CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT APPROVAL LETTER

March 1, 2021

LOG # 116196
SOILS/GEOLOGY FILE - 2

Lion Signature
6362 Van Nuys Blvd
Van Nuys, CA 91401

TRACT: 28401
LOT: LT1
LOCATION: 16949-16955 West Sherman Way

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	20-647-02	12/03/2020	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provide recommendations for the proposed four-story (84-units) apartment building over garage on grade. The site was occupied with a commercial building and a paved parking lot that will demolished for the new development. The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by native. The consultants recommend to support the proposed structure on conventional foundations bearing on a blanket of properly placed fill a minimum of 3 feet thick.

As of January 1, 2020, the City of Los Angeles has adopted the new 2020 Los Angeles Building Code (LABC). The 2020 LABC requirements will apply to all projects where the permit application submittal date is after January 1, 2020.

The referenced report is acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 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 soils engineer shall review and approve the detailed plans prior to issuance of any permit. This approval shall be by signature on the plans that clearly indicates the soils engineer has reviewed the plans prepared by the design engineer; and, that the plans included the recommendations contained in their reports (7006.1).

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

3. 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.

4. A grading permit shall be obtained for all structural fill (106.1.2).

5. 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.

6. If import soils are used, no footings shall be poured until the soils engineer has submitted a compaction report containing in-place shear test data and settlement data to the Grading Division of the Department; and, obtained approval (7008.2).

7. Compacted fill shall extend beyond the footings a minimum distance equal to the depth of the fill below the bottom of footings or a minimum of three feet whichever is greater, except at locations where lateral over excavation is not possible, in which case the foundations may be deepened to bear in native soils, as recommended (7011.3).

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

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

10. 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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11. All loose foundation excavation material shall be removed prior to commencement of framing. (7005.3).

12. 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).

13. 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)

14. A supplemental report shall be submitted to the Grading Division of the Department containing recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral support to the public way, adjacent property, or adjacent structures (3307.3). A plot plan and cross-section(s) showing the construction type, number of stories, and location of the structures adjacent to the excavation shall be part of the excavation plans (7006.2).

15. 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).

16. All foundations shall derive entire support from a blanket of properly placed fill a minimum of 3 feet thick, as recommended and approved by the soils engineer by inspection.

17. Footings supported on approved compacted fill or expansive soil shall be reinforced with a minimum of four (4), ½-inch diameter (#4) deformed reinforcing bars. Two (2) bars shall be placed near the bottom and two (2) bars placed near the top of the footing.

18. The foundation/slab design shall satisfy all requirements of the Information Bulletin P/BC 2017-116 "Foundation Design for Expansive Soils" (1803.5.3).

19. 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.

20. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane.

21. The seismic design shall be based on a Site Class D as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

22. The structure shall be connected to the public sewer system per P/BC 2020-027.

23. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner in non-erosive devices or other approved location in a manner that is acceptable to the LADBS and the Department of Public Works[; 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).

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

25. The 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 & 1705.8).

26. 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)

27. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; protection fences; and, dust and traffic control will be scheduled (108.9.1).

28. 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).

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

ROCIO DURAN
Structural Engineering Associate II

RD/rd
Log No. 116196
213-482-0480

cc: Applied Earth Sciences, Project Consultant
VN District Office

REPORT OF

GEOTECHNICAL INVESTIGATION AND PERCOLATION TESTING

PROPOSED APARTMENT BUILDING PROJECT

LOT LT 1 TRACT NO. 28401

16949-16955 WEST SHERMAN WAY

LOS ANGELES, CALIFORNIA 91406

FOR

LION SIGNATURE, INC.

PROJECT NO. 20-647-02

DECEMBER 3, 2020

December 3, 2020 20-647-02

Lion Signature, Inc.
100 Franklin Court
Glendale, California 91205

Attention: Ms. Silvia Kuiumjian

Subject: Geotechnical Investigation
And Percolation Testing
Proposed Apartment Building Project
Lot LT 1 Of Tract No. 28401
16949-16955 West Sherman Way
Los Angeles, California 91406

Dear Ms. Kuiumjian:

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 were evaluated in order to provide recommendations for design and construction of foundations and grading. The investigation included subsurface exploration, soil sampling, laboratory testing, engineering evaluation and analysis, consultation and preparation of this report.

During the course of this investigation, the project plans prepared by the offices of Art Construction Services were used as reference.

The enclosed Drawing No. 1, entitled Site Plan, shows the approximate locations of the exploratory borings in relation to the site boundaries and the proposed new building. This drawing also shows the approximate location of the Perc-1 within which on-site percolation was performed.

Figure No. 1 shows the Site Vicinity Map. Figure No. 2 shows the Regional Topographic Map. Figure No. 3 shows the Regional Geologic Maps. Figure No. 4 shows the Historically Highest Groundwater Contour Map.

The attached Appendix I, describes the method of field exploration. Figure Nos. I-1 through I-5 present summaries of the soils encountered at the location of our exploratory borings. Figure No. I-6 presents a key to the log of exploratory borings.

Appendix II describes the laboratory testing procedures. Figure Nos. II-1 and II-2 present the results of direct shear and consolidation tests performed on selected undisturbed samples.

PROJECT CONSIDERATIONS

It is our understanding that the proposed project will consist of construction of an apartment building at the subject site. The proposed building will be four stories. Portions of the ground floor will be used for parking and offices. The upper floors will be used for living spaces.

The flooring system of the ground floor will be in a form of concrete grade slabs established at or near the present grade. No basement is planned. The approximate location of the proposed building with respect to the site boundaries is shown on the enclosed Site Plan; Drawing No. 1.

Structural loading data was not available during the course of preparation of this report. For the purpose of this report, however, it is assumed that the magnitude of the collected load would be on the order of 300 kips, combined dead, plus frequently applied live loads. Wall loads are expected to be on the order of 6 kips per lineal foot.

ANTICIPATED SITE GRADING WORK

Site grading for the proposed project will involve removal and recompaction of the surficial fill and any disturbed soils generated from removal of the existing structures/paving and the upper three feet of the compressible soils (a total thickness of about 5 feet).

The zone of removal should be extended beyond the exterior walls of the proposed building a horizontal distance equal to the thickness of removal. Some 10 percent shrinkage should be assumed when reusing the excavated materials in the areas of new fill which will have higher densities. Therefore, import soils may be

required to accomplish the site grading work. All imported soils should be non-expansive and granular in nature (similar to the site soils).

SITE CONDITIONS

SITE SURFACE CONDITIONS

The site of the proposed development is located at 16949-16955 West Sherman Way, Van Nuys, California. The site is rectangular in shape covering a plan area of about 50,000 square feet. See the enclosed Site Plan; Drawing No. 1 for the site location.

At the time of our investigation, a commercial building occupied the site. The other areas were paved and was being used as parking lot.

The site is generally level. No slope occurs within, or in the close vicinity of the subject site.

SUBSURFACE CONDITIONS

Correlation of the subsoil between the test borings was considered to be good. Generally, the site, to the depths explored, was found to be covered with surficial fill (silty sand) underlain by natural deposits of silty sand, sandy silt and relatively clean sand soils. Thickness of the surficial fill was found to be on the order of 2 feet in our borings. Deeper fill, however, may be present beneath the existing structures and in old utility lines.

The surficial fill and top 3 feet of the native soils (a total thickness of 5 feet) should not be used for support of new fill, structural foundations, and grade slabs at their present state. Such soils, however, can be excavated and reused in the areas of new compacted fill.

The underlying native soils below a depth of about 6 feet were found to be medium dense in-place and adequate to receive new fill for support of grade slabs and structural foundations. The results of our laboratory testing indicated that the site native soils within the zone of influence of foundation pressure were of moderate strength and moderately compressible.

The site soils (including the existing fill) were found to consist of sand. Such soils are considered to be virtually non-expansive.

During the course of our field investigation, no water was found in our borings drilled to a maximum depth of 26 feet. The State Maps, however, show the historically highest groundwater level in the vicinity of the subject site to be between 40 to 50 feet below ground surface. See the enclosed Figure No. 4.

Due to the method of drilling (use of continuous auger) caving was not detected in our borings. Considering that the site upper soils have significant amount of silt, forming is expected not to be required during foundation construction.

SEISMIC DESIGN CONSIDERATIONS

In accordance with the ASCE7-16, corresponding to LABC 2020, the project site can be classified as site "D". The mapped spectral accelerations of S_S=2.003 (short period) and S_1 =0.696 (1-second period) can be used for this project. These parameters correspond to site Coefficients values of F_a =1.0 and F_V = null (see the Note below), respectively.

The seismic design parameters would be as follows:

$\mathbf{S_{MS}}$= F_a (S_S) = 1.0 (2.003) = 2.003	$\mathbf{S_{M1}}$=F_v (S_1) = null (see Note below)
$\mathbf{S_{DS}}$=2/3 (S_{MS}) = 2/3 (2.003) = 1.335	$\mathbf{S_{D1}}$=2/3 (S_{M1}) = null (see Note below)

Note: Since the seismic factor S_1 is greater than 0.2 site-specific ground motion hazard analyses may be required. The project structural engineer shall determine if an exemption can be applied in accordance with ASCE7-16 Section 11.4.8. If an exemption applies, a long period coefficient (F_v) of 1.7 may be utilized for calculation of the seismic parameters $\mathbf{S_{M1}}$ and $\mathbf{S_{D1}}$ in the above Table.

DISCUSSION OF SOIL LIQUEFACTION POTENTIAL

During the course of our investigation, no groundwater was found in our borings extended to depths of about 26 feet. The historically highest groundwater level at the site is shown by the State maps to be between 40 to 50 feet below ground surface in the general vicinity of the subject site (see the enclosed Figure No. 4). The State of

California Seismic Hazard Zone Maps has placed the subject site outside the designated area of potential liquefaction. On this basis, it is our opinion that soil liquefaction will not occur at the subject site.

EVALUATION AND RECOMMENDATIONS

GENERAL

Based on the geotechnical engineering data derived from this investigation, the site can be developed as planned. The existing fill and top 3 feet of the native soils (a total thickness of 5 feet) are considered to be inadequate for support of new fill, structural foundations, grade slabs at their present state. Such fill soils, however, can be excavated and reused in the areas of new fill. The zone of removal should be extended beyond the exterior walls of the proposed building a horizontal distance equal to the thickness of removal. The new fill will be used for support of grade slabs and foundations.

After proper site grading, conventional spread footing foundation system can be used for support of the proposed building. The foundation bearing materials should consist of properly compacted fill soils.

