plates D-4 through D-9 indicate that the factor of safety is at least 1.5 for static and 1.33 for seismic condition.

The existing on-site slope will be locally and grossly stable with long term factor of safety in excess of 1.5 provided that all our recommendations presented herein are implemented.

8.0 EVALUATION AND RECOMMENDATIONS

8.1 General Evaluation

Per the City of Los Angeles Uniform Building Code, the out side edge of footings shall be setback from face of sloping bedrock surface H/3 (H is the total height of the slope

below the footing) with a minimum of 5 feet and a maximum of 40 feet. However, due to the competent nature of the rock, a 10-foot set back from face of sloping rock is sufficient enough and H/3 need not be complied with.

Furthermore and per the City of Los Angeles Uniform Building Code, a setback is required between building wall and the rear yard retaining wall and shall at least be equal to ½ H (H is the height of the slope above retaining wall) but need not exceed 15 feet.

All footings shall be placed below a 45-degree angle drawn upward from the bottom of the adjacent footings. This means that the uppermost retaining wall's footings shall be deepened and may be placed on friction piles.

All permanent cuts in bedrock or colluvial soils shall be no steeper than 2:1 (Horizontal to Vertical).

Based on the evaluation of the site conditions, the uppermost retaining wall shall be supported on friction piles and the remaining building/retaining walls may be supported on spread footing. All footings shall be founded in rock.

8.2 Friction Piles

The proposed uppermost retaining wall may be supported by means of friction piles. Drilled piles shall be embedded a minimum of 10 feet into bedrock. Friction piles may be considered fixed 3 feet below the rock surface.

All piles system should be tied in two horizontal directions with grade beams.

The recommended bearing value and uplift capacities of the proposed friction piles are shown in Appendix D, Plates D- 10 and D-11.

In addition to the recommended bearing values, portions of the piles that are in contact with the existing colluvial soil shall be designed for a creep force of 1000 psf.

8.3 Spread Footings In Rock

Except for the uppermost retaining wall, the proposed residential building may be supported by means of spread footings founded in rock.

The footings may be designed for a bearing value of 4000 pounds per square foot and should be a minimum of 12 inches in width, 18 inches into rock and 18 inches below the lowest adjacent finished grade.

All spread footings shall be reinforced with at least four continuous No. 4 reinforcing bars, two placed near the bottom and the other two placed near the top.

The bearing value is for dead plus live load and may be increased by one-third for momentary wind or seismic loads.

The edge pressure of any eccentrically loaded footing should not exceed the bearing values recommended for either permanent or momentary loads.

Settlements of footings in rock and differential settlements between adjacent footings are negligible.

8.4 Lateral Design

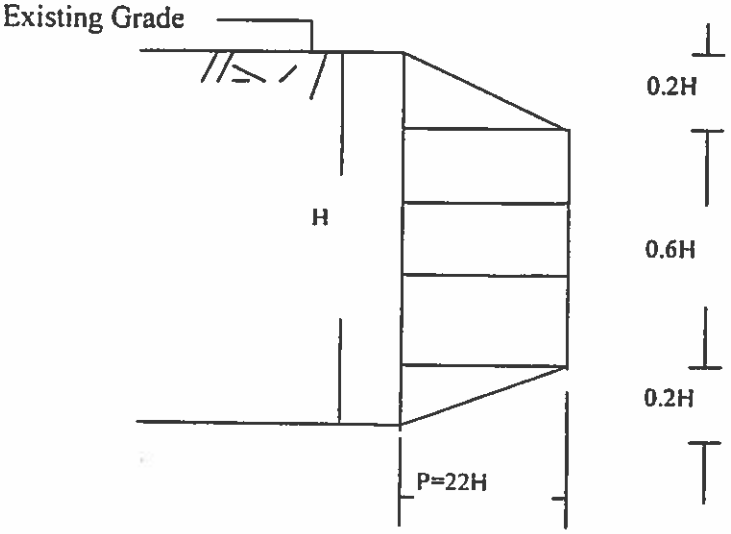
Resistance to lateral loading may be provided by passive earth pressure against the bottom of footings that have positive contact with rock.

Friction may be assumed as 0.4 times the dead load. The allowable passive earth pressure may be computed as 400 psf per foot of depth below lowest adjacent sub-grade, to a maximum of 4000 psf. Friction and passive pressure may be combined provided that the latter is limited to two-thirds of the allowable.

8.5 Basement Wall

Lateral Pressures

We recommend that the basement walls be designed to resist a trapezoidal distribution of lateral earth pressure. The recommended pressure distribution, for the case where the grade is level behind the walls, is illustrated below with the maximum pressure equal to (22H) in pounds per square foot, where H is the height of the wall in feet.



All applicable surcharge loads shall be added to the above equivalent fluid pressure.

The forgoing recommendation is based on retaining wall analysis shown on Plates D-12 through D-17.

8.6 Retaining Wall

Cantilevered retaining walls with non-expansive and free draining backfill may be designed for the following equivalent fluid pressures:

Surface Slope of Retained Material Horizontal to Vertical	Equivalent Fluid Pressure Pounds Per Cubic Foot	
---	Soil	Rock
Level	45	30
5 to 1	47	32
4 to 1	50	35
3 to 1	56	38
2 to 1	65	43

All applicable surcharges shall be added to the above equivalent fluid pressures.

The foregoing recommendations are based on the results of calculations shown in Appendix D, Plates D-12 through 17.

8.7 Retaining Wall Backfill

An adequate drainage system shall be provided behind the walls to prevent the build-up of hydrostatic pressure. The drainage system may consist of a 4-inch diameter perforated pipe encased in two cubic feet of gravel per lineal foot of coarse gravel placed above and adjacent to the heel of the wall footings or 2-ich diameter weep-holes spaced 6 feet on center may be used in place of perforated pipe.

Prior to backfilling, the areas between the walls and the cut banks shall be free of debris. Soil backfill should be compacted by mechanical means to at least 90 percent of the ASTM D- 1557-91 laboratory standard. In- lieu of mechanical compaction, pea gravel or clean sand vibrated in suitable layers may be employed as backfill. Ideally, the top two feet of soil exposed to water infiltration should consist of non-expansive and fine-grained

material that will serve as a relatively impervious soil cover. Otherwise, the surface of the backfill should be mantled with concrete paving.

8.8 Floor Slabs on Grade

Any loose soil disturbed by removal of structural elements, piping, cess pool and trees, etc. should be removed and replaced with properly compacted fill. If the recommendations presented herein are followed, the floor slab may be designed in a normal manner with steel reinforcing to be determined by the structural engineer.

The subsurface material at the subject site is considered to have very low expansive potential. In order to minimize cracking of slab on grade, it is recommended that slab on grade be a minimum of 4-inch thick and reinforced with a minimum of No. 4 rebar spaced 18 inches on center each way and pouring concrete slab.

A moisture barrier beneath slab-on grade, preferably consisting of a water-proof vapor barrier such as polyethylene membrane of at least 6 mils in thickness, protected with at least 1 inches of clean sand over and under the membrane, is recommended in areas where concrete floor slabs will be covered with moisture sensitive coverings. The membrane should be properly overlapped and sealed.

8.9 Seismic Design Criteria

Based on California Department of Conservation, Division of Mines and Geology Maps for Active Faults Near-Source Zone, the subject site is located within 2 Km of type "B" Fault.

Based on the 1999 Los Angeles Uniform Building Code, Tables 16-S and 16-T, the applicable Near-Source Factors are as follows:

Near –Source Factor Na = 1.3

Near –Source Factor Nv = 1.6

The applicable soil Type is Sc

8.10 Temporary Excavation

Temporary excavation to depths of 6 to 39 feet (including footing depth) below existing ground surface is anticipated for the proposed construction.

Unsurcharged temporary excavation in rock may be made to stand vertical to a maximum depth of 12 feet (including footing embedment). Cuts deeper than 12 feet in rock shall have the upper portions trimmed back to 45 degrees (1H:1V).

Where trimming back (1H:1V) temporary excavations are not permitted due to proximity of property lines, then excavations shall be shored. Recommendations of shoring are presented under Shoring Section in this report.

Shoring may be designed using an equivalent fluid pressure of 25 pounds per square foot per foot of depth, plus applicable surcharges.

The foregoing recommendations are based on the results of calculations shown in Appendix D, plates D-18 and D-21.

Temporary excavation in colluvial soils shall be trimmed back to 1H:1V.

8.11 SHORING

General

One method of shoring would consist of steel soldier piles, placed in drilled holes and backfilled with concrete.

The following information on the design and installation of the shoring is necessarily general.

The excavations for construction purposes should be performed under the continuous inspection and approval of the Soil Engineer. During excavation in rock, the Engineering Geologist will verify bedrock conditions, and if conditions differ from what is reported herein, modification of recommendations will be provided.

Design of Soldier Piles

For the design of soldier piles spaced at least two diameters on centers, the allowable lateral bearing value of the bedrock below the level of excavation may be assumed to be 400 pounds per square foot per foot of depth, up to a maximum of 4000 pounds per square foot. To develop the full lateral value, provision should be taken to assure firm contact between the solider piles and the undisturbed bedrock. Structural concrete should be used for the portion of a solider pile that is below the excavation level; lean mix concrete may be used above that level.

The frictional resistance between the solider piles and the retained earth may be used in resisting a portion of the downward component of the anchor load. The coefficient of friction between the soldier piles and the retained earth may be taken as 0.40. This value is based on the assumption that uniform full bearing will be developed between the steel soldier beam, the lean-mix concrete, and the retained earth. In addition, the soldier piles below the excavation level may be used to resist downward loads. The frictional resistance between the concrete solider piles and the bedrock below the excavation level is shown on plates D-10 and D-11.

Lagging

Continuous lagging will be necessary during construction. The soldier piles should be designed for the full anticipated pressures. We recommend that the lagging be designed for the recommended earth pressure but limited to a maximum value of 400 pounds per square foot.

Anchor Installation

The anchors may be installed at angles of 15 to 40 degrees below the horizontal. Caving of the anchor holes, particularly within sand deposits, should be anticipated and provisions made to minimize such caving. The use of special drilling techniques, including hollow stem auger drilling equipment, should be considered to minimize problems due to caving. The anchors should be filled with concrete placed by pumping from the tip out, and the concrete should extend from the tip of the anchor to the active wedge. In order to minimize chances of caving, we suggest that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation. The sand backfill should be placed by pumping; the sand may contain a small amount of cement to facilitate pumping.

Anchor Testing

Our firm should select at least one of the initial anchors for a 24-hour 200% test and four additional anchors for quick 200% tests. The purpose of the 200% tests is to verify the friction value assumed in design. The anchors should be tested to develop twice the assumed friction value. Where satisfactory tests are not achieved on the initial anchors, the anchor diameter and/or length should be increased until satisfactory test results are obtained.

The total deflection during the 24-hour 200% test should not exceed 12 inches. During the 24-hour test, the anchor deflection should not exceed 0.75 inch measured after the 200% load is applied. If the anchor movement after the 200% load has been applied for 12 hours is less than one-half inch, and the movement over the previous 4 hours has been less than 0.1 inch, the 24-hour test may be terminated.

For the quick 200% tests, the 200% test load should be maintained for 30 minutes. The total deflection of the anchor during the 200% quick test should not exceed 12 inches; the

deflection after the 200% test load has been applied should not exceed 0.25 inch during the 30-minute period.

All of the anchors should be pre-tested to at least 150% of the design load; the total deflection during the test should not exceed 12 inches. The rate of creep under the 150% should not exceed 0.1 inch over a 15-minute period in order for the anchor to be approved for the design loading.

After a satisfactory test, each anchor should be locked-off at the design load. The locked-off should be verified by rechecking the load in the anchor. If the locked-off load varies by more than 10% from the design load, the load should be reset until the anchor is locked-off within 10% of the design load.

The installation of the anchors and the testing of the completed anchor should be observed by our firm.

Deflection

It is difficult to accurately predict the amount of deflection of a shored embankment. It should be realized, however, that some deflection will occur. We estimate that this deflection would be on the order of one to two inches at the top of the shored embankment. If greater deflection occurs during construction, additional bracing may be necessary to minimize settlement of the adjacent building and the utilities in the adjacent streets. If desired to reduce the deflection of the shoring, a greater active pressure could be used in the shoring design.

Monitoring

Some means of monitoring the performance of the shoring system is recommended. The monitoring should consists of periodic surveying of lateral and vertical locations of the tops of all the soldier piles and the lateral movement along the entire lengths of selected soldier piles. Also, some means of periodically checking the load on selected anchors

may be necessary. We will be pleased to discuss this further with the design consultants and the contractor when the design of the shoring system has been finalized.

9.01 Earthwork

Site grading is expected to consist primarily of excavations and backfill of utility trenches and retaining walls. Suggested guidelines for wall backfill, site drainage, and utility trench backfill are presented below:

Backfill: Where backfilling is required, excavated on-site rock materials are probably suitable for use as backfill materials. Loose soil, organics, and debris should be removed prior to backfilling. Backfill should be placed and compacted in accordance with the recommended specifications of Appendix C.

Site Drainage: Adequate positive drainage should be provided away from the structure to prevent ponding and to reduce percolation of water into the soils. A desirable slope for surface drainage is 2% in landscaped areas and 1% in paved areas. Planters and landscaped areas adjacent to the building perimeter should be designed to minimize water infiltration into the subsurface materials around the basement walls.

Utility Trenches: Buried utility conduits should be bedded and backfilled around the conduit in accordance with the project specifications.

If utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, we would recommend the utilization of lightweight mechanical equipment or shading of the conduit with clean granular material which could be thoroughly jetted in-place above the conduit prior to initiating mechanical compaction procedures. Where conduit underlies concrete slabs-on-grade and pavement, the remaining trench backfill above the pipe should be placed and compacted in accordance with Appendix C.

All site grading shall be performed in accordance with grading specification presented in Appendix C of this report.

10.0 PLAN REVIEW AND CONSTRUCTION OBSERVATION

This report has been prepared to aid in the evaluation of this site and to assist the structural engineer in the design of the proposed structures. It is recommended that this office be provided the opportunity to review the final design drawings and specifications to determine if the recommendations of this report have been properly implemented.

All temporary excavations, shoring, friction piles and footing excavations should be observed by a representative of this office to see that construction procedures follow the design recommendations.

11.0 CLOSURE

The findings and recommendations of this report were prepared in accordance with generally accepted professional engineering principles and practices. We make no other warranty, either expressed or implied. Our conclusions and recommendations are based on the results of the field and laboratory investigations, combined with an interpolation of subsurface conditions between and beyond test pit locations. If conditions encountered during construction appear to be different from those shown by the test pits, this office should be notified so we may take appropriate measures.

VICINITY MAP

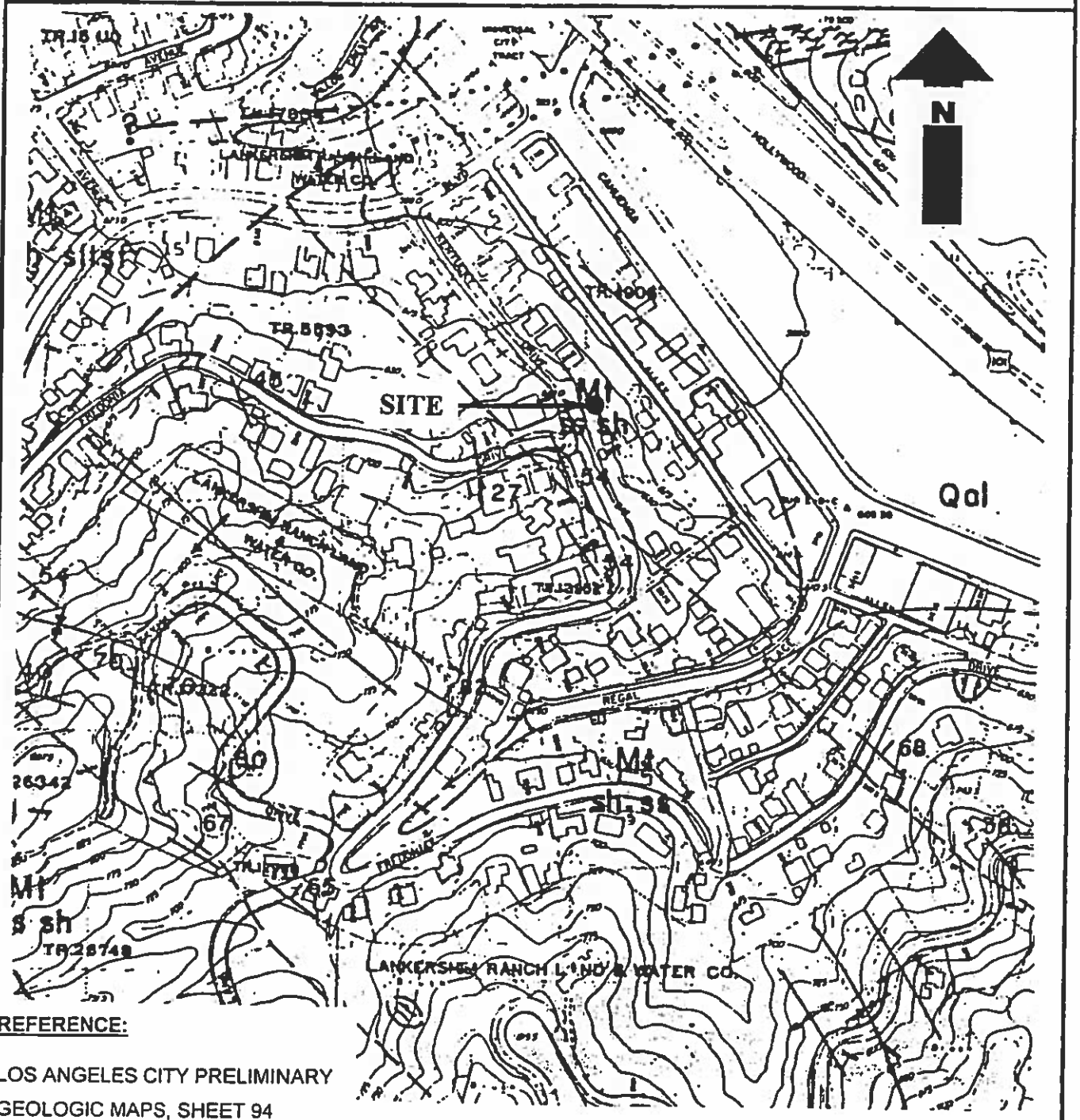


PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.	SG-1140
FIGURE	A

DON SOILS ENGINEERING, INC.
CONSULTING FOUNDATION ENGINEERS & ENGINEERING GEOLOGIST

REGIONAL GEOLOGY

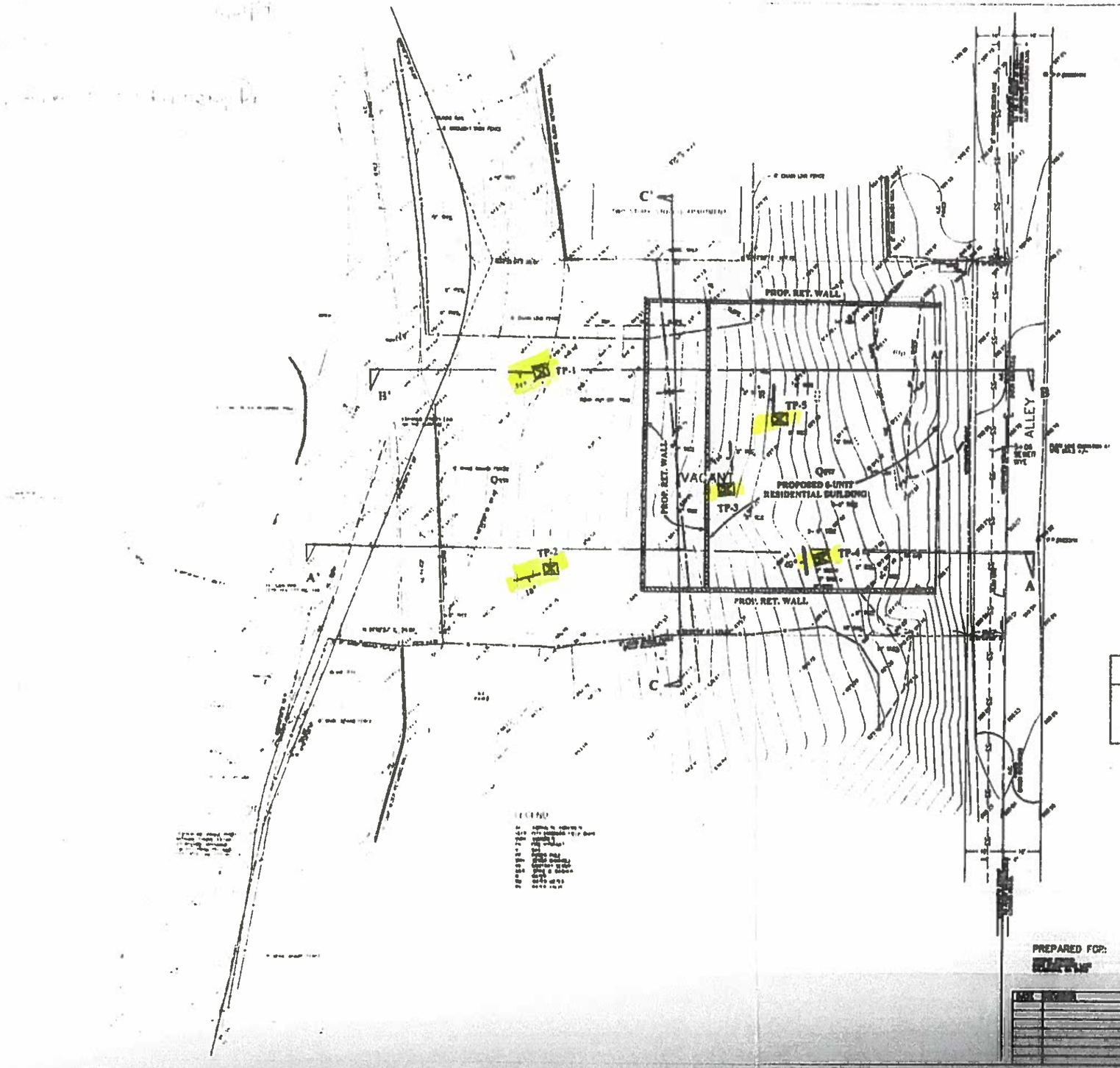


REFERENCE:

LOS ANGELES CITY PRELIMINARY GEOLOGIC MAPS, SHEET 94

PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.	SG-1140
	FIGURE	B

DON SOILS ENGINEERING, INC.
CONSULTING FOUNDATION ENGINEERS & ENGINEERING GEOLOGIST



SURVEYOR'S NOTES

1.
2.
3.
4.
5.
6.
7.

LEGAL DESCRIPTION

EXPLANATION

- Af : Artificial Fill
- Qvw : Colluvial Soil
- Tg : Bedrock, Topanga Formation
- : Contact Approx. located
- 50° : Strike & dip of bedding
- : Synclinal fold axis
- : Location of test pit
- C C' : Location of section

GEOLOGIC MAP AND SITE PLAN

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.: SG-1149

DRAWING: 1

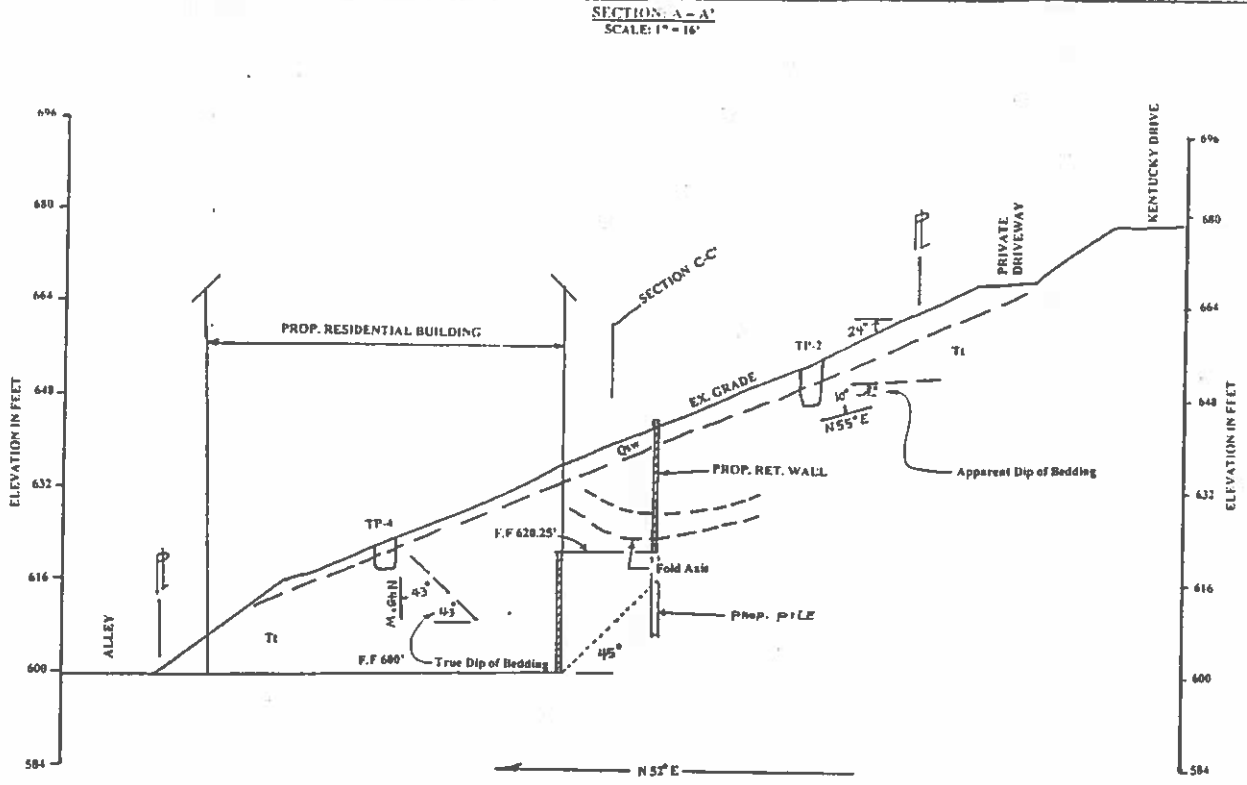
N W E S

SCALE: 1" = 16'

PREPARED FOR:

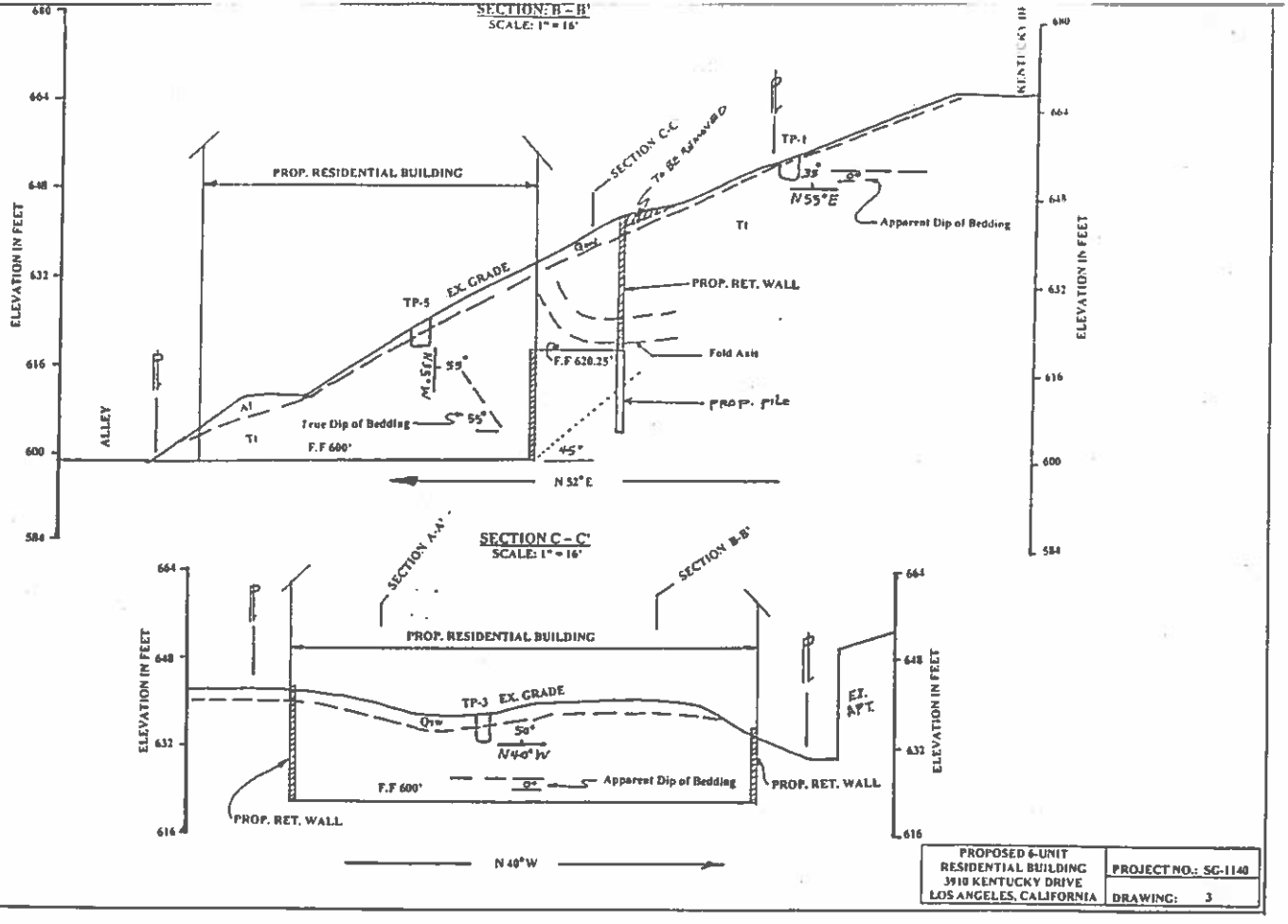
ARCHITECTURAL SURVEY
3910 KENTUCKY DR.

1 OF 1



PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.: SG-1148
	DRAWING: 2

10104192005186686



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APPENDIX " A "

FIELD EXPLORATION

APPENDIX A

Field Exploration

The field exploration included a site reconnaissance and subsurface exploration program. During the site reconnaissance, the surface conditions were noted, and the locations of the test pits were determined. The test pits were approximately located using existing features as a guide.

Test pits were advanced using hand tools. Subsurface materials were continuously logged by the Engineering Geologist and our staff engineer and classified in the field by visual examination in accordance with the Unified Soil Classification System. The field descriptions have been modified, where appropriate, to reflect laboratory test results.

Relatively undisturbed samples of the subsurface soils and rock were obtained at various intervals in the test pits using a drive sampler (2.4-inch diameter, 3-inch outside diameter) lined with sample rings. The thin-walled steel sampler was driven into the bottom of the test pits with successive drops of a driving weight. The driving energy required for one foot of sampler penetration, computed from the recorded driving blows for each sample, is shown on the log of test pit sheets, in the column "N." The samples were retained in brass rings (2.4-inch in diameter, 1.0-inch in height). The central portion of the sample was retained and carefully sealed in waterproof plastic containers for shipment to the laboratory.

Logs of test pits are presented on the log of test pit sheets Plates A-1 through A-5. The test pit summary sheets also include descriptions of the soil and rock, pertinent filed data, and supplementary laboratory results.

LOG OF TEST PIT NO. 1

DIGGING EQUIPMENT : Hand tools
EXCAVATION SIZE : 4' L X 3 ' W
DRIVING WEIGHT : 50 lbs W / 24" drop

DATE EXCAVATED : 5/25/2004
SURFACE ELEVATION : 656' ±

DEPTH IN FEET	UND.	BULK	N	USC	MATERIAL DESCRIPTION	Y	MC
				SM	COLLUVIUM SAND, fine, silty, mod. porous to porous, numerous roots, brown, moderately dense		
1							
					BEDROCK SANDSTONE, fine-grained, massive to crudely bedded, mod. well indurated, sli. fractured, mod. weathered, light brown to orange-brown, very firm		
					N 55° E / 35° SE		
	X		87			107	5.9
5					Total depth 4 feet		
					No groundwater		
					No caving		
10							

LEGEND: Y = dry unit weight (pcf); MC = moisture content (%);

N = blows per foot; USC = unified soil classification

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.: SG-1140

PLATE: A-1

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LOG OF TEST PIT NO. 2

DIGGING EQUIPMENT : Hand tools
EXCAVATION SIZE : 4 1/2' L X 3' W
DRIVING WEIGHT : 50 lbs W / 24" drop

DATE EXCAVATED : 5/25/2004
SURFACE ELEVATION : 654' ±

DEPTH IN FEET	UND.	BULK	N	USC	MATERIAL DESCRIPTION	Y	MC
				SM	COLLUVIUM SAND, fine, silty, trace clay, porous, numerous roots, brown, moderately dense		
1							
					grades to clayey, dense		
	X		36			101	8.1
5					BEDROCK SANDSTONE, fine-grained, massive to crudely bedded, mod. well indurated, sli. fractured, mod. weathered, light brown , very firm		
					N35°E/10°SE		
					Siltstone, thick-bedded, well indurated, light, brn., firm		
	X		90		Sandstone, med.-grained, massive, well indurated, mod. weathered, yellow-brown, sli. hard	108	3.4
					Total depth 7 feet		
					No groundwater		
					No caving		
10							

LEGEND: Y = dry unit weight (pcf); MC = moisture content (%);

N = blows per foot; USC = unified soil classification

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.: SG-1140

PLATE: A-2

DON SOILS ENGINEERING, CO.

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LOG OF TEST PIT NO. 3

DIGGING EQUIPMENT : Hand tools
EXCAVATION SIZE : 4' L X 3 ' W
DRIVING WEIGHT : 50 lbs W / 24" drop

DATE EXCAVATED : 5/25/2004
SURFACE ELEVATION : 632' ±

DEPTH IN FEET	UND.	BULK	N	USC	MATERIAL DESCRIPTION	Y	MC
				SM	COLLUVIUM SAND, fine, silty, mod. porous to porous, numerous roots, brown, moderately dense		
1							
	X		34			106	2.9
					grades to gravelly		
					BEDROCK SANDSTONE, fine-grained, thick-bedded & thin-bedded siltstone, well indurated, mod. fractured, mod. weathered, light brown to yellow-brown, very firm		
					N 40° W / 50° SW		
5							
	X		70			109	11.5
					Total depth 6 feet No groundwater No caving		
10							

LEGEND: Y = dry unit weight (pcf); MC = moisture content (%);

N = blows per foot; USC = unified soil classification

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.: SG-1140

PLATE: A-3

DON SOILS ENGINEERING, CO.

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LOG OF TEST PIT NO. 4

DIGGING EQUIPMENT : Hand tools
EXCAVATION SIZE : 4' L X 3 ' W
DRIVING WEIGHT : 50 lbs W / 24" drop

DATE EXCAVATED : 5/25/2004
SURFACE ELEVATION : 623' ±

DEPTH IN FEET	UND.	BULK	N	USC	MATERIAL DESCRIPTION	ϒ	MC
				SM	COLLUVIUM SAND, fine, silty, porous, numerous roots, brown, moderately dense		
1							
	X		36			98	6.5
					BEDROCK SANDSTONE, fine-grained, massive, w/few thin siltstone beds, well indurated, mod. weathered, light brown to orange-brown, sli. hard		
					N 45° W / 43° SW		
5	X		84			109	6.3
					Total depth 5 feet		
					No groundwater		
					No caving		
10							

LEGEND: ϒ = dry unit weight (pcf); MC = moisture content (%);

N = blows per foot; USC = unified soil classification

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.: SG-1140

PLATE: A-4

DON SOILS ENGINEERING, CO.

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LOG OF TEST PIT NO. 5

DIGGING EQUIPMENT : Hand tools
EXCAVATION SIZE : 3 1/2' L X 3 ' W
DRIVING WEIGHT : 50 lbs W / 24" drop

DATE EXCAVATED : 5/25/2004
SURFACE ELEVATION : 626' ±

DEPTH IN FEET	UND.	BULK	N	USC	MATERIAL DESCRIPTION	ϒ	MC
				SM	**COLLUVIUM SAND**, fine, silty, scat. gravel, mod. porous to porous, numerous roots, brown, moderately, dense		
1							
	X		40			90	6.3
					BEDROCK SANDSTONE, fine-grained, thick-bedded & thin-bedded siltstone, well indurated, sli. to mod. fractured, mod. weathered, light brown to orange-brown, very firm to sli. hard		
5	X		86			110	8.1
					Total depth 5 feet No groundwater No caving		
10							

LEGEND: ϒ = dry unit weight (pcf); MC = moisture content (%);

N = blows per foot; USC = unified soil classification

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.: SG-1140

PLATE: A-5

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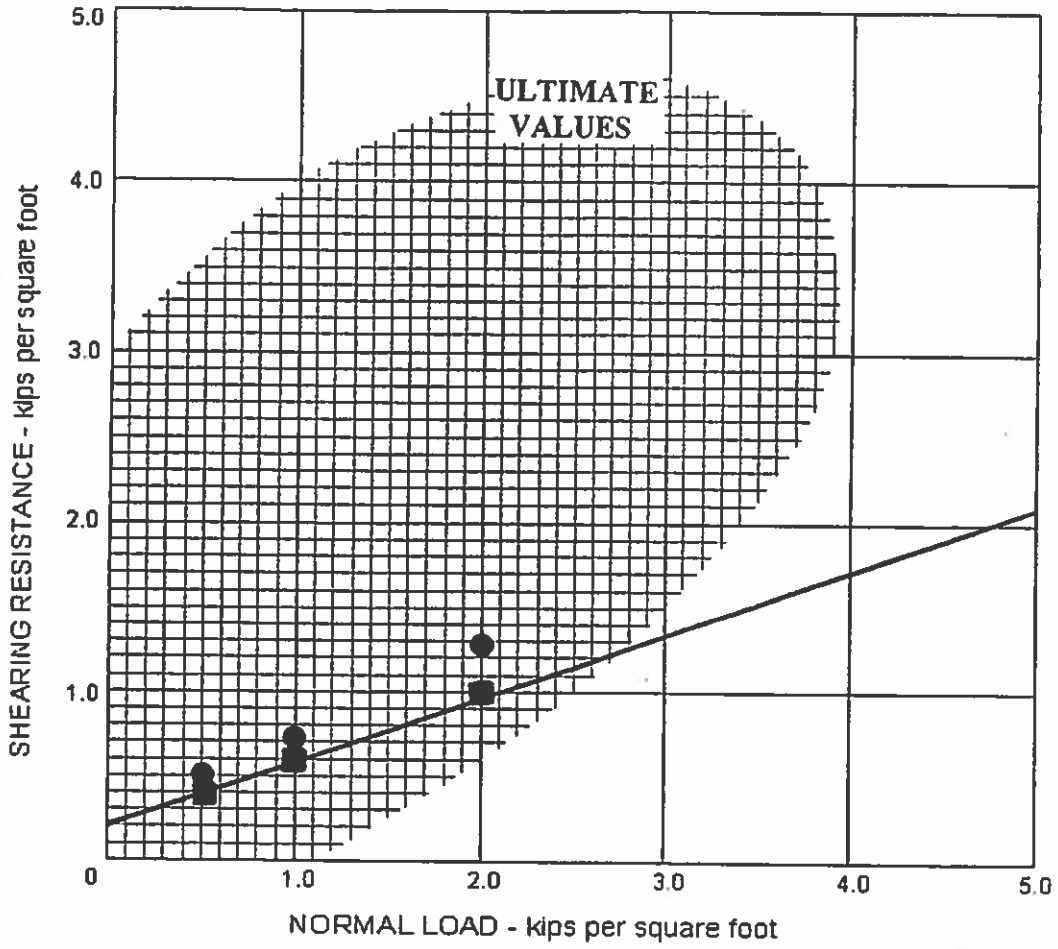
APPENDIX " B "

LABORATORY TEST PROGRAM

DIRECT SHEAR TEST

COLLUVIUM



Test Pit No.	Depth (ft)	Field Moisture Content (%)	Moisture at Test (%)	Dry Density (pcf)	Degree of Saturation (%)	Cohesion (psf)	Friction Angle (Deg.)
● TP-2	4	8.1	21.7	101	90.2	200	19
■ TP-3	2	2.9	18.6	106	88.0		

PROPOSED 6-UNIT RESIDENTIAL BUILDING
3910 KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

PROJECT NO.	SG-1140
PLATE	B-1

DON SOILS ENGINEERING, CO.
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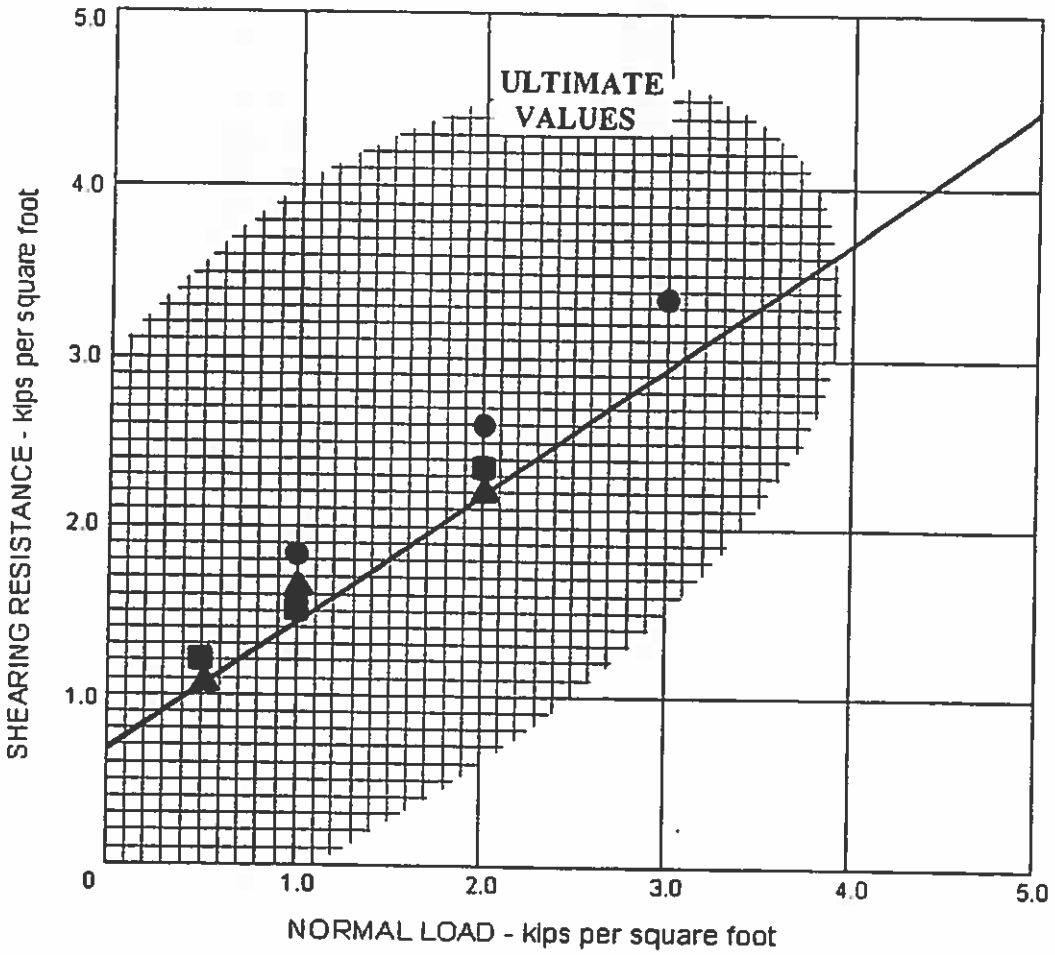
DIRECT SHEAR TEST

BEDROCK



Test pit No.	Depth (ft)	Field Moisture Content (%)	Moisture at Test (%)	Dry Density (pcf)	Degree of Saturation (%)	Cohesion (psf)	Friction Angle (Deg.)
● TP-1 (SANDSTONE)	4	5.9	18.3	107	88.9	675	35
■ TP-3 (SANDSTONE)	6	11.5	17.6	109	90.2		
▲ TP-5 (SILTSTONE)	5	8.1	17.4	110	91.6		

PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.	SG-1140
	PLATE	B-2

DON SOILS ENGINEERING, CO.
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APPENDIX B

Sampling

Undisturbed samples are obtained by driving a sampling tube by means of a heavy driving weight into undisturbed soils and bedrock at various intervals below the surface. The number of blows of the weight falling from a specified height required to drive the sample tube through a measured distance, is shown on the Log of test pits. The sampling tube consists of steel barrel 2.50 inches inside diameter with a lining of one-inch long thin brass rings. A special cutting tip is placed on one end and a ball valve on the other. The sampling tube is driven approximately 18 inches into the soil or rock and a section of the central portion of the sample is taken for laboratory tests, the soil or rock being still confined in the brass rings after extraction from the sampling tube. The samples are taken to the laboratory in close fitting water-proof containers in order to maintain field conditions until completion of tests.

Classification

The subsurface materials are visually classified in accordance with the Unified Soil Classification System. For particular samples, classification tests such as sieve and hydrometer analysis to determine grain size distribution, liquid and plastic limits and shrinkage are used as an aid in substantiating the visual field and laboratory identifications.

Unit of Weight and Moisture

One or more one-inch long sections of the sample are cut, trimmed, weighed, oven-dried and reweighed. From these measurements, the equivalent unit weight of the solids in pounds per cubic foot and the percent moisture are calculated.

Shearing Resistance

Direct shear tests are most often employed, using a controlled rate of strain. Each sample is sheared under a load approximately equivalent to the expected overburden pressure. By varying the load on particular sample the internal angle of friction and cohesion are computed. Where applicable, the shear tests samples are saturated to simulate expected extreme moisture conditions.

Consolidation

A one-inch high ring of soil or rock is placed in the consolidation apparatus. Loads are applied in increments to the face of the specimen. Deformation, or changes in thickness of the specimens are recorded at selected time intervals. Water is introduced or extracted

from the sample through porous disks placed against the top and bottom faces of the specimen.

Expansion

UBC Standard No. 29-2 is employed in which sample is compacted in 4-inch internal diameter mold at near 50 percent saturation and then, under a surcharged load of 144 psf, allowed to absorb moisture until saturated. The amount of vertical deformation or swell is measured.

APPENDIX C

GRADING SPECIFICATIONS

Grading Specifications:

The bottom of all excavation shall be inspected and approved by the Soil Engineer prior to placement of new fill. Certain cities require their Grading Inspector to approve the bottom of excavation prior to placement of new fill. The contractor shall request such inspections in timely manner.

1- Areas to be graded or paved shall be grubbed and stripped of all vegetation, debris and other deleterious material. All loose soil and soil disturbed by removal of structural elements, piping, cesspools and trees, if any, shall be removed.

2- All new fill shall be placed in layers not exceeding 8 inches thick at near optimum moisture content and compacted to at least 90 percent

3- All imported soil shall consist of clean, granular, non-expansive soil free of vegetation and other deleterious material. No rock over 3 inches in greatest dimension shall be used in the upper 3 feet of the fill, and no rock over 6 inches in greatest dimension will be permitted below that except with specific approval of the Soil Engineer of the type, amount and manner of placement. No soil shall be imported to the site without prior approval by the Soil Engineer.

4- The existing sub-grade soils which are to support paving shall be compacted prior to construction of paving. It is recommended that the degree of compaction within the upper 12 inches be at least 90 percent.

5- All other fills and backfills shall be compacted to at least 90 percent.

6- The compaction characteristics of all fill soils shall be determined by ASTM D-1557-91. The field density and degree of compaction shall be determined by ASTM D-1556. The compacted fill should be tested and approved.

7- Density tests for compacted fill shall be made at intervals not exceeding 2 feet of fill height or every 500 cubic yards of earth material.

8- No jetting or water tamping of fill soils shall be permitted.

9- In all cases, where the ground slope is steeper than 5 horizontal to 1 vertical, the existing ground shall be benched as the fill thereon is brought up in layers. That existing ground with slopes flatter than 5 to 1 may also require benching if the Soil Engineer considers such to be necessary. The toe of the compacted fill slope should be keyed at least 2 feet into the bedrock with a minimum width of 12 feet.

10- Care shall be exercised during rough grading so that areas involved will drain properly. Water shall be prevented from running over slopes by temporary berms.

11- Observation and testing of all compaction shall be under the direction of the Soil Engineer, who shall be notified at least 24 hours in advance of the start of grading. A joint meeting between a representative of the client, the contractor, and the Soil Engineer is recommended prior to grading to discuss specific procedures and scheduling.

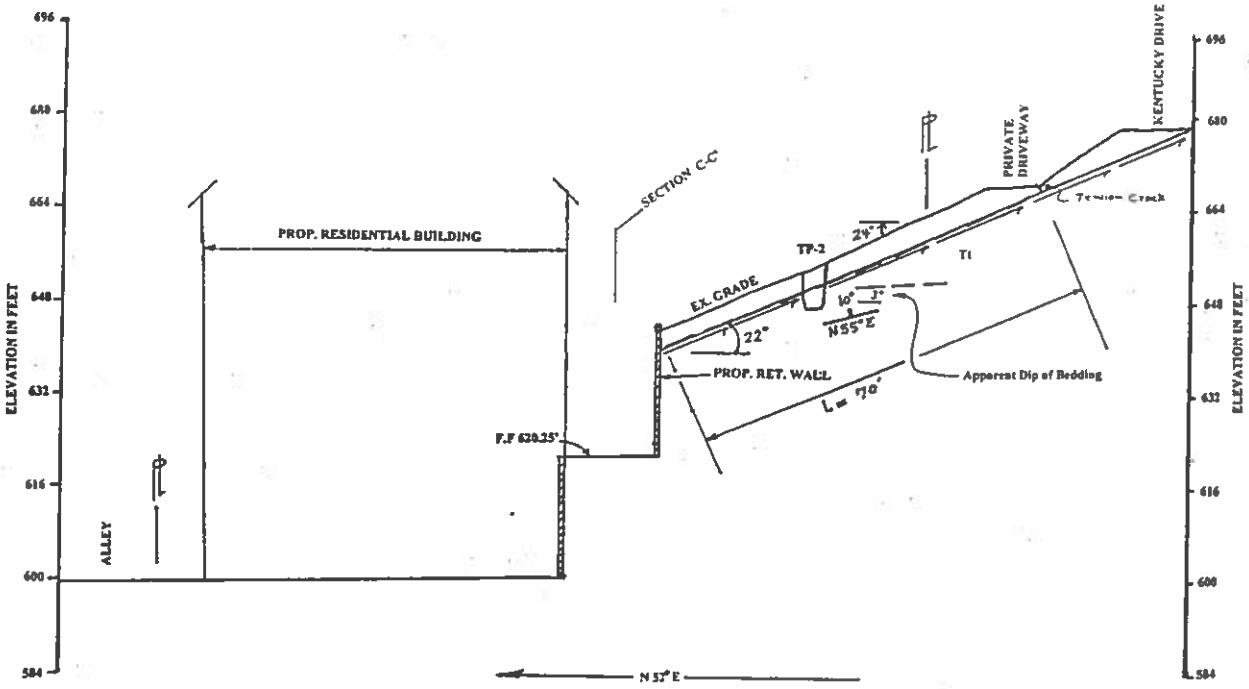
12- At all times, the contractor shall have a responsible field superintendent on the project, in full charge of the work, with authority to make decisions. He shall cooperate fully with the Soil Engineer in carrying out the work.

13- No fill shall be placed, spread or rolled during unfavorable weather. When the work is interrupted by rain, operations shall not be resumed until the Soil Engineer indicates that conditions will permit satisfactory results.

APPENDIX "D"

RESULTS OF CALCULATIONS

SECTION A – A'
SCALE 1" = 16'

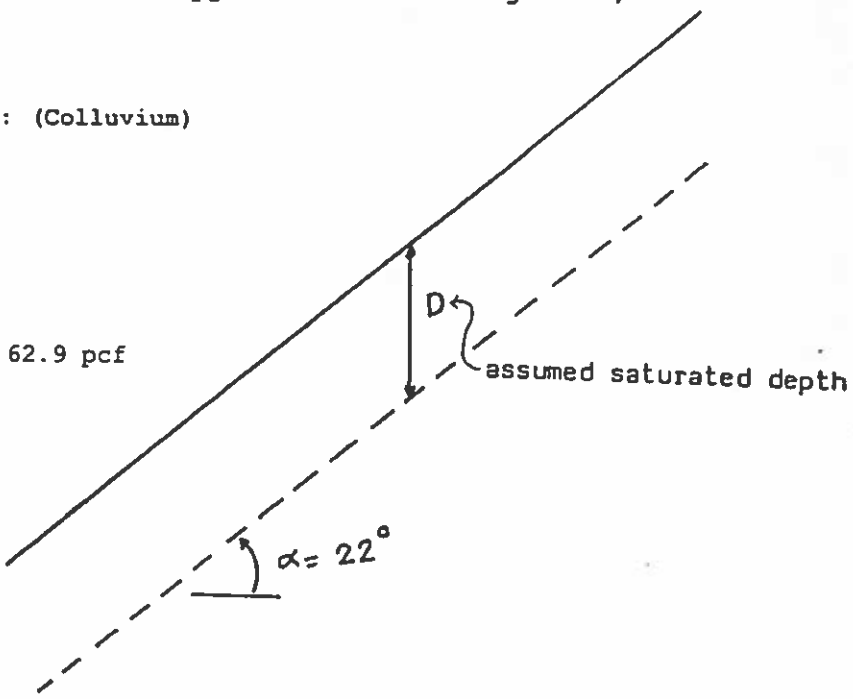


See calculations on Plate D-2 & D-3

PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.: SG-1140
	PLATE D-1

SURFICIAL SLOPE STABILITY ANALYSIS (COLLUVIUM)

SECTION A-A' (Above uppermost Retaining Wall)



Shear Strength Parameters : (Colluvium)

C = 200 psf

ϕ = 19°

δ = 101 pcf

δ (sat) = 125 pcf

δ' = δ (sat.) - δw = 62.9 pcf

D = 4 feet

α = 22°

$$F.s = \frac{C + (D)\,\delta'\cos^2\alpha\tan\phi}{(D)(\delta)\cos\alpha\sin\alpha}$$

$$F.s = \frac{200 + (4)(62.9)\cos^2 22\tan 19}{(4)(101)\cos 22\sin 22} = 1.95 > 1.50$$

PROJECT NO.: SG-1140
PLATE : D-2

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ANALYSIS ALONG COLLUVIUM/BEDROCK CONTACT

SECTION A-A' (Above uppermost Retaining. Wall)

COLLUVIUM :
C = 200 psf
ϕ = 19°
δ = 101 pcf.

BEDROCK :
C = 675 psf
ϕ = 35°
δ = 109 pcf

TENSION CRACK:

$$Z = \frac{2\ C\ \sqrt{N\phi}}{\delta}\ ,\ \sqrt{N\phi} = \tan\left(45 + \frac{\phi}{2}\right)$$

$$\sqrt{\phi} = \tan\left(45 + \frac{19}{2}\right) = 1.4$$

$$Z = \frac{2\ (200)\ (1.4)}{101} = 5.5\ ft$$

NAVFAC, design manual 7.01

α = 24°, L = 70 ft, F.S = 1.5, W = 32.4 k (Full slice weight including Surcharges)

$$Pa = [w - Cm\ L\ \sin(\alpha)]\ \tan(\alpha - \phi m) - Cm.L.\cos\alpha$$

$$Cm = \frac{C}{F.s} = \frac{200}{1.5} = 133\ psF$$

$$\phi m = \tan^{-1}\left(\frac{\tan\phi}{1.5}\right) = \tan^{-1}\left(\frac{\tan 19}{1.5}\right) = 12.9°$$

$$Pa = [32.4 - (0.133)(70.0)\ \sin 24]\ \tan(24 - 12.9) - (0.133)(70)\ \cos 24$$

$$Pa = -2.89$$

PROJECT NO. : SG-1140
PLATE : D-3

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**********************************************
*                                            *
*          SLOPE STABILITY ANALYSIS          *
*                                            *
*************** S T A B R G ******************
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*                  GEOSOFT                   *
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"SG-1140, SECTION A-A', 3910 KENTUCKY DRIVE, LOS ANGELES, CALIFORNIA "

CONTROL DATA

NUMBER OF SPECIFIED CENTERS	0
NUMBER OF DEPTH LIMITING TANGENTS	0
NUMBER OF VERTICAL SECTIONS	12
NUMBER OF SOIL LAYER BOUNDARIES	3
NUMBER OF PORE PRESSURE LINES	0
NUMBER OF POINTS DEFINING COHESION PROFILE	0

SEISMIC COEFFICIENT S1,S2 = .00 .00

SEARCH STARTS AT CENTER (140.0, -60.0),WITH FINAL GRID OF 5.0

ALL CIRCLES PASS THROUGH THE POINT (190.1, 79.0)

GEOMETRY

SECTIONS	.0	90.0	90.1	100.0	100.1	114.0	123.0	179.0	179.1	195.0	195.1	26
T. CRACKS	.0	.0	-3.0	-3.0	.0	10.0	10.0	35.0	58.0	58.0	79.0	7
W IN CRACK	.0	.0	-3.0	-3.0	.0	10.0	10.0	35.0	58.0	58.0	79.0	7
BOUNDARY 1	.0	.0	-3.0	-3.0	.0	10.0	10.0	35.0	58.0	58.0	79.0	7
BOUNDARY 2	.0	.0	.0	8.0	5.0	11.0	15.0	38.0	58.0	58.0	79.0	7
BOUNDARY 3	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	11

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY
1	200.0	19.0	101.0
2	680.0	33.0	109.0

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	87.8	147.8	140.0	-60.0	3.250	2.950
2	84.7	144.7	150.0	-60.0	2.903	2.661
3	82.2	142.2	160.0	-60.0	2.605	2.409

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4	80.4	140.4	170.0	-60.0	2.351	2.193
5	79.4	139.4	180.0	-60.0	2.137	2.010
6	79.0	139.0	190.0	-60.0	1.959	1.857
7	79.4	139.4	200.0	-60.0	1.871	1.780
8	79.8	139.8	205.0	-60.0	1.857	1.766
9	80.4	140.4	210.0	-60.0	1.860	1.766
10	79.8	134.8	205.0	-55.0	1.842	1.749
11	80.5	135.5	210.0	-55.0	1.849	1.753
12	79.9	129.9	205.0	-50.0	1.829	1.734
13	80.5	130.5	210.0	-50.0	1.841	1.742
14	79.9	124.9	205.0	-45.0	1.818	1.721
15	80.6	125.6	210.0	-45.0	1.834	1.733
16	79.9	119.9	205.0	-40.0	1.811	1.711
17	80.7	120.7	210.0	-40.0	1.828	1.725
18	80.0	115.0	205.0	-35.0	1.803	1.701
19	80.7	115.7	210.0	-35.0	1.840	1.741
20	80.0	110.0	205.0	-30.0	1.809	1.712
21	79.4	114.4	200.0	-35.0	1.801	1.699
22	79.4	109.4	200.0	-30.0	1.793	1.688
23	80.0	110.0	205.0	-30.0	1.809	1.712
24	79.5	104.5	200.0	-25.0	1.794	1.694
25	79.1	109.1	195.0	-30.0	1.804	1.696
26	80.1	105.1	205.0	-25.0	1.805	1.708
27	79.1	104.1	195.0	-25.0	1.797	1.687
28	79.1	114.1	195.0	-35.0	1.815	1.709
29	80.0	115.0	205.0	-35.0	1.803	1.701

F.S. MINIMUM= 1.793 FOR THE CIRCLE OF CENTER (200.0, -30.0)

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*      STABRG      *
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PROJECT NO. SG-1140
PLATE D-5

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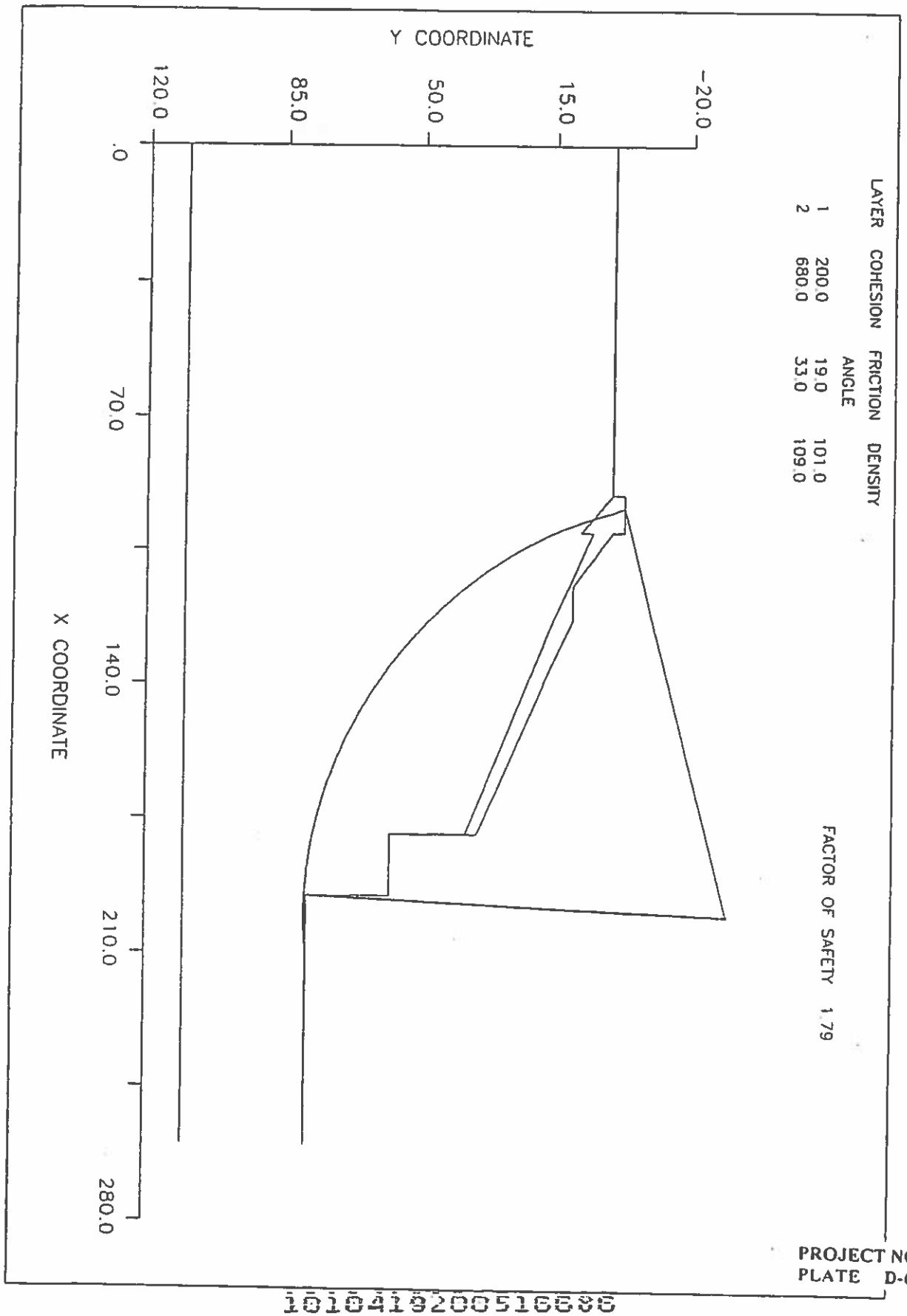

PROJECT NO. SG-1140
PLATE D-6

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*                                            *
*          SLOPE STABILITY ANALYSIS          *
*                                            *
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"SG-1140, SECTION A-A', 3910 KENTUCKY DRIVE, LOS ANGELES, CALIFORNIA "

CONTROL DATA

NUMBER OF SPECIFIED CENTERS	0
NUMBER OF DEPTH LIMITING TANGENTS	0
NUMBER OF VERTICAL SECTIONS	12
NUMBER OF SOIL LAYER BOUNDARIES	3
NUMBER OF PORE PRESSURE LINES	0
NUMBER OF POINTS DEFINING COHESION PROFILE	0

SEISMIC COEFFICIENT S1,S2 = .15 .00

SEARCH STARTS AT CENTER (140.0, -60.0),WITH FINAL GRID OF 5.0

ALL CIRCLES PASS THROUGH THE POINT (190.1, 79.0)

GEOMETRY

SECTIONS	.0	90.0	90.1	100.0	100.1	114.0	123.0	179.0	179.1	195.0	195.1	26
T. CRACKS	.0	.0	-3.0	-3.0	.0	10.0	10.0	35.0	58.0	58.0	79.0	7
W IN CRACK	.0	.0	-3.0	-3.0	.0	10.0	10.0	35.0	58.0	58.0	79.0	7
BOUNDARY 1	.0	.0	-3.0	-3.0	.0	10.0	10.0	35.0	58.0	58.0	79.0	7
BOUNDARY 2	.0	.0	.0	8.0	5.0	11.0	15.0	38.0	58.0	58.0	79.0	7
BOUNDARY 3	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	11

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY
1	200.0	19.0	101.0
2	680.0	33.0	109.0

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	87.8	147.8	140.0	-60.0	2.016	1.893
2	84.7	144.7	150.0	-60.0	1.869	1.778
3	82.2	142.2	160.0	-60.0	1.733	1.670

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4	80.4	140.4	170.0	-60.0	1.610	1.572
5	79.4	139.4	180.0	-60.0	1.500	1.484
6	79.0	139.0	190.0	-60.0	1.406	1.408
7	79.4	139.4	200.0	-60.0	1.373	1.380
8	79.8	139.8	205.0	-60.0	1.377	1.383
9	79.4	134.4	200.0	-55.0	1.365	1.371
10	79.8	134.8	205.0	-55.0	1.371	1.375
11	79.4	129.4	200.0	-50.0	1.357	1.362
12	79.9	129.9	205.0	-50.0	1.366	1.369
13	79.4	124.4	200.0	-45.0	1.351	1.354
14	79.9	124.9	205.0	-45.0	1.362	1.364
15	79.4	119.4	200.0	-40.0	1.346	1.348
16	79.9	119.9	205.0	-40.0	1.361	1.361
17	79.4	114.4	200.0	-35.0	1.344	1.345
18	80.0	115.0	205.0	-35.0	1.359	1.357
19	79.4	109.4	200.0	-30.0	1.340	1.340
20	80.0	110.0	205.0	-30.0	1.366	1.368
21	79.5	104.5	200.0	-25.0	1.344	1.347
22	79.1	109.1	195.0	-30.0	1.334	1.333
23	79.1	104.1	195.0	-25.0	1.332	1.330
24	79.5	104.5	200.0	-25.0	1.344	1.347
25	79.1	99.1	195.0	-20.0	1.330	1.328
26	79.5	99.5	200.0	-20.0	1.344	1.349
27	79.1	94.1	195.0	-15.0	1.334	1.338
28	79.0	99.0	190.0	-20.0	1.353	1.341
29	79.5	94.5	200.0	-15.0	1.340	1.345
30	79.0	94.0	190.0	-15.0	1.353	1.340
31	79.0	104.0	190.0	-25.0	1.354	1.343
32	79.5	104.5	200.0	-25.0	1.344	1.347

F.S. MINIMUM= 1.330 FOR THE CIRCLE OF CENTER (195.0, -20.0)

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********************
*      STABRG      *
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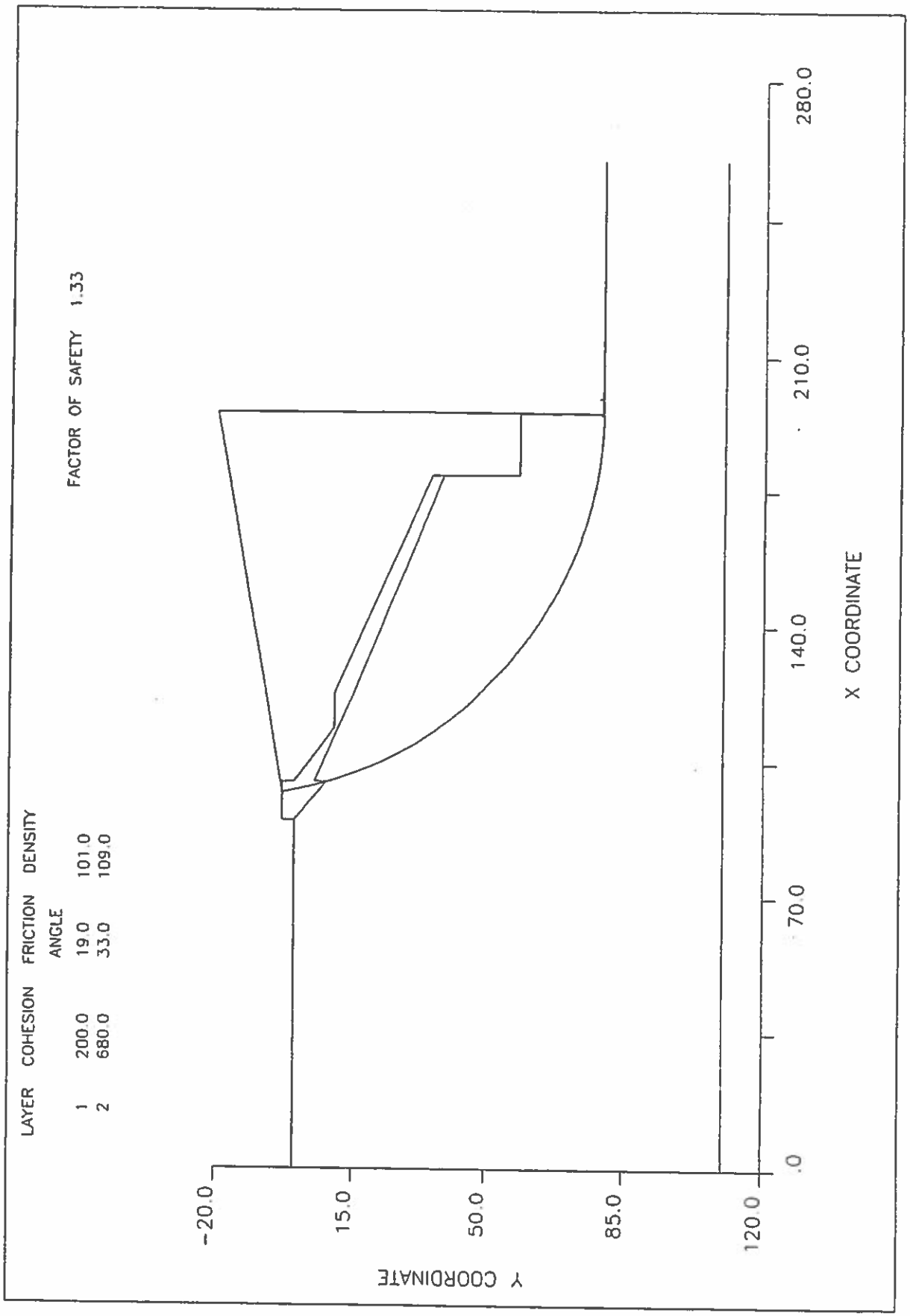
PROJECT NO. SG-1140
PLATE D-8

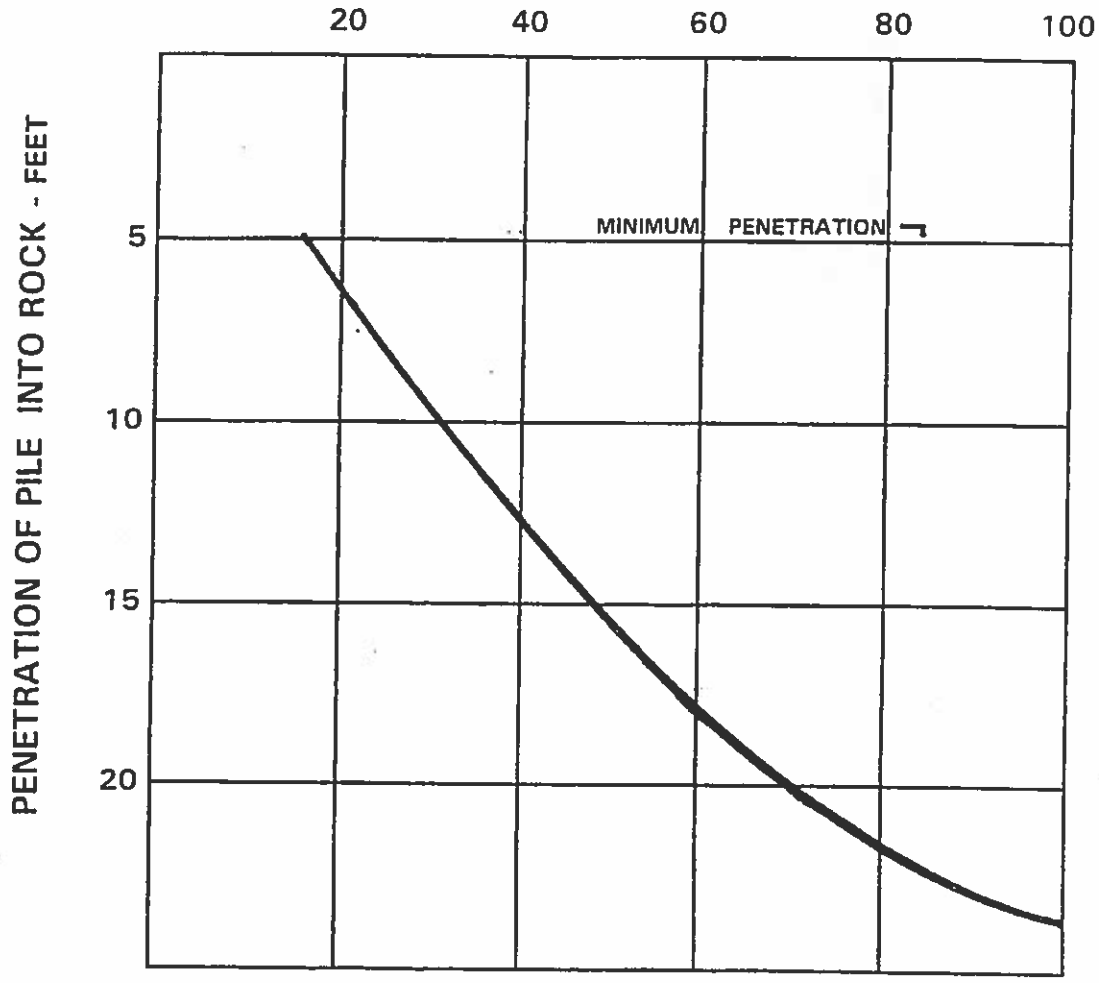
10184192005186686



PROJECT NO. SG-1140
PLATE D-9

10104182005166686

FRICTION PILE DESIGN GRAPH



NOTE: FRICTION PILE DESIGN GRAPH IS BASED ON A 24-INCH DIAMETER PILE. OTHER PILE SIZES WILL BE IN DIRECT PROPORTION TO THE DIAMETER. VALUS FOR UPLIFT MAY BE TAKEN AS ONE-HALF OF DOWNWARD LOADS

PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.:	SG-1140
	PLATE:	PLATE D-10

DON SOILS ENGINEERING, CO.

CONSULTING FOUNDATION ENGINEERS & ENGINEERING GEOLOGIST

10104192005166986

FRICTION PILES CALCULATIONS

PILES EMBEDMENT INTO ROCK

Shear Strength Parameters:

C = 675 psf

$\phi = 35$

$\gamma = 109$ pcf

Pile Diameter = 2 feet

Factor of safety used: F. S = 3

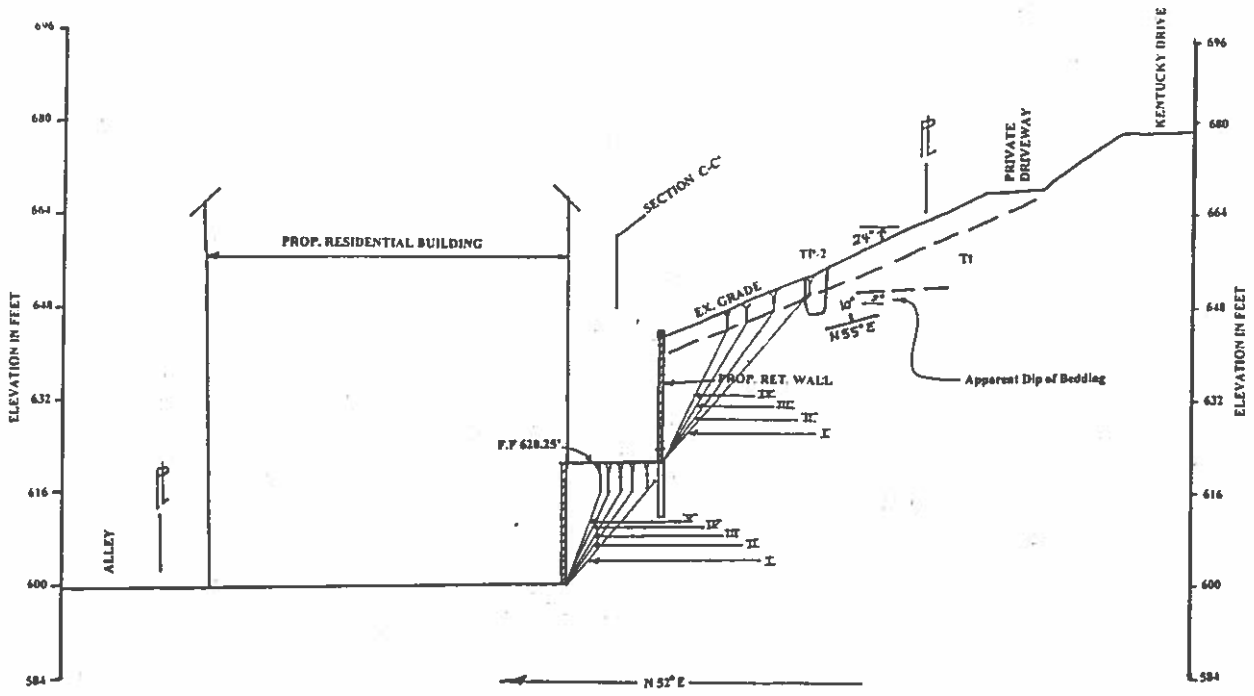
Depth (ft)	Effective Depth (ft)	Effective shear strength	Increment of length (ft)	Increment of Area (ft)	Capacity (ksf)	Ultimate Capacity (ksf)	Allowable pile (ksf)
0 – 5	2.5	0.87	5	31.4	27.3	27.3	9
5 – 10	7.5	1.25	5	31.4	39.3	66.6	22
10 – 15	12.5	1.63	5	31.4	51.2	110.2	39
15 – 20	17.5	2.01	5	31.4	63.1	172.4	60
20 – 25	22.5	2.39	5	31.4	75.0	246.2	85

Project No.: SG-1140

PLATE D-11

10104192005166

SECTION: A - A'
SCALE: 1" = 16'



See calculations on Plates D-12 Thru. D-17

PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.: SG-1140
	PLATE D-12

10104192005166880

RETAINING WALL ANALYASIS

SECTION A-A' (Uppermost Retaining Wall)

Bedrock :
C = 675psf
ϕ = 35°
δ = 109 pcf

Tension Crack = 5 ft

NAVFAL Design Manuel 7.01

I

α = 50° , F.s = 1.50 , L = 38'ft , W = 32.6 k (Full slice weight)

$Pa = [W - Cm\ L \sin(\alpha)] \tan(\alpha - \phi m) - Cm.L.\cos\alpha$

$$Cm = \frac{C}{F.s} = \frac{675}{1.50} = 450 \text{ psf}$$

$$\phi m = \tan^{-1}\left(\frac{\tan\phi}{1.50}\right) = \tan^{-1}\left(\frac{\tan 35}{1.50}\right) = 25°$$

$Pa = [32.6 - (0.45)(38) \sin 50] \tan(50-25) - (0.45)(38) \cos 50°$

Pa = -1.9

II

α = 55° , L = 32'ft , W = 26.9 k (Full slice weight)

$Pa = [26.9 - (0.45)(32) \sin 55] \tan(55-25) - (0.45)(32) \cos 55°$

Pa = 0.461 k = 461 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 461}{(22)^2} = 1.9 \text{ psf/ft}$$

III

α = 60° , L = 28.4'ft , W = 18.2 k (Full slice weight)

$Pa = [18.2 - (0.45)(28.4) \sin 60] \tan(60-25) - (0.45)(28.4) \cos 60°$

Pa = -1.40

IV

α = 65° , L = 26'ft , W = 14.7 k (Full slice weight)

$Pa = [14.7 - (0.45)(26) \sin 65] \tan(65-25) - (0.45)(26) \cos 65°$

Pa = -1.51

PROJECT NO. : SG-1140
PLATE : D-13

10104192005186686

RETAINING WALL ANALYASIS

SECTION A-A' (Lower Retaining Wall)

Bedrock :
C = 675psf, ϕ = 35°, δ = 109 pcf

Tension Crack = 5 ft

NAVAC DESIGN MANUAL 7.01

I

α = 50°, F.s = 1.50, L = 21', W = 20.6 k (Full slice weight)

$Pa = [W - Cm\ L \sin(\alpha)] \tan(\alpha - \phi m) - Cm.L.\cos\alpha$

$Cm = \frac{C}{F.s} = \frac{675}{1.50} = 450$ psf

$\phi m = \tan^{-1}(\frac{\tan\phi}{1.50}) = \tan^{-1}(\frac{\tan 35}{1.50}) = 25°$

$Pa = [20.6 - (0.45)(21) \sin 50] \tan(50-25) - (0.45)(21) \cos 50°$

Pa = 0.156 k = 156 lbs

$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 156}{(21)^2} = 0.71$ psf/ft

II

α = 55°, L = 20', W = 16.5 k (Full slice weight)

$Pa = [16.5 - (0.45)(20) \sin 55] \tan(55-25) - (0.45)(20) \cos 55°$

Pa = 0.108 k = 108 lbs

$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 108}{(21)^2} = 0.49$ psf/ft

III

α = 60°, L = 18.6', W = 13.7 k (Full slice weight)

$Pa = [13.7 - (0.45)(18.6) \sin 60] \tan(60-25) - (0.45)(18.6) \cos 60°$

Pa = 0.181 k = 181 lbs, $E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 181}{(21)^2} = 0.82$ psf/ft

PROJECT NO. : SG-1140
PLATE : D-14

(CONT.)

