May 21, 2019 15-485-22

20401 Ventura LLC
6862 Hayvenhurst Avenue
Van Nuys, CA 91406

Attention: Mr. Kamyar Marouni

Subject: Geotechnical Investigation Report Update
Proposed Hotel Building Project
Lot 1 Of Tract No. 26267
20401 West Ventura Boulevard
Los Angeles, California 9136

Gentlemen:

## INTRODUCTION

We are pleased to submit this geotechnical investigation update report for the subject project. The original report of geotechnical investigation for the subject project was issued by this office on December 1, 2015. Our Supplement No. 1 was then issued on February 13, 2017, presenting response to the City comments.

Our previous reports were reviewed and approved “with conditions” by the Grading Section 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 March 21, 2017 2017 (Log # 96066-01). For convenience, we have enclosed a copy of the City Approval Letter with this Update Report.

During the course of preparation of this report update, the engineering properties of the subsurface materials (from the results of our previous field and laboratory investigations) were evaluated in order to confirm and/or revise our previously presented geotechnical engineering recommendations for the subject project. Our investigation included review of the project files, review of the provided new plans, additional engineering evaluation and analysis, consultation and preparation of this report update.

During the course of preparation of this report update, the most recent project plans electronically transmitted to our office were used as reference. The plans were prepared by the offices of Architectural Dimensions. Also used as reference during this investigation was a survey map by the offices of O.K.O. Engineering, Inc.

The enclosed Site Plan; Drawing No. 1, shows the approximate locations of the previously drilled borings with respect to the site boundaries and the proposed building. This drawing also shows the approximate locations of the new Revised Cross Sections A-A' and B-B'. Drawing Nos. 2 and 3 show the profiles of the Cross Sections A-A' and B-B'.

## PROJECT CONSIDERATIONS

Based on the results of the provided project data, it seems that, although the grading concept has remained generally similar to the original plans, some changes have been made to the building footprint of the basement garage. Basically, in accordance with the newly provided plans, the exterior walls of the basement garage will now be extended closer to the east, north and west property lines. Also, the garage grade will now be established at some 10 to 45 feet below grade. The enclosed Site Plan; Drawing No. 1 shows the approximate footprint of the proposed building with respect to the site boundaries. Cross Sections A-A' and B-B'; Drawing Nos. 2 and 3, show the profiles of the proposed building with respect to the existing and proposed grades.

In our original report, we had recommended that, due to available space, unsupported/open excavation slopes can be used along the east, west and north property lines. Along the south property line, braced shoring be used.

Based on the newly provided plans, it is now believed that, temporary shoring will also be required along the east, west and north property lines. Where total height of excavation is less than 18 feet, the temporary shoring system can be in a form of cantilevered soldier piles.

The existing building to the east of the subject site has subterranean parking garage extending to some 15 feet below grade. Along the east property line, the vertical height of excavation to reach the proposed garage level is on the order of 10 feet. In

order not to impose surcharge to the wall and foundation of the off-site building to the east, the east exterior wall foundation should be extended deeper to the levels of the foundation of the existing off-site building to the east which will require over-excavation of nearly 5 to 7 feet. Alternatively, the east exterior wall footing of the garage of the proposed building should be supported through a friction pile system that will draw support from the bedrock below a 45-degree line drawn from the base of the existing off-site building to the east. The upper portion of the pile above the 45 degree projection line should be sleeved so that it would not take capacity.

## SCOPE OF WORK

The scope of work during preparation of this report update included performing the following tasks:

1. Review of the project files and the previous report;
2. Review of the Newly provided plans;
3 Supplemental engineering evaluation and analysis;
4. Consultation; and
5. Preparation of this Report Update.

## SITE CONDITIONS

### SURFACE CONDITIONS

As part of preparation of this Update Report, we have examined the site surface conditions. Since our previous site visit in Later 2015, no changes have been made to the site grades. Therefore, the site surface description presented in our original report will remain unchanged.

## SEISMIC DESIGN CONSIDERATIONS

In accordance with the 2016 California Building code (CBC 2016), the project site can be classified as site “C”. The mapped spectral accelerations of $S_S$=1.985 (short period) and $S_1$ =0.704 (1-second period) can be used for this project. These parameters corresponds to site Coefficients values of $F_a$ =1.0 and $F_V$ =1.3, respectively.