Grade slabs can be supported on the finished grades which would be properly compacted granular fill soils. For the purpose of this project, it is recommended that the concrete grade slabs for this project to have a minimum section of 5 inches and be reinforced with #4 bars placed at every 16 inches on center, each way.

The following sections present our specific recommendations for foundations, lateral design, grade slabs, grading, surface drainage, and observations during construction.

GRADING RECOMMENDATIONS

Site grading for the proposed project will involve removal and recompaction of the surficial fill and any disturbed soils generated from removal of the existing structures/paving and the upper four feet of the compressible soils (a total thickness of 5 feet). The new fill will be used for support of grade slabs and foundations.

The zone of removal should be extended beyond the exterior walls of the proposed building a horizontal distance equal to the thickness of removal. Some 10 percent shrinkage should be assumed when reusing the excavated site soils in the areas of new fill which will be denser.

Due to shrinkage considerations, imported soils may be required to accomplish the site grading work. All imported soils should be non-expansive and granular in nature and similar to the site soils.

Prior to placement of any fill on the site, the Soil Engineer should observe the excavation bottoms. The areas to receive compacted fill should be scarified to a depth of about 8 inches and compacted to at least 90 percent of the maximum dry density as determined by the ASTM Designation D 1557 Compaction Method.

All import soils should be free of organic matter and rocks larger than 4 inches in diameter. Before import soils are brought to the site, a 40-pound sample of the proposed import soils should be submitted to the Soil Engineer (at least 48 hours in advance) so that the maximum density and expansion character of the import materials can be determined.

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 and debris should be collected and hauled off-site. In the areas of new fill, the existing fill should be excavated until native soils are exposed.

2. The excavated areas should be observed and approved by the Soil Engineer prior to placing any fill.

3. The excavated sandy materials from the site are considered to be satisfactory for reuse in the compacted fill areas.

4. 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 for the material used.

5. 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.

6. 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.

7. 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.

8. 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.

SURFACE DRAINAGE

Adequate site drainage should be provided to divert roof and surface waters away from the proposed building and from the property through non-erodible drainage devices. In no case should the surface waters be allowed to pond adjacent to the buildings or anywhere on the building pads. A minimum surface slope of one and two percent are recommended for paved and unpaved areas, respectively.

The site drainage recommendations should also 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.
6. The owners should be familiar with the general maintenance guidelines of the City requirements.

FOUNDATIONS

Conventional spread footings can be used for support of the proposed building. The foundation bearing materials will be properly compacted fill soils.

New footings should be at least 18 inches wide and be placed at a minimum depth of 24 inches below the lowest adjacent final grades. Properly designed and constructed spread footings may be based on an allowable maximum bearing pressure of 1,800 pounds per square foot. This value can be increased at a rate of 120 and 240 pounds per square for each additional foot of footing width and depth, to a maximum value of 3,000 pounds per square foot.

The above given values are for the total of dead and frequently applied live loads. For short duration transient loading, such as wind or seismic forces, these values may be increased by one-third.

Under the allowable maximum soil pressure, footings with assumed collected loads of 300 kips is expected to settle less than 3/4 of one inch. Wall footings, with loads of about 6 kips per lineal foot are expected to settle on the order of 1/2 of one inch. Maximum differential settlements are expected to be on the order of 1/4 of an inch. The major portions of the settlements are expected to occur during construction.

LATERAL DESIGN

Lateral resistance at the base of footings in contact with properly compacted fill soils can be assumed to be the product of the dead load forces and a coefficient of friction of 0.30. Passive pressure on the face of footings may also be used to resist lateral forces. A passive pressure of zero at the finished grades and increasing at a rate of 250 pounds per square foot per foot of depth to a maximum value of 1,800 pounds per square foot may be used for footings poured against properly compacted fill soils.

GRADE SLABS

Grade slabs may be cast on the finished grades which consist of properly compacted fill soils. For the purpose of this project, it is recommended that the new grade slabs for this project to be at least 5 inches thick be reinforced with # 4 bars placed at every 16 inches on center, each way.

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 10-mil polyethylene film covered with 2 inches of clean sand.

ON-SITE STORM WATER INFILTRATION

It is our understanding that, as part of any new apartment building project, most jurisdictions now require installation of on-site storm water infiltration system where possible. This normally involves diversion of the storm water into a system that will allow infiltration into the ground for recharging of the aquifers. Depending upon the available space, the system can either be horizontal (trench drain) or vertical (dry well). It is common to use horizontal drain system for near grade projects where more space may be available and “dry well” for projects with basement or where adequate flat area is not available.

For the subject project, therefore, and due to available space, we have conducted in-situ testing for use of horizontal (trench) system. The trench system should be maintained at least 10 feet away from existing and new foundations and private property lines.

The testing for horizontal system was conducted in Perc-1 location. The enclosed Site Plan; Drawing No. 1, shows the approximate location of the test pit, within which the percolation testing was conducted.

The procedure for trench system design included performing the following tasks at the subject site:

1. Excavating the test pit to a depth of about 3 feet;
2. Extending a one cubic foot (1’ X 1 ’X 1’) hole at the base of the test pit;
3. Pre-saturating the one cubic foot holes overnight;
4. Conducting in-situ percolation testing the following day;
5. Making engineering evaluation/analysis/calculations;

Percolation test, using the “Ryon Method”, was made in the excavated Perc-1 locations. The results of the tests were then used to provide recommendations for the rate of water dissipation into the subgrade. The recommended percolation rate will be used to estimate the size of the required trench drain.

The enclosed Site Plan; Drawing No. 1, shows the approximate location of the test pit within which the percolation testing was made. The test hole within which the percolation test was conducted was excavated with hand tools.

The test pit diameter was at least 3 feet to allow entry and water level measurements. One cubic foot holes (1’ X1’ X 1’) were then advanced at the bottoms of the pits. The one cubic foot holes were then presoaked overnight prior to the initiation of the in-situ percolation testing.

On the second day, the one cubic foot holes at the base of the test pits were completely filled to the rims with water. The time of the drop of water level for each one inch were recorded in the field. The time it took the water to drop from 5 inch to 6 inch was then used to estimate the rate of percolation.

The percolation holes were excavated on November 5, 2020. The in-situ percolation testing was conducted on the following day, November 6, 2020.

The sand layer was found to be relatively permeable. The time required to drop the water level from 5 inch to 6 inch in Perc-1 was 13 minutes. This translates to a percolation rate of 4.5 inches per hour.

It is noted that the above given rates have no factor of safety. The project Civil Engineer should apply an appropriate factor of safety.

Based on the results of the percolation testing, a horizontal drain system (trench) may be used for the Standard Urban Storm water Mitigation Plan, to control surface runoff and channel part of the runoff back into local aquifers. From the Los Angeles County, Department of Public Health, A Professional Guild to Requirements and Procedures for On-site Wastewater Treatment Systems (OWTS), gravel, stone, or similar materials that are used for filtration purposed must be thoroughly washed free of fines. A single trench may not exceed 100 feet in length.

Total depth of the trench, from ground level to the bottom of the hole, may not exceed 5 feet. At the bottom of the trench, a 6 inch layer of sand will have a perforated

riser extending to the surface level. To reduce the chances of siltation, a filter fabric can be installed between the native soils and the granular materials within the trench.

The system should be designed so that any excess water not infiltrated into the subsoil would be diverted into the planter areas first and then to the street (after going through the required filtration process).

OBSERVATION DURING CONSTRUCTION

The presented recommendations in this report assume that all foundations will be established in properly compacted fill soils. All footing excavations should be observed and accepted by a representative of this office before reinforcing is placed.

Site grading work should be conducted under observation and testing by a representative of this firm. 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 Figures and Appendices are attached and complete this report:

Drawing No. 1 - Site Plan
Figure No. 1 - Site Vicinity Map
Figure No. 2 - Regional Topographic Map
Figure No. 3 - Regional Geologic Map
Figure No. 4 - Historically Highest Groundwater Contour Map.
Appendix I-Method of Field Exploration
Log of Borings Figure Nos. 1-1 through I-5
Unified Soil Classification System Figure No. I-6
Appendix II- Methods of Laboratory Testing
Figure Nos. II-1 and II-2