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(CONT.)

IV

$\alpha = 65°$, L = 17.5' , W = 10.3 k (including Full slice weight)

Pa = [10.3 - (0.45)(17.5) sin65] tan(65-25) - (0.45)(17.5) cos65°

Pa = -1.50

V

$\alpha = 70°$, L = 17 ', W = 8.6 k (including Full slice weight)

Pa = [8.6 - (0.45)(17) sin 70] tan(70-25) - (0.45)(17) cos 70°

Pa = -1.21

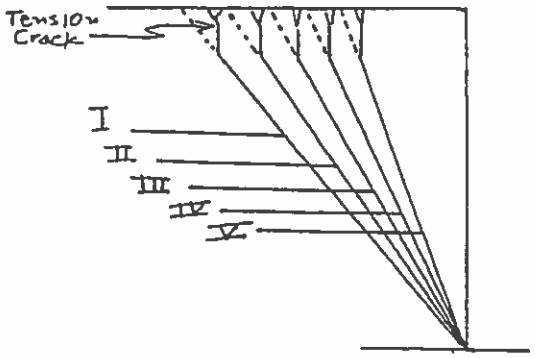
PROJECT NO. : SG-1140
PLATE : D-15

10104192005186686

RETAINING WALL ANALYASIS
(Southeast Retaining Wall)

Bedrock :
C = 675psf
ϕ = 35°
δ = 109 pcf

Tension Crack = 5 ft



SCALE: 1" = 20'

Height of the retaining Wall = 36 feet (at its highest point)

NAVFAL Design Manuel 7.01

I

α = 50° , F.s = 1.50 , L = 41'ft , W = 60.6 k (Full slice weight)

$Pa = [W - Cm\ L \sin(\alpha)] \tan(\alpha - \phi m) - Cm.L.\cos\alpha$

$$Cm = \frac{C}{F.s} = \frac{675}{1.50} = 450 \text{ psf}$$

$$\phi m = \tan^{-1}\left(\frac{\tan\phi}{1.50}\right) = \tan^{-1}\left(\frac{\tan 35}{1.50}\right) = 25°$$

$Pa = [60.6 - (0.45)(41) \sin 50] \tan(50-25) - (0.45)(41) \cos 50°$

Pa = 9.855k = 9855 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 9855}{(37)^2} = 14.4 \text{ psf/ft}$$

II

α = 55° , L = 39'ft , W = 49.5 k (Full slice weight)

$Pa = [49.5 - (0.45)(39) \sin 55] \tan(55-25) - (0.45)(39) \cos 55°$

Pa = 10.213 k = 10213 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 10213}{(37)^2} = 14.9 \text{ psf/ft}$$

(Cont.)

PROJECT NO.: SG-1140
PLATE : D-16

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(Cont.)

III

$\alpha = 60°$, L = 37'ft , W = 40.5 k (Full slice weight)

$Pa = [40.5 - (0.45)(37) \sin 60] \tan(60-25) - (0.45)(37) \cos 60°$

Pa = 9.937 k = 99371bs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 9937}{(37)^2} = 14.5 \text{ psf/ft}$$

IV

$\alpha = 65°$, L = 35'ft , W = 33.7 k (Full slice weight)

$Pa = [33.7 - (0.45)(35) \sin 65] \tan(65-25) - (0.45)(35) \cos 65°$

Pa = 9.644 K = 9644 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 9644}{(37)^2} = 14.1 \text{ psf/ft}$$

V

$\alpha = 70°$, L = 34'ft , W = 27.0 k (Full slice weight)

$Pa = [27 - (0.45)(34) \sin 70] \tan(70-25) - (0.45)(34) \cos 70°$

Pa = 7.390 K = 7390 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 7390}{(37)^2} = 10.8 \text{ psf/ft}$$

PROJECT NO. : SG-1140
PLATE : D-17

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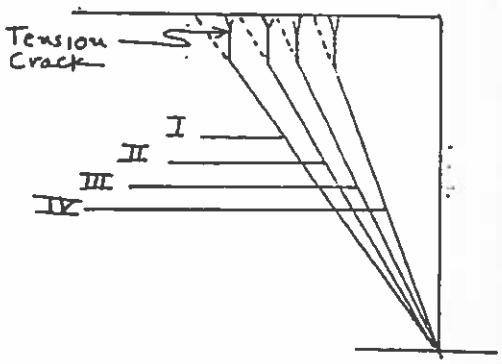
TEMPORARY EXCAVATION
(Along Southeast side)

Bedrock :
C = 675psf
ϕ = 35°
δ = 109 pcf

Tension Crack = 5 ft



SCALE: 1" = 20'

Height of cuts = 38 feet (at its highest point)

NAVFAL Design Manuel 7.01

I

$\alpha = 50°$, F.s = 1.25 , L = 44'ft , W = 63.7 k (Full slice weight)

$Pa = [W - Cm\ L \sin(\alpha)] \tan(\alpha - \phi m) - Cm.L.\cos\alpha$

$$Cm = \frac{C}{F.s} = \frac{675}{1.25} = 540 \text{ psf}$$

$$\phi m = \tan^{-1}\left(\frac{\tan\phi}{1.25}\right) = \tan^{-1}\left(\frac{\tan 35}{1.25}\right) = 29.3°$$

$Pa = [63.7 - (0.54)(44) \sin 50] \tan(50-29.3) - (0.45)(44) \cos 50°$

Pa = 1.920k = 1920 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 1920}{(39)^2} = 2.5 \text{ psf/ft}$$

II

$\alpha = 55°$, L = 41'ft , W = 53.1.k (Full slice weight)

$Pa = [53.1 - (0.54)(41) \sin 55] \tan(55-29.3) - (0.54)(41) \cos 55°$

Pa = 4.128 k = 4128 lbs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 4128}{(39)^2} = 5.4 \text{ psf/ft}$$

(Cont.)

PROJECT NO.: SG-1140
PLATE : D-18

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(Cont.)

III

$\alpha = 60°$, L = 39'ft , W = 43.6 k (Full slice weight)

Pa = [43.6 - (0.54)(39) sin60] tan(60-29.3) - (0.54)(39) cos60°

Pa = 4.529 k = 45291bs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 4529}{(39)^2} = 5.95 \text{ psf/ft}$$

IV

$\alpha = 65°$, L = 37.5'ft , W = 35.4 k (Full slice weight)

Pa = [35.4 - (0.54)(37.5) sin65] tan(65-29.3) - (0.45)(37.5) cos65°

Pa = 3.692 K = 3692 1bs

$$E.F.P = \frac{2\ Pa}{H^2} = \frac{2 \times 3692}{(39)^2} = 4.85 \text{ psf/ft}$$

PROJECT NO. : SG-1140
PLATE : D-19

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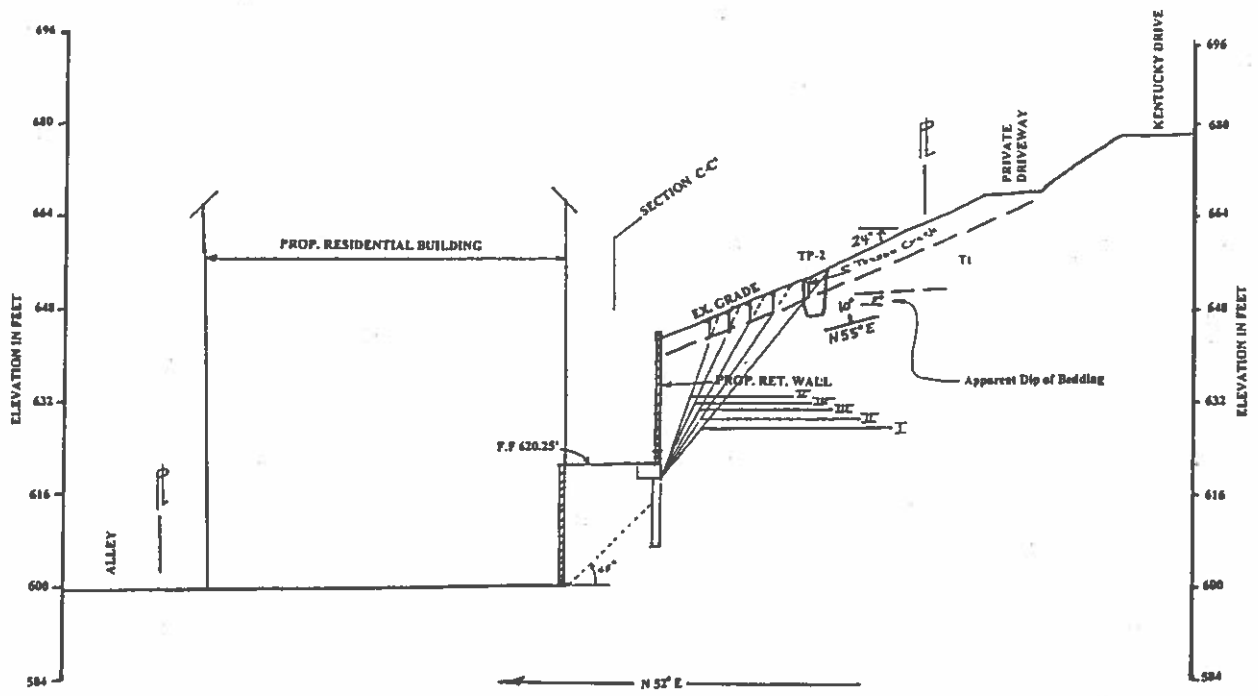
SECTION: A – A'
SCALE: 1" = 10'



See calculations on Plate D-21

PROPOSED 6-UNIT RESIDENTIAL BUILDING 3910 KENTUCKY DRIVE LOS ANGELES, CALIFORNIA	PROJECT NO.: SG-1140 PLATE D-20

10104192005166966

TEMPORARY EXCAVATION

SECTION A-A'

Bedrock, Shear :

C = 675 psf, ϕ = 35°, δ = 109 pcf

TENSION CRACK : 5 ft

NAVFAC DESIGN MANUAL 7.01

I

α = 50°, L = 40', F.s = 1.25, W = 36.2 K (including full slice weight)

$Pa = [w - Cm\ L \sin(\alpha)] \tan(\alpha - \phi m) - Cm.L.\cos\alpha$

$$Cm = \frac{C}{F.s} = \frac{675}{1.25} = 540 \text{ psf}$$

$$\phi m = \tan^{-1}\left(\frac{\tan\phi}{F.s}\right) = \tan^{-1}\left(\frac{\tan 35}{1.25}\right) = 29.3°$$

$Pa = [36.2 - (0.54)(40) \sin 50] \tan(50-29.3) - (0.54)(40) \cos 50$

Pa = -6.5 k

II

α = 55° , L = 34' , W = 29.5 K , F.s = 1.25

$Pa = [29.5 - (0.54)(34) \sin 55] \tan(55-29.3) - (0.54)(34) \cos 55$

Pa = -3.57 k

III

α = 60° , L = 31' , W = 22.5 K , F.s = 1.25

$Pa = [22.5 - (0.54)(31) \sin 60] \tan(60-29.3) - (0.54)(31) \cos 60$

Pa = -3.62 k

IV

α = 65° , L = 28' , W = 18.3 K , F.s = 1.25

$Pa = [18.3 - (0.54)(28) \sin 65] \tan(65-29.3) - (0.54)(28) \cos 65$

Pa = -3.09 k

V

α = 70° , L = 26' , W = 13.0 K , F.s = 1.25

$Pa = [13.0 - (0.54)(26) \sin 70] \tan(70-29.3) - (0.54)(26) \cos 70$

Pa = -4.97 k

PROJECT NO. : SG-1140
PLATE : D-21

10104192005166 06

GRADING
OVERSIZE DOCUMENT

To view the Grading
oversize document for:

Tract: 5593
Block: _____ Lot: 115
Job Address: 3910 Kentucky Dr
X-Ref: 2X Date: 6/21/04

Look for the document type called "Grading Oversize Document" dated 6/21/04 from the Document Type list in DAFS Retrieval; copy the corresponding Reel/Batch/Doc numbers (document location on microfilm); and request assistance from the Automated Records Counter staff to view the film and/or print a copy of the images. Prints require special permission which will be explained to you by Department staff.

(G:\DRM\DAFS\DAFSFORM\GROSDOC.FRM) 8.7.21.98

10104192005156686

City of Los Angeles - Department of Building and Safety
GRADING PRE-INSPECTION REPORT

Address: 3910 N. Kentucky Dr. (90068)
CD: 4 Grad Dist.: STGRDV9 Log No.: LA02165 Permit Application: 03010-10000-04012

Purpose: NEW 6-UNIT MULTI-RESIDENTIAL BUILDING. Property Posted: Yes Posting Date: 11/22/2003
GPI Fees Paid: Yes Posting Fees Paid: Yes

TRACT: 5593
BLOCK: N/A LOT(S): 115 ARB: N/A COUNTY REF. NO.:

INSPECTORS REPORT OF FIELD CONDITIONS

Approved Graded Lot: No
Fill over 100 feet: No
Slope of Surface: Descending
Cut: ° Height: ft
Fill: ° Height: ft
Natural: 20° Height: 50 ft
Sewer Available: Yes
Site Below Street
Condition of Street for Drainage Purposes
A/C
Driveway Grade: % Proposed

Bearing Value: Table 18.1.A
Buttress Fill:
Natural Soil Classification Per Table 18.1.A
sandstone
Expansive Soil: No
Slide Area: No
PSDS Sized Per Code: No
Roof Gutters: Yes
Recommended Termination of Drainage
to street
Maximum Rough Grade Allowed: 20 %

GRADING APPROVAL TO ISSUE PERMIT(S)
OK TO ISSUE. SEE BELOW FOR COMMENTS.
X DO NOT ISSUE UNTIL BELOW REQUIREMENTS HAVE BEEN SATISFIED.

CONDITIONS & REQUIREMENTS PRECEDENT TO ISSUING PERMIT

X 1. A grading permit is required for excavation and backfill.
X 2. A retaining wall permit is required. ret wall.
X 3. OSHA permit required for vertical cuts 5 feet or over..
4. All footings shall be founded in undisturbed natural soil per Code.
5. Comply with the provisions of Section 91.1804.4 for expansive soil conditions.
6. In the event excavations reveal unfavorable conditions, the services of a soils engineer and/or geologist may be required.
X 7. Geological and Soils report(s) are required. Submit three copies (1 original and 2 copies), with appropriate fees, to the Grading Section for review and approval.
X 8. Incorporate all recommendations of the approved Geological and Soils report(s) and Department letters dated to come into the plans. Geologist and Soils Engineer to sign plans.
9. Site is subject to mudflow. Comply with provisions of Section 91.7014.3.
X 10. Buildings shall be located clear of the toe of all slopes which exceed a gradient of 3 horizontal to 1 vertical as per Section 91.1806.5.2.
11. Footings shall be set back from the descending slope surface exceeding 3 horizontal to 1 vertical as per Section 91.1806.5.3.
12. Swimming pools and spas shall be set back from descending and ascending slopes as per Section 91.1806.5.4.
13. Department approval is required for construction of on or over slopes steeper than 2 horizontal to 1 vertical.
14. Provide complete details of engineered temporary shoring or slot cutting procedures on plans. Call for inspection before excavation begins.
X 15. All concentrated drainage, including roof water, shall be conducted, via gravity, to the street or an approved location at a 2% minimum. Drainage to be shown on the plans.
16. A Registered Deputy Inspector is required for .
X 17. All fill or backfill shall be compacted by mechanical means to a minimum 90% relative compaction as determined by ASTM method D-1557. Subdrains shall be provided where required by Code.
X 18. Specify on the plans: "The soils engineer is to approve the key or bottom and leave a certificate on the site for the grading inspector. The grading inspector is to be notified before any grading begins and, for bottom inspection, before fill is placed. Fill may not be placed without approval of the grading inspector."
19. Existing non-conforming slopes shall be cut back at 2:1 (26 degrees) or retained.
X 20. All cut or fill slopes shall be no steeper the 2:1 (26 degrees).
X 21. Stake and flag the property lines in accordance with a licensed survey map.
22. Approval required by the Department of for .

ADDITIONAL REQUIREMENTS
(1) submit a temporary erosion control plan (2)a grading bond is required (3) have a supply of water at site for dust control (4) install a safety fence around all vertical cuts (5) have a chemical toilet at site when works starts (6) call for initial inspection when work starts

Inspector Signature	Inspector, Office, Phone	Date
[signature]	Lee Douroux, Van Nuys , 818-374-4358	11/22/2003

10105102005176 02

CITY OF LOS ANGELES
CALIFORNIA

RICHARD J. RIORDAN
MAYOR

January 25, 1999

Log # 26714
C.D. --

SOILS/GEOLOGY FILE - 2

Mr. Jeffrey Vance
1311 Ventura Blvd #200
Studio City, CA

NOT APPROVED

TRACT: 5593
LOT: Portion 115 / 116
LOCATION: 3900 and 3902 / 3910 Kentucky Drive

CURRENT REFERENCE REPORT/LETTER(S)	REPORT NO.	DATE(S) OF DOCUMENT	PREPARED BY
Geology/Soils Report	98-222	12-07-98	Soils & Geology
Overall Doc	" "	" "	" "

The site and report have been reviewed by the Grading Section of the Department of Building and Safety. According to the report, it is planned to construct multi-story, semi-subterranean apartment buildings on the lots, requiring deep excavation.

The proposed construction at 3900 Kentucky (lot 116) consists of a two-story semi-subterranean garage and apartment below an existing residence. The proposed excavation and retaining wall will be surcharged by steeply northeast-dipping bedding planes and the existing residence. It appears that the additions are approaching 50% of the existing structures. The existing building to the south is provided with a subterranean garage which is equal to alley grade, and extends into the slope farther than the proposed semi-subterranean garage.

The proposed construction at 3902 (lot 116) and 3910 Kentucky (portion lot 115) are similar. Each site will be developed with a five-story apartment and garage complex. Wall excavations of up to 20 feet in depth are planned. The proposed excavation and retaining wall will be surcharged by steeply northeast-dipping bedding planes. A stacked retaining wall configuration is planned. A substantial wedge of uncertified fill exists on the slope above the proposed development.

AN EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

12050903-15

The report recommends that excavations which will remove support from bedding planes be constructed either by trimming to the angle of bedding of slot cutting using 30-foot-wide slots. The report indicates that vertical excavations within bedrock, without bedding surcharge, may be made up to a vertical height of 18 feet (F.S. = 1.21). It is also reported that the retaining walls may be utilize a restrained design.

The report cannot be approved as it lacks sufficient information to determine the stability or safety of the proposed development. An addendum to the report shall be submitted which contains the following information:

1. Provide calculations demonstrating the stability of the fill over natural slope per RGA 1-84 or provide recommendations for removal or support of the fill.

2. Show how the proposed buildings will comply with Code Section 1806.4.2.

3. Provide analyses for retaining walls and temporary excavations adjacent to the existing residence.

4. Provide recommendations for support of the existing residence which will be located at the top of proposed 20+ foot vertical cut. Based in the test pit logs, it is possible that the existing foundation is not in bedrock, but in soil.

5. Provide stability calculations and recommendations for excavations since the 18-foot-high analysis has a low factor of safety. Include footing excavations in the total height analyzed. Add any bedding and surcharge from existing buildings as necessary.

6. Slot cutting using 30-foot-wide slots is not justified due to the known fractured nature of the bedrock.

7. Provide retaining wall design analyses for stacked configurations.

8. Provide a sequence of excavation and construction for restrained retaining walls.

DAVID HSU
Chief of Grading Section

Jeffrey C Kofoed
JEFFREY C. KOFOED
Engineering Geologist II

Theo Seeley
THEO SEELEY
Geotechnical Engineer I

JK/TRS:jk/trs
26714
(213) 977-6329
cc: Soils and Geology
Lucian Hood
VN District Office

1 2 0 5 0 9 0 0 3 1 6

SOILS AND GEOLOGY INC.
Soils Engineering • Engineering Geology • Environmental Engineering
17691 EAST RAILROAD STREET, SUITE 203, CITY OF INDUSTRY, CA 91748
TELEPHONE (626) 964-2314
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26714

VN 3563

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DEC 29 1998
DEPARTMENT OF BUILDING & S
VAN NUYS DISTRICT OFFICE
GRADING DIVISION

20090317

PRELIMINARY SOILS AND GEOLOGIC INVESTIGATION

PROPOSED SINGLE FAMILY APARTMENTS

LOTS 115 AND 116; TRACT 5593

3900, 3902 AND 3910 KENTUCKY DRIVE
NORTH HOLLYWOOD, CALIFORNIA

JOB NUMBER 98-222 DECEMBER 7, 1998

REQUESTED BY:
VANCE CONSTRUCTION
14431 VENTURA BOULEVARD SUITE 409
SHERMAN OAKS, CALIFORNIA 91423

SOILS AND GEOLOGY INC.
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17201 EAST RAILROAD STREET, SUITE 200, CITY OF INDUSTRY, CA 91748
TELEPHONE (626) 964-2314
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December 7, 1998
Job Number 98-222

Vance Construction
14431 Ventura Boulevard, Suite 409
Sherman Oaks, California 91423

Subject: Preliminary Soils and Geologic Investigation
Proposed Single Family Apartments
Lots 115 and 116; Tract 5593
3900, 3902 and 3910 Kentucky Drive
North Hollywood, California

Gentlemen:

This report presents the findings and conclusions of a soils and geologic investigation performed at the subject site. The purpose of this investigation was to obtain information on subsurface soils and geologic formations for evaluation on which to base recommendations for the development of the property. Our recommendations given in this report are intended for use in grading and preparation of construction plans for the foundation of the proposed project.

The field exploration consisted of a visual reconnaissance of the site and the excavating of five test pits to a maximum depth of 6.0 feet from the existing surface. A description of the methods used for the exploration and approximate locations of the test pits are presented in the Appendix of this report.

12050900318

INTRODUCTION

Proposed Development: It is understood that the site will be developed for one to four story residential structures with wood frame and stucco type construction. The proposed structures are expected to be constructed on shallow foundations and to have light loads.

Grading plans are not available at this time; however, it is understood that the site will require moderate grading for the development, and no permanent cut or fill slopes greater than 2 horizontal to 1 vertical are planned. Several temporary vertical cuts for retaining walls up to 17 feet high are planned.

Site Description: The property investigated is located at 3900, 3902 and 3910 Kentucky west of Cahuenga Boulevard and south of Lankershim Boulevard in the Studio City area of the City of Los Angeles. The site is a descending northeast facing slope from Kentucky Drive. The south portion contains a descending driveway to three small houses each descending down slope from one another. The slope from the street to the flat driveway area is on the order of 40° to 45°. A turn-a-round area consisting of fill is near the west central portion of the site. The southeast portion is a 40° to 50° cut slope. The northern portion is a natural descending slope at about 20° to 25°. The lower portion of the slope shows some grading that has a fill slope at the toe. Drainage of the site is over the slope by drain pipes in the southern part and by

sheet flow in the northern part. No signs of excessive erosion were noted. Much of the site is covered with large trees and small bushes.

Subsurface Conditions: Fill soils were encountered in Test Pit 5. As indicated on the Cross Section D-D' these fills were up to 8.0 feet in depth. The soils are classified as brown silty sands with some gravel in a slightly moist and medium dense to dense condition.

Natural topsoils are brown silty sands in a slightly moist and loose to medium dense condition. These soils are slightly porous. They are from 1½ to 3 feet thick.

Fill and topsoil in their presented state are unsuitable for foundation support. The underlying sandstone bedrock will provide good support for the proposed structures.

Soils are considered to be non-expansive at field moisture conditions. No indication of a shallow water table was encountered.

Detailed descriptions of the soils encountered at each test pit and the soil tests conducted, with their results, are presented in the Appendix.

I 20500900320

GEOLOGY

As exposed in the test pits and in nearby exposures, the bedrock underlying the site is a massive to thickly bedded sandstone to thinner bedded silty sandstone.

The sandstone is tan to orange-brown with dark orange bands, slightly moist and dense. "Bedding planes" are measured along the dark orange bands.

The silty sandstone is brown to orange-brown, slightly moist, fine grained and dense. Bedding planes are thin to moderately thick.

Bedding strikes generally north-northwest and dips northeast from 63 to 82 degrees. The true dip of bedding is not exposed on the existing slopes on the site.

Joint planes noticed in the more massive sandstone unit strike northwest and dip 49 degrees southwest.

CONCLUSIONS AND RECOMMENDATIONS

General: The information obtained during our investigation indicates that the subject site is suited for the proposed development, provided the recommendations contained in this report are incorporated into the design considerations, project plans, and job specifications.

Liquefaction: A water table was not encountered during the exploration and bedrock underlying the site will not be subject to liquefaction. The site is not subject to liquefaction during future earthquakes; however, it will experience strong ground shaking as any other area of southern California.

Slope Stability Analysis: Vertical cuts for east facing retaining walls will expose unsupported bedding. These slopes can be trimmed back to the angle of bedding and will be safe without shoring. Vertical cuts with daylighted bedding should have temporary lateral support equivalent to a fluid pressure of 26 pcf. Alternately, slot cutting can be used with a maximum open width of 30 feet and 30 feet supported on both ends.

Vertical cuts in bedrock with supported bedding or massive bedrock will be safe up to 18 feet without shoring.

Temporary cut slopes should be inspected at maximum intervals of 5 feet in vertical height by the Geologist to verify geologic conditions shown on the Geologic Map.

Grading: All grading should conform to the requirements of the City of Los Angeles and the standard grading specifications presented in this report.

- 20090322

Nominal compacted fills (retaining wall backfills) are currently proposed. If grading plans are required, they should be reviewed by the Soils Engineer and Geologist for specific recommendations, if needed.

Prior to grading, all structures, vegetation, and debris should be removed from the site. Uncertified fills and loose soils should be excavated to firm bedrock where structural fill is required.

Areas to receive fills should be scarified 6 to 8 inches to adjust the moisture content to near optimum conditions and then compacted to minimum requirements. Fills should be placed in 6 to 8 inch loose lifts at near optimum moisture conditions and compacted to not less than 90 percent of the maximum dry density. Maximum densities for the typical soils should be established in accordance with the standard ASTM D1557-78 method of test.

On-site soils may be used for compacted fills, provided they are free from organic and deleterious material. If imported soils are required, they should be approved by the Soils Engineer prior to acceptance at the site, to insure a similar quality to that required by design.

Cut/fill transitions on building pads are not allowed. Cut portions can be overexcavated 3 feet below the bottom of footings and recompacted for structural fill. At this time, all footings are expected to be extended to bedrock.

1 2 0 5 0 9 0 0 3 2 3

Grading operations should be conducted under the observation of the Soils Engineer and Geologist to provide assurance of compliance with job specifications and a Certification of Compacted Fill upon completion of grading.

Foundation Design: Continuous or spread footings having a minimum embedment of 12 inches into bedrock may be designed for an allowable bearing pressure of 2500 pounds per square foot. Embedment of two and three story structures should be 18 inches and 24 inches, respectively. All footings should have a minimum width of 12 inches. Total settlements with the assumed loads should not exceed 3/4 inch and differential settlements under similar loads should not exceed 1/4 inch.

A 1/3 increase in bearing pressure may be used in design when considering wind or seismic loads of short duration.

Continuous footings should have minimum reinforcement of two Number 4 bars placed near the top of the footing and two Number 4 bars near the bottom.

Lateral Resistance: Resistance to horizontal forces on foundations may be provided by the combined effect of passive pressures in bedrock and frictional resistance between concrete and firm soils. Lateral bedrock pressures of 400 pounds per square foot per foot of depth may be used up to 2500 pounds per square foot. A coefficient of friction of 0.4 is recommended for the on-site earth materials.

1 2 0 5 0 6 0 0 3 2 4

Floor Slabs: Concrete floor slabs may be supported by the natural or compacted fill soils. To provide uniform support, in cut/fill areas a minimum 18 inches of soil should be scarified and compacted at near optimum moisture conditions.

For moisture sensitive floors, a vapor barrier membrane covered with a minimum 2 inches of clean sand should be placed below the slab.

A grade beam 12 inches by 12 inches should be provided across the garage entrances. The base of the grade beam should be at the same elevation as the adjoining footings. A similar transition section (thickened slab) may be substituted as recommended by the Structural Engineer.

Retaining Walls: Unrestrained retaining walls with a level and 2:1 backfill should be designed to resist active soil pressures equivalent to a fluid pressure of 30 and 45 pounds per cubic foot, respectively, plus any additional surcharge expected from the surface.

Basement walls or other retaining walls restrained both at the bottom and top should be designed for soil pressures approaching an at-rest condition. Equivalent fluid pressures of 50 pounds per cubic foot are recommended for the on-site soils.

1 2 0 5 0 9 0 0 3 2 5

Retaining walls for the buildings are expected to be restrained. If any wall with a level backfill is proposed that will support daylighted bedding (east facing) it should be designed for lateral loads equivalent to a fluid pressure of 50 pcf.

Weep holes consisting of open joints in block walls or 1-inch diameter holes at 2 foot intervals should be placed at the base of the wall 6 to 12 inches above finished grade, or an adequate drainage system at the base of the wall should be provided to prevent hydrostatic pressures.

All walls should have a granular backfill compacted as fill soil. Jetting should not be permitted.

SUMMARY

This report was prepared to aid the project designers, reviewing agencies, grading contractors, owners, and other concerned parties in completing their responsibilities for the successful completion of this project. The findings and recommendations were prepared in accordance with generally accepted professional engineering principles and practices. We make no other warranty, neither expressed nor implied.

The findings and recommendations are based on results of the field and laboratory investigation, combined with interpolation of soil and geologic conditions between test pit locations. If conditions

1205090032

are encountered during grading or construction that appear to be different than those reported, this office should be notified.

All footing excavations should be inspected and approved by the Soils Engineer or Geologist prior to placing forms or reinforcement, to insure minimum depths into the recommended supporting material.

We appreciate the opportunity to work with you on this project. Please contact us at your convenience if you have any questions regarding this report.

Respectfully submitted,

SOILS AND GEOLOGY, INC.

Frank C. Stillman
G.E. 805

William G. Uhl
C.E.G. 502

FCS;WGU/ccr

Distribution: Addressee (5)

REGISTERED PROFESSIONAL ENGINEER FRANK C. STILLMAN STATE OF CALIFORNIA

REGISTERED GEOLOGIST WILLIAM G. UHL CERTIFIED ENGINEERING GEOLOGIST NO. 502 EXP. 2-30-00 STATE OF CALIFORNIA

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APPENDIX

The following Appendix contains a description of methods and laboratory test results which were used in the engineering evaluations and recommendations contained in the report. Included are the following Enclosures and Plates:

Enclosures

Geologic Map

Plates

Plates A-1 and A-2 ----- Geologic Cross Sections

Plates B-1 through B-4 ----- Test Pit Logs

Plates C-1 through C-4 ----- Direct Shear Summaries

Plates D-1 and D-2 ----- Slope Stability Analysis

Site Exploration

On November 6, 1998, field explorations were made by excavating five test pits at the approximate locations indicated on the enclosed Geologic Map. Hand labor was used to advance the test pits to depths of 1.0 to 7.0 feet below the existing grade.

Relatively undisturbed samples of soils were obtained in the field using a barrel drive sampler with a tapered cutting shoe. The soil samples were retained in 2-inch diameter by 6-inch tubes within the sampler and secured with moisture resistant caps as soon as taken to minimize the loss of field moisture while being transferred to our laboratory for testing.

I 20090032

Continuous observations of the materials encountered in the test pits were recorded in the field. The soils were classified in the field by visual and textural examination, and these classifications were supplemented by obtaining bulk soil samples for future examination or testing in the laboratory. Classifications are in accordance with the Unified Soil Classification System.

Descriptions of the visual observations of color and soil condition, depth of undisturbed cores or bag samples, field density, and field moisture content are presented on the Test Pit Logs, Plates B.

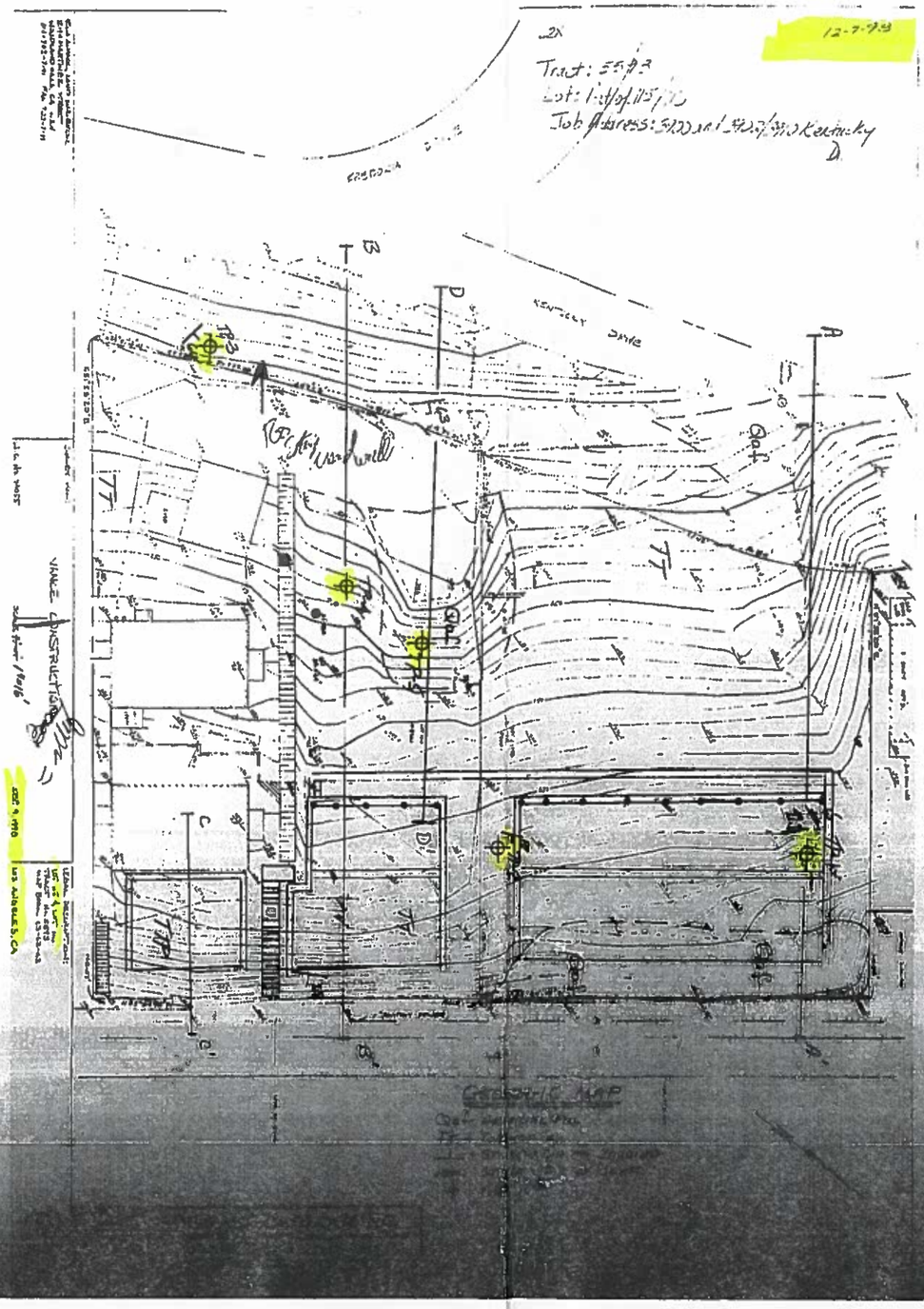
1205090029

Laboratory Tests and Results

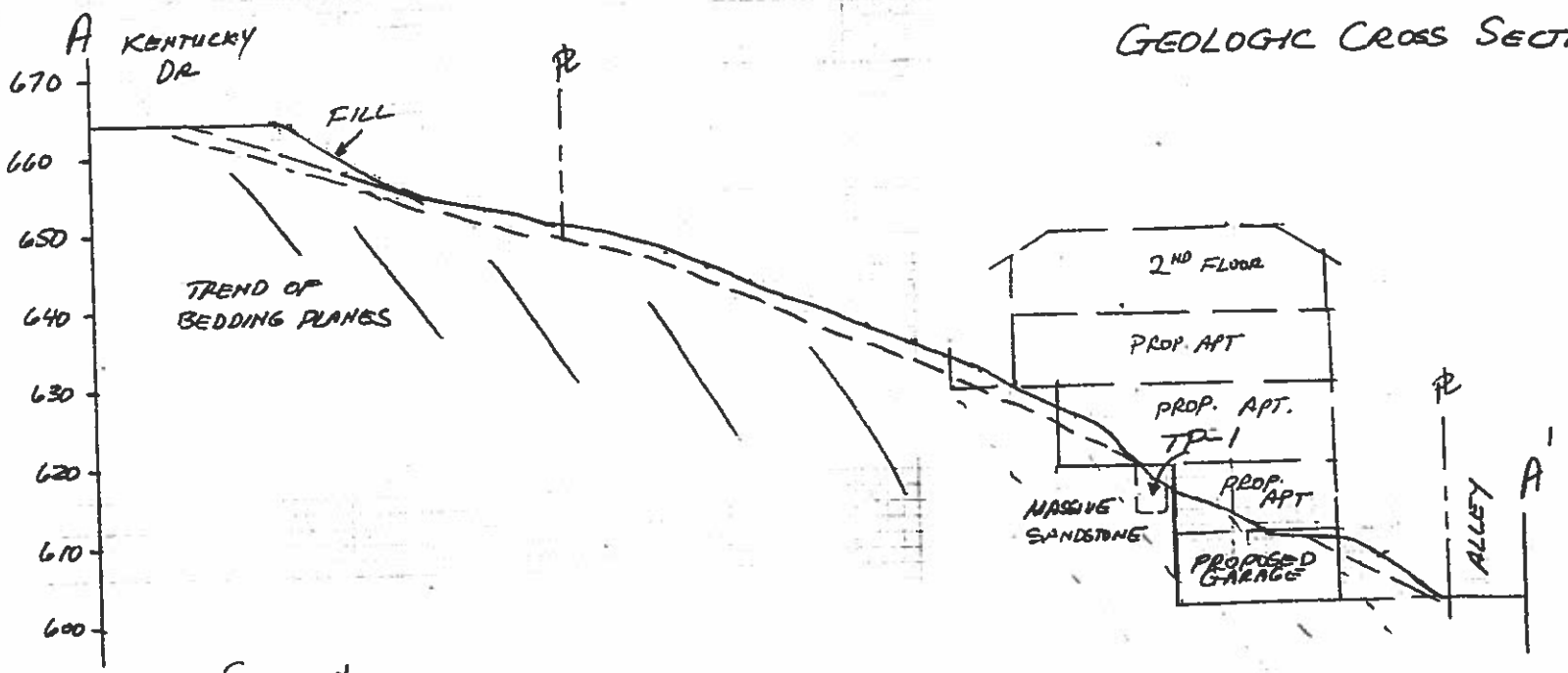
Direct Shear Tests: Direct shear tests were conducted on undisturbed samples of the investigated soils to determine the angle of internal friction and cohesion. Samples were inundated for a minimum of 24 hours under normal load before testing and shear loads were applied quickly in accordance with the standard procedure for consolidated undrained shear tests. Horizontal forces were applied to pass the peak shear and determine the ultimate shear strength of the soil specimen. The results and ultimate shear strengths under increased moisture conditions are shown on Plates C.

12-7-99

Tract: 5092
Lot: Hoffhine/10
Job Address: 5920 Kentucky


KENTUCKY DRIVE
B
D
A
C
Qaf
Qaf
Qaf

GEOLOGIC CROSS SECTIONS



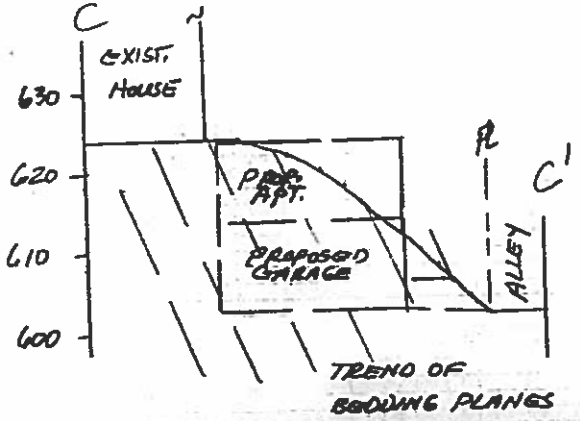


PLATE: A-1

SOILS AND GEOLOGY INC.

Consulting Geologists – Soils Engineering

GEOLOGIC CROSS SECTION

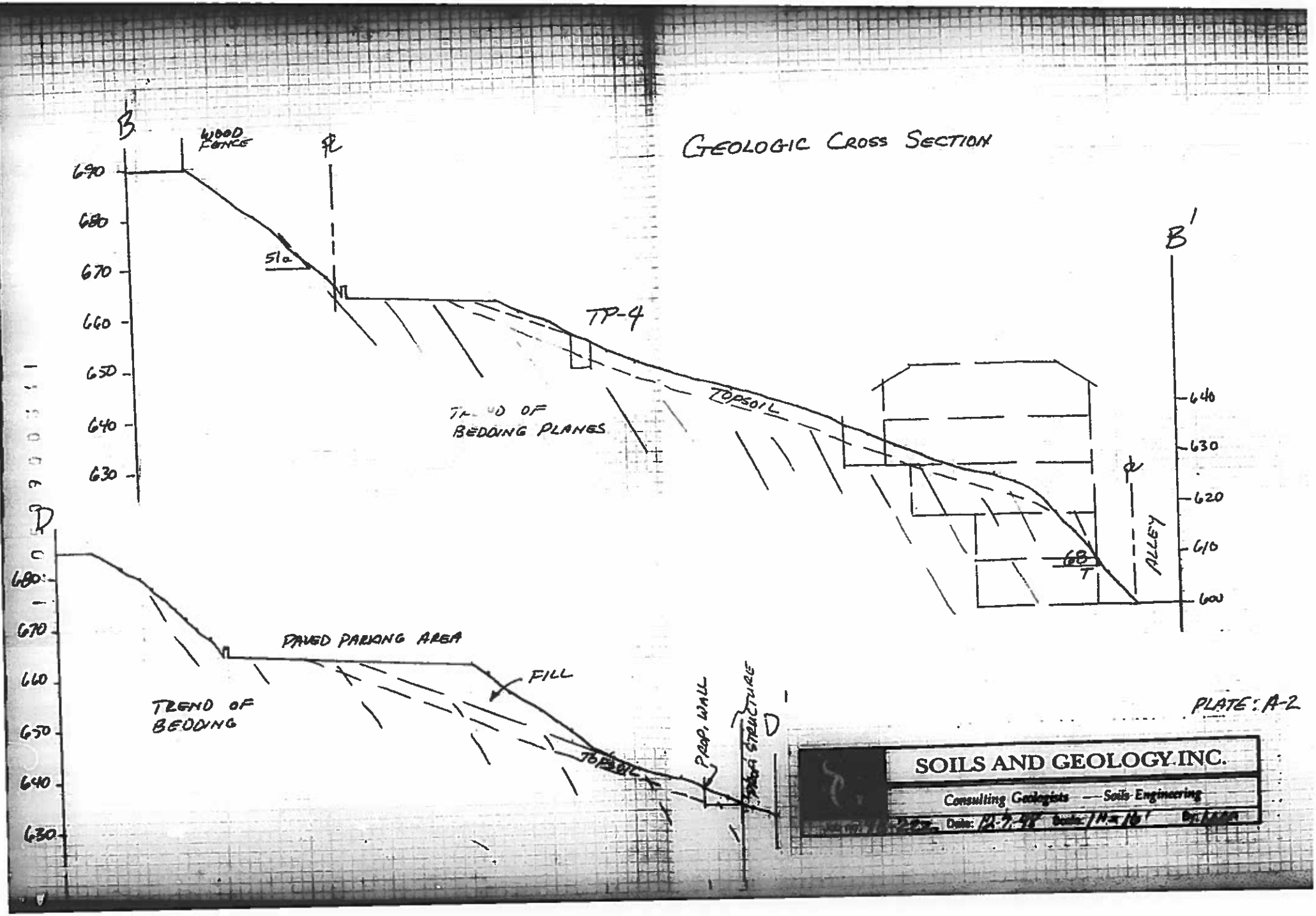


PLATE: A-2

SOILS AND GEOLOGY, INC.

Consulting Geologists — Soils Engineering

Date: 12-7-18 Scale: 1"=10' By:

TEST PIT LOG

Project Kentucky Drive - N Hollywood Test Pit No. 1 Location see geologic map

Job No. 98-222 Drill Date 11-6-98 Logged By W.U. Driving Weight 40#

Water	Depth (feet)	Material (FILL, NATURAL, BEDROCK, etc.): Material (SAND, SILT, CLAY, etc.) - Description (color, moisture, density, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint C - Contact	Group Symbol U.S.C.S.	Pene. Resist. (blows/foot)	C - Core B - Bag	Dry Density (pcf)	Percent Moisture
	0	TOPSOIL: Silty SAND - brown, slightly moist, loose, porous (worm holes etc.)	SM				
	1						
	2	WEATHERED BEDROCK: SANDSTONE - tan to orange-brown, slightly moist, loose to medium dense					
	3						
	4	BEDROCK: SANDSTONE - tan to orange-brown, slightly moist, medium dense to dense, massive			B		
	5	N15E 65N J					
	6	N50W 49S J		42	C	100.8	3.6
	7	END OF TEST PIT 7.0 FEET No Ground Water or Caving					
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						

SOILS AND GEOLOGY INC.

PLATE B-1

TEST PIT LOG

Project Kentucky Drive - N Hollywood Test Pit No. 2 Location see geologic map

Job No. 98-222 Drill Date 11-6-98 Logged By W.U. Driving Weight 40#

Water	Depth (feet)	UNIT (FILL, NATURAL, BEDROCK, etc.): MATERIAL (SAND, SILT, CLAY, etc.) - Description (color, moisture, density, etc.)	Group Symbol U.S.C.S.	Pene. Resist. (blows/foot)	C - Core B - Bag	Dry Density (pcf)	Percent Moisture
	0	ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint C - Contact					
	1	TOPSOIL: Silty SAND - brown, slightly moist, firm, slightly porous	SM				
	2			40	C/B	86.7	6.2
	3	BEDROCK: SANDSTONE - tan to orange-brown with dark orange bands, slightly moist, dense					
	4	N 32W 80N B					
	5	END OF TEST PIT 5.0 FEET No Ground Water or Caving Hole Backfilled					
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						

SOILS AND GEOLOGY INC.

PLATE B-2

TEST PIT LOG

Project Kentucky Drive - N Hollywood Test Pit No. 3 Location see geologic map

Job No. 98-222 Drill Date 11-6-98 Logged By W.U. Driving Weight 40#

Water	Depth (feet)	UNIT (FILL, ALLUVIAL, BEDROCK, etc.): MATERIAL (SAND, SILT, CLAY, etc.) - Description (color, moisture, density, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint C - Contact	Group Symbol U.S.C.S.	Pene. Resist. (blows/foot)	C - Core B - Bag	Dry Density (pcf)	Percent Moisture
	0	TOPSOIL: Silty SAND - brown, slightly moist, loose to medium dense, porous	SM	30	C/B	85.6	10.1
	1						
	2	BEDROCK: Silty SANDSTONE - brown to orange-brown, slightly moist, dense					
	3						
	4	N80W 64N B		40	C/B	93.5	14.5
	5	END OF TEST PIT 5.0 FEET No Ground Water or Caving Hole Backfilled					
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						

SOILS AND GEOLOGY INC.

PLATE B-3

TEST PIT LOG

Project Kentucky Drive - N Hollywood Test Pit No. 4 & 5 Location see geologic map

Job No. 98-222 Drill Date 11-6-98 Logged By W.U. Driving Weight 40#

Water	Depth (feet)	UNIT (FILL, NATURAL, BEDROCK, etc.): MATERIAL (SAND, SILT, CLAY, etc.) - Description (color, moisture, density, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint C - Contact	Group Symbol U.S.C.S.	Pene. Resist. (blows/foot)	C - Core B - Bag	Dry Density (pcf)	Percent Moisture
	0	TOPSOIL: Silty SAND - brown, slightly moist, loose to medium dense, porous	SM				
	1						
	2						
	3	BEDROCK: SANDSTONE - tan to orange-brown, slightly moist, medium dense to dense, massive					
	4						
	5	END OF TEST PIT 5.0 FEET No Ground Water or Caving Hole Backfilled					
	6						
		TEST PIT #5					
	0	FILL: Silty SAND with some Gravel - brown, slightly moist, medium dense to dense	SM	30	C/B	87.3	8.1
	1						
	2	END OF TEST PIT 1.0 FEET No Ground Water or Caving Hole Backfilled					
	3						
	4						
	5						

SOILS AND GEOLOGY INC. PLATE B-4

SOILS AND GEOLOGY INC.

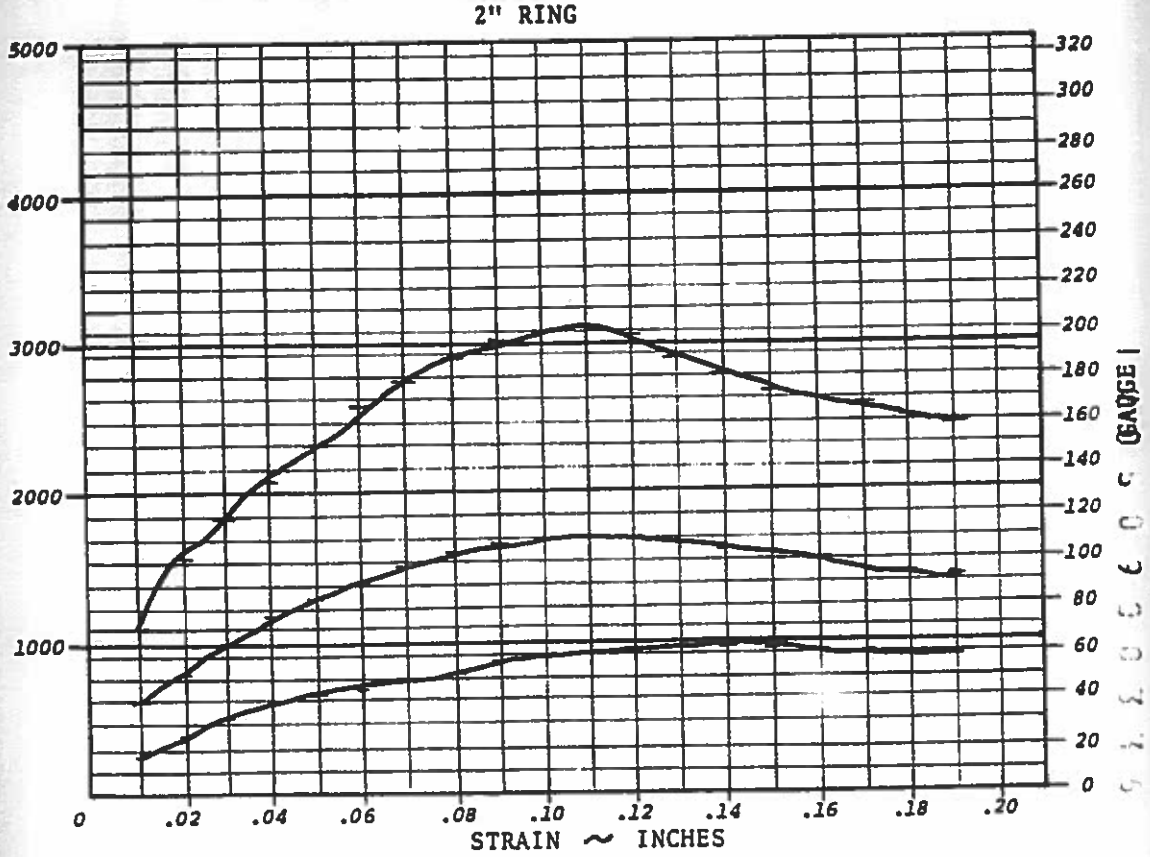
BY: O.C.

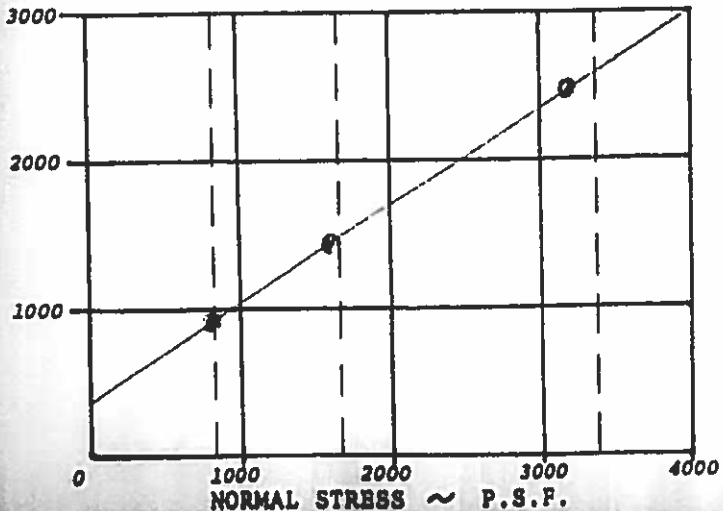
JOB #: 98-222

DATE: 11/26/98

DIRECT SHEAR SUMMARY

2" RING





SAMPLE LOCATION:
Test Pit #1 @ 6.0'

SOIL CLASSIFICATION:
Sandstone

SAMPLE TYPE:
Undisturbed

Ø: 33°

C: 400 P.S.F.

PLATE C-1

SOILS AND GEOLOGY INC.

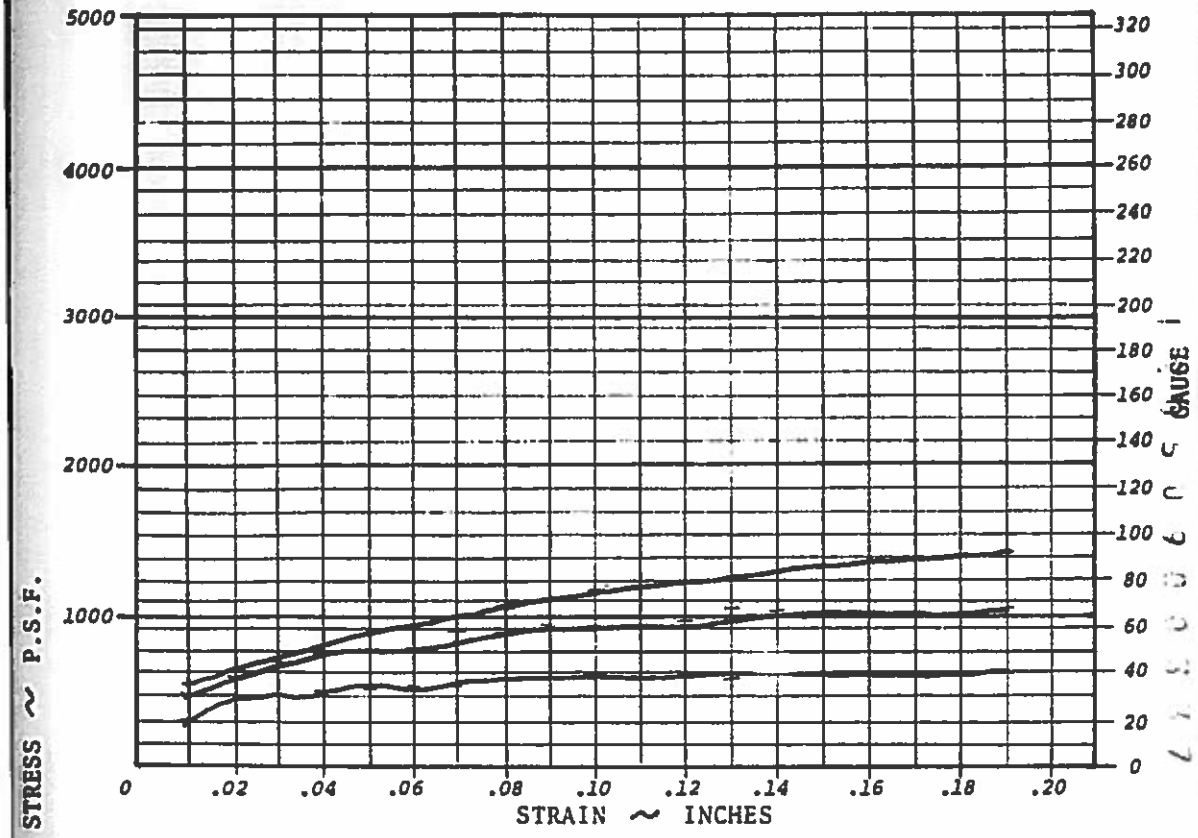
BY: O.C.

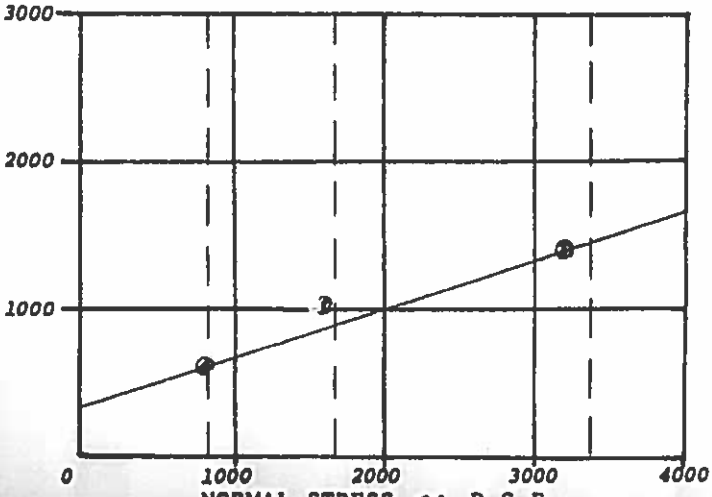
JOB #: 98-222

DATE: 11/26/98

DIRECT SHEAR SUMMARY

2" RING





SAMPLE LOCATION:
Test Pit #2 @ 2.0'

SOIL CLASSIFICATION:
Silty Sand - brown

SAMPLE TYPE:
Undistubed

Ø: 19°

C: 350 P.S.F.

PLATE C-2

SOILS AND GEOLOGY INC.

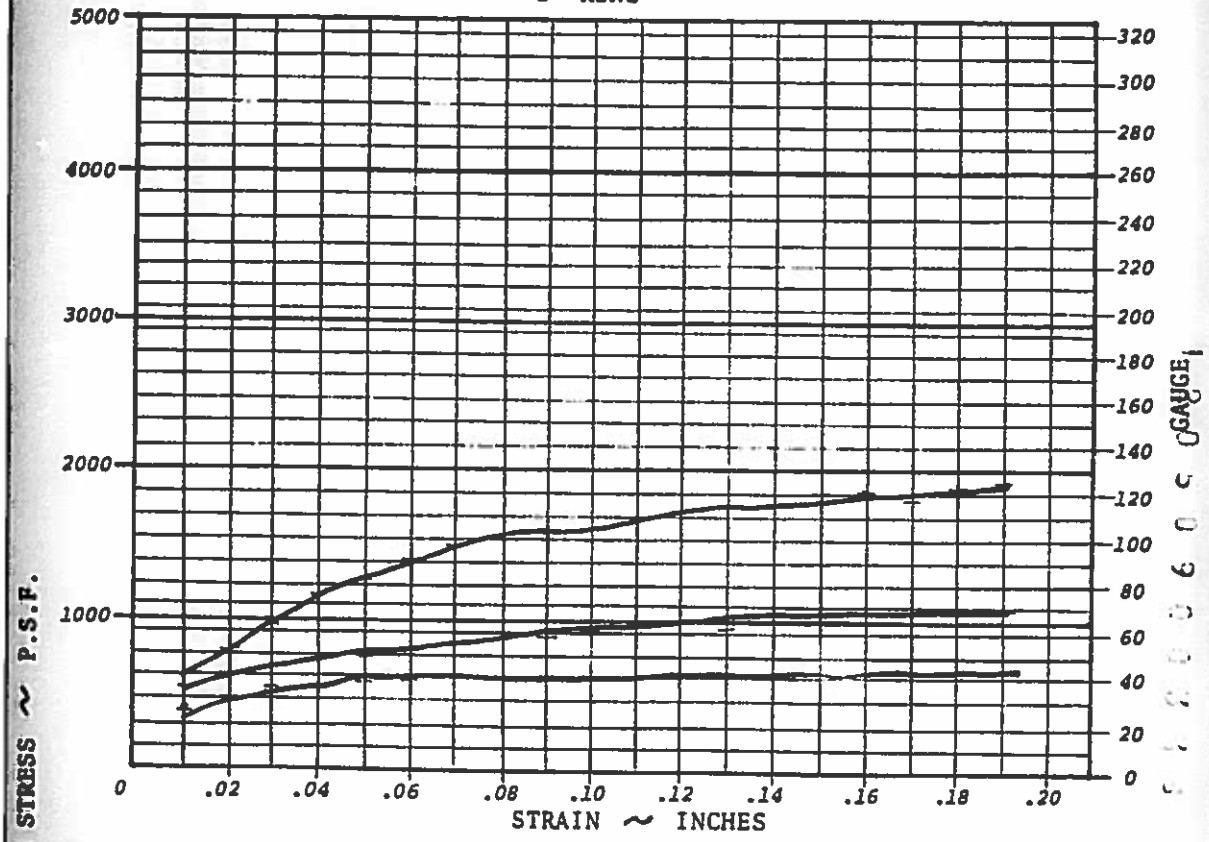
BY: O.C.

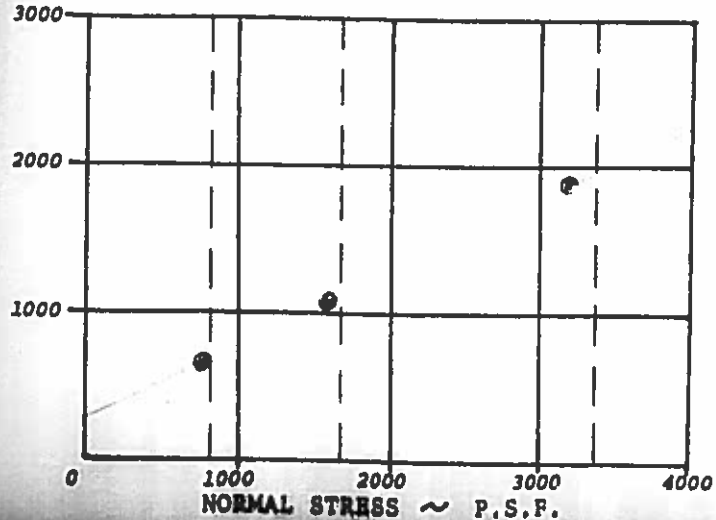
JOB #: 98-222

DATE: 11/26/98

DIRECT SHEAR SUMMARY

2" RING





SAMPLE LOCATION:

Test Pit #5 @ 1.0'

SOIL CLASSIFICATION:

Silty Sand

SAMPLE TYPE:

Undisturbed

Ø: 26°

C: 280 P.S.F.

PLATE C-3

SOILS AND GEOLOGY INC.

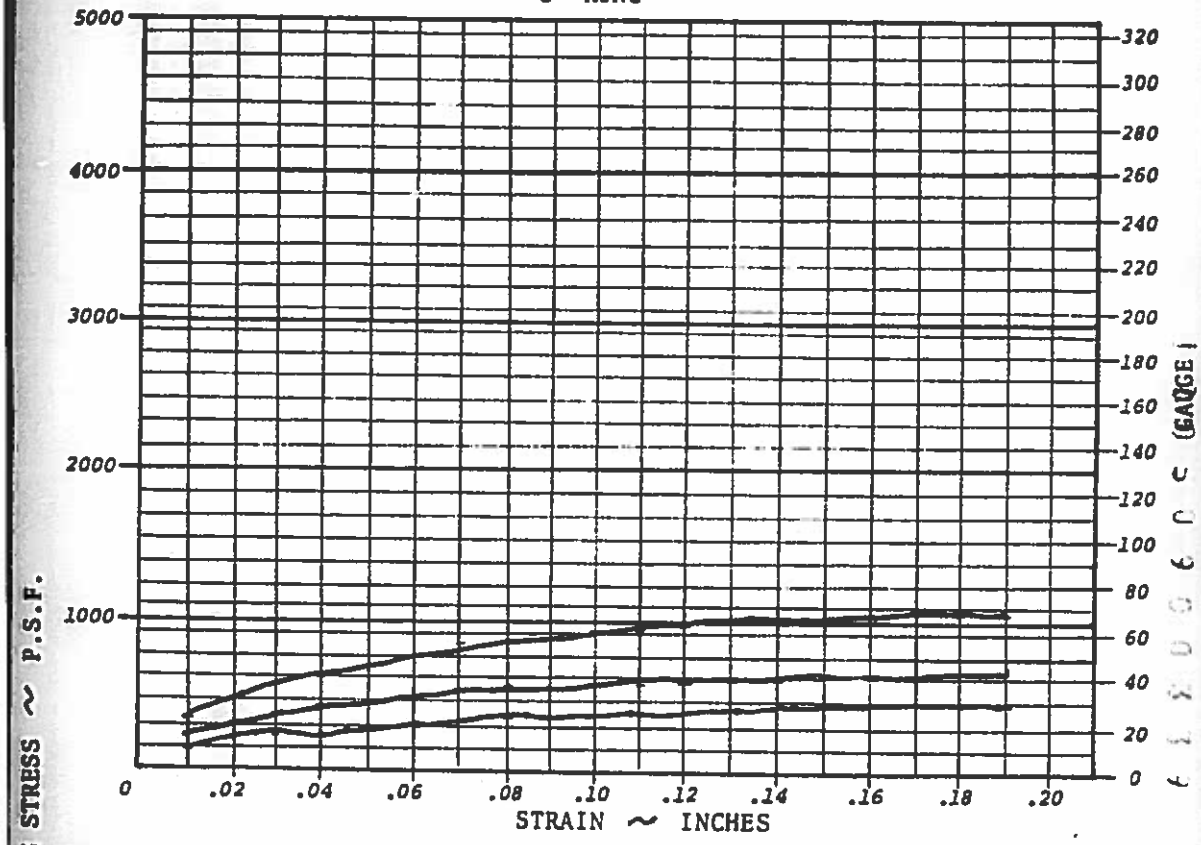
BY: L.A.

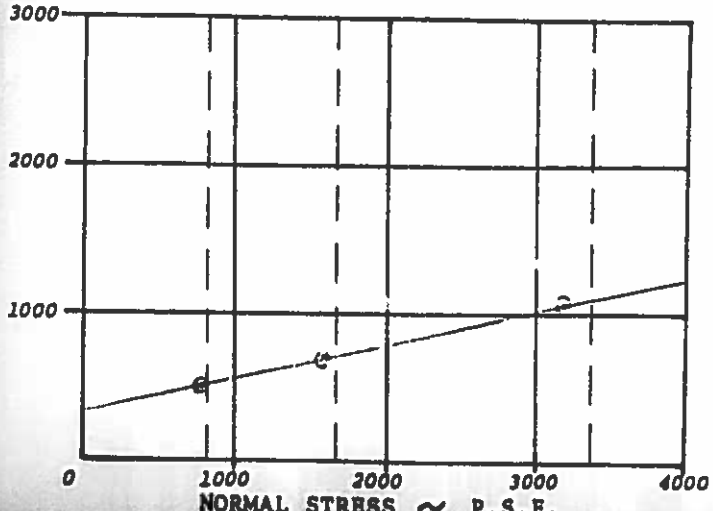
JOB #: 98-222

DATE:

DIRECT SHEAR SUMMARY

2" RING





SAMPLE LOCATION: Test Pit #3 @ 4.0'

SOIL CLASSIFICATION: Bedrock

SAMPLE TYPE: Re-Shear

Ø: 13°

C: 340 P.S.F.

PLATE C-4

ROTATIONAL ANALYSIS USING JANBU'S DIMENSIONLESS PARAMETERS

(Harvard Soil Mechanics Series No. 46)

SECTION

Temporary Slope Stability

SHEAR STRESS PARAMETERS

Unit Weight, γ	=110	lbs./cu. ft.
Cohesion, C	=400	lbs./sq. ft.
Angle of Internal Friction, ϕ	= 33	degrees
Tangent ϕ	=	

CALCULATIONS

Height of Section	= 18	feet
Slope of Section	= 90°	
$\frac{\gamma H}{C}$	= 4.9[illegible]	
$\lambda c\phi = \frac{\gamma H}{C} \text{Tan } \phi$	= 3.2	
N_{cf} (from Janbu's curves)	= 6	

FACTOR OF SAFETY

$$F.S. = N_{cf} \div \frac{\gamma H}{C} = 1.21$$

SOILS AND GEOLOGY INC.

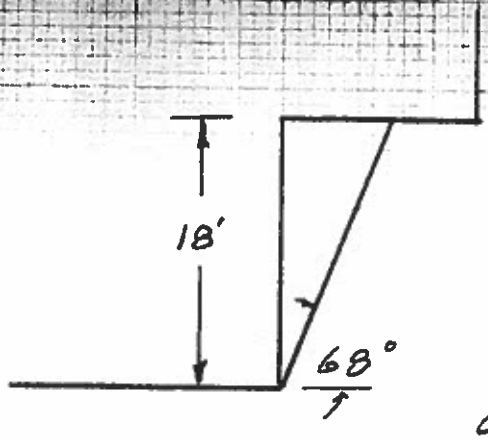
Consulting Geologists - Soils Engineering

Job no: 98-222 Date: 12-3-98 Scale: By: F.S.

PLATE D-1

1 2 0 5 0 9 0 0 3 4 0

Retaining Wall Load with Bedding Surcharge



$A = \frac{1}{2} \cdot 18 \cdot 7 = 56\ ft^2$

$W = \gamma \cdot A = 110 \cdot 56 = 6.16\ k$

$\phi = 10^\circ$ $\quad \phi_{1.5} = 6.7^\circ$

$C = 200\ psf$ $\quad C_{1.5} = 333.3\ psf$

Vector Analysis

$$a = \frac{.1333 \times 19.5 \cdot \sin(90 + 6.7)}{\sin(68 - 6.7)} = 2.9438$$

$b = w - a = 6.16 - 2.94 = 3.216$

$P_a = b \cdot \tan(\alpha - \phi_a) = 5874.4$

$$EFP = \frac{2 \times 5874}{18^2} = 36.3\ pcf.$$

Temporary Cut Slope

$\phi_{1.2} = 8.36^\circ$ $\quad C_{1.2} = 166.7\ psf$

$A = 3.727$ $\quad b = 2.432$

$EFP = 25.6\ pcf$

SLOT CUT

$$d = \frac{2.56\left(\frac{1}{2} \cdot 110 \cdot 18 \cdot 1 \cdot \tan 10 + 200\right)}{1.25 \cdot 6160 \cdot \sin 68 \cos 68 - 6160 \cos^2 68 \tan 10 - 200 \cdot 7} = 31.5'$$

SOILS AND GEOLOGY INC.

Consulting Geologists – Soils Engineering

Job no: [illegible] Date: [illegible] Scale: [illegible] By: [illegible]

Page D-2

GRADING
OVERSIZE DOCUMENT

To view the Grading
oversize document for:

Tract: 5593
Block: _____ Lot: Port. of 115 / 116
Job Address: 3900 and 3902 / 3910 Kentucky Dr.
X-Ref: 2X Date: 12-7-98

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1 2 0 5 0 9 0 0 3 4 2

E & S 8-87 (R2/87)

City of Los Angeles
DEPARTMENT OF BUILDING AND SAFETY
GRADING PRE-INSPECTION REPORT

G.P.I. FEE PAID ☒ NOT PAID ☐ **15**

TRACT 5553 LOTS 115

PURPOSE Town Houses

OWNER John Deverkian

OWNERS 2101 N. Glen Oaks Dr.
ADDRESS Burbank CA 91504

ADDRESS 3910 - Kentucky dr

RECORDS IN OUR FILES REVEALED THE FOLLOWING:

Approved Graded Lot Yes ☐ No ☒ Bearing Value:

Footing Reinforcement Required Yes ☐ No ☐ Remarks:

Footing Setback from Face of Slope

Special Geological or Engineering Requirements Yes ☐ No ☐ See Requirements Below

Butress Fill Yes ☐ No ☒ Fill over 100 ft. Yes ☐ No ☒

COMMENTS: Do not issue permit at this time

INSPECTORS REPORT OF FIELD CONDITIONS:

Slope of Surface — Cut ° Height Fill ° Height Nat. 26 ° Height 75± Below

Natural Soil Classifications per Table 29B Sand Stone

Sewer Available Yes ☒ No ☐ Fees due

Bedding Planes — Dip Not Apparent Strike Slide Area Yes ☐ No ☒

Expansive Soil Yes ☐ No ☒ Drainage Area Above Lot Ft. Horiz.

Located in Drainage Channel Serving Acres Site Above ☐ Below ☒ Street

Condition of Street for Drainage Purposes Paved Roof Gutters Yes ☒ No ☐

Recommended Termination of Drainage to street by nonerosive device Required

Driveway Grade % Existing ☐ Proposed ☒ Max. Rough Grade Allowed 10 %

Ground Cover Native Grass.

REQUIREMENTS:

1 ☒ A Grading Permit is required.

2 ☐ All footings shall be founded into natural undisturbed soil as per Code.

3 ☐ Expansive soils, comply with provisions of Section 91.2905(d).

4 ☐ In the event excavations reveal unfavorable conditions the services of a soils engineer and/or geologist may be required.

5 ☐ Geological and/or soils reports are required. Submit _____ copies, with appropriate fees, to the Grading Division for review. Owner notified by postcard on _____ Reports submitted with plans — Yes ☐ No ☐

6 ☒ Incorporate all recommendations of the approved geological and/or soils reports and Department letters dated 9-16-87 2-3-88 into the plans.

7 ☒ Provide a complete grading plan showing existing and proposed contours, tops and toes of slopes, retaining walls, drainage devices and other protective devices. Plans shall include off site walls and structures around the perimeter of the project.

8 ☐ M.G.D. No. 63 applies, site is subject to mudflow.

9 ☒ Buildings shall be located clear of toe of all slopes which exceed a slope of 3:1 as per Section 91.2907(d2)

10 ☒ Footing shall be setback from the descending slope surface as per Section 91.2907(d3)

11 ☐ Department approval is required for construction of _____ over a slope steeper than 2:1.

12 ☐ Existing nonconforming slopes shall be cut back to 2:1 or retained.

13 ☒ All cut or fill slopes shall be no steeper than 2:1 (26°).

14 ☐ Provide complete details of engineered temporary shoring or slot cutting procedures on plans, call for inspection before excavation begins.

15 ☒ All concentrated drainage including roof water shall be conducted to the street in an approved device at 2% minimum.

16 ☐ All wood decking to be spaced ¼" apart.

17 ☐ Department approval is required for the use of a private sewage disposal system and shall conform to M.G.D. No. 54 (Revised).

18 ☐ Department approval is required for the use of a yard sump pump and/or drainage dispersal system.

19 ☒ All fill or backfill shall be compacted to a minimum of 90% relative compaction as determined by A.S.T.M. method D-1557. Subdrains shall be provided where required by code.

20 ☒ Specify on plans: The soils engineer is to approve the key or bottom and leave a certificate on the site for the grading inspector. The grading inspector is to be notified before any grading begins and, for bottom inspection, before any fill is placed. Fill may not be placed without approval of the grading inspector.

21 ☒ Grading general requirements (Form B-164) shall be attached to and made part of the plans.

22 ☒ Stake and flag property lines in accordance with a licensed survey map.

23 ☒ Approval required by the Department of Public works. drainage to street

24 ☒ Resubmit plans to the grading inspector (shown below) after the above corrections have been made and before issuing permit. Inspectors are available between 7:30 a.m. and 9:00 a.m. weekdays.

PLAN CHECK NO. R.0014 UN

— SEE OVER — 1-72

Inspector Roy Daniels Date 10-21-85 Branch 1A

3910 Kentucky Dr R0014-UN 2 of 2

25. A Ret. Wall permit is Required
26. A Backfill permit is Required
27. A OSHA permit is Required
28. A Surety Bond is Required for grading over 250 yards And Ret. Walls.
29. Submit a Engineered designed Ret Wall plan for Required Height
30. Must be subdrains behind all walls that are Retaining

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GENERAL MANAGER

EARL SCHWARTZ
EXECUTIVE OFFICER

February 20, 1990

Log # 15759
C.D.

William Martirosian
2101 N. Glenoaks Drive
Burbank, CA. 91504

TRACT: 5593
LOT: 115
LOCATION: 3910-12 KENTUCKY DRIVE

Geological and Soil Engineering Report No. 89-641-02, dated December 11, 1989, prepared by Applied Earth Sciences.

The above report concerning the proposed construction of a single-family residence has been reviewed by the Grading Division of the Department of Building and Safety.

1. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans which clearly indicates that the geologist and soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in their reports.

2. All fill slopes shall be no steeper than 2:1.

3. All proposed cut slopes shall be no steeper than 2:1 on the angle of exposed bedding planes, whichever is flatter.

4. All recommendations of the report which are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

5. A grading permit shall be obtained.

6. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans. Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

7. The consulting geologist shall periodically inspect the grading and upon completion submit a final report stating that the completed work complies with his recommendations. Geological data shall be obtained from grading exposures, particularly at back slope cuts for fills and buttress and on cut surfaces. This data shall be presented on a final geological map and as-graded plan.

8. The geologist and soil engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading.

9. Any unsupported shale planes, either existing or exposed by grading, shall be supported by a designed retaining wall or buttress fill.

10. All man-made fill shall be compacted to a minimum of 90 percent relative compaction as required by Code Section 91.7006(d). All testing shall be performed in accordance with the latest version of ASTM.