The seismic design parameters would be as follows:

| | |
|---|---|
| $S_{MS}= F_a (S_S) = 1.0 (1.985) = 1.985$ | $S_{M1}=F_v (S_1) = 1.3 (0.704) = 0.915$ |
| $S_{DS}=2/3 (S_{MS}) = 2/3 (1.985) = 1.323$ | $S_{D1}=2/3 (S_{M1}) = 2/3 (91543) = 0.610$ |

## EVALUATION AND RECOMMENDATIONS

Based on the geotechnical engineering data derived during our original investigation, the site is considered to be suitable for the proposed development. Spread footing foundation system can be used for support of the proposed building. The foundation bearing materials should consist of bedrock.

In our original report, we had recommended that, due to available space, unsupported/open excavation slopes can be used along the east, west and north property lines. Along the south property line, braced shoring be used.

Based on the newly provided plans, it is now believed that, temporary shoring will also be required along the east, west and north property lines. Where total height of excavation is less than 18 feet, the temporary shoring system can be in a form of cantilevered soldier piles.

The existing building to the east of the subject site has subterranean parking garage extending to some 15 feet below grade. Along the east property line, the vertical height of excavation to reach the proposed garage level is on the order of 10 feet. In order not to impose surcharge to the wall and foundation of the off-site building to the east, the east exterior wall foundation should be extended deeper to the levels of the foundation of the existing off-site building to the east which will require over-excavation of nearly 5 to 7 feet. Alternatively, the east exterior wall footing of the garage of the proposed building should be supported through a friction pile system drawing support from the bedrock below a 45-degree line drawn from the base of the existing off-site building to the east. The upper portion of the pile above the 45 degree projection line should be sleeved so that it would not take capacity.

The following sections present our specific recommendations for cantilevered shoring, pile foundations, plan review and observations during construction.

## CANTILEVERED SOLDIER PILES

Where total vertical height of excavation is less than 18 feet, cantilevered soldier piles can be used as a means of temporary shoring. The soldier piles consist of structural steel beams encased in slurry mix. The lateral resistance for cantilevered soldier piles may be assumed to be offered by available passive pressure below the basement level. An allowable passive pressure of 600 pounds per square foot per foot of depth may be used below the basement level 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 temporary support, active pressure on piles may be computed using an equivalent fluid density of 25 pounds per cubic foot (see the enclosed supporting engineering calculations). Uniform surcharge may be computed using an active pressure coefficient of 0.30 times the uniform load.

When using cantilevered soldier piles for temporary shoring, the point of fixity (for the purpose of moment calculations), may be assumed to occur at some 1 foot below the base of the excavation (against bedrock). In order to limit local sloughing, it is recommended that lagging be used between the soldier piles. All wood members left in ground should be pressure treated. For the purpose of design, lagging pressure should not exceed 350 pounds per square foot.

It should be noted that the recommendations in this section are for use in design and for cost estimating purposes. The contractor is responsible for safety during construction.

## TOLERABLE LATERAL MOVEMENTS

For the purpose of this project, where off-site buildings occur within a horizontal distance equal to the depth of excavation, the temporary shoring should be designed to allow lateral deflection of less than ½ of one inch at the tops of the piles. In the areas where the shoring system supports public right-of-way, the tolerable lateral movement at the tops of the shoring piles could be increased to one inch.

**MONITORING**

The temporary shoring piles should be monitored during the course of basement garage construction to assure the lateral movements of the shoring piles are within the recommended tolerable limits. The project structural/shoring engineer should examine the site and assign appropriate surcharge loads for the off-site structures to be added to the lateral earth pressures. The results of the monitoring (lateral and vertical movements of the shoring piles) should be submitted to the project soil and shoring engineers for review and comments. If the results show excessive movements, additional lateral support should be provided.

It is also recommended that the conditions of the off-site improvements be recorded by pictures or video before installation of the shoring piles and basement garage excavation.

**PILE FOUNDATIONS**

The existing building to the east of the subject site has subterranean parking garage extending to some 15 feet below grade. Along the east property line, the vertical height of excavation to reach the proposed garage level is on the order of 10 feet. In order not to impose surcharge to the wall and foundation of the off-site building to the east, the east exterior wall foundation should be extended deeper to the levels of the foundation of the existing off-site building to the east which will require over-excavation of nearly 5 to 7 feet. Alternatively, the east exterior wall footing of the garage of the proposed building should be supported through friction piles that will draw support from the bedrock below a 45-degree line drawn from the base of the existing off-site building to the east. The upper portion of the pile above the 45 degree projection line should be sleeved so that it would not take capacity.