Respectfully submitted,

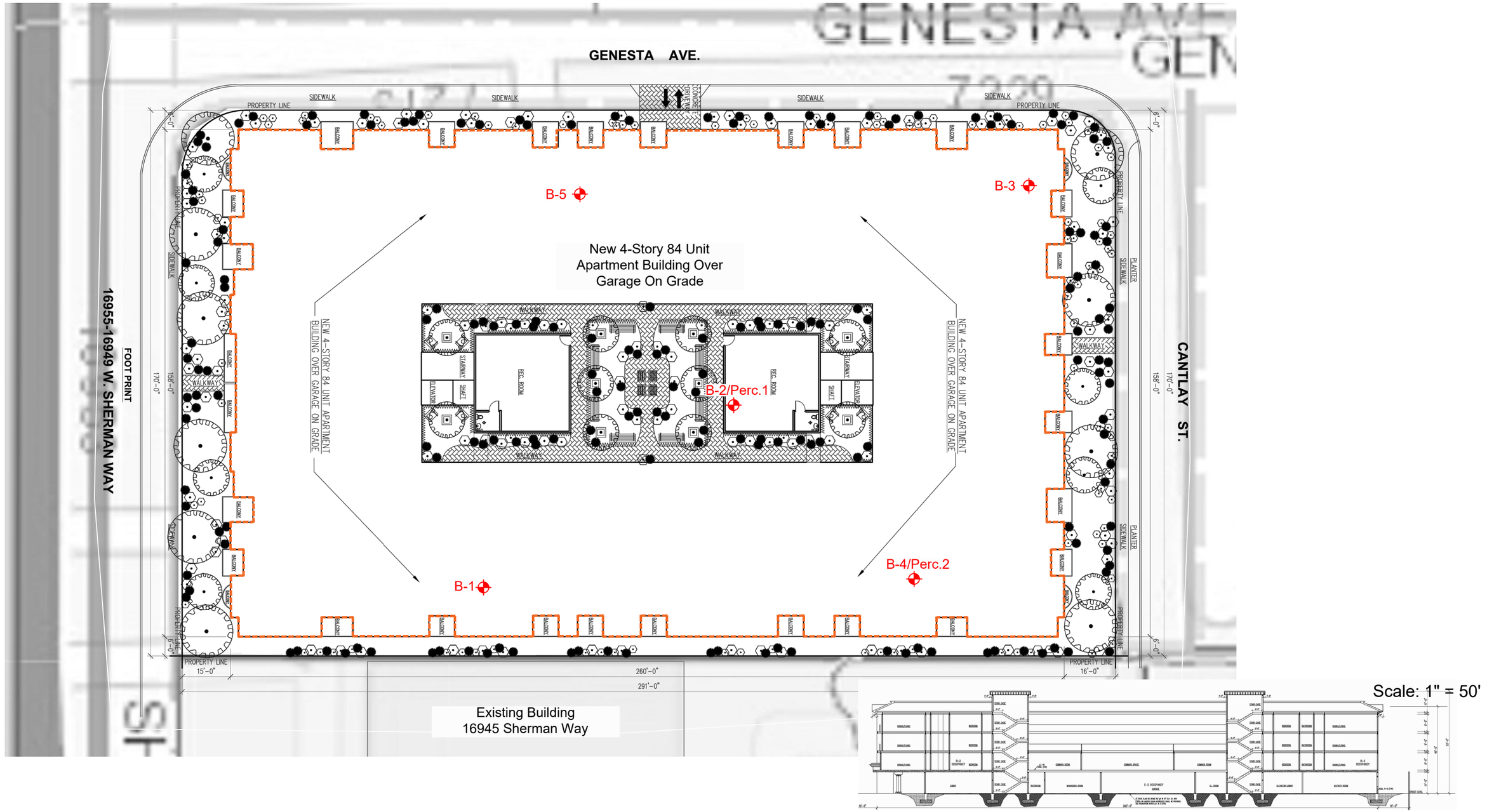
Applied Earth Sciences

Fereidoun “Fred” Jahani
Project Engineer
RE62875

Caro J. Minas, President
Geotechnical Engineer
GE 601

FJ/CJM/se

Distribution: (3) Addressee



Scale: 1" = 50'

LEGEND:

B-5 ⊕ = Location & Number of Boring

Note:

Site plan prepared by using plan provided by:
-Art Construction Services
-Topographic Lines outside subject property are based on Navigate LA Map.

N

Scale: 1" = 30'

SITE PLAN

DESCRIPTION:	Proposed Apartment Building Project	PROJECT No:	20-647-02
FOR:	Lion Signature, Inc.	DATE:	12 / 03 / 2020
ADDRESS:	16949-16955 West Sherman Way, Los Angeles, CA 91406	DRAWN BY:	TG
		CHECKED BY:	CM
		DRAWING No:	1

Applied Earth Sciences
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL
ENGINEERING CONSULTANTS
www.aessoil.com
(818) 552-6000