11. Both the geologist and the soils engineer shall inspect and approve all fill and subdrain placement areas prior to placing fill. Both consultants shall include in their final reports a certification of the adequacy of the foundation material to support the fill without undue settlement and/or consolidation.

12. All graded, brushed or bare slopes shall be planted with low-water consumption, native-type plant varieties recommended by a landscape architect. Suitable arrangements shall be made with the Department with respect to continued maintenance of the recommended plant varieties until they are established as an effective ground cover.

13. An open downdrain and a velocity reduces shall be provided to convey roof and driveway drainage to the alley.

14. Approval shall be obtained from the appropriate public agency with regard to proposed construction within or adjacent to the alley and for approval of the downdrain and use of the alley for drainage purposes.

15. All retaining walls shall be provided with a standard surface backdrain system and soil drainage shall be conducted to the street in an acceptable manner and in a non-erosive device.

16. Prior to issuance of the building permit, the design of the subdrainage system required to prevent possible hydrostatic pressure behind retaining walls shall be approved by the Soil Engineer and accepted by the Department. Installation of the subdrainage system shall be inspected and approved by the Soil Engineer.

17. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored.

18. The residences shall be supported on footings founded in bedrock.

19. The geologist and soil engineer shall inspect the excavations for the footings to determine that they are founded in the recommended strata before calling the Department for footing inspection.

20. Temporary vertical excavations in bedrock with favorable conditions shall be no higher than 10 feet, higher excavations shall be no steeper than ½:1.

21. Temporary excavations in non-bedrock materials shall be no steeper than 1:1.

22. Temporary excavations in bedrock with exposed bedding or joints shall be slot cut using the ABC method with slots no wider than 12 feet.

23. Buildings adjacent to ascending slopes shall be set back from the toe of the slope a level distance equal to one half the vertical height of the slope, but needs not to exceed 15 feet in accordance with Code Section 91.2907(d)2.

24. The upper retaining walls supporting adverse bedding planes shall be designed with an EFP of 60 psf as recommended.

25. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Department and the Department of Public Works.

26. A structure shall be considered surcharging an excavation if the structure is located within a horizontal distance from the top of the excavation equal to the depth of the excavation as specified in Code Section 91.2910(c).

GERALD TAKAKI
Chief of Grading Division

THEODORE D. NICKERSON
Engineering Geologist

DAVID T. [illegible]
Geotechnical Engineer

TDG/DTH:rm
TGRSG022090C/5GR
(213) 485-2160

cc: Applied Earth Sciences
Ken Khoudikian
LA District Office

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___	Tract	5693	Blk	___	Lot 115
___	Tract	___	Blk	___	Lot ___
___	Address	3910-12 Kentucky Dr			Unit ___
___	Address	___			Unit ___
___	Address	___			Unit ___

DOCUMENT TYPE (Use a separate sheet for each doc type & include dates)

	Name	Document Type(s)		
___	Admin. [illegible]	[illegible]	[illegible]	
___	Grdg Affidavit (14)	[illegible]	[illegible]	
___	Grdg Inspection File (5)	[illegible]	Rpts	
___	Grdg Dept. Letter (7)			
___	[illegible] File	Ltr	Rpts	
___	Contaminated Soil File	Ltr	Rpts	
___	E.I.R. File	Ltr	Rpts	
___	Other	Ltr	Rpts	
___	Grdg Foundation File (1)	Ltr	Rpts	
___	Grdg Responsibility Ltr (18)			
___	Grdg Seismology File (6)	[illegible]	Rpts	
___	Grdg Soils/Geo File (2)	Ltr [illegible]	Rpts	[illegible]
___	Grdg Storm Damage File (17)	Ltr	Rpts	
___	Grdg Tent. Tract Doc. (11)			
___	Grdg Information Only (9)			
___	Grdg Oversized Doc (12)	X-Ref [illegible]	Dt [illegible]	X-Ref ___ Dt [illegible]

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REPORT OF
GEOTECHNICAI INVESTIGATION
PROPOSED SINGLE FAMILY RESIDENCE
LOT 115 OF TRACT NO. 5593
3910-3912 KENTUCKY DRIVE
STUDIO CITY, CALIFORNIA

FOR

MR. WILLIAM MARTIROSIAN

PROJECT NO. 89-641-02

DECEMBER 11, 1989

Applied
Earth
Sciences GEOTECHNICAL ENGINEERING CONSULTANTS

November 22, 1989 89-641-02

Mr. William Martirosian
c/o Allstate Investments Realty Inc.
2101 North Glenoaks Boulevard
Burbank, California 91504

Dear Mr. Martirosian:

We are pleased to submit our Geotechnical Investigation Report for the proposed single family residence to be located on Lot 115 of Tract No. 5593; 3910-3912 Kentucky Drive, Studio City, California. Preliminary results of our findings were discussed with you, prior to the completion of this report. The results of our investigation revealed that, from a geotechnical engineering standpoint, the subject site may be developed as planned.

Observation of the test pits and onsite exposures as well as review of published geologic maps and geotechnical reports prepared for the site by others indicates that the site is underlain by artificial fill, colluvial soil and bedrock of the Miocene age Topanga Formation. The existing fill (Af) was found to consist of a small wedge along the east side of the narrow pad above the alley. The fill consists of moderately compact, somewhat porous, slightly clayey, sandy silt to silty sand. Thickness of the existing fill, based on construction of the Geologic Cross Section A-A', is estimated to be on the order of 5 feet. Several small surficial failures have occurred within the existing fill on the steep slope above the alley.

The native colluvial soil (Qsw) was found to consist of medium dense, moderately porous, silty fine sand to generally firm, sandy silt soils containing a trace of clay and some scattered gravel size bedrock fragments. The native soil was found to be at the surface over most of the site and is assumed to lie beneath the fill at the bottom of the slope. Thickness of the native soil was found to average about one foot over the site.

The bedrock (Tt) underlying the site was found to consist of yellow-brown to gray-brown, slightly to moderately hard, well indurated, massive to thick bedded, slightly silty, fine-grained sandstone with scattered thin intervals of moderately thin-bedded well indurated, siltstone and claystone.

7 2 5 3 3 6 1 0 0 7 3

The site is crossed by a synformal fold that has resulted in northwesterly strikes and easterly dips on the upper slope and westerly dips on the lower slope. The fold axis crosses the center of the lot in a northwest-southeast direction. Therefore, the upper one third of the slope (offsite) has out-dipping bedding whereas the lot has supported bedding that either dips to the east steeper than the slope or dips west into the slope.

No known fault cross or trend toward the site.

It is anticipated that finished grades for the proposed building will be created in the form of terraces primarily through cutting operations. It is expected that bedrock will be exposed at the finished grades. Such material is expected to provide very good support for the foundations of the proposed structure and the associated retaining walls through conventional spread footing foundation systems. The cuts, resulting from the planned excavations, will be supported by cantilevered retaining wall systems. The lower retaining walls, supporting cuts of bedrock with favorable bedding conditions, can be designed based on normal earth pressures. However, due to the occurrence of a synformal fold within the site, the upper retaining walls will support adverse bedding and should be designed based on higher than normal lateral earth pressure. See the enclosed Geologic Cross Section A-A' for specific geologic features beneath the site.

Due to the moderately hard, well indurated and massive condition of the underlying rock, deep seated slope instability will not be a problem at this site. The existence of the synformal fold within the site has caused all bedding on the lot to be supported. Any vertical cut made above the synformal axis, however, will expose adverse bedding. Unless the temporary excavation slopes are made parallel to the angle of bedding, the excavation cuts made above the synformal axis for the purpose of creating the proposed finished grades should be accomplished by slot cutting.

The native soils covering the site were found to be generally granular in nature. Such materials and the excavated bedrock may be used as wall backfill. Grade slabs can be cast directly over bedrock and properly compacted backfill in the areas where moisture sensitive floor covering is not used. Soil expansion will not be a problem at this site.

Summaries of data gathered during our investigation, our analysis of these data, and our recommendations are presented in the attached report.

Thank you for the opportunity to be of service on this project. Should you have any questions regarding this report, or wish to discuss the project further, please do not hesitate to call us.

Respectfully submitted,

APPLIED EARTH SCIENCES

Caro J. Minas
Geotechnical Engineer
GE 601

Richard Crook, Jr.
Richard Crook, Jr.
CEG 924

CJM/rd

Dist: (4) Addressee

REGISTERED PROFESSIONAL ENGINEER
CARO J. MINAS
NO. 601
EXP. 12-91
GEOTECHNICAL
STATE OF CALIFORNIA

7253.3.091

TABLE OF CONTENTS

SECTION TITLE	PAGE NO.
INTRODUCTION	1
PROJECT CONSIDERATIONS	2
SITE CONDITIONS	
SURFACE CONDITIONS	3
GEOLOGIC AND SOIL CONDITIONS	3
Artificial Fill (Af)	4
Colluvial/Residual Soils (Qsw)	4
Bedrock (Tt)	5
	5
EVALUATION AND RECOMMENDATIONS	
GENERAL	6
TEMPORARY EXCAVATIONS	6
FOUNDATIONS	7
LATERAL DESIGN	9
GRADE SLABS	9
RETAINING WALLS	10
SITE DRAINAGE	10
EXCAVATION	13
OBSERVATION DURING CONSTRUCTION	13
	13

DRAWING TITLE	
GEOLOGIC MAP AND SITE PLAN	DRAWING NO. 1
GEOLOGIC CROSS SECTIONS A-A' AND B-B'	Drawing No. 1

APPENDICES AND FIGURE TITLE	PAGE NO.
APPENDIX I (METHOD OF FIELD EXPLORATION)	I-1
LOG OF EXPLORATORY TEST PITS	FIG. NOS. I-1 THROUGH I-3
UNIFIED SOIL CLASSIFICATION CHART	FIG. NO. I-4
APPENDIX II (LABORATORY TESTING PROCEDURES)	II-1
DIRECT SHEAR TESTS	FIG. NOS. II-1 AND II-2
SWELL-CONSOLIDATION TESTS	FIG. NOS. II-3 AND II-4

REPORT OF

GEOTECHNICAL INVESTIGATION

PROPOSED SINGLE FAMILY RESIDENCE

LOT 115 OF TRACT NO. 5593

3910-3912 KENTUCKY DRIVE

STUDIO CITY, CALIFORNIA

INTRODUCTION

This report presents the results of a geotechnical investigation performed at the site of the proposed single family residence to be located on Lot 115 of Tract No. 5593; 3910-3912 Kentucky Drive, Studio City, California. During the course of this investigation, the engineering properties of the subsurface materials; native soils, and bedrock, were evaluated in order to evaluate slope stability and to provide recommendations for design and construction of retaining walls, foundations, grade slabs, and grading. The investigation included geologic mapping, subsurface exploration, soil and bedrock sampling, laboratory testing, engineering and geological evaluation and analysis, consultation and preparation of this report.

A Topographic Map of the site showing the location of the proposed building provided by the offices of Kaaren Khoudikian, Project Architect, was used as reference during the course of this investigation.

The enclosed Drawing No. 1, shows surface geology and approximate location of the exploratory test pits in relation to the site boundaries. This drawing also shows the approximate location on the plan and the profiles of the analyzed Geologic Cross Sections A-A' and B-B'.

The attached Appendix I, describes the method of field exploration. Figure Nos. I-1 through I-3, present summaries of the materials encountered at the location of our exploratory test pits. Figure No. I-4 presents the Uniform Soil Classification System Chart; a guide to the Log of Exploratory Test Pits.

The attached Appendix II describes the laboratory testing procedures. Figure No.. II-1 through II-4 present the results of direct shear and consolidation tests performed on selected undisturbed samples.

PROJECT CONSIDERATIONS

It is our understanding that the subject site will be developed for a single family residential dwelling. The structure is expected to be a three-stories high, wood frame building with some concrete retaining walls integrated into the structure. The finished grades of the proposed building, established through primarily cutting operations, will be established in the form of terraces.

It is expected that bedrock will be exposed in the proposed excavations to create the finished grades. As a result of the planned excavations, vertical cuts will result. Such cuts then will be supported by cantilevered retaining wall systems having heights of as much as 15 feet.

Based on the results of our investigation, it is believed that the lower retaining walls will support cuts of bedrock with favorable bedding conditions. The upper retaining walls above the synformal fold, however, will support cuts of bedrock with adverse bedding conditions. See the enclosed Geologic Cross Section A-A' for specific geologic features beneath the site.

Due to the competent condition of the underlying rock, deep seated slope instability will not be a problem at this site. The occurrence of a synformal fold within the site has caused all bedding to be supported beneath the lot. Any vertical cut made above the synformal axis, however, will expose adverse bedding. Unless the temporary excavation slopes are made parallel to the angle of bedding, the cuts made above the synformal axis for the purpose of creating the proposed finished grades should be made in the form of slot cutting.

Structural loading data was not available during the course of preparation of thi report. For the purpose of this investigation, however, it is assumed that concentrated loads will be on the order of 50 kips per lineal foot. Retaining walls may have loads of on the order of 4 kips per lineal foot.

Site grading is expected to basically involve excavation to create the proposed finished grades and backfilling behind the retaining walls. The excavated materials may be used as wall backfill.

It is anticipated that, after completion of the site grading work, there will be excess material that will be exported from the site.

SITE CONDITIONS

SURFACE CONDITIONS

The subject site is located on a northeast-facing slope in the Universal City area of the city of Los Angeles, California. The lot is roughly rectangular in shape measuring 107 to 140 feet long in the northeast-southwest direction and 100-foot wide. The lot is bounded on the west by Kentucky Drive and a private driveway, on the north by an apartment building, on the east by an alley and on the south by a residence. The site is vacant but has had some grading done above the alley.

From the west property line, the site descends northeasterly on an average gradient of 2:1 (horizontal:vertical) to a narrow level pad near the east property line. From the east side of the pad, the site descends some 12 feet to the alley on a 1.2:1 gradient. Along the north property line, the site descends a 15 to 20-foot high, 1:1 cut slope to a level pad on the adjacent lot that is occupied by an apartment building. Total relief on the lot is approximately 50 feet and approximately 70 feet from Kentucky Driva to the alley.

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The site slope is presently covered with cut stubble of annual weeds and grasses with some ivy and trees along the south property line and ivy on the north-facing cut slope.

Runoff from the site is by sheetflow to the alley and adjacent lot to the north. Upslope runoff is intercepted by the street and private driveway.

No evidence of shallow ground water, seepage or springs was observed anywhere on the site, including within the test pits.

Except for some surficial failures within the existing fill, our observation of the site slopes revealed no evidence of surficial or deep seated slope instability. The site appeared to be grossly stable.

GEOLOGIC AND SOIL CONDITIONS

Observation of the test pits and onsite exposures as well as review of published geologic maps and geotechnical reports prepared for the site by others indicates that the site is underlain by artificial fill, colluvial soil and bedrock of the Miocene age Topanga Formation. Descriptions and distribution of these units on the site are as follows:

Artificial Fill (Af) Fill on the site consists of a small wedge along the east side of the narrow pad above the alley. The fill consists of brown, moderately porous, moderately compact, slightly clayey, sandy silt to silty sand. Thickness of the existing fill is not known as no holes were excavated into it. It appears to be up to five feet thick based on construction of section A-A'. Several small surficial failures have occurred in this unit on the steep slope above the alley.

Colluvial Soil (Qmv) Was found to consist of brown, medium dense, moderately porous, silty fine sand to generally firm, sandy silt soils containing a trace of clay and some scattered gravel size bedrock fragments. The native soil was found to be at the surface over most of the site and is assumed to lie beneath the fill at the bottom of the slope. Thickness of the native soil was found to average about one foot over the site.

Bedrock (Tt) The bedrock beneath the site was found to consist of yellow-brown to gray-brown, slightly to moderately hard, well indurated, massive to thick bedded, slightly silty, fine-grained sandstone with scattered thin intervals of moderately thin-bedded well indurated, siltstone and claystone.

The site is crossed by a synformal fold that has resulted in northwesterly strikes and easterly dips on the upper slope and westerly dips on the lower slope. The fold axis crosses the center of the lot on a northwest-southeast direction. Therefore, the upper one third of the slope (offsite) has out-dipping bedding whereas the lot has supported bedding that either dips to the east steeper than the slope or dips west into the slope.

No known fault cross or trend toward the site.

7 2 5 9 3 6 3 0 U 3 1

EVALUATION AND RECOMMENDATIONS

GENERAL

Based on the geotechnical engineering data derived during this investigation, it is believed that the site is suitable for the construction of the proposed single family dwelling. It is our opinion that when the site is developed as planned, following the recommendations in this report, the site will be safe for the proposed structure against the hazard of landslide, settlement, or slippage. The proposed building and grading will have no adverse influence on the geologic stability of properties outside of the project site.

It is anticipated that finished grades for the proposed project (in the form of terraces) will be established primarily through cutting operations. As a result of the planned excavations necessary to create the proposed finished grades, cuts with heights of as much as 15 feet will result. Such cuts then will be supported by retaining walls. The lower retaining walls, supporting cuts of bedrock with favorable bedding conditions, can be designed based on normal earth pressures. However, due to occurrence of a synformal fold within the site, the upper retaining walls will support adverse bedding and should be designed based on higher than normal lateral earth pressure. See the enclosed Geologic Cross Section A-A' for specific geologic features beneath the site.

After the planned excavations are made to create the proposed finished grades, bedrock is expected to be exposed. Such material is expected to provide good support for the proposed single family residential structure and the associated retaining walls through conventional spread footing foundation systems. It is recommended that retaining wall footings be established at least 18 inches in competent bedrock. The footings of the residence should be established at least 12

inches into competent bedrock. All footings should be established at a depth so that the horizontal distance between the outside edge of the footing and the face of the bedrock will be at least 5 feet.

Due to the moderately hard, well indurated and massive condition of the underlying rock, deep seated slope instability will not be a problem at this site. The occurrence of a synformal fold within the site has caused all bedding to be supported beneath the lot. Any vertical cut made above the synformal axis, however, will expose adverse bedding. Unless the temporary excavation slopes are made parallel to the angle of bedding, the excavation cuts made above the synformal axis for the purpose of creating the proposed finished grades should be made in the form of slot cutting. For the purpose of this project, cuts higher than 7 feet should be slot cut. Such excavations should be done in sequences of "A, B" with width of slots not exceeding 12 feet.

The native soils covering the site were found to be generally granular in nature. Such materials and the excavated bedrock may be used as wall backfill. Grade slabs could be cast directly over bedrock and properly compacted backfill in the areas where moisture sensitive floor covering is not used. Soil expansion will not be a problem at this site.

The following sections present our specific recommendations for temporary excavations, foundations, lateral design, grade slabs, retaining walls, site grading, site drainage, and observations during construction.

TEMPORARY EXCAVATIONS

It is expected that temporary excavations will be made during site grading and construction of the retaining walls. Height of such cuts are expected to be as much as 15 feet.

Based upon the engineering characteristics of the site bedrock, it is our opinion that temporary excavation slopes through bedrock with favorable bedding conditions (lower portion of the site) may be made in accordance with the following table:

Maximum Depth of Cut (Ft)	Maximum Slope Ratio (Horizontal:Vertical)
10	Vertical
>10	1/2:1

The excavation cuts made above the synformal axis and having heights of greater than 7 feet should be made using an "A, B" slot cutting method with widths of slots not exceeding 12 feet. Alternatively, where feasible, temporary excavation slopes may be made parallel to the angle of bedding in an unsupported manner.

It is recommended that the project Engineering Geologist inspect the cut slopes within larger scale excavations as soon as five feet of bedrock is exposed in order to confirm the results of our findings. Modification to our recommendations may be necessary if significant variations are noted.

It should be noted that the above given recommendations are for use in design and for cost estimating purposes prior to construction. The contractor is solely responsible for safety during construction.

FOUNDATIONS

Conventional spread footing foundation systems can be used to support the proposed residential structure and the associated retaining walls. Retaining wall footings should be established at least 18 inches into competent bedrock. The footings of the residence should be established at least 12 inches into competent bedrock. Footings should have a minimum width of 12 inches. All footings should be established at a depth so that the horizontal distance between the outside edge of the footing and the sloping face of the bedrock will be at least 5 feet.

An allowable maximum bearing value of on the order of 4,200 pounds per square foot would be available for footings established in competent bedrock. This value could be increased by one-third for short duration transient loadings, such as wind or seismic forces.

Under the allowable maximum soil pressure, total and differential settlements of the proposed residence and the associated retaining walls, are expected to be within tolerable limits; on the order of 1/2 and 1/4 of one inch, respectively. The major portion of the settlement is expected to occur during construction.

LATERAL DESIGN

Lateral resistance at the base of footings in contact with competent bedrock may be assumed to be the product of the dead load forces and a coefficient of friction of 0.50. Passive pressure on the face of footings may also be used to resist lateral forces. A passive pressure of 400 pounds per square foot at the finished grades and increasing at a rate of 300 pounds per square foot per foot of depth to a maximum value of 4,000 pounds per square foot may be used for footings poured

against competent bedrock. If passive pressure and frictional resistance are combined when calculating the lateral resistance, one value should be reduced by one-third.

GRADE SLABS

Grade slabs may be cast directly over bedrock or properly compacted wall backfill in the areas where moisture sensitive floor covering is not used. Soil expansion is believed not to be a problem at this site.

In the areas where moisture sensitive floor covering is used and slab dampness cannot be tolerated, a vapor-barrier should be used beneath the slabs. This normally consists of a 6-mil polyethylene film covered with 2 inches of clean sand.

RETAINING WALLS

As part of the proposed development, some retaining walls will be constructed. Such walls are expected to be basically in the form of a cantilevered system with heights of as much as 15 feet.

Static design of the lower retaining walls supporting cuts of bedrock having favorable bedding orientations and level ground conditions, may be based on an equivalent fluid pressure of 30 pounds per square foot per foot of depth. The upper retaining walls supporting cuts of bedrock having adverse bedding (using the maximum dip angle of 35 degrees) should be designed based on an equivalent fluid pressure of 60 pounds per square foot per foot of depth. The retaining walls supporting sloping ground with gradients of 1.5:1 should be designed based on an equivalent fluid density of 45 pounds per cubic foot.

The above given pressures assume that hydrostatic pressures will be relieved from the back of the retaining walls through a properly designed and constructed backdrain system. Backdrains should consist of 4-inch diameter perforated pipes encased in free draining gravel; at least one cubic foot per lineal foot of the pipe. In order to reduce the chances of siltation, the gravel should be wrapped in an approved filter fabric.

For allowable vertical and lateral pressures of the retaining wall footings refer to the preceding sections.

SITE GRADING

Site grading for the proposed project is expected to basically involve excavations to create the proposed grades and backfilling behind the retaining walls. It is anticipated that, after completion of the site grading work, there will be excess soil that will be exported from the site.

Prior to placing any fill, the Soil Engineer should observe the excavation bottoms. The areas to receive compacted fill should be scarified to a depth of about 8 inches, moistened as required to bring to approximately optimum moisture content, and compacted to at least 90 percent of the maximum dry density as determined by the ASTM Designation D 1557-78 Compaction Method.

General guidelines regarding site grading are presented below in an itemized form which may be included in the earthwork specification. It is recommended that all fill be placed under engineering observation and in accordance with the following guidelines:

1. The excavated materials (soil and bedrock) are considered to be satisfactory for reuse in the compacted fill areas and as wall backfill. Rocks larger than 6 inches in diameter, however, should not be used in the compacted fill soils.

2. Fill material, approved by the Soil Engineer, should be placed in controlled layers. Each layer should be compacted to at least 90 percent of the maximum laboratory unit weight as determined by ASTM Designation D 1557-78 for the material used.

3. The fill material shall be placed in layers which, when compacted, shall not exceed 8 inches per layer. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to insure uniformity of material in each layer.

4. When moisture content of the fill material is too low to obtain adequate compaction, water shall be added and thoroughly dispersed until the moisture content is near optimum.

5. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material shall be aerated by blading or other satisfactory methods until near optimum moisture content is achieve.

6. Inspection and field density tests should be conducted by the Soil Engineer during grading work to assure that adequate compaction is attained. Where compaction of less than 90 percent is indicated, additional compactive effort should be made with adjustment of the moisture content or layer thickness, as necessary, until at least 90 percent compaction is obtained.

SITE DRAINAGE

Adequate site drainage should be provided to divert roof and surface waters from the property through nonerodible drainage devices. In no case should the surface waters be allowed to flow over the slope surfaces in an uncontrolled manner.

EXCAVATION

During the course of our field investigation, site materials; soils and bedrock, were excavated using hand tools. Such materials were explored without significant difficulty. It is, therefore, anticipated that conventional earth removing equipment could be used to excavate the site bedrock.

OBSERVATION DURING CONSTRUCTION

The presented recommendations in this report assume that all structural footings will be established in competent bedrock. All footing excavations should be observed by a representative of this office. It is essential to assure that footing excavations are made at proper dimensions, are established in the recommended bearing material and are free of loose and disturbed soils.

The project Engineering Geologist should observe the planned cut slopes above the residence. Modification to our recommendations may be necessary if significant variations are noted in the geologic features of the underlying bedrock.

Site grading work should be made under continuous observation and testing by a representative of this firm.

-oOo-

The following Plates and Appendices are attached and complete this report:

Geologic Map and Site Plan-Drawing No. 1
Geologic Cross Sections A-A' and B-B'-Drawing No. 1
Appendix I - Method of Field Exploration
Figure Nos. I-1 through I-4
Appendix II - Methods of Laboratory Testing
Figure Nos. II-1 through II-4

Respectfully submitted,

APPLIED EARTH SCIENCES

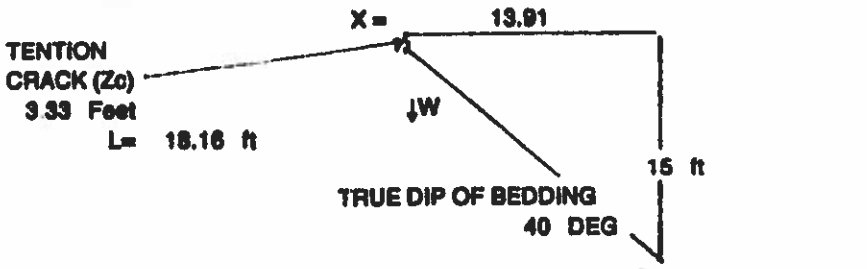
Caro J. Minas
Geotechnical Engineer
GE 601

Richard Crook, Jr.
CEG 924

CJM/rd



WALL PRESSURE DESIGN (Level Backfill)



TYPICAL SECTION THROUGH THE
THE TRUE BED NOT TO SCALE

Max Hight of Retaining wall = 15 FEET
L = 18.16 Feet
X = 13.91 Feet

BEDROCK STRENGTH PARAMETERS (PRE-SOAKED)
(ALONG BEDDING STRENGTH) (Resheared Strength)

γ = 118 PCF
C= 100 PSF
ϕ= 36 DEG
Alpha= 40 DEG

TENTION CRACK CALCULATIONS

$N\phi' = \frac{1+\sin\phi}{1-\sin\phi} = \frac{1.59}{0.41} = 3.85$

$Zc = \frac{2C\ N\phi'}{\gamma} = \frac{393}{118} = 3.33$ FEET

Wt(kips)= 15.04 kips

Driving Force=
(Df) = Wt Sin 40 Cos 40 =
(Df) = 7.41 kips

Resisting Force=
(Rf) = Wt CosαTanϕ + CL Cos 40 =
(Rf) = 6.41 + 1.39 =
(Rf) = 7.80 kips

THE UNBALANCED FORCE (UBF) =
UBF = 1.5 Df - Rf =
UBF = 11.11 - 7.80 =
UBF = 3.31 kips

EQUIVALENT FLUID PRESSURE (EFP)= (2000*UBF)/(ft^2)
Hight of Wall= 15 Feet
EFP= 29.38 pcf Use 30 pouns per cubic foot

ENGINEERING CALCULATIONS

For: Mr. William Martirosian	Date: 12/11/89	PROJECT NO. 89-841-02
APPLIED EARTH SCIENCES GEOTECHNICAL ENGINEERING CONSULTANTS		SHEET NO. 1

SOIL PARAMETERS (PRE-SOAKED)

C=	100	PSF
ϕ=	30	DEG
d=	1.5	FT
α=	33	DEG
γ=	105	PCF

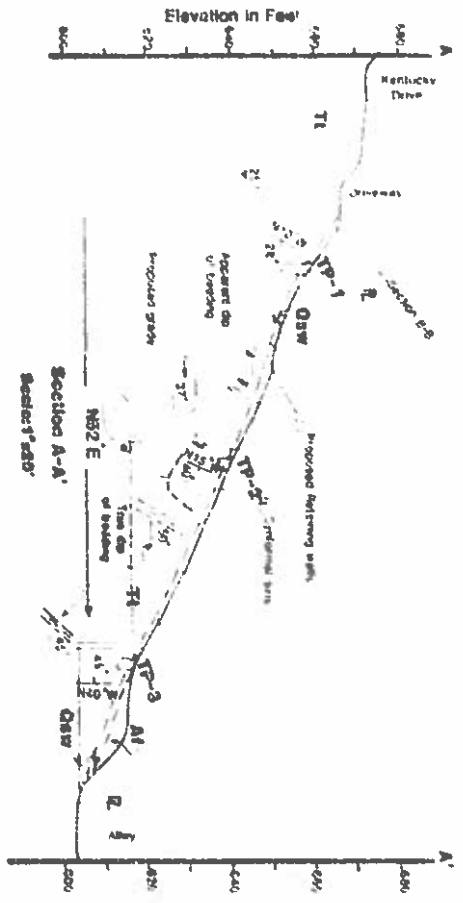
$$FS = \frac{C + d\gamma'(\cos(\alpha))^2 * (\tan(\phi))}{d\gamma(\cos(\alpha)) * (\sin(\alpha))}$$

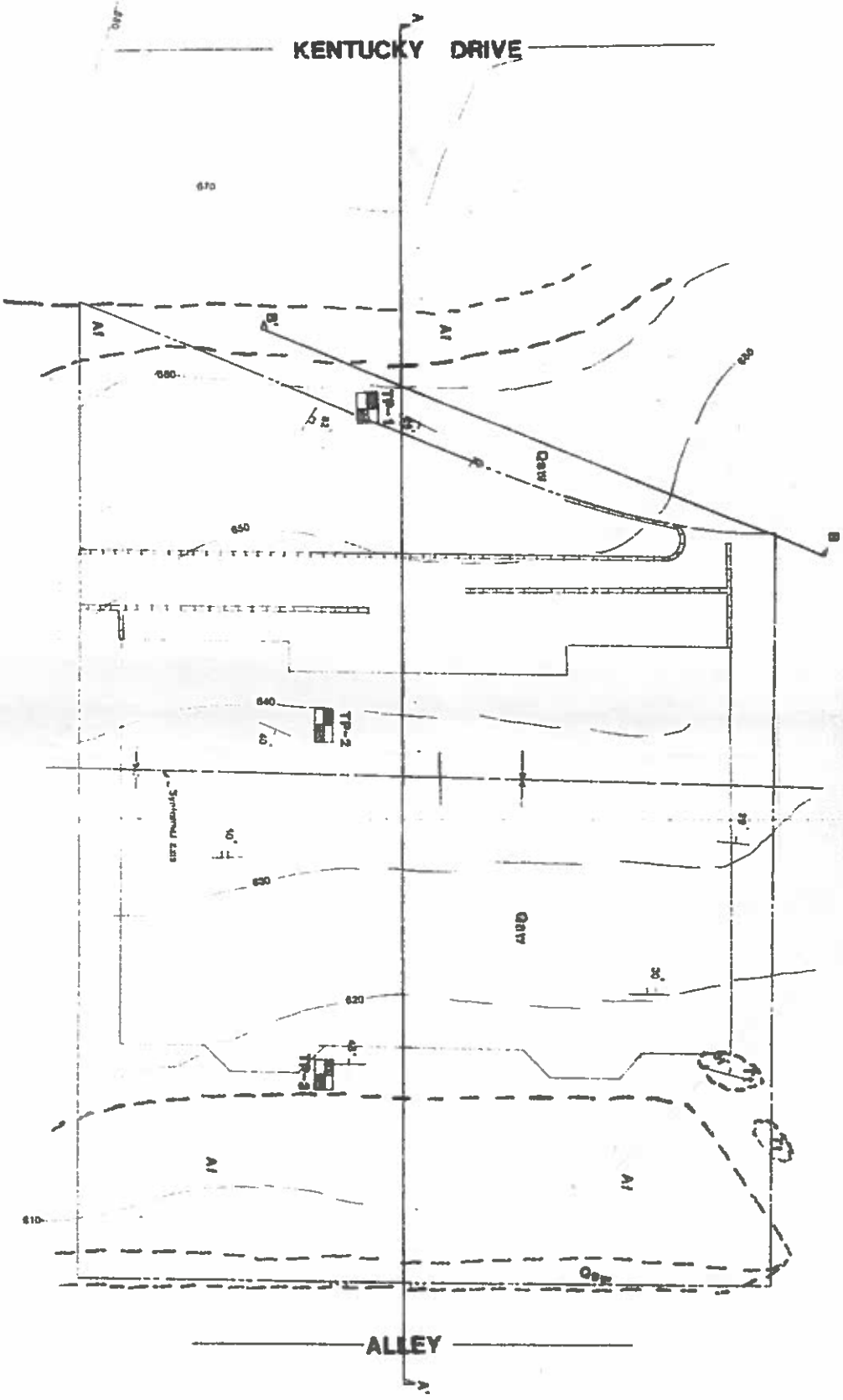
$$FS = \frac{100 + 25.9}{71.9} = 1.75 > 1.5$$

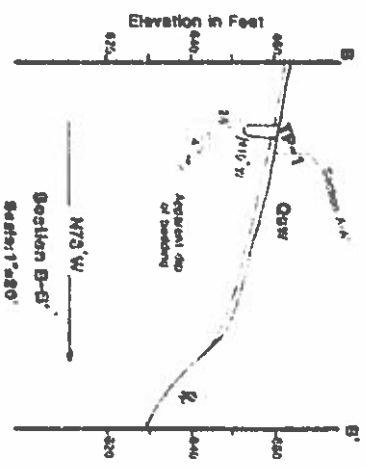
SURFICIAL SLOPE STABILITY

For: Mr. William Martirosian	DATE: 12/11/89	PROJECT NO. 89-041-02
APPLIED EARTH SCIENCES GEOTECHNICAL ENGINEERING CONSULTANTS		SHEET NO. 2

7 2 6 0 3 6 0 0 0 9 2







Scale:1"=10'

EXPLANATION

Af	Artificial fill
Qsw	Colluvial soil
Tl	Bedrock, Topanga formation
	Contact, approx. located
	Bedding plane, approx. located
25°	Strike & dip of bedding
45°	Strike & dip of bedding by others
82°	Strike & dip of joint
A A'	Location of test pit
	Location of section

3 sets
Jan 11
3910-12 Kentucky Dr
Rec'd
12-11-89

APPLIED EARTH SCIENCES

GEOLOGIC MAP & SITE PLAN & GEOLOGIC CROSS SECTION A-A' & B-B'

Proposed Single Family Residence

3910-3912 Kentucky Drive, Studio City, California

For: Mr. William Martirosian

DATE 12/11/89
SCALE 1"=10'
JOB NO. 89-441-02
SHEET 1

REVISIONS | BY

APPENDIX I

METHOD OF FIELD EXPLORATION

In order to define the subsurface conditions, three test pits were excavated within the site using hand tools. The approximate location of the excavated test pits are shown on the enclosed Site Plan. Test pits were extended to maximum depths of about 8 feet below the slope surface.

Continuous logs of the subsurface conditions, as encountered in the test pits, were recorded during the field work and are presented on Figure Nos. I-1 through I-3 within this Appendix. These figures also show the number and approximate depths of each of the recovered soil samples.

Relatively undisturbed samples of the subsoils were obtained by driving 2.5-inch in diameter and 6 inches long steel tubes with a knocker. The knocker had a 10- pound metal weight free falling a vertical distance of about 24 inches.

The field investigation for this project was performed on October 16, 1989. The materials excavated from the test pits were placed back upon completion of the field work. Such materials may settle. The owner should periodically inspect these areas and notify this office if the settlement creates a hazard to persons or property.

7260360093

TEST PIT NO. 1

DATE DRILLED: 10/16/89 [illegible]

DEPTH IN FEET	SAMPLE NO.	DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
0					Sand (SM)		Moderately loose, slightly moist, brown porous, silty, fine sand with trace of clay and scattered gravel
	1	99	7	28°E N10°W B	Bedrock (Tt)		Slightly hard, yellow-brown to gray-brown massive, thick-bedded, silty, fine-grained sandstone with few intervals of moderately thin-bedded siltstone and claystone, all well indurated, top 8 inches moderately weathered
	2	97	6				
	3	98	7	82°N N88°W J			
5	4	99	7				
	5	108	10				
10							End of Test Pit @ 8 feet No water No caving B = Bedding J = Joint
15							
20							

7 2 3 0 0 6 0 0 0 9

LOG OF EXPLORATORY TEST PIT

JOB NAME: Mr. William Martirosian

JOB NO: 89-641-02

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO: I-1

TEST PIT NO. 2

GROUND ELEVATION: 6-0'±

DATE DRILLED: 10/16/89

DEPTH IN FEET	SAMPLE NO.	DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
0					Silt (ML)		Firm, slightly moist, brown, porous, sandy with trace of clay, few roots
	1	99	4	40°E N16°W	Bedrock (Tt)		Slightly to moderately hard, yellow-brown massive, to thick-bedded, slightly silty fine-grained sandstone with few thin intervals of sandy siltstone, all well indurated, moderately weathered
	2	105	5	B			
	3	110	3				
5							End of Test Pit @ 4.5 feet No water No caving
10							B = Bedding
15							
20							

7 2 5 0 0 6 0 0 0 9 3

LOG OF EXPLORATORY TEST PIT

JOB NAME: Mr. William Martirosian

JOB NO. 89-641-02

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO. I-2

TEST PIT NO. 5

DATE DRILLED: 10/16/89

GROUND ELEVATION: 6[illegible]'±

DEPTH IN FEET	SAMPLE NO.	DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	MATERIAL TYPE	MATERIAL SYMBOL	MATERIAL DESCRIPTION
0	1	91	7	N40°W 45°S	Silt & Sand (ML/SM)		Dense, slightly moist, brown, moderately porous, sandy silt to silty fine sand a few roots and animal burrows
	2	108	3		Bedrock (Tt)		Slightly to moderately hard, yellow-brown, massive to crudely stratified, well indurated, medium to fine-grained sandstone, moderately weathered
	3	110	2	B			
5							End of Test Pit @ 4.5 feet No water No caving B = Bedding
10							
15							
20							

LOG OF EXPLORATORY TEST PIT

JOB NAME: Mr. William Martirosian

JOB NO: 89-641-02

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO: I-3

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

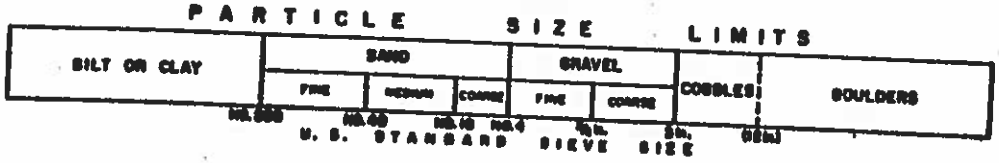
BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

NO. 200 NO. 40 NO. 10 NO. 4 3/4 in. 3 in. (12 in.)

U. S. STANDARD SIEVE SIZE



UNIFIED SOIL CLASSIFICATION SYSTEM

JOB NAME: Mr. William Martirosian

JOB NO. 89-641-02

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO. I-4

7 2 6 0 0 6 0 0 0 9 7

APPENDIX II

LABORATORY TESTING PROCEDURES

Moisture Density

The moisture-density information provides a summary of soil consistency for each stratum and can also provide a correlation between soils found on this site and other nearby sites. The dry unit weight and field moisture content were determined for each undisturbed sample, and the results are shown on the log of exploratory test pits.

Shear Tests

Shear tests were made with a direct shear machine at a constant rate of strain. The soil samples which were obtained in 6-inch long tubes were extruded into one inch long brass rings. The shear machine is designed to receive the one inch brass rings for testing.

A range of normal stresses was applied vertically, and the shear strength was progressively determined at each load in order to determine the internal angle of friction and the cohesion. The results of direct shear tests are presented on Figure No. II-1 and II-2 within this Appendix.

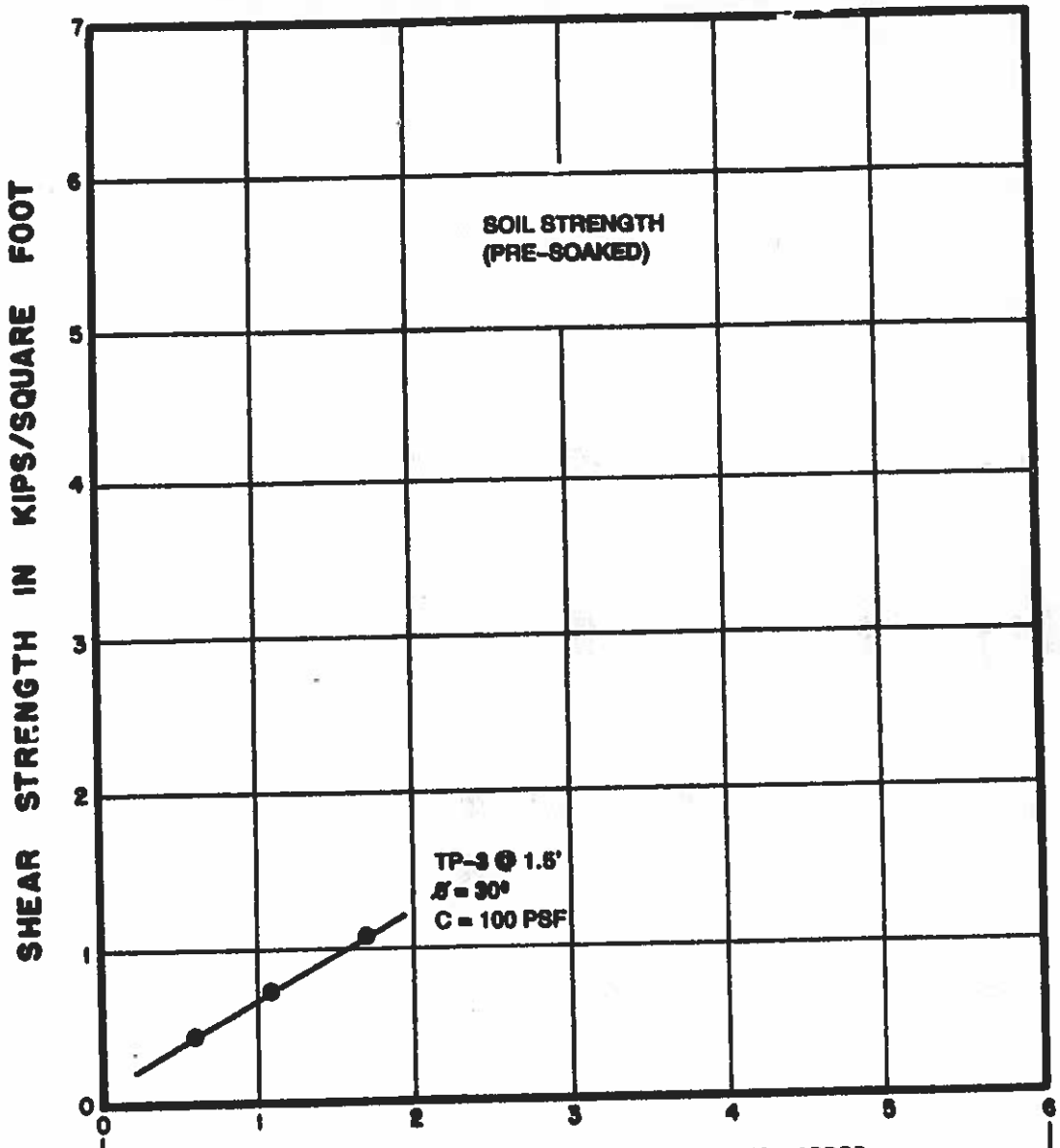
Consolidation

The apparatus used for the consolidation tests is designed to receive one inch brass rings. The soil samples which were extruded into one inch rings were used for compression testing.

Loads were applied to the test specimen in several increments, and the resulting deformations were recorded at selected time intervals. Porous stones were placed in contact with the top and bottom of the specimen to permit the ready addition or release of water.

Undisturbed specimens were tested at the field and added water conditions. The test results are shown on Figure No. II-3 and II-4 within this Appendix.

NORMAL STRESS IN KIPS/SQUARE FOOT



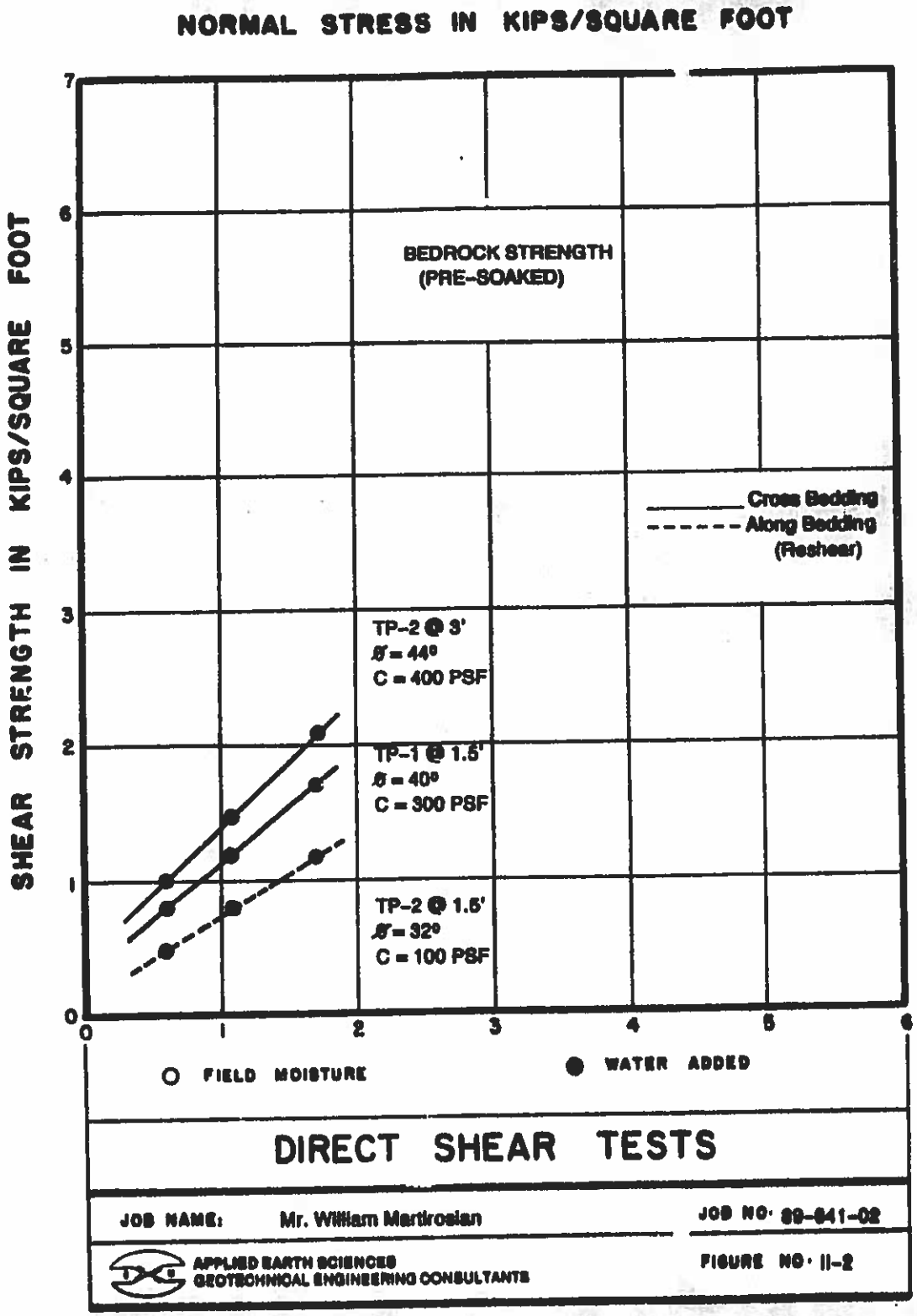
DIRECT SHEAR TESTS

JOB NAME: Mr. William Martirosian

JOB NO. 89-841-02

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

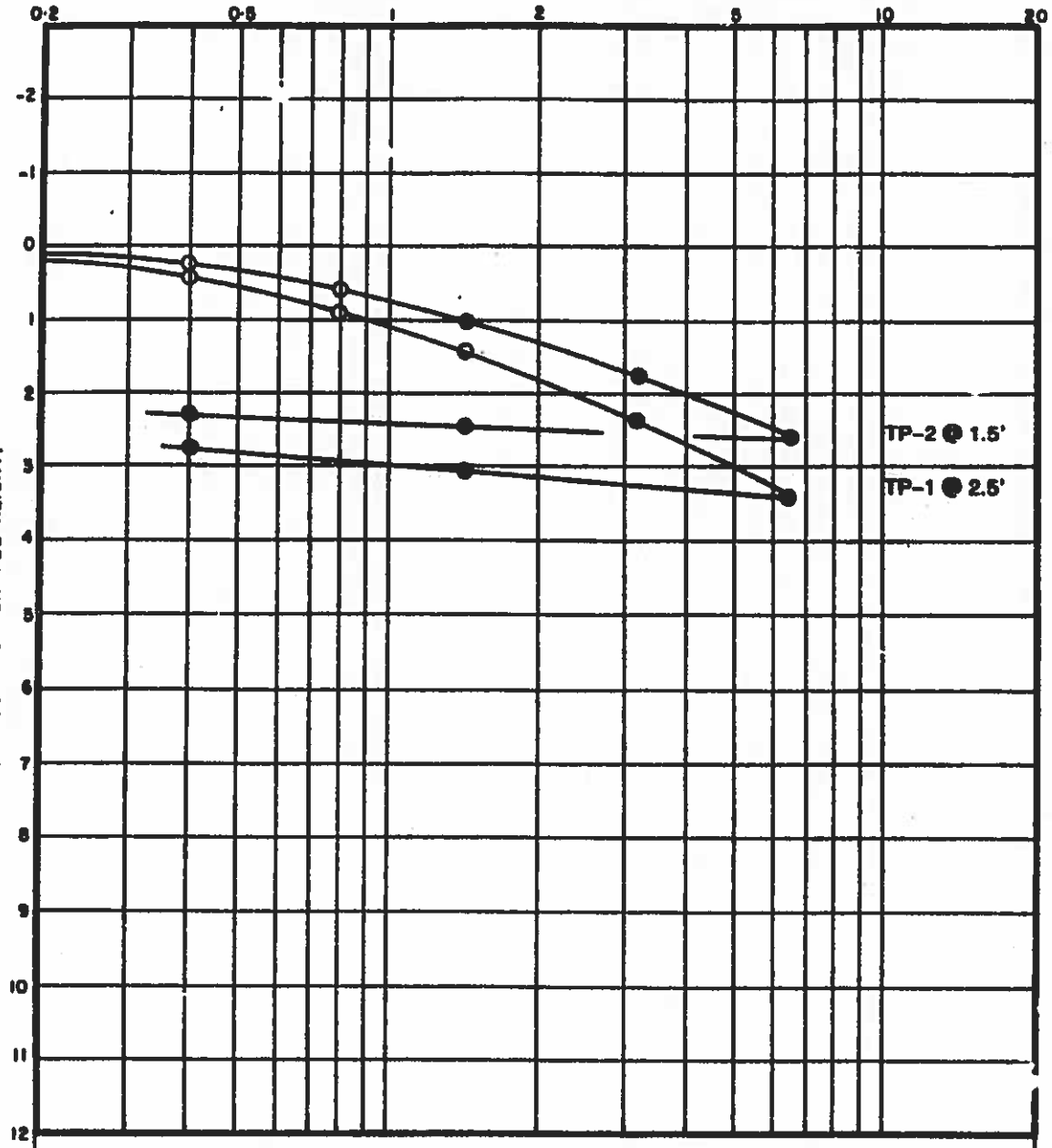
FIGURE NO. II-1



DIRECT SHEAR TESTS

JOB NAME: Mr. William Martirosian	JOB NO: 89-841-02
APPLIED EARTH SCIENCES GEOTECHNICAL ENGINEERING CONSULTANTS	FIGURE NO: II-2

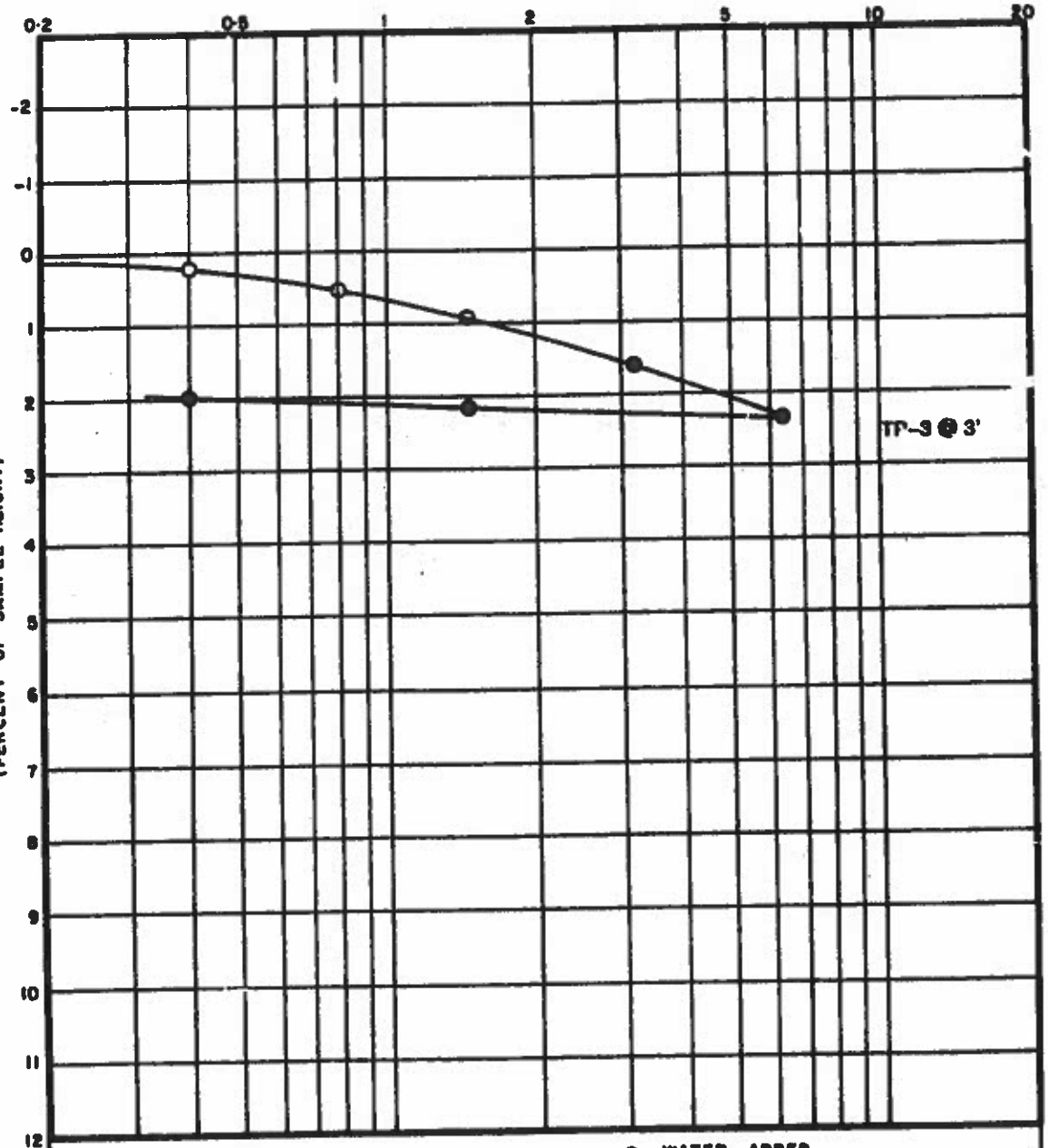
PRESSURE IN KIPS PER SQUARE FOOT



SWELL - CONSOLIDATION TESTS

JOB NAME: Mr. William Martirosian	JOB NO: 89-841-02
APPLIED EARTH SCIENCES GEOTECHNICAL ENGINEERING CONSULTANTS	FIGURE NO: II-3

PRESSURE IN KIPS PER SQUARE FOOT



CONSOLIDATION — SWELL
(PERCENT OF SAMPLE HEIGHT)

○ FIELD MOISTURE ● WATER ADDED

SWELL-CONSOLIDATION TESTS

JOB NAME: Mr. William Martirosian JOB NO. 89-641-02

APPLIED EARTH SCIENCES
GEOTECHNICAL ENGINEERING CONSULTANTS

FIGURE NO. II-4

BIG MAP ( )

B&S

TRACT: 5593
BLOCK:
LOT: 115
JOB ADDRESS: 3910-12 Kentucky St

#2 12-11-89

GRADING FILES

REVIEW OF ENGINEERING AND/OR GEOLOGICAL REPORT

Date Submitted 1-16-90 Date to Insp [illegible] Date Rec. L.A. 1-16-90

Job Address 3910-12 Kentucky Ln. District Office LA

Tract STF2 Lot# 115 District Map# ____ P.C.# ____ Thomas Guide ____

Owner William Mas-y Roslan Address 2164 N. Glen Oaks Bl

City Burbank BA — 91507 Phone# ____

Engineer A.E.S. Report# 89-641-02 Date 12-14-89

Geologist Same Report# Same Date Same

No. of copies ea. submitted (Geo.) 1 (Engr.) 1

OFFICE

Fees Paid	Yes ✓	No ____
Sewers Available	Yes ✓	No ____
Previous Correspondence or B/L's	Yes ____	No ✓
Pertinent Tract File Information	Yes ____	No ✓
Pertinent Info. on File Adjoining Lot	Yes ____	No ✓
Plans submitted with report	Yes ____	No ✓
Return plans to ____ office	Yes ____	No ✓

FIELD

Landslide or Problem Area	Yes ____	No ✓
Site Description Per Report	Yes ✓	No ____
On Site Hazard	Yes ____	No ✓
Hazards To Adjoining Property	Yes ____	No ✓
Hazards from Adjoining Property	Yes ____	No ✓
Existing Fill Not Mentioned in Report	Yes ____	No ✓
Existing Cut Not Mentioned in Report	Yes ____	No ✓

FURTHER COMMENTS:

1 - Site appears to match Report.

Inspector Roy Daniels Date 1-24-90 Branch LA

Return to Los Angeles City Hall, Room 421

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LOS ANGELES, CA 90012-4869

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EARL SCHWARTZ
TIMOTHY TAYLOR

February 03, 1988

Paul Harrison
11684 Ventura Boulevard, #608
Studio City, CA 91604

TRACT: 5593
LOT: 115
LOCATION: 3910 & 3912 KENTUCKY DRIVE

Geological Report dated, October 01, 1987, prepared by The Geologic Outfit and Soil Engineering Report No. 79-184 FG, dated October 20, 1987 and January 11, 1988, prepared by T.K. Engineering Corporation.

REFERENCE: Inter-Departmental letter dated September 16, 1980 for T 40086 (G 147 5.71).

The above reports concerning the proposed construction of 2 single-family residences on the property have been reviewed by the Grading Division of the Department of Building and Safety. The referenced letter was an approval of the site for a condominium structure. Conditions of the letter related previously to grading of the site to eliminate geologic problems and provide an acceptable factor of safety. The conditions were based on recommendations and information contained in reports submitted for approval of the Tract. According to the reports conditions of the site remain the same.

The reports are acceptable, provided the following conditions are complied with during site development:

1. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans which clearly indicates that the geologist and soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in their reports.

AN EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

43004028

2. All conditions of the above referenced Department letter shall apply. Except Nos. 3, 4 and 18.

3. All recommendations of the report which are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

4. The geologist and soil engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading.

5. The geologist and soil engineer shall inspect the excavations for the footings to determine that they are founded in the recommended strata before calling the Department for footing inspection.

6. Footings adjacent to a descending slope steeper than 3:1 in gradient shall be located a distance of one-third the vertical height of the slope with a minimum of 5 feet and a maximum of 40 feet measured horizontally from the face of the slope.

7. The design of the subdrainage system required to prevent possible hydrostatic pressure behind soil engineer shall be approved by the Soil Engineer prior to issuance of the building permit. Installation of the subdrainage system shall be inspected and approved by the Soil Engineer.

8. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans. Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

4 3 6 0 4 0 0 2 9

9. The soil engineer shall inspect the excavations. A supplemental report shall be submitted to the Department providing recommendations for shoring of vertical cuts exceeding 5' in height prior to implementation in the field.

JAMES D. KAPRIELIAN
Chief of Grading Division

Theodore D. Nickerson

THEODORE D. NICKERSON
Engineering Geologist

Burr E. Peck

BURR E. PECK
Soils Engineer

TDN/BEP:jar
TGRSG020388A/5WP
(213) 485-2160

cc: T.K. Engineering
The Geologic Outfit
LA District Office

4 5 3 0 6 4 3 0 0 3 0

B&S 8-17 (R8/88)

City of Los Angeles
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District VN | Log No. 3189
ADDRESS APPROVED | Signature/Date

APPLICATION FOR REVIEW OF TECHNICAL REPORTS AND IMPORT-EXPORT ROUTES

INSTRUCTIONS

A. Address all communications to the Grading Division, Department of Building and Safety, Room 460A, City Hall, Los Angeles, California 90012-4869. Phone (Area Code 213) 485-3435.
B. Obtain address approval from the Department of Public Works prior to submittal.
C. Submit 2 copies (4 for fault study zone) of reports and 3 copies of application with items (1) through (10) completed.
D. Check should be made to the Department of Building and Safety.

TDN-BEP

Note: Please Print

(1) LEGAL DESCRIPTION
Tract 5593
Blk _____ Lots 115

(2) PROJECT ADDRESS 3910/3912 KENTUCKY DRIVE

(3) OWNER PAUL HARRISON
Address 11684 VENTURA BLVD #234
City STUDIO CITY CA Zip 91604
Phone (Daytime) (818) 905-5555

(4) APPLICANT PAUL HARRISON
Address 11684 VENTURA BLVD #234
City STUDIO CITY CA
Phone (Daytime) (818) 905-5555 Zip 91604

(5) Report(s) Prepared by T.K. ENGINEERING CORP.

(6) Report Date(s) JANUARY 11, 88 (79-184FE)

(7) Status of project: [X] Proposed ☐ Under Construction ☐ Storm Damage

(8) Previous site reports? X If yes, give date(s) of report(s) and name of company(s) who prepared report(s).
GEOS/8/31/79 (TUCKER) SOILS 9/12/79 (T.K.) ADDENDUM 7/18/86, LETTER 12/12/87

(9) Previous Department actions? ____ If yes, please give dates and attach a copy to expedite processing.
Dates GEOS 10/1/87 (79-184FE) 10/20/87 T.K./DEPT LETTER 9/16/87 / DEPT LETTER 12/12/87

(10) Signature of applicant [signature] Position OWNER

4580040003

(DEPARTMENT USE ONLY)

REVIEW REQUESTED & PROCESSING	FEES	REVIEW REQUESTED & PROCESSING	FEES
☐ Foundation Investigation		☐ Seismology report per 91.2305(d)	
☐ Soils Engineering		☐ Environmental Assessment	
☐ Geology		☐ Import-Export Route	
☐ Combined Soils Engr. & Geol.		☐ Division of Land	
☐ Supplemental		Sub-total	
[X] Combined Supplemental	-0-	One-Stop Surcharge	

THE REPORT IS ☐ APPROVED WITH CONDITIONS ☐ NOT APPROVED TOTAL FEE -0-

DEPARTMENT ACTION BY: _____ For Geology _____ Date _____ For Soils & Foundation _____ Date

☐ Conditions of Approval ☐ Reasons for Non-Approval ☐ See Attached letter ☐ Supplemental Sheet ____ Attached

(Continued Over) (Cashier Use Only)

DEPARTMENT USE ONLY
Fee Due NO FEE
Fee Verified LK 1-28-88

DISTRIBUTION
☐ Owner ☐ Applicant ☐ _____
☐ Soil Engineer ☐ Geologist ☐ Board files ☐ Tract file
☐ LA Plan Check ☐ VN ☐ WLA ☐ SP/WLA
☐ LA Inspection ☐ VN ☐ WLA ☐ SP/WLA ☐ BMI ☐ BI

3189

T.K. ENGINEERING CORP.
GEOTECHNICAL ENGINEERS
1105 SO. FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803
(818) 289-4442 • L.A. (213) 283-3100

Mr. Paul D. Harrison
14011 Ventura Blvd., Suite 306
Sherman Oaks, CA 91423

Our Job No. 79-184FG
January 11, 1988

Subject: Addendum
Preliminary Soil Engineering Investigation
Proposed 8-Unit Apartment Building
Lot 115, Tract 5593
3910 and 3912 Kentucky Drive
Los Angeles, California

Refernece: 1. "Report of Preliminary Engineering Geologic Investigation,
Lot 115, Tract 5593, Kentucky Drive
Universal City Area,
Los Angeles, California,"
prepared by Harley Tucker Incorporated,
dated August 31, 1979.

2."Geologic & Soil Investigation Report,
Lot 115, Tract 5593, Kentucky Drive
Universal City Area
Los Angeles, California,"
prepared by T. K. Engineering Corp.,
dated September 12, 1979.

3."Addendum,"
prepared by T. K. Engineering Corp.,
dated July 18, 1986 and October 20, 1987.

4."Engineering Geologic Inspection,
Proposed Residential Development Site,
Lot 115, Tract 5593, Kentucky Drive,
Studio City, California."

15304041

Dear Mr. Harrison: 3910 & 3912 Kentucky Dr.

As requested, this addendum presents additional information for the proposed residential development at the subject site. Also, this addendum presents our responses to the review comments addressed by the City of Los Angeles, Department of Building and Safety, dated December 12, 1987.

We understand that the presently proposed development at the subject site includes construction of an 8-unit apartment building. Based upon the

sketch drawn on the original grading plan prepared by Fine Line Systems at a scale of one inch equals 10 feet and datead August 5, 1987 (sheets 1 and 2), we further understand that the proposed apartment building will be located in the lower portion of the property. More specifically, the building will be constructed along the rear alley at the northeastern property line, and will extend southwesterly approximately 40 to 50 feet. The building will have three to four-story residential units over a garage. Construction of the proposed building will require excavation into the site bedrock at the lower portion of the property. Tentatively, the height of excavation will be approximately 20 to 28 feet. It should be noted that our understanding of the currently planned development as stated above will require a review and verification of the final plans prior to construction.

4530043042

Based upon the referenced reports, addenda and the present construction plan, the retaining walls, to be located approximately 40 to 50 feet from the rear (northeastern) property line, is not anticipated to retain out-of-slope (or unsupported) bedding. It is therefore our opinion that the design recommendations of lateral earth pressures presented in Reference 2 are still considered applicable for the proposed walls. Therefore, the residual shear test is not necessary. However, it should be noted that if the wall is to retain topsoils or natural soils, the wall should be designed for a downhill crip force of 1 kip per foot of depth. The depth of topsoils or natural soils on the slope is on the order of 3 feet.

T.K.ENGINEERING

It should also be noted that the proposed excavation will be much deeper than the exploratory trench. Therefore, the excavation should be periodically observed by the project Engineer Geologist and Soil Engineer. Any geologic information revealed during construction that differs from the exploration should be reviewed and evaluated immediately.

Proper drainage behind the retaining walls should be designed and incorporated during construction. The drainage should include a 4-inch diameter perforated pipe, encapsulated in at least one cubic yard of filter materials. The filter materials should consist of a mixture of sand and gravels. The drainage pipe should be laid with perforation down at a positive gradient and the pipe should be directed to appropriate disposal areas.

Vertical excavation into the geologically favorable sandstone bedrock up to 20 feet is possible. However, the site bedrock consists of moderately well developed shale, and thinly bedded shale in the sandstone. Therefore, it is recommended that vertical cut can be made near vertical without shoring up to 5 feet. Deeper cuts shall be made with proper shoring, or the excavation be cut back to no steeper than 1 : 1 (horizontal: vertical). Specific recommendations for temporary excavation may be provided upon request or when the grading plan becomes available.

Unless specifically superseded in this addendum, all recommendations presented in the referenced reports and addenda remain applicable for the subject project.

T.K.ENGINEERING

1 5 3 0 0 4 3 0 0 4 3

79-184FG
PAUL HARRISON
January 11, 1988

This addendum is prepared for the project described herein, and is prepared in general accordance with the principal of soil mechanics and foundation engineering. No warranty is either expressed or implied.

This report pertains only to the grading and compaction described herein and is subject to review by the controlling authorities for the project.

We sincerely appreciate this opportunity to be of continuous service. Please contact the undersigned if there are any questions concerning this report.

Respectfully submitted,

T. K. ENGINEERING CORP.

By: Larry T.K. Chien
Larry T.K. Chien, GE 213
Geotechnical Engineer

LC/jm
XC:(4) Copies: Addressee

A79184FG.....Add/a88

T.K. ENGINEERING

4 3 3 0 4 0 0 4 4

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PRESIDENT
BENITO A. SINCLAIR
VICE-PRESIDENT
REVELACION P. ABRACOSA
MARCIA MARCUS
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CALIFORNIA

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MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
411 CITY HALL
LOS ANGELES, CA 90012-4869

FRANK V. KROEGER
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EXECUTIVE OFFICER

DEPUTY GENERAL MANAGERS
K. ROBERT AYERS
ROBERT J. PICOTT
EARL SCHWARTZ
TIMOTHY TAYLOR

December 12, 1987

45800400033

Paul Harrison
11684 Ventura Blvd., #608
Studio City, CA 91604

TRACT: 5593
LOT: 115
LOCATION: 3910 AND 3912 KENTUCKY DRIVE

Geological Report dated, October 1, 1987, prepared by The Geologic Outfit and Soils Engineering Report No. 79-184FG, dated October 20, 1987, prepared by T. K Engineering Corporation.

REFERENCE: Inter-Departmental letter dated September 16, 1987 for T 40086.

The above reports concerning the proposed construction of 2 single family residences on the property have been reviewed by the Grading Division of the Department of Building and Safety. According to recommendations in a former report that was approved by the referenced interdepartmental letter, walls required to support outdipping beddings shall be designed for higher earth pressures and the recommendations cannot be given until the height location of the walls are known. Those recommendations have not yet been provided. No residual shear tests performed on the bedrock in the direction of bedding appear in the reports.

The review of the subject report cannot be completed because the stability or safety of the proposed development cannot be determined at this time. An addendum to the report shall be submitted which includes, but need not be limited to, the following:

AN EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

1. Design recommendations for walls retaining unsupported bedding with supporting calculations on residual shear tests on bedrock in the direction of bedding. The arbitrary strength parameters given in RGA 1-84 F 5 may be used in lieu of shear tests.

JAMES D. KAPRIELIAN
Chief of Grading Division

Theodore E. Nickerson
THEODORE D. NICKERSON
Engineering Geologist

Burr E. Peck
BURR E. PECK
Soils Engineer

BEP/TDN:gas
TGRSGL121287S/2GR
(213) 485-2160

cc: T.K. Engr.
The Geologic Outfit
VN District Office

4130 0034

139-B 177 7323 VN 2092

City of Los Angeles
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District ____ Log No. ____
ADDRESS APPROVED ____ Signature Date

APPLICATION FOR REVIEW OF TECHNICAL REPORTS AND IMPORT-EXPORT ROUTES

INSTRUCTIONS

A. Address all communications to the Grading Division, Department of Building and Safety, Room 460A, City Hall, Los Angeles, California 90012-4869. Phone (Area Code 213) 485-3435.
B. Obtain address approval from the Department of Public Works prior to submittal.
C. Submit 2 copies (4 for fault study zone) of reports and 3 copies of application with items (1) through (10) completed.
D. Check should be made to the Department of Building and Safety.

Note: Please Print

(1) LEGAL DESCRIPTION
Tract 5593
Blk ____ Lots 115

(2) PROJECT ADDRESS 3110/3112 KENTUCKY DRIVE

(3) OWNER PAUL HANCHSEN/SHAHRAM MIZRAHI
Address 11684 VENTURA BLVD #606
City STUDIO CITY CA 91604
Phone (Daytime) (818) 985-5555

(4) APPLICANT PDH ASSOCIATES INC
Address 11684 VENTURA BLVD #606
City STUDIO CITY CA 91604
Phone (Daytime) 818 9055555 Zip 91604

(5) Report(s) Prepared by T.K. ENGINEERING CORP. (SOILS) (GEOLOGICAL)

(6) Report Date(s) 10/20/87 AND 10/1/87

(7) Status of project: ■ Proposed ☐ Under Construction ☐ Storm Damage

(8) Previous site reports? ✓ If yes, give date(s) of report(s) and name of company(s) who prepared report(s). ADDENDUM 11/17/87
INVESTIGATION 9/12/86 GEOLOGICAL 4/31/71 - ADDENDUM 7/24/86 - UPDATE 6/12/86

(9) Previous Department actions? ✓ If yes, please give dates and attach a copy to expedite processing.
Dates SEPT. 16, 1986 APPROVAL LETTER ATTACHED

(10) Signature of applicant [signature] Position AGENT/OWNER

(DEPARTMENT USE ONLY)

REVIEW REQUESTED & PROCESSING	FEES	REVIEW REQUESTED & PROCESSING	FEES
☐ Foundation Investigation		☐ Seismology report per 91.2305(d)	
☐ Soils Engineering		☐ Environmental Assessment	
☐ Geology		☐ Import-Export Route	
☐ Combined Soils Engr. & Geol.		☐ Division of Land	
☐ Supplemental		Sub-total	108.00
☒ Combined Supplemental	108.00	One-Stop Surcharge	2.16
		TOTAL FEE	110.16

THE REPORT IS ☐ APPROVED WITH CONDITIONS ☐ NOT APPROVED

DEPARTMENT ACTION BY: ____ For Geology ____ Date ____ For Soils & Foundation ____ Date

☐ Conditions of Approval ☐ Reasons for Non-Approval ☐ Se. .ttached letter ☐ Supplemental Sheet ____ Attached

(Continued Over)

C 108.00 GR-R
C 2.16 OSS
G9850 4 11/13/87 110.16
(Cashier Use Only)

DEPARTMENT USE ONLY
Fee Due 110.16
Fee Verified J.K.
Date 11-13-87

DISTRIBUTION
☐ Owner ☐ Applicant ☐ ____
☐ Soil Engineer ☐ Geologist ☐ Board files ☐ Tract file
☐ LA Plan Check ☐ VN ☐ WLA ☐ SP/WLA
☐ LA Inspection ☐ VN ☐ WLA ☐ SP/WLA ☐ GMI ☐ SI

T.K. ENGINEERING CORP.
GEOTECHNICAL ENGINEERS
1105 SO. FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803
(818) 289-4442 • L.A. (213) 283-3100

Mr. Paul Dale Harrison
Chief Executive Officer
PDH Associates, Inc.
14011 Ventura Blvd., Suite 306
Sherman Oaks, CA 91423

Our Job No. 79-184FG
October 20, 1987

Subject: Addendum
"Geologic and Soils Investigation Report
Lot 115, Tract 5593, Kentucky Dr.
Universal City area, Los Angeles, California"
by T.K. Engineering Corp. and Harley Tucker
dated September 19, 1979

Ref:
1. Preliminary Soil Engineering Report
by T.K. Engineering Corp.
Dated September 12, 1979 (Job No. 79-184FG)

2. Report of Preliminary Engineering Geologic
Investigation by Harley Tacker
Dated Aug. 31, 1979 (Proj. No.307-79)

3. Addendum
by T.K. Engineering Corp.
Dated November 17, 1981
July, 24, 1980
June 18, 1986

A530040045

Dear Mr. Harrison: 3910 & 3912 Kentucky Dr

This addendum is in response to your request to update the referenced documents for the proposed development at the subject property.

We understand the proposed development based on the plans provided by you. The plans are entitled "First Floor Plan", "Second Floor Plan", and "Third Floor Plan". Additionally , one plan illustrates the locations of garages and retaining walls in the rear yard, but is untitled. The proposed development is situated in the lower portion of the property, adjacent to

the existing the existing alley. It is understood that the proposed development will consist of two 3-story houses over garages and the depth of the proposed excavation is estimated to be on the order of 15 feet.

Based on the observations of our site visit made recently, no significant changes were found at the subject site.

After a review of the referenced documents as well as the enclosed Engineering Geologic Inspection by "The Geologic Outfit", dated October 1, 1987, a synclinal axis divides the bedrock strata of the subject site into two limbs. The bedrock strata in the upper portion of the site has an "out-of-slope" component; conversely, bedrock strata in the lower portion, where the proposed development will be situated, dip into the slope. It is unlikely that the excavations for the proposed development in the lower portion of the site will affect adversely the gross stability.

It should be noted that any geotechnically related plans and/or documents should be reviewed by the Geotechnical Engineer and Engineering Geologist so that such plans and documents comply with our recommendations. In addition, any geotechnical site operations shall be observed by the Geotechnical Engineer and Engineering Geologist.

All other recommendations presented in the referenced documents will remain applicable. The designers and contractors are advised to review all the reports pertinent to the development.

This addendum is subject to review and approval by the authories of the project.

T.K.ENGINEERING

4 3 6 0 0 4 6

"The Geologic Outfit"

RAY A. EASTMAN
ENGINEERING GEOLOGIST

(714) 579-5961
(714) 630-4442

2990 Miraloma Avenue
Anaheim, California 92806

4 5 8 0 0 4 0 0 4 8

October 1, 1987

TK Engineering Corporation
1105 South Fremont Avenue
Alhambra, California 91803

Subject: Engineering Geologic Inspection
Proposed Residential Development Site
Lot 115, Tract 5593, Kentucky Drive
Studio City, California

Gentlemen,

Pursuant to your request, we have made an engineering geologic inspection at the subject site. The purpose thereof was to identify pertinent geologic conditions with respect to the proposed development.

The inspection was comprised by two parts: namely, field geologic examination and review of the previous Geologic Investigation Report. Part of the field examination also included the excavation of two test pits near the easterly, lower edge of the site.

The site is encompassed by approximately one quarter of an acre; the site proper is vacant but it is surrounded by residential development. Its topography consists for the most part of a moderately steep slope that faces easterly and has a relief of approximately 65 feet.

Geologic conditions are encompassed by two basic units: namely, sedimentary bedrock and colluvium. The bedrock, of course, underlies the entire site but is exposed only locally at the eastern dge. It consists mainly of firm, gray-brown siltstone and sandstone. It is moderately bedded and forms a syncline fold; that is the bedding on the western, or upper, portion of the site is dipping towards the east at approximately 30-40 degrees and, conversly, the bedding on the lower portion is dipping towards the west at approximately 30-60 degrees. The bedding on the upper portion of the site is thusly dipping in an out-of-slope direction. The colluvium, in turn, consists mainly of dark brown sandy clay and extends to approximately 2-4 feet.

The report by Harley Tucker indicates that the site is stable and suitable for residential development. We concur, subject to the following additional provisions: 1) the slope on the upper portion of the site has bedrock strata that dip in an out of slope direction and, accordingly, buttress measures are anticipated for cut slopes in that area; and 2) site inspections during grading and foundation construction by the geologist are recommended in order to verify the geologic conditions.

We trust this inspection report will meet with your needs at this time. However, please feel free to contact us if you have any questions.