For the purpose of estimating the vertical capacities of the friction piles, an allowable maximum skin friction value of 650 pounds per square foot can be used for bedrock. For design, the weight of piles, 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 reasons not be left open overnight. Caving

was not experienced in our test holes and is believed not to be a problem within machine drilled holes.

The above given allowable maximum skin friction value is for dead, plus frequently applied live loads. For short duration transient loading, such as wind or seismic forces, the given value may be increased by one third.

Total and differential settlements of the proposed building supported by piles and spread footing 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.

## PLAN REVIEW

It is recommended that this office be given the opportunity to review the final plans. The plans most frequently reviewed by the project geotechnical engineers are the following:

1. The General Notes Plans;
2. The Grading plans;
3. The Shoring Plans;
4. The Foundation plans; and
5. Foundation and shoring detail plans.

## OBSERVATION DURING CONSTRUCTION

The presented recommendations in this report assume that the support system will be in a form of spread footings and piles established in bedrock. All foundation excavations (footings and piles) should be observed and approved by a representative of this office before reinforcing is placed.

The depths of soldier piles 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. Also, all foundations of the internal bracing should be observed by this office.

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 update report are based on the results of previous 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-

Except those presented in this Update Report, all the previously provided recommendations for temporary shoring, foundations, retaining walls, grade slabs and grading will remain valid.

Thank you for the opportunity to be of continued service on this project. Should you have any questions regarding this Update Report, 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

CJM/se

Enclosure: Drawing No. 1 - Site Plan
Drawing Nos. 2 And 3 - Cross Sections A-A' And B-B'
Soils Report Approval Letter dated March 21, 2017 (Log # 96066-01).

Distribution (3)

## LEGEND:

Af = Surficial Fill

Qc = Soil (Colluvium)