Reference: Portion of Google Maps

SITE VICINITY MAP

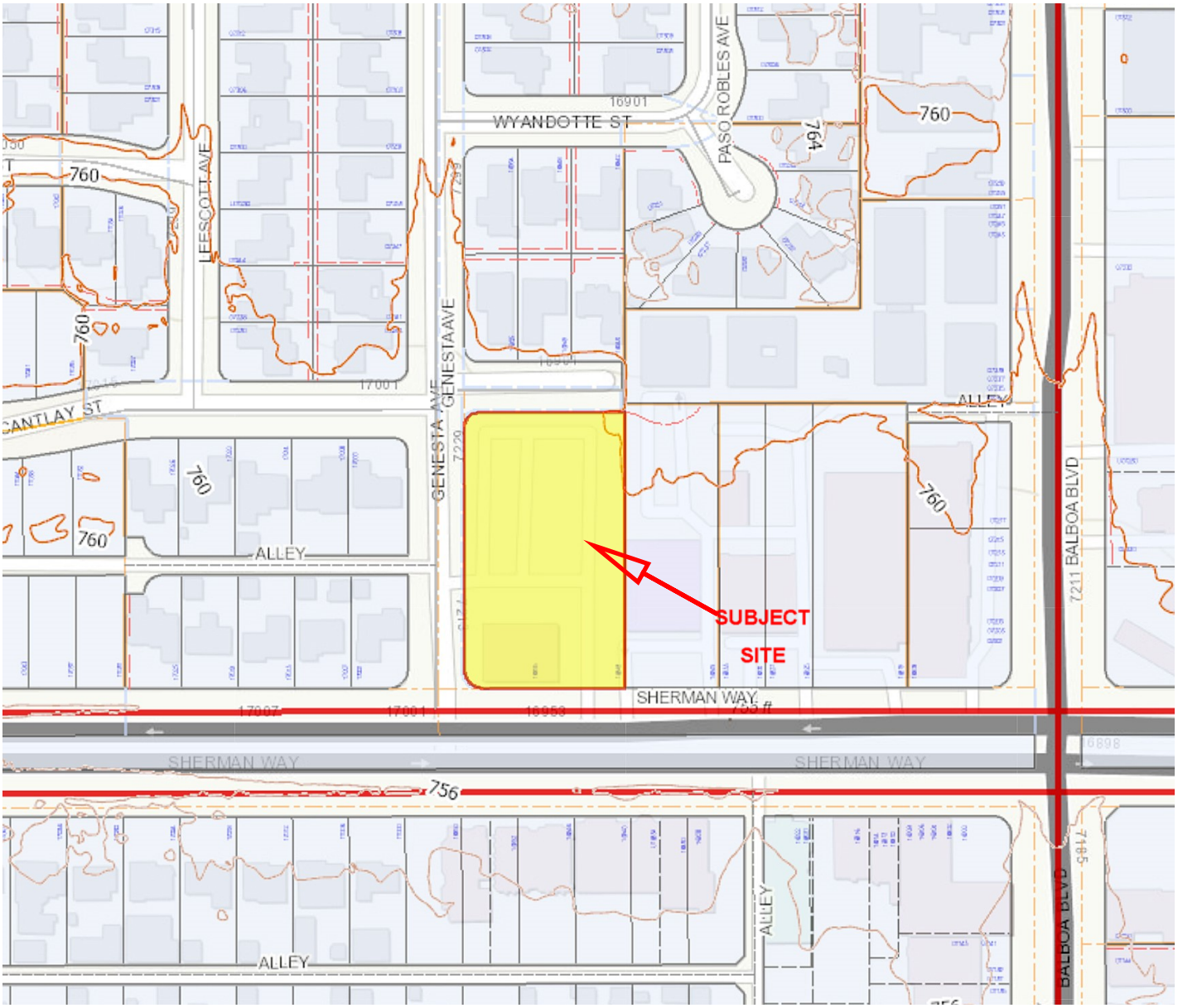
Proposed Apartment Building Project

16949-16955 W. Sherman Way, Los Angeles, CA 91406

FOR	DATE	PROJECT No.
Lion Signature, Inc.	12 / 03 / 2020	20-647-02

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

FIGURE No. 1



Reference: Navigate LA Map

REGIONAL TOPOGRAPHIC MAP

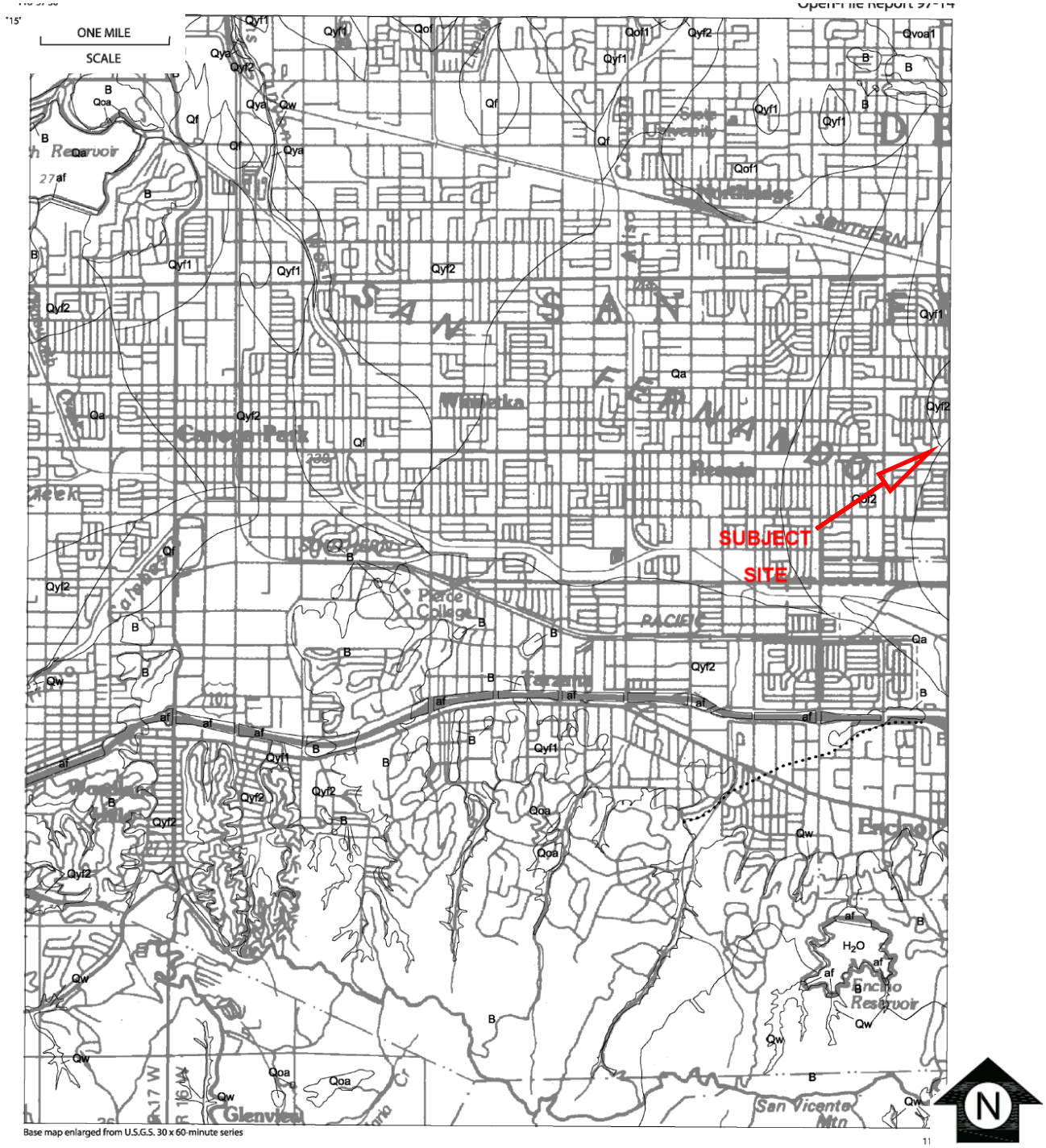
Proposed Apartment Building Project

16949-16955 W. Sherman Way, Los Angeles, CA 91406

FOR	DATE	PROJECT No.
Lion Signature, Inc.	12 / 03 / 2020	20-647-02

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

FIGURE No. 2



Reference: USGS 30x60 Minute Canoga Park Quadrangle

REGIONAL GEOLOGIC MAP

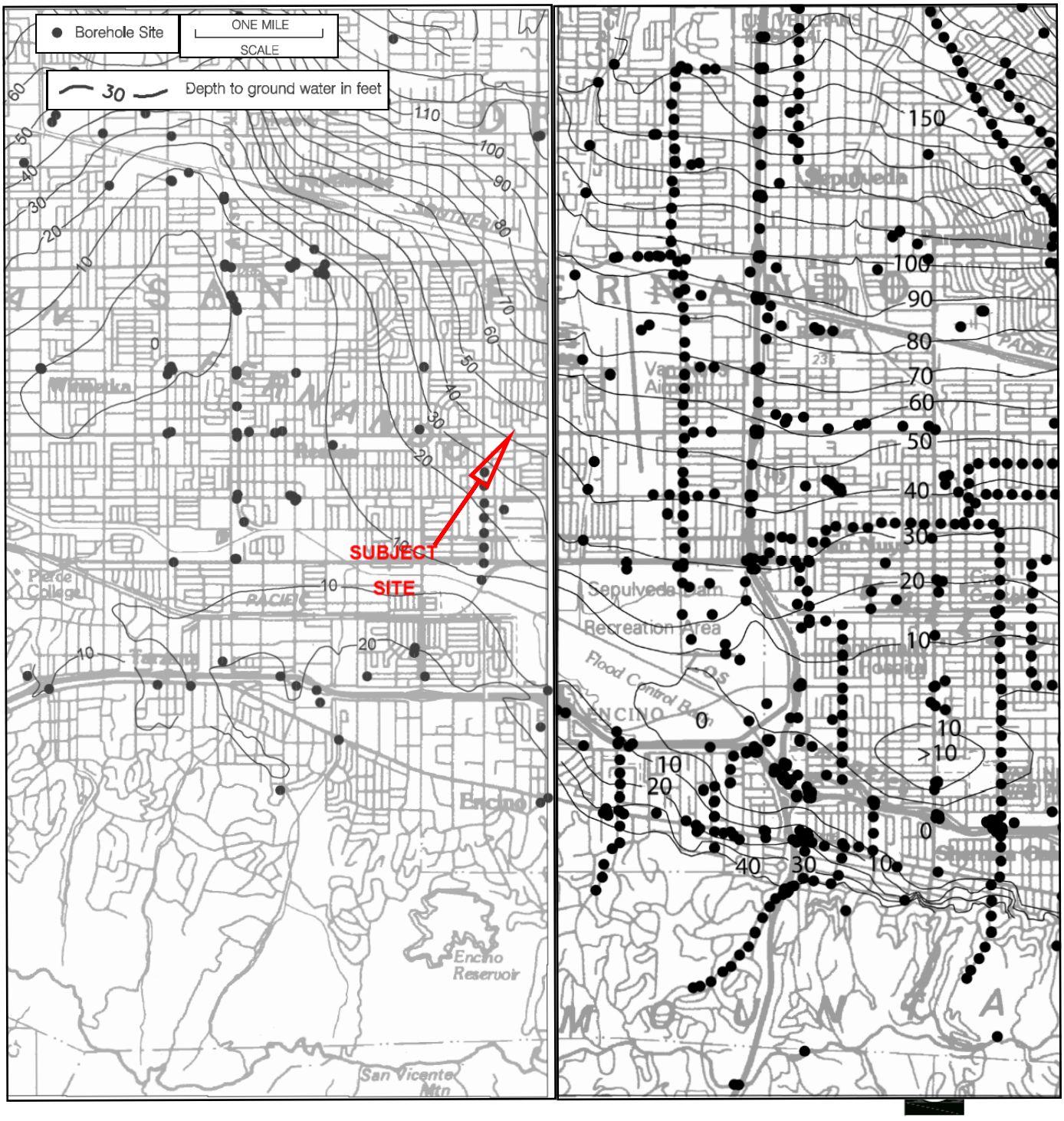
Proposed Apartment Building Project

16949-16955 W. Sherman Way, Los Angeles, CA 91406

FOR	DATE	PROJECT No.
Lion Signature, Inc.	12 / 03 / 2020	20-647-02

APPLIED EARTH SCIENCES
GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS

FIGURE No. 3



Reference: Canoga Park & Van Nuys 7.5 Minute Quadrangle

HISTORICALLY HIGHEST GROUNDWATER (Contour Map)

Proposed Apartment Building Project

16949-16955 W. Sherman Way, Los Angeles, CA 91406

FOR	DATE	PROJECT No.
Lion Signature, Inc.	12 / 03 / 2020	20-647-02

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FIGURE No. 4

APPENDIX I

METHOD OF FIELD EXPLORATION

In order to define subsurface conditions five borings were drilled at the site. The approximate locations of the borings with respect to the existing building are shown on the enclosed Site Plan. The borings were drilled with a conventional truck mounted hollow stem drilling machine.

Logs of the subsurface materials, as encountered in the borings, were recorded in the field and are presented Figure Nos. I-1 through I-5 within Appendix I. These figures also show the number and approximate depths of each of the recovered soil samples.

Relatively undisturbed samples of the subsoil were obtained by driving a steel sampler with successive drops of a 140-pound standard sampling hammer free-falling a vertical distance of about 30 inches. 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.

Field investigation for this project was performed on November 5, 2020. The materials excavated from the test borings were placed back and compacted upon completion of the field work. Such materials may settle. The owner should periodically inspect these areas and notify this office if the settlements create a hazard to person or property.

LOG OF BORING NO.1

20-647-02
16949-16955 W. Sherman Way, Los Angeles, CA 91406

Type: Hollow Stem Auger, With 140 Lb Hammer Logged by: Daniel
Location: *See Site Plan*

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SPT BLOWS/FT	BLOWS PER FT	% Moisture	UNIT DRY WT LB/CU FT	% -200 - △ % Moisture - ● 20 40 60 80	% -200
0			(SM) FILL: Sand, moderately compact, slightly moist, brown, silty sand.						
			(SM) SAND: Loose, slightly moist to moist, brown, silty fine grained sand.		7	13	103		
5			(SP-SM) Grades to loose to medium dense, moist, medium brown to yellowish brown, less sity, slightly gravelly.		10	9	111		
10			(SM) Grades to medium dense, brown, less gravelly.		13	15	104		
15			(ML) SILT: Soft to firm, moist, light yellowish brown, sandy silt.		10	22	92		
20			(ML) Grades to firm, slightly more sandy.		12	24	98		
25			(SP) SAND: Dense, dry, light brown, fine to coarse grained sand with fine gravel, little to no silt.		36	2	115		
30			End of Boring @ 26' No Groundwater Encountered Hole Backfilled.						
35									

COMPLETION DEPTH: 26
DATE: November 5, 2020

DEPTH TO WATER> INITIAL:
FINAL:

LOG OF BORING NO.2

20-647-02
16949-16955 W. Sherman Way, Los Angeles, CA 91406

Type: Hollow Stem Auger, With 140 Lb Hammer Logged by: Daniel
Location: *See Site Plan*

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SPT BLOWS/FT	BLOWS PER FT	% Moisture	UNIT DRY WT LB/CU FT	% -200 - △ % Moisture - ● 20 40 60 80	% -200
0			(SM) FILL: Sand, moderately compact, dry to slightly moist, light brown, silty sand.						
		■	(SM) SAND: Loose, slightly moist, light brown, silty fine grained sand.		9	7	97		
5		■	(SP-SM) Grades to medium dense, yellowish brown, slightly silty fine grained sand with fine gravel.		10	7	104		
10		■	(SP-SM) Grades to slightly less silty.		10	7	97		
15		■	(SP) Gardes to dense, dry, fine to medium grained sand with fine gravel, little to no silt.		25	3	118		
20		■	(SP) Grades to slightly less gravelly.		20	4	113		
25		■	(SP) Grades to dense to very dense, tan brown, fine to coarse grained sand with gravel.		42	3	116		
			End of Boring @ 26' No Groundwater Encountered Percolation Installed @ 5'-2'.						
30									
35									

COMPLETION DEPTH: 26
DATE: November 5, 2020

DEPTH TO WATER> INITIAL:
FINAL:

LOG OF BORING NO.3

20-647-02
16949-16955 W. Sherman Way, Los Angeles, CA 91406

Type: Hollow Stem Auger, With 140 Lb Hammer Logged by: Daniel
Location: *See Site Plan*

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SPT BLOWS/FT	BLOWS PER FT	% Moisture	UNIT DRY WT LB/CU FT	% -200 - △ % Moisture - ● 20 40 60 80	% -200
0			(SM) FILL: Sand, moderately compact, dry to slightly moist, light brown, silty sand.						
		■	(SM) SAND: Medium dense, slightly moist, light brown, silty fine grained sand.		12	10	101		
5		■	(SP-SM) Grades to dry, yellowish brown, less silty.		15	4	104		
10		■	(SM) Grades to slightly more silty.		13	8	98		
15		■	(SP-SM) Grades to slightly silty fine to medium grained sand.		13	8	103		
20		■	(SP) Grades to dense, light brown, fine to coarse grained sand with gravel, little to no silt.		25	2	110		
25		■	(SP) Grades to very dense, fine to medium grained sand with gravel.		66	2	121		
			End of Boring @ 26' No Groundwater Encountered Hole Backfilled.						
30									
35									

COMPLETION DEPTH: 26
DATE: November 5, 2020

DEPTH TO WATER> INITIAL:
FINAL:

LOG OF BORING NO.4

20-647-02
16949-16955 W. Sherman Way, Los Angeles, CA 91406

Type: Hollow Stem Auger, With 140 Lb Hammer Logged by: Daniel
Location: *See Site Plan*