Respectfully submitted,

Ray A. Eastman
CEG 423

mlc/#153

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B&S 8-67 (Rev. 7)

City of Los Angeles
DEPARTMENT OF BUILDING AND SAFETY
GRADING PRE-INSPECTION REPORT

G.P.I. FEE PAID ☒ NOT PAID ☐ **15**

TRACT 5[illegible]	LOTS 115
PURPOSE Single Fa[illegible]	OWNERS ADDRESS 14011 VENTURA BLVD
OWNER Kentucky Gardens LTD	

RECORDS IN OUR FILES REVEALED THE FOLLOWING:

Approved Graded Lot Yes ☐ No ☒ Bearing Value:
Footing Reinforcement Required Yes ☐ No ☐ Remarks:
Footing Setback from Face of Slope
Special Geological or Engineering Requirements Yes ☐ No ☐ See Requirements Below
Butress Fill Yes ☐ No ☒ Fill over 100 ft. Yes ☐ No ☒

COMMENTS:

ADDRESS 3910 KENTUCKY DR

INSPECTORS REPORT OF FIELD CONDITIONS:

Slope of Surface — Cut 0-20° Height Fill ° Height Nat. ± 25° Height 75°
Natural Soil Classifications per Table 29B Freetcut TOPANGA FORMATION
Sewer Available Yes ☐ No ☐
Bedding Planes — Dip — Strike — Slide Area Yes ☐ No ☒
Expansive Soil Yes ☒ No ☐ Drainage Area Above Lot — Ft. Horiz. —
Located in Drainage Channel Serving — Acres Site Above ☐ Below ☒ Street
Condition of Street for Drainage Purposes Good/Bad M Roof Gutters Yes ☒ No ☐ To street
Recommended Termination of Drainage To street via approved device
Driveway Grade Alley % Existing ☐ Proposed ☒ Max. Rough Grade Allowed
Ground Cover Trees Shrub Fill Debris

REQUIREMENTS:

1 ☒ A Grading Permit is required. Retwall Backfill
2 ☐ All footings shall be founded into natural undisturbed soil as per Code.
3 ☐ Expansive soils, comply with provisions of Section 91.2905(d).
4 ☐ In the event excavations reveal unfavorable conditions the services of a soils engineer and/or geologist may be required.
5 ☒ Geological and/or soils reports are required. Submit 3 copies, with appropriate fees, to the Grading Division for review. Owner notified by postcard on 9-14-87 Reports submitted with plans — Yes ☐ No ☒
6 ☒ Incorporate all recommendations of the approved geological and/or soils reports and Department letters dated To come into the plans.
7 ☐ Provide a complete grading plan showing existing and proposed contours, tops and toes of slopes, retaining walls, drainage devices and other protective devices. Plans shall include off site walls and structures around the perimeter of the project.
8 ☐ M.G.D. No. 63 applies, site is subject to mudflow.
9 ☒ Buildings shall be located clear of toe of all slopes which exceed a slope of 2:1 as per Section 91.2907(j)2.
10 ☐ Footing shall be setback from the descending slope surface as per Section 91.2907(j)3.
11 ☐ Department approval is required for construction of _____ over a slope steeper than 2:1.
12 ☒ Existing nonconforming slopes shall be cut back to 2:1 or retained.
13 ☒ All cut or fill slopes shall be no steeper than 2:1 (26°).
14 ☐ Provide complete details of engineered temporary shoring or slot cutting procedures on plans, call for inspection before excavation begins.
15 ☒ All concentrated drainage including roof water shall be conducted to the street in an approved device at 2% minimum.
16 ☒ All wood decking to be spaced ¼" apart.
17 ☐ Department approval is required for the use of a private sewage disposal system and shall conform to M.G.D. No. 54 (Revised).
18 ☒ Department approval is required for the use of a yard ~~sump pump~~ and/or drainage dispersal system.
19 ☒ All fill or backfill shall be compacted to a minimum of 90% relative compaction as determined by A.S.T.M. method D-1557. Subdrains shall be provided where required by code.
20 ☒ Specify on plans: The soils engineer is to approve the key or bottom and leave a certificate on the site for the grading inspector. The grading inspector is to be notified before any grading begins and, for bottom inspection, before any fill is placed. Fill may not be placed without approval of the grading inspector.
21 ☒ Grading general requirements (Form B-164) shall be attached to and made part of the plans.
22 ☒ Stake and flag property lines in accordance with a licensed survey map.
23 ☒ Approval required by the Department of Public Works, Driveways Street Use.
24 ☒ Resubmit plans to the grading inspector (shown below) after the above corrections have been made and before issuing permit. Inspectors are available between 7:30 a.m. and 0:00 a.m. weekdays.

— SEE OVER —

Inspector Bill [illegible] | Date 9-1[illegible]7 | Branch LA G-2

PLAN CHECK NO. Z 9030

2700030347

2092

4580040 0032

1 APPLICATION FOR INSPECTION D-3 2-15-35 / 3

CITY OF LOS ANGELES DEPT OF BUILDING AND SAFETY

OF NEW BUILDI AND FOR CERTIFIC OF OCCUPANC

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Orig

1. LEGAL DESCR.	LOT 115	BLOCK --	TRACT 5593	COUNCIL DISTRICT NO. 4	DIST. MAP 159B177 / CENSUS TRACT 1437.0
2. PURPOSE OF BUILDING 01) Single Family Dwelling ?					ZONE R3-1
3. JOB ADDRESS 3912 & 3910 Kentucky Dr					FIRE DIST. MFD
4. BETWEEN CROSS STREETS Lankershim Bl AND Fredonia Dr					LOT TYPE int
5. OWNER'S NAME Kentucky Gardens LTD			PHONE 818-905-5555		LOT SIZE irreg
6. OWNER'S ADDRESS 14011 Ventura Bl		CITY Sherman Oaks	ZIP 91423		
7. ENGINEER Sadeghi/Golab Assoc	BUS. LIC. NO.	ACTIVE STATE LIC. NO. 818-993-8817	PHONE		ALLEY 20' rea
8. ARCHITECT OR DESIGNER PDH Assoc Inc	BUS. LIC. NO.	ACTIVE STATE LIC. NO. 818-905-5555	PHONE		BLDG. LINE hillside
9. ARCHITECT OR ENGINEER'S ADDRESS 14011 Ventura Bl		CITY Sherman Oak	ZIP 91423		AFFIDAVITS ZI 1022 ZI 1224 Aff 62092 crit soil
10. CONTRACTOR West End Telesis Development	BUS. LIC. NO.	ACTIVE STATE LIC. NO. 433189	PHONE 905-5841		
11. SIZE OF NEW BLDG. WIDTH 34 LENGTH 42	STORIES 3	HEIGHT 2	NO. OF EXISTING BUILDINGS ON LOT AND USE Ø		
12. MATERIAL OF CONSTRUCTION →	EXT. WALLS stucco/wood	ROOF mission tiles	FLOOR wood		P.C. REQ'D yes*
13. JOB ADDRESS 3912 & 3910 Kentucky Dr			STREET GUIDE		DISTRICT OFFICE VN
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING			$ 110,000.00		SEISMIC STUDY --
1 of 2 TV=$220,000.00					GRADING yes / FLOOR -- / HWY. DED. -- / CONS --

1

PURPOSE OF BUILDING (01) Single Family Dwelling		STORIES	HEIGHT	ZONED BY CHC
TYPE	GROUP OCC.	FLOOR AREA	PLANS CHECKED	FILE WITH
DWELL UNITS	MAX. OCC.	TOTAL	APPLICATION APPROVED	TYPIST rnm
GUEST ROOMS	PARKING REQ'D.	PARKING PROVIDED STD. COMP.	INSPECTION ACTIVITY COMB/ GEN. MAJ. S. CONS.	INSPECTOR

P.C. 704.99	G.P. 42.00	CONT INSP	
S.P.C.	P.M.		
B.P.	E.I.	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC	
I.F.	O.S.S. 14.94		
O/S	S.O.S.S.		
DIST OFFICE VN	C/O	SPRINKLERS	
P.C. NO Z9030	F.H.	ENERGY	

CASHIER'S USE ONLY

704.99 B-BC
42.00 SPI-
14.94 OS
1147 4 03/14/37 751.93

B&S B-1 REC

PLAN CHECK EXPIRES ONE YEAR AFTER FEE IS PAID PERMIT EXPIRES TWO YEARS AFTER FEE IS PAID OR 180 DAYS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED

T.K. ENGINEERING CORP.
GEOTECHNICAL ENGINEERS
1105 SO. FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803
(818) 289-4442 • L.A. (213) 283-3100

Mr. Paul D. Harrison
P D H Association
14011 Ventura Blvd. Suite 306
Sherman Oaks, CA 91423

Our Job No. 79-184F
June 18, 1986

Subject: ADDENDUM
Report of Preliminary Soils Engineering Investigation
Lot 115, Tract 5593
Kentucky Drive, Universal City Area
Los Angeles, California

4 5 3 0 0 4 8 0 0 5 0

Dear Mr. Harrison:

I visited the subject site on June 18, 1986 for the purpose of evaluating any storm-related damages to the site.

It was observed that the site conditions remained virtually unchanged since our investigation six years ago, except for minor erosion of the slope surface. The past unusually heavy rains had not created any significant adverse effect on the site. Our preliminary soils engineering report dated September 12, 1979 is still considered applicable. Grading and foundation plans shall be reviewed and approved by the soils engineer prior to construction.

Sincerely yours,
T. K. Engineering Corp.

Larry T. K. Chien, RCE 24621

T. K. ENGINEERING CORP.

CIVIL & FOUNDATION ENGINEERS
2007 CHESTNUT STREET
ALHAMBRA, CALIFORNIA 91803
(213) 289-4442 • L.A. (213) 283-3100

Mr. Kar Sun Yu
825 North Virgil Avenue
Los Angeles, CA 90029

November 17, 1981
Job No. 79-184F

Subject: Addendum
Report of Preliminary Soils Engineering Investigation
Kentucky Drive, Universal City Area, (Lot 115, Tract 5593)
Los Angeles, California

Dear Mr. Yu :

The upper portion of the slope is about 2 horizontal to 1 vertical and is mantled by about 2 feet of topsoil. Calculations included herein have demonstrated that the slope surface should be stable. All topsoil shall be trimmed to no steeper than 2 horizontal to 1 vertical and no more than 2 feet of fill and topsoil shall be left on the slope surface. The slope should be planted with a deep-rooted cover as soon as practical.

The lower portion of the slope , after the proposed trimming should expose bedrock. The surficial stability of such a slope has been demonstrated in the September 11, 1979 Report.

It is not considered necessary to construct a slough wall at the toe of the slope.

For 2:1 slope, h= 2 feet, C=150 psf, $\emptyset = 28^{\circ}$ $\beta = 26.6^{\circ}$

Topsoil : $F.S. = \dfrac{150+(125 - 62)\,(2)\,(\cos^2 26.6)(\tan 28^{\circ})}{125\,(2)(\cos 26.6)\,(\sin 26.6^{\circ})} = 2.0$

Respectfully Submitted,

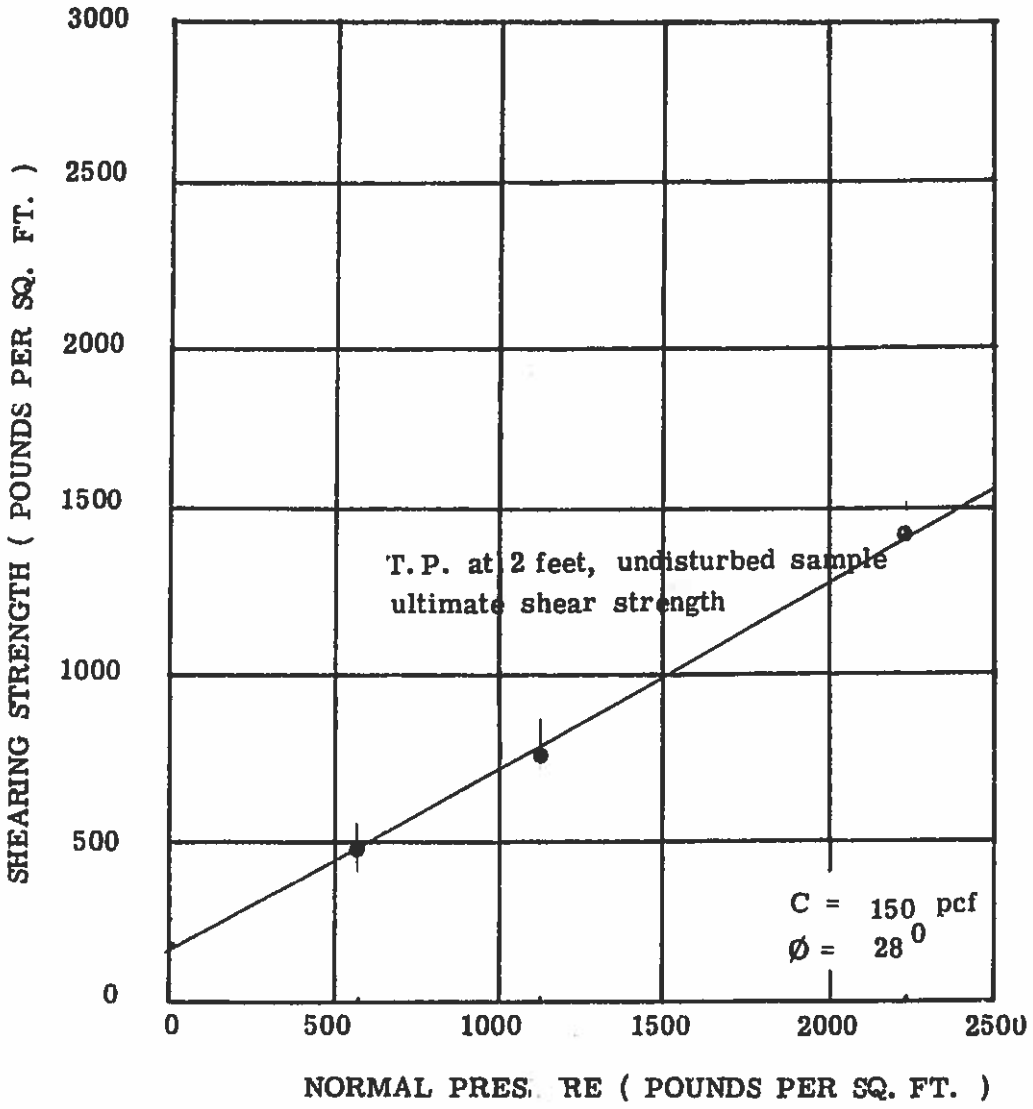
T. K. ENGINEERING CORP.

Larry T. K. Chien

Larry T. K. Chien, RCE 24621
Civil Engineer

4530045051

JOB _____ JOB NO. 79-184FG



SHEAR TEST

● indicates tests at saturated moisture content

○ indicates tests at field moisture content

11/17/81

Plate D

T . K . ENGINEERING

tract file

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: September 16, 1980

To: Jack C. Sedwick, Deputy Advisory Agency
Department of City Planning, Room 655, City Hall

From: J. W. Cobarrubias, Staff Geologist
J. O. Robb, Chief of Grading Division

Subject: TENTATIVE TRACT 40086 (HILLSIDE)
LOCATION: 3910 KENTUCKY DRIVE

The Grading Division of the Department of Building and Safety has made a field inspection of the site. The preliminary grading plans, together with the geological and soil engineering reports, have been reviewed.

According to the reports, the site has several surficial slumps adjacent to the alley, where non-conforming cuts were made. This area will be supported with a retaining wall or trimmed to a stable angle.

Tentative Tract 40086 is approved subject to the following conditions:

1. As recommended the cut above the alley shall be trimmed to an angle no steeper than 2:1 or supported by a designed retaining wall.

2. All slide, slump and creep debris shall be removed unless approved individually by the geologist, soils engineer and the Department of Building and Safety.

3. Satisfactory arrangements shall be made with the Department of Building and Safety with respect to grading in conformance with the Grading Ordinance of the Los Angeles Building Code prior to the recordation of the final map.

4. The Consultant geologist and the soils engineer shall review and approve the detailed 40 scale grading plans prior to the issuance of the grading permits by the Department. This approval may be by signature on the plans or by direct letter which clearly indicates that the geologist and soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in their reports.

5. As recommended all footings above the synclinal axis shall be founded a minimum of 10 feet below the bedrock surface.

6. All graded slopes shall be no steeper than 2:1.

7. Graded slopes shall be regraded at an angle no steeper than 2:1.

8. A buttress fill shall be constructed to support the bedding on the slope above the synclinal axis.

9. A buttress fill or retaining wall shall be provided to support the oversteepened cut slope south of the existing 3 story apartment building.

10. Detailed buttress design and calculations shall be submitted to the Grading Division for approval, prior to issuance of grading permits.

11. Any unsupported shale planes, either existing or exposed by grading, shall be supported by a designed retaining wall or buttress fill.

12. All of the recommendations of the report which are in addition to or more restrictive than those contained herein shall be incorporated into the plans. Geologic report No. 307-79, dated August 31, 1979, prepared by Harley Tucker, Inc. and Soils Engineering report No. 79-184F, dated September 12, 1979 and July 24, 1980, prepared by T. K. Engineering.

13. All loose foundation excavation material shall be removed during construction. Slopes disturbed by construction activities shall be restored.

14. All roof and pad drainage shall be conducted to the street in an acceptable manner.

15. Provide drainage channels along the upslope side of the building where foundation footings are located below street grade or at the toe of ascending slopes.

16. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the Department.

17. The dwelling shall be connected to the public sewer system.

18. The consulting geologist and/or soils engineer shall inspect the excavations for the footings to determine that they are founded in the recommended strata before calling the Department for footing inspection.

19. Adequate temporary erosion control devices shall be provided and maintained during the rainy season.

147005002

20. All graded slopes are subject to erosion and shall be planted and an irrigation system installed conforming to Section 91.3007.

TDN/HCW:rm
485:3435

GL 1:93

cc: Karl Lam Yu
Harley Tucker
TK Engineering
Southwest Engineering
Bureau of Engineering (2)
LA District Office
LA Plan Check

147005007 3

DEPARTMENT OF BUILDING AND SAFETY
Grading Division

Log No. 01980
District:
Thomas Guide Index:

APPLICATION FOR REVIEW OF TECHNICAL REPORTS AND IMPORT-EXPORT ROUTES

INSTRUCTIONS

A. Address all communications to the Grading Division, Department of Building and Safety, Room 421, City Hall, Los Angeles, California 90012. Phone (Area Code 213) 485-3456.
B. Submit 3 copies of application with numbered items completed.
C. Attach 3 copies (4 for fault study zone) of reports.
D. Check should be made payable to the Department of Building and Safety.

(1) LEGAL DESCRIPTION
Tract 5593 Blk 2 Lots 115

(2) PROJECT ADDRESS 3910 KENTUCKY DR.

(3) OWNER KAR LAM YU
Address 825 N. VIRGIL
L.A CA 90029
Phone 829-0331 Zip 90029

(4) APPLICANT KAR LAM YU
Address 825 N. VIRGIL
LA CA
Phone 829-0331 Zip 90026

(5) Report Prepared by T.K ENGINEERING

(6) Report Date JULY 24, 1980

(7) Purpose for filing APPROVAL OF TENTATIVE TRACT

(8) Status of project OBTAINING TENTATIVE MAP APPROVAL

(9) Previous site reports? YES If yes, describe T.K ENGRNG. SOILS REPORT SEPT. 12, 1979

(10) Previous Department actions? YES If yes, please give dates and attach a copy to expedite processing.
Dates 8 JULY 1, 1980

REVIEW REQUESTED & PROCESSING	FEES	REVIEW REQUESTED & PROCESSING	FEES
___ Foundation Investigation		___ Soils-Geology-Seismology	
___ Soils Engineering		___ Fill Compaction	
___ Geology		___ Progress & Final Grading	
___ Combined Soils Engr. & Geol.		___ Environmental Assessment	
X Supplemental	25.00	___ Import-Export Route	
___ Compined Supplemental			

88.00 GR-R
2 08/05/80 88.00 CK

(11) Application filed by Laurie Kovalcik SOUTHWEST ENGRNG. (Signature)
BY KARL RIEMER PROCESSOR (Position)

DEPARTMENT USE ONLY
Fee Due 25.00
Fee Verified
Date 8/5/80

(Cashier Use Only)

ORIG.—FILE DUPL.—CASHIER TRIP.—APPLICANT

T. K. ENGINEERING
SOIL & FOUNDATION ENGINEERS
2567 EAST GAGE AVENUE
HUNTINGTON PARK, CALIFORNIA 90255
(213) 587-5632

TENTATIVE TRACT 40086
3910 KENTUCKY DR
LOG NO. 01094

Mr. Kar Sun Yu
825 North Virgil Ave.
Los Angeles, CA 90029

July 24, 1980
Job No. 79-184F

Subject : Addendum
Report of Preliminary Soils Engineering Investigation
Kentucky Drive, Universal City Area, (Lot 115, Tract 5593)
Los Angeles, California

Dear Mr. Yu :

I visited the subject site on July 14, 1980 for the purpose of evaluating any storm-related damages to the site.

It was observed that the site conditions remained virtually unchanged since our investigation one year ago, except for minor erosion on the slope surface. The past unusually heavy rains had not created any significant adverse effect on the site. Our preliminary Soils Engineering Report dated September 12, 1979. is still considered applicable. Any grading and foundation plan shall be reviewed & approved by the soils engineer prior to construction.

Sincerely yours,

T. K. ENGINEERING CORP.

Larry T. K. Chien
Larry T. K. Chien, RCE 24321
Civil Engineer

cc: Addreddee (4)

147003000076

FORM CFN 140 Rev. 3/78

A028

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

01960

Date: July 1, 1980

To: Jack C. Sedwick, Deputy Advisory Agency
Department of City Planning, Room 655, City Hall

From: J. W. Cobarrubias, Staff Geologist JWC
J. O. Robb, Chief of Grading Division

Subject: TENTATIVE TRACT 40086 (HILLSIDE) LOCATION: 3910 KENTUCKY DRIVE

The Grading Division of the Department of Building and Safety has made a field inspection of the site. The tentative tract map along with the soil engineering and geologic reports have been reviewed.

The tract is located on steep hillside terrain underlain by complicated geological formations which will present unusual grading and drainage problems which may require some revision to the tentative tract map.

Tentative Tract 40086 cannot be approved until a field inspection of the site has been made to determine whether storm damage occurred during the heavy rains of early 1980, and a report is submitted giving the results of the inspections and recommendations for repair of any noted damage. The reports which were submitted were prepared prior to the designated rainy season of the 1979-80 winter and a requested storm damage update has not yet been received.

TDN:ga
485-3435

cc: Harley Tucker
TK Engineering
Bureau of Engineering (2)
Tract file

14700500075

RECEIVED
JUL 11 1980
SOUTHWEST ENGINEERING/L.A.

DEPARTMENT OF BUILDING AND SAFETY

GRADING PRE-INSPECTION REPORT

#7196

OFFICE

Tract 5593	Lots [illegible]	
Plan Check No.	District Map No.	Board File No.
Purpose		
Owner	Address	
Approved Graded Lot Yes ☐ No ☐	Bearing Value —	
Footing Reinforcement Required Yes ☐ No ☐	Remarks —	
Footing Setback from Face of Slope		
Buttressfill Yes ☐ No ☐	Fill over 100 ft. Yes ☐ No ☐	
Special Geological or Engineering Requirements Yes ☐ No ☐	See Remarks	
Inspector	Date	Branch

FIELD

Geologist Report Req. Yes ☐ No ☐ Attached ☐	Engr. Report Req. Yes ☐ No ☐ Attached ☐	Inundation Yes ☐ No ☐	
Grading Permit Required Yes ☐ No ☐	# of yds.	J. O. Yes ☐ No ☐	I. F. Yes ☐ No ☐
Slope of Surface — Cut ° Height	Fill ° Height	Nat. °	Height
Natural Soil Classifications per Table 28A			
Natural Soil Description			
Bedding Planes — Dip	Strike	Slide Area Yes ☐ No ☐	
Expansive Soil Yes ☐ No ☐	Drainage Area Above Lot	Ft. Horiz.	
Located in Drainage Channel Serving Acres	Site Above ☐ Below ☐ Street		
Condition of Street for Drainage Purposes	Roof Gutters Yes ☐ No ☐		
Recommended Termination of Drainage			
Driveway Grade % Existing ☐ Proposed ☐	Max. Rough Grade Allowed		
Ground Cover			
Approval Required by Dept. of			

Remarks:

a - Located just east of Lankershim and south of Cahuenga
b - TT 40086
c - 1 lot
d - yes
e - Condominium development
f - Vacant lot covered with weeds, slopes vary from 20° to 35° descending from street to alley below.
g - yes
h - yes
i - Positive report (Hillside)
1. Geologist + Soil engineering reports required and submitted
2. TT standard conditions A, B, D, E, F, G, H, I, J,

Inspector Inmuso for Wooden	Date [illegible]	Branch LA

ADDRESS 3910 [illegible]

14700 [illegible]

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

Date: May 16, 1980

To: Mr. J. M. Fratt, Superintendent and General Manager
Department of Building and Safety

From: Donald C. Tillman, City Engineer

Subject: Tentative Tract 40086 - E/o Kentucky Drive - S/o Lankershim Bl.
Proposed Recommendations Relating to Geologic and Soils
Conditions - 161-1709.

The City Engineer recommends approval of the tentative tract map dated March 13, 1980, with a Planning Department receipt stamp dated April 14, 1980, based upon geologic and soils conditions. The following are conditions of this approval; these apply to public property, private streets and adjacent slopes:

1. New cut or fill slopes shall be no steeper than 2:1, unless calculations are submitted justifying steeper slopes. In no case will slopes exceed 1½:1.

2. The toes and crests of all cut and fill slopes shall be located on private property and shall be set back 2 feet from the property line.

3. Fill material shall be compacted to a minimum of 90 percent relative compaction as defined in Bureau of Engineering Standard Plan S-610. Fill shall be benched into competent material.

4. All slopes shall be planted and a sprinkling system installed as soon as possible after grading to alleviate erosion.

5. Slopes which daylight adversely-dipping bedding shall be buttressed by either a retaining wall or designed buttress fill slope.

147005011 2

6. Where not in conflict with the above, the recommendation contained in the reports dated August 31, 1979 by the consulting geologist, Harley A. Tucker (CEG 954), of Harley Tucker, Inc. and September 12, 1979 by the soils engineer, Larry T.K. Chien (RCE 24621), of T.K. Engineering shall be implemented.

DONALD C. TILLMAN
City Engineer

By

L. H. Burks, Division Engineer
Street Opening & Widening Division

R. C. Bingley
Engineering Geologist I

DCT/LHB/hz

cc: East Valley District Office

Endorsement

To: Donald C. Tillman, City Engineer

The above recommendations are not in conflict with the recommendations of this Department.

Date

Department of Building & Safety

147005011 5

City of Los Angeles
Department of Building and Safety

REQUEST FOR MODIFICATION OF BUILDING ORDINANCES

B & S COM-31— R 12.78

FILE NO.

DISTRIBUTION
☐ Owner ☐ ..... Pl. Ck.
☐ Petitioner ☐ ..... Insp.
☐ ..... Bur ☐ Fire
☐ ..... ☐ Health

TT 40086

INFORMATION: Please print in ink or type form in triplicate.

LOT 115 | BLK | TRACT 5593

Owner KAR LAM YU
Address 825 N. VIRGIL
L.A. Zip 90029
Phone c/o PETITIONER 829-0331
PLEASE COPIES OF ALL CORRESPONDENCE TO
Petitioner SOUTHWEST ENGINEERING
Address 2800 OLYMPIC BLVD SUITE 102
SANTA MONICA Zip 90405
Phone 829-0331

JOB ADDRESS (NO BLDGS. ON LOT) APPROX. 3910 KENTUCKY DR.
District LA
Permit No.
Job Order
Plan Ck No.
Zone
Use of Bldg
Job Status
Type
Stories
Occ.
F.D.

REQUEST: Submit plans if necessary to illustrate request. Additional sheets or data may be attached.

REVIEW ATTACHED SOILS/GEOLOGY REPORT FOR TENT. TRACT 40086

Code Sections: 91.0212

JUSTIFICATION: See back side for basis of approval information.

Petitioner's Signature Karl M. [illegible] Position PROJ MGR. Date 4/2/80 | Reviewed By ..... Date .....

DEPARTMENT ACTION: (In accordance with Sect. 98.0403 L.A.M.C.

The Request is ☐ Granted (See attached letter). ☐ Denied (See reverse for appeal information)
☐ Written concurrence from the Health/Fire Departments is required.
Conditions Of Approval: (Reasons For Appeal in Case Of Denial)

Request (IS) (IS NOT) in conformity with the spirit and purpose of Code Section involved.

DEPARTMENT ACTION BY & DATE

APPEAL OF DEPARTMENT ACTION TO BOARD OF BUILDING AND SAFETY COMMISSIONERS:
(Owner's signature, statement of reasons for appeal and filing fees are required.)

Owner's Signature (Must be the real party in interest — Bd. Res. No. 682) (NOTE: Agent's or representative's signature not acceptable)

X

DATE

DEPARTMENT USE ONLY
No. of Items 2
Fee due $150.00
Fee verified [illegible]

(Cashier Use Only)
APR 14-80 58382 W — 6 CK 150.00

TENT. TRACT 40086 [redacted]

01196

GEOLOGIC & SOILS INVESTIGATION REPORT

Lot 115, Tract 5593
Kentucky Drive
Universal City Area
Los Angeles, Calif.

14700500079

September 12, 1979

Job No.

TKE : 79-184F

Harley Tucker : 307-79

Tentative Map 40086 and the accompanying geological and soils engineering reports dated Sept 12, 1979 are acceptable for the initial filing with the Department of City Planning.

T D Nicholson

Geologist, Building and Safety

GRADING APR 14 1980

Client : Mr. Kar Sun Yu

Storm update will be required

T. K. ENGINEERING
SOIL & FOUNDATION ENGINEERS
2867 EAST GAGE AVENUE
HUNTINGTON PARK, CALIFORNIA 90255
(213) 587-5632

Mr. Kar Sun Yu
825 North Virgil Ave.
Los Angeles , CA 90029

September 12, 1979
Job No.
TKE : 79-184F
Tucker : 307-79

Subject: Reports of Preliminary Engineering Geologic & Soil Engineering Investigation, Lot 115, Tract 5593
Kentucky Drive, Universal City Area,
Los Angeles, California

4580040055

Gentlemen:

In accordance with your request, I am pleased to submit a report of a preliminary engineering geologic and soil engineering investigation conducted to evaluate and analyze both geologic and soils factors pertinent to the construction of a condominium structure at the above referenced address.

The accompanying reports have been substantiated by surface and subsurface exploration and geologic and soils investigation made in accordance with generally accepted engineering geologic and soil engineering practice.

It is the professional opinion of the undersigned that these report presents the necessary information requested by you.

Respectfully submitted,

Larry T. K. Chien, RCE 24621

T. K. ENGINEERING
SOIL & FOUNDATION ENGINEERS
2067 EAST GAGE AVENUE
HUNTINGTON PARK, CALIFORNIA 90255
(213) 587-5632

Mr. Kar Sun Yu
825 North Virgil Ave.
Los Angeles, CA 90029

September 12, 1979
Job No. 79-184F

Subject: Preliminary Soils Engineering Investigation
Lot 115, Tract 5593
Kentucky Drive, Universal City Area
Los Angeles, CA

Dear Mr. Yu:

In accordance with your request and authorization, a soils engineering investigation report has been completed on the subject location. The purposes of this investigation were to determine the subgrade soil conditions and to provide recommendations for foundation design. The investigation included excavating 5 exploratory test pits, logging and sampling of the materials encountered, laboratory testing, engineering analysis and report preparation.

This investigation has been conducted in conjunction with an Engineering Geologic Investigation by Mr. Harley Tucker, whose report dated August 31, 1979 (Proj. No. 307-79) should be reviewed in conjunction with this report.

PROPOSED CONSTRUCTION

It is our understanding that the proposed project will be a condominium structure. It is anticipated that some grading is necessary to prepare the site for the proposed construction.

4580040057

SOIL CONDITIONS

The site is mantled everywhere by upto 3-5 feet of topsoil consisting of dry to moist, firm to compact sandy clay and clayey sand.

The bedrocks underlying the site are moderately firm fine-grained sandstone and shales. The firm bedrocks are considered adequate for foundation support.

No significant amount of fill was encountered on the subject site.

No ground water was encountered on the slopes nor in the exploratory test pits and is not anticipated to be a factor for the project..

SLOPE STABILITY ANALYSIS

Calculations were performed to determine the stability of the existing steep slope along the northerly property line. Calculations were based on the saturated shear strengths of representative undisturbed bedrock samples presented on Plate D-1. The results are as follows:

Reference:	"Design Manual; Soil Mechanics," Foundations, and Earth Structures, NAVFAC DM-7, March 1971, Pg. 7-7-8.
Soil Properties:	Cohesion, C = 270 psf Angle of Friction $\phi = 43^{\circ}$ Wet Density, r = 110 pcf
Slope Height:	H = 25 feet
Slope Angle:	$\beta = 48^{\circ}$ for 0.9 : 1 slope

Calculations: $\lambda_{c\phi} = \frac{rH \tan \phi}{C} = \frac{110(25)(0.932)}{270} = 9.50$

4 5 8 0 0 4 0 0 0 5 8

Ncf = 19 (From Fig. 7-4)

$$F.S. = \frac{Ncf\ C}{rH} = \frac{19(270)}{110(25)} = 1.86$$

SLOPE SURFACE STABILITY ANALYSIS

Calculations were performed to determine the stability of the existing steep slope surface. Calculations were based on the saturated shear strengths of representative undisturbed bedrock samples presented on Plate D-1. It was assumed that the slip surface is 4 feet from the slope surface and parallel to the slope. The results are as follows:

Soil Properties: Cohesion, C = 270 psf
Angle of Friction $\phi = 43^{\circ}$
Wet Density, r_s = 110 pcf
Density of Water, r_w = 62 pcf
Slope Angle, $\beta = 48^{\circ}$ for 0.9 : 1 slope
Vertical Depth to Slip Plane, h = 4 feet

$$F.S. = \frac{C+(r_s-r_w)\ h\ \cos^2\beta\ \tan\phi}{r_s\ h\ \cos\beta\ \sin\beta} = \frac{270+(110-62)(4)(\cos^2 48^{\circ})(\tan 43^{\circ})}{110(4)(\cos 48^{\circ})(\sin 48^{\circ})} = 1.60$$

CONCLUSIONS AND RECOMMENDATIONS

The information obtained during our investigation indicates that the subject site is suited to the proposed development providing the following recommendations are incorporated in the project design, and in the job specifications. Proposed grading plan is not available at the time of this report. The following recommendations are subject to revision based on proposed grading.

Slope Stability

The natural slopes at the site are considered grossly stable. The proposed construction should not adversely affect the gross stability of the slopes.

4 5 0 0 4 0 0 5 9

Cut slopes shall be made no steeper than 1 1/2 horizontal to 1 vertical. Because of the potential outdipping bedding planes, it is recommended that no unsupported cuts be made on the southwest portion of the site or upslope from the synclinal axis as described in the Engineering Geologic Report.

It is recommended that a slough wall with a free-board of at least 3 feet high be placed along the toe of the slope adjacent to the alley. Also, free-boards of at least 2 feet shall be provided for all rear retaining walls.

Periodic maintenance will be required to remove soil debris that may be accumulated behind the slough walls.

The slope should be planted as soon as practical. Proper drainage devices and erosion control measures should be provided to direct runoff down the slopes in a controlled manner.

4 3 0 0 4 0 0 0 6 0

Site Preparation

1. Topsoils within proposed slab and paving areas shall be excavated and recompacted.

2. Loose pockets of soils below the proposed finished building grade shall be excavated and recompacted.

3. The excavated areas shall be inspected and approved by the soil engineer prior to placing controlled compacted fill.

4. The fill soils shall be compacted to a minimum relative compaction of 90% of the laboratory maximum density.

5. Inspection and field tests shall be carried on during grading by the soils engineer to assist the contractor in obtaining the required degree of compaction and proper moisture content.

Expansive Soils

The subgrade soils are considered to be nonexpansive. No additional reinforcement against soil expansion need to be provided in the slabs and foundations.

Ground Water

Ground water was not encountered and is not expected to be a construction factor for this project.

Foundation Recommendations

Based on an evaluation of the site conditions, the proposed structures shall be founded in firm bedrock. All foundation shall be setback a minimum horizontal distance of 10 feet from the face of any slope.

(1) Upslope Area- Foundations placed on the souwest portion of the site or upslope from the synclinal axis as described in the Engineering Geologic Report shall consist of caissons and grade beams. All caissons shall be placed at least 10 feet into firm bedrock. An allowable average skin frictional value of 750 pounds per square foot may be used. The upper 3 feet of the caissons shall be designed for a downhill creep force of 1 kip per foot depth.

4580400061

(2) Downslope Area- Foundations placed on the northeast portion of the site or downslope from the synclinal axis as described in the Engineering Geologic Report shall be founded at least 18 inches into firm bedrock.

An allowable bearing value of 2000 pounds per square foot is recommended for footings placed at a depth of at least 18 inches into firm bedrock. The bearing value may be increased by 600 pounds per square foot for each foot of additional depth of footings to a maximum of 4000 pounds per square foot.

The bearing value is for dead plus live load and may be increased by one-third for combined dead, live and seismic forces.

4 5 3 0 4 0 0 6 2

Settlement

Total settlement of foundations placed as recommended and subject to no more than the allowable loads is not expected to exceed one-half inch, accompanied by differential settlement on the order of one-quarter inch.

Earth Pressure

Walls retaining backfill of the on-site soils in areas of favorable geologic conditions may be designed for the following earth pressures:

Backfill Slope	Equivalent Fluid Pressure
level	30 pcf
5 : 1	32
4 : 1	35
3 : 1	38
2 : 1	43
1 1/2 : 1	55

TKE

These equivalent fluid pressures shall be increased in the event of surcharge loads affecting the walls.

Weep holes shall be incorporated in the wall design.

Walls required to support outdipping beddings shall be designed for higher earth pressures. The design values will be dependent on the bedding plane angles and the height of the walls. It is recommended that proposed locations of retaining walls be reviewed by the soils engineer and the engineering geologist such that design earth pressures may be given for each individual wall.

4 3 3 0 4 0 0 6 3

Lateral Pressure

An allowable lateral bearing value against the sides of foundations of 400 pounds per square foot per foot of depth for the firm bedrock to a maximum of 200 pounds per square foot may be used. Friction between the base of the foundation and floor slabs and the underlying bedrock may be assumed as 0.4 times the dead load.

Temporary Excavation Slopes

Temporary excavation in the existing on-site soils may be made near vertical up to a depth of 5 feet. Deeper cuts shall be made no steeper than 1/2 : 1.

Inspection

It is recommended that the following be inspected by the soils engineer.

1. Any compacted fill to be placed at the site.

2. Foundation excavation prior to forming and pouring.

It is recommended that a joint meeting between the client, contractor and soils consultant be held at least 2 days in advance of the start of construction to discuss specific procedures and scheduling.

REMARKS

This report is based on the project as described and the test pit data obtained from the field tests and the observations performed at the locations indicated on the plan included in the Report of Engineering Geologic Investigation by Mr. Harley Tucker. The conclusions and recommendations of this report are based upon the assumption that the soil and bedrock conditions do not deviate from those described in this report.

This report has been prepared in accordance with current standards of practice and a warrenty is not expressed nor implied.

This report is subject to review and approval by the controlling authorities before use.

We sincerely appreciate the opportunity to be of service, and if there are any questions pertaining to this report, please call.

The following Appendix and Plates are attached and complete this report.

FIELD EXPLORATION

LABORATORY TESTING

Shear Test Diagrams.....Plates D-1 and D-2.

Respectfully submitted,

T. K. ENGINEERING CORP.

Larry T. K. Chien

Larry T. K. Chien, RCE 24621
Civil Engineer

1470050106

APPENDIX

FIELD EXPLORATION

The field exploration was conducted on August 6, 1979 by excavating 5 exploratory test pits. The test pits were carried to depths varying from 6.5 to 9 feet. Relatively undisturbed and bulk samples of the soils and bedrock encountered were obtained. Locations of the test pits and description of the soils and bedrock encountered are presented on the Harley Tucker Report.

LABORATORY TESTING

Moisture-Density Determination

The field moisture content and dry unit weight are determined for an undisturbed sample of the sandstone. The dry unit weight is determined in pounds per cubic foot. The field moisture content is determined as a percentage of the dry weight of the soil. Both field moisture content and dry density are tabulated below:

T.P. No. & Depth	Soil Description	Field Dry Density, pcf	Field Moisture, %
1 @ 6'	Sandstone	93.8	6.6

Shear Tests

Shear tests are performed at a constant rate of strain. The purpose of this test is to determine the sheared strength parameters, cohesion and angle of internal friction. Each sample is sheared under varying confining loads and the results fo plotted on the "Shear Test Diagrams", Plates D-1 and D-2.

A130400666

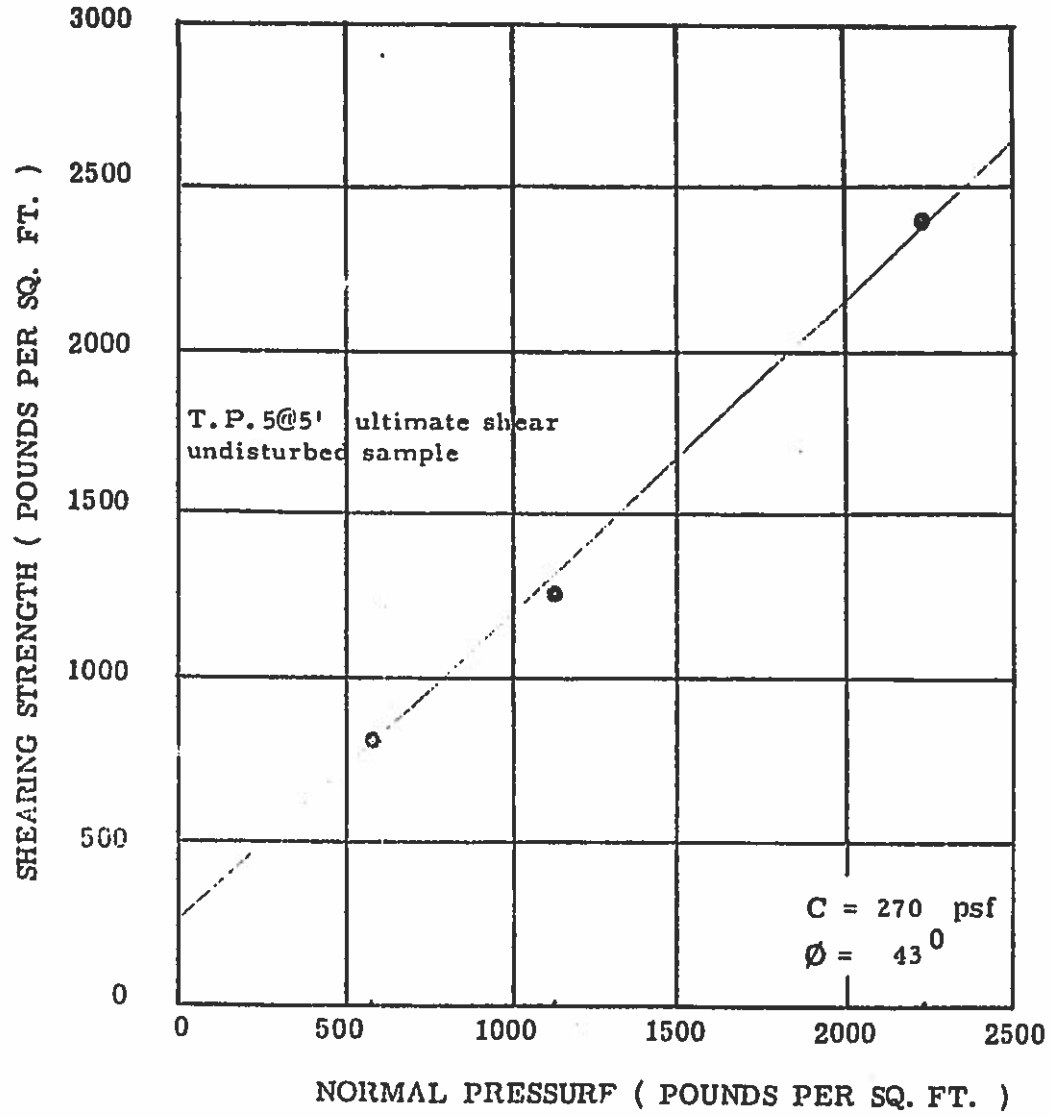
Compaction Tests

Compaction tests were performed in accordance with ASTM D 1557-70. The maximum densities and optimum moisture contents of representative samples of the on-site soils were determined as indicated below:

T.P. No. & Depth	Soil Description	Maximum Dry Density, pcf	Optimum Moistire, %
5 @ 5'	Sandstone	126.0	10.0
5 @ 0-2'	Clayey Sand-Sandy Clay	126.0	8.0

4 5 3 0 0 4 0 0 0 6 7

JOB _____ JOB NO. 79-184F



SHEAR TEST

o indicates tests at saturated moisture content

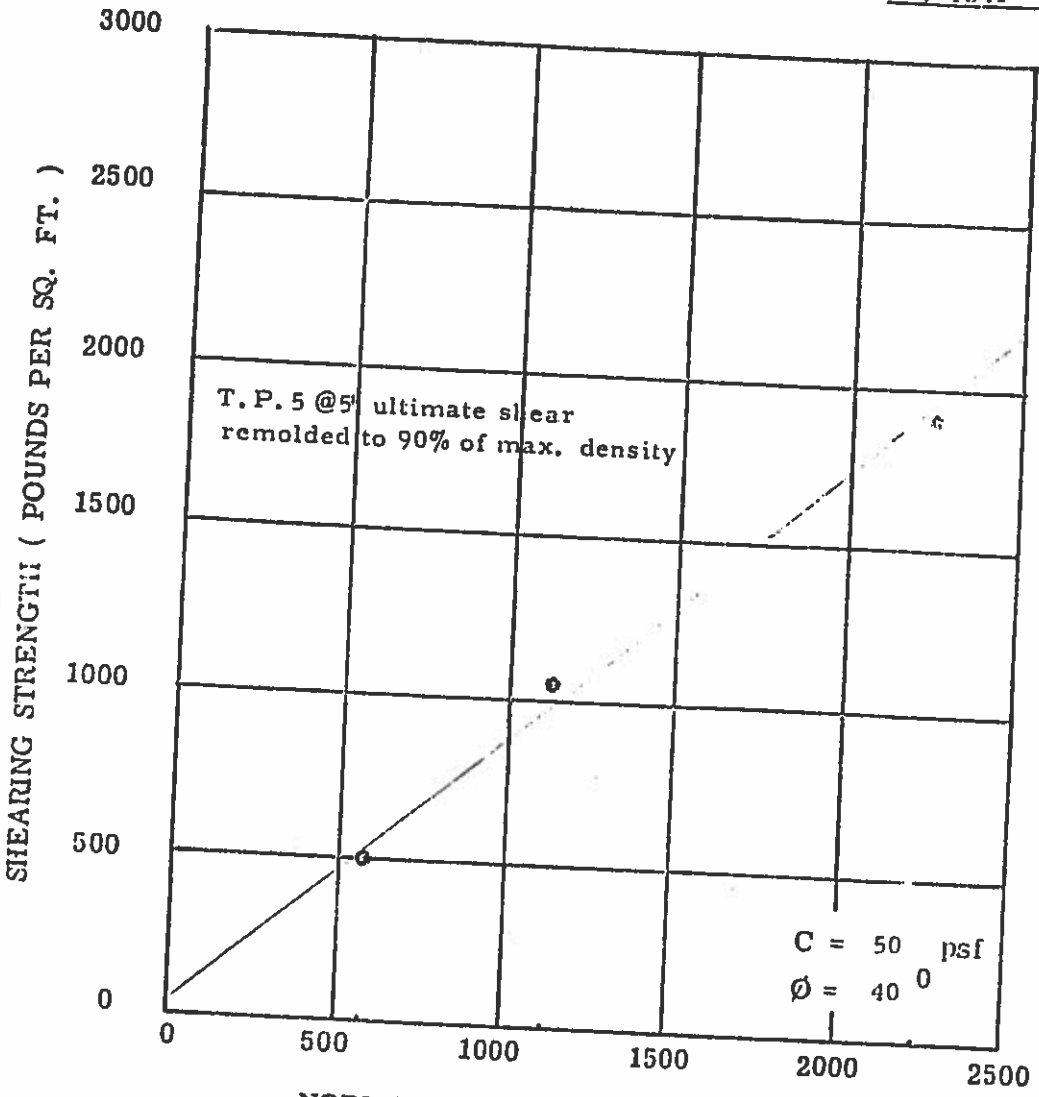
c indicates tests at field moisture content

Plate D-1

T . K . ENGINEERING

LS-7

JOB _____ JOB NO. 79-184F



SHEAR TEST

o indicates tests at saturated moisture content

O indicates tests at field moisture content

T . K . ENGINEERING

Plate D-2

HARLEY TUCKER
INCORPORATED

Consulting Engineering Geologist

21500 Wyandotte Street, Suite 104
Canoga Park, California 91303
213 703-0908

August 31, 1979 Proj. No. 307-79

T. K. Engineering Corporation
2867 East Gage Avenue
Huntington Park, California 90255

SUBJECT: REPORT OF PRELIMINARY ENGINEERING GEOLOGIC INVESTIGATION, LOT 115, TRACT 5593, KENTUCKY DRIVE, UNIVERSAL CITY AREA, LOS ANGELES, CALIFORNIA.

Gentlemen:

In accordance with your request, I am pleased to submit a report of a preliminary engineering geologic investigation conducted to evaluate and analyze geologic factors pertinent to the construction of a condominium structure at the above referenced address.

The accompanying report has been substantiated by surface and subsurface exploration and geologic investigation made in accordance with generally accepted engineering geologic practice.

It is the professional opinion of the undersigned that this report presents the necessary information requested by you.

Respectfully submitted,

Harley A. Tucker
California Certified Engineering Geologist 954

HAT/jt

HARLEY A. TUCKER ENGINEERING GEOLOGIST No. 954 STATE OF CALIFORNIA

Attachments: Geologic Map, Plate A
Geologic Cross-Sections
Exploratory Test Trench Logs
Location Map
Site Photograph

cc: Addressee (6)

4 3 0 0 4 0 0 7 0

T. K. Engineering - Kentucky
August 31, 1979

Proj. No. 307-79

INTRODUCTION

This investigation was undertaken in order to obtain information on surface and subsurface geologic conditions on Lot 115, Tract 5593, Universal City area, Los Angeles, California. Future developmental plans include the construction of a condominium structure at the subject property. At the time this report was prepared, no specific construction plans were available.

An undated 10-scale topographic map, provided by Mr. Stephen Pang, was utilized herein (Plate A) for the delineation of geologic and other relevant data.

Geologic Cross-Sections were prepared and are attached. A Location Map and a Site Photograph showing a portion of the site are included.

4300071

4580400072

SITE CONDITIONS

Location and Topography

The subject property is located on the northerly portion of the uplifted Santa Monica Mountains in the Universal City area, within the City limits of Los Angeles. Specifically, the site descends northeasterly at slope ratios ranging from approximately 0.9:1 (48°) along a cut slope adjacent to an existing 3-story apartment building located along the northerly property line. For the most part, the property slopes northeasterly at slope ratios approximating 2:1 (26°) except for localized areas on the property. For specific topographic conditions refer to the Geologic Map, Plate A. At the time this investigation was conducted, the property was covered by a moderate to dense growth of indigeneous grasses. Refer to the attached Site Photograph which shows portions of the indigeneous vegetation on the lower part of the property.

Ground Water and Drainage

No evidence of near surface ground water was encountered in the

exploratory test trenches excavated on the subject property, nor were there any signs of spring or seep activity along steeper parts of the parcel. Reconnaissance of the subject property and nearby areas, likewise, revealed the absence of springs or seeps emanating from natural or artificialy created slope areas. Ground water is not anticipated within depths pertinent to future development, owing to the elevated position of the site.

Surface drainage comprises sheet flow runoff of incident rainfall derived primarily within the parcel boundaries. Runoff in the past has not created any significant adverse erosional conditions. The relatively steep cut slope adjacent to the alley way on the northeasterly portion of the property is marked by several surficial soil slumps. The relatively moderate to dense growth of surficial vegetation on the upper portion of the property has mitigated the potential for significant erosion to occur.

FIELD INVESTIGATION

Field investigation included geologic reconnaissance of the subject property and adjacent areas together with examination, logging and

Natural Soil

Natural site soils, which mantle the property, except for those occasional outcrops of site bedrocks, comprise a mottled, medium brown, dry to moist, firm to compact, porous, clayey sand (SC) to sandy clay (CL). Soil thicknesses range from about 1.5' on the upper portion of the property to approximately 3.5' along the lower part. Site soils are classified in conjunction with the Unified Soil Classification System.

Bedrocks

Beneath the surficial materials are marine sediments of the Topanga Formation of Miocene geologic age. Bedrocks at the site comprise generally light colored, fine-grained, sandstones and clayey shales. The bedrocks are generally poorly indurated and offered little resistance during exploratory activity. Bedding plane structures are poorly to moderately well developed, planar and tight except in the upper portion near the natural soil contact where weathering and gravitational processes have loosened the bedrock. Bedding planes are characteristically coated with a reddish-brown limonite stain derived from the oxidation of iron compounds present within the bedrock materials. Lithologic coloration vary from light to

4 5 6 3 0 4 5 0 0 7 4

tan for the sandstone materials to grayish-green for shale intercalations.

GEOLOGIC STRUCTURE AND STABILITY

4580400075

The subject property is within the confines of a synclinal structure. A syncline comprises a fold in the rocks in which the strata dip inward from both sides toward the axis. The synclinal axis strikes northwesterly to southeasterly and is situated in the upper portion of the site as shown on the attached Geologic Map, Plate A. Strata in the central and lower part of the property dip southwesterly at dip angles ranging from 33° to 62°, whereas bedding planes observed in the upper section of the parcel dip essentially northeasterly at angles ranging from 29° to 42°. Bedding planes mapped in the exploratory test trenches in the upper portion (southwesterly of the synclinal axis) of the parcel, when projected onto the Geologic Cross-Section A-A', form a dip slope condition along the dip component (apparent dip). This dip component (17°) locally projects out of the natural northeasterly trending natural slope and creates a potential for instability. The presence of dip angles which project into the slope along the northeasterly synclinal limb served to create a structural buttress and significantly minimizes the future

probability of translational bedding plane failure.

Except for minor surficial slumping associated with the non-conforming cut along the northeasterly part of the property, no conditions of gross geologic instability were observed on the subject parcel. Factors which contribute to continued gross site stability is the presence of the synclinal structures which trends northwesterly - southeasterly and provides a buttress effect against translational sliding along the northeasterly synclinal limb.

4 5 3 0 0 4 3 0 0 7 6

CONCLUSIONS AND RECOMMENDATIONS

General

It is the professional opinion of the writer that the subject property is feasible for condominium construction, subject to the following specific recommendations.

Foundation Support

Due to the presence of an adverse dip component, as noted on the

Geologic Cross-Section A-A', it is recommended that all footings/ caissons be founded a minimum of 10' into site bedrocks in all areas of the property southwesterly or upslope from the synclinal axis as shown on the Geologic Map, Plate A. Foundation support for the structure northeasterly, or downslope from the synclinal axis, shall be founded a minimum of 2' into site bedrock in conjunction with specific requirements of the soils engineer. Bedrocks at the site are concluded to be geologically competent for the support of anticipated loads.

4 3 0 4 1 0 0 7 7

Site Drainage

Site drainage shall be dispersed in a manner to preclude concentrated runoff over the notheasterly facing slope ares in accordance with the City of Los Angeles Department of Building and Safety requirements, in addition to those specific recommendations set forth by the soils engineer.

Retaining Walls

All retaining walls shall be designed with an effective backdrain system to effectively minimize the buildup of pore water pressure.

Geologic Stability

The lower portion of the property adjacent to the existing alley exhibits surficial failure in the form of soil slumps along the non-conforming cut. It is recommended that this area be supported by a designed retaining wall or trimmed back to a slope ratio of 2 horizontal to 1 vertical (26°).

4 5 3 0 4 0 0 7 8

Inspection

It is recommended that the engineering geologist inspect all excavations for the retaining walls or condominium structure to insure proper embeddment into acceptable bedrock materials.

REMARKS

The conclusions and recommendations contained herein are based on the surface examination and the findings and observations at the test trench locations with interpolation of soil and bedrock conditions between test trench and outcrop locations.

Although no significant variations in soil or bedrock conditions

are anticipated, if conditions are encountered during construction which appear to be different from those disclosed by this exploratory work, this office shall be notified so as to consider the need for modifications.

Your attention is directed to the fact that while caving was not observed within the exploratory openings excavated on the subject site, a trench which is longer or deeper than those excavated on the property, may react in an entirely different manner. In this regard, all shoring and bracing, if necessary, shall be in accordance with current requirements of the Industrial Accident Commission of the State of California and other public agencies having jurisdiction.

This report is subject to review by controlling public agencies having jurisdiction.

T. K. Engineering - Kentucky

Proj. No. 307-79

EXPLORATORY TEST TRENCH LOG NO. 1

DEPTH INTERVAL	DESCRIPTION
0.0 -1.5'	Natural Soil Mottled, medium brown, dry to moist, firm to compact, porous, clayey sand (SC) - sandy clay (CL).
1.5 - 9.0'	Sandstone Topanga Formation (Tt), Miocene geologic age. Bedding poorly developed, strikes N15°W, dips 35°NE along shale intercalations at 7.5'; bedding tight, planar, closely spaced; moderately well indurated; argillaceous; sandstone massively bedded; tan to reddish brown; shale intercalation at 7.5' gray-green colored.

NOTES: 1. Surficial soils classified in accordance with Unified Soil Classification System.

2. No caving or ground water encountered.

3. Obtained undisturbed samples of soil and bedrock materials for subsequent evaluation by the soils engineer.

T. K. Engineering - Kentucky Proj. No. 307-79

EXPLORATORY TEST TRENCH LOG NO. 2

DEPTH INTERVAL	DESCRIPTION
0.0 - 2.0'	Natural Soil Mottled, medium brown, dry to moist, firm to compact, porous, clayey sand (SC) - sandy clay (CL).
2.0 - 8.0'	Sandstone Topanga Formation (Tt), Miocene geologic age. Bedding poorly developed, strikes N28°W, dips 42°NE; bedding tight, planar, continuous; moderately well indurated; argillaceous; massively bedded except along occasional thin shale intercalations; tan to reddish brown.

NOTES: 1. Surficial soils classified in accordance with Unified Soil Classification System.

2. No caving or ground water encountered.

T. K. Engineering - Kentucky Proj. No. 307-79

EXPLORATORY TEST TRENCH LOG NO. 3

DEPTH INTERVAL	DESCRIPTION
0.0 - 2.0'	Natural Soil Mottled, medium brown, dry to moist, firm to compact, porous, clayey sand (SC) - sandy clay (CL).
2.0 - 9.0'	Sandstone Topanga Formation (Tt), Miocene geologic age. Bedding well developed along shale intercalations. Strikes N4°W, dips 29°NE at 4.5'; strikes N16°W, dips 31°SE at 7'; bedding tight, planar, continuous; moderately well indurated; sandstone argillaceous; tan to reddish brown; shale intercalations gray-green colored.

4580400082

NOTES: 1. Surficial soils classified in accordance with Unified Soil Classification System.

2. No caving or ground water encountered.

T. K. Engineering - Kentucky Proj. No. 307-79

EXPLORATORY TEST TRENCH LOG NO. 4

DEPTH INTERVAL	DESCRIPTION
0.0 - 3.5'	Natural Soil Mottled, medium brown, dry to moist, firm to compact, porous, clayey sand (SC) - sandy clay (CL).
3.5 - 7.0'	Shale Topanga Formation (Tt), Miocene geologic age. Bedding moderately well developed, strikes N42°W, dips 50°SW; bedding planar, closely spaced, tight, continuous; poorly indurated; clayey; light gray-green with rust stains on discontinuities; occasional sandstone interbeds to 0.6 thick scattered throughout.

4 5 3 0 4 0 0 8 3

NOTES: 1. Surficial soils classified in accordance with Unified Soil Classification System.

2. No caving or ground water encountered.

T. K. Engineering - Kentucky Proj. No. 307-79

EXPLORATORY TEST TRENCH LOG NO. 5

DEPTH INTERVAL	DESCRIPTION
0.0 - 3.5'	Natural Soil Mottled, medium brown, dry to moist, firm to compact, porous, clayey sand (SC) - sandy clay (CL).
3.5 - 6.5'	Sandstone Topanga Formation (Tt), Miocene geologic age. Bedding moderately well developed along shale intercalations which strike N25°W, dip 62°SW; sandstone massively bedded; shale thinly bedded, planar, continuous; moderately well indurated; tan to reddish brown colored with shale intercalations light gray-green colored.

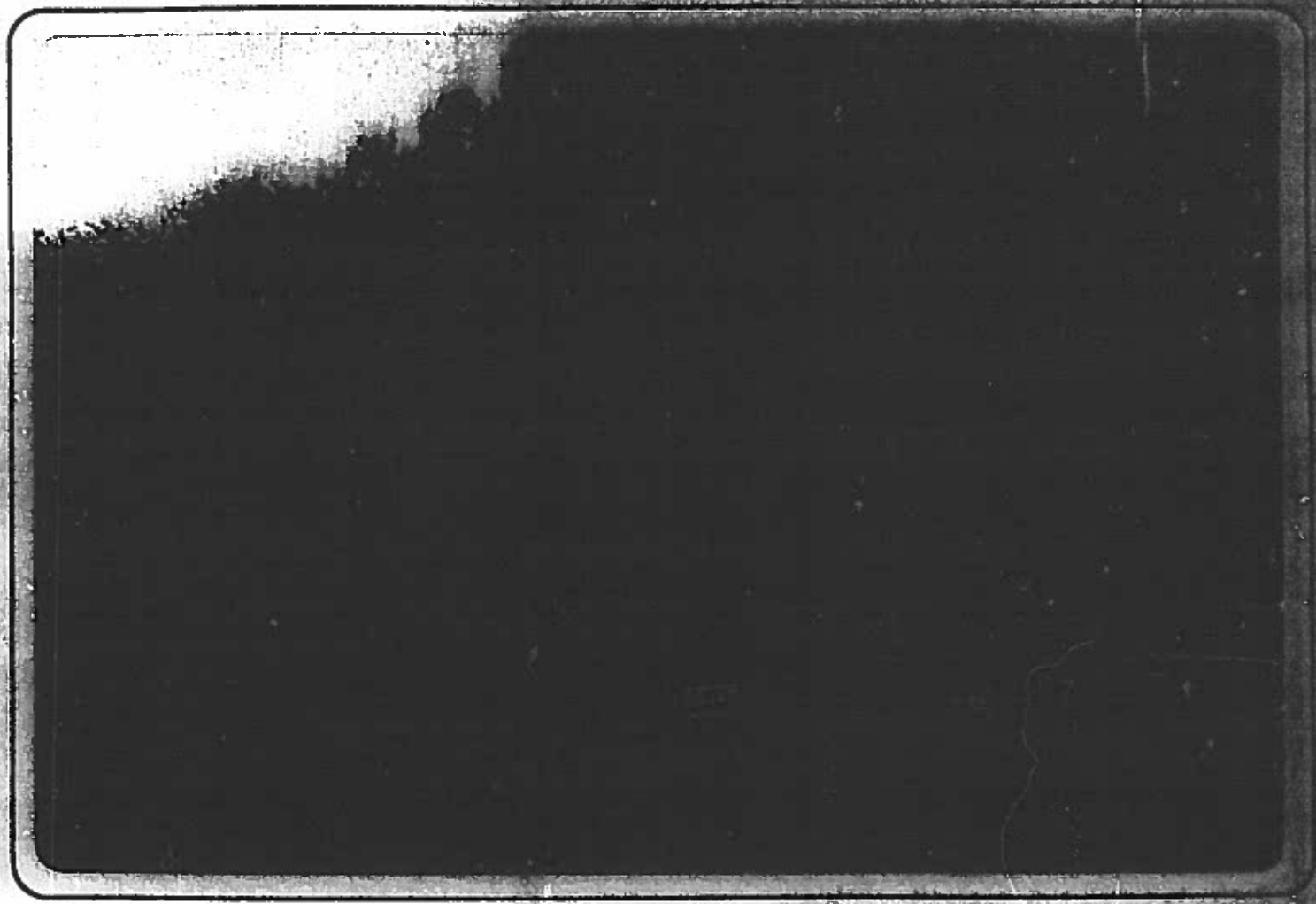
4530304084

NOTES: 1. Surficial soils classified in accordance with Unified Soil Classification System.

2. No caving or ground water encountered.

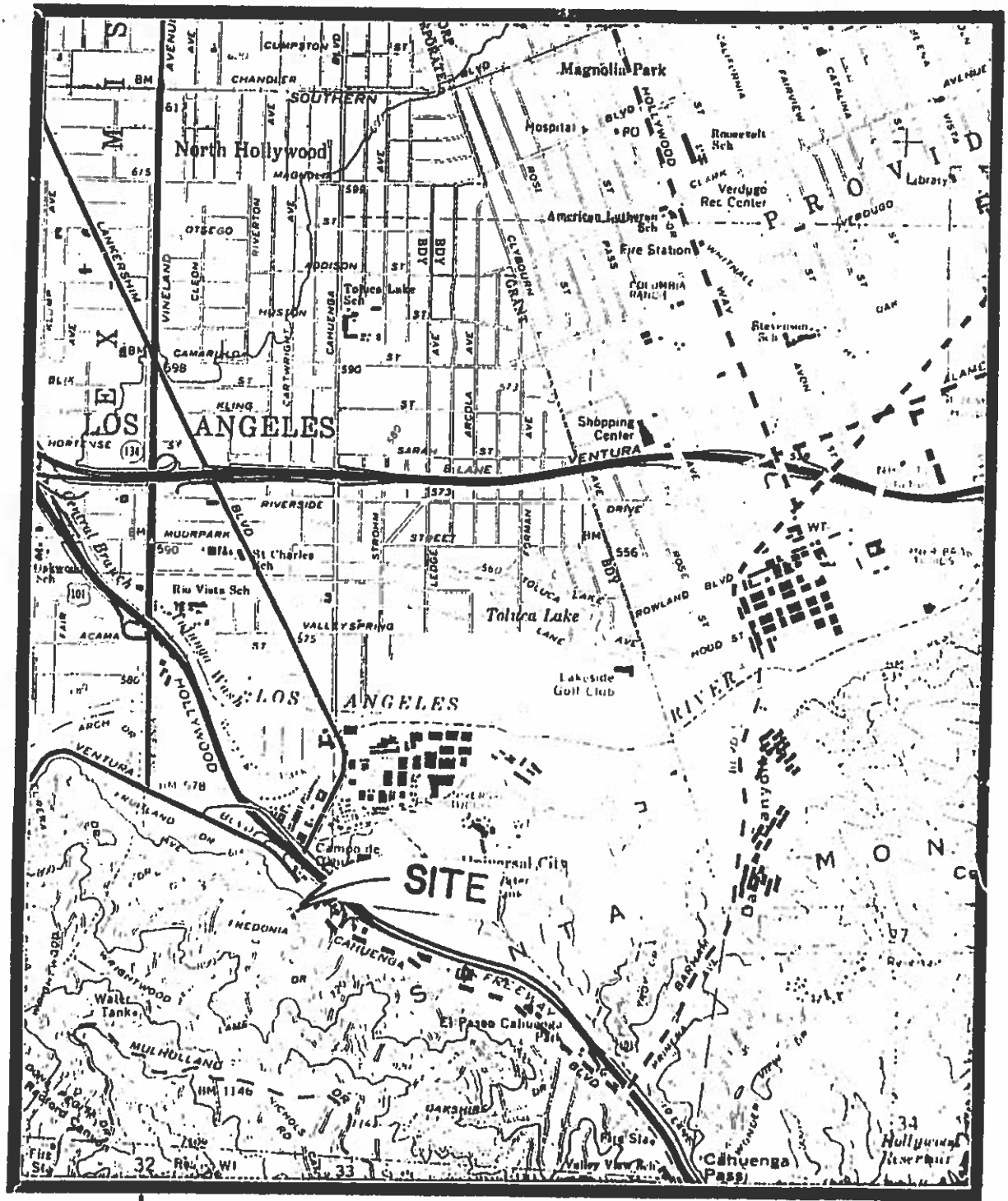
Site Photograph

Proj. No. 307-79



View of lower portion of site.
See Geoligic Map for photo location.

LOCATION MAP



Modified after 7.5' Burbank Quadrangle published by the U.S.G.S 1966, photorevised 1972.

Proj. No. 307-79

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
GRADING DIVISION
ROOM 400-A, CITY HALL
200 N SPRING STREET
LOS ANGELES, CA 90012-4800

RICHARD J. RIORDAN
MAYOR

GRADING CERTIFICATE

CERTIFICATE ISSUED: **10-18-95**

OWNER: **Renee Gordon**
170 S. Beverly Dr.
Beverly Hills, CA 90212

ADDRESS: **3916 KENTUCKY DRIVE**
TRACT: **5593** LOT: **pt. 114**
PERMIT NO./YEAR: **93VN13194**

CUT: **4'+ – 90 retaining wall**

FILL: **0 0 retaining wall**

REMOVAL & RECOMPACTION: **retaining wall parking lot 4'+-**

BEARING VALUE: **non-structural**

RETAINING WALLS: **4'+- retaining wall**

DRAINAGE DEVICES: **pipe and gravel**

DEPT. LETTERS: **9-15-93**

This certifies that, so far as ascertained by or made known to the undersigned, the lot address indicated above complies with the applicable requirements of Chapter 9, Article 1, of the Municipal Code. This certificate is subject to revocation whenever the work has been materially extended or altered, or when protective devices are not maintained.

NOTE: Any change of conditions must be approved by the Department of Building and Safety.

T. BURGIN
Principal Grading Inspector

GC:gs

AN EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

CITY OF LOS ANGELES
CALIFORNIA

COMMISSIONERS
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PRESIDENT
TOM WOO
VICE-PRESIDENT
REVELACION P ABRACOSA
RICHARD W. HARTZLER
BENITO A. SINCLAIR

TOM BRADLEY
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
411 CITY HALL
LOS ANGELES CA 90012
WARREN V. O'BRIEN
GENERAL MANAGER
EARL SCHWARTZ
EXECUTIVE OFFICER

DATE 9-15-93

(COMPACTION FILE - 5)

LOS 32288

NAME Renee Gordon
ADDRESS 170 S. Beverly Dr.
CITY Beverly Hills CA ZIP 90212

TRACT: 5593
BLOCK: —
LOT: 113, 114
LOCATION: 3916 - 3920 Kentucky Dr.

PERMIT: 93VN18194 93VN18195
DM #: 159B177
CTY REF #: —

LOTS HAVING COMPACTED FILL: 113, 114

SUBJECT: NONSTRUCTURAL FILL

Soil Compaction Report No. 93-139 CC, dated 3/22/93, 6/22/93
prepared by T.K. Engineering.

Approval is granted exclusively for the compacted fill placed on the above lots as described in the compaction report. The approval is subject to the following conditions:

1. The compacted fill is approved only as a nonstructural fill. This is not to be used for support of structures.

2. Slope erosion control, planting and irrigating of fill slopes and run-off control are required for those areas outside the building on hillside areas per Sections 91.7007 and 91.7008.

3. —

LARRY WESTPHAL
Chief of Grading Division

cc: TK Engineering
R. Daniels-LA

R Tros
Grading Engineer
485-3435 - LA Office
(FGRNSF)

NOTE: A grading oversized document is/~~is not~~ attached to the Compaction Report. (Document Type 92)

AN EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

T. K. ENGINEERING CORP.
Geotechnical & Environmental Consultants
3565 Lexington Avenue
El Monte, California 91731
(818)575-2856 · fax (818)575-1582

32255

COMPACTION TEST RESULTS

Proposed Retaining Wall Backfill at
Rear of Apartment Buildings
3916 & 3920 Kentucky Drive
Los Angeles, California

(TKE Job No. 93-139CC)

March 22, 1993

For

Mr. Renee Gordon

T. K. ENGINEERING CORP.

Geotechnical & Environmental Consultants
3565 Lexington Avenue
El Monte, California 91731
(818)575-2856 · fax (818)575-1582

Renee Gordon
170 S. Beverly Drive
Beverly Hill, CA 90212

Job No. 93-139CC
March 22, 1993

Subject: **COMPACTION TEST RESULT**
Proposed Retaining Wall Backfill at Rear of
Apartment Buildings
3916 & 3920 Kentucky Drive
Los Angeles, California

Gentlemen :

As requested, this office has performed the field density tests during the placement of fill behind the retaining wall at the subject site.

Backfill Operation

Compacted fill behind the retaining wall is in general about 4 feet in height, one to three feet wide and was placed along the 100 feet wall. The backfill material consisted of on-site soil, clayey to silty sand, was placed in 6 inches thick lifts and compacted by hand-operated mechanical tamper to 90% relative compaction.

Field And Laboratory Testing

Approximate test location is shown on the attached plot plan, Plate A-1. The field density tests were performed in accordance with ASTM D 1556, Sand Cone Method. Maximum dry density

and optimum moisture of the backfill soil are determined in accordance with ASTM D-1557. The results of field density tests as well as laboratory test are shown on Tables below.

TABLE I

LABORATORY MAXIMUM DENSITY SUMMARY
(ASTM D 1557)

Soil Type	Soil Classification	Optimum Moisture Content %	Maximum Dry Density (pcf)
A	silty to clayey sand	12.0	124

TABLE II

RELATIVE COMPACTION SUMMARY

Test No.	Date of Test	Elevation* (feet)	Soil Type	Moisture Content,%	Unit Dry Wt.,pcf	Relative Compaction,%
1	3-15-93	- 2.5	A	17.0	111.1	90
2	3-15-93	- 2.5	A	17.0	111.2	90
3	3-16-93	- 0.5	A	15.5	111.8	90
4	3-18-93	- 1.0	A	15.0	111.3	90
5	3-18-93	- 0.5	A	17.0	112.8	91

* Approximate below finished rough grade

Conclusion

The test results indicated that the compaction is adequate at elevation and location tested. It should be noted that the scope of our work is limited to perform the density test at retaining wall backfill only. The stability of existing slopes and retaining wall is unknown.

We appreciate this opportunity to be of service. Please contact the undersigned if there are any questions concerning this report.

The followings are attached:

Plot Plan.....Plate A-1

Engineer's Certificate Of Compliance For Compacted Earth Fills

Respectfully submitted,

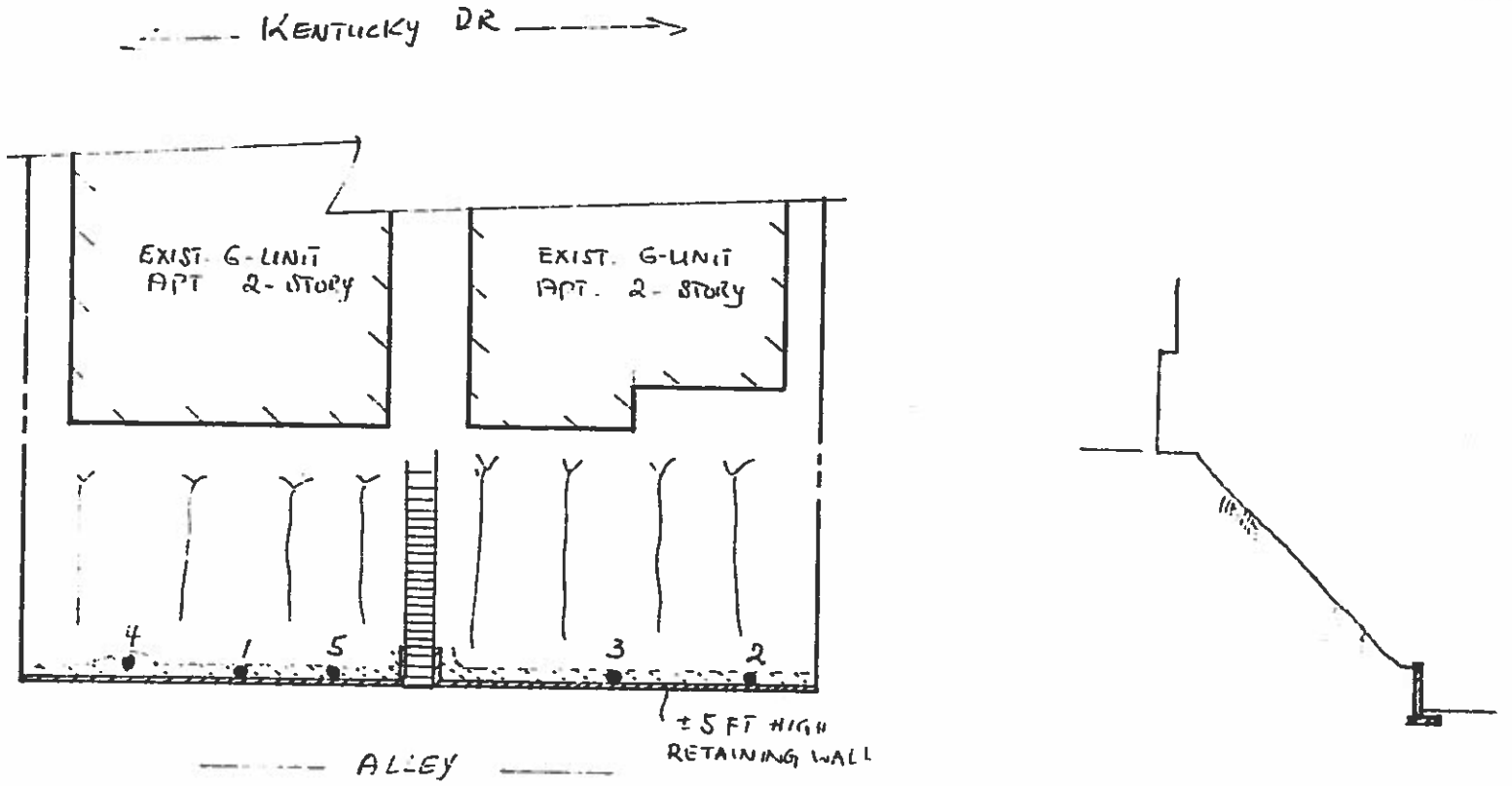
T.K ENGINEERING CORP.

BY: _____
Wan-Lain (Allan) Tsai, RGE 2121
Principal

#2121
Exp. 6-30-94

TG/AT/tg
cc: (4) Copies Addressee

PLOT PLAN



● APPROXIMATE TEST LOCATION

APPROXIMATE BACKFILL LOCATION

SEE PLOT PLAN PROVIDED BY OWNER.

RETAINING WALL BACKFILL AT REAR OF APARTMENT
[illegible] KENTUCKY DRIVE
LOS ANGELES, CALIFORNIA

JOB NO. 13-134cc

SCALE: 1" = ± 20'

T.K. ENGINEERING CORP.
GEOTECHNICAL ENGINEERS

PLATE A-1

CITY OF LOS ANGELES

DEPARTMENT OF BUILDING AND SAFETY

ENGINEER'S CERTIFICATE OF COMPLIANCE FOR COMPACTED EARTH FILLS**

LOCATION OF FILL: TRACT NO. 5593 LOT NOS. 114-113

JOB ADDRESS: 3916 & 3920 KENTUCKY DRIVE, LOS ANGELES CA 90068

SOIL TESTING AGENCY: T.K. ENGINEERING CORP.

PROPERTY OWNER'S NAME: MR. RENEE GORDON

OWNER'S ADDRESS: 170 S. BEVERLY DR #308, Beverly Hill, CA 90212

PER REPORTS ON OUR PROJECT NO. 93-139 CC

DATE WORK STARTED ON PROJECT: MARCH 15, 1993

DATE FILL WAS COMPLETED: MARCH 18, 1993

DATE OF THIS CERTIFICATE: MARCH 22, 1993

TO THE SUPERINTENDENT OF BUILDING:

*I hereby certify that I have personally inspected and tested the placing of compacted earth fill on the above described property, and on the basis of these inspections and tests, it is my opinion that the same was placed in conformity with the requirements of the Los Angeles City Building Code.