Tush = Sedimentary Bedrock

B-5 = Location & Number of Boring

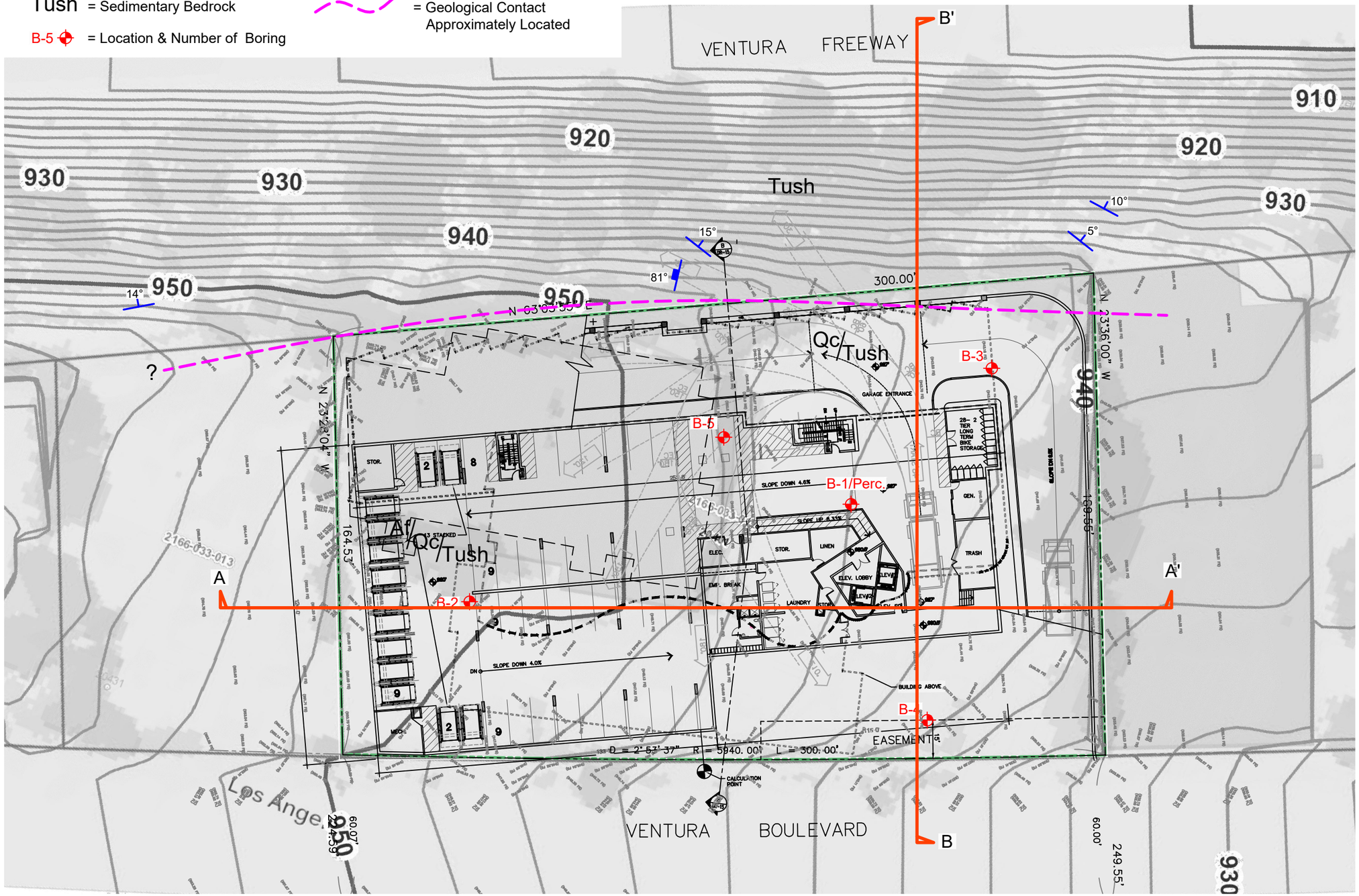
80° = Strike & Dip of Joint

20° = Strike & Dip of Bedding

= Geological Contact Approximately Located

## Note:

Site plan prepared by using survey drawn by:
-O.K.O. Engineering Inc.
Architectural Plans by:
-Architectural Dimensions
-Topographic Lines outside subject property are based on LA County GIS Map.




| | |
|---|---|
| PROJECT No: | 15-485-22 |
| DATE: | 05 / 21 / 2019 |
| DRAWN BY: | VM |
| CHECKED BY: | SM |
| DRAWING No: | 1 |
| | UPDATE |