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SPT BLOWS/FT	BLOWS PER FT	% Moisture	UNIT DRY WT LB/CU FT	% -200 - △ % Moisture - ● 20 40 60 80	% -200
0			(SM) FILL: Sand, moderately compact, slightly moist, brown, silty sand.						
		■	(SM) SAND: Loose to medium dense, slightly moist, brown, silty fine grained sand.		10	11	102		
5		■	(SP-SM) Grades to medium dense, medium brown, less silty.		10	7	102		
10		■	(SM) Grades to silty fine grained sand.		11	10	108		
15		■	(ML) SILT: Firm, moist, yellowish brown, sandy silt.		16	27	92		
			End of Boring @ 16' No Groundwater Encountered Percolation Installed @ 5'-2'.						
20									
25									
30									
35									

COMPLETION DEPTH: 16 DEPTH TO WATER> INITIAL:
DATE: November 5, 2020 FINAL:

LOG OF BORING NO.5

20-647-02
16949-16955 W. Sherman Way, Los Angeles, CA 91406

Type: Hollow Stem Auger, With 140 Lb Hammer Logged by: Daniel
Location: *See Site Plan*

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SPT BLOWS/FT	BLOWS PER FT	% Moisture	UNIT DRY WT LB/CU FT	% -200 - △ % Moisture - ● 20 40 60 80	% -200
0			(SM) FILL: Sand, moderatley compact, slightly moist, brown, silty sand.						
		■	(SM) SAND: Loose, slightly moist, light brown, silty fine grained sand.		6	12	98	●	
5		■	(SP-SM) Grades to medium dense, yellowsih brown, less silty.		12	6	104	●	
10		■	(SM) Grades to medium brown, more silty.		11	9	106	●	
15			(SP-SM) Grades to yellowish brown, slightly silty fine grained sand.		13	5	106	●	
			End of Boring @ 16' No Groundwater Encountered Hole Backfilled.						
20									
25									
30									
35									

COMPLETION DEPTH: 16 DEPTH TO WATER> INITIAL:
DATE: November 5, 2020 FINAL:

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

UNIFIED SOIL CLASSIFICATION SYSTEM

JOB NAME : Propose New Apartment Building Project
16949-16955 West Sherman Way
Los Angeles, CA 91406

JOB No. 20-647-02

Applied Earth Sciences
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ENGINEERING CONSULTANTS
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FIGURE No. I-6

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 2216-04 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 log of exploratory borings.

Shear Tests

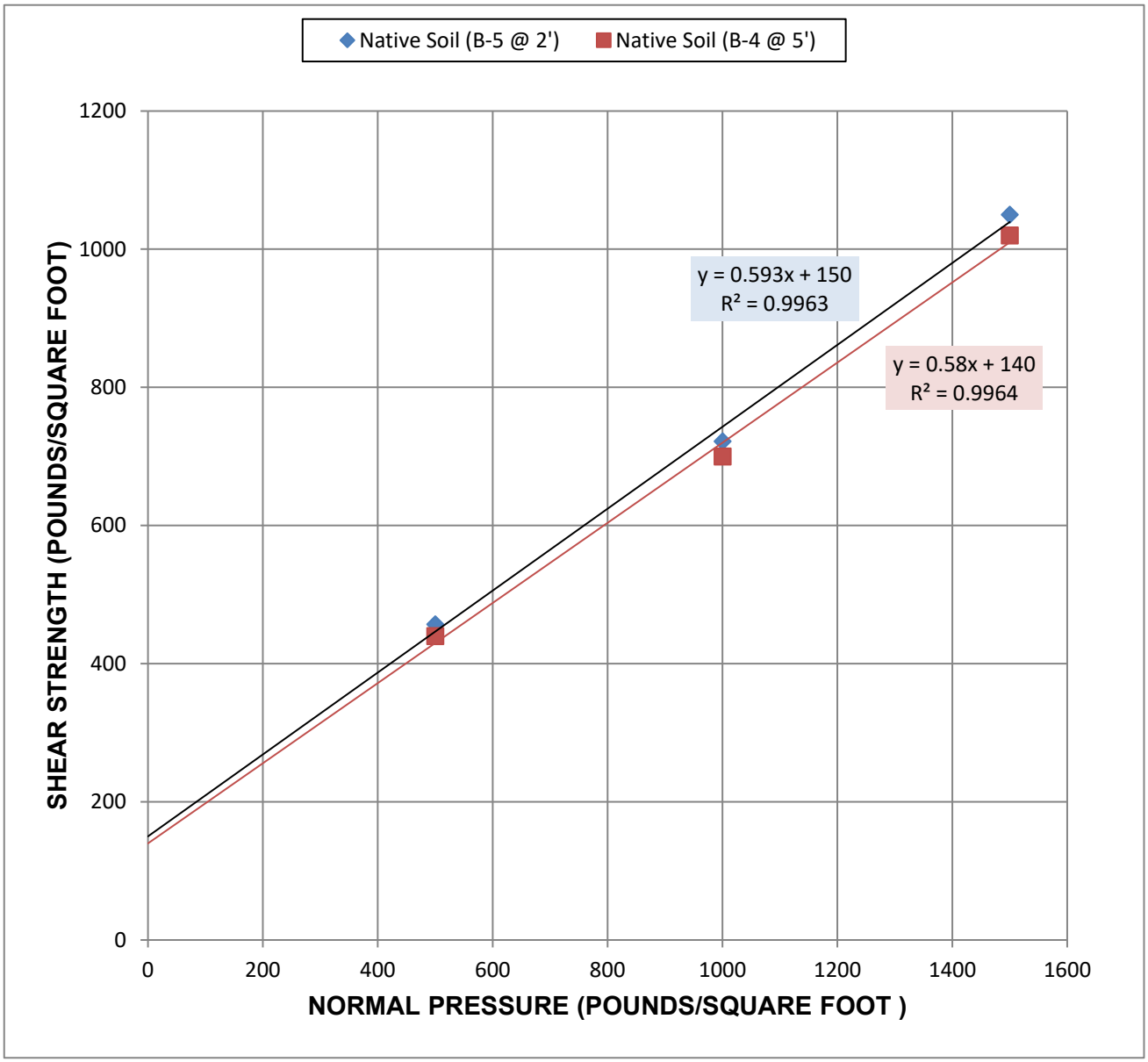
Shear tests were made with a direct shear machine at a constant rate of strain. The machine is designed to test the materials without completely removing the samples from the brass rings. The rate of shear was determined through determination of the rate of consolidation of the foundation bearing materials.

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 tests were performed using ASTM D 3080-04 Laboratory Direct Shear Test Method. The Ultimate shear strength results of direct shear tests are presented on Figure No. II-1 within this Appendix.

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 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. ASTM D 2435-04 Laboratory Consolidation Test Method.

Undisturbed specimens were tested at the field and added water conditions. The test results are shown on Figure No. II-2 within this Appendix.



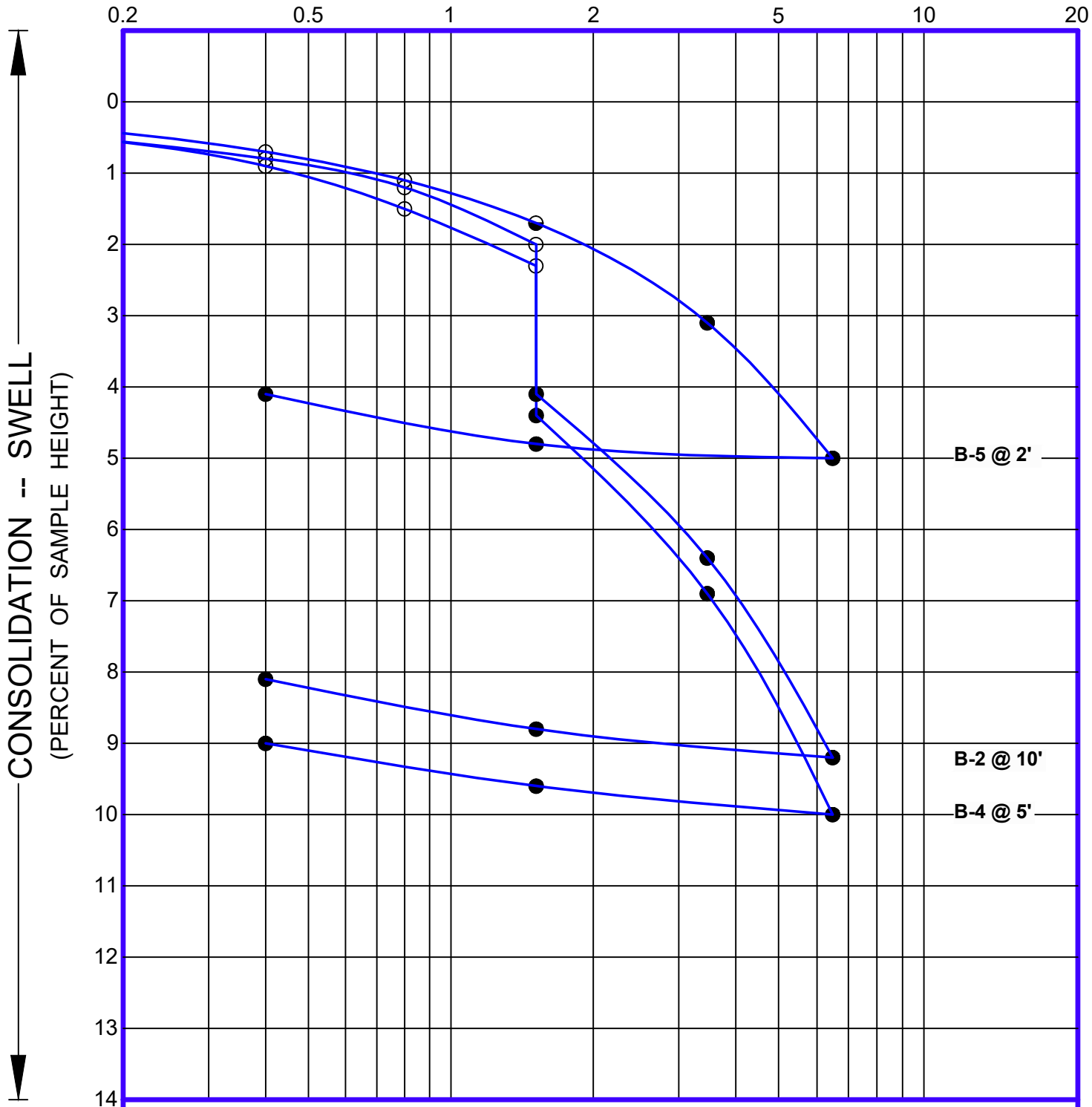
Description	Cohesion (C) (psf)	Friction Angle (ϕ) (Deg.)	Dry Density (PCF)	Saturated Moisture (%)
Native Soil (B-5 @ 2')	**150**	**31**	102	20
Native Soil (B-4 @ 5')	**140**	**30**	100	21