**For the limits of engineered earth fills, please see Plate A-1 of the compaction report dated MARCH 22, 1993.

REGISTERED PROFESSIONAL ENGINEER WAN-LAIN TSAI #2121 Exp. 6-30-96 STATE OF CALIFORNIA

Wan-Lain (Allan) Tsai, GE
Geotechnical Engineer
California Certificate No. 2121
Expiration Date: June 30, 1996

*For the purpose of this Certificate, to "have personally inspected and tested" shall include inspection and testing performed by any person responsible to the licensed engineer signing this certificate. Where the inspection and testing of all or part of the above work is delegated, full responsibility shall be assumed by the licensed engineer whose signature is affixed thereon.

R-3 c/v

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING & SAFETY
GRADING INSPECTOR'S COMPACTION RECORD

LOG # 32788

ADDRESS: 3916-3920 Kentucky Dr	
Tract: 5593	(County Ref # N/A)
Block:	Lot(s): Pt113 Pt114
Fill Lot #s:	(Others are considered cut or natural)

GRADING PERMIT #: 93VP18194-93VP18196		Dist. Map # 159-B-177
Does permit cover correct location of fill? YES NO		G3 Req'd: YES NO
Does permit cover correct yardage of fill? YES NO		G3 Req'd: YES NO
HILLSIDE YCV	FLAT HILLSIDE	FLATLAND

EXCAVATION BOTTOM

Inspection/Approval by Geotechnical Consultant: YES NO
Inspection/Approval by Grading Inspector: YES NO

RETAINING WALLS

Wall Height: 4'± Backslope: _____ Subdrain Termination: _____
Subdrain Inspection/Approval by Geotechnical Consultant: YES NO
Subdrain Inspection/Approval by Grading Inspector: YES NO

FILL SLOPES

Buttress Fill: YES NO Lot #s: _____
Slope Gradient: _____ Height: _____

DEEP FILLS

Lot #'s: _____ Fill Depths: _____ To be held until: _____

COMMENTS: Weep Holes - Elbow Head Joint left out
Front ground at bottom

RECOMMEND: APPROVAL DENIAL

INSPECTOR: Roy Daniels	DATE: 5-20-93	DISTRICT: 19-3

[redacted]R 11/20/92

CITY OF LOS ANGELES
CALIFORNIA

COMMISSIONERS
MARCIA MARCUS
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RICHARD W HARTZLER
BENITO A SINCLAIR

TOM BRADLEY
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
411 CITY HALL
LOS ANGELES CA 90012-4899
WARREN V O'BRIEN
GENERAL MANAGER
EARL SCHWARTZ
EXECUTIVE OFFICER

DATE 5-25-93

(COMPACTION FILE - 5)

log 322.88

NAME Renee Gordon
ADDRESS 170 S. Beverly Dr.
CITY Beverly Hills ST CA ZIP 90212

TRACT: 5593
BLOCK: —
LOT: 113, 114
LOCATION: 3916-3920 Kentucky dr.

PERMIT: 93 VN 18196 93VN 18194
DM #: 159B177
CTY REF #: —

Soil Compaction Report No. 93-139CC, dated 3/22/93, prepared by T.K. Engineering Corp.

The above compaction report has been reviewed by the Department. It cannot be approved at this time.

The review of the report will be continued upon submittal of an addendum report including, but need not be limited to, the following:

1- Indicate, on cross section, the slope behind retaining wall. If it exceed 2:1 a soils report is reqld.
2- Provide design recommendations, or indicate EFP used for the design of retaining wall

LARRY WESTPHAL
Chief of Grading Division

Ricardo Tres
Grading Engineer
485-3435 - LA Office
989-8211 - VN Office
(FGRSCRC)

cc: Roy Daniels - LA
TK Eng.

NOTE: A grading oversized document is/is not attached to the Compaction Report. (Document Type 92)

AN EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

00 – B-07 (R.1/01)

PROPERTY POSTED
YES ☐ NOT REQUIRED ☐

City of Los Angeles
DEPARTMENT OF BUILDING AND SAFETY
GRADING PRE-INSPECTION REPORT

C.D. 4
G.P.I. FEE ☒
PAID ☒ NOT PAID ☐

15

TRACT 5593 | BLOCK | LOTS 113-114

PURPOSE Ret Wall

OWNER Steven Gardner

OWNERS ADDRESS 1700 S Beverly Dr #H.Clr 90212

ADDRESS 3914 Kentucky Dr

RECORDS IN OUR FILES REVEALED THE FOLLOWING:

Approved Graded Lot Yes ☐ No ☒ Bearing Value

Footing Reinforcement Required Yes ☒ No ☐

Special Geological or Engineering Requirements Yes ☐ No ☒ See Requirements Below

Buttress Fill Yes ☐ No ☒ | Fill over 100 ft Yes ☐ No ☒

INSPECTORS REPORT OF FIELD CONDITIONS:

Slope of Surface – Cut ° | Height | Fill ° | Height | Nat 24 ° | Height 20 ft

Natural Soil Classifications per Table 29B Sandy clay | Expansive Soil Yes ☒ No ☐

Sewer Available Yes ☒ No ☐ | Site Above ☒ Below ☐ Street

Condition of Street for Drainage Purposes Good | Roof Gutters Yes ☒ No ☐

Recommended Termination of Drainage See #15 | Slide Area Yes ☐ No ☒

Driveway Grade % Existing ☒ Proposed ☐ Max. Rough Grade Allowed

REQUIREMENTS: GRADING APPROVAL TO ISSUE PERMIT(S) Yes ☐ No ☒ SEE BELOW

1 ☒ A Grading Permit is required ☒ Retaining Wall Permit(s) Required ☐ OHSA Permit Required
2 ☒ All footings shall be founded into natural undisturbed soil as per Code
3 ☒ Expansive soils comply with provisions of Section 91.2905(d)
4 ☒ In the event excavations reveal unfavorable conditions the services of a soils engineer and or geologist may be required
5 ☐ Geological and or soils reports are required. Submit _____ copies with appropriate fees to the Grading Division for review. Owner notified by postcard on _____. Reports submitted with plans – Yes ☐ No ☐
6 ☐ Incorporate all recommendations of the approved geological and or soils reports and Department letters dated _____ into the plans _____
7 ☐ Provide a complete grading plan showing existing and proposed contours, tops and toes of slopes, retaining walls, drainage devices and other protective devices. Plans shall include off site walls and structures around the perimeter of the project.
8 ☐ Swimming pools and spas shall be set back from descending and ascending slopes as per Section 91.2907(d)4.
9 ☐ Buildings shall be located clear of toe of all slopes which exceed a slope of 3:1 as per Section 91.2907(d)2.
10 ☐ Footing shall be setback from the descending slope surface as per Section 91.2907(d)3.
11 ☐ Department approval is required for construction of _____ over a slope steeper than 2:1.
12 ☐ Existing nonconforming slopes shall be cut back to 2:1 or retained.
13 ☒ All cut or fill slopes shall be no steeper than 2:1 (26°).
14 ☐ Provide complete details of engineered temporary shoring or slot cutting procedures on plans, call for inspection before excavation begins.
15 ☒ All concentrated drainage including roof water shall be conducted to the street in an approved device at 2% minimum.
16 ☐ All wood decking to be spaced ¼" apart.
17 ☒ All fill or backfill shall be compacted to a minimum of 90% relative compaction as determined by A.S.T.M. method D-1557. Subdrains shall be provided where required by code.
18 ☐ Specify on plans: The soils engineer is to approve the key or bottom and leave a certificate on the site for the grading inspector. The grading inspector is to be notified before any grading begins and, for bottom inspection, before any fill is placed. Fill may not be placed without approval of the grading inspector.
19 ☐ Grading general requirements (Form B-164) shall be attached to and made part of the plans.
20 ☐ Stake and flag property lines in accordance with a licensed survey map.
21 ☐ Approval required by the Department of _____
22 ☐ Resubmit plans to the grading inspector (shown below) after the above corrections have been made and before issuing permit. Inspectors are available between 7:30 a.m. and 9:00 a.m. weekdays.
23 ☒ Soil Report Req if vertical Cut Exc over 5 ft. Angle.

PLAN CHECK NO. 01040-5001-UA

Inspector Ray Daniels | Date 2-11-03 | Branch LA

REPORT OF
GEOTECHNICAL INVESTIGATION
PROPOSED APARTMENT BUILDING PROJECT
LOT 115 OF TRACT NO. 5593
3910 NORTH KENTUCKY DRIVE
LOS ANGELES (STUDIO CITY), CALIFORNIA

FOR

MR. DAVID AVIV

PROJECT NO. 13-347-22

JUNE 14, 2013

June 14, 2013 13-347-02

Mr. David Aviv
6626 Maryland Drive
Los Angeles, California 90048

Subject: Report Of Geotechnical Investigation
Proposed Apartment Building Project
Lot 115 Of Tract NO. 5593
3910 North Kentucky Drive
Los Angeles (Studio City) California 90068

Dear Mr. Aviv:

INTRODUCTION

This report presents the results of a preliminary geotechnical investigation for the subject project. During the course of this investigation, the engineering properties of the subsurface materials, native soil and bedrock, were evaluated in order to evaluate slope stability and to provide recommendations for design and construction of temporary excavations, retaining walls, foundations, and grading. The investigation included geologic mapping, subsurface exploration, soil and bedrock sampling, laboratory testing, engineering and geological evaluation and analysis, consultation and preparation of this report.

During the course of this investigation, the provided project plans by the offices of Amit Apel Design, Inc., was used as reference. The plans were dated May 16, 2013.

The enclosed Drawing No. 1, shows surface geology and approximate locations of the test pits in relation to the site boundaries. This drawing also shows the approximate locations of the test holes made by Southwest Geotechnical.

Drawing No. 1 also shows the approximate locations of the Geologic Cross Section A-A'. Drawing No. 2 shows the profile of the Geologic Cross Section A-A'. Drawing No. 4 shows the Site Vicinity Map.

Figure No. 1 shows the Site Location Map. Figure No. 2 shows the Site Vicinity Map. Figure No. 3 shows the Regional Geologic Map produced by Dibblee (1991).

The attached Appendix I, describes the method of field exploration. Figure Nos. I-1 through I-5 present summaries of the materials encountered at the location of our exploratory test holes. Figure No. I-6 presents a key to the log of exploratory test holes (boring and test pits). The attached Appendix II describes the laboratory testing procedures. Figure Nos. II-1 and II-2 present the results of direct shear and consolidation tests on selected undisturbed samples.

PROJECT CONSIDERATIONS

It is our understanding that the proposed project will consist of constructing an apartment building at the subject site. The proposed building is expected to be a 4-story structure over garage having direct access from the existing alley behind the lot. The top 4 floors are expected to be constructed of wood frame. The lowest (garage floor) is expected to be constructed of concrete with concrete deck ceiling. The approximate location of the proposed building (on plan and profile) is shown on the enclosed Site Plan; and Cross Section A-A'; Drawing Nos. 1 and 2.

It is anticipated that the finished grades for the proposed project will be created through mainly cutting operations (in a form of terraces). The resulting vertical cuts will then be supported by retaining walls having maximum vertical heights of as high as 30 feet. The excavation depth will then reduce going south and west. .

Based on the results of our study, it is expected that the planned cuts will be made through minor amount of fill/native soils and bedrock. It is anticipated that bedrock will be exposed at the finished grades. See the enclosed Cross Section A-A'.

The downslope facing cuts are expected to expose daylighted bedding plane with a true dip of bedding of as high as 54 degrees. The component of the dip angle in the direction of the cut is expected to range from about 27 degrees to as high as 50 degrees. See the enclosed Drawing Nos. 1 and 2.

Because of the magnitude of the depth of excavation, it's close proximity to the side property lines, and anticipated exposure of the daylighted bedding, during the course of site grading work, temporary shoring will be required. Such shoring system should consist of soldier piles with and without lateral support (tieback anchors or interior bracing).

Where the maximum depth of excavation is less than 18 feet, cantilevered shoring piles can be used for the side cuts. For cuts above 18 feet, and the downslope facing cuts where daylighted bedding will be exposed, the soldier piles should be laterally supported by tieback anchors or internal bracing.

The soldier piles can then be incorporated into the property exterior walls and be part of the permanent structures. The lower portion of the piles (below the base of the excavation) can provide vertical support for the proposed retaining walls through skin friction. Therefore, the piles should be designed for both bending (temporary condition) and gravity loads (for permanent conditions). The longer pile will govern the design.

It is noted that where adequate horizontal space is available, unsupported/open excavation cuts can be made. Where possible, during this process, the out dipping bedding plane conditions can be eliminated through making the excavation slopes parallel to the inclination of the angle of bedding. After the retaining walls are constructed, the over-excavated zone can be backfilled with granular materials that is benched into bedrock.

Structural loading data was not available during this investigation. For the purpose of this report, it is assumed that maximum concentrated loads will be on the order of 250 kips, combined dead plus frequently applied live loads. The retaining wall footings are expected to have loads of on the order of 9 kips per lineal foot.

ANTICIPATED SITE GRADING WORK

Based on the provided project data, it is expected that the major grading work will involve cutting operations in order to create the proposed finished grades. As part of the site grading work, wall backfill will also be made. The backfill soils should consist of non-expansive and granular soils. Because the site materials are fine grained in nature and potentially expansive, imported soils will be required to accomplish the site grading work. It is anticipated, however, that after completion of the site grading work, considerable amount of materials will be exported from the site.

SITE CONDITIONS

SITE LOCATION AND CONDITIONS

The project site is located at 3910 Kentucky Drive, in the Studio City hillside neighborhood of the City of Los Angeles, California. The site is approximately trapezoidal in shape, and has a surface area of 12,060 square feet with approximately 67 feet of frontage along the Kentucky Drive right-of-way. The slope descends down from Kentucky to an alley below, beyond which are buildings abutting Cahuenga Boulevard. There is a maximum elevation difference of approximately 67 feet from west to east. The property is surrounded on the north and south sides by other developed lots.

The property is currently vacant and it is believed that it has not been developed. The current plan calls for a new apartment building on the subject site. The building will have one garage level accessible from the alley, with four floors of living space above. We are in receipt of a site topographic and boundary survey by H.J. Burke, PLS, and architectural plans for the proposed new building by Amit Apel Design.

REGIONAL GEOLOGY

The site is situated in the northern foothills of the central portion of the Santa Monica Mountains, part of the Transverse Ranges Geomorphic Province of California. Regionally, the hills and mountains in this vicinity are underlain by sedimentary bedrock known as the Topanga formation, locally consisting mainly of siltstone and fine-grained sandstone. Bedrock in this area has been mapped by others to have an approximate strike in the northwest direction with a moderate to steep (30-60 degree) northeast dip (see Figure No. 3 – Regional Geologic Map by Dibblee).

The closest fault to the property is the Benedict Canyon Fault, which extends roughly northeast through the Santa Monica Mountains, approximately 200 feet north of the subject site. This fault is not considered active and this property is not located in an Earthquake Special Studies Zone. However, owners of properties located near earthquake faults are encouraged to protect their homes from earthquake-related damage, possibly by purchasing earthquake insurance.

GEOLOGIC AND SOIL CONDITIONS

Our geologic investigation consisted of the excavation, inspection, sampling and geologic logging of five shallow test pits, a review of published geologic maps and published reports, and on-site and near-site geologic reconnaissance and mapping. This activity indicates that the area of the proposed new apartment building is underlain by a thin veneer of fill, colluvial and residual soil overlying sandstone bedrock. A geologic map and site plan is provided in Drawing 1, and geologic cross-section in Drawing 2. Test pit logs are provided in Appendix I. A description of the units and their distribution are as follows:

Artificial Fill (Af): Minor loose fill material (from road-cut) was found to overlie the native soil and bedrock on the site. It is generally composed of gravelly, medium to coarse silty sand, dry to slightly moist, gray to brown, creep-prone, and with scattered debris. This slough was found to range from 1-1.5 feet in thickness in our excavations, but may be locally thicker where utility lines are buried.

Soil (Qc): Mixed colluvial and residual soil was encountered in several of the test pits, wedged between fill and underlying bedrock. It consists of silty medium sand (SM), orange brown, containing rock fragments, and also creep-prone.

Sandstone Bedrock (Ttusi): Bedrock underlying the site consists of fine to medium grained sandstone bedrock, moderately to well indurated, locally containing interbedded siltstone and shale, light and orange brown, medium to coarse grained, slightly moist, dense, locally hard, and competent.

Bedding was found to generally strike north to northwest and dip between 30-55 degrees to the east and northeast. This is in agreement with findings by other workers as indicated in published geologic maps (Figure No. 3).

Bedrock was encountered in all test pits and is generally at or very near the ground surface across the site.

ENGINEERING-GEOLOGIC CONSIDERATIONS

Groundwater was not observed in the test holes to a maximum depth of 6.5 feet below ground surface. No seeps or springs were noted on-site, nor does the site have any surface streams passing through it.

The descending slope along the site appears to be a natural slope, except for the portion near the alley, which is thought to be an artificial cut. Artificial fill from tract grading was not noted anywhere on the site. The slope appears to be grossly stable.

Excavation for the garage and finished levels will expose adverse bedding planes. The north-facing excavation will need to be shored. See engineering recommendations below for a detailed discussion.

From an engineering-geologic point of view, the proposed apartment building project can proceed as planned, provided the new structure is founded in competent bedrock to sufficient depth, and with proper drainage; surface water runoff on the site is controlled; and preventive slope maintenance is regularly performed.

PREVENTIVE SLOPE MAINTENANCE

For all slopes in general, it is important to reduce the risk of problems relating to slope instability. It is recommended that the owners implement a program of normal slope maintenance. This maintenance program should include annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardant, deep rooted ground cover and proper irrigation.

Hillside properties are typically subject to potential geotechnical hazards including mudslides, spalling of slopes, erosion and concentrated flows. It must be emphasized that responsible maintenance of these slopes, and the property in general, by the owner, using proper methods, can reduce the risk of these hazards significantly.

SEISMIC DESIGN CONSIDERATIONS

In accordance with the 2010 California Building code (CBC 2010), the project site can be classified as site “C”. The mapped spectral accelerations of S_S=1.533 (short period) and S_1 =0.600 (1-second period) can be used for this project. These parameters corresponds to site Coefficients values of F_a =1.00 and F_V =1.3, respectively.

The seismic design parameters would be as follows:

Sms= Fa (Ss) = 1.0 (1.533) = 1.533, Sm1=Fv (S1) = 1.3 (0.600) = 0.780

Sds=2/3 (Sms) = 2/3 (1.533) = 1.022 and Sd1=2/3 (Sm1) = 2/3 (0.780) = 0.520

EVALUATION AND RECOMMENDATIONS

GENERAL

Based on the geotechnical engineering data derived during this investigation, it is believed that the proposed construction may be made as planned. It is our opinion that when the proposed construction and grading are made, following the recommendations in this report, the site will be safe for the proposed structures against the hazard of landslide, settlement, or slippage. See the enclosed engineering calculation sheets.

It is anticipated that, after the planned excavation is made in order to create the proposed finished grades, bedrock will be exposed on the finished grades. The bedrock is expected to provide very good support for the proposed apartment building and the associated retaining walls through conventional spread footing foundation system (the upslope walls of the higher floors will be supported through a deep foundation system consisting of friction piles to reduce the chances of surcharge effects.

During the course of site grading work (excavation) temporary shoring should be used. Where the maximum depth of excavation is less than 18 feet, cantilevered shoring piles can be used for the side cuts. For cuts above 18 feet, and the downslope facing cuts where daylighted bedding will be exposed, the soldier piles should be laterally supported by tieback anchors or internal bracing.

For the purpose of the proposed project, the retaining walls supporting the ascending slopes should have a freeboard of 24 inches and a paved drain. The freeboard should be cleaned after rainy season.

Grade slabs may be cast on bedrock, or properly compacted fill soils. Where grade slabs span between soil and bedrock, the bedrock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at optimum moisture content).

The above recommended process will help create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements. Because of fine grained nature of the bedrock, the grade slabs for this project should be at least 5 inches thick and be reinforced with # 3 bars placed at every 18 inches on center.

The following sections present our specific recommendations for temporary excavations, site grading, site drainage, foundations, lateral design, grade slabs, retaining walls, and observations during construction.

TEMPORARY EXCAVATIONS

Unshored Excavations: It is expected that temporary excavations will be made during the course of site grading work. The excavation will be made through native soils and bedrock. The vertical height of such cuts are expected to be less than 30 feet.

Based upon the engineering characteristics of the subsurface materials, it is our opinion that temporary excavation slopes through soil and bedrock with supported bedding may be made in accordance with the following table:

Maximum Depth of Cut (FT)	Maximum Slope Ratio (Horizontal:Vertical)	
	Soil	Rock
5	Vertical	Vertical
5-10	3/4:1	Vertical
>10	1:1	1/2:1

It is recommended that the Engineering Geologist inspect the cut slopes within larger scale excavations as soon as five feet of bedrock is exposed in order to confirm the results of our findings. Modification to our recommendations may be necessary if variations are noted.

Water should not be allowed to flow over the top of the excavation in an uncontrolled manner. No surcharge should be allowed within a 45-degree line drawn from the bottom of the excavation. Excavation surfaces should be kept moist but not saturated to retard raveling and sloughing during construction.

It would be advantageous, particularly during wet season construction, to place polyethylene plastic sheeting over the slopes. This will reduce the chances of moisture changes within the soil banks and material wash into the excavation.

Cantilevered Soldier Piles:

For the side cuts, where bedding plane will be supported and/or neutral, cantilevered shoring pile system can be used for temporary support where total height of excavation is less than 18 feet. In order to limit local sloughing, lagging should be used between the soldier piles. All lumber left in ground should be pressure treated.

Soldier piles consist of structural steel beams encased in concrete (below the basement garage level) and slurry mix within the exposed depths of excavation. For the purpose of this project, steel cage can also be used for shoring piles.

The lateral resistance for cantilevered soldier piles may be assumed to be offered by available passive pressure below the base of the excavation. An allowable passive pressure of 600 pounds per square foot per foot of depth may be used below the base of the excavation (against bedrock) for soldier piles having center-to-center spacing of at least 2-1/2 times the pile diameter. Maximum allowable passive pressure should be limited to 6,000 pounds per square foot. The maximum center-to-center spacing of the vertical shafts should be maintained no greater than 10 feet.

For design of shoring piles, supporting cuts with neutral and/or favorable bedding (north-facing vertical cuts) the active pressure may be computed using an equivalent fluid density of 40 pounds per cubic foot. The shoring piles supporting east-facing and south-facing cuts which will expose daylighted bedding) should be designed using an equivalent fluid density of 100 pounds per cubic foot. The given pressures includes surcharge effects from the off-site improvements.

When using cantilevered soldier piles for temporary shoring, the point of fixity (for the purpose of moment calculations), may be assumed to occur at one foot below the base of the excavation (against bedrock).

It should be noted that the recommendations presented in this section are for use in design and for cost estimating purposes prior to construction. The contractor is solely responsible for safety during construction.

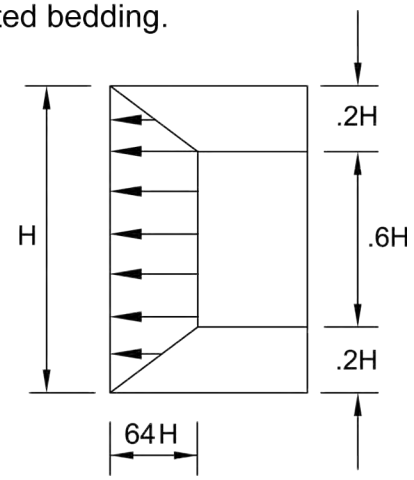
Laterally Supported Temporary Shoring: The temporary shoring system within the areas of deeper than 18 feet excavation (along the sides) and those supporting the upper most cuts with daylighted bedding, should consist of soldier piles with lateral support (interior bracing or tieback anchors). In order to limit local sloughing, lagging (placed from the top, as excavation advances) should be used between the soldier piles. All lumber left in ground should be pressure treated.

Due to the magnitude of the north-facing vertical cut two rows of lateral support will be required at this location. In all other areas, only one row of lateral support will be required. The piles near the corner should be connected with corner bracing.

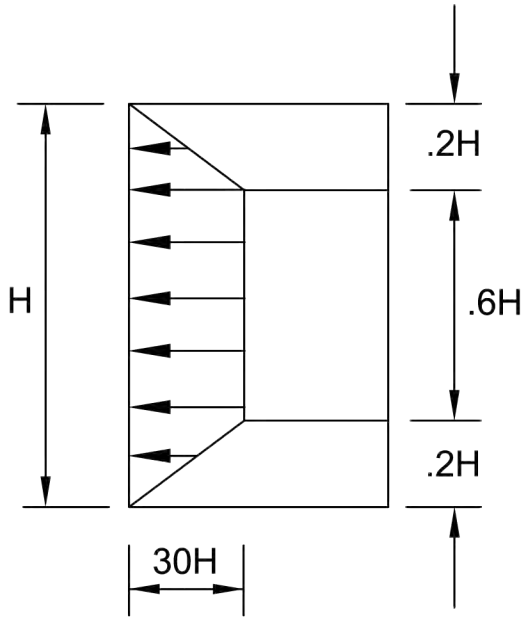
It should be noted that, if tie backs are used, permissions should be obtained to extend the anchor shafts beneath the adjacent properties. Also, the foundations of the off-site structures and utility lines within the anticipated lengths of the tie back anchors should be studied to assure that the existing substructures would not be interfered by the installation of the anchor shafts. The anchor shafts should be tested for the pullout capacities.

The anchors would consist of drilled, cast-in-place concrete shafts stressed against and tied to the vertical soldier piles. These elements are drilled in an inclined manner beneath the adjacent grounds after the basement excavation is reached to the levels of the anchor rows.

When internal bracing or tieback anchors are used against the vertical piles, trapezoidal pressure distribution should be used for design of the temporary shoring. The following sketch shows the recommended lateral earth pressure distribution behind restrained shoring system for the principal (east-facing) and south-facing cuts (about 33 feet high) supporting daylighted bedding.



The lateral earth pressure distribution behind the restrained shoring system for the north-facing cuts exposing favorable/supported bedding condition should be calculated based on the following sketch:



See the enclosed Cross Sections A-A' and B-B' and supporting engineering calculations for the above given lateral earth pressures.

The above given pressures have considered the surcharge effects from the existing off-site improvements (buildings, roads, etc.).

The temporary shoring should be monitored during basement garage excavation. The report of monitoring should be provided to the Project Structural and Soil Engineers for review and comment. If excessive lateral movements are noted, additional lateral support system in a form of added tie back anchors or internal bracing may be required. For the purpose of design of the support system for the south-facing and east-facing cuts exposing daylighted bedding, it may be assumed that the potential wedge of failure would be the inclination of the component of the bedding plane in the direction of the respective cuts. For the north-facing cut, the potential wedge of failure may be assumed a plane drawn at a 60 degree angle with the horizontal through the bottom of the excavation. Only the portion of the tieback anchor shafts beyond the potential failure wedges should be considered effective in resisting lateral loads.

The range of friction values to be used in design, is based on several factors, with the upper limit being the strength of the soils. Any disturbance in the soils, such as spauling would reduce the effective friction values around the anchor shafts.

For gravity pour, a unit friction value of 650 pounds per square foot may be used to calculate the load supporting capacities of the anchor tie backs. For post grouted anchors where the concrete is placed using high pressure (between 700 to 1,000 psi) a skin friction value of 2,400 pounds per square foot can be used.

It is possible that the calculated capacities of the anchors based on the given unit friction value would be significantly different from the actual capacities based on the developed friction values. It is, therefore, suggested that the first series of the installed anchors be tested to verify the calculated capacities. The friction value may then be modified based on the actual capacities of the anchor shafts.

Only the frictional resistance developed beyond the assumed failure plane should be used in resisting lateral loads. Concrete should be placed in the lower portion of the shafts to the assumed failure plane. This should be done by pumping the concrete into the bottom of the shaft. The anchor shaft between the failure plane and the face of the shoring may be backfilled with sand after concrete placement.

It should be noted that the recommendations presented in this section are for use in design and for cost estimating purposes prior to construction. The contractor is solely responsible for safety during construction.

CONSTRUCTION PROCEDURE FOR ANCHOR SHAFTS

This section presents a description of the construction procedure for installation and testing of concrete anchor shafts against vertical soldier piles. For design of the anchor shafts, refer to the body of the report for the recommended skin friction values.

EXCAVATION PROCEDURE

After the vertical soldier piles are installed, the initial excavation will be extended some 3 feet below the levels of the upper row of lateral support. After the anchor shafts are installed, tested and approved, the excavation will be extended to some 3 feet below the next level of lateral support. After the lower lateral support system is installed and approved, the excavation will be extended to the basement level.

TIEBACK CONSTRUCTION

Tieback anchors are normally designed to take loads through skin friction. The portion of the anchor shaft that is considered to be effective in taking pull out loads is the length of the member beyond the potential wedge of the failure. Refer to the body of the report for the recommended inclination of the potential wedge of the failure.

Installation and testing of the tieback anchors should be done under continuous observation and testing of the Soil Engineer. Should significant variations in the soil conditions be encountered during the installation of the anchor shafts, the Soil Engineer will modify the skin friction values to reflect the actual soil conditions.

During the course of our field exploration caving was not detected, due to the method of drilling. However, it should be noted that, if caving is experienced during the excavation of the tieback anchors, it would be necessary to modify the construction procedure (use of casing, etc.).

CONCRETING

After each of the anchors are drilled, foundation grade concrete is placed in the excavated holes using a pump. The concrete is placed only to the level of the potential wedge of failure. After the anchor is tested and approved, the portion of the anchor between the face of the excavation and potential wedge of failure is filled with sand slurry mixture to help maintain the excavation.

SURFACE LOADS

The temporary shoring are designed for lateral earth pressure and any surcharge loads imposed by the existing improvements around the site. In addition, the temporary shoring system should be designed for future loads such as crane and other equipment which operate at close proximity of the top of excavation.

TESTING

The recommended shoring pressures in the report are based on a factor of safety of 1.5. If the anchors are successfully loaded to about 150 percent of the design loads, the overall factor of safety of the shoring system would be on the order of 2.

It is customary to test at least one anchor per face of excavation per rows of anchors, for long term loading conditions (24 -hour loading). Load-deflection data for each anchor should be maintained during the testing. Pull out loads are normally applied in increments of 50%, 100% and 150% of the design loads. Once the full 150% design load is applied, the test load is maintained and the deflection of the anchor is recorded. During this stage of testing, the deflection of the anchor during a 15 minute period should not exceed 1/10 of one inch. The total deflection of the anchor should be less than 12 inches, although larger deflections may be accepted provided that both the shoring Engineer and the Soil Engineer each approve such anchors. For long term anchor testing, the 150 percent of the design load is normally applied for a period of 24 hours. If the deflection of the anchor, under 150 percent of the design load, is less than 1/10 of one inch for a period of 4 hours, the test may be considered satisfactory provided that the 150% load has been applied for at least 8 hours.

FAILED ANCHORS

The anchors which do not pass the required pull out test as indicated above are considered to be failed anchors. The modified capacity of the failed anchors would be 2/3 of the available pull out force of the anchors. Additional resistance in a form of supplemental anchors or rakers should then be installed to compensate for the difference between the design and available loads.

The failed anchors would then be locked off at 2/3 of the available capacity of the anchor which results a deflection of no more than 1/10 of one inch during a 15 minute period. Since it will be necessary to extend the excavation below the row of anchor in order to install a replacement anchor, it would be advisable to lock off the failed anchor at some value between 2/3 and full available capacity of the anchor. The Soil Engineer and the Shoring Engineer are to provide specific recommendations for the lock off loads for each failed anchor.

LOCK OFF LOADS

After each anchor has been tested and approved by the Soil Engineer, the anchor should be locked off at the design load. The lock off load should be maintained within 90 to 110 percent of the designed load.

CONTINUED EXCAVATION

After each and every anchor in a given face is tested and approved, the excavation can then be extended below the drill bench levels. The Soil Engineer may permit local excavations to be extended below the drill bench elevation where it would be required for construction of replacement anchors.

MONITORING

It is important that an accurate monitoring of the shoring system be maintained during basement construction. Both the horizontal and vertical deflections of the soldier piles should be recorded. The vertical and horizontal movement of the shoring system should be recorded on a weekly basis and the results be submitted to Soil and Shoring Engineers for review and comment . The accuracy of the reading should be within 0.01 of a foot. The record should be produced in a readily understandable form. The surveyor should submit to the Soil Engineer, prior to the start of excavation, a plan which would indicate the method selected for monitoring of the excavation.

Monitoring of the excavation performance should be initiated from the beginning of the initial excavation. The weekly monitoring may be modified as the job progresses. Once the subterranean garage has been constructed and the tieback have been de-tensioned, monitoring of the performance will no longer be required.

DEFLECTIONS

The lateral support of the existing off-site buildings should be maintained though installation of proper shoring. The project Structural Engineer should use appropriate surcharge from the off-site buildings and add to the lateral earth pressure. Proper monitoring program should be maintained during basement garage excavation to assure the shoring pile deflections would not exceed the tolerable limits.

It is noted that, if off-site buildings occur within an equal distance to the depth of excavation, the temporary shoring piles should be designed to allow lateral deflection at the top of the piles not to exceed ½ of one inch. In the areas where the shoring system supports public right-of-way, or where the off-site buildings occur outside a horizontal distance equal to the depth of excavation, the tolerable lateral movement at the tops of the shoring piles could be increased to one inch.

It is possible that, locally, deflections at the top of the soldier piles may exceed the design values. For this case, the Soil and Shoring Engineers should be consulted to provide remedial measures such as installation of additional support system.

The survey of the conditions of the off-site improvements is strongly recommended before installation of the shoring piles and basement garage excavation. Any apparent distress (cracks, separations, settlement, etc.) should be identified on the survey map.

FOUNDATIONS

It is anticipated that, after the planned excavation is made, bedrock will be exposed at the finished grades. The bedrock is expected to provide very good support for the proposed building and the associated retaining walls through conventional spread footing foundation system. The upslope walls of the higher floors will be supported through a deep foundation system consisting of friction piles to reduce the chances of surcharge effects. See the enclosed Cross Section A-A'.

The retaining wall footings should be at least 24 inches wide and should be established at least 24 inches into bedrock. The footings of the proposed building should be at least 18 inches wide and should be established at least 18 inches into bedrock.

Properly designed and constructed spread footings established in bedrock may be based on allowable maximum bearing pressure of 4,000 pounds per square foot.

For the purpose of estimating the vertical capacity of individual piles, an allowable maximum skin friction value of 800 pounds per square foot may be used for bedrock. Piles should have a minimum length of 15 feet. Uplift capacity may be assumed one half of the downward capacity.

For friction pile design, the weight of the shafts can be assumed to be taken by end-bearing, therefore, need not be added to the structural loads. All piles should be concreted as soon as they are excavated and, for safety, should not be left open overnight .

During the course of our field investigation, no caving was experienced. Caving, therefore, is expected not to be a problem at this site.

The above given allowable maximum bearing and skin friction values are for the total of dead, plus frequently applied live loads. For short duration transient loading; wind or seismic forces, the given values may be increased by one third.

Total and differential settlements of the proposed building and the associated retaining walls, supported through foundations established in bedrock are expected to be within tolerable limits; less than 1/2 and 1/4 of one inch, respectively. The major portion of the settlements are expected to occur during construction.

LATERAL DESIGN

Lateral resistance at the base of footings in contact with bedrock may be assumed to be the product of the dead load forces and a coefficient of friction of 0.40. Passive pressure on the face of footings or developed against the vertical shafts, may also be used to resist lateral forces.

For the purpose of the subject project, a passive pressure of 250 pounds per square foot at the surface of rock and increasing at a rate of 300 pounds per square foot per foot of depth to a maximum value of 3,600 pounds per square foot may be used for footings poured against bedrock.

It should be noted that, if the individual shafts are spaced at least 2.5 times the pile diameters (isolated shafts) the above given values can be doubled. For the purpose of moment calculations, the point of fixity of the vertical shafts on slope may be taken at some 12 inches into bedrock or 3 feet below soil (compacted fill/native soils) whichever is less.

GRADE SLABS

Grade slabs may be cast directly over bedrock, or properly compacted fill soils. Where grade slabs span between soil and rock, the rock should be over-excavated by some 12 inches and the excavated materials could be used for the compacted fill (compacted to at least 90 percent relative compaction at some 3 percent higher than the optimum moisture content). This will create uniform subgrade conditions beneath grade slabs and reduce the chances of uneven subgrade movements.

Due to fine grained nature of the bedrock and soil, the grade slabs for this project should be at least 5 inches thick and be reinforced with # 3 bars placed at every 18 inches on center. As an alternative to over-excavation of bedrock, a 6-inch thick slab can be used for this project.

In the areas where moisture sensitive floor covering is used and slab dampness cannot be tolerated, a vapor-barrier should be used beneath the slabs. This normally consists of a 6-mil polyethylene film covered with 2 inches of clean sand.

BASEMENT WALLS

The perimeter walls of the basement garage of the proposed building are expected to be buried to depths ranging from several feet to as much as 30 feet. All perimeter walls of the basement will be restrained on top against rotation.

Static design of the north-facing retaining walls supporting cuts of bedrock with favorable/supported bedding can be designed based on an equivalent fluid pressure of 45 pounds per square foot per foot of depth. The east-facing and south-facing retaining walls supporting daylighted bedding, should be designed based on an equivalent fluid pressure of 150 pounds per square foot per foot of depth. See the enclosed Engineering calculation sheets for detail analysis.

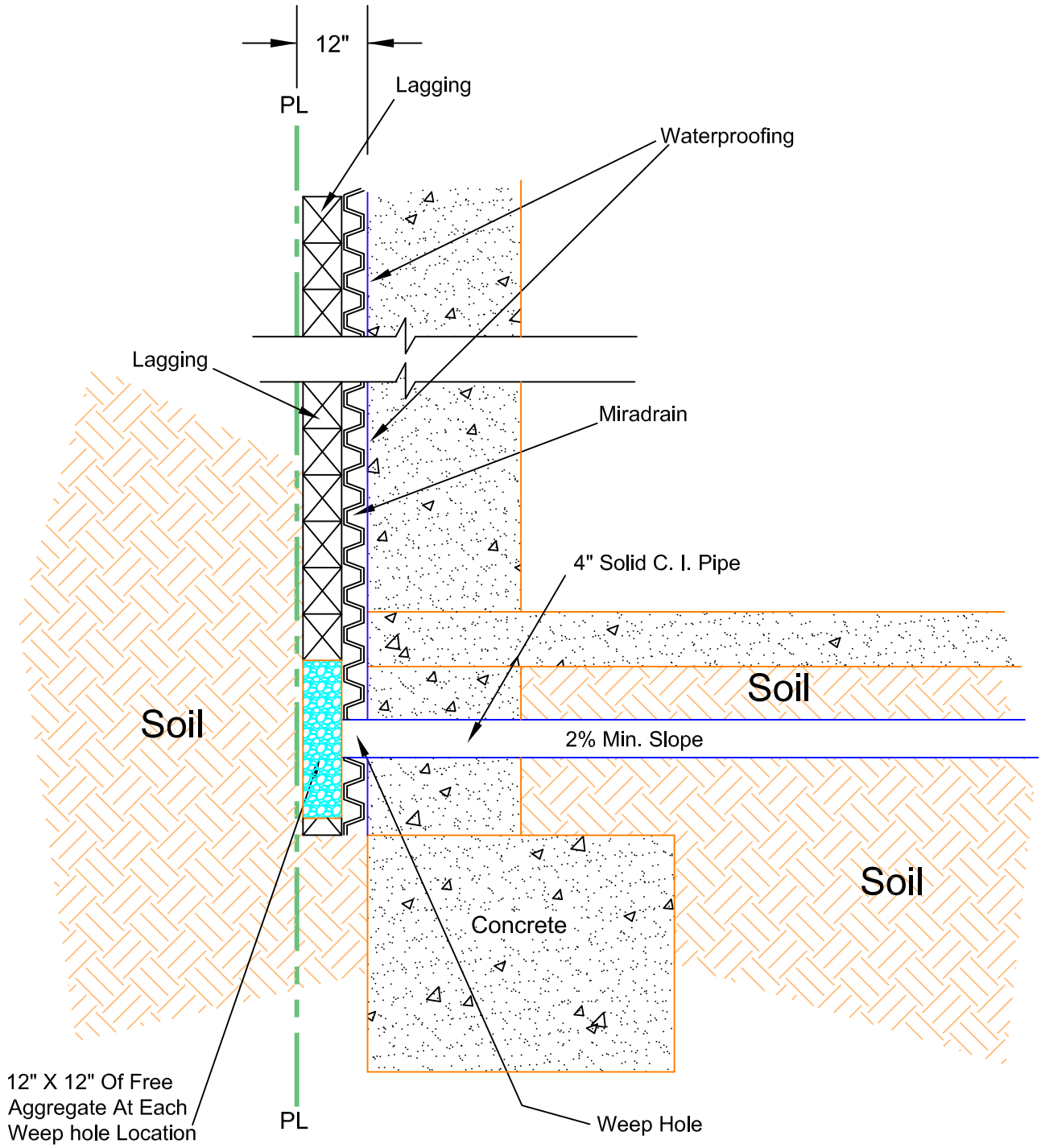
The above given pressures assume that hydrostatic pressure will be relieved from the back of the walls through a properly designed and constructed backdrain. This will require that proper subdrain be installed behind the basement garage walls.

Wall backdrain consists of 4-inch diameter perforated pipes encased in gravel (at least one cubic foot per lineal foot of the pipes). In order to reduce the chances of siltation and drain clogging, the gravel should be wrapped in filter fabric proper for the site soils. The backs of all retaining walls should be properly waterproofed.

As an alternative to the use of standard pipe and gavel subdrain, and if adequate space is not available, “Mira-drain” system may be used behind the basement garage walls. The “Mira-drain” should be connected to a collector at the base of the cut. The collected water should then be carried through the basement garage walls into the garage sump and pumped out. For detail of alternative wall backdrain system, see Sketch 1 in the following page. It is noted that, based on the new Code requirement, the walls higher than 12 feet should be designed not only for static, but also for seismic lateral earth pressures. For the purpose of this project, the magnitude of seismic lateral earth pressure should be assumed zero at the deck (lateral support point at some 18 feet below grade) and increased upward at a rate of 60 pounds per square foot per decreasing depth to a maximum value at the ground surface. The point of application of the lateral thrust of the seismic pressure should be assumed some 0.6 times the wall height measured from the top of the wall.

Where adequate space is available, granular fill (silty sand soils) should be placed and compacted behind the retaining walls (after the subdrain is installed) to a relative compaction of at least 90 percent. At least one field density tests should be taken for each 2 feet of the backfill. The degree of compaction of the wall backfill should be verified by the Soil Engineer.

Where space is limited, free-draining gravel should be placed behind the retaining walls. The gravel should then be capped with at least 18 inch thick site soils also compacted to a relative compaction of at least 90 percent. It should be noted that the backfill placed behind the basement garage walls should be made after the concrete decking is cast. All grading surrounding the building should be such to ensure that water drains freely from the site and does not pond.



WALL SUBDRAIN

Proposed Apartment Building Project		Lot 115 of Tract # 5593 3910 Kentucky Drive, Los Angeles (Studio City), California	
FOR.	Mr. David Aviv	DATE 6 / 14 / 2013	PROJECT No. 13-347-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS			SKETCH No. 1

The retaining walls supporting all ascending slope should have a minimum freeboard of 24 inches and a paved drain to collect minor debris washed down during rainy season. The freeboard should then be cleaned after rainy seasons.

EXCAVATION

During the course of our field investigation, site materials, soils and upper bedrock were excavated using hand tools. Such materials were explored without significant difficulty. Therefore, it is anticipated that the bedrock at this site can be excavated with normal equipment.

GRADING RECOMMENDATIONS

The major portion of the site grading work will involve cutting operation. Minor removal and recompaction of the fill and native soils will also be made for the support of grade slabs and parking pavements. Also, some wall backfilling will be made. All wall backfill should be non-expansive and granular in nature.

Prior to placing any fill, the Soil Engineer and Engineering Geologist should observe the excavation bottoms. The areas to receive fill should be scarified and compacted in-place to a relative compaction of at least 90 percent at some 3 percent higher than the optimum moisture content.

General guidelines regarding site grading are presented below in an itemized form which may be included in the earthwork specification. It is recommended that all fill be placed under engineering observation and in accordance with the following guidelines:

1. All vegetation should be shaved and removed from the site before site grading work is initiated;

2. Subdrain should be installed behind all retaining walls. All subdrain should be observed and approved by this office before backfilling;

3. The subdrain pipes should be laid at a minimum grade of two percent for self cleaning.

4. The excavated materials from the site may be reused in the areas of new fill. Wall backfill, however, should consist of granular materials.

5. Rocks larger than 6 inches in diameter should be excluded from the areas of compacted fill .

6. Fill material, approved by the Soil Engineer, should be placed in controlled layers. Each layer should be compacted to at least 90 percent of the maximum unit weight as determined by ASTM designation D 1557-02 for the material used.

7. All wall backfill should be properly benched into bedrock. All new fill should be established in native ground;

8. The fill material shall be placed in layers which, when compacted, shall not exceed 8 inches per layer. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to insure uniformity of material in each layer.

9. When moisture content of the fill material is too low to obtain adequate compaction, water shall be added and thoroughly dispersed until the moisture content is near optimum.

10. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material shall be aerated by blading or other satisfactory methods until near optimum moisture condition is achieved.

11. Inspection and field density tests should be conducted by the Soil Engineer during grading work to assure that adequate compaction is attained. Where compaction of less than 90 percent is indicated, additional compactive effort should be made with adjustment of the moisture content or layer thickness, as necessary, until at least 90 percent compaction is obtained.

SITE DRAINAGE

Site drainage should be provided to divert roof and surface waters from the property through non-erodible drainage devices to the street. In no case should the surface waters be allowed to pond behind the walls or flow over the slope surfaces in an uncontrolled manner. A minimum surface slope of one and two percent should be maintained in paved and unpaved areas, respectively.

OBSERVATION DURING CONSTRUCTION

The presented recommendations in this report assume that all structural foundations will be established in bedrock. All pile and spread footing excavations should be observed by a representative of this office before reinforcing is placed.

The project engineering geologist should observe the temporary cut slopes. Modification to our recommendations may be necessary if significant variations are noted in the geologic features of the underlying bedrock.

The depths of soldier piles and anchor tieback should be confirmed by a representative of this office before concrete is placed. It is essential to assure that soldier piles are drilled to proper depths and diameters, and in accordance with the project plans and specifications. The anchor tieback capacity test should be made under engineering observation to assure conformity with the requirements of the approved plans and specification.

Site grading work, such as wall backfilling, and subgrade preparation for basement slab support, should be conducted under observation and testing by a representative of this firm. All backfill soils should be properly compacted to at least 90 percent relative compaction. For proper scheduling, please notify this office at least 24 hours before any observation work is required.

CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either express or implied.

It is noted that the conclusions and recommendations presented are based on exploration "window" borings and excavations which is in conformance with accepted engineering practice. Some variations of subsurface conditions are common between "windows" and major variations are possible.

-oOo-

The following Plates and Appendices are attached and complete this report:

Engineering Calculation Sheets
Geologic Map and Site Plan-Drawing No. 1
Geologic Cross Section A-A' - Drawing No. 2
Geologic Cross Section B-B' - Drawing No. 3
Figure No. 1 - Site Location Map
Figure No. 2 - Site Vicinity Map
Figure No. 3 - Regional Geologic Map
Appendix I Method of Field Exploration
Figure Nos. I-1 through I-6
Appendix II Methods of Laboratory Testing
Figure Nos. II-1 and II-2

Respectfully Submitted,
APPLIED EARTH SCIENCES

Caro J. Minas, President
Geotechnical Engineer
GE 601

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STATE OF CALIFORNIA

CJM/DAR/SM/la

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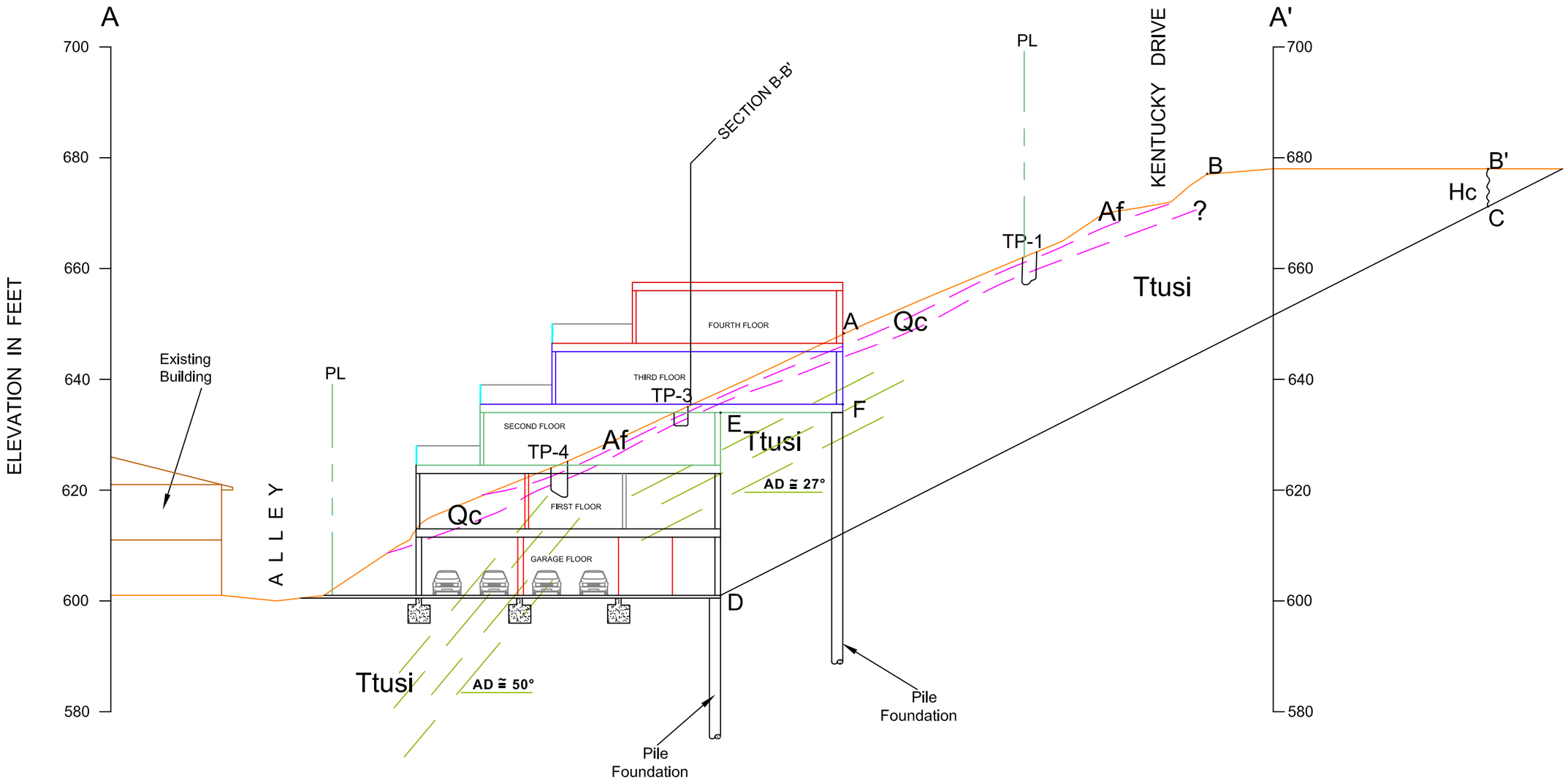


EXPLANATION

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Contact, Approximately Located

N52°E

Scale: 1" = 20' (V=H)

SLOPE STABILITY CALCULATION SECTION A-A'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR.	Mr. David Aviv	DATE	6 / 14 / 2013	PROJECT No.	13-347-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

SHEET No. 1

ALONG BEDDING STRENGTHS

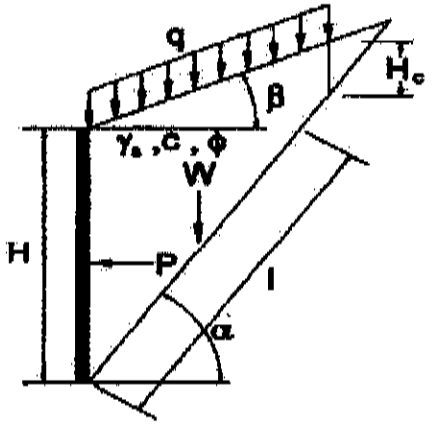
Saturated Unit Weight	γ_s	130 pcf
Cohesion	C	150 psf
Fiction Angle along Sliding Area	φ	22 °

MOBILIZED STRENGTH PARAMETERS

Factor of Safety	F.S.	1.25
Mobilized Cohesion	$C_m = c/F.S.$	120 psf
Mobilized Friction Angle	$\varphi_m = \tan^{-1}(\tan\varphi/F.S.)$	18 °

TENSION CRACK HEIGHT

Coefficient of Lateral Earth Active Pressure	$K_a = \tan^2(45^o-(\varphi_m/2))$	0.53
Height of Retaining Wall	H	33 ft
Height of Tension Crack	$H_c=(2C_m)/[(\gamma_s)(K_a^{0.5})]$	3 ft
Average Inclination of Ground Surface Above Wall	β	23 °



LATERAL EARTH PRESSURE CALCULATIONS (TEMPORARY CONDITION)

WALLS SUPPORTING DAYLIGHTED BEDDING *(SECTION A-A')(ABB'CDEF)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

WEDGE PARAMETERS

Estimating Failure Surface Angle	$\alpha > \beta$	27 °
Length of Potential Sliding Surface Across Wedge	$L = \frac{(H-H_c)\cos\beta}{\sin(\alpha-\beta)}$	163 ft
Weigh of Soil in Wedge Above Potential Sliding Area	$W = 0.5\gamma_t\left[HL + \frac{H_c(H-H_c)\cos\beta}{\sin(\alpha-\beta)}\right]$	460000 lb

LATERAL EARTH PRESSURE

Assumed Uniformly Distributed Surcharge Load	q	0
Additional Lateral Load	$E = (K_a qL\cos\alpha)/(\cos\beta)$	0
Resultant Horizontal Force	$P = (W - c_m L\sin\alpha)(\tan(\alpha - \Phi_m)) - c_m L\cos\alpha + E$	54022 lb
Equivalent Fluid Density	$G_h = 2P/H^2$	99 psf

For Wall Design, Use Equivalent Fluid Density G_h= 100 psf

LATERAL EARTH PRESSURE CALCULATIONS (TEMPORARY CONDITION) CONT'D

WALLS SUPPORTING DAYLIGHTED BEDDING *(SECTION A-A')(ABB'CDEF)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

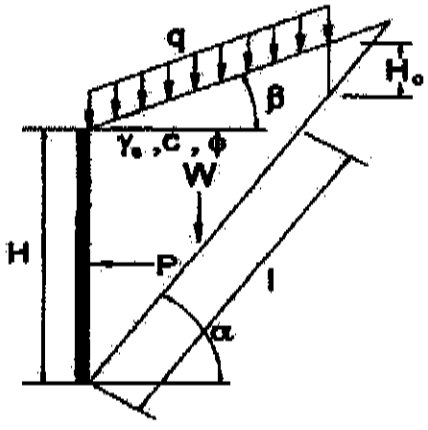
Saturated Unit Weight	γ_s	130 pcf
Cohesion	C	150 psf
Fiction Angle along Sliding Area	φ	22 °

MOBILIZED STRENGTH PARAMETERS

Factor of Safety	F.S.	1.5
Mobilized Cohesion	$C_m = c/F.S.$	100 psf
Mobilized Friction Angle	$\varphi_m = \tan^{-1}(\tan\varphi/F.S.)$	15 °

TENSION CRACK HEIGHT

Coefficient of Lateral Earth Active Pressure	$K_a = \tan^2(45^o-(\varphi_m/2))$	0.59
Height of Retaining Wall	H	33 ft
Height of Tension Crack	$H_c = (2C_m)/[(\gamma_s)(K_a^{0.5})]$	2 ft
Average Inclination of Ground Surface Above Wall	β	23 °



LATERAL EARTH PRESSURE CALCULATIONS (PERMANENT CONDITION)

WALLS SUPPORTING DAYLIGHTED BEDDING *(SECTION A-A')(ABB'CDEF)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

WEDGE PARAMETERS

Estimating Failure Surface Angle	$\alpha > \theta$	27 °
Length of Potential Sliding Surface Across Wedge	$L = \frac{(H-H_c)\cos\beta}{\sin(\alpha-\beta)}$	167 ft
Weigh of Soil in Wedge Above Potential Sliding Area	$W = 0.5\gamma_s\left[HL + \frac{H_c(H-H_c)\cos\beta}{\sin(\alpha-\beta)}\right]$	460000 lb

LATERAL EARTH PRESSURE

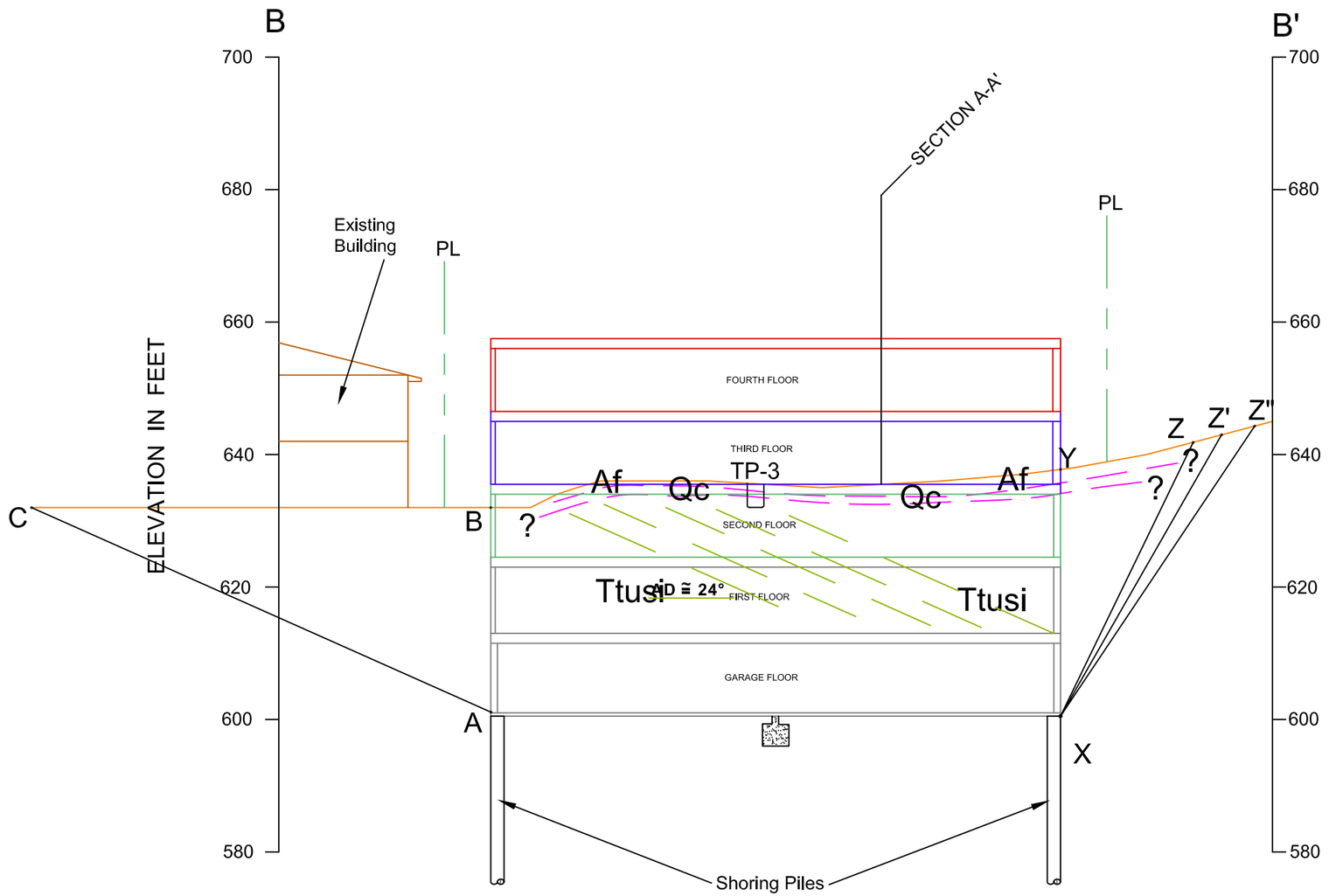
Assumed Uniformly Distributed Surcharge Load	q	0
Additional Lateral Load	$E = (K_a qL\cos\alpha)/(\cos\beta)$	0
Resultant Horizontal Force	$P = (W - c_m L\sin\alpha)(\tan(\alpha - \Phi_m)) - c_m L\cos\alpha + E$	81680 lb
Equivalent Fluid Density	$G_h = 2P/H^2$	150 psf

For Wall Design, Use Equivalent Fluid Density G_h= 150 psf

LATERAL EARTH PRESSURE CALCULATIONS (PERMANENT CONDITION) CONT'D

WALLS SUPPORTING DAYLIGHTED BEDDING *(SECTION A-A')(ABB'CDEF)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22



EXPLANATION

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Contact, Approximately Located

N40°W

Scale: 1" = 20' (V=H)

SLOPE STABILITY CALCULATION SECTION B-B'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR.	Mr. David Aviv	DATE	6 / 14 / 2013	PROJECT No.	13-347-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

SHEET No. 2

ALONG BEDDING STRENGTHS

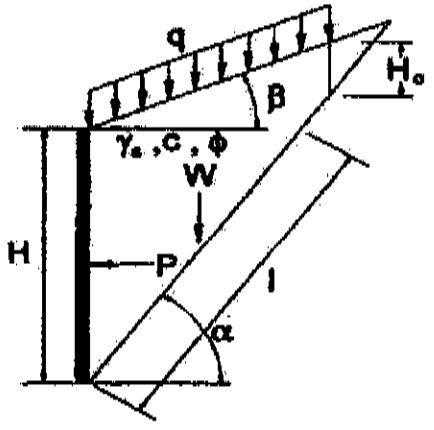
Saturated Unit Weight	γ_s	130 pcf
Cohesion	C	360 psf
Fiction Angle along Sliding Area	φ	34 °

MOBILIZED STRENGTH PARAMETERS

Factor of Safety	F.S.	1.25
Mobilized Cohesion	$C_m = c/F.S.$	288 psf
Mobilized Friction Angle	$\varphi_m = \tan^{-1}(\tan\varphi/F.S.)$	28 °

TENSION CRACK HEIGHT

Coefficient of Lateral Earth Active Pressure	$K_a = \tan^2(45^o-(\varphi_m/2))$	0.36
Height of Retaining Wall	H	31 ft
Height of Tension Crack	$H_c = (2C_m)/[(\gamma_s)(K_a^{0.5})]$	7 ft
Average Inclination of Ground Surface Above Wall	β	0 °



LATERAL EARTH PRESSURE CALCULATIONS (TEMPORARY CONDITION)

WALLS SUPPORTING DAYLIGHTED BEDDING *(SECTION B-B')(ABC)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

WEDGE PARAMETERS

Estimating Failure Surface Angle	$\alpha > \beta$	24 °
Length of Potential Sliding Surface Across Wedge	$L = \frac{(H-H_c)\cos\beta}{\sin(\alpha-\beta)}$	60 ft
Weigh of Soil in Wedge Above Potential Sliding Area	$W = 0.5\gamma_s\left[HL + \frac{H_c(H-H_c)\cos\beta}{\sin(\alpha-\beta)}\right]$	136 k

LATERAL EARTH PRESSURE

Assumed Uniformly Distributed Surcharge Load	q	12,000 lb/ft
Additional Lateral Load	$E = (K_a qL\cos\alpha)/(\cos\beta)$	236,791 lb
Resultant Horizontal Force	$P = (W - c_m L\sin\alpha)(\tan(\alpha - \Phi_m)) - c_m L\cos\alpha + E$	34,989 lb
Equivalent Fluid Density	$G_h = 2P/H^2$	73 psf

For Wall Design, Use Equivalent Fluid Density G_h= 75

LATERAL EARTH PRESSURE CALCULATIONS (TEMPORARY CONDITION) CONT'D

WALLS SUPPORTING DAYLIGHTED BEDDING *(SECTION B-B')(ABC)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

ALONG BEDDING STRENGTHS

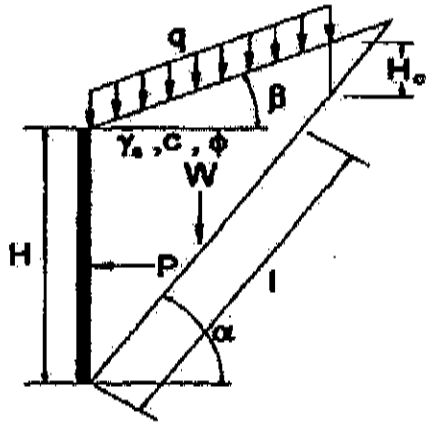
Saturated Unit Weight	γ_s	130 pcf
Cohesion	C	360 psf
Fiction Angle along Sliding Area	φ	34 °

MOBILIZED STRENGTH PARAMETERS

Factor of Safety	F.S.	1.5
Mobilized Cohesion	$C_m = c/F.S.$	240 psf
Mobilized Friction Angle	$\varphi_m = \tan^{-1}(\tan\varphi/F.S.)$	24 °

TENSION CRACK HEIGHT

Coefficient of Lateral Earth Active Pressure	$K_a = \tan^2(45^o-(\varphi_m/2))$	0.42
Height of Retaining Wall	H	31 ft
Height of Tension Crack	$H_c = (2C_m)/[(\gamma_s)(K_a^{0.5})]$	6 ft
Average Inclination of Ground Surface Above Wall	β	0 °



LATERAL EARTH PRESSURE CALCULATIONS (PERMANENT CONDITION)

WALLS SUPPORTING NEUTRAL BEDDING *(SECTION B-B')(ABC)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

WEDGE PARAMETERS

Estimating Failure Surface Angle	$\alpha > \beta$	24 °
Length of Potential Sliding Surface Across Wedge	$L = \frac{(H-H_c)\cos\beta}{\sin(\alpha-\beta)}$	64 ft
Weigh of Soil in Wedge Above Potential Sliding Area	$W = 0.5\gamma_s\left[HL+\frac{H_c(H-H_c)\cos\beta}{\sin(\alpha-\beta)}\right]$	142 k

LATERAL EARTH PRESSURE

Assumed Uniformly Distributed Surcharge Load	q	12,000 lb/ft
Additional Lateral Load	$E = (K_a qL\cos\alpha)/(\cos\beta)$	252,577 lb
Resultant Horizontal Force	$P = (W-c_m L\sin\alpha)(\tan(\alpha-\Phi_m))-c_m L\cos\alpha+E$	37,021 lb
Equivalent Fluid Density	$G_h = 2P/H^2$	77 psf

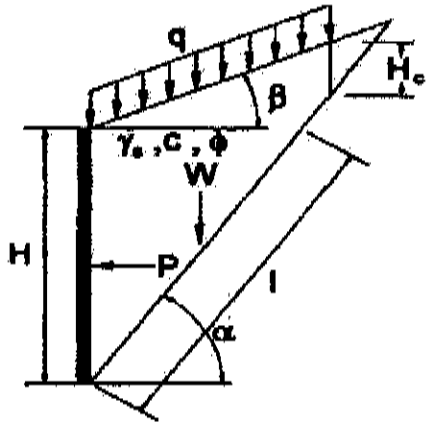
For Wall Design, Use Equivalent Fluid Density G_h= 75 psf

LATERAL EARTH PRESSURE CALCULATIONS (PERMANENT CONDITION) CONT'D

WALLS SUPPORTING NEUTRAL BEDDING *(SECTION B-B')(ABC)*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

CROSS BEDDING STRENGTHS		
Saturated Unit Weight	γ_s	130 pcf
Cohesion Along Potential Sliding Area	C	360 psf
Fiction Angle along Sliding Area	φ	34 °
MOBILIZED STRENGTH PARAMETERS		
Factor of Safety	F.S.	1.25
Mobilized Cohesion	$C_m = c/F.S.$	288 psf
Mobilized Friction Angle	$\varphi_m = \tan^{-1}(\tan\varphi/F.S.)$	28 °
TENSION CRACK HEIGHT		
Coefficient of Lateral Earth Active Pressure	$K_a = \tan^2(45^o-(\varphi_m/2))$	0.36
Height of Retaining Wall	H	37 ft
Height of Tension Crack	$H_c = (2C_m)/[(\gamma_s)(K_a^{0.5})]$	7 ft
Average Inclination of Ground Surface Above Wall	β	10 °



LATERAL EARTH PRESSURE CALCULATIONS (TEMPORARY CONDITION)

WALLS SUPPORTING CROSS BEDDING *(SECTION B-B')(XYZ, XYZ',XYZ")*

FOR: Mr. David Aviv	DATE: 6 / 6 / 2013	PROJECT NO.: 13-347-22

WEDGE PARAMETERS

Estimating Failure Surface Angle	$\alpha > 45^o$ & $\alpha > \beta$	α_1=55°	α_2=60°	α_3=65°
Length of Potential Sliding Surface Across Wedge	$L = \frac{(H-H_c)\cos\beta}{\sin(\alpha-\beta)}$	L_1=42 ft	L_2=38 ft	L_3=36 ft
Weigh of Soil in Wedge Above Potential Sliding Area	$W = 0.5\gamma_s\left[HL + \frac{H_c(H-H_c)\cos\beta}{\sin(\alpha-\beta)}\right]$	72 k	57 k	35 k

LATERAL EARTH PRESSURE

Assumed Uniformly Distributed Surcharge Load	q	0	0	0
Additional Lateral Load	$E = (K_a qL\cos\alpha)/(\cos\beta)$	0	0	0
Resultant Horizontal Force	$P = (W - c_m L\sin\alpha)(\tan(\alpha - \Phi_m)) - c_m L\cos\alpha + E$	24,700 lb	26,726 lb	14,912 lb
Equivalent Fluid Density	$G_h = 2P/H^2$	36 psf	39 psf	22 psf

For Wall Design, Use Equivalent Fluid Density G_h= 40 psf

LATERAL EARTH PRESSURE CALCULATIONS (TEMPORARY CONDITION) CONT'D

WALLS SUPPORTING CROSS BEDDING *(SECTION B-B')(XYZ, XYZ', XYZ")*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

CROSS BEDDING STRENGTHS

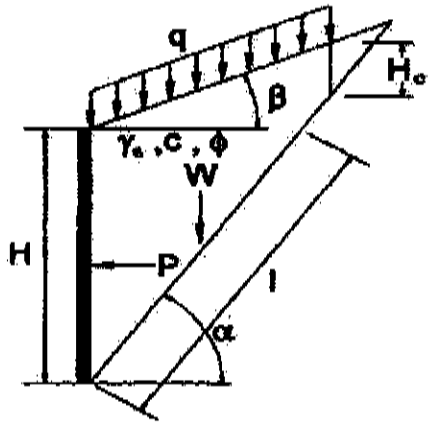
Saturated Unit Weight	γ_s	130 pcf
Cohesion	C	360 psf
Fiction Angle along Sliding Area	φ	34 °

MOBILIZED STRENGTH PARAMETERS

Factor of Safety	F.S.	1.5
Mobilized Cohesion	$C_m = c/F.S.$	240 psf
Mobilized Friction Angle	$\varphi_m = \tan^{-1}(\tan\varphi/F.S.)$	24 °

TENSION CRACK HEIGHT

Coefficient of Lateral Earth Active Pressure	$K_a = \tan^2(45^o-(\varphi_m/2))$	0.42
Height of Retaining Wall	H	37 ft
Height of Tension Crack	$H_c = (2C_m)/[(\gamma_s)(K_a^{0.5})]$	6 ft
Average Inclination of Ground Surface Above Wall	β	10 °



LATERAL EARTH PRESSURE CALCULATIONS (PERMANENT CONDITION)

WALLS SUPPORTING CROSS BEDDING *(SECTION B-B')(XYZ, XYZ', XYZ")*

FOR: Mr. David Aviv	**DATE:** 6 / 6 / 2013	**PROJECT NO.:** 13-347-22

WEDGE PARAMETERS

Estimating Failure Surface Angle	$\alpha > 45^0$ & $\alpha > \beta$	$\alpha_1=50^0$	$\alpha2=55^0$	$\alpha3=60^0$
Length of Potential Sliding Surface Across Wedge	$L = \frac{(H-H_c)\cos\beta}{\sin(\alpha-\beta)}$	$L_1=49$ ft	$L_2=44$ ft	$L_3=40$ ft
Weigh of Soil in Wedge Above Potential Sliding Area	$W = 0.5\gamma_s\left[HL+\frac{H_c(H-H_c)\cos\beta}{\sin(\alpha-\beta)}\right]$	87 K	70 K	56 K

LATERAL EARTH PRESSURE

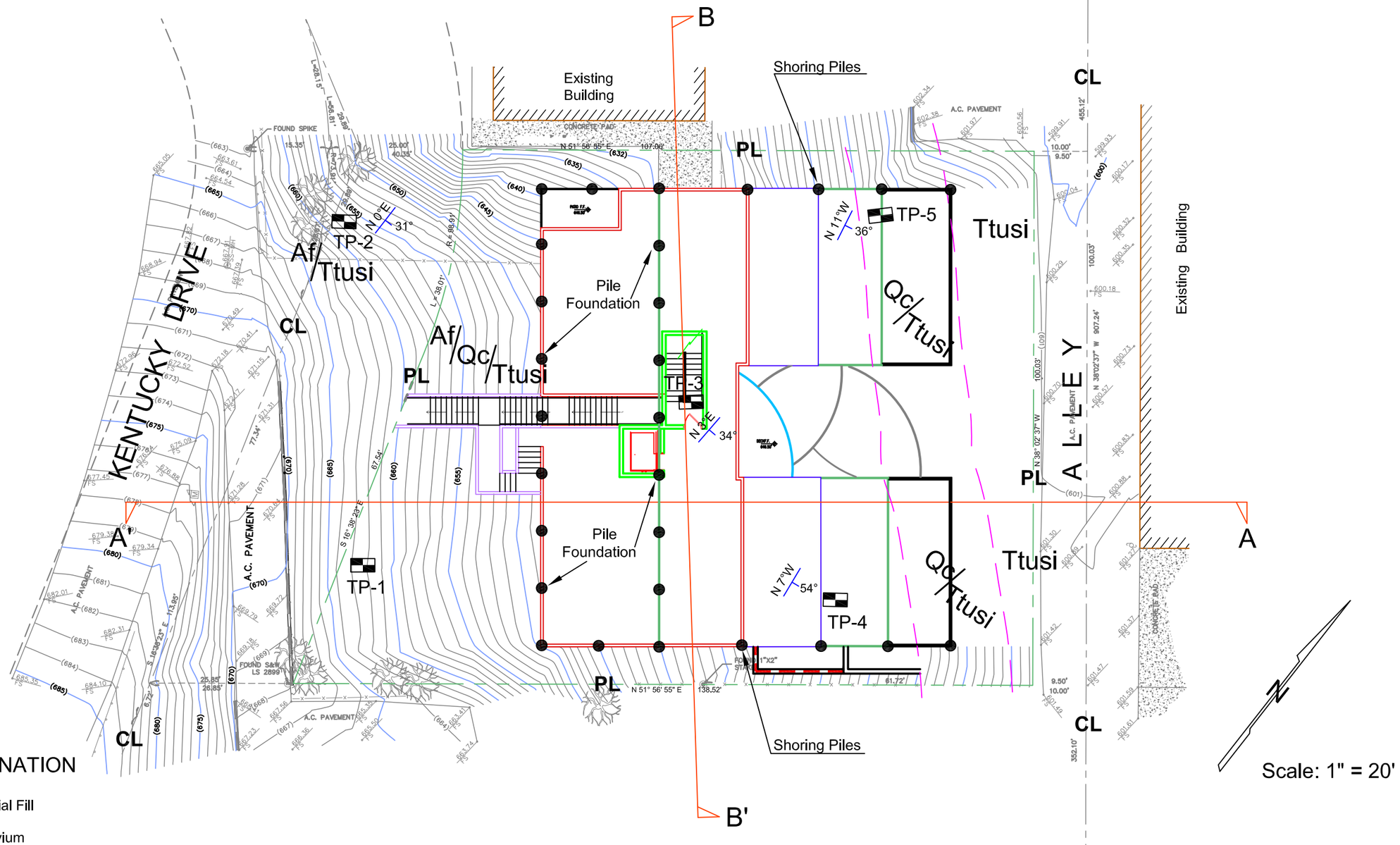
Assumed Uniformly Distributed Surcharge Load	q	0	0	0
Additional Lateral Load	$E=(K_a qL\cos\alpha)/(\cos\beta)$	0	0	0
Resultant Horizontal Force	$P=(W-c_m L\sin\alpha)(\tan(\alpha-\Phi_m))-c_m L\cos\alpha+E$	30,480 lb	30,806 lb	29,846 lb
Equivalent Fluid Density	$G_h=2P/H^2$	44.5 psf	45 psf	44 psf

For Wall Design, Use Equivalent Fluid Density G_h= 45 psf

LATERAL EARTH PRESSURE CALCULATIONS (PERMANENT CONDITION) CONT'D

WALLS SUPPORTING CROSS BEDDING *(SECTION B-B')(XYZ, XYZ', XYZ")*

FOR: Mr. David Aviv | **DATE:** 6 / 6 / 2013 | **PROJECT NO.:** 13-347-22



EXPLANATION

Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
- - -	= Contact, Approximately Located
20°	= Strike & Dip of Bedding
TP-5	= Location Of Test Pit
A — A'	= Location Of Section

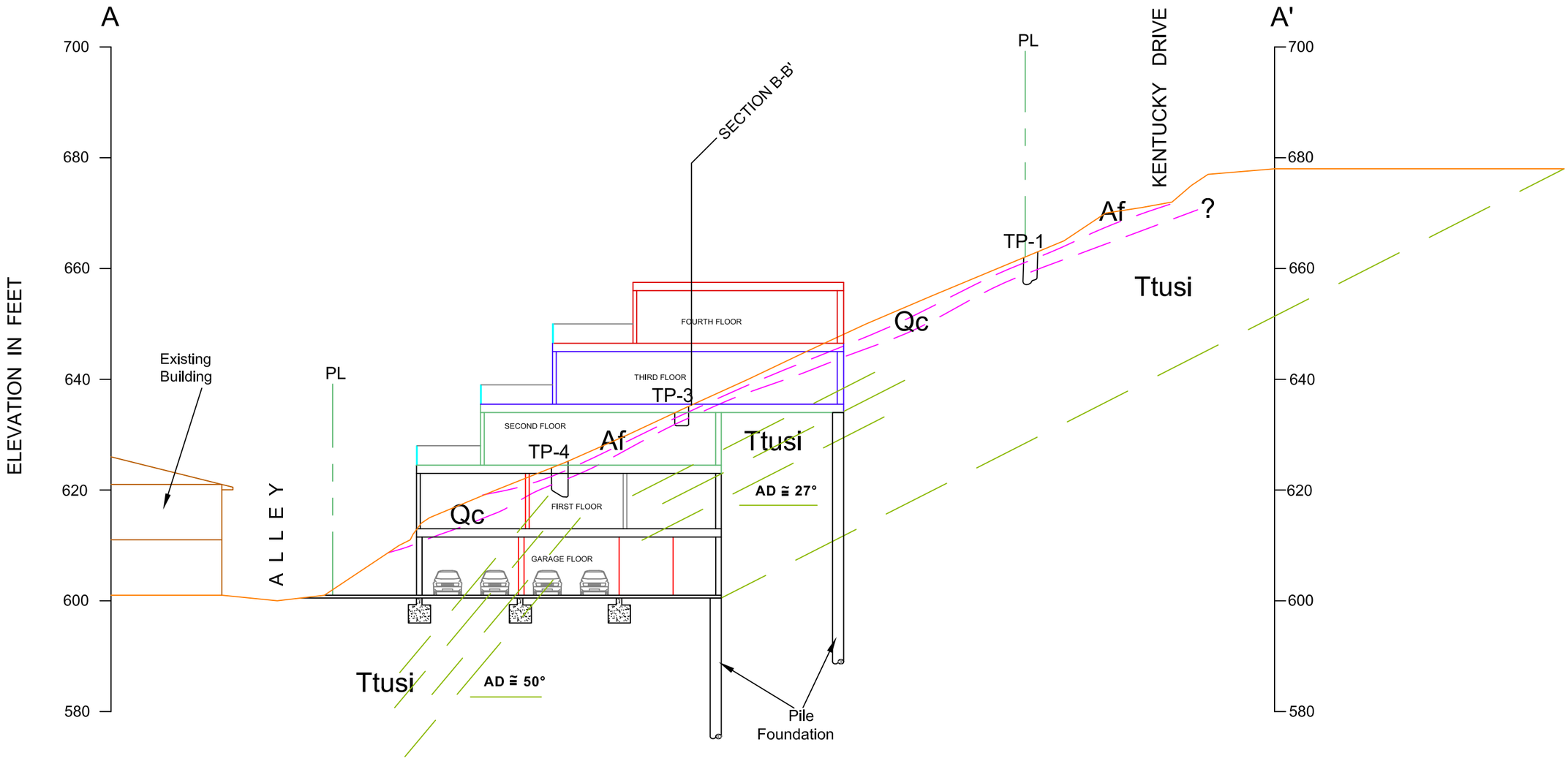
GEOLOGIC MAP & SITE PLAN

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR.	Mr. David Aviv	DATE	6 / 14 / 2013
		PROJECT No.	13-347-22
		DRAWING No.	1