# GEOLOGIC MAP & SITE PLAN

DESCRIPTION: Proposed Hotel Building Project

FOR: 20401 Ventura LLC - C/O Mr. Kamyar Marouni

ADDRESS: 20401 West Ventura Boulevard, Los Angeles, CA 91364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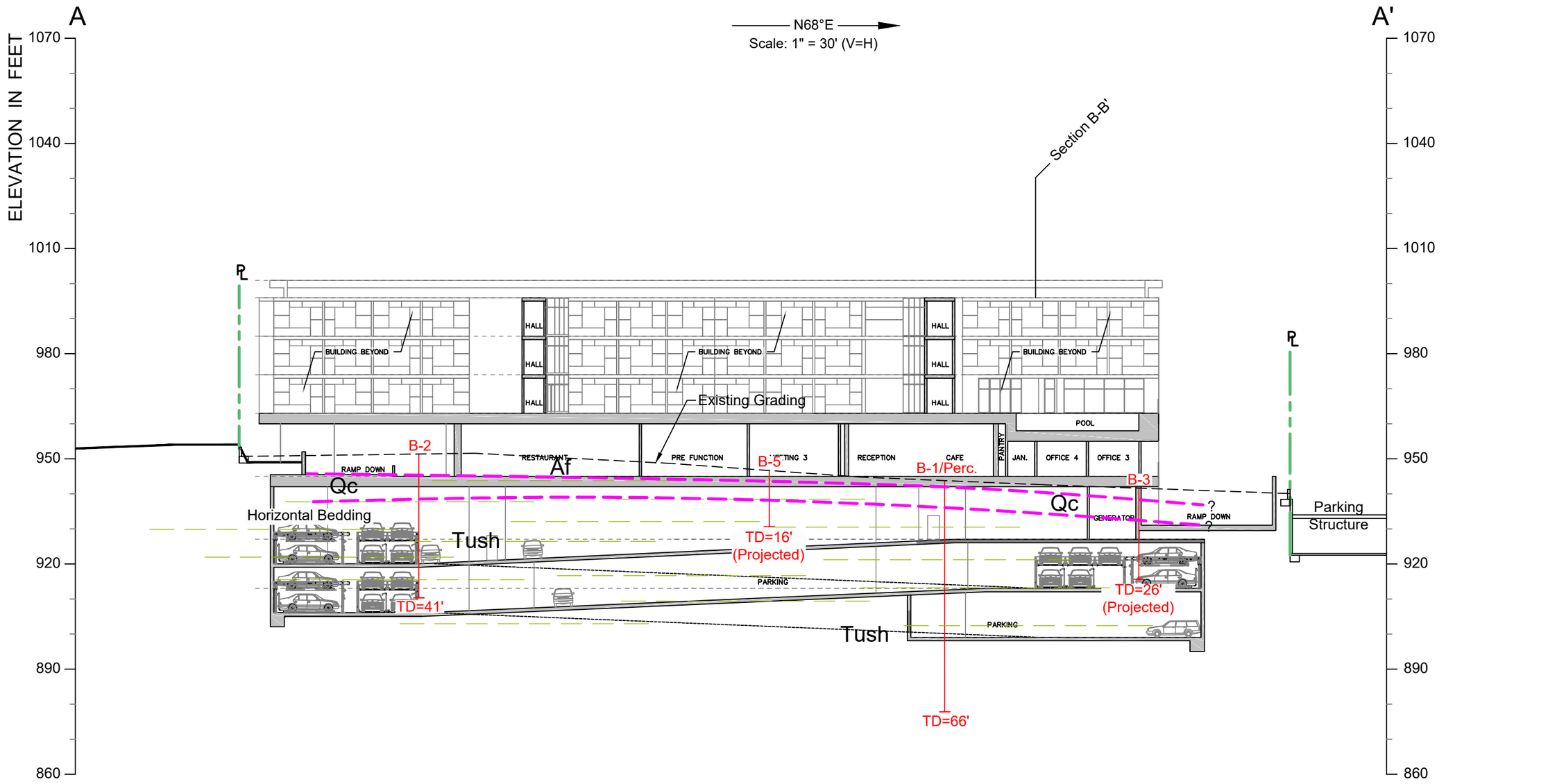
Scale: 1" = 40'




LEGEND:

Af = Surficial Fill

Qc = Soil (Colluvium)

Tush = Sedimentary Bedrock

B-5 = Location & Number of Boring

TD=10' (Projected)

= Geological Contact Approximately Located

# GEOLOGIC CROSS SECTION A-A'

| | | | |
|---|---|---|---|
| DESCRIPTION: | Proposed Hotel Building Project | DATE: | 05 / 21 / 2019 |
| FOR: | 20401 Ventura LLC - C/O Mr. Kamyar Marouni | DRAWN BY: | VM |
| ADDRESS: | 20401 West Ventura Boulevard, Los Angeles, CA 91364 | CHECKED BY: | SM |