DIRECT SHEAR TEST

SATURATED CONDITION

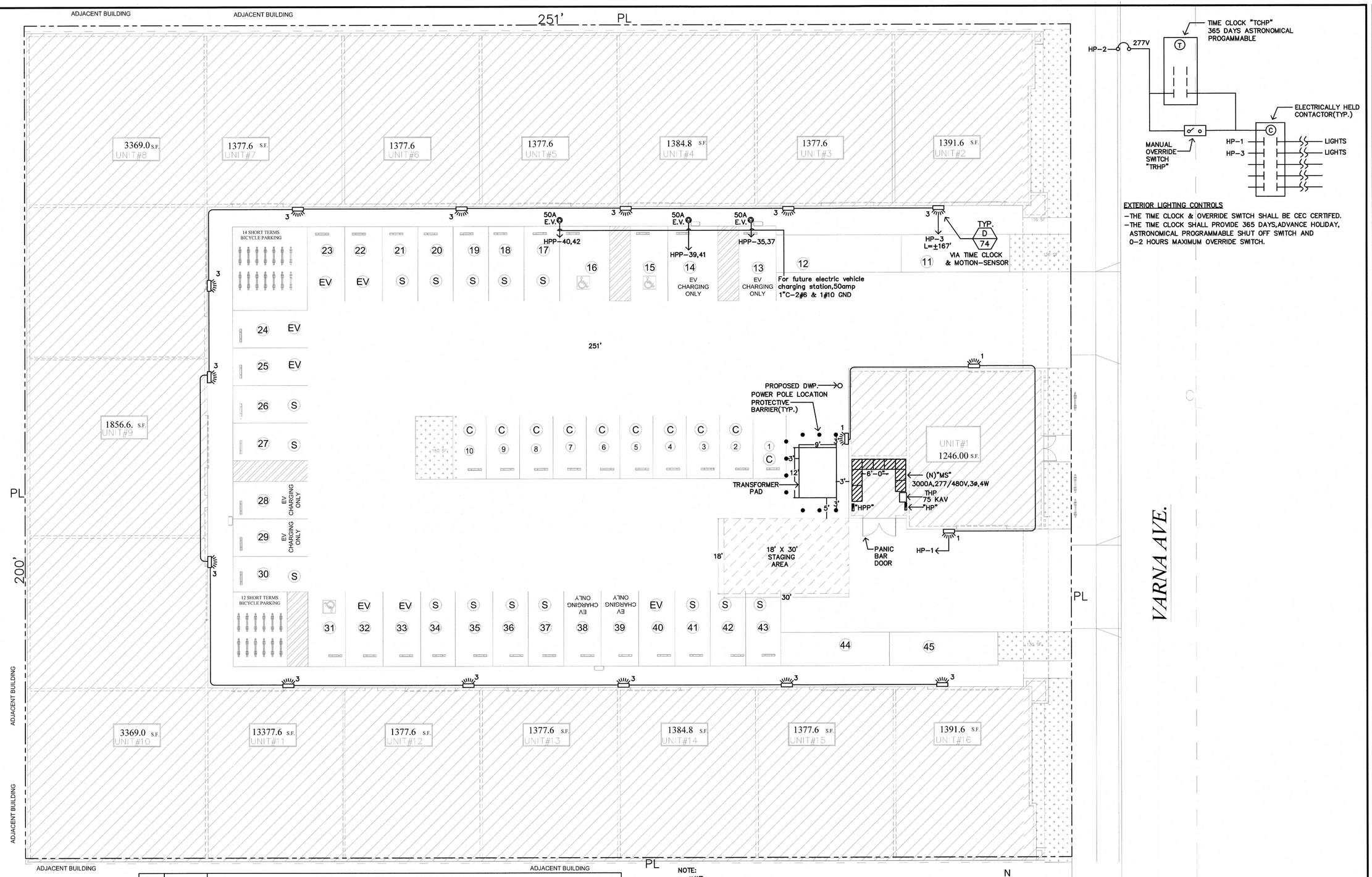
FOR: 1694ϕ-16955 W. Sherman Way	**DATE:** 12/03/2020	**PROJECT NO.:** 20-647-02
APPLIED EARTH SCIENCES GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS		**FIGURE NO. II-1**

PRESSURE IN KIPS PER SQUARE FOOT



SWELL - CONSOLIDATION TESTS

JOB NAME : Propose New Apartment Building Project 16949-16955 West Sherman Way, Los Angeles, CA 91406	JOB No. 20-647-02
Applied Earth Sciences GEOTECHNICAL . GEOLOGY . ENVIRONMENTAL ENGINEERING CONSULTANTS www.aessoil.com (818) 552-6000	FIGURE No. II - 2



EXTERIOR LIGHTING CONTROLS

—THE TIME CLOCK & OVERRIDE SWITCH SHALL BE CEC CERTIFED.
—THE TIME CLOCK SHALL PROVIDE 365 DAYS,ADVANCE HOLIDAY, ASTRONOMICAL PROGRAMMABLE SHUT OFF SWITCH AND 0-2 HOURS MAXIMUM OVERRIDE SWITCH.

LIGHTING FIXTURE SCHEDULE

VOLT	SYMBOL	TYPE	MOUNTING: RECESSED	MOUNTING: SURFACE	MOUNTING: WALL	MOUNTING: PENDANT	MOUNTING: POLE	LAMPS: NUMBER	LAMPS: WATTAG	LAMPS: TYPE	LOAD V.A.	MANUFACTURER	CATALOG NO.	FINISH & REMARKS
277		D 74			X			1	74	LED	74	LITHONIA LIGHTING	DSXW1-LED-20C-1000	WET LOCATION

NOTE:
1. ΦWR GFCI: WET LOCATION RECEPTACLE. (GFCI / WEATHER PROOF/ WEATER RESISTANT / EXTRA DUTY.)
2. ALL EXTERIOR SWITCHBOARD & PANELS SHALL BE NEMA 3R.

SITE PLAN
3/32"=1'-0"

N

VARNA AVE.

REVISIONS	BY

PERFECT DESIGN & INVESTMENT, INC.
Design & Consulting
Air-Conditioning, Plumbing, Fire Sprinkler System,
Electrical, Title 24 Energy Calculation.
2416 W. Valley Blvd.
Alhambra, CA 91803
Tel: (626) 289-8808
Fax: (626) 289-4913
E-Mail:PERFECTAAA@aol.com
E-Mail:perfectaaa2@gmail.com

AUTO REPAIR AND WORK SHOPS

7443 N. VARNA AVE.
NORTH HOLLYWOOD. CA 91605

Date 09-02-21
Scale
Drawn E.C.
Job # H21-235
Sheet **E-2**
Of Sheets

GEOBODEN, INC.
Geotechnical Consultants

June 12, 2023
Shermanway-1-01

Lion Signature, INC
100 Franklin Court,
Glendale Ca 91205

Subject: **CHANGE OF ENGINEER OF RECORD FOR GEOTECHNICAL INVESTIGATION**
Proposed Apartment Building
Lot LT 1 Of Tract No. 28401
16949-16955 West Sherman Way
Los Angeles, California 91406

GeoBoden, Inc. (Geoboden) has prepared this letter report for Change of Engineer of Record and to update geotechnical recommendations for the proposed Apartment Building to be constructed at the subject site. Applied Earth Sciences (AES) prepared the original referenced geotechnical investigation report. Currently subterranean levels are proposed for construction. Excavations up to 23 feet are planned for construction. Based on information provided in borings drilled by AES, competent soils with high blow counts are encountered at approximate depth 25 feet.

TRANSFER OF RESPONSIBILITY

GeoBoden has reviewed the report of soils investigation prepared by AES (Reference) for the subject project, and we are in general concurrence with the findings, conclusions and recommendations presented therein except as modified herein. Geoboden accepts responsibility for the field and laboratory data as the new Engineer of Record. As of the date of this report, GeoBoden will act as geotechnical consultant of record for all future work within our purview to be performed within the subject site. This report supersedes the recommendations given in the previous report prepared by AES and includes recommendations based on the 2023 Los Angeles City Code and based on the current configuration of the proposed project. The project plans are attached for reference.

UPDATED GEOTECHNICAL DESIGN RECOMMENDATIONS

SHALLOW FOUNDATIONS

Following the site and foundation preparation recommended above, foundation for load bearing walls and interior columns may be designed as discussed below.

Bearing Capacity and Settlement

Load bearing walls and interior columns may be supported on continuous spread footings and isolated spread footings, respectively, and should bear entirely upon properly engineered fill or competent native soils. Continuous and isolated footings should have a minimum width of 18 inches and 24 inches, respectively. All footings should be embedded a minimum depth of 24 inches measured from the lowest adjacent finish grade. Continuous and isolated footings placed on such materials may be designed using an allowable (net) bearing capacity of 3,000 pounds per square foot (psf) respectively. Allowable increases of 500 psf for each additional 1 foot in width and 500 psf for each additional 6 inches in depth may be utilized, if desired. The maximum allowable bearing pressure should be 8,000 psf. The maximum bearing value applies to combined dead and sustained live loads. The allowable bearing pressure may be increased by one-third when considering transient live loads, including seismic and wind forces. Bearing capacity calculations are attached for reference.

Based on the allowable bearing value recommended above, total settlement of the shallow footings are anticipated to be less than one inch. Differential settlement is anticipated to be approximately half the total settlement for similarly loaded footings spaced up to approximately 30 feet apart.

Lateral Load Resistance

Lateral load resistance for the spread footings will be developed by passive soil pressure against sides of footings below grade and by friction acting at the base of the concrete footings bearing on compacted fill. An allowable passive pressure of 350 psf per foot of depth may be used for design purposes. An allowable coefficient of friction 0.35 may be used for dead and sustained live load forces to compute the frictional resistance of the footings constructed directly on compacted fill. Safety factors of 2.0 and 1.5 have been incorporated in development of allowable passive and frictional resistance values, respectively. Under seismic and wind loading conditions, the passive pressure and frictional resistance may be increased by one-third.

Footing Reinforcement

Reinforcement for footings should be designed by the structural engineer based on the anticipated loading conditions. Footings for structures that are supported in low expansive soils should have No. 4 bars, two top and two bottom.