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS



N52°E

Scale: 1" = 20' (V=H)

EXPLANATION

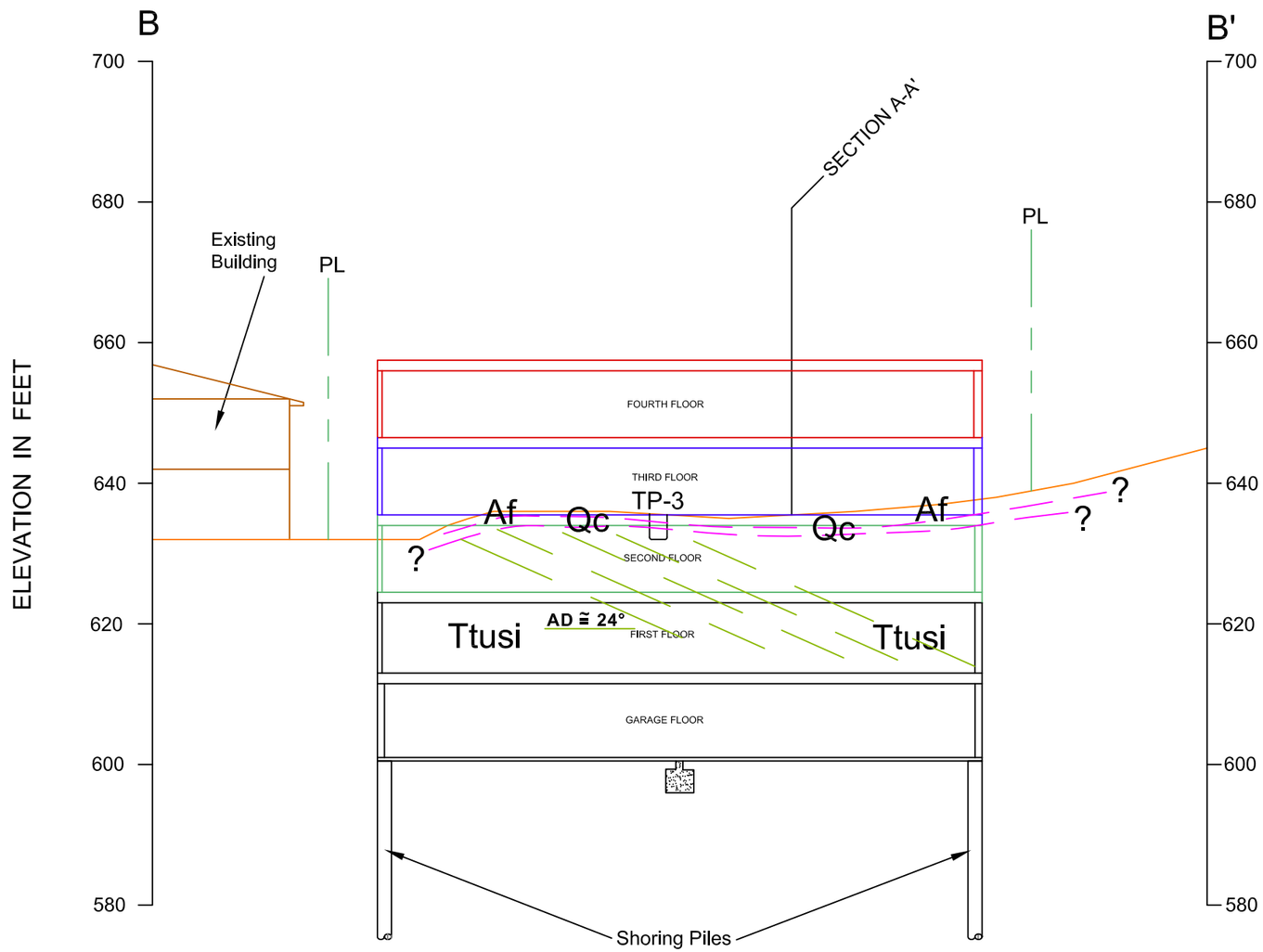
Af	= Artificial Fill
Qc	= Colluvium
Ttusi	= Sandstone Bedrock
- - -	= Contact, Approximately Located

GEOLOGIC CROSS SECTION A-A'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR.	Mr. David Aviv	DATE 6 / 14 / 2013	PROJECT No. 13-347-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS			DRAWING No. 2



EXPLANATION

Af = Artificial Fill

Qc = Colluvium

Ttusi = Sandstone Bedrock

= Contact, Approximately Located

N40°W

Scale: 1" = 20' (V=H)

GEOLOGIC CROSS SECTION B-B'

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

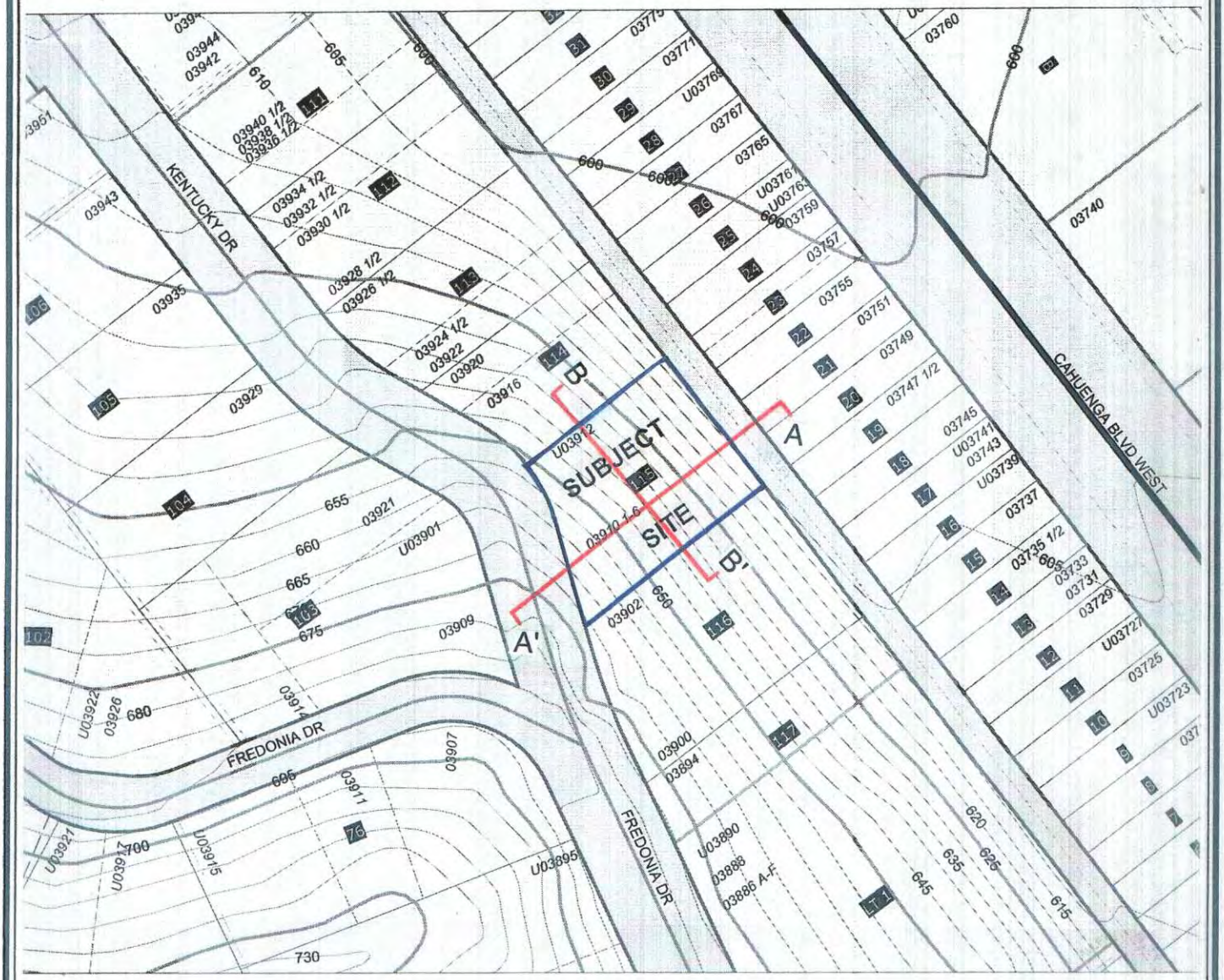
FOR. Mr. David Aviv

DATE 6 / 14 / 2013

PROJECT No. 13-347-22

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

DRAWING No. 3



Scale: 1" =100'

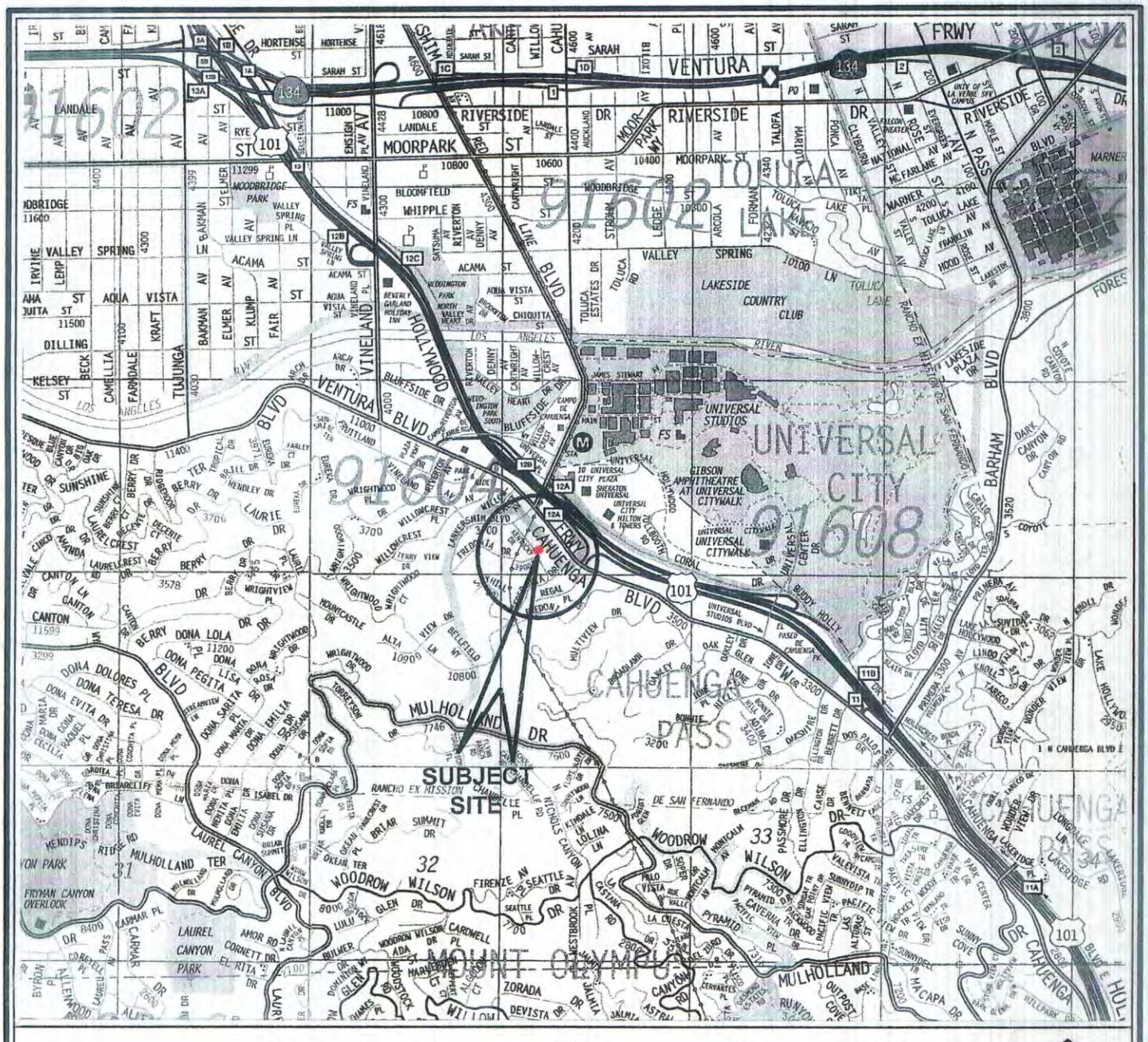
Reference: From Navigate LA Los Angeles City

SITE LOCATION

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR. Mr. David Aviv	DATE 6 / 14 / 2013	PROJECT No. 13-347-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		FIGURE No. 1



Scale: 1" = 2000'

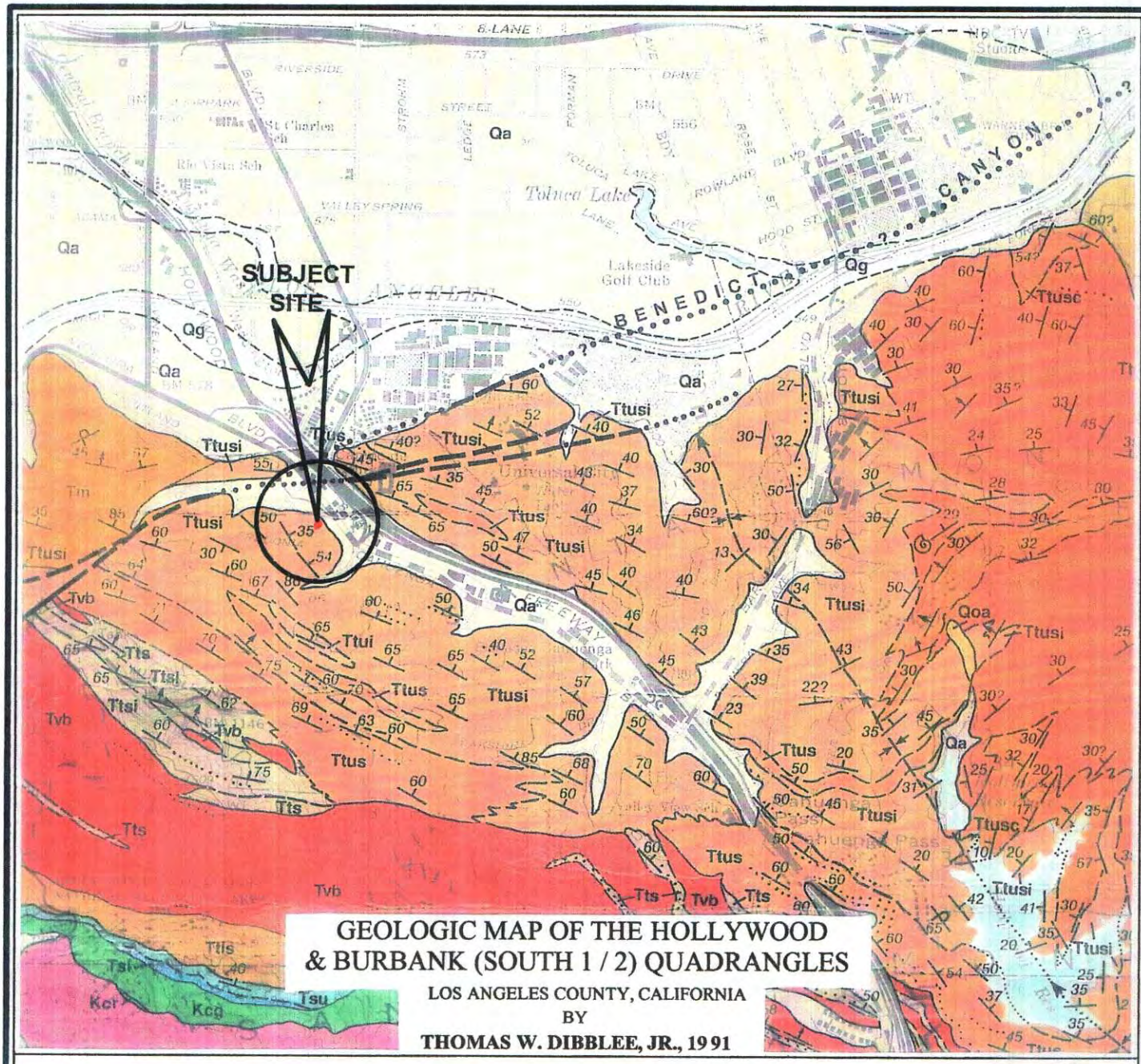
Reference: Portion of Thomas Bros. Maps of Los Angeles County Page # 563 - B6

SITE VICINITY MAP

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR.	Mr. David Aviv	DATE	6 / 14 / 2013	PROJECT No.	13-347-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS				FIGURE No.	2



REGIONAL GEOLOGIC MAP

Proposed Apartment Building Project

Lot 115 of Tract # 5593
3910 Kentucky Drive, Los Angeles (Studio City), California

FOR.	Mr. David Aviv	DATE	6 / 14 / 2013	PROJECT No.	13-347-22
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS				FIGURE No.	3

APPENDIX I

METHOD OF FIELD EXPLORATION

In order to define the subsurface conditions, five test pits were excavated on the site. The approximate locations of the exploratory test holes are shown on the enclosed Site Plan; Drawing No. 1. The test holes were extended to a maximum depth of about 7 feet.

Continuous logs of the subsurface conditions, as encountered in the test pits, were recorded during the field work and are presented on Figure Nos. I-1 through I-5 within this Appendix. These figures also show the number and approximate depths of each of the recovered soil and rock samples.

Relatively undisturbed samples of the subsurface materials were obtained by driving successive drops of a 36-pound metal weight free-falling a vertical distance of about 30 inches. The relatively undisturbed soil and bedrock samples were retained in brass liner rings 2.5 inches in diameter and 1.0 inch in height.

Field investigation for this project was performed on May 3, 2013. The material excavated from the test pits was placed back and compacted upon completion of the field work. Such material may settle. The owner should periodically inspect these areas and notify this office if the settlement creates a hazard to persons or property.

Date: May 22, 2013
Project No: 13-347-22

Figure No. I-1

EXPLORATORY TEST PIT NO. 1

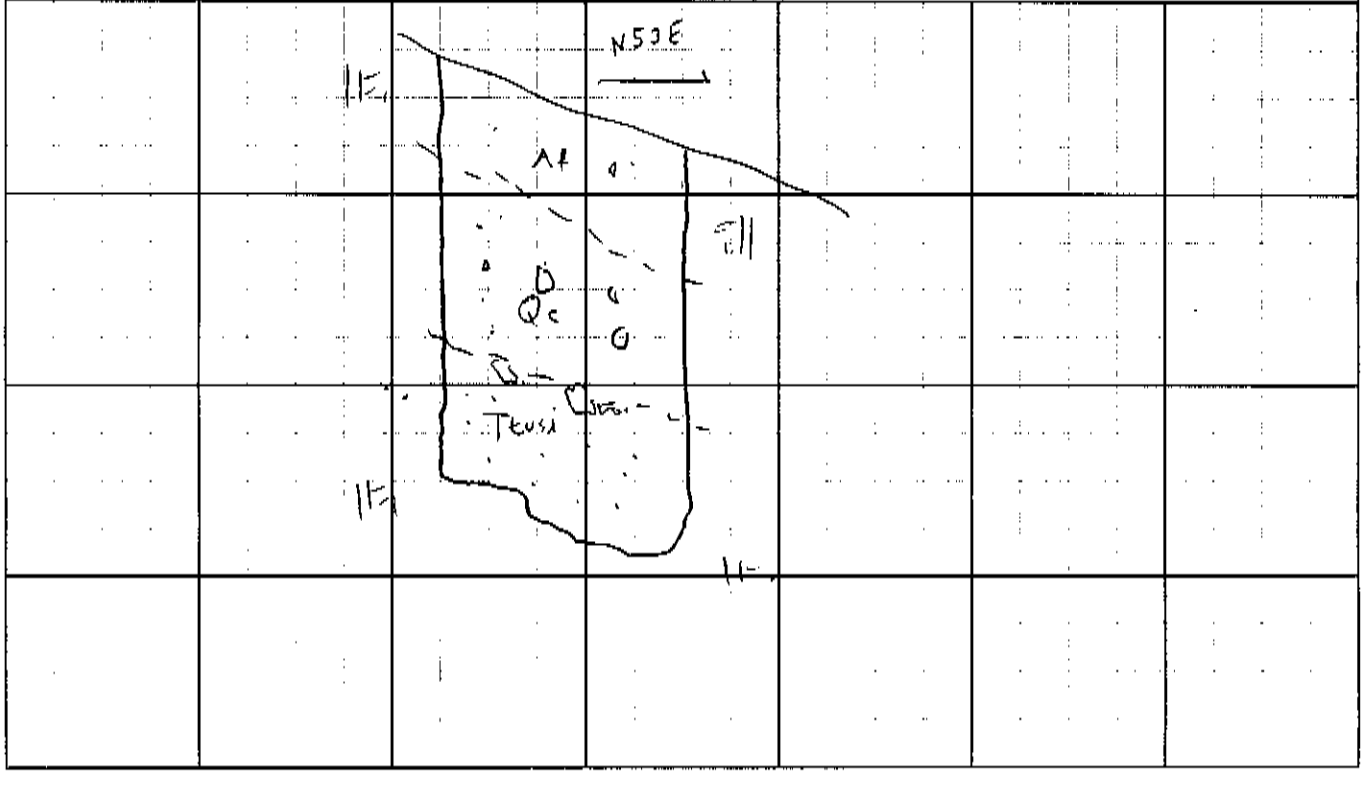
PROJECT: 3910 Kentucky, LA
DATE LOGGED: May 3, 2013

PROJECT TYPE: New Apartment Bldg
LOGGED BY: S. Minas

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL DESCRIPTION
				Fill (Af)	0' - 1': Slough, mixed with some fill and slopewash, silty medium-grained sand with silt (SM), mixed rock fragments, slightly porous, loose, creep prone, includes some road cut fill.
103	8			Colluvium (Qc)	1' - 3': Colluvial hillslope soil, mixed with some residual soil. Rock fragments in a silty sand matrix (SM), light to medium brown, medium dense, slightly moist.
				Sandstone Bedrock (Ttusi)	3' - 4.5': Fine to medium grained sandstone bedrock, tight, hard, dense, difficult to excavate, orange to orange brown, well-indurated, massive, unable to sample.
					End of Test Pit at 4.5'. No Caving, No Water. Test Pit backfilled to surface after logging and sampling.

SCALE 1" = 2'

GENERALIZED PROFILE



Applied Earth Sciences

Date: May 22, 2013
Project No: 13-347-22

Figure No. I-2

EXPLORATORY TEST PIT NO. 2

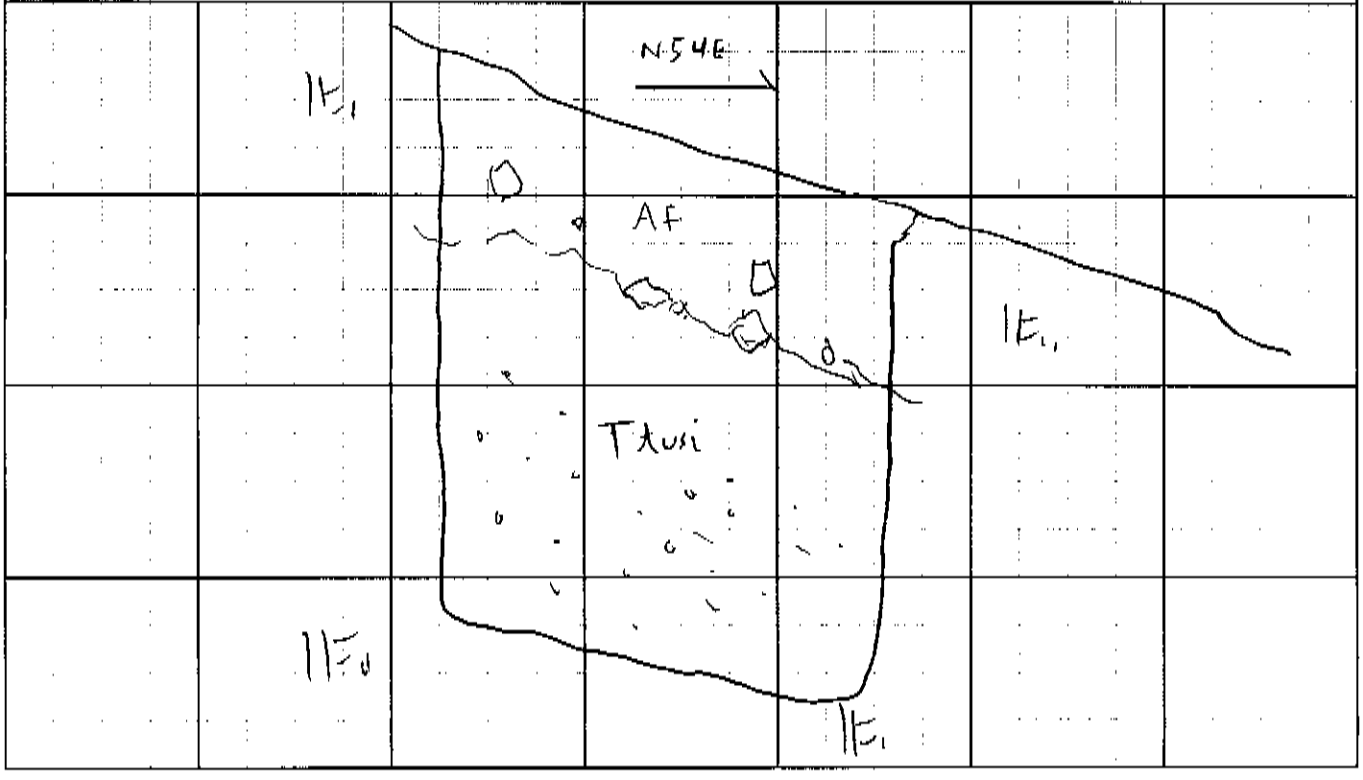
PROJECT: 3910 Kentucky, LA
DATE LOGGED: May 3, 2013

PROJECT TYPE: New Apartment Bldg
LOGGED BY: S. Minas

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL DESCRIPTION
87	5			Fill (Af)	0' - 1': Slough, mixed with some fill and slopewash, silty medium-grained sand with silt (SM), mixed rock fragments, slightly porous, loose, creep prone, includes some road cut fill.
117	3	N0E 31E bed.		Sandstone Bedrock (Ttusi)	1' - 3': Fine to medium grained sandstone bedrock, light brown to yellow brown, well indurated, widely spaced tight fractures, upper part is weathered and creep-prone, competent and hard at bottom, faint stratification in sandstone interbeds. End of Test Pit at 3'. No Caving, No Water. Test Pit backfilled to surface after logging and sampling.

SCALE 1" = 1'

GENERALIZED PROFILE



Applied Earth Sciences

Date: May 22, 2013
Project No: 13-347-22

Figure No. I-3

EXPLORATORY TEST PIT NO. 3

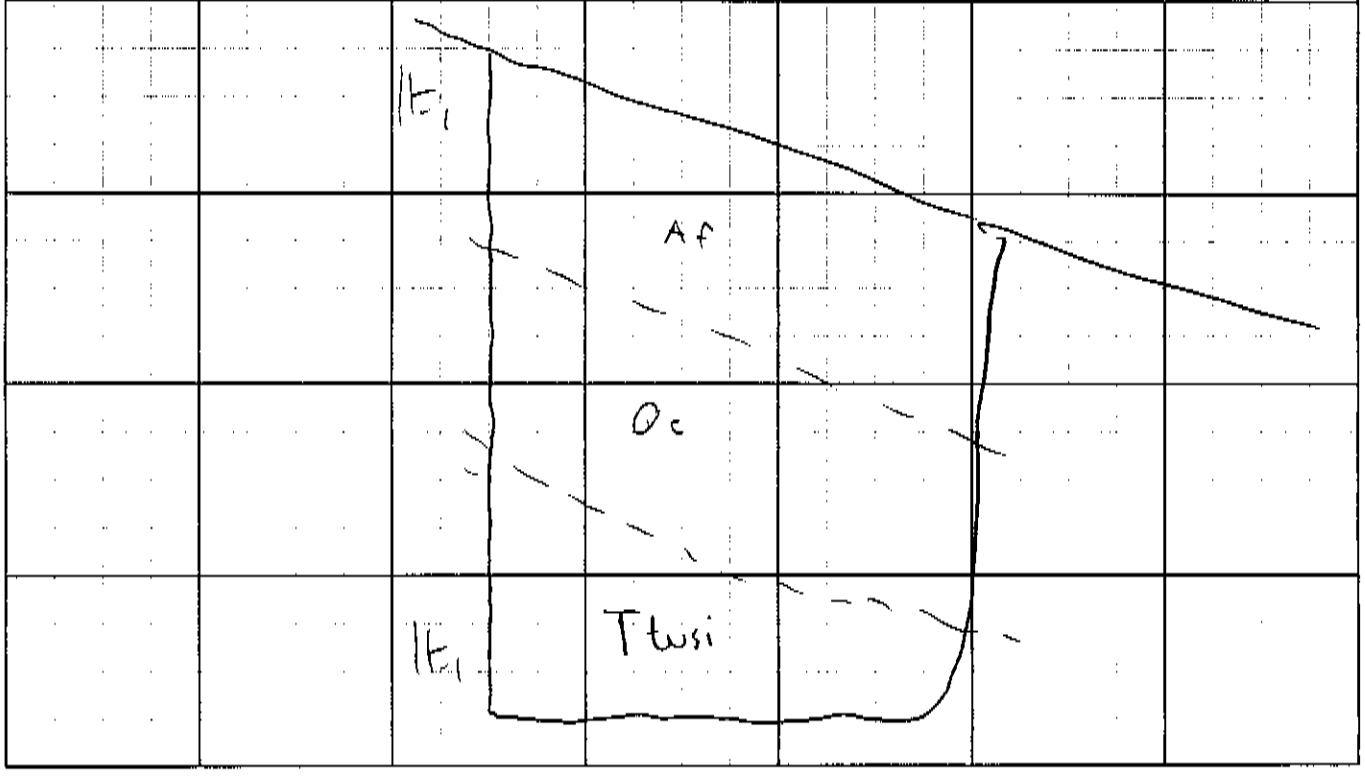
PROJECT: 3910 Kentucky, LA
DATE LOGGED: May 3, 2013

PROJECT TYPE: New Apartment Bldg
LOGGED BY: S. Minas

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL DESCRIPTION
95	5			Fill (Af)	0' - 1': Slough, mixed with some fill and slopewash, silty medium-grained sand with silt (SM), mixed rock fragments, slightly porous, loose, creep prone, includes some road cut fill.
97	8			Colluvium (Qc)	1' - 2': Soil (SM), silty gravelly sand, slopewash and colluvial soil, creep-prone.
		N3E 34E bed.		Sandstone Bedrock (Ttusi)	2' - 3.5': Fine to medium grained sandstone bedrock, light brown to yellow brown, well indurated, competent.
					End of Test Pit at 3.5'. No Caving, No Water. Test Pit backfilled to surface after logging and sampling.

SCALE 1" = 1'

GENERALIZED PROFILE



Applied Earth Sciences

Date: May 22, 2013
Project No: 13-347-22

Figure No. I-4

EXPLORATORY TEST PIT NO. 4

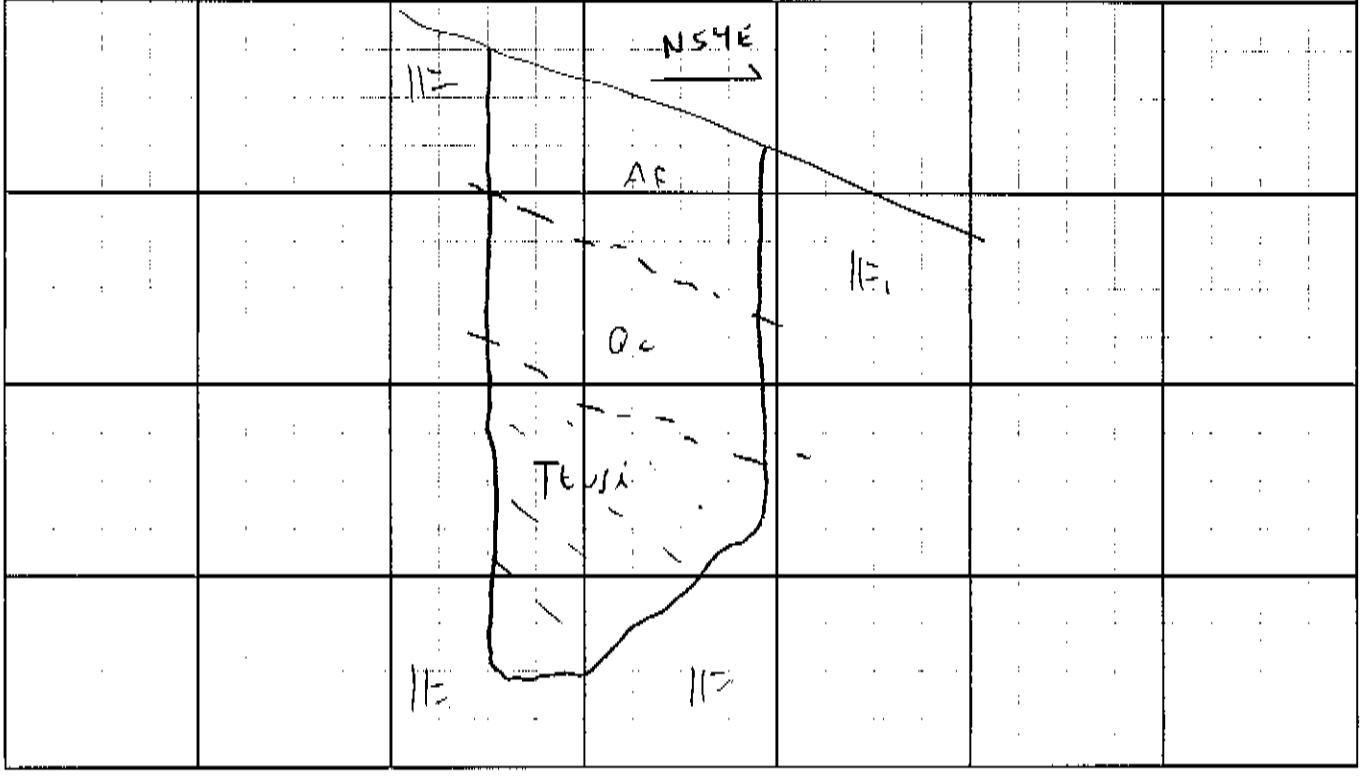
PROJECT: 3910 Kentucky, LA
DATE LOGGED: May 3, 2013

PROJECT TYPE: New Apartment Bldg
LOGGED BY: S. Minas

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL DESCRIPTION
86	6			Fill (Af)	0' - 1.5': Slough, mixed with some fill and slopewash, silty medium-grained sand with silt (SM), mixed rock fragments, slightly porous, loose, creep prone.
95	7			Colluvium (Qc)	1.5' - 3': Soil (SM), silty gravelly sand, slopewash and colluvial soil, creep-prone.
106	7	N7W 54NE bed.		Sandstone Bedrock (Ttusi)	3' - 6.5': Fine to medium grained sandstone bedrock interbedded with siltstone and claystone, tight, moderately indurated, medium dense.
					End of Test Pit at 6.5'. No Caving, No Water. Test Pit backfilled to surface after logging and sampling.

SCALE 1" = 2'

GENERALIZED PROFILE



Date: May 22, 2013
Project No: 13-347-22

Figure No. I-5

EXPLORATORY TEST PIT NO. 5

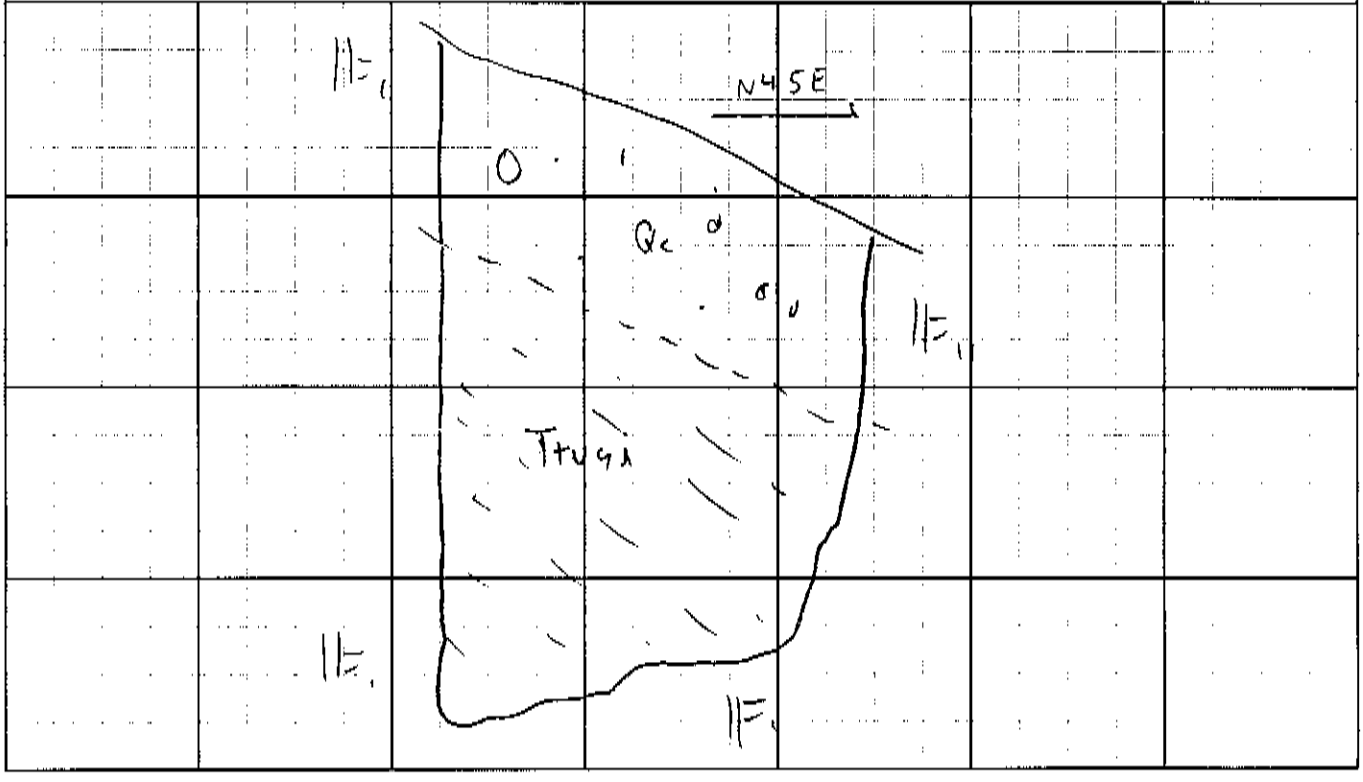
PROJECT: 3910 Kentucky, LA
DATE LOGGED: May 3, 2013

PROJECT TYPE: New Apartment Bldg
LOGGED BY: S. Minas

DRY DENSITY (PCF)	FIELD MOISTURE (% DRY WEIGHT)	ATTITUDE	BLOWS PER FOOT	MATERIAL TYPE	MATERIAL DESCRIPTION
89	3			Colluvium (Qc)	0' - 1': Soil (SM), silty gravelly sand, slopewash, creep-prone, large bedrock fragments, residual soil.
114	3	N11W 36NE bed.		Sandstone Bedrock (Ttusi)	1' - 3.5': Fine to medium grained sandstone bedrock interbedded with siltstone and claystone, tight, moderately indurated, medium dense. End of Test Pit at 3.5'. No Caving, No Water. Test Pit backfilled to surface after logging and sampling.

SCALE 1" = 1'

GENERALIZED PROFILE



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MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAME
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravels, gravel - sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Organic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Organic clay of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Organic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Organic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

NO. 200 NO. 40 NO. 10 NO. 4 3/4 in. 3 in. (12 in.)

U. S. STANDARD SIEVE SIZE

UNIFIED SOIL CLASSIFICATION SYSTEM

JOB NAME : Proposed Apartment Building Project
3910 Kentucky Drive, Los Angeles (Studio City), California

JOB No. 13-347-22

FIGURE No. I-6

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

APPENDIX II

LABORATORY TESTING PROCEDURES

MOISTURE DENSITY

The moisture-density information provides a summary of soil consistency for each stratum and can also provide a correlation between soils found on this site and other nearby sites. The dry unit weight and field moisture content were determined for each undisturbed sample, and the results are shown on the log of exploratory borings.

SHEAR AND RE-SHEAR TESTS

After the samples are pre-soaked overnight under initial confining pressure, a range of normal stresses are applied vertically, and the shear strengths are progressively determined under each load in order to determine the internal angle of friction and the cohesion of the sample. After application of each of the confining pressures, and before the shearing tests, sufficient amount of time is allowed for any excess pore pressure to dissipate. During the course of shear test, the sample is allowed to undergo volume change under a given confining pressure. Under each load, the direct sear tests are continued until the ultimate strength or about 3 percent strain (whichever is lower) is reached. The sample is then allowed to relax to remove the major portion of the viscous component of the shear strength. It should be noted that due to normal disturbance during sampling and laboratory extruding, the measured bedrock strengths are normally significantly lower than the actual values.

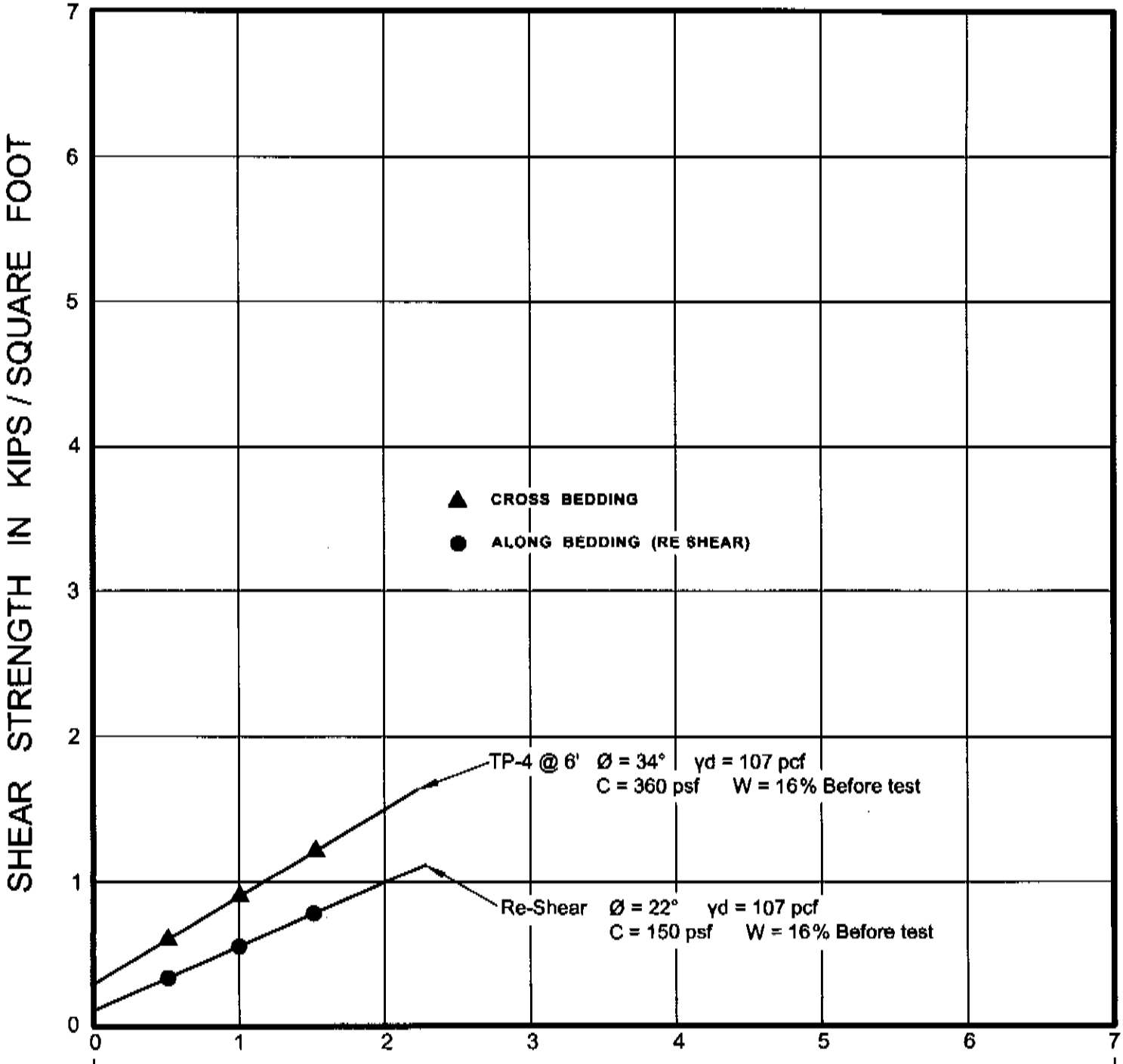
In order to determine the strength of the bedrock along bedding, foliation or joint planes or landslide debris strengths, the sample is soaked overnight under initial confining pressure. The sample is then re-sheared several times until the least strengths are obtained. During typical testing, the shearing of the samples are continued until the residual strengths are developed (the shear strengths remain constant, after the peak has been reached, or about 5 percent strain corresponding to approximately 0.100 inches of shearing deformation has occurred). At this point, the tests are stopped. The samples are then pushed back to their original position. The shear test procedure is then repeated along the previously sheared plane. This procedure is repeated several times until constant residual strengths are obtained.

CONSOLIDATION

The apparatus used for the consolidation tests is designed to receive the undisturbed brass ring of soil as it comes from the field. Loads were applied to the test specimen in several increments, and the resulting deformations were recorded at selected time intervals. Porous stones were placed in contact with the top and bottom of the specimen to permit the ready addition or release of water.

Undisturbed specimens were tested at the field and added water conditions. The test results are shown on Figure No. II-2 within this Appendix.

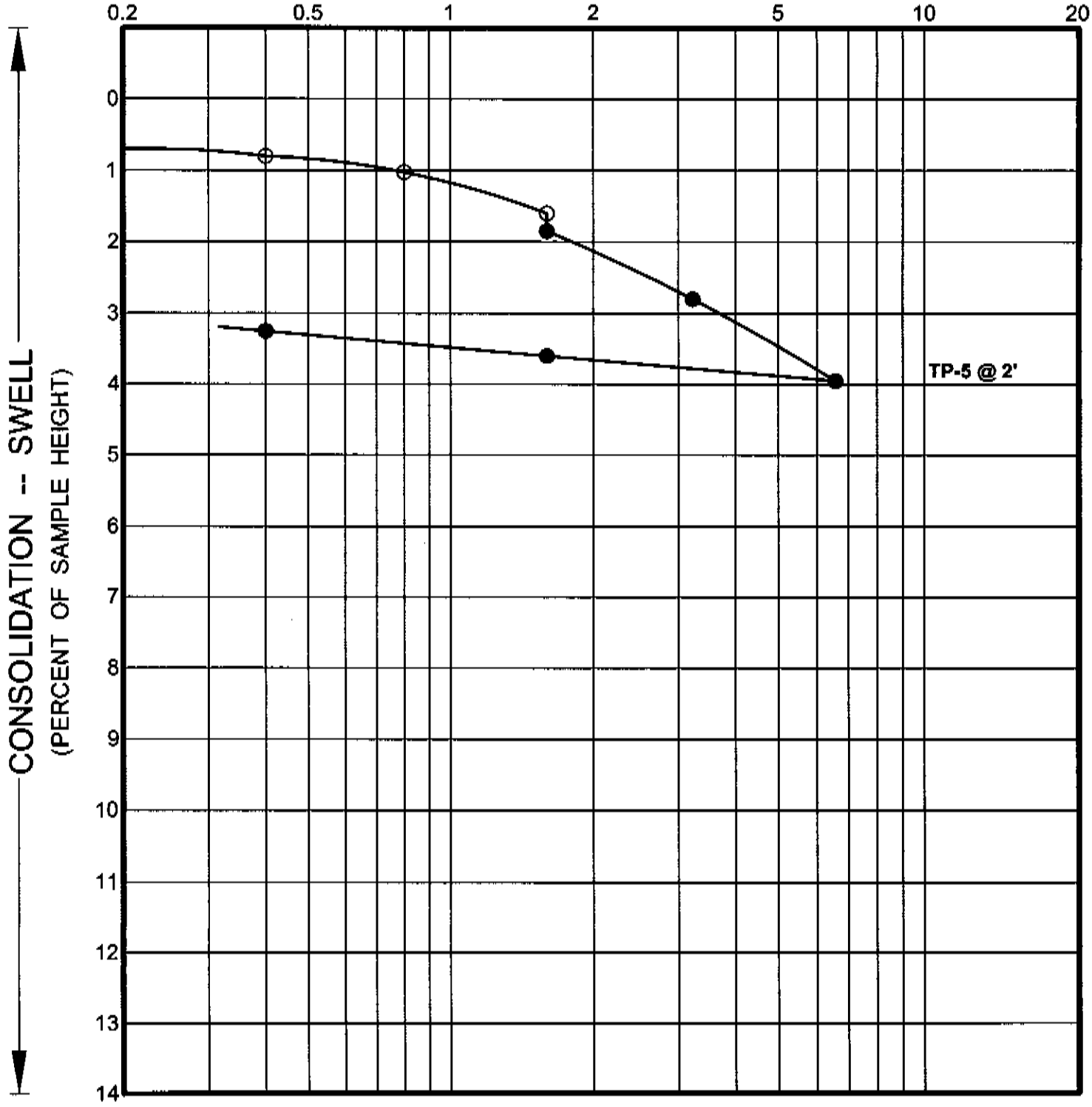
NORMAL STRESS IN KIPS / SQUARE FOOT



DIRECT SHEAR TESTS

JOB NAME	Proposed Apartment Building Project 3910 Kentucky Drive, Los Angeles (Studio City), California	JOB No.	13-347-22
	APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS	FIGURE No.	II - 1

PRESSURE IN KIPS PER SQUARE FOOT



○ FIELD MOISTURE ● WATER ADDED

SWELL - CONSOLIDATION TESTS

JOB NAME	Proposed Apartment Building Project 3910 Kentucky Drive, Los Angeles (Studio City), California	JOB No. 13-347-22
	APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS	FIGURE No. II - 2

MITIGATION AND MONITORING PROGRAM

1.1 INTRODUCTION

This Mitigation Monitoring Program ("MMP") has been prepared pursuant to Public Resources Code Section 21081.6, which requires a Lead Agency to adopt a "reporting or monitoring program for changes to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." In addition, Section 15097(a) of the State CEQA Guidelines requires that a public agency adopt a program for monitoring or reporting mitigation measures and project revisions, which it has required to mitigate or avoid significant environmental effects. This MMP has been prepared in compliance with the requirements of CEQA, Public Resources Code Section 21081.6 and Section 15097 of the State CEQA Guidelines.

The City of Los Angeles is the Lead Agency for the Project and therefore is responsible for administering and implementing the MMP. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity that accepts the delegation; however, until mitigation measures have been completed, the Lead Agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

A Mitigated Negative Declaration (MND) has been prepared to address the potential environmental impacts of the Project. The evaluation of the Project's impacts in the MND takes into consideration the project design features (PDF) and applies mitigation measures (MM) needed to avoid or reduce potentially significant environmental impacts. This MMP is designed to monitor implementation of the PDFs and MMs identified for the Project.

1.2 ORGANIZATION

As shown on the following pages, each identified project design feature and mitigation measure for the Project is listed and categorized by environmental impact area, with accompanying identification of the following:

- Enforcement Agency: the agency with the power to enforce the PDF or MM.
- Monitoring Agency: the agency to which reports involving feasibility, compliance, implementation, and development are made.
- Monitoring Phase: the phase of the Project during which the PDF or MM shall be monitored.
- Monitoring Frequency : the frequency at which the PDF or MM shall be monitored.
- Action Indicating Compliance: the action by which the Enforcement or Monitoring Agency indicates that compliance with the identified PDF or required MM has been implemented.

1.3 ADMINISTRATIVE PROCEDURES AND ENFORCEMENT

This MMP shall be enforced throughout all phases of the Project. The Applicant shall be responsible for implementing each PDF and MM and shall be obligated to provide certification, as identified below, to the appropriate monitoring and enforcement agencies that each PDF and MM has been implemented. The Applicant shall maintain records demonstrating compliance with each PDF and MM. Such records shall be made available to the City upon request.

During the construction phase and prior to the issuance of building permits, the Applicant shall retain an independent Construction Monitor (either via the City or through a third-party consultant), approved by the Department of City Planning, who shall be responsible for monitoring implementation of PDFs and MMs during construction activities consistent with the monitoring phase and frequency set forth in this MMP.

The Construction Monitor shall also prepare documentation of the Applicant's compliance with the PDFs and MMs during construction every 90 days in a form satisfactory to the Department of City Planning. The documentation must be signed by the Applicant and Construction Monitor and be included as part of the Applicant's Compliance Report. The Construction Monitor shall be obligated to immediately report to the Enforcement Agency any non-compliance with the MMs and PDFs within two businesses days if the Applicant does not correct the non-compliance within a reasonable time of notification to the Applicant by the monitor or if the non-compliance is repeated. Such non-compliance shall be appropriately addressed by the Enforcement Agency.

1.4 PROGRAM MODIFICATION

After review and approval of the final MMP by the Lead Agency, minor changes and modifications to the MMP are permitted, but can only be made subject to City approval. The Lead Agency, in conjunction with any appropriate agencies or departments, will determine the adequacy of any proposed change or modification. This flexibility is necessary in light of the nature of the MMP and the need to protect the environment. No changes will be permitted unless the MMP continues to satisfy the requirements of CEQA, as determined by the Lead Agency.

The Project shall be in substantial conformance with the PDFs and MMs contained in this MMP. The enforcing departments or agencies may determine substantial conformance with PDFs and MMs in the MMP in their reasonable discretion. If the department or agency cannot find substantial conformance, a PDF or MM may be modified or deleted as follows: the enforcing department or agency, or the decision maker for a subsequent discretionary project related approval, finds that the modification or deletion complies with CEQA, including CEQA Guidelines Sections 15162 and 15164, which could include the preparation of an addendum or subsequent environmental clearance, if necessary, to analyze the impacts from the modifications to or deletion of the PDFs or MMs. Any addendum or subsequent CEQA clearance shall explain why the PDF or MM is no longer needed, not feasible, or the other basis for modifying or deleting the PDF or MM, and that the modification will not result in a new significant impact consistent with the requirements of CEQA. Under this process, the modification or deletion of a PDF or MM shall not in and of itself require a modification to any Project discretionary approval unless the Director of Planning also finds that the change to the PDF or MM results in a substantial change to the Project or the non-environmental conditions of approval.

1.5 MITIGATION MONITORING PROGRAM

BIOLOGICAL RESOURCES

BIO-1. Habitat Modification (Nesting Native Birds, Hillside or Rural Areas)

The project will result in the removal of vegetation and disturbances to the ground and therefore may result in take of nesting native bird species. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). The following measures are as recommended by the California Department of Fish and Game:

- Proposed project activities (including disturbances to native and non-native vegetation, structures and substrates) should take place outside of the breeding bird season which generally runs from March 1- August 31 (as early as February 1 for raptors) to avoid take (including disturbances which would cause abandonment of active nests containing eggs and/or young). Take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture of kill (Fish and Game Code Section 86).
- If project activities cannot feasibly avoid the breeding bird season, beginning 30 days prior to the disturbance of suitable nesting habitat, the applicant shall:
  a. Arrange for weekly bird surveys to detect any protected native birds in the habitat to be removed and any other such habitat within 300 feet of the construction work area (within 500 feet for raptors) as access to adjacent areas allows. The surveys shall be conducted by a Qualified Biologist with experience in conducting breeding bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work.
  b. If a protected native bird is found, the applicant shall delay all clearance/construction disturbance activities within 300 feet of suitable nesting habitat for the observed protected bird species (within 500 feet for suitable raptor nesting habitat) until August 31.
  c. Alternatively, the Qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, clearing and construction within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified biological monitor, shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. The buffer zone from the nest shall be established in the field with flagging and stakes. Construction personnel shall be instructed on the sensitivity of the area.
  d. The applicant shall record the results of the recommended protective measures described above to document compliance with applicable State and Federal laws pertaining to the protection of native birds. Such record shall be submitted and received into the case file for the associated discretionary action permitting the project.

Enforcement Agency: Los Angeles Department of Building and Safety

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Construction

Monitoring Frequency: Once, prior to issuance of building permit; or, if vegetation removal, building demolition or grading is initiated during the nesting season, as determined by a qualified biologist

Action Indicating Compliance: if vegetation removal, building demolition, or grading is initiated during the nesting season, submittal of a survey report by a qualified biologist.

BIO-2. Tree Removal (Non-Protected Trees)

Environmental impacts from project implementation may result due to the loss of significant trees on the site. However, the potential impacts will be mitigated to a less than significant level by the following measures:

- Prior to the issuance of any permit, a plot plan shall be prepared indicating the location, size, type, and general condition of all existing trees on the site and within the adjacent public right(s)-of-way.
- All significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) non-protected trees on the site proposed for removal shall be replaced at a 1:1 ratio with a minimum 24-inch box tree. Net, new trees, located within the parkway of the adjacent public right(s)-of-way, may be counted toward replacement tree requirements.
- Removal or planting of any tree in the public right-of-way requires approval of the Board of Public Works. Contact Urban Forestry Division at: 213-847-3077. All trees in the public right-of-way shall be provided per the current standards of the Urban Forestry Division the Department of Public Works, Bureau of Street Services.

Enforcement Agency: Board of Public Works Urban Forestry Division

Monitoring Agency: Board of Public Works Urban Forestry Division

Monitoring Phase: pre-construction

Monitoring Frequency: Once, at plan check, and once at field inspection

Action Indicating Compliance: Issuance of Certificate of Occupancy

BIO-3. Tree Removal (Public Right-of-Way)

- Removal of trees in the public right-of-way requires approval by the Board of Public Works.
- The required Tree Report shall include the location, size, type, and condition of all existing trees in the adjacent public right-of-way and shall be submitted for review and approval by the Urban Forestry Division of the Bureau of Street Services, Department of Public Works (213-847-3077).

- The plan shall contain measures recommended by the tree expert for the preservation of as many trees as possible. Mitigation measures such as replacement by a minimum of 24-inch box trees in the parkway and on the site, on a 1:1 basis, shall be required for the unavoidable loss of significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) trees in the public right-of-way.
- All trees in the public right-of-way shall be provided per the current Urban Forestry Division standards.

Enforcement Agency: Board of Public Works Urban Forestry Division

Monitoring Agency: Board of Public Works Urban Forestry Division

Monitoring Phase: pre-construction

Monitoring Frequency: Once, at plan check, and once at field inspection

Action Indicating Compliance: Issuance of Certificate of Occupancy

GEOLOGY/SOILS

GEO-1. Erosion/Grading/Short-Term Construction Impacts

Short-term erosion impacts may result from the construction of the proposed project. However, these impacts can be mitigated to a less than significant level by the following measures:

- The applicant shall provide a staked signage at the site with a minimum of 3-inch lettering containing contact information for the Senior Street Use Inspector (Department of Public Works), the Senior Grading Inspector (LADBS) and the hauling or general contractor.

Enforcement Agency: Los Angeles Department of Building and Safety

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Construction

Monitoring Frequency: Ongoing during construction

Action Indicating Compliance: Issuance of Certificate of Occupancy or Land Use Permit

GEO-2. Slope Maintenance

- The applicant shall implement a program of normal slope maintenance, including annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardance, deep rooted ground cover, and proper irrigation.

Enforcement Agency: Los Angeles Department of Building and Safety

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Construction and Operation

Monitoring Frequency: Ongoing

Action Indicating Compliance: None – ongoing operational compliance required.

NOISE

NOISE-1. Increased Noise Levels (Demolition, Grading, and Construction Activities)

- Construction and demolition shall be restricted to the hours of 7:00 am to 6:00 pm Monday through Friday, and 8:00 am to 6:00 pm on Saturday.
- Demolition and construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.
- The project contractor shall use power construction equipment with state-of-the-art noise shielding and muffling devices.
- A temporary noise control barrier shall be installed on the property line of the construction site abutting residential uses. The noise control barrier shall be engineered to reduce construction-related noise levels at the adjacent residential structures with a goal of a reduction of 10dBA. The supporting structure shall be engineered and erected according to applicable codes. The temporary barrier shall remain in place until all windows have been installed and all activities on the project site are complete.

Enforcement Agency: Los Angeles Department of Building and Safety

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Construction

Monitoring Frequency: Ongoing during field inspection

Action Indicating Compliance: Issuance of Certificate of Occupancy or Use of Land

TRANSPORTATION

TR-1. Haul Route and Construction

- The developer shall install appropriate traffic signs around the site to ensure pedestrian and vehicle safety.
- The applicant shall be limited to no more than two trucks at any given time within the site's staging area.
- There shall be no staging of hauling trucks on any streets adjacent to the project, unless specifically approved as a condition of an approved haul route.
- No hauling shall be done before 9 a.m. or after 3 p.m.
- Trucks shall be spaced so as to discourage a convoy effect.
- On substandard hillside streets, only one hauling truck shall be allowed on the street at any time.
- A minimum of two flag persons are required. One flag person is required at the entrance to the project site and one flag person at the next intersection along the haul route.
- Truck crossing signs are required within 300 feet of the exit of the project site in each direction.
- The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by grading and hauling, and at all times shall provide reasonable control of dust caused by wind.
- Loads shall be secured by trimming and watering or may be covered to prevent the spilling or blowing of the earth material.
- Trucks and loads are to be cleaned at the export site to prevent blowing dirt and spilling of loose earth.
- No person shall perform grading within areas designated "hillside" unless a copy of the permit is in the possession of a responsible person and available at the site for display upon request.
- A log documenting the dates of hauling and the number of trips (i.e. trucks) per day shall be available on the job site at all times.
- The applicant shall identify a construction manager and provide a telephone number for any inquiries or complaints from residents regarding construction activities. The telephone number shall be posted at the site readily visible to any interested party during site preparation, grading and construction.

Enforcement Agency: Los Angeles Department of Building and Safety, Los Angeles Department of Transportation

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Construction

Monitoring Frequency: Ongoing during construction

Action Indicating Compliance: Issuance of Certificate of Occupancy or Land Use Permi

TR-2. Pedestrian Safety

- Applicant shall plan construction and construction staging as to maintain pedestrian access on adjacent sidewalks throughout all construction phases. This requires the applicant to maintain adequate and safe pedestrian protection, including physical separation (including utilization of barriers such as K-Rails or scaffolding, etc) from work space and vehicular traffic and overhead protection, due to sidewalk closure or blockage, at all times.
- Temporary pedestrian facilities shall be adjacent to the project site and provide safe, accessible routes that replicate as nearly as practical the most desirable characteristics of the existing facility.
- Covered walkways shall be provided where pedestrians are exposed to potential injury from falling objects.
- Applicant shall keep sidewalk open during construction until only when it is absolutely required to close or block sidewalk for construction staging. Sidewalk shall be reopened as soon as reasonably feasible taking construction and construction staging into account.

Enforcement Agency: Los Angeles Department of Building and Safety, Los Angeles Department of Transportation

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Construction

Monitoring Frequency: Ongoing during construction

Action Indicating Compliance: Issuance of Certificate of Occupancy or Land Use Permit

TRIBAL CULTURAL RESOURCES

TRIBAL-1. Tribal Monitor

Prior to commencing any ground disturbance activities at the Project site, the Applicant, or its successor, shall retain archeological monitors and tribal monitors that are qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. Any qualified tribal monitor(s) shall be approved by the Gabrieleno Band of Mission Indians and the Fernandeno Tataviam Band of Mission Indians. Any qualified archaeological monitor(s) shall be approved by the Department of City Planning, Office of Historic Resources ("OHR"). The qualified archeological and tribal monitors shall observe all ground disturbance activities on the project site at all times the ground disturbance activities are taking place. If ground disturbance activities are simultaneously occurring at multiple locations on the project site, an archeological and tribal monitor shall be assigned to each location where the ground disturbance

activities are occurring. The on-site monitoring shall end when the ground disturbing activities are completed, or when the archaeological and tribal monitor both indicate that the site has a low potential for impacting tribal cultural resources.

Prior to commencing any ground disturbance activities, the archaeological monitor in consultation with the tribal monitor, shall provide Worker Environmental Awareness Program (WEAP) training to construction crews involved in ground disturbance activities that provides information on regulatory requirements for the protection of tribal cultural resources. As part of the WEAP training, construction crews shall be briefed on proper procedures to follow should a crew member discover tribal cultural resources during ground disturbance activities. In addition, workers will be shown examples of the types of resources that would require notification of the archaeological monitor and tribal monitor. The Applicant shall maintain on the Project site, for City inspection, documentation establishing the training was completed for all members of the construction crew involved in ground disturbance activities.

In the event that any subsurface objects or artifacts that may be tribal cultural resources are encountered during the course of any ground disturbance activities, all such activities shall temporarily cease within the area of discovery, the radius of which shall be determined by a qualified archeologist, in consultation with a qualified tribal monitor, until the potential tribal cultural resources are properly assessed and addressed pursuant to the process set forth below:

1. Upon a discovery of a potential tribal cultural resource, the Applicant, or its successor, shall immediately stop all ground disturbance activities and contact the following: (1) all California Native American tribes that have informed the City they are traditionally and culturally affiliated with the geographic area of the proposed project; (2) and OHR.
2. If OHR determines, pursuant to Public Resources Code Section 21074 (a)(2), that the object or artifact appears to be a tribal cultural resource in its discretion and supported by substantial evidence, the City shall provide any affected tribe a reasonable period of time, not less than 14 days, to conduct a site visit and make recommendations to the Applicant, or its successor, and the City regarding the monitoring of future ground disturbance activities, as well as the treatment and disposition of any discovered tribal cultural resources.
3. The Applicant, or its successor, shall implement the tribe's recommendations if a qualified archaeologist retained by the City and paid for by the Applicant, or its successor, in consultation with the tribal monitor, reasonably conclude that the tribe's recommendations are reasonable and feasible.
4. In addition to any recommendations from the applicable tribe(s), a qualified archeologist shall develop a list of actions that shall be taken to avoid or minimize impacts to the identified tribal cultural resources substantially consistent with best practices identified by the Native American Heritage Commission and in compliance with any applicable federal, state or local law, rule or regulation.
5. If the Applicant, or its successor, does not accept a particular recommendation determined to be reasonable and feasible by the qualified archaeologist or qualified tribal monitor, the Applicant, or its successor, may request mediation by a mediator agreed to by the Applicant, or its successor, and the City. The mediator must have the requisite

professional qualifications and experience to mediate such a dispute. The City shall make the determination as to whether the mediator is at least minimally qualified to mediate the dispute. After making a reasonable effort to mediate this particular dispute, the City may (1) require the recommendation be implemented as originally proposed by the archaeologist or tribal monitor; (2) require the recommendation, as modified by the City, be implemented as it is at least as equally effective to mitigate a potentially significant impact; (3) require a substitute recommendation be implemented that is at least as equally effective to mitigate a potentially significant impact to a tribal cultural resource; or (4) not require the recommendation be implemented because it is not necessary to mitigate an significant impacts to tribal cultural resources. The Applicant, or its successor, shall pay all costs and fees associated with the mediation.

6. The Applicant, or its successor, may recommence ground disturbance activities outside of a specified radius of the discovery site, so long as this radius has been reviewed by both the qualified archaeologist and qualified tribal monitor and determined to be reasonable and appropriate.
7. The Applicant, or its successor, may recommence ground disturbance activities inside of the specified radius of the discovery site only after it has complied with all of the recommendations developed and approved pursuant to the process set forth in paragraphs 2 through 5 above.
8. Copies of any subsequent prehistoric archaeological study, tribal cultural resources study or report, detailing the nature of any significant tribal cultural resources, remedial actions taken, and disposition of any significant tribal cultural resources shall be submitted to the South Central Coastal Information Center (SCCIC) at California State University, Fullerton and to the Native American Heritage Commission for inclusion in its Sacred Lands File.
9. Notwithstanding paragraph 8 above, any information that the Department of City Planning, in consultation with the City Attorney's Office, determines to be confidential in nature shall be excluded from submission to the SCCIC or provided to the public under the applicable provisions of the California Public Records Act, California Public Resources Code, section 6254(r), and handled in compliance with the City's AB 52 Confidentiality Protocols.

Enforcement Agency: Los Angeles Department of Building and Safety, Los Angeles City Planning

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Grading, Pre-Construction, Construction

Monitoring Frequency: Ongoing during grading, pre-construction, construction

Action Indicating Compliance: Issuance of Certificate of Occupancy or Land Use Permit

WILDFIRE

FIRE-1. WILDFIRE

- The project shall be designed with boxed-in eaves; single pane, double thickness (minimum 1/8" thickness) or insulated windows; non-combustible finishes, non-combustible roofs (non-wood); and non-wood siding. Exposed wooden members shall be 2 inches nominal thickness.
- Irrigated and managed greenbelts around the perimeter of all structures for a distance of 100 feet shall be considered as a buffer between the brush and the proposed project.
- All landscaping shall use fire-resistant plants and materials. A list of such plants is available from the contact Brush Clearance Unit 6262 Van Nuys Blvd., Room 451, Van Nuys 91401 (800) 994-4444.
- The brush in the area adjacent to the proposed development shall be cleared or thinned periodically by the Homeowner's Association under supervision to the Los Angeles City Fire Department to reduce the risk of brush fires spreading to the homes.

Enforcement Agency: Los Angeles Department of Building and Safety, Los Angeles City Planning

Monitoring Agency: Los Angeles Department of Building and Safety

Monitoring Phase: Grading, Pre-Construction, Construction

Monitoring Frequency: Ongoing during grading, pre-construction, construction

Action Indicating Compliance: Issuance of Certificate of Occupancy or Land Use Permit

EXHIBIT H

REPORTS

McKinley & Associates (818) 240-1358

Arborist Report

3894 Fredonia Drive & 3902 Kentucky Drive
Studio City, California

Prepared for:

Mr. Zaven Ghanimian
Z & H Holdings
528 State Street
Glendale, CA 91203

Prepared by:

William R. McKinley, Consulting Arborist
American Society of Consulting Arborists
Certified Arborist #WE-4578A
International Society of Arboriculture
1734 Del Valle Avenue
Glendale, CA 91208

Arborists and Environmental Consultants

McKinley & Associates (818) 240-1358

October 5, 2016

Mr. Zaven Ghanimian
Z & H Holdings
528 State Street
Glendale, CA 91203

Dear Mr. Ghanimian:

RE: **TREE REPORT** – 3894 Fredonia Drive & 3902 Kentucky Drive, Studio City
Demolition of Buildings and Construction of a new 21-Unit Apartment Building

PROJECT LOCATION

The subject properties are located in a mixed use urban area in Studio City, a community in the City of Los Angeles. The properties are near the intersection of Fredonia Drive and Kentucky Drive. The properties are on the northeast corner. The properties can be reached from the Ventura 134 Freeway by exiting at Forest Lawn Drive. Turn left at the stop sign and proceed west on Forest Lawn Drive to Barham Blvd. Turn left on Barham Blvd. and proceed south until you reach Cahuenga Blvd. Turn right and proceed west on Cahuenga Blvd. until you reach Fredonia Drive. Turn left on Fredonia Drive. Proceed uphill on Fredonia Drive as it winds its way around the hillside. The subject property is on the right or north side of Fredonia Drive at Kentucky Drive. Refer to the attached photos and for site access (See Thomas Guide, Page 563, B-6).

BACKGROUND

As stated earlier, the subject properties are in a mixed use area. There are single family homes along Fredonia Drive however immediately north of the subject properties there is an alley separating nearby commercial properties. The subject properties are located on steep down hill lots running from Fredonia downward toward Cahuenga Blvd. to the north. The lot located at 3894 Fredonia Drive has already undergone demolition. The lot located at 3902 Kentucky Drive still has 2 abandoned residential dwellings on the site. The majority of the existing trees appear to be growing on the 3902 Kentucky Drive property. There are no protected native Coast Live Oak, California Bay, California Sycamore or Southern California Black Walnut trees growing on or near the subject properties. No protected, native trees will be impacted by this project. The tree species identified which are growing on the subject properties include: *Fraxinus velutina* or Arizona Ash, *Fraxinus uhdei* or Shamel Ash, *Ceratonia siliqua* or Carob Tree, *Ailanthus Altissima* or Tree of Heaven, *Arbutus unedo* or Strawberry Tree and *Ficus macrophylla* or Morten Bay Fig. There are a total of 15 mature trees growing on these lots. It is my understanding that all 15 trees will be removed in order to construct a new 21-Unit Apartment Building. The tree removals will be mitigated. Please refer to Mitigation Measures at the end of this report regarding planting of replacement specimen trees as mitigation for the trees to be removed as well as other forms of tree mitigation.

D & G Horticulture

October 6, 2016

City of Los Angeles
Public Works Department
Urban Forestry, Sub-Division Section
1149 South Broadway, Suite 400
Los Angeles, CA 90015

Dear Urban Forester:

Please be advised that as an Agricultural Pest Control Adviser and an I.S.A. Certified Arborist, I have reviewed the Arborist Report prepared by William R. McKinley, McKinley & Associates while at the subject properties located at 3894 Fredonia Drive and 3902 Kentucky Drive, Studio City. The tree and site information contained within this report is accurate. There are no native, protected Oak, Bay, Sycamore or Southern California Black Walnut trees growing on or near these properties and therefore no such trees will be impacted or require removal as a result of this project. I concur with his recommendations and mitigation measures concerning the removal of the existing non-native trees on the site in order to construct a 21 Unit Residential Dwelling.

I have worked with Mr. McKinley for several years and I know him to be an honest, ethical person and a highly skilled and qualified Consulting Arborist. I am therefore recommending that this Arborist Report be accepted and approved.

Attached is a copy of my Agricultural Pest Control Adviser License card and a copy of my I.S.A. Certified Arborist card. If you have any further questions, please feel free to contact me by phone at (818) 262-7429 or at my office at (818) 548-3759.

Yours truly,

Dennis Gaudenti
Licensed Agricultural Pest Control Adviser
#PCA 70750
Certified Arborist #WE1159A
International Society of Arboriculture

International
Society
of Arboriculture™

ISA Certified Arborist

Dennis Gaudenti

Certificate Number: WE-1159A

Expiration Date: Jun 30, 2017

DEPARTMENT OF PESTICIDE REGULATION
LICENSING/CERTIFICATION PROGRAM

PCA

AGRICULTURAL PEST CONTROL ADVISER LICENSE

License #: 70750 EXPIRES: 12/31/2016
Categories: ABCDEFG ISSUED: 02/20/2015

DENNIS A GAUDENTI
9241 DORRINGTON PL
ARLETA CA 91331

This License must be shown to any representative of the Director or Commissioner upon request

McKinley & Associates (818) 240-1358

TREE REPORT

Project Address: 3894 Fredonia Drive & 3902 Kentucky Drive, Studio City
Applicant: Zaven Ghanimian
Proposed Activity: Construction of 21-Unit Apartment Building

This report is broken down into several subsections, which include:

1. Tree location map transposed onto the site plan showing the location of the trees and a number assigned to each tree.

2. Summary of Field Inspection with information regarding Native Trees:
   A. Form (Tree Number corresponding to the number on the tree location map, species of tree and size)
   B. Physical condition
   C. Recommended treatment
   D. Rating: Tree vigor is rated alphabetically (Example: a. Excellent, b. Good, c. Fair, d. Poor, e. Nearly Dead, f. Dead.

3. Summary of Data-Native Trees (Refer to Table 1) A summary of impacts in terms of trees present, trees impacted and trees to be removed.