PROJECT No: 15-485-22

DRAWING No: 2

UPDATE

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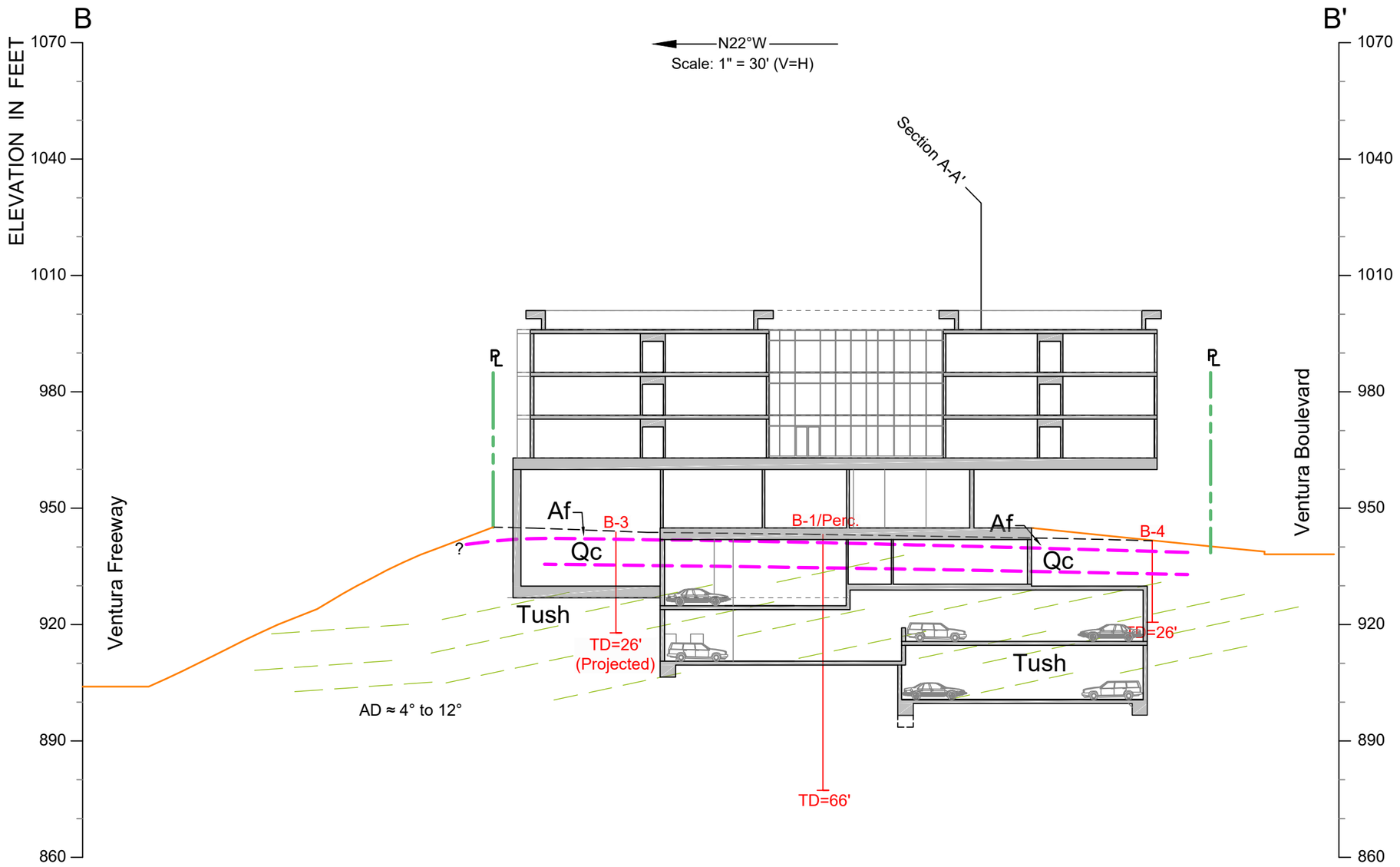


## LEGEND:

| | |
|---|---|
| Af | = Surficial Fill |
| Qc | = Soil (Colluvium) |
| Tush | = Sedimentary Bedrock |
| B-5 / TD=10' (Projected) | = Location & Number of Boring |
| ~ | = Geological Contact Approximately Located |

# GEOLOGIC CROSS SECTION B-B'

| | | | |
|---|---|---|---|
| DESCRIPTION: | Proposed Hotel Building Project | DATE: | 05 / 21 / 2019 |
| FOR: | 20401 Ventura LLC - C/O Mr. Kamyar Marouni | DRAWN BY: | VM |
| ADDRESS: | 20401 West Ventura Boulevard, Los Angeles, CA 91364 | CHECKED BY: | SM |
| | | DRAWING No: | 3 |
| | | PROJECT No: | 15-485-22 |
| | | | UPDATE |

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EXECUTIVE OFFICER

## GEOLOGY AND SOILS REPORT APPROVAL LETTER

March 21, 2017

LOG # 96066-01
SOILS/GEOLOGY FILE - 2
LAN

20401 Ventura LLC
6862 Hayvenhurst Avenue
Van Nuys, CA 91406

TRACT: 26267
LOT(S): 1
LOCATION: 20401 W. Ventura Blvd.

| CURRENT REFERENCE REPORT/LETTER(S) | REPORT No. | DATE(S) OF DOCUMENT | PREPARED BY |
|---|---|---|---|
| Geology/Soils Report | 15-485-22 | 02/13/2017 | Applied Earth Sciences |

| PREVIOUS REFERENCE REPORT/LETTER(S) | REPORT No. | DATE(S) OF DOCUMENT | PREPARED BY |
|---|---|---|---|
| Dept. Review Letter | 96066 | 01/09/2017 | LADBS |
| Geology/Soils Report | 15-485-22 | 12/01/2015 | Applied Earth Sciences |

The Grading Division of the Department of Building and Safety has reviewed the referenced reports dated February 13, 2017, and December 1, 2015, that provides recommendations for the proposed 8 level hotel with 3 level subterranean parking garage (approximately 40 feet bgs), retaining walls.