SEISMIC DESIGN PARAMETERS

To accommodate effects of ground shaking produced by regional seismic events, seismic design can, at the discretion of the designing Structural Engineer, be performed in accordance with the 2019 edition of the California Building Code (CBC). Table below, 2019 CBC Seismic Parameters, lists (next) seismic design parameters based on the 2019 CBC methodology, which is based on ASCE/SEI 7-16:

2019 CBC Seismic Design Parameters	Value
Site Latitude (decimal degrees)	34.2017
Site Longitude (decimal degrees)	-118.5030
Site Class Definition	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s	2.005
Mapped Spectral Response Acceleration at 1s Period, S_1	0.695
Short Period Site Coefficient at 0.2s Period, F_a	1.0
Long Period Site Coefficient at 1s Period, F_v	1.7
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS}	2.005
Adjusted Spectral Response Acceleration at 1s Period, S_{M1}	1.182
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	1.337
Design Spectral Response Acceleration at 1s Period, S_{D1}	0.788

RETAINING WALLS AND WALLS BELOW GRADE

Lateral Earth Pressure

For design of cantilevered retaining walls, where the surface of the backfill is level, it may be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 35 pounds per cubic foot. In addition to the recommended earth pressure, the walls should be designed to resist any applicable surcharges due to storage or traffic loads.

For the design of braced basement walls, it may be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 65 pounds per cubic foot. In addition to the recommended earth pressure, the wall would be designed to resist any applicable surcharges due to foundation, storage, or traffic loads.

In addition to the recommended earth pressure, retaining walls adjacent to areas subject to vehicular traffic should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal vehicular traffic. If the traffic is kept back at least 10 feet from the walls, the traffic surcharge may be neglected. Also, lateral surcharge pressures from existing building foundations should be added to the above recommend lateral pressure.

Seismic Lateral Earth Pressure

We have used ½ of 2/3 the PGA_M in our analysis (1/3)*0.916g = 0.305. Evaluation of lateral earth pressures under static and seismic loading conditions is based on using the Coulomb (1776) and Mononobe-Okabe (1929) Methods for frictional backfill materials with little to zero cohesion. We recommend using combined of static and dynamic active equivalent earth pressure 67 pcf. For walls with a retained height over 6 feet, or where otherwise required by Code or deemed appropriate by the structural engineer, we recommend that the wall designs be checked seismically using an additive seismic Equivalent Fluid Pressure (EFP) of 35 pcf. Such walls that are to be designed in the static case assuming the at-rest condition should be checked seismically using this additive seismic EFP added to the active condition (i.e., the additive seismic EFP is not added to the at-rest EFP). The additive seismic EFP should be applied with a standard EFP pressure distribution (i.e., it is not an inverted triangle).

Drainage

If the building is designed to withstand hydrostatic pressure, then drainage should also be provided behind basement walls to prevent a buildup of hydrostatic pressure due to infiltration of surface water or other incidental water; the drainage material should extend from 4 feet below the adjacent grade down to the bottom of the basement wall. No collection pipe need to be placed at the base of the wall; the drainage material will function by allowing water to move down the

wall to the soil below the design ground-water level. The drainage material may be designed as recommended below.

If the building is not designed to withstand hydrostatic pressure assuming to prevent a buildup of hydrostatic pressure due to infiltration of surface water or other incidental water, then we recommend that a drainage system be placed behind the walls below grade to help dissipate the hydrostatic forces that may develop behind the walls. Where the walls are formed, such a drainage system may consist of a 4-inch-diameter perforated pipe placed with the perforations down and surrounded by at least 4 inches of granular filter gravel. The pipe should be sloped at least 2 inches in 100 feet. The granular filter material should be separated from the adjacent soils by a filter fabric. The perforated pipes should be placed at the bases of the walls below grade. In addition, a foot wide strip of granular filter material, or continuous Miradrain collector panels should be placed behind each wall. The strip of granular filter material or the Miradrain (Miradrain 6000 or equivalent) panels should extend to the drainage system, and should be terminated at 4 feet below the ground surface.

If the walls are not formed and are shotcreted, the drainage system may consist of continuous Miradrain (Miradrain 6000 or equivalent) panels placed at a depth starting at about 4 feet below the existing grade. The Miradrain panels should be connected to weep holes at the bottom of the excavation. The weep holes should consist of solid pipes that are spaced at about 8 to 10 feet on centers. At the connection of the weep holes and the Miradrain, the weep holes should be embedded into a 1 cubic foot pocket of granular filter material placed into the face of the excavation. The granular filter material should be surrounded by a filter fabric. The weep holes should drain into a solid pipe placed beneath the edges of the floor slab. The pipe may drain into a sump-pump system that drains into the nearest storm drain. The filter gravel should meet the requirements of Class 2 Permeable Material as defined in the current State of California, Department of Transportation, Standard Specifications. If Class 2 Permeable Material is not available, ¾-inch crushed rock or gravel separated from the on-site by an appropriate filter fabric can be used. The crushed rock or gravel should have less than 5% passing a No. 200 sieve.

The installed drainage system should be observed by personnel from our firm prior to being backfilled. Inspection of the drainage system may also be required by the reviewing governmental agencies.

The walls below grade should be waterproofed.

SHORING

General

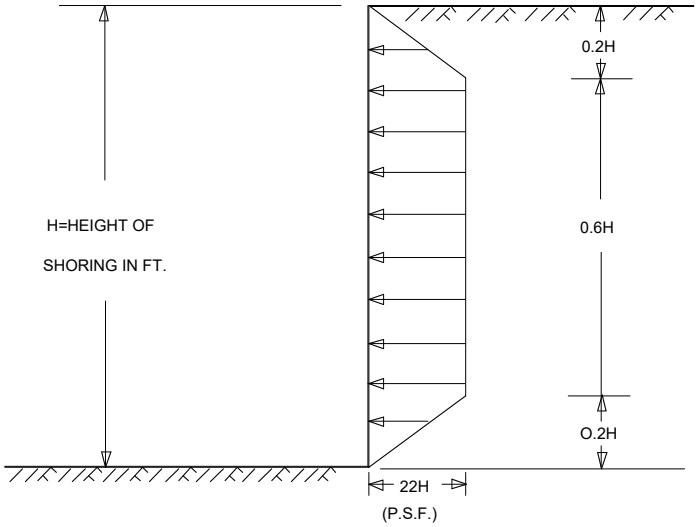
Where there is not sufficient space for sloped embankments, shoring will be required. One method of shoring would consist of steel soldier piles placed in drilled holes, backfilled with concrete, and tied back with earth anchors. Some difficulty may be encountered in the drilling of the soldier piles and the anchors because of caving in the sandy deposits. Special techniques, such as the use of steel shell casing and/or drilling mud, may be necessary to permit the installation of the soldier piles and/or tie-back anchors. In addition, if there is not sufficient space to install the tie-back anchors to the desired lengths on any side of the excavation, the soldier piles of the shoring system may require internal bracing.

The following information on the design and installation of the shoring is based on the information available at this time. We can furnish any additional required data as the design progresses, if authorized. Also, we suggest that our firm review the final shoring plans and specifications prior to bidding or negotiating with a shoring contractor.

Lateral Pressures

For design of cantilevered shoring, a triangular distribution of lateral earth pressure may be used. It may be assumed that the retained soils with a level surface behind the cantilevered shoring will exert a lateral pressure equal to that developed by a fluid with a density of 35 pounds per cubic foot.

For the design of tied-back or braced shoring, we recommend the use of a trapezoidal distribution of earth pressure. The recommended pressure distribution, for the case where the grade is level behind the shoring, is illustrated in the following diagram with the maximum pressure equal to 22H in pounds per square foot, where H is the height of the shoring in feet. Where a combination of sloped embankment and shoring is used, the pressure would be greater and must be determined for each combination.



In addition to the recommended earth pressure, the upper 10 feet of shoring adjacent to the streets and vehicular traffic areas should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the shoring due to normal street traffic. If the traffic is kept back at least 10 feet from the shoring, the traffic surcharge may be neglected.

Furthermore, the shoring system adjacent to the existing structures should also be designed to support the lateral surcharge pressures imposed by the adjacent structure foundations. The lateral surcharge pressures imposed by cranes or concrete trucks and other heavy construction equipment placed near the shoring system.

Surcharge coefficients of 0.5 may be used with uniform vertical surcharges for braced shoring lateral earth pressure. At the discretion of project Structural and Shoring Design Engineers, NavFac DM 7.2 equations for point and line load distributions for various surcharge distributions for the buildings and construction equipment in-house may be used.

Design of Soldier Piles

For the design of soldier piles spaced at least two diameters on centers, the allowable lateral bearing value (passive value) of the soils below the level of excavation may be assumed to be 600 pounds per square foot per foot of depth at the excavated surface, up to a maximum of 6,000 pounds per square foot. To develop the full lateral value, provisions should be taken to assure firm contact between the soldier piles and the undisturbed soils. The concrete placed in the

soldier pile excavations may be a lean-mix concrete. However, the concrete used in that portion of the soldier pile, which is below the planned excavated level, should be of sufficient strength to adequately transfer the imposed loads to the surrounding soils and the tributary area of the soldier pile should be limited to the diagonal of the steel beam in the shoring calculations.

The frictional resistance between the soldier piles and the retained earth may be used in resisting the downward component of the anchor load. The coefficient of friction between the soldier piles and the retained earth may be taken as 0.4. This value is based on the assumption that uniform full bearing will be developed between the steel soldier beam and the lean-mix concrete and between the lean-mix concrete and the retained earth. In addition, provided that the portion of the soldier piles below the excavated level is backfilled with structural concrete, the soldier piles below the excavated level may be used to resist downward loads. For resisting the downward loads, the frictional resistance between the concrete soldier piles and the soils below the excavated level may be taken equal to 350 pounds per square foot.

Lagging

Continuous lagging will be required between the soldier piles. The soldier piles and anchors should be designed for the full anticipated lateral pressure. However, the pressure on the lagging will be lower due to arching in the soils. We recommend that the lagging be designed for the recommended earth pressure but limited to a maximum value of 400 pounds per square foot. The pressure distribution for the lagging may be assumed to be semi-circular, where the pressure at the soldier pile is 0, and the pressure at the center is 400 pounds per square foot.

Anchor Design

Tie-back friction anchors may be used to resist lateral loads. For design purposes, it may be assumed that the active wedge adjacent to the shoring is defined by a plane drawn at 35 degrees with the vertical through the bottom of the excavation. The anchors should extend at least 25 feet beyond the potential active wedge and to a greater length if necessary to develop the desired capacities.