4. Schedule of Proposed Native Tree Removals (Refer to Table 2)

5. Summary of Field Inspection (Non-Native Trees)

6. Summary of Data-Non-Native Trees (Refer to Table 3)

7. Schedule of Proposed Removals-Non-Native Trees (Refer to Table 4)

8. Tree List and description of location and condition

9. Tree Preservation Plan
   A. Control of diseases and pests
   B. Protection of trees during grading and construction
   C. Method and frequency of pruning
   D. Special instructions on watering
   E. Grading restrictions near the drip line
   F. Mitigation Measures

10. Photographs

11. Curriculum Vitae

LAWRENCE J. SCHMAHL, LICENSED SURVEYOR PLS 5748
11209 HOWARD ST. WHITTIER, CALIFORNIA 90606 (562) 908-0570 / (323) 773-1675

TOPOGRAPHIC SURVEY

SCALE: 1" = 16' APRIL, 2015



LEGAL DESCRIPTION:

LOT 116 AND A PORTION OF AND THE NORTHWESTERLY 40 FEET OF LOT 117 OF TRACT NO. 5593, IN THE CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 63 ,PAGES 62 AND 63 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BENCHMARK:

WIRE SPK.; S.E. CURB LANKERSHIM BLVD., 29.8FT S.W. OF CURB LINE CAHUENGA BLVD., N'LY END CB

LABM# 08-02060 EL= 591.811FT (2000) NAVD 1988

FOR:

3900 KENTUCKY LLC
520 STATE ST.
GLENDALE, CA 91203

BY:

LAWRENCE J. SCHMAHL L.S. 5748

LEGEND:

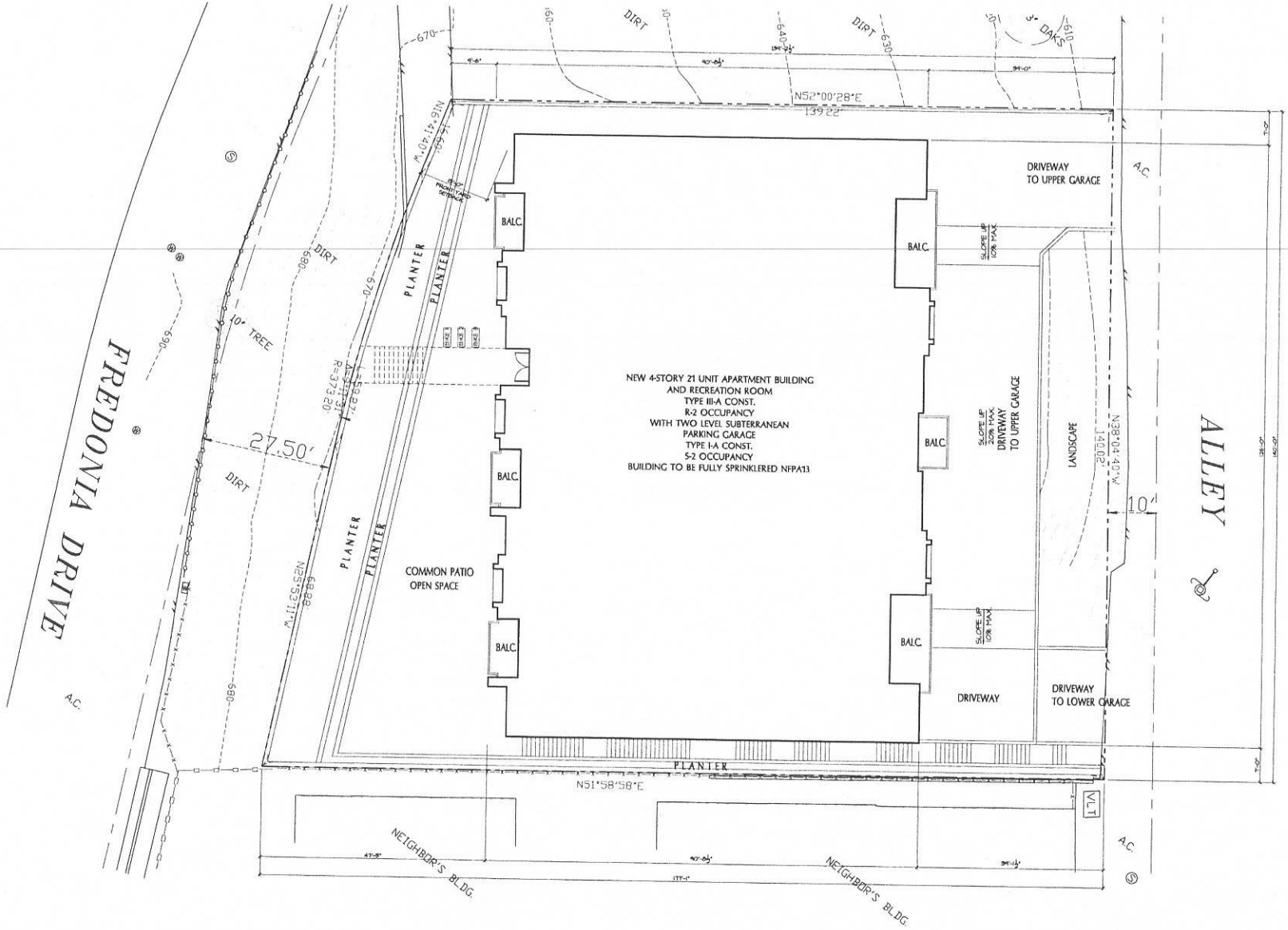
A.C.	ASPHALT CONCRETE
BW	BACK OF WALK
CONC.	CONCRETE
DP	DRAIN PIPE
E	EAST
FF	FINISHED FLOOR
FL	FLOWLINE
GT	GATE
N	NORTH
S	SOUTH
ST	STAIRS
TC	TOP OF CURB
TG	TOP OF GRATE
TW	TOP OF WALL
W	WEST
	BUILDING LINE
	CENTERLINE
	EDGE OF PAVEMENT
EM	ELECTRIC METER
-X-X-X-	FENCE, CHAIN-LINK
	FENCE, IRON
	FENCE, WIRE
	FENCE, WOOD
GM	GAS METER
	LIGHT POLE
MB	MAILBOX
	POWER POLE
	PROPERTY LINE
S	SEWER MANHOLE
52.52 52.52	SPOT ELEVATIONS
VLT	VAULT
	WALL
W	WATER METER
W	WATER VALVE

NOTE:

PRELIMINARY TITLE REPORT PREPARED BY LAWYERS TITLE, DATED NOVEMBER 26, 2014, AS FILE NO. 114082340 AFFECTS 3900 KENTUCKY DRIVE ALSO KNOWN AS APN 2425-002-026. SAID PRELIMINARY REPORT LISTS AN EASEMENT FOR SLOPES, CUTS AND/OR FILLS WHICH CANNOT BE PLOTTED. PRELIMINARY TITLE REPORT PREPARED BY ORANGE COAST TITLE COMPANY OF SOUTHERN CALIFORNIA, DATED DECEMBER 23, 2014, AS ORDER NO. 305-1623510-01 AFFECTS 3994 FREDONIA DRIVE ALSO KNOWN AS APN 2425-003-017. SAID PRELIMINARY REPORT LISTS NO EASEMENTS WHICH AFFECT THE SAID PROPERTY. THIS SURVEYOR MAKES NO GUARANTEES AS TO THE ACCURACY OR COMPLETENESS OF THE TITLE REPORT.

IF THE EXISTING GRADES SHOWN ON THIS MAP ARE TO BE USED FOR CONSTRUCTION PURPOSES, IT IS THE RESPONSIBILITY OF THE PARTY USING THIS MAP TO VERIFY THE VERTICAL DATUM BY CHECKING BETWEEN AT LEAST FIVE EXISTING GRADES SHOWN HEREON.
IF THE INFORMATION ON THIS MAP IS TO BE INCLUDED IN CONSTRUCTION PLANS, THIS MAP IN ITS ENTIRETY MUST BE MADE A PART OF THOSE CONSTRUCTION PLANS.

J09# 12232



SITE PLAN

ACCESSIBLE BUILDING

SCALE: 1/8" = 1'-0"

NORTH

KAMRAN TABRIZI, ARCHITECT & ASSOCIATES

21731 AMBAR DR.
WOODLAND HILLS CA. 91364
TEL (818) 888-6365
FAX (818) 888-6725

PROJECT:
21 UNIT APARTMENT BLD'G.
3900 KENTUCKY DR.
LOS ANGELES, CA. 90068

OWNER:
3900 KENTUCKY LLC
528 STATE ST.
GLENDALE, CA. 91203

NOT FOR CONSTRUCTION

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY AND COPYRIGHT OF THE ARCHITECT AND SHALL NOT BE USED (IN WHOLE OR IN PART) EXCEPT BY AGREEMENT WITH THE ARCHITECT. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED ON THE JOB. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT PRIOR TO FABRICATION OF ANY WORK.

CONSTRUCTION			PRE-CONSTRUCTION	
REV	BULLETIN	DATE	ISSUED FOR	DATE

CHECKED BY | DATE
DRAWN BY | JOB NUMBER

SHEET TITLE
SITE PLAN

SHEET NUMBER
AS.2

SUMMARY OF FIELD INSPECTION NATIVE TREES
3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE

Form						PHYSICAL CONDITION																TREATMENT							RATING			RATING CODE
			SIZE																													
Tree number	Quercus agrifolia	Other Native Tree Species	Trunk Diameter (inches") 4.5 Ft Above Base	Height (feet')	Spread (feet')	Heritage Tree	Overhead Utility Wires	Co-Dominant Stems/Trunks	Included Bark Tissue	Narrow Crotches/Weak Structure	Heart Rot Decay/Cavities	Raised Crown-Lower Limbs Cut	Crowded by nearby trees	Epicormic/Sucker Growth	Branch Dieback/Dead Wood	Insect Activity-Presence	Diseased	Multiple Stems/Weak Structure	Leaning/Asymmetrical Crown	Hardscape within Root Zone	Sapsucker damage-stems, etc.	Sparse or Thinning Crown	Structural Prune-Safety	Remove Deadwood	Raise Canopy	Insect Treatment	Disease Treatment	Mulch & Water Dripline	Remove	Health	Aesthetics & Conformity	Balance	A = EXCELLENT B = GOOD C = FAIR D = POOR E = NEARLY DEAD F = DEAD *SEE PHOTO R = Remove I = Impacted T = Transplantable NT = Not Transplantable BMC = Below main crotch
																																REMARKS
																																No Native trees exist on site!

3894 Fredonia Drive & 3902 Kentucky Drive

Table 1: Summary of Data (Native trees)

Total number of Native trees on map.....0

Total number of dead Native trees at site.....0

Total number of Native trees to be removed (Not including dead trees, Including Native where natural grade within drip line is changed).....0

Total number of Native trees, not removed, to be impacted by construction, encroachment into drip lines.....0

Total number of Native trees not dead, not removed, and/or where natural grade is unchanged.....0

Table 2: Schedule of Proposed Removals (Native trees)

Tree No.	Species	Condition Rating	General Location	Reason for Removal

No Oak, Bay, Sycamore or Southern California Black Walnut trees exist on or near the subject properties. No native trees will be impacted or removed!

CONDITION RATING CODE:

A = Excellent

B = Good

C = Fair

D = Poor

F = Dead

SUMMARY OF FIELD INSPECTION NON-NATIVE TREES
3894 FREDONIA DRIVE AND 3902 KENTUCKY DRIVE

Tree number	Form: Ailanthus altissima	Form: Other Non-Native Tree Species	SIZE: Trunk Diameter (inches") 4.5 Ft Above Base	SIZE: Height (feet')	SIZE: Spread (feet')	PHYSICAL CONDITION: Heritage Tree	Overhead Utility Wires	Co-Dominant Stems/Trunks	Included Bark Tissue	Narrow Crotches/Weak Structure	Heart Rot Decay/Cavities	Raised Crown-Lower Limbs Cut	Crowded by nearby trees	Epicormic/Sucker Growth	Branch Dieback/Dead Wood	Insect Activity-Presence	Diseased	Multiple Stems/Weak Structure	Leaning/Asymmetrical Crown	Hardscape within Root Zone	Sapsucker damage-stems, etc.	Sparse or Thinning Crown	TREATMENT: Structural Prune-Safety	Remove Deadwood	Raise Canopy	Insect Treatment	Disease Treatment	Mulch & Water Dripline	Remove/Conflicts w/new bldg.	RATING: Health	Aesthetics & Conformity	Balance	REMARKS
1		x	10	40	18							x	x									x										
2		x	12, 12	50	30			x	x			x		x	x		x					x							x	D+	D+	C	Fraxinus velutina; Volunteer tree!
3		x	5,8,11,11	50	30				x			x	x		x		x	x				x							x	D-	D-	C	Fraxinus uhdei; Exfoliating bark!
4		x	9, 10	45	21			x	x			x			x							x							x	D	D	C	Fraxinus uhdei; Multiple stems!
5		x	16, 16	45	40			x	x		x	x					x					x							x	D	D	C-	Fraxinus uhdei; Crossing limbs!
6	x		10	40	30							x	x									x							x	D-	D-	C-	Ceratonia siliqua; Sulfur fungus!
7	x		5, 7	40	20		x					x	x		x							x							x	D-	D-	C-	Ivy climbs the tree's trunk!
8	x		10	35	30							x			x							x							x	D-	D-	D-	Utility wires run through the crown
9	x		8, 8, 8	35	25							x	x		x							x							x	D-	D-	C	Ivy covers the tree's trunk!
10		x	5, 7	15	20			x				x			x							x							x	D	D	D	Unbalanced, asymmetrical crown!
11	x		8	30	12							x			x				x			x							x	D+	D+	C	Arbutus unedo; 20% Dead wood!
12	x		6, 7, 7	40	20							x	x																x	D-	D-	C-	Tree bends then turns vertical!
13	x		7, 7	35	20							x	x						x			x							x	C	C	C	Crowded by nearby trees!
14		x	6, 7, 9	40	40							x	x									x							x	D	D	D-	Situated on steep downhill slope!
15	x		6, 10, 10	40	40							x	x									x							x	D	D	C	Ficus macrophylla; Ivy climbs tree!
																						x							x	D+	D+	C	Separate trunks; Ivy climbs tree!

RATING CODE

A = EXCELLENT
B = GOOD
C = FAIR
D = POOR
E = NEARLY DEAD
F = DEAD

*SEE PHOTO
R = Remove
I = Impacted
T = Transplantable
NT = Not Transplantable
BMC = Below main crotch

3894 Fredonia Drive & 3902 Kentucky Drive

Table 3: Summary of Data (Non-Native Trees)

Total number of Non-Native tree species on map.....15

Total number of Non-Native tree species dead at site.....0

Total number of Non-Native tree species to be removed (Not including dead trees, Including trees where natural grade within drip line is changed).....15

Total number of Non-Native tree species, not removed, to be impacted, encroachment into drip lines.....0

Total number of Non-Native tree species not dead, not removed, and/or where natural grade is unchanged.....0

Table 4: Schedule of Proposed Removals (Non-Native Trees)

Tree No.	Species	Condition Rating	General Location	Reason for Removal
1	Fraxinus velutina	D+	Fredonia Drive-Front	Grading/Building
2	Fraxinus uhdei	D-	Fredonia/Kentucky	New Building
3	Fraxinus uhdei	D	Fredonia/Kentucky	New Building
4	Fraxinus uhdei	D	Fredonia/Kentucky	New Building
5	Ceratonia siliqua	D-	Kentucky Lot	New Building
6	Ailanthus altissima	D-	Kentucky Lot	New Building
7	Ailanthus altissima	D-	Kentucky Lot	New Building
8	Ailanthus altissima	D-	Kentucky Lot	New Building
9	Ailanthus altissima	D	Kentucky Lot	New Building
10	Arbutus unedo	D+	Kentucky Lot	New Building
11	Ailanthus altissima	D-	Kentucky Lot	New Building
12	Ailanthus altissima	C	Kentucky Lot	New Building
13	Ailanthus altissima	D	Kentucky Lot	New Building
14	Ficus macrophylla	D	Kentucky Lot	New Building
15	Ailanthus altissima	D+	Kentucky Lot	New Building

CONDITION RATING CODE:

A = Excellent

B = Good

C = Fair

D = Poor

F = Dead

Tree List & Descriptions
3894 Fredonia Drive & 3902 Kentucky Drive
Studio City

Tree #1 is a Fraxinus velutina or Arizona Ash. The tree measures 10 inches in diameter at D.B.H. (Diameter Breast Height) or 4.5 feet above the ground. The tree has a drip line which measures 9 feet from the tree trunk and it has an 18 foot spread. It is estimated to be roughly 40 feet tall. The tree is located on the east side of the survey marker by Fredonia Drive. It is at the top of a down hill slope next to a guard rail. There is bark damage near the bottom of the tree near the ground. The tree's crown has been pruned and raised. It is crowded by a nearby volunteer Tree of Heaven on the east side. There is no irrigation or landscape near the tree. The tree appears to be drought stressed. The foliage size and color appears normal. The crown density is fair. The tree appears to be in below average health and condition. Rating: D+

Tree #2 is a Fraxinus uhdei or Shamel Ash. The tree measures 12 and 12 inches in diameter at D.B.H. The tree has a drip line which measures 15 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 50 feet tall. The tree is located east of the existing house parking area near the boundary between 3902 Kentucky Drive and 3894 Fredonia Drive. It is situated on a slope. There is no irrigation or landscape near the tree. The bark tissue is cracked and exfoliating at the base. The tree's crown has been pruned and raised. It has 2 co-dominant stems with included bark at 4 feet above the ground. There is exfoliating bark on the stems. The tree's crown has been pruned and headed back producing epicormic or sucker growth. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree appears to be in very poor health and condition. Rating: D-

Tree #3 is a Fraxinus uhdei or Shamel Ash. The tree measures 5, 8, 11 and 11 inches in diameter at D.B.H. The tree has a drip line which measures 15 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 50 feet tall. The tree is located 9 feet northwest of Tree #2 near the boundary between 3902 Kentucky Drive and 3894 Fredonia Drive. It is situated on a slope. There is no irrigation or landscape near the tree. There is exfoliating bark near the base or root crown. The crown has been pruned and raised. It has multiple stems and included bark creating weak structure. It is crowded by another tree. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in poor health and condition. Rating: D

Tree #4 is a Fraxinus uhdei or Shamel Ash. The tree measures 9 and 10 inches in diameter at D.B.H. The tree has a drip line which measures 16 feet from the tree trunk and it has a 21 foot spread. It is estimated to be roughly 45 feet tall. The tree is located 34 feet north and downhill from Tree #3 near the boundary between 3902 Kentucky Drive and 3894 Fredonia Drive. It is situated on a slope. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It has co-dominant stems which form a union at a point 2 feet above the ground. There is included bark at the union of the stems creating weak structure. It has crossing, rubbing limbs and branches. The crown is unbalanced and asymmetrical. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in poor health and condition. Rating: D

Tree #9 is an Ailanthus altissima or Tree of Heaven. The tree measures 8, 8, 8 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 25 foot spread. It is estimated to be roughly 35 feet tall. The tree is located north of Tree #8 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the concrete stairs. There is no irrigation or landscape near the tree. There is erosion and the root crown has been buried. The tree leans north and is crowded by other nearby trees. The tree is unbalanced and asymmetrical. The crown has been pruned and raised. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree appears to be in poor health and condition. Rating: D

Tree #10 is an Arbutus unedo or Strawberry Tree. The tree measures 5 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 10 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 15 feet tall. The tree is located north of Tree #9 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the concrete stairs. There is no irrigation or landscape near the tree. It has 2 co-dominant stems which form a union at a point 3 feet above the ground. The crown has been pruned and raised. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in below average condition. Rating: D+

Tree #11 is an Ailanthus altissima or Tree of Heaven. The tree measures 8 inches in diameter at D.B.H. The tree has a drip line which measures 6 feet from the tree trunk and it has a 12 foot spread. It is estimated to be roughly 30 feet tall. The tree is located at the bottom of the stairs at 3902 Kentucky Drive. It is situated on a steep downhill slope near the north side of the property. There is no irrigation or landscape near the tree. The tree bends west then turns back and grows vertical. The crown has been pruned and raised. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree appears to be in very poor health and condition. Rating: D-

Tree #12 is an Ailanthus altissima or Tree of Heaven. The tree measures 6, 7 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 10 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 40 feet tall. The tree is located north of the house at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It is crowded by other nearby trees. The foliage size and color appears normal. The crown density is normal. The tree appears to be in average health and condition. Rating: C

Tree #13 is an Ailanthus altissima or Tree of Heaven. The tree measures 7 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 35 feet tall. The tree is located north of Tree #12 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It is crowded by other nearby trees and the crown is unbalanced and asymmetrical. The foliage size and color appears normal. The crown density is fair. The tree appears to be in poor health and condition. Rating: D

Tree #14 is a Ficus macrophylla or Morten Bay Fig. The tree measures 6, 7 and 9 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 40 foot spread. It is estimated to be roughly 40 feet tall. The tree is located west of Tree #12 at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. Ivy climbs the trunks. The crown has been pruned and raised. It is crowded by other nearby trees. The foliage size and color appears normal. The crown density is fair. The tree appears to be in poor health and condition. Rating: D

Tree #15 is an Ailanthus altissima or Tree of Heaven. The tree measures 6, 10 and 10 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 40 foot spread. It is estimated to be roughly 40 feet tall. The tree is located north of the house at 3902 Kentucky Drive and north of Tree #14. It is situated on a steep downhill slope west of the stairs near the alley. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It is crowded by other nearby trees. It has separate trunks and ivy climbs the tree's trunks. The foliage size and color appears normal. The crown density is fair. The tree appears to be in below average health and condition. Rating: D+

TREE PRESERVATION PLAN
3894 Fredonia Drive & 3902 Kentucky Drive

Recommendation
The following steps are recommended for tree preservation and tree mitigation:

A. Control of Diseases and Pests
Trees are largely effected by their environment. Competition with nearby trees and vegetation for water, nutrients, sunlight, space, drought, flooding, drainage, grading, soil compaction, root damage, limb failure, excessive pruning, etc. are just some of the factors which can impact the health of a tree. When trees are stressed due to environmental influences, their natural defenses are weakened. Trees can produce chemical odors when stressed which have been documented to attract insects. Stressed trees are also a suitable host for root fungi infection such as Armillaria sp. or Oak Root Fungus. Unsupervised construction activity can lead to soil compaction and poor drainage, which can cause an infection of Phytophthora sp. Root Rot. Oak Root Fungus, if identified in its early stages can be controlled by performing a root crown excavation and exposing the buttress roots to sunlight and by avoiding watering the last 10 feet of the tree. Phytophthora Root Rot can be controlled chemically through the use of Subdue® and similar soil drenches. Aerifying the soil and adjusting and minimizing excess irrigation is also beneficial.

B. Method and Frequency of Pruning
All trees have the potential to grow beyond their ability to support themselves and a trunk, limb or branch may fail or break, if the tree is not pruned to provide weight reduction and thinned to reduce wind resistance. Trees, which are near high traffic areas with the potential for damage to persons and property, must be maintained at a regular interval for safety.

Crown thinning, dead wood removal and removal of crossing, rubbing branches and weak branch attachments and structural pruning should be performed where possible during the proper season. Deciduous trees such as Southern California Black Walnut should be pruned in the winter when they are dormant.

Native, evergreen Oak trees such as Coast Live Oak should be pruned in hot, dry summer weather. The new foliage produced after pruning is less likely to become infected with powdery mildew and thus prevent "Witches Broom" from occurring.

C. Special Instructions on Watering
Native trees have the ability to withstand drought in their native environment and will generally not require additional watering. Native trees on improved, developed sites can be negatively impacted from over-watering. It is important to avoid watering the trunk and the last

C. Special Instructions on Watering-Continued

six feet of all trees to be preserved especially all native trees. Excessive moisture and watering this area can lead to Oak Root Fungus or Phytophthora Root Rot. Placing a soaker hose at the drip line of the trees to be preserved and applying water over a 24 hour period, one to two times per month, during the months of June through November and during periods of heat and drought can reduce stress.

D. Mitigation Measures

This development project involves 2 properties. The property at 3894 Fredonia Drive has undergone demolition at some point in the past and it is now a vacant lot. The property at 3902 Kentucky Drive has 2 abandoned residential buildings currently residing on the lot. The existing trees growing on or near these 2 properties are non-native species. Arizona Ash, Shamel Ash, Tree of Heaven, Carob, Strawberry Tree and Morten Bay Fig species were observed growing on or near these 2 properties. There are no native, protected Oak, Bay, Sycamore or Southern California Black Walnut trees growing on the subject properties or on neighboring properties which would be impacted or require removal as part of this project. Both these properties will undergo further demolition and grading in order to accommodate a new 4-story, 21-Unit Apartment Building with a 2-Level Subterranean Parking Garage. The proposed project will involve the removal of all the existing trees on these 2 lots. The existing trees appear to be mostly volunteer, weed-like species, in very poor health and condition. They are not worthy of consideration for preservation. There are a total of 15 mature, non-native trees whose trunk diameters exceed 8 inches in diameter. The City of Los Angeles, Planning Department normally requires the planting of one, 24 inch-box size tree for each mature tree measuring 8 inches or greater in diameter which must be removed from the site. A total of 15-24 inch-box size trees must be planted on site as part of the new landscape plan. These trees must be identified on the landscape plans as replacement trees. I would recommend that the replacement trees be drought tolerant species. There are many native and non-native tree species which would fit this requirement and do well on this site. Site limitations such as available rooting area, canopy spread, overhead utility wires, pedestrian and vehicle access should be taken into account when selecting replacement tree species. The project Landscape Architect and project Certified Arborist should review the proposed landscape plan to insure that the correct species of trees have been selected for this project. The irrigation design should also take into account the individual water requirements of these unique tree species.

Summary/Conclusion

In summary, after inspecting the subject properties, trees and plans it appears that it will be necessary to remove all 15 existing non-native trees in order to construct the new 4 Story, 21-Unit Apartment Building. There are no Oak, Bay, Sycamore or Southern California Black Walnut trees growing on the subject properties or on neighboring

Summary/Conclusion

properties and no protected native trees will be impacted or removed as part of this project. Non-Native trees which are 8 inches in diameter or larger are typically required to be replaced with 24 inch-box size trees at a 1:1 ratio unless specified otherwise. There are 15 non-native trees whose trunk diameters exceed 8 inches in diameter and therefore must be mitigated. A total of 15-24 inch-box size replacement trees must be planted on this site. I would recommend that the replacement trees be drought and heat tolerant. There are many different species of native and non-native trees which can meet these requirements. The replacement trees should be specified on the new landscape plan. Site limitations such as available rooting area, canopy spread, overhead utility wires, pedestrian and vehicle access should be taken into account when selecting replacement tree species. The project Landscape Architect and project Certified Arborist should review the proposed landscape plan to insure that the correct species of trees have been selected as part of the planting design. The irrigation design should also be carefully reviewed to insure that it meets the unique water requirements of these trees.

Limitations

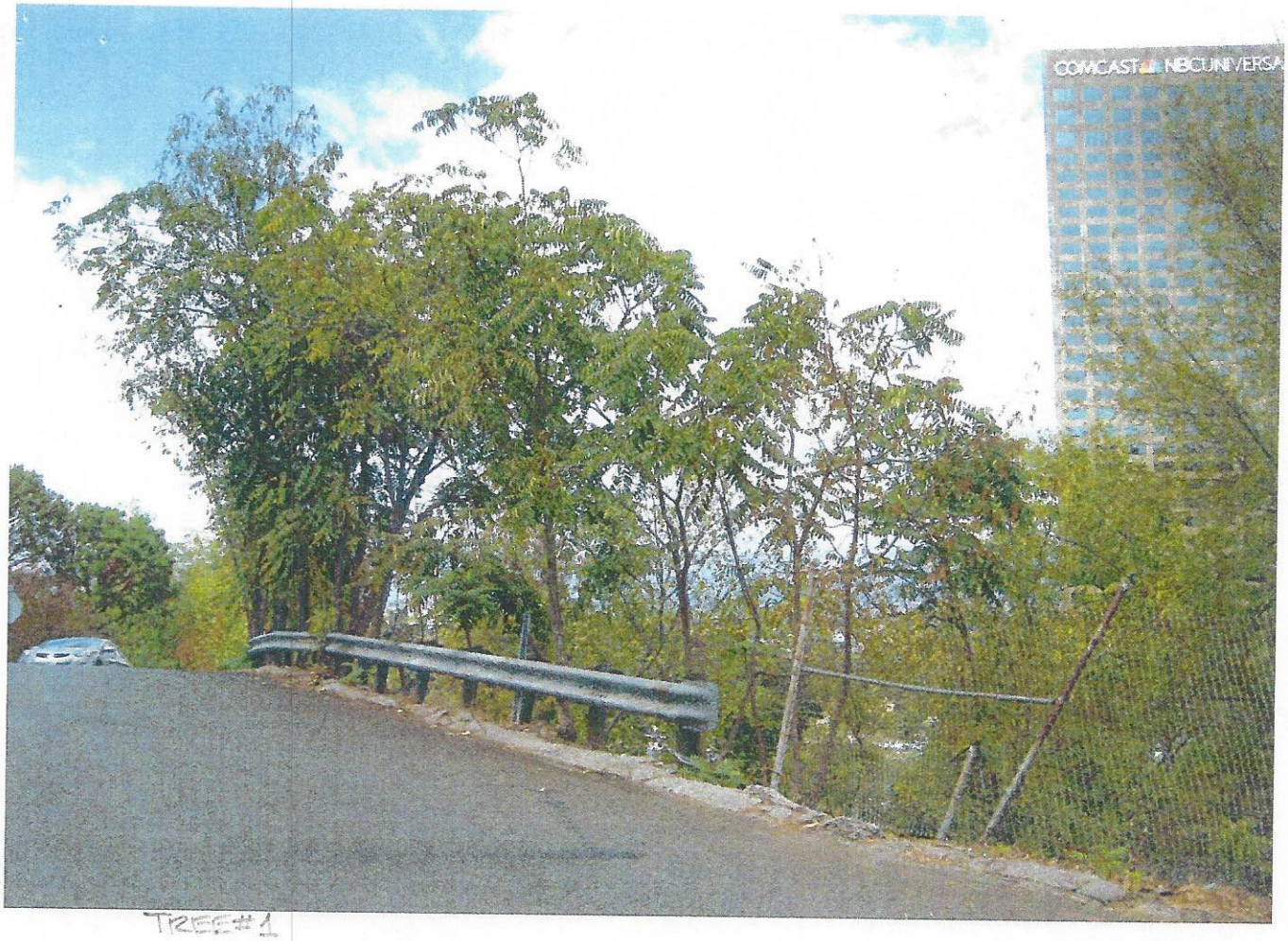
Information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection. The inspection was limited to visual examination of accessible items without dissection, probing or coring. Due to time constraints I was not able to expose and inspect the roots or root crown of the trees. Arboriculture is not an exact science and there is much that is still to be learned about trees. The observations and recommendations provided in this report reflect the latest research, knowledge and training available through university and professional research. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of these trees or the property in question may not arise in the future.

I sincerely hope you find this information useful in making a determination on the level of impact that this proposed construction project will have on the existing trees. If you have any further questions, please feel free to contact me on my business cell phone at (818) 426-2432 or my office phone at (818) 240-1358.

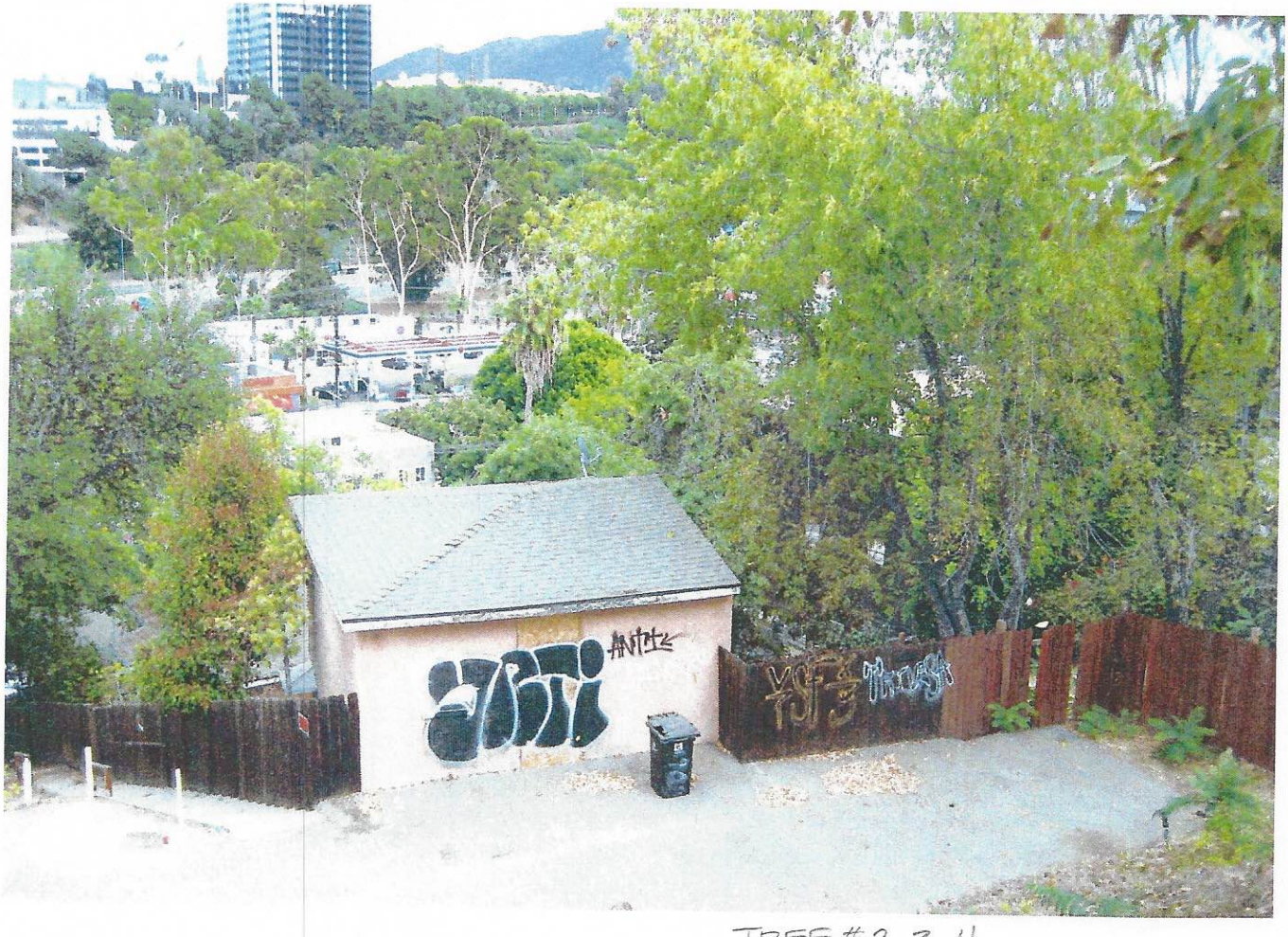
Yours truly,

William R. McKinley

William R. McKinley, Consulting Arborist
American Society of Consulting Arborists
Certified Arborist #WE-4578A
International Society of Arboriculture



TREE #1



TREE #2, 3, 4



VIEW OF TREE #5, 6, 7, 8, 9, 10, 11



TREE #6 TREE #5



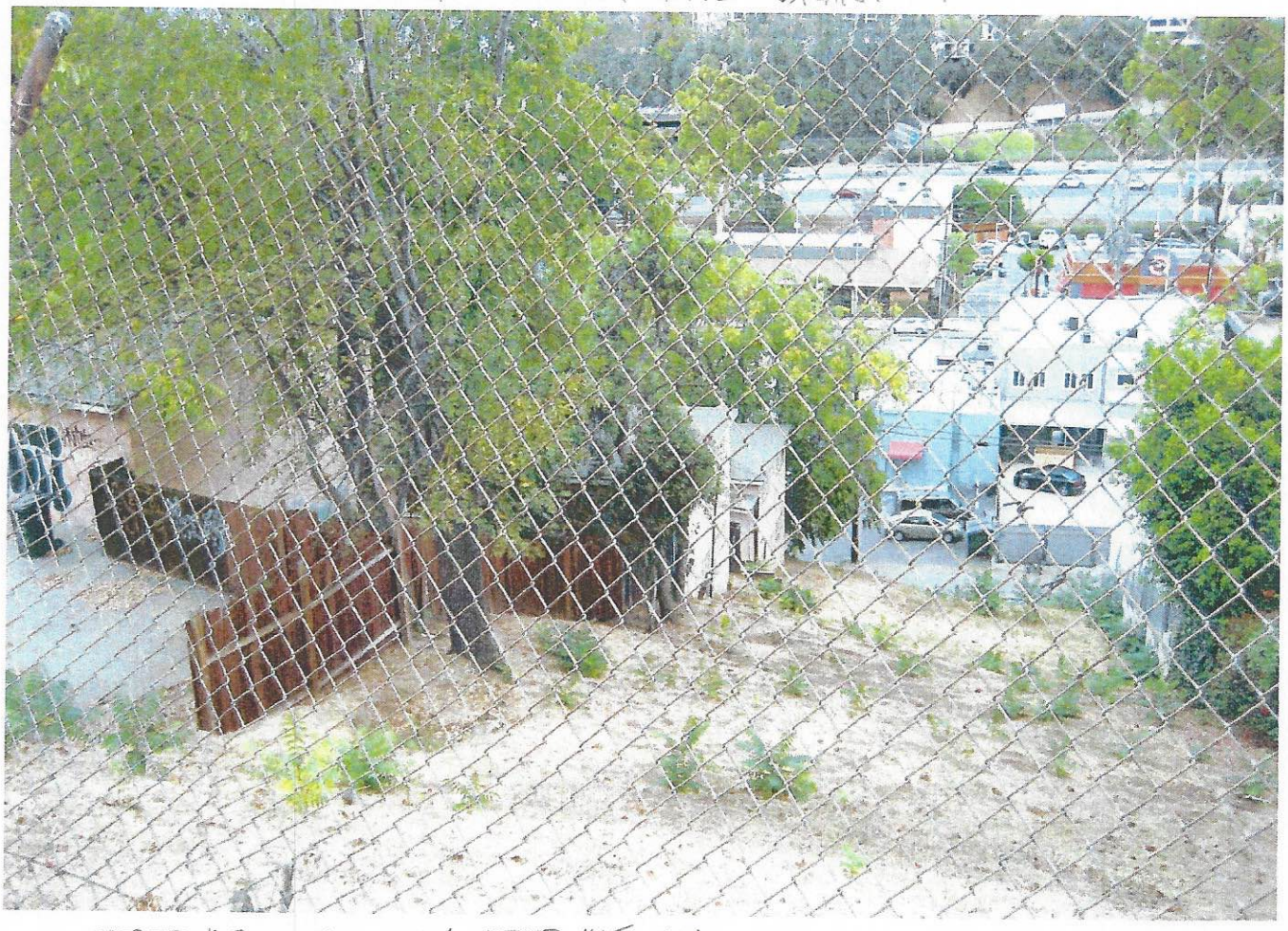
TREE #8 TREE #9 TREE #10 TREE #6, #5, #7



TREE #6



VIEW OF 3894 FREDONIA DRIVE - VACANT LOT



TREE #2, #3, #4; ~~TREE~~ #15, #14, #13, #12

Curriculum Vitae

WILLIAM R. MCKINLEY – MCKINLEY & ASSOCIATES

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Home (818) 240-1358

SUMMARY of QUALIFICATIONS

Practicing Consulting Arborist. Member of American Society of Consulting Arborists (ASCA). Certified Arborist, International Society of Arboriculture since September 30, 1999. I.S.A. Arborist #WE-4578A. Recognized Oak Tree Expert throughout Southern California. Prepare arborist reports for developers, homeowners and attorneys. Assess the landscape value of trees. Assess and identify hazardous trees in the landscape. Provided hillside and Oak Woodland landscape and irrigation recommendations. Provide expert witness testimony on arboriculture related cases. Public speaker and presenter at community service group meetings, homeowner's association meetings and speaker at professional seminars and conferences. Presenter at Trees, People and Our Urban Environment Seminar, March 2002. Arbor Day Guest Speaker, City of Glendale, March 2005. Tree City USA Award Presenter – Glendale Arbor Day 2010, Tree City USA Award Presenter –Glendale Arbor Day 2012, Arbor Day Guest Speaker, Glendale, March 2014.

FULL TIME EMPLOYMENT HISTORY

City of Glendale, Parks, Recreation & Community Services

Park Services Manager-Contract Administration **2001-present**

Performs contract administration for Park Services Section. Manage grounds maintenance for sports fields, community buildings, parks, medians, and historic areas. Administers the City's landscape maintenance contract. Writes contract specifications. Administers the bidding process. Awards contracts to successful bidders. Conducts construction meetings and oversees the construction and inspection for these projects. Performs and assumes all former duties and responsibilities under the former Administrative Analyst position. Writes arborist reports. Hazardous tree assessment. Serves as expert witness in tree related cases.

Administrative Analyst **1988-2001**

Administer landscape maintenance contract for medians, reservoirs, pump houses and misc. areas. Administer and supervise the Division's Work Management System involving the scheduling and tracking of work and performance of over 50 full-time employees. Supervise one part-time data entry employee and supervise and coordinate with the California Conservation Corps, Boy Scouts and other community service volunteers in the parks. Supervise, monitor and report water and utility usage in the parks. Administer and supervise all tree planting projects and programs including the Arbor Day and Urban Forest Donation programs. Assist with budget preparation and acquisition of capital equipment. Prepare Capital Improvement Project specifications and assist with administering contracts. Administer the City of Glendale's Indigenous Oak Tree Ordinance. Coordinate with Planning, Permit Services, Engineering, Building, Neighborhood Services and Fire Department to insure the care and protection of trees, both during and after construction. Review grading, construction, landscape and irrigation plans. Modify and approve plans as necessary to protect indigenous trees. Perform field inspections on hazardous trees and make recommendations to park staff and the public. Serve as code enforcement officer and paralegal during Administrative Office Hearings regarding Indigenous Oak Tree Ordinance. Perform tree and landscape appraisals. Served as special show and marketing consultant to the Glendale Rose Pruning and Garden Show Committee.

Assistant Planner-Parks **1983-1988**

Assisted in park inventory development and implementation of the Work Management System. Served as guest speaker at the National Parks and Recreation Conference on the subject of computers and their role in park maintenance. Supervised the Capital Improvement Project Construction at Pacific Park and Brand Park. Coordinated with and supervised California Conservation Corps. Crews in planting, staking and tying hundreds of trees as part of the Arbor Day Program. Served as Arbor Day Co-Chairman, Glendale Rose Pruning & Garden Show Co-Chairman and President of Glendale Beautiful. Served as Ways and Means Chairman C.P.R.S. District XIV.

EDUCATION

1983 — California Polytechnic University, Pomona
Bachelor of Science Degree, Park Administration
Graduated Magna Cum Laude, Grade Point Average: 3.57

1983-Present — **CEU's-University of California**, Landscape Contract Maintenance, Hazardous Tree Identification & Assessment, Specimen Tree Appraisal, Advanced Tree Appraisal Theory and Practice, Tree and Landscape Liability – Trees and the Law. Oak Tree Symposium Graduate, Knowledge of oak tree physiology and native plant habitat. **ASCA** 2007 Consulting Academy, **National Arbor Day Foundation** Graduate, Symposiums: Construction Around Trees; Trees and the Law. Recognized Tree Expert: City of Los Angles, County of Los Angeles, City of Pasadena, City of La Canada Flintridge, City of Burbank, City of Calabasas, County of Ventura, City of Santa Clarita.

HONORS & ACTIVITIES

1999 - Present - Certified Arborist-International Society of Arboriculture
1996-1999 - Secretary/Treasurer, C.P.R.S. Park Operations Section
1994-1995 - President, C.P.R.S. District XIV
1994-1995 - Treasurer, Glendale Beautification Advisory Council
1992-1994 - Treasurer, C.P.R.S. District XIV
1993, 1994, 1995 C.P.R.S. Park Operations Scholarship
First, Second and Third Year, Graduate, Pacific Southwest Maintenance Mgmt. School
1988-1990 – President, Glendale Beautiful
1980, 1981 - Twice placed on Dean's Honor List
1982 - Who's Who in American Colleges and Universities
1978 - Recipient of Wayne Striker Memorial Scholarship
1975 - Awarded Eagle Scout Rank, Boy Scouts of America
Member - American Society of Consulting Arborists (ASCA)
Member - International Society of Arboriculture
Member - Western Chapter, International Society of Arboriculture
Member – Glendale Beautiful
Past Member - National Arbor Day Foundation
Past Member - California Oak Foundation

REFERENCES

Randall S. Stamen, Attorney/Arborist	(951) 787-9788
Susan & Gary Sims, Sims Tree Specialists	(951) 685-6662
Peter & Diana Harnisch, Harnisch Tree Care	(626) 444-7997

PROFESSIONAL SERVICE FEE

Site Inspection	-	$100.00 per hour
Consultation	-	$125.00 per hour
Arborist Report	-	$150.00 per hour
Public Hearing	-	$200.00 per hour
Arbitration	-	$225.00 per hour
Deposition	-	$250.00 per hour
Court Witness	-	$350.00 per hour

Tree #5 is a Ceratonia siliqua or Carob Tree. The tree measures 16 and 16 inches in diameter at D.B.H. The tree has a drip line which measures 25 feet from the tree trunk and it has a 40 foot spread. It is estimated to be roughly 45 feet tall. The tree is located 5 feet west of the concrete stairs leading downhill from the parking area at 3902 Kentucky Drive. It is situated on a slope. There is no irrigation or landscape near the tree. The crown has been pruned and raised. It has 2 co-dominant stems, included bark, creating weak structure. There are multiple Sulfur Fungus conks which are visible in the upper and lower trunk areas. Decay is present in these areas. There has been recent limb breakage. The foliage size and color appears normal. The crown density is fair. The tree appears to be in very poor health and condition. Rating: D-

Tree #6 is an Ailanthus altissima or Tree of Heaven. The tree measures 10 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 40 feet tall. The tree is located downhill, north of Tree #5 at 3902 Kentucky Drive. It is situated on a steep slope west of the concrete stairs. There is no irrigation or landscape near the tree. The crown has been pruned and raised. There is a "No Parking" sign on the tree's trunk. Ivy stems climb the tree's trunk. The crown is crowded by other trees. The foliage size and color appears normal. The crown density is fair. The tree is unbalanced and asymmetrical. The tree appears to be in very poor health and condition. Rating: D-

Tree #7 is an Ailanthus altissima or Tree of Heaven. The tree measures 5 and 7 inches in diameter at D.B.H. The tree has a drip line which measures 20 feet from the tree trunk and it has a 20 foot spread. It is estimated to be roughly 40 feet tall. The tree is located east of Tree #6 at 3902 Kentucky Drive. It is situated on a steep slope 4 feet west of the concrete stairs. There is no irrigation or landscape near the tree. The crown has been pruned and raised. Ivy stems climb the tree's trunk. Ivy covers most of the tree's trunk. The crown is crowded by other trees. Utility wires run through the tree's crown. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 10% of the tree's crown is composed of dead wood. The tree is unbalanced and asymmetrical. The tree appears to be in very poor health and condition. Rating: D-

Tree #8 is an Ailanthus altissima or Tree of Heaven. The tree measures 10 inches in diameter at D.B.H. The tree has a drip line which measures 15 feet from the tree trunk and it has a 30 foot spread. It is estimated to be roughly 35 feet tall. The tree is located north of the parking lot at 3902 Kentucky Drive. It is situated on a steep downhill slope west of the concrete stairs. There is no irrigation or landscape near the tree. The crown has been pruned and raised. Ivy climbs the tree's trunk and covers most of the tree's trunk. The foliage size and color appears normal. The crown density is fair. I would estimate that approximately 20% of the tree's crown is composed of dead wood. The tree appears to be in very poor health and condition. Rating: D-

CITY OF LOS ANGELES
INTERDEPARTMENTAL CORRESPONDENCE

Date: March 12, 2021 **Revised Report (1)**

To: Vince P. Bertoni, Director
Department of City Planning
Attention: Deputy Advisory Agency

From: Bertram Moklebust, Principal Civil Engineer
Permit Case Management Division
Bureau of Engineering

Subject: Vesting Tentative Tract Map No.73784

Transmitted is a print of vesting tentative map of Tract Map No.73784 located at 3894 Fredonia Drive.

This map has been filed for new residential condominium purposes.

This report supersedes the previous report dated November 19, 2019 sent from City Engineer to the Department of City Planning.

There are existing sewers available in the streets adjoining the subdivision and the alley adjoining the tract however the gravity flow connection may be only possible if house connections are connected to the mainline sewer in the alley. This tract will connect to the public sewer system and will not result in violation of the California Water Code. I therefore recommend that you make the necessary determination.

In the event you approve the vesting tentative map of Tract No. 73784 then please include the engineering standard conditions issued by your department and the following special conditions:

1. That the following requirements in connection with grading and construction in and adjacent to public rights-of-way be complied with in a manner satisfactory to the City Engineer:

    a. Cut or fill slopes in artificial fill and residual soils shall be no steeper than 2:1 (H:V). Cut slopes shall be no steeper than 1.5:1 (H:V) in competent bedrock.

    b. The toes and crests of all cut and fill slopes shall be located on private property and shall be set back 2 and

3 feet respectively, from the property line.

c. Where fill overlies a cut slope, the fill shall be keyed horizontally into bedrock a minimum of 12 feet or the slope shall be overexcavated a minimum of 12 feet and replaced as a compacted fill slope.

d. All streets shall be founded upon firm natural materials or properly compacted fill. Any loose fill, loose soil, or organic material shall be removed prior to the placement of engineered fill.

e. Fill material shall be compacted to a minimum of 90 Percent relative compaction as defined in the Bureau of Engineering Standard Plan S-610. Fill shall be benched into competent material.

f. All slopes shall be planted and an irrigation system installed as soon as possible after grading to alleviate erosion.

g. Adequate perforated pipe and gravel sub-drain systems approved by the City Engineer shall be placed beneath canyon fills and behind retaining walls.

i. Slopes that daylight to adversely dipping bedding shall be supported by either a retaining wall or a designed buttress fill.

j. Where not in conflict with the above, the recommendations contained in Applied Earth Sciences' geotechnical reports dated November 9, 2018 August 3, 2018, and June 10,2016 by the consulting Civil Engineer Dan Daneshfar (RCE 68377) and Engineering Geologist Shant Minas (CEG 2607), shall be implemented.

2. **That no portion of the proposed development shall encroach within the public right-of-way, this includes any encroachments above or below the grade.**

3. That the following improvements be either constructed prior to recordation of the final map or that the construction be suitably guaranteed:

a) After submittal of hydrology and hydraulic calculations and drainage plans for review by the City Engineer prior to recordation of the final map, public on-site and off-

site drainage facilities including off-site street improvements may be required to drain the alley and the streets adjoining the tract to suitable outlets satisfactory to the City Engineer.

b) Improve Fredonia Drive adjoining the subdivision by the construction of the followings:

(1) A concrete curb, a concrete gutter, and a **4-foot wide concrete sidewalk and landscaping of the border.**

(2) Suitable surfacing to join the existing pavements and to complete 28-foot roadway.

(3) Any necessary removal and reconstruction of existing improvements.

(4) The necessary transitions to join the existing improvements.

c) Improve Kentucky Drive adjoining the subdivision by the construction of the followings:

(1) A concrete curb, a concrete gutter, and a **4-foot wide concrete sidewalk and landscaping of the border.**

(2) Suitable surfacing to join the existing pavements and to complete 28-foot roadway.

(3) Any necessary removal and reconstruction of existing improvements.

(4) The necessary transitions to join the existing improvements.

d) Improve the entire alley adjoining the subdivision with the construction of a 20-foot wide alley including a 2-foot wide center longitudinal concrete gutter including any necessary transitions to join the existing improvement.

e) Construct any necessary retaining walls satisfactory to the City Engineer.

f) Construct the necessary on-site mainline and house connection sewers satisfactory to the City Engineer.

Any questions regarding this report should be directed to Quyen Phan of the Permit Case Management Division, located at 201 North Figueroa Street, Suite 290, or by calling (213) 808-8604.

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 20, 2017

TO: Kevin Jones, Deputy Advisory Agency
6262 Van Nuys Boulevard, Room 351 E.
Department of City Planning

FROM: Laura Duong, Subdivision Review
Peter Kim, Zoning Engineer
201 N. Figueroa Street, Room 1030
Department of Building and Safety

SUBJECT: **TRACT MAP NO. 73784 - Vesting - CN**

The Department of Building and Safety Zoning Section has reviewed the above Subdivision Map, date stamped on May 15, 2017 by the Department of City Planning. The site is designated as being in a **RD1.5-1 Zone**. A clearance letter will be issued stating that no Building or Zoning Code violations exist relating to the subdivision on the subject site once the following items have been satisfied.

a. Provide a copy of CPC case CPC-2017-1923-DB-DRB-SPP-MSP. Show compliance with all the conditions/requirements of the CPC case as applicable.

b. Show all street dedication as required by Bureau of Engineering and provide net lot area after all dedication. "Area" requirements shall be re-checked as per net lot area after street dedication. Front requirement shall be required to comply with current code for the new zone as measured from new property lines after dedication.

Notes:

This Proposed Project is subject to Density Bonus Ordinance to increase the maximum allowed density.

The submitted Map may not comply with the number of guest parking spaces required by the Advisory Agency.

The proposed building plans have not been checked for and shall comply with Building and Zoning Code requirements. With the exception of revised health or safety standards, the subdivider shall have a vested right to proceed with the proposed development in substantial compliance with the ordinances, policies, and standards in effect at the time the subdivision application was deemed complete. Plan check will be required before any construction, occupancy or change of use.

If the proposed development does not comply with the current Zoning Code, all zoning violations shall be indicated on the Map.

An appointment is required for the issuance of a clearance letter from the Department of Building and Safety. The applicant is asked to contact Laura Duong at (213) 482-0434 to schedule an appointment.

cc: Sarah Hounsell, Tom Glick, Mary Crowell

CITY OF LOS ANGELES

INTER-DEPARTMENTAL MEMORANDUM

3902 N. Kentucky Drive
DOT Case No. SFV 17-106406
DOT Project ID No. 46512

Date: November 1, 2017

To: Deputy Advisory Agency
Department of City Planning

From: Taghi Gharagozli, Associate Transportation Engineer III
Department of Transportation

Subject: **VESTING TENTATIVE TRACT MAP NO. 73784-CN**

Reference is made to your request for review of this case regarding potential traffic access problems. Based upon this review, it is recommended that:

1. A minimum 20-foot reservoir space is required between any security gate or parking space and the property line, to the satisfaction of DOT.

2. Driveway apron width of W=28 feet is required for two-way driveways, and W=16 feet is required for one-way driveways.

3. A parking area and driveway plan should be submitted to the Citywide Planning Coordination Section of the Department of Transportation for approval prior to submittal of building permit plans for plan check by the Department of Building and Safety. Transportation approvals are conducted at 6262 Van Nuys Blvd., Room 320, Van Nuys, CA 91401.

4. That the subdivision report fee and condition clearance fee be paid to the Department of Transportation as required per Ordinance No. 183270 and LAMC Section 19.15 prior to recordation of the final map. Note: the applicant may be required to comply with any other applicable fees per this new ordinance.

If you have any questions, you may contact me at taghi.gharagozli@lacity.org or 818-374-4699.

FORM. GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

October 3, 2017

TO: Vincent Bertoni, AIP, Director of Planning
Department of City Planning
Attention: Mary Crowell & Tom Glick

FROM: Fire Department

SUBJECT: **TRACT MAP NO. 73784-CN (3902 N. KENTUCKY DRIVE)**

Submit plot plans for Fire Department approval and review prior to recordation of Tract Map Action.

RECOMMENDATIONS:

This project is located in the very high fire hazard severity zone and shall comply with requirements set forth in the City of Los Angeles Municipal Code 57.25.01.

Mitigating measures shall be considered. These measures shall include, but not be limited to the following:

a. Boxed-in eaves.

b. Single pane, double thickness (minimum 1/8" thickness) or insulated windows.

c. Non-wood siding.

d. Exposed wooden members shall be two inches nominal thickness.

e. Noncombustible finishes.

Irrigated and managed greenbelts around the perimeter of all structures for a distance of 100 feet shall be considered as a buffer between the brush and the proposed project.

All landscaping shall use fire-resistant plants and materials. A list of such plants is available from the contact Brush Clearance Unit 6262 Van Nuys Blvd., Room 451, Van Nuys 91401 (800)994-4444.

All homes shall have noncombustible roofs. (Non-wood)

The brush in the area adjacent to the proposed development shall be cleared or thinned periodically by the homeowner's Association under supervision to the Los Angeles City Fire Department in order to reduce the risk of brush fires spreading to the homes.

Any required roadway improvement within the Hillside Ordinance shall be completed prior to the Fire Department signing off on building plans or building permit application

For any new construction of, or addition to, a one-family dwelling on a lot that does not have a vehicular access route from a street improved with a minimum 20 foot wide continuous paved roadway from the driveway apron that provides access to the main residence to the boundary of the Hillside Area, no building permit or grading permit shall be issued unless the construction or addition meets the requirements of this Subdivision or has been approved pursuant to Section 12.24 x 21.

Access for Fire Department apparatus and personnel to and into all structures shall be required.

Where above ground floors are used for residential purposes, the access requirement shall be interpreted as being the horizontal travel distance from the street, driveway, alley, or designated fire lane to the main entrance of individual units.

The entrance or exit of all ground dwelling units shall not be more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.

No building or portion of a building shall be constructed more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.

L.A.M.C. 57.09.03.B Exception:

- When this exception is applied to a fully fire sprinklered residential building equipped with a wet standpipe outlet inside an exit stairway with at least a 2 hour rating the distance from the wet standpipe outlet in the stairway to the entry door of any dwelling unit or guest room shall not exceed 150 feet of horizontal travel AND the distance from the edge of the roadway of an improved street or approved fire lane to the door into the same exit stairway directly from outside the building shall not exceed 150 feet of horizontal travel.

- It is the intent of this policy that in no case will the maximum travel distance exceed 150 feet inside the structure and 150 feet outside the structure. The term “horizontal travel” refers to the actual path of travel to be taken by a person responding to an emergency in the building.

- This policy does not apply to single-family dwellings or to non-residential buildings.

Building designs for multi-storied residential buildings shall incorporate at least one access stairwell off the main lobby of the building; But, in no case greater than 150ft horizontal travel distance from the edge of the public street, private street or Fire Lane. This stairwell shall extend onto the roof.

Entrance to the main lobby shall be located off the address side of the building.

Any required Fire Annunciator panel or Fire Control Room shall be located within 50ft visual line of site of the main entrance stairwell or to the satisfaction of the Fire Department.

Where rescue window access is required, provide conditions and improvements necessary to meet accessibility standards as determined by the Los Angeles Fire Department.

Fire lane width shall not be less than 20 feet. When a fire lane must accommodate the operation of Fire Department aerial ladder apparatus or where fire hydrants are installed, those portions shall not be less than 28 feet in width.

The width of private roadways for general access use and fire lanes shall not be less than 20 feet, and the fire lane must be clear to the sky.

Fire lanes, where required and dead ending streets shall terminate in a cul-de-sac or other approved turning area. No dead ending street or fire lane shall be greater than 700 feet in length or secondary access shall be required.

Submit plot plans indicating access road and turning area for Fire Department approval.

No framing shall be allowed until the roadway is installed to the satisfaction of the Fire Department.

Any required fire hydrants to be installed shall be fully operational and accepted by the Fire Department prior to any building construction.

Adequate off-site public and on-site private fire hydrants may be required. Their number and location to be determined after the Fire Department's review of the plot plan.

All parking restrictions for fire lanes shall be posted and/or painted prior to any Temporary Certificate of Occupancy being issued.

Plans showing areas to be posted and/or painted, “FIRE LANE NO PARKING” shall be submitted and approved by the Fire Department prior to building permit application sign-off.

Electric Gates approved by the Fire Department shall be tested by the Fire Department prior to Building and Safety granting a Certificate of Occupancy.

The applicant is further advised that all subsequent contact regarding these conditions must be with the Hydrant and Access Unit. This would include clarification, verification of condition compliance and plans or building permit applications, etc., and shall be accomplished **BY APPOINTMENT ONLY**, in order to assure that you receive service with a minimum amount of waiting please call **(818) 374-4351**. You should advise any consultant representing you of this requirement as well.

RALPH M. TERRAZAS
Fire Chief

Kristin Crowley, Fire Marshal
Bureau of Fire Prevention and Public Safety

KC:RED:yw
c:TR#73784-CN

DEPARTMENT OF RECREATION AND PARKS

BOARD OF COMMISSIONERS

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CITY OF LOS ANGELES
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VICKI ISRAEL
ASSISTANT GENERAL MANAGER

SOPHIA PINA-CORTEZ
ASSISTANT GENERAL MANAGER

(213) 202-2633, FAX (213) 202-2614

Letter sent via email to:
Mary.Crowell@lacity.org
Tom.Glick@lacity.org

September 21, 2017

Mary K. Crowell, Senior Administration Clerk
6262 Van Nuys Boulevard, Room 430
Van Nuys, CA 91401

DEPARTMENT OF RECREATION AND PARKS REPORT AND RECOMMENDATIONS RELATIVE TO VTT-73784

Dear Ms. Crowell:

The City of Los Angeles Department of Recreation and Parks (RAP) has prepared the following report and recommendations in response to your request for comments relative to VTT-73784, a proposed residential development containing 21 residential dwelling units, and demolition of two (2) dwelling units, located at 3902 N. Kentucky Drive.

RAP's report and recommendation(s) regarding VTT-73784 are as follows:

General Comments:
The applicant is requesting approval of VTT-73784, a residential development containing 21 dwelling units. Los Angeles Municipal Code (LAMC) 12.33 requires most residential projects that create new dwelling units or joint living and work quarters to dedicate land or pay a fee for the purpose of developing park and recreational facilities and LAMC 19.17 specifies how those fees are to be calculated.

Effective January 11, 2017, RAP is responsible for calculating the required park fees owed by each residential development project, including subdivision projects, pursuant to LAMC 12.33, and issuing the fee calculation letters to applicants.

RAP Recommendation:
The applicant is requesting approval of a subdivision that will contain residential dwelling units. Therefore, pursuant to Los Angeles Municipal Code sections 12.33.E and 19.17, RAP recommends the following be added as a condition of the approval of VTT-73784:

That the Park Fee paid to the Department of Recreation and Parks be calculated as a Subdivision (Quimby in-lieu) fee.

Thank you for the opportunity to provide information relative to recreation and park issues related to this proposed project.

If you have any questions or comments regarding this information please feel free to contact Melinda Gejer, of my staff, at (213) 202-2657, at your convenience.

Sincerely,

RAMON BARAJAS
Assistant General Manager



CATHIE SANTO DOMINGO
Superintendent

MAS/RB:ln

cc: Reading File
3900 Kentucky, LLC; 528 State Street, Glendale, CA 91203

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: March 18, 2019

To: Jesus A. Acosta, Grading Division Chief
Department of Building and Safety

From: Patrick J. Schmidt, Manager
Geotechnical Engineering Division

Subject ***GEOTECHNICAL REVIEW, VESTING TENTATIVE TRACT MAP 73784***
PROJECT ADDRESS 3894 N. FREDONIA DRIVE AND 3902 KENTUCKY DRIVE, LOS ANGELES, CALIFORNIA, 90068
RECOMMENDATIONS RELATING TO GEOLOGIC AND SOIL CONDITIONS
W.O. ETRACTEN ***GED FILE NO. 17-103***

The City Engineer recommends approval for Vesting Tentative Tract Map No. 73784, with a Department of City Planning date of May 15, 2017, based upon geotechnical conditions. This recommendation is based upon the review of the following geotechnical and geologic reports:

- Applied Earth Sciences, 2018, Supplement No. 2, Geotechnical Investigation, Proposed 7-Story Condominium Building Complex, Lots 116 and FR117 of Tract No. 5593, 3902 North Kentucky Drive (aka 3900 North Fredonia Drive & 3894 North Fredonia Drive), Los Angeles, California, 90068, dated November 9, 2018, Applied Earth Sciences Project # 16-379-22.

- Applied Earth Sciences, 2018, Supplement No. A Report (Response to GEO-FILE 17-103), Geotechnical Investigation, Proposed 7-Story Condominium Complex, Lots 116 and FR117, Tract No. 5593, 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive & 3894 N. Fredonia Drive), Los Angeles, California, 90068, dated August 4, 2018, Applied Earth Sciences Project # 16-379-22.

- Applied Earth Sciences, 2018, Supplement No. 1, Geotechnical Investigation, Proposed 7-Story Condominium Building Complex, Lots 116 and FR117 of Tract No. 5593, 3902 N. Kentucky Drive (aka 3900 North Fredonia Drive & 3894 North Fredonia Drive), Los Angeles, California, 90068, dated August 3, 2018, Applied Earth Sciences Project # 16-379-22.

- Applied Earth Sciences, 2016, Report of Geotechnical Investigation, Proposed New Multifamily Residential Building Project, Lot 116 and Portion (NW40FT) Of Lot 117, Tract No. 5593, 3900 North Kentucky Drive and 3894 Fredonia Drive, Los Angeles, California, 90068, dated June 10, 2016, Applied Earth Sciences Project # 16-379-22.

- Vesting Tentative Tract No. 73784, prepared by Robert K. Kameoka, dated March 2017, with a Los Angeles Department of City Planning stamp date of May 15, 2017.

The following are conditions of this approval; these apply to public property, private streets, and adjacent slopes:

a) Cut or fill slopes in artificial fill and residual soils shall be no steeper than 2:1 (H:V). Cut slopes shall be no steeper than 1.5:1 (H:V) in competent bedrock.

b) The toes and crests of all cut and fill slopes shall be located on private property and shall be set back 2 and 3 feet, respectively, from the property line.

c) Where fill overlies a cut slope, the fill shall be keyed horizontally into bedrock a minimum of 12 feet or the slope shall be overexcavated a minimum of 12 feet and replaced as a compacted fill slope.

d) All streets shall be founded upon firm natural materials or properly compacted fill. Any existing loose fill, loose soil, or organic material shall be removed prior to the placement of engineered fill.

e) Fill material shall be compacted to a minimum of 90 percent relative compaction as defined in the Bureau of Engineering Standard Plan S-610. Fill shall be benched into competent material.

f) All slopes shall be planted and an irrigation system installed as soon as possible after grading to alleviate erosion.

g) Adequate perforated pipe and gravel sub-drain systems approved by the City Engineer shall be placed beneath canyon fills and behind retaining walls.

h) Slopes that daylight adversely oriented bedrock and are not demonstrated per grading code to have strength characteristics sufficient to produce a stable slope shall be supported by either a retaining wall or a designed buttress fill.

i) Where not in conflict with the above, the recommendations contained in the Applied Earth Sciences geotechnical reports dated November 9, 2018, August 4, 2018, August 3, 2018, and June 10, 2016 by the consulting registered civil engineer Dan Daneshfar (RCE 68377), registered geotechnical engineer Caro J. Minas (GE 601) and certified engineering geologist Shant Minas (CEG 2607) shall be implemented.

If you have any questions regarding this letter, please call Daniel Orris at (213) 847-0488.

cc: Georgic Avanesian, Land Development Group, Subdivision Engineering, Mail Stop 901

Endorsement

To: Gary L. Moore, City Engineer

The above recommendations are not in conflict with the recommendations of this Department.

_____
Date

_____
Department of Building and Safety

FORM GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: 9/20/2017

To: Mr. Vincent P. Bertoni, Director
Department of City Planning
200 N. Spring St., 5th Flr, MS-395

From: Jay Wong, Manager
Private Development Division
Bureau of Street Lighting

SUBJECT: STREET LIGHTING REQUIREMENTS FOR DISCRETIONARY ACTIONS

CITY PLANNING CASE No.: TRACT 73784
3902 N. Kentucky Dr.

The Bureau of Street Lighting's recommended condition of approval for the subject city planning case is as follows: (Improvement condition added to S-3 (c) where applicable.)

SPECIFIC CONDITION: Prior to the recordation of the final map or issuance of the Certificate of Occupancy (C of O), street lighting improvement plans shall be submitted for review and the owner shall provide a good faith effort via a ballot process for the formation or annexation of the property within the boundary of the development into a Street Lighting Maintenance Assessment District.
IMPROVEMENT CONDITION: Construct new street lights: one (1) on Kentucky Dr. and one (1) on Fredonia Dr.

NOTES:

The quantity of street lights identified may be modified slightly during the plan check process based on illumination calculations and equipment selection.

Conditions set: 1) in compliance with a Specific Plan, 2) by LADOT, or 3) by other legal instrument excluding the Bureau of Engineering conditions, requiring an improvement that will change the geometrics of the public roadway or driveway apron may require additional or the reconstruction of street lighting improvements as part of that condition.

CC: Land Development Group MS 901
Engineering District Office: VAL

FORM GEN. 160 (REV. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 12, 2017

TO: Kevin J. Keller
Lisa M. Webber
Jan Zatorski
Deputy Director of Planning
Department of City Planning

FROM: Barry Berggren, Division Manager
Wastewater Collection System Division
Bureau of Sanitation

SUBJECT:

PS-403-A	13146 West Rivers Road
AA-2016-3310- PMLA	320 East 118th Street
AA-2017-2172-PMLA-CN	11517 & 11519 West Mississippi Avenue
AA-2017-2785-PMLA	21300 West Roscoe Boulevard
TRACT MAP No. 73609	1138-1158 Orange Drive
TRACT MAP No. 73784	3902 North Kentucky Drive
TRACT MAP No. 74876	754 South Hope Street
TRACT MAP No. 74895	17210 West Roscoe Boulevard
TRACT MAP No. 74930	641 South Imperial Street
TRACT MAP No. 77107-SL	22135 West Roscoe Boulevard
TRACT MAP No. 77191-CC	1781 North Orange Drive

Our office has reviewed the sewer/storm drain lines serving the subject tracts/areas, and found no potential problems to our structures or potential maintenance problems.

Note: This Approval is for the Tract Map only and represents the office of the Bureau of Sanitation/WCSD. The applicant may be required to obtain other necessary Clearances/Permits from the Bureau of Sanitation and appropriate District office of the Bureau of Engineering.

If you have any questions, please contact Rafael Yanez at (323) 342-1563.

Los Angeles Department of Water & Power

ERIC GARCETTI
Mayor

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MEL LEVINE, *President*
WILLIAM W. FUNDERBURK JR., *Vice President*
JILL BANKS BARAD
CHRISTINA E. NOONAN
AURA VASQUEZ
BARBARA E. MOSCHOS, *Secretary*

DAVID H. WRIGHT
General Manager

September 28, 2017

RECEIVED
CITY OF LOS ANGELES
OCT 23 2017
CITY PLANNING
PROJECT PLANNING

Mr. Vincent Bertoni
Department of City Planning
200 North Spring Street, Room 721
Los Angeles, California 90012

Dear Mr. Bertoni:

Subject: Tract No. 73784
East of Fredonia Drive and North of Kentucky Drive

This is in reply to your letter dated September 1, 2017. This tract can be supplied with water from the municipal system subject to the Los Angeles Department of Water and Power's (LADWP) Water System Rules and upon payment of regular service connection charges. All required water mains have been installed.

On the basis of the map submitted with your form letter, the LADWP's Water Services Organization (WSO) will not object to the recording of the subdivision map.

Questions regarding WSO clearance should be directed to the Los Angeles Department of Water and Power, Water Distribution Engineering, P.O. Box 51111, Room 1425, Los Angeles, California 90051-5700 or (213) 367-1235.

Sincerely,

Michael R. Downs

Michael Downs, P.E.
Engineer of East Valley District
Water Distribution Engineering

ML:ak
Enclosure
c: Bureau of Engineering (2)
Land Developing and Mapping Division
District Engineer
Map No. 160-177

Robert K. Kameoka
Los Angeles City Fire Department
Water Service Representative

HOLLYWOOD HILLS WEST
NEIGHBORHOOD COUNCIL

February 22, 2018

Department of Planning
City of Los Angeles
200 North Spring Street, Room 763
Los Angeles, CA 90012-2601

Re: 3902 N. Kentucky Drive and 3894 Fredonia Drive
Your case nos. CPC 2017-1923-DRB-SPP-MSP
The CA CEQA no. is ENV-2017-1925-EAF

Dear Ladies and Gentlemen:

The Hollywood Hills West Neighborhood Council (HHWNC) is one of the certified neighborhood councils in the City of Los Angeles. This site, which abuts and has addresses on both Kentucky Drive and Fredonia Drive, is located in HHWNC's area.

At a meeting of HHWNC's Board on February 21, 2018, HHWNC's Board voted (18 to 0) to approve a motion to make the following recommendations to the Planning Department and the Mulholland Design Review Board with regard to the proposed project:

eliminate the rooftop decks in the proposed project,
increase the setbacks in front of the building (on the alley side) in order to decrease the building's mass, which seems too big/huge,
improve the alley roadway and add safety features to help the alley function safely,
add more guest parking spaces, and
include at least one three bedroom unit in the two units which will be set aside for very low income affordable housing.

On behalf of Hollywood Hills West Neighborhood Council, the above information is respectfully submitted.

Very truly yours,

Anastasia Mann
President
Hollywood Hills West Neighborhood Council

cc: Mrs. Renee Weitzer, Council District 4, renee.weitzer@lacity.org
Mr. Orrin Feldman, vicepresident@hhwnc.org
Mr. Richard Joludow, area2chair@hhwnc.org
Ms. Luminita Roman, housingchair@hhwnc.org

7095 Hollywood Blvd. Box 1004
Los Angeles, California 90028-8911

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

GEOLOGY AND SOILS REPORT APPROVAL LETTER

February 6, 2019

LOG # 97819-02
SOILS/GEOLOGY FILE - 2
LAN

To: Vincent P. Bertoni, AICP, Deputy Advisory Agency
c/o Mary.Crowell@lacity.org & Tom.Glick@lacity.org
Department of City Planning
200 N. Spring Street, 7th Floor, Room 750

From: Jesus Adolfo Acosta, Grading Division Chief
Department of Building and Safety

PROPOSED LEGAL: Vesting Tentative Tract VTT-73784-CN, Lot 1, 21 condominium units
CURRENT LEGAL: Tract 5593, Lots 116 & FR 117
LOCATION: 3902 N. Kentucky Drive (aka 3900 N. Fredonia Drive) & 3894 N. Fredonia Drive

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report No. 2	16-379-22	11/09/2018	Applied Earth Sciences

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	97819-01	10/12/2018	LADBS
Addendum Report No. 1	16-379-22	08/03/2018	Applied Earth Sciences
Addendum Report No. A	16-379-22	08/04/2018	``
Dept. Review Letter	97819	05/10/2017	LADBS
Geology/Soils Report	16-379-22	06/10/2016	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed Vesting Tentative Tract VTT-73784-CN with Los Angeles Department of City Planning receipt stamp dated 05/15/2017 and the referenced reports that provide recommendations for the proposed demolition of all site improvements and construction of a 7-story condominium complex including 2 levels of subterranean parking and retaining walls up to 40 feet in height. The subject lot is located on an approximately 80 foot high slope with gradients as steep as 1.1H:1V per the geologic map.

The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by colluvial/residual soil and Topanga Formation sandstone, siltstone, claystone and shale bedrock. The bedrock is folded and adverse bedding is expected to surcharge the proposed retaining walls. The consultants recommend to stabilize the slope with 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips) and support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock.

The site is located in a designated seismically induced landslide hazard zone as shown on the Seismic Hazard Zones map issued by the State of California. The above reports include an acceptable seismic slope stability analysis and the requirements of the 2017 City of Los Angeles Building Code have been satisfied.

The Vesting Tentative Tract VTT-73784-CN and the referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2017 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. The entire site shall be brought up to the current Code standard (7005.9).

2. The project shall include 5 rows of shear pins (rows 1 through 4 designed for a minimum sustained unbalance force of 214 kips and row 5 designed for a minimum sustained unbalanced force of 100 kips)

3. All recommendations of the referenced reports by Applied Earth Sciences signed by Caro J. Minas, GE 601, and Shant Minas, CEG 2607, which in addition to or more restrictive than the conditions contained herein shall also be incorporated into the plans for the project. (7006.1)

4. Approval shall be obtained from the Department of Public Works, Bureau of Engineering, Development Services and Permits Program for the proposed removal of support and/or retaining of slopes adjoining to public way (3307.3.2).

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5. Secure the notarized written consent from all owners upon whose property proposed grading/construction access is to extend, in the event off-site grading and/or access for construction purposes is required (7006.6). The consent shall be included as part of the final plans.

6. Provide a notarized letter from all adjoining property owners allowing tie-back anchors on their property (7006.6).

7. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans that clearly indicates the geologist and soils engineer have reviewed the plans prepared by the design engineer; and, that the plans include the recommendations contained in their reports (7006.1).

8. All recommendations of the reports that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

9. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

10. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

11. Prior to the issuance of any permit, an accurate volume determination shall be made and included in the final plans, with regard to the amount of earth material to be exported from the site. For grading involving import or export of more than 1000 cubic yards of earth materials within the grading hillside area, approval is required by the Board of Building and Safety. Application for approval of the haul route must be filed with the Board of Building and Safety Commission Office. Processing time for application is approximately 8 weeks to hearing plus 10-day appeal period.

12. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

13. Existing uncertified fill and soil shall not be used for support of footings, concrete slabs or new fill, as recommended (1809.2, 7011.3).

14. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

15. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Grading Division of the Department and the Department of Public Works, Bureau of Engineering, B-Permit Section, for any grading work in excess of 200 cubic yards (7007.1).

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16. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored (7005.3).

17. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

18. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring, as recommended. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

19. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

20. The soils engineer shall review and approve the shoring and/or underpinning plans prior to issuance of the permit (3307.3.2).

21. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate the surcharge loads used in the report calculations for the design of the retaining walls and shoring. If the surcharge loads used in the calculations do not conform to the actual surcharge loads, the soil engineer shall submit a supplementary report with revised recommendations to the Department for approval.

22. Unsurcharged temporary excavations exposing unsupported geology and/or unsupported bedding planes shall be trimmed back along the lowest unsupported plane, or shored, as recommended.

23. Unsurcharged temporary excavations exposing soil and supported bedding as determined by the project geologist shall be trimmed back at a gradients specified in the section titled "Temporary Excavations" starting on page 10 of the 06/10/2016 report.

24. Shoring shall be designed for the lateral earth pressures specified on the plate titled "Wall Pressures Summary" included in the 08/03/2018 report; all surcharge loads shall be included into the design.

25. Shoring shall be designed for a maximum lateral deflection of 1 inch, provided there are no structures within a 1:1 plane projected up from the base of the excavation. Where a structure is within a 1:1 plane projected up from the base of the excavation, shoring shall be designed for a maximum lateral deflection of ½ inch, or to a lower deflection determined by the consultant that does not present any potential hazard to the adjacent structure.

26. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

27. All foundations shall derive entire support from competent bedrock, as recommended and approved by the geologist and soils engineer by inspection.

28. Foundations adjacent to a descending slope steeper than 3:1 (horizontal to vertical) in gradient shall be a minimum distance of one-third the vertical height of the slope but need not exceed 40 feet measured horizontally from the footing bottom to the face of the slope (1808.7.2).

29. Buildings adjacent to ascending slopes steeper than 3H:1V in gradient shall be setback from the toe of the slope a level distance measured perpendicular to slope contours equal to one-half the vertical height of the slope, but need not exceed 15 feet (1808.7.1).

30. Pile caisson and/or isolated foundation ties are required by LAMC Sections 91.1809.13 and/or 91.1810.3.13. Exceptions and modification to this requirement are provided in Information Bulletin P/BC 2014-030.

31. Pile and/or caisson shafts shall be designed for a lateral load of 1000 pounds per linear foot of shaft exposed to fill, soil and weathered bedrock per P/BC 2014-050.

32. The design passive pressure shall be neglected for a portion of the pile with a horizontal setback distance less than five feet from fill, soil or weathered bedrock.

33. The Code requires analysis for the group effects on lateral behavior where the center-to-center spacing of deep foundation elements in the direction of lateral force is less than eight times the least horizontal dimension of an element. The Code also requires analysis for the group effects on axial behavior where the center-to-center spacing of deep foundation elements is less than three times the least horizontal dimension of an element. Where this occurs for the proposed pile layout, a supplemental report shall be submitted that contains said analysis and recommendations for reduction factors as appropriate. (1810.2.5)

34. Existing uncertified fill shall not be used for lateral support of deep foundations (1810.2.1).

35. Slabs placed on approved compacted fill shall be at least 5 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

36. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane. The slabs shall be at least 5 inches thick and shall be

reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

37. The seismic design shall be based on a Site Class C, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

38. Retaining walls shall be designed for the lateral earth pressures specified on the plate titled "Wall Pressures Summary" included in the 08/03/2018 report. All surcharge loads shall be included into the design.

39. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

40. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

41. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

42. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

43. Prefabricated drainage composites (Miradrain, Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

44. The structure shall be connected to the public sewer system per P/BC 2014-027.

45. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner; water shall not be dispersed on to descending slopes without specific approval from the Grading Division and the consulting geologist and soils engineer (7013.10).

46. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

47. Sprinkler plans for irrigation shall be submitted and approved by the Mechanical Plan Check Section (7012.3.1).

48. Any recommendations prepared by the geologist and/or the soils engineer for correction of geological hazards found during grading shall be submitted to the Grading Division of the Department for approval prior to use in the field (7008.2, 7008.3).

49. The geologist and soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading (7008 & 1705.6).

50. All friction pile or caisson drilling and installation shall be performed under the inspection and approval of the geologist and soils engineer. The geologist shall indicate the distance that friction piles or caissons penetrate into competent bedrock in a written field memorandum. (1803.5.5, 1704.9)

51. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

52. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; underpinning; pile installation; protection fences; and, dust and traffic control will be scheduled (108.9.1).

53. Installation of shoring, underpinning, slot cutting excavations and/or pile installation shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6).

54. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whichever is more restrictive. [Research Report #23835]

55. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included (7011.3).