The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by up to 8 feet of colluvium underlain by Modelo Formation sandstone, shale, and siltstone bedrock. South walls or north facing excavations will expose north dipping bedding 4 to 12 degrees, and will require temporary shoring systems.

The consultants recommend to support the proposed structure on conventional 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 report includes an acceptable seismic slope stability analysis and the requirements of the 2014 City of Los Angeles Building Code have been satisfied.


AN EQUAL EMPLOYMENT OPPORTUNITY - AFFIRMATIVE ACTION EMPLOYER

The referenced reports dated February 13, 2017, and December 1, 2015, are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2014 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. Conformance with the Zoning Code Section 12.21 C8, which limits the heights and number of retaining walls, will be determined during structural plan check.

2. 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)

3. All recommendations of the report(s) that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

4. 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)

5. A grading permit shall be obtained for all structural fill and retaining wall backfill. (106.1.2)

6. 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 (D1556). Placement of gravel in lieu of compacted fill is allowed only if complying with Section 91.7011.3 of the Code. (7011.3)

7. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill. (1809.2, 7011.3)

8. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction. (7013.12)

9. 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 cu yd. (7007.1)



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. 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)

12. Excavations shall not remove lateral support from a public way, adjacent property or an existing structure. 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)

13. The soils engineer shall review and approve the shoring plans prior to issuance of the permit. (3307.3.2)

14. Prior to the issuance of the permits, the soils engineer and the structural designer shall evaluate all applicable surcharge loads for the design of the retaining walls and shoring.

15. Unsurcharged temporary excavations over 10 feet exposing bedrock shall be trimmed back at a gradient not exceeding ¾(H):1(V), as recommended.

16. Unsurcharged temporary excavations up to 5 feet exposing soil shall be trimmed back at a gradient not exceeding ½(H):1(V), from 5 to 10 feet shall be trimmed back at ¾(H):1(V), over 10 feet shall be trimmed to 1(H):1(V), as recommended.

17. Shoring shall be designed for a minimum EFP as recommended on page 9 of the referenced report dated December 1, 2015; all surcharge loads shall be included into the design, as recommended.

18. 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.

19. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

20. All foundations shall derive entire support from competent bedrock, as recommended and approved by the geologist and soils engineer by inspection.

21. 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 maximum of 18 inches on center each way. Vapor barriers shall be utilized as recommended.

22. 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.

23. Basement walls shall be designed for the minimum EFP as specified on page 12 of the December 1, 2015, referenced report. All surcharge loads shall be incorporated into the design.

24. Retaining walls and basement walls higher than 6 feet shall be designed for lateral earth pressure due to earthquake motions as specified on page 13 of the December 1, 2015, referenced report (1803.5.12).

25. 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)

26. 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 soil report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record. (1805.4)

27. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector. (108.9)

28. Basement walls and floors shall be waterproofed/damp-proofed with an L.A. City approved "Below-grade" waterproofing/damp-proofing material with a research report number. (104.2.6)

29. Prefabricated drainage composites (Miradrain) (Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

30. An on-site storm water infiltration system at the subject site shall not be implemented, as recommended.

31. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS. (7013.10)

32. 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 utilization in the field. (7008.2, 7008.3)

33. 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)

34. 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)

35. Prior to the pouring of concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. He/She 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 City Building 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)

36. Prior to excavation, an initial inspection shall be called with LADBS Inspector at which time sequence of construction, shoring, pile installation, protection fences and dust and traffic control will be scheduled. (108.9.1)

37. Installation of shoring and/or pile installation shall be performed under the inspection and approval of the soils engineer and deputy grading inspector. (1705.6)

38. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. He/She shall post a notice on the job site for the City 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 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)

39. No slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

JEFFREY T. WILSON
Engineering Geologist I

YING LIU
Geotechnical Engineer I

Log No. 96066-01
213-482-0480

cc: Applied Earth Sciences, Project Consultant
VN District Office