56. No footing/slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

CLJ DLS
CLJ/DLS:clj/dls
Log No. 97819-01
213-482-0480

cc: 3900 Kentucky LLC, Owner
Zaven Ghnimian, Applicant
Applied Earth Sciences, Project Consultant
LA District Office

EXHIBIT I

CASE NO. VTT-73784-CN

DEPARTMENT OF
CITY PLANNING

COMMISSION OFFICE
(213) 978-1300

CITY PLANNING COMMISSION

SAMANTHA MILLMAN
PRESIDENT

CAROLINE CHOE
VICE-PRESIDENT

HELEN CAMPBELL
JENNA HORNSTOCK
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VINCENT P. BERTONI, AICP
DIRECTOR

SHANA M.M. BONSTIN
DEPUTY DIRECTOR

ARTHI L. VARMA, AICP
DEPUTY DIRECTOR

LISA M. WEBBER, AICP
DEPUTY DIRECTOR

Decision Date: October 15, 2021

Appeal End Date: November 1, 2021

3900 Kentucky, LLC (O/A)
c/o Zaven Ghanimian, Manager
528 State Street
Glendale, CA 91203

Jerome Buckmelter
Jerome Buckmelter Associates, Inc.
23534 Aetna Street
Woodland Hills, CA 91367

Case No. VTT-73784-CN
Related Case: CPC-2017-1923-DB-DRB-SPP-MSP-ZAD
3902 Kentucky Drive and 3894-3900 Fredonia Drive
Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan
Zone : RD1.5-1
D.M. : 159B177
C.D. : 4
CEQA : ENV-2017-1925-MND
Legal Description: Lots 116 and FR 117, TR 5593

In accordance with provisions of Section 17.03, 17.06, and 17.51 of the Los Angeles Municipal Code (LAMC), the Advisory Agency adopts Mitigated Negative Declaration ENV-2017-1925-MND as the environmental clearance and the Mitigation Monitoring Program, and approves Vesting Tentative Tract Map No. VTT-73784-CN composed of 2 lots, located at 3902 Kentucky Drive and 3894-3900 Fredonia Drive, for a maximum of **21 residential condominium units**, as shown on revised map stamp-dated January 28, 2021, in the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan. This unit density is based on the RD1.5-1 Zone. (The subdivider is hereby advised that the LAMC may not permit this maximum approved density. Therefore, verification should be obtained from the Department of Building and Safety which will legally interpret the Zoning Code as it applies to this particular property.) The Advisory Agency's approval is subject to the following conditions:

NOTE on clearing conditions: When two or more **agencies** must clear a condition, subdivider should follow the sequence indicated in the condition. For the benefit of the applicant, subdivider shall maintain record of all conditions cleared, including all material supporting clearances and be prepared to present copies of the clearances to each reviewing agency as may be required by its staff at the time of its review.

BUREAU OF ENGINEERING - SPECIFIC CONDITIONS
Any questions regarding this report should be directed to Quyen Phan of the Permit Case Management Division, located at 201 North Figueroa Street, Suite 290, or by calling (213) 808-8604.

1. That the following requirements in connection with grading and construction in and adjacent to public rights-of-way be complied with in a manner satisfactory to the City Engineer:

    a. Cut or fill slopes in artificial fill and residual soils shall be no steeper than 2:1 (H:V). Cut slopes shall be no steeper than 1.5:1 (H:V) in competent bedrock.

    b. The toes and crests of all cut and fill slopes shall be located on private property and shall be set back 2 and 3 feet respectively, from the property line.

    c. Where fill overlies a cut slope, the fill shall be keyed horizontally into bedrock a minimum of 12 feet or the slope shall be overexcavated a minimum of 12 feet and replaced as a compacted fill slope.

    d. All streets shall be founded upon firm natural materials or properly compacted fill. Any loose fill, loose soil, or organic material shall be removed prior to the placement of engineered fill.

    e. Fill material shall be compacted to a minimum of 90 percent relative compaction as defined in the Bureau of Engineering Standard Plan S-610. Fill shall be benched into competent material.

    f. All slopes shall be planted and an irrigation system installed as soon as possible after grading to alleviate erosion.

    g. Adequate perforated pipe and gravel sub-drain systems approved by the City Engineer shall be placed beneath canyon fills and behind retaining walls.

    i. Slopes that daylight to adversely dipping bedding shall be supported by either a retaining wall or a designed buttress fill.

    j. Where not in conflict with the above, the recommendations contained in Applied Earth Sciences' geotechnical reports dated November 9, 2018, August 3, 2018, and June 10, 2016 by the consulting Civil Engineer Dan Daneshfar (RCE 68377) and Engineering Geologist Shant Minas (CEG 2607), shall be implemented.

2. That no portion of the proposed development shall encroach within the public right-of-way. This includes any encroachments above or below the grade.

DEPARTMENT OF BUILDING AND SAFETY, GRADING DIVISION
Grading Division approvals are conducted at 221 North Figueroa Street, 12th Floor Suite 1200. The approval of this Tract Map shall not be construed as having been based upon a geological investigation such as will authorize the issuance of the building permit of the subject property. Such permits will be issued only at such time as the Department of Building and Safety has received such topographic maps and geological reports as it deems necessary to justify the issuance of such building permits.

3. That prior to issuance of a grading or building permit, or prior to recordation of the final map, the subdivider shall make suitable arrangements to assure compliance, satisfactory to the Department of Building and Safety, Grading Division, with all the requirements and conditions contained in Geology and Soils Report Approval dated February 6, 2019 Log No. 97819-02 and the Inter-Departmental Correspondence dated March 18, 2019 attached to the case file for Tract No. 73784-CN.

DEPARTMENT OF BUILDING AND SAFETY, ZONING DIVISION
Contact Laura Duong at (213) 482-0434.

4. That prior to recordation of the final map, the Department of Building and Safety, Zoning Division shall certify that no Building or Zoning Code violations exist on the subject site. In addition, the following items shall be satisfied:

   a. Provide a copy of CPC case CPC-2017-1923-DB-DRB-SPP-MSP-ZAD. Show compliance with all the conditions/requirements of the CPC case as applicable.

   b. Show all street dedication as required by Bureau of Engineering and provide net lot area after all dedication. "Area" requirements shall be re-checked as per net lot area after street dedication. Front requirement shall be required to comply with current code for the new zone as measured from new property lines after dedication.

      Notes:

      This Proposed Project is subject to Density Bonus Ordinance to increase the maximum allowed density.

      The submitted Map may not comply with the number of guest parking spaces required by the Advisory Agency.

      The proposed building plans have not been checked for and shall comply with Building and Zoning Code requirements. With the exception of revised health or safety standards, the subdivider shall have a vested right to proceed with the proposed development in substantial compliance with the ordinances, policies, and standards in effect at the time the subdivision application was deemed complete. Plan check will be required before any construction, occupancy or change of use.

      If the proposed development does not comply with the current Zoning Code, all zoning violations shall be indicated on the Map.

An appointment is required for the issuance of a clearance letter from the Department of Building and Safety. The applicant is asked to contact Laura Duong at (213) 482-0434 to schedule an appointment.

DEPARTMENT OF TRANSPORTATION
If you have any questions, contact Brandon Wilson at brandon.wilson@lacity.org or 818-374-4699.

5. That prior to recordation of the final map, satisfactory arrangements shall be made with the Department of Transportation to assure:

   a. A minimum 20-foot reservoir space is required between any security gate or parking space and the property line to the satisfaction of DOT.

   b. Driveway apron width of W=28 feet is required for two-way driveways, and W=16 feet is required for one-way driveways.

   c. A parking area and driveway plan should be submitted to the Citywide Planning Coordination Section of the Department of Transportation for approval prior to submittal of building permit plans for plan check by the Department of Building and Safety. Transportation approvals are conducted at 6262 Van Nuys Blvd., Room 320, Van Nuys, CA 91401.

   d. That the subdivision report fee and condition clearance fee be paid to the Department of Transportation as required per Ordinance No. 183,270 and LAMC Section 19.15 prior to recordation of the final map. Note: The applicant may be required to comply with any other applicable fees per this new ordinance.

FIRE DEPARTMENT
The applicant is further advised that all subsequent contact regarding these conditions must be with the Hydrant and Access Unit. This would include clarification, verification of condition compliance and plans or building permit applications, etc., and shall be accomplished BY APPOINTMENT ONLY, in order to assure that you receive service with a minimum amount of waiting please call (818) 374-4351. You should advise any consultant representing you of this requirement as well.

6. That prior to the recordation of the final map, submit plot plans for Fire Department approval and review.

7. This project is located in the Very High Fire Hazard Severity Zone and shall comply with requirements set forth in the Los Angeles Municipal Code Section 57.25.01. Mitigating measures shall include but not be limited to the following:

   a. Boxed-in eaves.

b. Single pane, double thickness (minimum 1/8" thickness) or insulated windows.

c. Non-wood siding.

d. Exposed wooden members shall be two inches nominal thickness.

e. Noncombustible finishes.

Irrigated and managed greenbelts around the perimeter of all structures for a distance of 100 feet shall be considered as a buffer between the brush and the proposed project.

All landscaping shall use fire-resistant plants and materials. A list of such plants is available from the Brush Clearance Unit, 6262 Van Nuys Blvd., Room 451, Van Nuys, CA 91401 (800) 994-4444.

All homes shall have noncombustible roofs. (Non-wood)

The brush in the area adjacent to the proposed development shall be cleared or thinned periodically by the Homeowner's Association under supervision to the Los Angeles City Fire Department in order to reduce the risk of brush fires spreading to the homes.

Any required roadway improvement within the Hillside Ordinance shall be completed prior to the Fire Department signing off on building plans or building permit application.

For any new construction of, or addition to, a one-family dwelling on a lot that does not have a vehicular access route from a street improved with a minimum 20 foot wide continuous paved roadway from the driveway apron that provides access to the main residence to the boundary of the Hillside Area, no building permit or grading permit shall be issued unless the construction or addition meets the requirements of this Subdivision or has been approved pursuant to Section 12.24 X 21.

Access for Fire Department apparatus and personnel to and into all structures shall be required.

Where above ground floors are used for residential purposes, the access requirement shall be interpreted as being the horizontal travel distance from the street, driveway, alley, or designated fire lane to the main entrance of individual units.

The entrance or exit of all ground dwelling units shall not be more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.

No building or portion of a building shall be constructed more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.

L.A.M.C. 57.09.03.B Exception:

- When this exception is applied to a fully fire sprinklered residential building equipped with a wet standpipe outlet inside an exit stairway with at least a 2 hour

rating the distance from the wet standpipe outlet in the stairway to the entry door of any dwelling unit or guest room shall not exceed 150 feet of horizontal travel AND the distance from the edge of the roadway of an improved street or approved fire lane to the door into the same exit stairway directly from outside the building shall not exceed 150 feet of horizontal travel.

- It is the intent of this policy that in no case will the maximum travel distance exceed 150 feet inside the structure and 150 feet outside the structure. The term "horizontal travel" refers to the actual path of travel to be taken by a person responding to an emergency in the building.

- This policy does not apply to single-family dwellings or to non-residential buildings.

Building designs for multi-storied residential buildings shall incorporate at least one access stairwell off the main lobby of the building; but, in no case greater than 150 feet horizontal travel distance from the edge of the public street, private street or Fire Lane. This stairwell shall extend onto the roof.

Entrance to the main lobby shall be located off the address side of the building.

Any required Fire Annunciator panel or Fire Control Room shall be located within 50 feet visual line of site of the main entrance stairwell or to the satisfaction of the Fire Department.

Where rescue window access is required, provide conditions and improvements necessary to meet accessibility standards as determined by the Los Angeles Fire Department.

Fire lane width shall not be less than 20 feet. When a fire lane must accommodate the operation of Fire Department aerial ladder apparatus or where fire hydrants are installed, those portions shall not be less than 28 feet in width.

The width of private roadways for general access use and fire lanes shall not be less than 20 feet, and the fire lane must be clear to the sky.

Fire lanes, where required and dead ending streets shall terminate in a cul-de-sac or other approved turning area. No dead ending street or fire lane shall be greater than 700 feet in length or secondary access shall be required.

Submit plot plans indicating access road and turning area for Fire Department approval.

No framing shall be allowed until the roadway is installed to the satisfaction of the Fire Department.

Any required fire hydrants to be installed shall be fully operational and accepted by the Fire Department prior to any building construction.

Adequate off-site public and on-site private fire hydrants may be required. Their number

and location to be determined after the Fire Department's review of the plot plan.

All parking restrictions for fire lanes shall be posted and/or painted prior to any Temporary Certificate of Occupancy being issued.

Plans showing areas to be posted and/or painted, “FIRE LANE NO PARKING” shall be submitted and approved by the Fire Department prior to building permit application sign-off.

Electric Gates approved by the Fire Department shall be tested by the Fire Department prior to Building and Safety granting a Certificate of Occupancy.

DEPARTMENT OF WATER AND POWER

8. Satisfactory arrangements shall be made with the Los Angeles Department of Water and Power (LADWP) for compliance with LADWP’s Water System Rules and requirements. Upon compliance with these conditions and requirements, LADWP’s Water Services Organization will forward the necessary clearances to the Bureau of Engineering. (This condition shall be deemed cleared at the time the City Engineer clears Condition No. S-1.(c).)

BUREAU OF STREET LIGHTING – SPECIFIC CONDITIONS
Street Lighting clearance for this Street Light Maintenance Assessment District condition is conducted at 1149 S. Broadway Suite 200. Street Lighting improvement condition clearance will be conducted at the Bureau of Engineering District office, see condition S-3. (c).

9. If new street light(s) are required, then prior to the recordation of the final map or issuance of the Certificate of Occupancy (C of O), street lighting improvement plans shall be submitted for review and the owner shall provide a good faith effort via a ballot process for the formation or annexation of the property within the boundary of the development into a Street Lighting Maintenance Assessment District.

BUREAU OF SANITATION

10. Wastewater Collection Systems Division of the Bureau of Sanitation has inspected the sewer/storm drain lines serving the subject tract and found no potential problems to their structure or potential maintenance problem, as stated in the memo dated September 12, 2017. Upon compliance with its conditions and requirements, the Bureau of Sanitation, Wastewater Collection Systems Division will forward the necessary clearances to the Bureau of Engineering. (This condition shall be deemed cleared at the time the City Engineer clears Condition No. S-1. (d).)

INFORMATION TECHNOLOGY AGENCY

11. To assure that cable television facilities will be installed in the same manner as other required improvements, please email cabletv.ita@lacity.org that provides an automated response with the instructions on how to obtain the Cable TV clearance. The automated response also provides the email address of three people in case the applicant/owner has any additional questions.

DEPARTMENT OF RECREATION AND PARKS

Park fees are paid at 221 North Figueroa Street. Suite 400, Los Angeles. Please contact Park Fees staff at (213) 202-2657 for any questions or comments, at your convenience.

12. That the Park Fee paid to the Department of Recreation and Parks be calculated as a Subdivision (Quimby in-lieu) fee.

URBAN FORESTRY DIVISION AND THE DEPARTMENT OF CITY PLANNING

13. Prior to the issuance of a grading permit, the applicant shall submit a tree report and landscape plan prepared by a Municipal Code-designated tree expert as designated by LAMC Ordinance No. 186,873, for approval by the City Planning Department and the Urban Forestry Division of the Bureau of Street Services.

    A minimum of 4 trees shall be planted for each protected tree that is removed and shall be to the satisfaction of the Urban Forestry Division of the Bureau of Street Services and the Advisory Agency.

    Note: All protected tree and protected shrub removals must be approved by the Board of Public Works. Contact: Urban Forestry Division at: 213-847-3077.

DEPARTMENT OF CITY PLANNING - SITE SPECIFIC CONDITIONS

Clearances may be conducted at the Figueroa, Valley, or West Los Angeles Development Services Centers. To clear conditions, an appointment is required, which can be requested at planning.lacity.org.

14. Prior to the recordation of the final map, the subdivider shall prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770) in a manner satisfactory to the Planning Department, binding the subdivider and all successors to the following:

    a. Limit the proposed development to a maximum of 21 condominium dwelling units.

    b. That the subdivider shall comply with the **Mulholland Scenic Parkway Specific Plan** prior to the issuance of a building or grading permit.

    c. All vehicular access shall be from the alley at the southeastern portion of the subject site. No vehicular access shall be provided from the street frontage on

Kentucky or Fredonia Drives.

d. That prior to issuance of a certificate of occupancy, a minimum 6-foot-high slumpstone or decorative masonry wall shall be constructed adjacent to neighboring residences, if no such wall already exists, except in required front yard.

e. That a solar access report shall be submitted to the satisfaction of the Advisory Agency prior to obtaining a grading permit.

f. That the subdivider consider the use of natural gas and/or solar energy and consult with the Department of Water and Power and Southern California Gas Company regarding feasible energy conservation measures.

g. INDEMNIFICATION AND REIMBURSEMENT OF LITIGATION COSTS.

Applicant shall do all of the following:

(i) Defend, indemnify and hold harmless the City from any and all actions against the City relating to or arising out of, in whole or in part, the City's processing and approval of this entitlement, including but not limited to, an action to attack, challenge, set aside, void or otherwise modify or annul the approval of the entitlement, the environmental review of the entitlement, or the approval of subsequent permit decisions, or to claim personal property damage, including from inverse condemnation or any other constitutional claim.

(ii) Reimburse the City for any and all costs incurred in defense of an action related to or arising out of, in whole or in part, the City's processing and approval of the entitlement, including but not limited to payment of all court costs and attorney's fees, costs of any judgments or awards against the City (including an award of attorney's fees), damages, and/or settlement costs.

(iii) Submit an initial deposit for the City's litigation costs to the City within 10 days' notice of the City tendering defense to the Applicant and requesting a deposit. The initial deposit shall be in an amount set by the City Attorney's Office, in its sole discretion, based on the nature and scope of action, but in no event shall the initial deposit be less than $50,000. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (ii).

(iv) Submit supplemental deposits upon notice by the City. Supplemental deposits may be required in an increased amount from the initial deposit if found necessary by the City to protect the City's interests. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (ii).

(v) If the City determines it necessary to protect the City's interest, execute an indemnity and reimbursement agreement with the City under terms

consistent with the requirements of this condition.

The City shall notify the applicant within a reasonable period of time of its receipt of any action and the City shall cooperate in the defense. If the City fails to notify the applicant of any claim, action, or proceeding in a reasonable time, of if the City fails to reasonably cooperate in the defense, the applicant shall not thereafter be responsible to defend, indemnify or hold harmless the City.

The City shall have the sole right to choose its counsel, including the City Attorney's office or outside counsel. At its sole discretion, the City may participate at its own expense in the defense of any action, but such participation shall not relieve the applicant of any obligation imposed by this condition. In the event the Applicant fails to comply with this condition, in whole or in part, the City may withdraw its defense of the action, void its approval of the entitlement, or take any other action. The City retains the right to make all decisions with respect to its representations in any legal proceeding, including its inherent right to abandon or settle litigation.

For purposes of this condition, the following definitions apply:

"City" shall be defined to include the City, its agents, officers, boards, commissions, committees, employees, and volunteers.

"Action" shall be defined to include suits, proceedings (including those held under alternative dispute resolution procedures), claims, or lawsuits. Action includes actions, as defined herein, alleging failure to comply with any federal, state or local law.

Nothing in the definitions included in this paragraph are intended to limit the rights of the City or the obligations of the Applicant otherwise created by this condition.

15. That prior to the issuance of the building permit or the recordation of the final map, a copy of the Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD shall be submitted to the satisfaction of the Advisory Agency. In the event that Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD is not approved, the subdivider shall submit a tract modification.

16. Prior to the issuance of a grading permit, the subdivider shall record and execute a Covenant and Agreement (Planning Department General Form CP-6770), binding the subdivider to the following haul route conditions:

a. Streets to be used within the City of Los Angeles are limited to the alley abutting the subject site, Lankershim Boulevard, Regal Place, Campo de Cahuenga, and the 101 Freeway. No permission is granted herein to use any streets outside of the City of Los Angeles.

b. Hours of operation shall be from 9:00 a.m. to 3:00 p.m.

c. Days of the week shall be Monday-Saturday. No hauling shall be permitted on

Sunday.

d. Total trips per day shall be 30.

e. Duration of project shall be 60 days.

f. Trucks shall be restricted to 10-wheel dump trucks or smaller for streets with a width of 25 feet or less. Eighteen-wheel dump trucks are permitted on streets with a width greater than 25 feet. **There shall be no staging or parking of construction vehicles, including vehicles to transport workers on any of the streets.**

g. The Emergency Operations Division, Specialized Enforcement Section of the Los Angeles Police Department shall be notified prior to the start of hauling (213) 486-0777.

h. Streets shall be cleaned of spilled materials at the termination of each work day.

i. The final approved haul routes and all the conditions of approval shall be available on the job site at all times.

j. The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind.

k. Hauling and grading equipment shall be kept in good operating condition and muffled as required by law.

l. All loads shall be secured by trimming, watering or other appropriate means to prevent spillage and dust.

m. All trucks are to be watered at the job site to prevent excessive blowing dirt.

n. All trucks are to be cleaned of loose earth at the job site to prevent spilling. Any material spilled on the public street shall be removed by the contractor.

o. The applicant shall be in conformance with the State of California, Department of Transportation, policy regarding movements of reducible loads.

p. All regulations set forth in the State of California Department of Motor Vehicles pertaining to the hauling of earth shall be complied with.

q. A Truck Crossing warning sign shall be placed 300 feet in advance of the exit in each direction.

r. One flag person(s) shall be required at the job and dump sites to assist the trucks in and out of the project area. Flag person(s) and warning signs shall be in compliance with Part II of the 1985 Edition of Work Area Traffic Control Handbook.

s. The City of Los Angeles, Department of Transportation, telephone (213) 485-2298, shall be notified 72 hours prior to beginning operations in order to have temporary No Parking signs posted along the route.

t. Any desire to change the prescribed routes must be approved by the concerned governmental agencies by contacting Street Services Investigation and Enforcement Division at (213) 847-6000 before the change takes place.

u. The permittee shall notify Street Services Investigation and Enforcement Division, (213) 847-6000, at least 72 hours prior to the beginning of hauling operations and shall also notify the Division immediately upon completion of hauling operations.

v. A surety or cash bond shall be posted in an amount satisfactory to the City Engineer for maintenance of haul route streets. The forms for the bond will be issued by the Valley District Engineering Office, 6262 Van Nuys Blvd, Suite 251, Van Nuys CA, 91401. Further information regarding the bond may be obtained by calling (818) 374-5082.

17. Prior to the recordation of the final map, the owner shall execute a covenant to the satisfaction of the Los Angeles Housing and Community Investment Department (HCIDLA) to make two units of the development available for rental or sale solely to Very Low Income Households, at a rental or sales price determined to be affordable to Very Low Income Households) by HCIDLA, for a period of 55 years. Said units shall be comparable in size, number of bedrooms, distribution, and amenities to the non-income-restricted units in the development.

DEPARTMENT OF CITY PLANNING-ENVIRONMENTAL MITIGATION MEASURES

18. That prior to recordation of the final map, the subdivider shall prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770 and Exhibit CP-6770. M) in a manner satisfactory to the Planning Department requiring the subdivider to identify (a) mitigation monitor(s) who shall provide periodic status reports on the implementation of mitigation items required by Mitigation Condition Nos. 19 and 20 of the Tract's approval satisfactory to the Advisory Agency. The mitigation monitor(s) shall be identified as to their areas of responsibility, and phase of intervention (pre-construction, construction, postconstruction/maintenance) to ensure continued implementation of the above mentioned mitigation items.

19. Prior to the recordation of the final map, the subdivider will prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770) in a manner satisfactory to the Planning Department, binding the subdivider and all successors to the following:

MM-1/ BIO-1. Habitat Modification (Nesting Native Birds, Hillside or Rural Areas)

The project will result in the removal of vegetation and disturbances to the ground and therefore may result in take of nesting native bird species. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). The following measures are as recommended by the California Department of Fish and Game:

- Proposed project activities (including disturbances to native and non-native vegetation, structures and substrates) should take place outside of the breeding bird season which generally runs from March 1- August 31 (as early as February 1 for raptors) to avoid take (including disturbances which would cause abandonment of active nests containing eggs and/or young). Take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture of kill (Fish and Game Code Section 86).
- If project activities cannot feasibly avoid the breeding bird season, beginning 30 days prior to the disturbance of suitable nesting habitat, the applicant shall:
    a. Arrange for weekly bird surveys to detect any protected native birds in the habitat to be removed and any other such habitat within 300 feet of the construction work area (within 500 feet for raptors) as access to adjacent areas allows. The surveys shall be conducted by a Qualified Biologist with experience in conducting breeding bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work.
    b. If a protected native bird is found, the applicant shall delay all clearance/construction disturbance activities within 300 feet of suitable nesting habitat for the observed protected bird species (within 500 feet for suitable raptor nesting habitat) until August 31.
    c. Alternatively, the Qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, clearing and construction within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified biological monitor, shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. The buffer zone from the nest shall be established in the field with flagging and stakes. Construction personnel shall be instructed on the sensitivity of the area.
    d. The applicant shall record the results of the recommended protective measures described above to document compliance with applicable State and Federal laws pertaining to the protection of native birds. Such record shall be submitted and received into the case file for the associated discretionary action permitting the project.

MM-2/ BIO-2. Tree Removal (Non-Protected Trees)

Environmental impacts from project implementation may result due to the loss of significant trees on the site. However, the potential impacts will be mitigated to a less than significant level by the following measures:

- Prior to the issuance of any permit, a plot plan shall be prepared indicating the location, size, type, and general condition of all existing trees on the site and within the adjacent public right(s)-of-way.
- All significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) non-protected trees on the site proposed for removal shall be replaced at a 1:1 ratio with a minimum 24-inch box tree. Net, new trees, located within the parkway of the adjacent public right(s)-of-way, may be counted toward replacement tree requirements.
- Removal or planting of any tree in the public right-of-way requires approval of the Board of Public Works. Contact Urban Forestry Division at: 213-847-3077. All trees in the public right-of-way shall be provided per the current standards of the Urban Forestry Division the Department of Public Works, Bureau of Street Services.

MM-3/ BIO-3. Tree Removal (Public Right-of-Way)

- Removal of trees in the public right-of-way requires approval by the Board of Public Works.
- The required Tree Report shall include the location, size, type, and condition of all existing trees in the adjacent public right-of-way and shall be submitted for review and approval by the Urban Forestry Division of the Bureau of Street Services, Department of Public Works (213-847-3077).
- The plan shall contain measures recommended by the tree expert for the preservation of as many trees as possible. Mitigation measures such as replacement by a minimum of 24-inch box trees in the parkway and on the site, on a 1:1 basis, shall be required for the unavoidable loss of significant (8-inch or greater trunk diameter, or cumulative trunk diameter if multi-trunked, as measured 54 inches above the ground) trees in the public right-of-way.
- All trees in the public right-of-way shall be provided per the current Urban Forestry Division standards.

MM-4/ GEO-1. Erosion/Grading/Short-Term Construction Impacts

Short-term erosion impacts may result from the construction of the proposed project. However, these impacts can be mitigated to a less than significant level by the following measures:

- The applicant shall provide a staked signage at the site with a minimum of 3-inch lettering containing contact information for the Senior Street Use Inspector (Department of Public Works), the Senior Grading Inspector (LADBS) and the hauling or general contractor.

MM-5/ GEO-2. Slope Maintenance

- The applicant shall implement a program of normal slope maintenance, including annual clean out of drains, elimination of gophers and earth burrowing rodents, maintaining low water consumptive, fire retardance, deep rooted ground cover, and proper irrigation.

MM-6/ NOISE-1. Increased Noise Levels (Demolition, Grading, and Construction Activities)

- Construction and demolition shall be restricted to the hours of 7:00 am to 6:00 pm Monday through Friday, and 8:00 am to 6:00 pm on Saturday.
- Demolition and construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.
- The project contractor shall use power construction equipment with state-of-the-art noise shielding and muffling devices.
- A temporary noise control barrier shall be installed on the property line of the construction site abutting residential uses. The noise control barrier shall be engineered to reduce construction-related noise levels at the adjacent residential structures with a goal of a reduction of 10dBA. The supporting structure shall be engineered and erected according to applicable codes. The temporary barrier shall remain in place until all windows have been installed and all activities on the project site are complete.

MM-7/ TR-1. Haul Route and Construction

- The developer shall install appropriate traffic signs around the site to ensure pedestrian and vehicle safety.
- The applicant shall be limited to no more than two trucks at any given time within the site's staging area.
- There shall be no staging of hauling trucks on any streets adjacent to the project, unless specifically approved as a condition of an approved haul route.
- No hauling shall be done before 9 a.m. or after 3 p.m.
- Trucks shall be spaced so as to discourage a convoy effect.
- On substandard hillside streets, only one hauling truck shall be allowed on the street at any time.
- A minimum of two flag persons are required. One flag person is required at the entrance to the project site and one flag person at the next intersection along the haul route.
- Truck crossing signs are required within 300 feet of the exit of the project site in each direction.
- The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by grading and hauling, and at all times shall provide reasonable control of dust caused by wind.
- Loads shall be secured by trimming and watering or may be covered to prevent the spilling or blowing of the earth material.
- Trucks and loads are to be cleaned at the export site to prevent blowing dirt and spilling of loose earth.
- No person shall perform grading within areas designated "hillside" unless a copy of the permit is in the possession of a responsible person and available at the site for display upon request.

- A log documenting the dates of hauling and the number of trips (i.e. trucks) per day shall be available on the job site at all times.
- The applicant shall identify a construction manager and provide a telephone number for any inquiries or complaints from residents regarding construction activities. The telephone number shall be posted at the site readily visible to any interested party during site preparation, grading and construction.

MM-8/ TR-2. Pedestrian Safety

- Applicant shall plan construction and construction staging as to maintain pedestrian access on adjacent sidewalks throughout all construction phases. This requires the applicant to maintain adequate and safe pedestrian protection, including physical separation (including utilization of barriers such as K-Rails or scaffolding, etc) from work space and vehicular traffic and overhead protection, due to sidewalk closure or blockage, at all times.
- Temporary pedestrian facilities shall be adjacent to the project site and provide safe, accessible routes that replicate as nearly as practical the most desirable characteristics of the existing facility.
- Covered walkways shall be provided where pedestrians are exposed to potential injury from falling objects.
- Applicant shall keep sidewalk open during construction until only when it is absolutely required to close or block sidewalk for construction staging. Sidewalk shall be reopened as soon as reasonably feasible taking construction and construction staging into account.

MM-9/ Tribal-1. Tribal Monitor

Prior to commencing any ground disturbance activities at the Project site, the Applicant, or its successor, shall retain archeological monitors and tribal monitors that are qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. Any qualified tribal monitor(s) shall be approved by the Gabrieleno Band of Mission Indians and the Fernandeno Tataviam Band of Mission Indians. Any qualified archaeological monitor(s) shall be approved by the Department of City Planning, Office of Historic Resources (“OHR”). The qualified archeological and tribal monitors shall observe all ground disturbance activities on the project site at all times the ground disturbance activities are taking place. If ground disturbance activities are simultaneously occurring at multiple locations on the project site, an archeological and tribal monitor shall be assigned to each location where the ground disturbance activities are occurring. The on-site monitoring shall end when the ground disturbing activities are completed, or when the archaeological and tribal monitor both indicate that the site has a low potential for impacting tribal cultural resources.

Prior to commencing any ground disturbance activities, the archaeological monitor in consultation with the tribal monitor, shall provide Worker Environmental Awareness Program (WEAP) training to construction crews involved in ground disturbance activities that provides information on regulatory requirements for the protection of tribal cultural

resources. As part of the WEAP training, construction crews shall be briefed on proper procedures to follow should a crew member discover tribal cultural resources during ground disturbance activities. In addition, workers will be shown examples of the types of resources that would require notification of the archaeological monitor and tribal monitor. The Applicant shall maintain on the Project site, for City inspection, documentation establishing the training was completed for all members of the construction crew involved in ground disturbance activities.

In the event that any subsurface objects or artifacts that may be tribal cultural resources are encountered during the course of any ground disturbance activities, all such activities shall temporarily cease within the area of discovery, the radius of which shall be determined by a qualified archeologist, in consultation with a qualified tribal monitor, until the potential tribal cultural resources are properly assessed and addressed pursuant to the process set forth below:

1. Upon a discovery of a potential tribal cultural resource, the Applicant, or its successor, shall immediately stop all ground disturbance activities and contact the following: (1) all California Native American tribes that have informed the City they are traditionally and culturally affiliated with the geographic area of the proposed project; (2) and OHR.
2. If OHR determines, pursuant to Public Resources Code Section 21074 (a)(2), that the object or artifact appears to be a tribal cultural resource in its discretion and supported by substantial evidence, the City shall provide any affected tribe a reasonable period of time, not less than 14 days, to conduct a site visit and make recommendations to the Applicant, or its successor, and the City regarding the monitoring of future ground disturbance activities, as well as the treatment and disposition of any discovered tribal cultural resources.
3. The Applicant, or its successor, shall implement the tribe's recommendations if a qualified archaeologist retained by the City and paid for by the Applicant, or its successor, in consultation with the tribal monitor, reasonably conclude that the tribe's recommendations are reasonable and feasible.
4. In addition to any recommendations from the applicable tribe(s), a qualified archeologist shall develop a list of actions that shall be taken to avoid or minimize impacts to the identified tribal cultural resources substantially consistent with best practices identified by the Native American Heritage Commission and in compliance with any applicable federal, state or local law, rule or regulation.
5. If the Applicant, or its successor, does not accept a particular recommendation determined to be reasonable and feasible by the qualified archaeologist or qualified tribal monitor, the Applicant, or its successor, may request mediation by a mediator agreed to by the Applicant, or its successor, and the City. The mediator must have the requisite professional qualifications and experience to mediate such a dispute. The City shall make the determination as to whether the mediator is at least minimally qualified to mediate the dispute. After making a reasonable effort to mediate this particular dispute, the City may (1) require the recommendation be

implemented as originally proposed by the archaeologist or tribal monitor; (2) require the recommendation, as modified by the City, be implemented as it is at least as equally effective to mitigate a potentially significant impact; (3) require a substitute recommendation be implemented that is at least as equally effective to mitigate a potentially significant impact to a tribal cultural resource; or (4) not require the recommendation be implemented because it is not necessary to mitigate an significant impacts to tribal cultural resources. The Applicant, or its successor, shall pay all costs and fees associated with the mediation.

6. The Applicant, or its successor, may recommence ground disturbance activities outside of a specified radius of the discovery site, so long as this radius has been reviewed by both the qualified archaeologist and qualified tribal monitor and determined to be reasonable and appropriate.
7. The Applicant, or its successor, may recommence ground disturbance activities inside of the specified radius of the discovery site only after it has complied with all of the recommendations developed and approved pursuant to the process set forth in paragraphs 2 through 5 above.
8. Copies of any subsequent prehistoric archaeological study, tribal cultural resources study or report, detailing the nature of any significant tribal cultural resources, remedial actions taken, and disposition of any significant tribal cultural resources shall be submitted to the South Central Coastal Information Center (SCCIC) at California State University, Fullerton and to the Native American Heritage Commission for inclusion in its Sacred Lands File.
9. Notwithstanding paragraph 8 above, any information that the Department of City Planning, in consultation with the City Attorney's Office, determines to be confidential in nature shall be excluded from submission to the SCCIC or provided to the public under the applicable provisions of the California Public Records Act, California Public Resources Code, section 6254(r), and handled in compliance with the City's AB 52 Confidentiality Protocols.

MM-10/ Fire-1. Wildlife

- The project shall be designed with boxed-in eaves; single pane, double thickness (minimum 1/8" thickness) or insulated windows; non-combustible finishes, non-combustible roofs (non-wood); and non-wood siding. Exposed wooden members shall be 2 inches nominal thickness.
- Irrigated and managed greenbelts around the perimeter of all structures for a distance of 100 feet shall be considered as a buffer between the brush and the proposed project.
- All landscaping shall use fire-resistant plants and materials. A list of such plants is available from the Brush Clearance Unit 6262 Van Nuys Blvd., Room 451, Van Nuys 91401 (800) 994-4444.
- The brush in the area adjacent to the proposed development shall be cleared or thinned periodically by the Homeowner's Association under supervision to the Los

Angeles City Fire Department to reduce the risk of brush fires spreading to the homes.

20. **Construction Mitigation Conditions** - Prior to the issuance of a grading or building permit, or the recordation of the final map, the subdivider shall prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770) in a manner satisfactory to the Planning Department, binding the subdivider and all successors to the following:

CM-1 That a sign be required on site clearly stating a contact/complaint telephone number that provides contact to a live voice, not a recording or voice mail, during all hours of construction, the construction site address, and the tract map number. YOU ARE REQUIRED TO POST THE SIGN 7 DAYS BEFORE CONSTRUCTION IS TO BEGIN.

- Locate the sign in a conspicuous place on the subject site or structure (if developed) so that it can be easily read by the public. The sign must be sturdily attached to a wooden post if it will be free-standing.

- Regardless of who posts the site, it is always the responsibility of the applicant to assure that the notice is firmly attached, legible, and remains in that condition throughout the entire construction period.

- If the case involves more than one street frontage, post a sign on each street frontage involved. If a site exceeds five (5) acres in size, a separate notice of posting will be required for each five (5) acres or portion thereof. Each sign must be posted in a prominent location.

DEPARTMENT OF CITY PLANNING - STANDARD CONDOMINIUM CONDITIONS

C-1 That approval of this tract constitutes approval of model home uses, including a sales office and off-street parking. Where the existing zoning is (T) or (Q) for multiple residential use, no construction or use shall be permitted until the final map has recorded or the proper zone has been effectuated. If models are constructed under this tract approval, the following conditions shall apply:

1. Prior to recordation of the final map, the subdivider shall submit a plot plan for approval by the Development Services Section of the Department of City Planning showing the location of the model dwellings, sales office and off-street parking. The sales office must be within one of the model buildings.

2. All other conditions applying to Model Dwellings under Section 12.22A, 10 and 11 and Section 17.05 O of the Code shall be fully complied with satisfactory to the Department of Building and Safety.

C-2 Prior to the recordation of the final map, the subdivider shall pay or guarantee the payment

of a park and recreation fee based on the latest fee rate schedule applicable. The amount of said fee to be established by the Advisory Agency in accordance with Section 17.12 of the Los Angeles Municipal Code and to be paid and deposited in the trust accounts of the Park and Recreation Fund.

C-3 That a landscape plan, prepared by a licensed landscape architect, be submitted to and approved by the Advisory Agency in accordance with CP-6730 prior to obtaining any permit. The landscape plan shall identify tree replacement on a 1:1 basis by a minimum of 24-inch box trees for the unavoidable loss of desirable trees on the site. Failure to comply with this condition as written shall require the filing of a modification to this tract map in order to clear the condition.

In the event the subdivider decides not to request a permit before the recordation of the final map, a covenant and agreement satisfactory to the Advisory Agency guaranteeing the submission of such plan before obtaining any permit shall be recorded.

C-4 If a building permit for apartments will not be requested, the project civil engineer, architect or licensed land surveyor must certify in a letter to the Advisory Agency that the applicant will not request a permit for apartments and intends to acquire a building permit for a condominium building(s). Such letter is sufficient to clear this condition.

BUREAU OF ENGINEERING - STANDARD CONDITIONS

S-1. (a) That the sewerage facilities charge be deposited prior to recordation of the final map over all of the tract in conformance with Section 64.11.2 of the Los Angeles Municipal Code (LAMC).

(b) That survey boundary monuments be established in the field in a manner satisfactory to the City Engineer and located within the California Coordinate System prior to recordation of the final map. Any alternative measure approved by the City Engineer would require prior submission of complete field notes in support of the boundary survey.

(c) That satisfactory arrangements be made with both the Water System and the Power System of the Department of Water and Power with respect to water mains, fire hydrants, service connections and public utility easements.

(d) That any necessary sewer, street, drainage and street lighting easements be dedicated. In the event it is necessary to obtain off-site easements by separate instruments, records of the Bureau of Right-of-Way and Land shall verify that such easements have been obtained. The above requirements do not apply to easements of off-site sewers to be provided by the City.

(e) That drainage matters be taken care of satisfactory to the City Engineer.

(f) That satisfactory street, sewer and drainage plans and profiles as required,

together with a lot grading plan of the tract and any necessary topography of adjoining areas be submitted to the City Engineer.

(g) That any required slope easements be dedicated by the final map.

(h) That each lot in the tract complies with the width and area requirements of the Zoning Ordinance.

(i) That 1-foot future streets and/or alleys be shown along the outside of incomplete public dedications and across the termini of all dedications abutting unsubdivided property. The 1-foot dedications on the map shall include a restriction against their use of access purposes until such time as they are accepted for public use.

(j) That any 1-foot future street and/or alley adjoining the tract be dedicated for public use by the tract, or that a suitable resolution of acceptance be transmitted to the City Council with the final map.

(k) That no public street grade exceeds 15%.

(l) That any necessary additional street dedications be provided to comply with the Americans with Disabilities Act (ADA) of 1990.

S-2. That the following provisions be accomplished in conformity with the improvements constructed herein:

(a) Survey monuments shall be placed and permanently referenced to the satisfaction of the City Engineer. A set of approved field notes shall be furnished, or such work shall be suitably guaranteed, except where the setting of boundary monuments requires that other procedures be followed.

(b) Make satisfactory arrangements with the Department of Traffic with respect to street name, warning, regulatory and guide signs.

(c) All grading done on private property outside the tract boundaries in connection with public improvements shall be performed within dedicated slope easements or by grants of satisfactory rights of entry by the affected property owners.

(d) All improvements within public streets, private streets, alleys and easements shall be constructed under permit in conformity with plans and specifications approved by the Bureau of Engineering.

(e) Any required bonded sewer fees shall be paid prior to recordation of the final map.

S-3. That the following improvements are either constructed prior to recordation of the final map or that the construction is suitably guaranteed:

(a) Construct on-site sewers to serve the tract as determined by the City Engineer.

(b) Construct any necessary drainage facilities.

(c) Install street lighting facilities to serve the tract as required by the Bureau of Street Lighting.

(1) Construct new street lights: one (1) on Kentucky Drive and one (1) on Fredonia Drive.

Notes:

The quantity of street lights identified may be modified slightly during the plan check process based on illumination calculations and equipment selection.

Conditions set: 1) in compliance with a Specific Plan, 2) by LADOT, or 3) by other legal instrument excluding the Bureau of Engineering condition S-3 (i), requiring an improvement that will change the geometrics of the public roadway or driveway apron may require additional or the reconstruction of street lighting improvements as part of that condition.

(d) Plant street trees and remove any existing trees within dedicated streets or proposed dedicated streets as required by the Street Tree Division of the Bureau of Street Maintenance. All street tree plantings shall be brought up to current standards. When the City has previously been paid for tree planting, the subdivider or contractor shall notify the Urban Forestry Division ((213) 847-3077) upon completion of construction to expedite tree planting.

(e) Repair or replace any off-grade or broken curb, gutter and sidewalk satisfactory to the City Engineer.

(f) Construct access ramps for the handicapped as required by the City Engineer.

(g) Close any unused driveways satisfactory to the City Engineer.

(h) Construct any necessary additional street improvements to comply with the 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design.

(i) That the following improvements are either constructed prior to recordation of the final map or that the construction is suitably guaranteed:

(1) After submittal of hydrology and hydraulic calculations and drainage plans for review by the City Engineer prior to recordation of the final map, public on-site and off-site drainage facilities including off-site street improvements may be required to drain the alley and the streets adjoining the tract to suitable outlets satisfactory to the City Engineer.

(2) Improve Fredonia Drive adjoining the subdivision by the construction of the following:

a. A concrete curb, a concrete gutter, and a 4-foot wide concrete

sidewalk and landscaping of the border.
b. Suitable surfacing to join the existing pavements and to complete a 28-foot roadway.
c. Any necessary removal and reconstruction of existing improvements.
d. The necessary transitions to join the existing improvements.

(3) Improve Kentucky Drive adjoining the subdivision by the construction of the following:
a. A concrete curb, a concrete gutter, and a 4-foot wide concrete sidewalk and landscaping of the border.
b. Suitable surfacing to join the existing pavements and to complete a 28-foot roadway.
c. Any necessary removal and reconstruction of existing improvements.
d. The necessary transitions to join the existing improvements.

(4) Improve the alley with the construction of a 20-foot wide alley including a 2-foot wide center longitudinal concrete gutter including any necessary transitions to join the existing improvements satisfactory to the City Engineer.

(5) Construct any necessary retaining walls satisfactory to the City Engineer.

(6) Construct the necessary on-site mainline and house connection sewers satisfactory to the City Engineer.

NOTES:

The Advisory Agency approval is the maximum number of units permitted under the tract map action. However the existing or proposed zoning may not permit this number of units. This vesting map does not constitute approval of any variations from the Municipal Code, unless approved specifically for this project under separate conditions.

Any removal of the existing street trees shall require Board of Public Works approval.

Satisfactory arrangements shall be made with the Los Angeles Department of Water and Power, Power System, to pay for removal, relocation, replacement or adjustment of power facilities due to this development. The subdivider must make arrangements for the underground installation of all new utility lines in conformance with Section 17.05-N of the Los Angeles Municipal Code (LAMC).

The final map must be recorded within 36 months of this approval, unless a time extension is granted before the end of such period.

The Advisory Agency hereby finds that this tract conforms to the California Water Code, as required by the Subdivision Map Act.

The subdivider should consult the Department of Water and Power to obtain energy saving design features which can be incorporated into the final building plans for the subject development. As part of the Total Energy Management Program of the Department of Water and Power, this no-cost consultation service will be provided to the subdivider upon his request.

FINDINGS OF FACT (CEQA)

The project was issued Mitigated Negative Declaration, Case No. ENV-2017-1925-MND, on June 10, 2021. Potential negative impacts could occur from the project's implementation due to:

Biological Resources;
Geology/Soils
Noise;
Transportation;
Tribal Cultural Resources;
Wildfire

The project applicant/representative submitted comments to the Mitigated Negative Declaration as follows:

- The Mitigated Negative Declaration Project Description states that "The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, each with a 260 square foot garage…" However, the Project Description should read: "The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings, and a 260 square foot garage…" This comment does not change the analysis of the MND, since all structures on site will be demolished.

- The Mitigated Negative Declaration states that "The project site slopes upward from Kentucky and Fredonia Drives and downslope toward Cahuenga. As designed, the project roofline will fall below the roadway elevation." The applicant's representative clarified that the project roofline will generally fall below the elevation. According to the applicant, "The roofline (top of parapet) will generally fall below the roadway elevation. Specifically, the top of parapet will be at elevation 688 feet, max. The elevation of Fredonia Drive is 688+ feet; Kentucky Drive is 689+ feet. However, Kentucky Drive falls slightly to the west to a height of approximately 685 feet at the northwest corner of the site. Note that the building will be set back approximately 50 feet from the roadway at this point." This comment clarifies but does not change the analysis of the MND.

- The Mitigated Negative Declaration includes the following item under Section 3.4, Requested Permits and Approvals: "Other discretionary and ministerial permits and approvals that may be deemed necessary, including, but not limited to, temporary street closure permits, grading permits, excavation permits, foundation permits, building permits, and sign permits." The applicant's representative asked that "demolition permits be added to the discretionary and ministerial permits requested." This does not change the MND analysis, as the demolition is discussed within the MND project description.

2017-1925June 10, 2021
The Deputy Advisory Agency, Mitigated Negative Declaration No. ENV-2017-1925-MND, reflects the independent judgment of the lead agency and determined that this project would not have a significant effect upon the environment provided the potential impacts identified above are mitigated to a less than significant level through implementation of **Condition No(s). 19 and 20** of the Tract's approval. Other identified potential impacts not mitigated by these conditions are mandatorily subject to existing City ordinances, (Sewer Ordinance, Grading Ordinance, Flood

Plain Management Specific Plan, Xeriscape Ordinance, etc.) which are specifically intended to mitigate such potential impacts on all projects.

Furthermore, the Advisory Agency hereby finds that modification(s) to and/or correction(s) of specific mitigation measures have been required in order to assure appropriate and adequate mitigation of potential environmental impacts of the proposed use of this subdivision.

In accordance with Section 21081.6 of the Public Resources Code (AB3180), the Deputy Advisory Agency has assured that the above identified mitigation measures will be implemented by requiring reporting and monitoring as specified in **Condition No. 20.**

FINDINGS OF FACT (SUBDIVISION MAP ACT)

In connection with the approval of VestingTentative Tract Map No. VTT-73784-CN the Advisory Agency of the City of Los Angeles, pursuant to Sections 66473.1, 66474.60, .61 and .63 of the State of California Government Code (the Subdivision Map Act), makes the prescribed findings as follows:

(a) THE PROPOSED MAP WILL BE/IS CONSISTENT WITH APPLICABLE GENERAL AND SPECIFIC PLANS.

The Land Use Element of the General Plan consists of the 35 Community Plans within the City of Los Angeles. The Community Plans establish goals, objectives, and policies for future developments at a neighborhood level. Additionally, through the Land Use Map, the Community Plan designates parcels with a land use designation and zone. The Land Use Element is further implemented through the Los Angeles Municipal Code (LAMC). The zoning regulations contained within the LAMC regulates, but is not limited to, the maximum permitted density, height, parking, and the subdivision of land. The subject site is also located within the geographic area governed by the Mulholland Scenic Parkway Specific Plan (Ordinance No. 167,943, ZI-1224) and the Mulholland Scenic Parkway Specific Plan Design and Preservation Guidelines. As such, the project site is subject to the regulations and guidelines contained therein.

The subdivision of land is regulated pursuant to Article 7 of the LAMC. Pursuant to LAMC Section 17.05 C, tract maps are to be designed in conformance with the tract map regulations to ensure compliance with the various elements of the General Plan, including the Zoning Code. Additionally, the maps are to be designed in conformance with the Street Standards established pursuant to LAMC Section 17.05 B. The project site is located within the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan, which designates the site with a Low Medium Residential land use designation. The land use designation lists the RD1.5-1 Zone as the corresponding zone. The project site is zoned RD1.5-1, which is consistent with the land use designation.

The applicant is requesting to demolish of two vacant, two-story, 770 square foot single-family dwellings and a 260 square foot garage to construct a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop 16 of the condominium dwelling units as allowed

by-right and five density bonus units with two of the 21 units set aside for Very Low Income households.

As shown on the Vesting Tentative Tract Map, the project proposes to subdivide the site consisting of two lots totaling 22,508 square feet. The subject site abuts an alley at the rear property line. Per LAMC Section 12.22 C.16, when computing the number of dwelling units allowed on a lot abutting an alley, one-half the width of the alley is included in the density calculation. As such, an additional 1,400 square feet is included in the lot area calculation when calculating allowable density at this site, thereby yielding a total of 23,908 square feet (22,508 + 1,400 = 23,908).

Pursuant to LAMC Section 12.09.1, the RD1.5 Zone requires a minimum lot area of 1,500 square feet per dwelling unit (including one-half of the abutting alley as discussed above). Therefore, a total of 16 dwelling units are allowed by-right at the subject site. LAMC Section 12.22 A.25 allows the applicant to request a maximum density bonus of 35 percent or 22 units at the site. The applicant is requesting a 31.25 percent density bonus a maximum of 16 condominium dwelling units are permitted by-right. The applicant is requesting an additional five units pursuant to LAMC Section 12.22 A.25 and subject the approval of incidental Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD to provide a total of 21 units including 5 density bonus units (16 units by-right + 5 density bonus units = 21 units). As required pursuant to LAMC Section 12.22 A.25, the applicant is setting aside a minimum of 2 units (11 percent) as affordable to Very Low Income Households.

LAMC Section 12.21.A allows a residential building height of 45 feet and unlimited number of stories in the RD1.5-1 Zone. However, LAMC Section 12.21.1 B.2, as regulated by the Los Angeles Department of Building and Safety, allows a height exception not exceeding 12 feet for a multi-family structure when the highest point of elevation of the adjoining sidewalk or ground surface within a 5 foot horizontal distance measured from the exterior wall of the building exceeds grade level by more than 20 feet. Furthermore, the applicant is requesting an 11 foot height incentive under LAMC Section 12.22 A.25, thereby allowing a 68 foot height (45 + 12 + 11 = 68) if approved by the appropriate decision maker. Pursuant to Section 12.22 A.25(g)(3), the incentive request is off-menu, because the project site is located within a Very High Fire Severity Zone.

The proposed project design has been reviewed for compliance with the Mulholland Specific Plan and Design Guidelines, and has been recommended for approval by the Mulholland Design Review Board on October 21, 2020. If approved, Design Review Board recommendations will be adopted by the appropriate decision maker under incidental Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD.

Pursuant to LAMC Section 1706 B. A, a Vesting Tentative Tract Map must be prepared by or under the direction of a licensed land surveyor or registered civil engineer. It is required to contain information regarding the boundaries of the project site, as well as the abutting public rights-of-way, hillside contours for hillside properties, location of existing buildings, existing and proposed dedication, and improvements of the tract map. The Vesting Tentative Tract Map indicates the map number, notes, legal description, contact information for the owner, applicant, and engineer, as well as other pertinent information as required by LAMC Section 17.06 B. Therefore, the proposed map demonstrates

compliance with LAMC Sections 17.05 C, 17.06 B and is consistent with the applicable General Plan.

(b) THE DESIGN OR IMPROVEMENT OF THE PROPOSED SUBDIVISION IS CONSISTENT WITH APPLICABLE GENERAL AND SPECIFIC PLANS.

For purposes of a subdivision, design and improvement is defined by Section 66418 and 66419 of the Subdivision Map Act and LAMC Section 17.02. Design refers to the configuration and layout of the proposed lots in addition to the proposed site plan layout. Pursuant to Section 66427(a) of the Subdivision Map Act, the location of the buildings is not considered as part of the approval or disapproval of the map by the Advisory Agency. Easements and/or access and "improvements" refers to the infrastructure facilities serving the subdivision. LAMC Section 17.05 enumerates the design standards for a tract map and requires that each map be designed in conformance with the Street Design Standards and in conformance with the General Plan. As indicated in Finding (a), LAMC Section 17.05 C requires that the tract map be designed in conformance with the zoning regulations of the project site. As the project site is zoned RD1.5-1, the 22,508 square foot lot area and additional 1,400 square feet included in the density calculation due to the abutting alley, a maximum of 16 condominium dwelling units are permitted by-right. The applicant is requesting an additional five units pursuant to LAMC Section 12.22 A.25 subject the approval of incidental Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD.

The proposed project design has been reviewed for compliance with the Mulholland Specific Plan and Design Guidelines, and has been recommended for approval by the Mulholland Design Review Board on October 21, 2020. If approved, Design Review Board recommendations will be adopted by the appropriate decision maker under incidental Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD.

The tract map was distributed to and reviewed by the various city agencies of the Subdivision Committee that have the authority to make dedication, and/or improvement recommendations. The Bureau of Engineering reviewed the tract map for compliance with the Street Design Standards. The Bureau of Engineering has recommended dedication and improvements to the public right-of-way along Kentucky and Fredonia Drives, consistent with the standards of the Mobility Element. In addition, the Bureau of Engineering has recommended the construction of the necessary on-site mainline sewers and all necessary street improvements will be made to comply with the Americans with Disabilities Act (ADA) of 2010. The Bureau of Street lighting is requesting the addition of two street lights: one on Kentucky Drive and one on Fredonia Drive. As conditioned, the design and improvements of the proposed subdivision are consistent with the applicable General Plan and the Mulholland Scenic Parkway Specific Plan.

(c) THE SITE IS PHYSICALLY SUITABLE FOR THE TYPE OF DEVELOPMENT.

The project is the demolition of two vacant, two-story, 770 square foot single-family dwellings and a 260 square foot garage. The applicant is proposing the construction, use, and maintenance of a new five-story, 68 feet in height, 35,227 square foot, 21 unit residential condominium building over two partially subterranean levels of parking on a 22,508 square foot hillside lot in the RD1.5-1 Zone. The applicant is proposing to develop

16 of the condominium dwelling units as allowed by-right and five density bonus units with two of the 21 units set aside for Very Low Income households. A total of 47 automobile parking spaces and 24 bicycle parking spaces are proposed to be provided. The proposed project includes six retaining walls ranging between 10 and 12 feet when measured from the finished grade. The project requires the cut and export of 11,200 cubic yards of earth. A total of 15 trees are proposed for removal, including 14 trees on site and one located in the public right-of-way. Haul Route approval is also requested.

The project site consists of two downward-sloping, hillside, irregularly-shaped lots totaling approximately 22,508 square feet. The subject site is located at the confluence of Kentucky and Fredonia Drives in the Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass Community Plan area. As previously discussed, the subject site is located within the Outer Corridor of the Mulholland Scenic Parkway Specific Plan (Ordinance No. 167,943). The intent of the Specific Plan is to preserve and enhance the scenic and geographic features and resources of the area. To achieve these goals, the Specific Plan regulates uses and implements environmental protection measures, grading, heights, and yards. The proposed project is located downslope from Mulholland Drive. More restrictions are placed on projects that are visible from Mulholland Drive than projects that are not visible, but all projects are subject to environmental protection measures. These environmental protection measures regulate grading and construction on prominent ridges, streams, and parklands; oak tree preservation and removal; and archaeological and paleontological resources. Based on GIS mapping tools used by the Los Angeles City Planning Department, the subject site is not visible from Mulholland Drive. The subject site is in the Outer Corridor and is not on or adjacent to a prominent ridge, stream, parkland, major vista point, trail, organization group meeting center, or visitor's center.

The subject site is located within a geographic area designated as ZI-2452 Transit Priority Area in the City of Los Angeles. Under Senate Bill (SB) 743 and Section 21099 (d)(1) of the Public Resources Code (PRC), a project's aesthetic and parking impacts shall not be considered a significant impact on the environment when the project is a residential, mixed-use residential, or employment center project that is located on an infill site within a transit priority area as designated by ZIMAS. Visual resources, aesthetic character, shade and shadow, light and glare, and scenic vistas or any other aesthetic impact as defined in the City's CEQA Threshold Guide shall not be considered an impact for infill projects within transit priority areas pursuant to CEQA. However, aesthetic related impacts are regulated herein pursuant to the Mulholland Scenic Parkway Specific Plan.

The project site is also located within a geographic area designated as ZI-2427 Freeway Adjacent Advisory Notice for Sensitive Uses. Residential projects sited within 1,000 feet of a freeway are encouraged to minimize air pollution exposure and associated health risks by locating open space areas (play areas, courtyards, patios, balconies, etc.) as far from the freeway sources as possible when the size of the site permits, prioritizing the location of non-habitable uses (parking structures and building areas not calculated in floor area) nearest the freeway, and screening the project site with substantial vegetation and/or a wall barrier. The proposed project is designed with an open courtyard at the building frontage facing Fredonia and Kentucky Drives and is as far from the freeway as possible. The project is surrounded by 100 percent California native plants as well as trees and plants that conform with the Mulholland Specific Plan and Design Guidelines.

ZIMAS shows that the subject site is located within a Hillside Area, BOE Special Grading Area, and a Landslide Area. The subject site is within 0.03 kilometers of the Hollywood Fault, although it is not located within an Alquist-Priolo Fault Zone. It is not located within a Liquefaction or Preliminary Fault Rupture Study Area. The site is not located within a Tsunami Inundation Zone. Prior to the issuance of any permits, the project would be required to be reviewed and approved by the Department of Building and Safety. The project has been reviewed by the Department of Building and Safety, Grading Division, and is conditioned herein to comply with all of the requirements and conditions contained in Geology and Soils Report Approval dated February 6, 2019 (Log No. 97819-02) and the Inter-Departmental Correspondence dated March 18, 2019 attached to the case file for Tract No. 73784-CN. Furthermore, mitigation measures to reduce the impacts of the proposed project on hillside grading and construction in a landslide area are incorporated in the associated environmental Case No. ENV-2017-1925-MND and are included as conditions herein.

The project site is located within a Very High Fire Severity Zone. Prior to the issuance of any permits, the project would be required to be reviewed and approved by the Los Angeles Fire Department. Mitigation measures to reduce the impact of the proposed project on wildfire are incorporated in the associated environmental Case No. ENV-2017-1925-MND and are included as conditions herein.

Additionally, the site is not identified as having hazardous waste or past remediation. The site is outside of a flood zone, and is not subject to the Specific Plan for the Management of Flood Hazards (floodways, floodplains, mud prone areas, coastal high-hazard and flood-related erosion hazard areas). Therefore, the site will be physically suitable for the proposed type of development.

(d) THE SITE IS PHYSICALLY SUITABLE FOR THE PROPOSED DENSITY OF DEVELOPMENT.

Properties to the northeast and southeast of the subject front along Cahuenga Boulevard and are developed with one- and two-story small scale commercial office, retail, and restaurant uses. These sites are zoned C2-1VL and are designated General Commercial by the Community Plan. To the northwest and southwest along Kentucky and Fredonia Drives, properties are improved with one-, two- and three-story single- and multi-family residential uses. These sites are zoned RD1.5-1 and designated Low Medium Residential land use. To the west, northwest, and southwest of the subject site, properties are zoned R1-1 and designated Low Residential. These sites are improved with one- and two-story single-family dwellings.

The subject site falls within a 500 foot radius of the US-101 (Hollywood Freeway), which is located to the east of the subject site. A freeway ramp with Cahuenga Boulevard access is located approximately 350 feet to the southeast of the subject site. The site is located less than one-half mile from the Universal/Studio City Metro B Line Station and Metro bus lines (750, 240, 237, 224, 155, 150).

The subject site consists of two upward-sloping, hillside, irregularly-shaped lots totaling approximately 22,508 square feet. As previously discussed, the subject site is designated for Low Medium Residential land use by the Community Plan and is zoned RD1.5-1. The largest lot is approximately 15,555 square feet and is improved with two single-family dwellings (770 square feet each) and a 260 square foot garage built in 1951. According to information provided by the applicant, these structures have been vacant for over 5 years. The smaller approximately 6,958 square foot lot is vacant. City records show that the 6,968 square foot lot was improved with a single-family dwelling in 1957; a demolition permit for a single-family dwelling and garage was issued in 2005.

The project proposes to construct one 21-unit residential condominium building, which would be five stories over two partially subterranean levels of parking with a maximum height of 68 feet. Under the RD1.5 Zone, 16 multi-family residential dwelling units are allowed by-right at the subject site. LAMC Section 12.22 A.25 allows the applicant to request a maximum density bonus of 35 percent or 22 units at the site. The applicant is requesting a 31.25 percent density bonus a maximum of 16 condominium dwelling units are permitted by-right. The applicant is requesting an additional five units pursuant to LAMC Section 12.22 A.25 and subject to the approval of incidental Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD to provide a total of 21 units including 5 density bonus units (16 units by-right + 5 density bonus units = 21 units). As required pursuant to LAMC Section 12.22 A.25, the applicant is setting aside a minimum of 2 units (11 percent) as affordable to Very Low Income Households.

LAMC Section 12.21.A allows a residential building height of 45 feet and unlimited number of stories in the RD1.5-1 Zone. However, LAMC Section 12.21.1 B.2, as regulated by the Los Angeles Department of Building and Safety, allows a height exception not exceeding 12 feet for a multi-family structure when the highest point of elevation of the adjoining sidewalk or ground surface within a 5 foot horizontal distance measured from the exterior wall of the building exceeds grade level by more than 20 feet. Furthermore, the applicant is requesting an 11 foot height incentive under LAMC Section 12.22 A.25, thereby allowing a 68 foot height (45 + 12 + 11 = 68) if approved by the appropriate decision maker under incidental Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD. Pursuant to LAMC Section 12.22 A.25(g)(3), the height incentive request is off-menu, because the project site is located within a Very High Fire Severity Zone. As conditioned herein, a 68 foot in height, 21 unit residential condominium building will be permitted at the site at the discretion of the appropriate decision-maker under Case No. CPC-2017-1923-DB-DRB-SPP-MSP-ZAD.

Approval of the tract map is contingent upon the satisfaction of the Department of Building and Safety, Grading Division prior to the recordation of the map and issuance of any permits. As conditioned herein, the project shall comply with all of the requirements and conditions contained in Geology and Soils Report Approval dated February 6, 2019 (Log No. 97819-02) and the Inter-Departmental Correspondence dated March 18, 2019 attached to the case file for Tract No. 73784-CN. Additionally, prior to the issuance of a demolition, grading, or building permit, the project would be required to comply with and applicable requirements of the LAMC. As conditioned, the proposed tract map is physically suitable for the proposed density of the development.

(e) THE DESIGN OF THE SUBDIVISION OR THE PROPOSED IMPROVEMENTS ARE NOT LIKELY TO CAUSE SUBSTANTIAL ENVIRONMENTAL DAMAGE OR SUBSTANTIALLY AND AVOIDABLY INJURE FISH OR WILDLIFE OR THEIR HABITAT.

There will be no injury to fish or their habitat due to the proposed subdivision and associated improvements. The project site is not near an identified stream or parkland as identified on the Mulholland Scenic Parkway Specific Plan Map No. 11. The subject site abuts a highly urbanized area improved with commercial structures along Cahuenga Boulevard and is located within 500 feet of the US-101 Freeway.

According to the Arborist Report prepared for the subject site by McKinley & Associates dated October 5, 2016, no protected trees will be removed on the subject site. The Arborist Report is supported by a letter submitted by D & G Horticulture dated October 6, 2016. The Arborist Report identifies 15 mature trees, including one in the public right-of-way, that will be removed to construct the condominium project. The Arborist Report states that the existing trees on site are in very poor health and condition. The tree species to be removed include Fraxinus velutina or Arizona Ash, Fraxinus uhdei or Shamel Ash, Ceratonia siliqua or Carob Tree, Ailanthus Altissima or Tree of Heaven, Arbutus unedo or Strawberry Tree, and Ficus macrophylla or Morten Bay Fig. None of the trees proposed for removal are identified in the City's Protected Tree Ordinance No. 177,404 effective April 23, 2006. Effective February 4, 2021, Ordinance No. 186,873 expanded the list of protected trees to include the Mexican Elderberry and Toyon shrubs. On April 8, 2021, the applicant team verified that no protected Mexican Elderberry or Toyon shrubs are present on the subject site. The project is conditioned herein to provide an updated Tree Report that complies with Ordinance No. 186,873.

As discussed in the Arborist Report and as conditioned here, trees to be removed will be replaced at a 1:1 ratio to the satisfaction of the Urban Forestry Division. While it is possible that the removal of 15 trees in a designated hillside area could impact nesting birds, conditions herein and regulatory compliance measures are will ensure that the proposed project and associated improvements will not cause substantial environmental damage or injure wildlife or their habitat.

On June 10, 2021, the City Planning Department issued Mitigated Negative Declaration No. ENV-2017-1925-MND, which determined that the project would not result in significant impacts relating to biological resources. As such, it has been determined that the project and the design of the subdivision and proposed improvements will not cause substantial environmental damage or injury to wildlife or their habitat.

(f) THE DESIGN OF THE SUBDIVISION OR TYPE OF IMPROVEMENTS IS NOT LIKELY TO CAUSE SERIOUS PUBLIC HEALTH PROBLEMS.

There appears to be no potential public health problems caused by the design or improvement of the proposed subdivision.

The development is required to be connected to the City's sanitary sewer system, where the sewage will be directed to the LA Hyperion Treatment Plant, which has been upgraded to meet Statewide ocean discharge standards. The Bureau of Engineering has reported

that the proposed subdivision does not violate the existing California Water Code because the subdivision will be connected to the public sewer system and will have only a minor incremental impact on the quality of the effluent from the Hyperion Treatment Plant.

(g) THE DESIGN OF THE SUBDIVISION OR THE TYPE OF IMPROVEMENTS WILL NOT CONFLICT WITH EASEMENTS, ACQUIRED BY THE PUBLIC AT LARGE, FOR ACCESS THROUGH OR USE OF PROPERTY WITHIN THE PROPOSED SUBDIVISION.

As required by LAMC Section 12.03, the project site has a minimum of 20 feet of frontage along Kentucky and Fredonia Drives, which are public streets. The project site consists of a two parcels identified as Lot Nos. 116 and FR 117 of Tract 5593 and is identified by the Assessor Parcel Nos. 2425002026 and 2425003017. There are no known easements acquired by the public at large for access through or use of the property within the proposed subdivision, as identified on the tract map. Necessary easements for utilities will be acquired by the City prior to the recordation of the proposed tract map.

Therefore, the design of the subdivision and the proposed improvements would not conflict with easements acquired by the public at large for access through or use of the property within the proposed subdivision.

(h) THE DESIGN OF THE PROPOSED SUBDIVISION SHALL PROVIDE, TO THE EXTENT FEASIBLE, FOR FUTURE PASSIVE OR NATURAL HEATING OR COOLING OPPORTUNITIES IN THE SUBDIVISION. (REF. SECTION 66473.1)

In assessing the feasibility of passive or natural heating or cooling opportunities in the proposed subdivision design, the applicant has prepared and submitted materials which consider the local climate, contours, configuration of the parcel(s) to be subdivided and other design and improvement requirements.

Providing for passive or natural heating or cooling opportunities will not result in reducing allowable densities or the percentage of a lot which may be occupied by a building or structure under applicable planning and zoning in effect at the time the tentative map was filed.

The lot layout of the subdivision has taken into consideration the maximizing of the north/south orientation.

The topography of the site has been considered in the maximization of passive or natural heating and cooling opportunities.

In addition, prior to obtaining a building permit, the subdivider shall consider building construction techniques, such as overhanging eaves, location of windows, insulation, exhaust fans; planting of trees for shade purposes and the height of the buildings on the site in relation to adjacent development.

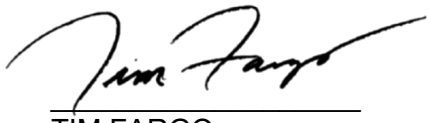
These findings shall apply to both the tentative and final maps for Vesting Tentative Tract No VTT-73784-CN.

heating and cooling opportunities.

In addition, prior to obtaining a building permit, the subdivider shall consider building construction techniques, such as overhanging eaves, location of windows, insulation, exhaust fans; planting of trees for shade purposes and the height of the buildings on the site in relation to adjacent development.

These findings shall apply to both the tentative and final maps for Vesting Tentative Tract No VTT-73784-CN.

VINCENT P. BERTONI, AICP
Advisory Agency



TIM FARGO
Deputy Advisory Agency

CR:TF:LFS:MH

Note: If you wish to file an appeal, it must be filed within 10 calendar days from the decision date as noted in this letter. For an appeal to be valid to the City Planning Commission or Area Planning Commission, it must be accepted as complete by the City Planning Department and appeal fees paid, prior to expiration of the above 10-day time limit. Such appeal must be submitted on Master Appeal Form No. CP-7769 at the Department's Public Offices, located at:

Figueroa Plaza 201 North Figueroa Street, 4th Floor Los Angeles, CA 90012 (213) 482-7077	Marvin Braude San Fernando Valley Constituent Service Center 6262 Van Nuys Boulevard, Room 251 Van Nuys, CA 91401 (818) 374-5050	West Los Angeles Development Services Center 1828 Sawtelle Boulevard, 2nd Floor Los Angeles, CA 90025 (310) 231-2912

Forms are also available on-line at http://cityplanning.lacity.org

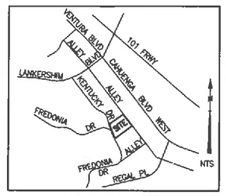
The time in which a party may seek judicial review of this determination is governed by California Code of Civil Procedure Section 1094.6. Under that provision, a petitioner may seek judicial review of any decision of the City pursuant to California Code of Civil Procedure Section 1094.5, only if the petition for writ of mandate pursuant to that section is filed no later than the 90th day following the date on which the City's decision becomes final.

▽1 REVISED VESTING TENTATIVE TRACT NO. 73784

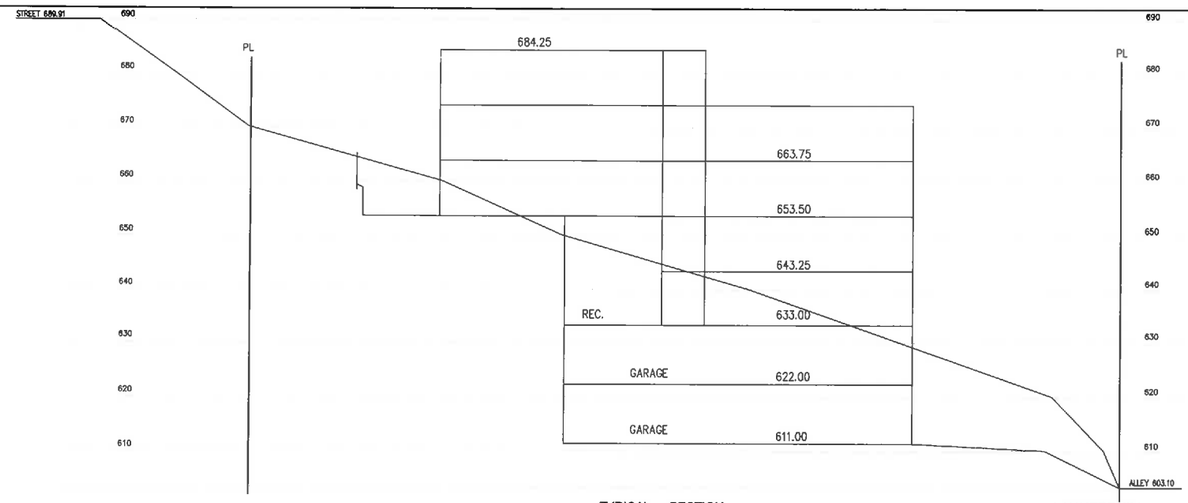
FOR CONDOMINIUM PURPOSES
BEING A SUBDIVISION OF LOT 116 AND A PORTION OF LOT 117 OF TRACT NO. 5593 M.B. 62 PGS 62 AND 63, RECORDS OF LOS ANGELES COUNTY.

ADDRESS: 3894 FREDONIA DR. AND 3902 KENTUCKY DR.

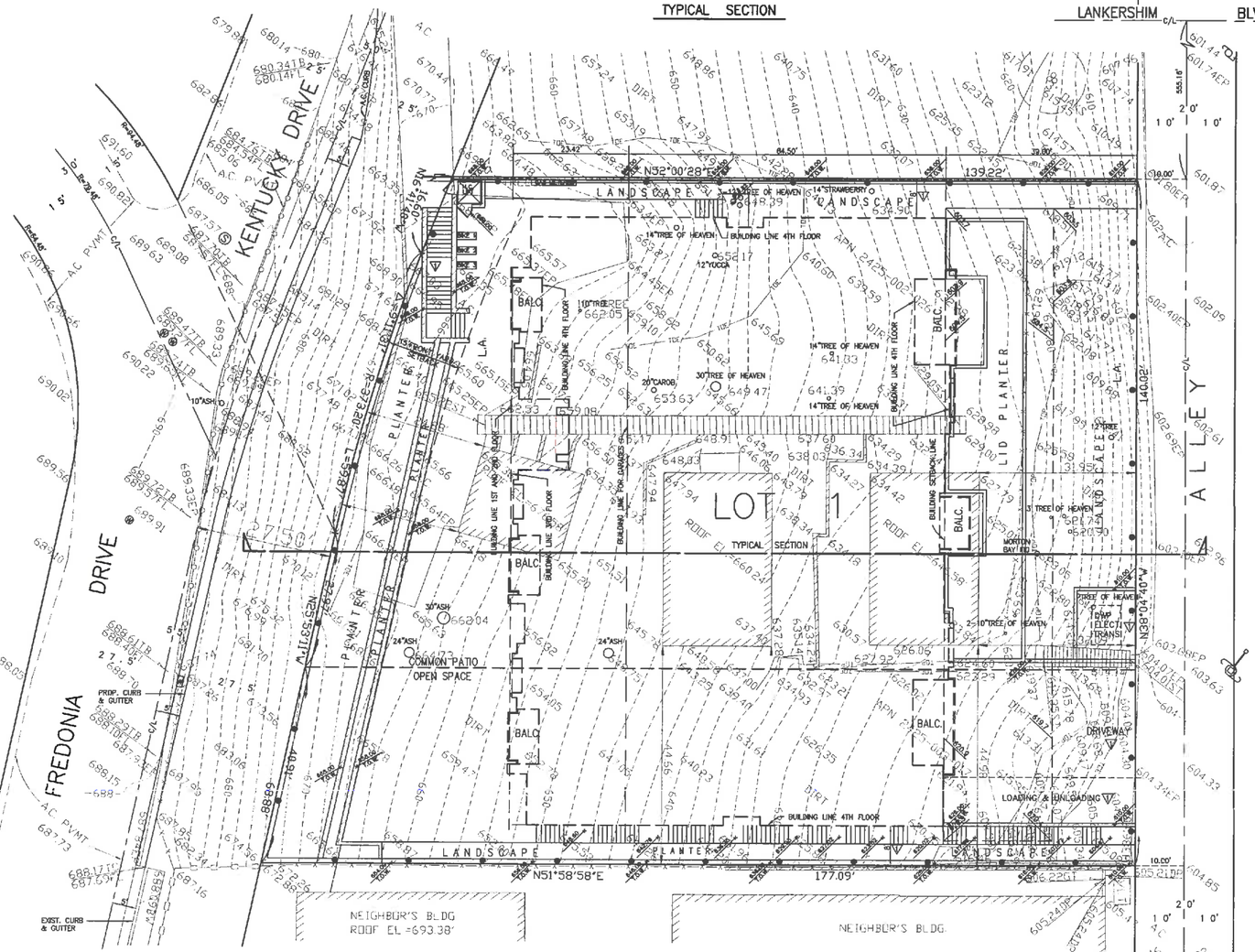
EXHIBIT "A"
Page No. 1 of 1
Case No. VTT-73784-CN



VICINITY MAP



TYPICAL SECTION



LOS ANGELES DEPT. OF CITY PLANNING
SUBMITTED FOR FILING
☒ TENTATIVE MAP ☐ PARCEL MAP

JAN 28 2021

☒ REVISED MAP ☐ EXTENSION OF TIME
☐ FINAL MAP UNIT ☐ MODIFIED
DEPUTY ADVISORY AGENCY

SCALE: 1"=10'

LEGEND

INDICATES THE BOUNDARY OF THE LAND BEING SUBDIVIDED BY THIS MAP

L.A. INDICATES LANDSCAPE AREA

OWNER/SUBDIVIDER
3900 KENTUCKY, LLC
528 STATE STREET
GLENDALE, CA 91203
(818) 844-1476

LAND PLANNING
JEROME BUCKMELTER ASSOCIATES, INC
23534 AGUA STREET
WOODLAND HILLS, CA. 91367
(818) 340-8386

CIVIL ENGINEER
ROBERT K. KAMEOKA
5011 ACACIA ST.
SAN GABRIEL, CA. 91776
(626) 286-6127

REGISTERED PROFESSIONAL ENGINEER ROBERT K. KAMEOKA NO. 15429 EXP. 3-31-22 CIVIL STATE OF CALIFORNIA

NOTES:

▽1. TOTAL AREA: 27,171 S.F. (0.62 AC.) GROSS TO CL STREET AND ALLEY
23,908 S.F. (0.54 AC.) NET INCL. 1/2 ALLEY
2. ZONING EXISTING AND PROPOSED: RD 1.5-1
3. USE: 21 CONDOMINIUM UNITS
SUBDIVISIONS IN RD 1.5-1 ZONE.
4. PARKING SPACES: 42 TENANTS 5 GUEST
5. SEWAGE DISPOSAL BY UNDERGROUND SEWER SYSTEM.
6. SURFACE & CONTRIBUTARY DRAINAGE TO BE CONVEYED TO ALLEY.
7. NO OAK, WESTERN SYC, CALIF BAY OR SC BLACK WALNUT TREES ON PROPERTY. EXIST. TREES TO BE REMOVED. SEE TREE REPORT BY MCKINLEY & ASSOCIATES DATED OCT. 5, 2016.
8. SITE HAS 2 SINGLE FAMILY RESIDENCES AND GARAGE TO BE REMOVED.
9. SITE IS IN HILLSIDE AREA AND SPECIAL GRADING AREA.
10. THERE ARE NO EASEMENTS ON THE SUBJECT PROPERTY EXCEPT AS SHOWN.
11. THERE ARE NO OTHER HAZARDS OR HAZARDOUS MATERIALS ON PROPERTY.
▽12. REQUEST FOR HAUL ROUTE HEARING FOR 11,200 CU. YDS. OF EXPORT.
▽13. FREDONIA DR. AND KENTUCKY DR. ARE HILLSIDE LOCAL STREETS.

VESTING NOTES:

1. BUILDING HEIGHT: 68'-0"MAX.
▽2. BUILDING AREA: 41,563 SQ. FT.
3. TOTAL PARKING SPACES : 42 TENANT AND 5 GUEST
BICYCLE PARKING: LONG TERM=21 SHORT TERM=3
4. ACCESS FROM ALLEY.

▽ REV: JAN. 22, 2021
REV: NOV. 2016
MARCH 2017