The capacities of anchors should be determined by testing of the initial anchors as outlined in a following section. For design purposes, we estimate that drilled friction anchors will develop and

average friction value of 600 pounds per square foot. For post-grouted anchors, it may be estimated that the anchors will develop an average friction of 2,500 pounds per square foot. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. If the anchors are spaced at least 6 feet on centers, no reduction in the capacity of the anchors needs to be considered due to group action.

Anchor Installation

The anchors may be installed at angles of 15 to 40 degrees below the horizontal. Caving of the anchor holes should be anticipated and provisions made to minimize such 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. 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 may contain a small amount of cement to allow the sand to be placed by pumping. For post-grouted anchors of 8-inch diameter or less, the anchor may be filled with concrete to the surface of the shoring.

Anchor Testing

Our representative should select at least three of the initial anchors for 24-hour 200% tests, and four additional anchors for quick 200% tests. The purpose of the 200% test 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.

For post-grouted anchors where concrete is used to backfill the anchor along its entire length, the test load should be computed as that required to develop the appropriate friction along the entire bonded length of the anchor. If the friction assumed in the post-grouted portion, f_p, divided by the friction assumed in the non-post-grouted portion, f_n, is x:

$f_p/f_n = x$

then the test load can be taken as:

$$P_{test} = P_{design} * \frac{\frac{1}{x} L_u + L_a}{L_a} * M$$

where L_a = Post-grouted length of Anchor
L_u = Non-post-grouted length of Anchor
M = 150% or 200%, depending on the test performed
x = 1,800/600 = 3 (see Anchor Design section for values)

The total deflection during the 24-hour 200% test should not exceed 12 inches during loading; the anchor deflection should not exceed 0.75 inch during the 24-hour period, measured after the 200% test load is applied. If the anchor movement after the 200% load has been applied for 12 hours is less than 0.5 inch, and the movement over the previous 4 hours has been less than 0.1 inch, the 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. 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.

All of the production anchors should be pre-tested to at least 150% of the design load; the total deflection during the tests should not exceed 12 inches. The rate of creep under the 150% test should not exceed 0.1 inch over a 15-minute period for the anchor to be approved for the design loading.

After a satisfactory test, each production anchor should be locked-off at the design load. The locked-off load 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 anchors should be observed by our firm.

Internal Bracing

Raker bracing may be used to internally brace the soldier piles. If used, raker bracing could be supported laterally by temporary concrete footing (deadmen) or by the permanent interior footings. For design of such temporary footings, poured with the bearing surface normal to the rakers inclined at 45 to 60 degrees with the vertical, a bearing value of 3,000 pounds per square foot may be used, provided the shallowest point of the footing is at least 1 foot below the lowest adjacent grade. To reduce the movement of the shoring, the rakers should be tightly wedged against the footings and/or shoring system.

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 could be on the order of 1 inch at the top of the shored embankment. If greater deflection occurs during construction, additional bracing may be necessary to minimize settlement of the utilities in the adjacent streets. If it is 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 consist of periodic surveying of the lateral and vertical locations of the tops of all the soldier piles. 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.

In addition, we recommend that the adjacent existing buildings be surveyed for horizontal and vertical locations. Also, a careful survey of existing cracks and offsets in the adjacent buildings would be prudent and recorded and photographic records made to document the pre-construction conditions of the existing buildings.

CLOSURE

The conclusions, recommendations, and opinions presented herein are: (1) based upon our evaluation and interpretation of the limited data obtained from field and laboratory programs; (2) based upon an interpolation of soil conditions between and beyond the boring; (3) are subject to confirmation of the actual conditions encountered during construction; and, (4) are based upon the assumption that sufficient observation and testing will be provided during construction.

If parties other than GeoBoden are engaged to provide construction geotechnical services, they must be notified that they will be required to assume complete responsibility for the geotechnical phase of the project by concurring with the findings and recommendations in this report or providing alternate recommendations.

If pertinent changes are made in the project plans or conditions are encountered during construction that appear to be different than indicated by this report, please contact this office. Significant variations may necessitate a re-evaluation of the recommendations presented in this report.

REFERENCES

California Building Code, 2022 Volume 2.

And Percolation Testing Proposed Apartment Building Project, Lot LT 1 Of Tract No. 28401, 16949-16955 West Sherman Way, Los Angeles, California 91406, prepared by Applied Earth Sciences, dated December 3, 2020, project No. 20-647-02.

Should you have any questions or require additional information, please call.

Respectfully submitted,
GEOBODEN INC.

Shahrokh (Cyrus) E Radvar
Principal Engineer, G.E. 2742

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VESTING ZONE CHANGE TO (T)(Q)RAS4-1VL

291'-0 1/2"

146'-0 1/2" P-1VL

145'-0" C1-1VL , CR-1VL

A A-4.2

2 A-4.1

EL. 201.84

EL. 200.37

5'-1 1/4"

5'-1"

PLANTER

5'-1" SIDE SETBACK

5'-0 1/4"

PL

DN

LANDSCAPE

(E) SIDEWALK

15'-1"

5'-0" FRONT SETBACK

EL. 201.71

EL. 201.61

CANTLAY STREET

PROPOSED BUILDING

15'-3 1/4"

OPEN COURTYARD

113'-11"

89'-1 1/2"

33'-9 1/4"

33'-8 1/2"

33'-9"

67'-10"

54'-1 1/2"

42" MAX HIGH PLANTER

44'-9"

RESIDENTIAL 4 SHORT TERM BICYCLE PARKING SEE #A-6.2

A-6.2

RAMP DN

14'-8 1/2"

14'-9 1/2"

20'-6"

CANOPY

2'-6"

UP

5'-5" SIDE SETBACK

5'-5 1/2"

5'-6"

5'-4"

RESIDENTIAL 2 SHORT TERM BICYCLE PARKING SEE # A-6.2

EL. 200.95

EL. 200.72

EL. 200.37

EL. 200.06

5'-0" FRONT SETBACK

142'-8 1/2"

EL. 200.28

EL. 200.23

5'-0 1/2"

COMMERCIAL 3 SHORT TERM BICYCLE PARKING SEE SHEET #A-6.2

(E) SIDEWALK

SHERMAN WAY

GENESTA AVE.

1 SITE PLAN

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

N

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Glendale, CA 91205

Project Name:
111 UNIT MIXED-USE PROJECT

Project Address:
16949-16955 W.SHERMAN WAY
LOS ANGELES, CA 91406

SITE PLAN

Scale: "=1'-0"

KEYPLAN

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A-1.1

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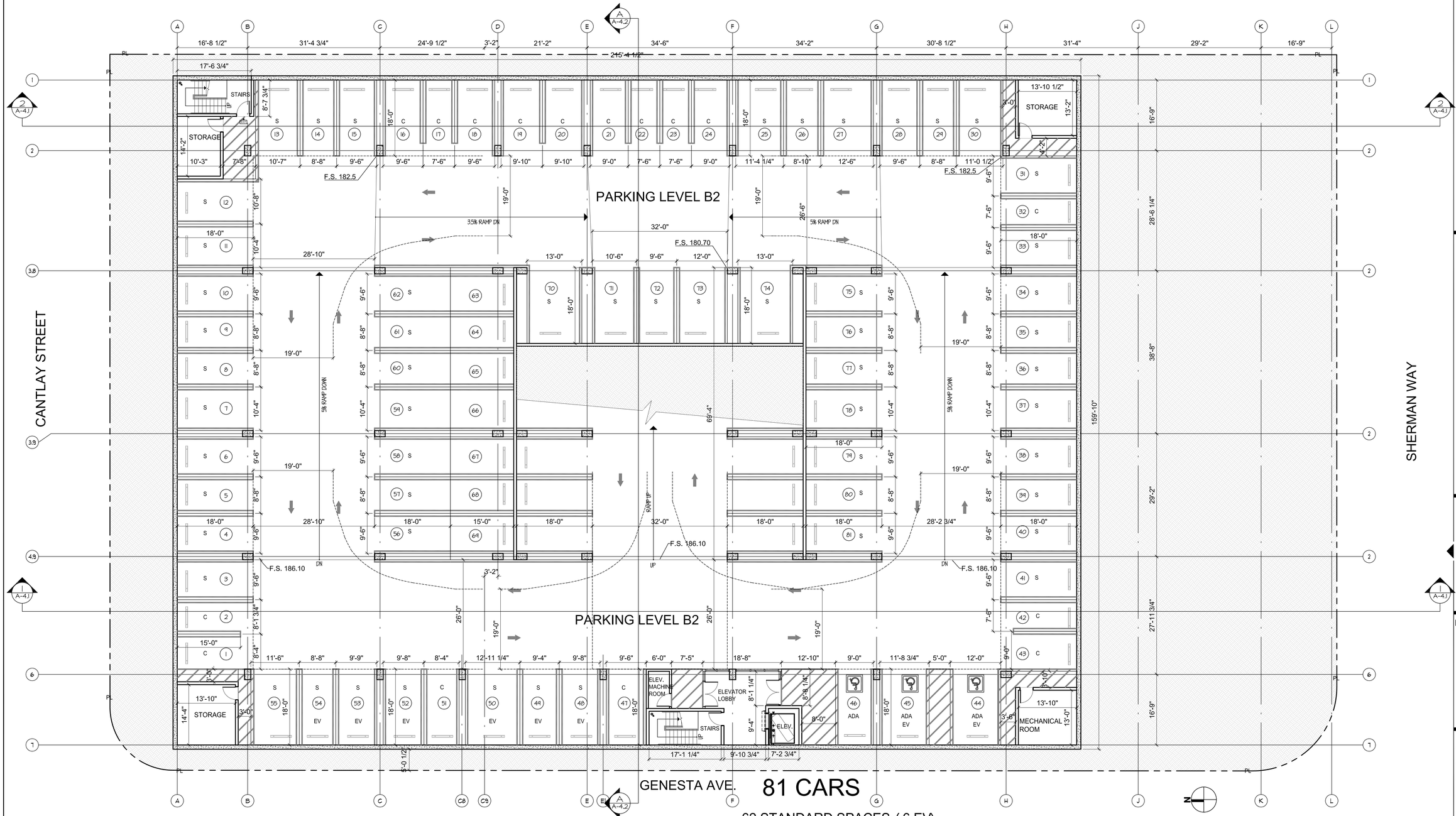

1 SUBTERRANEAN PARKING PLAN B2

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

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SUBTERRANEAN PARKING PLAN B2

Scale: "=1'-0"

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A-2.0

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SUBTERRANEAN PARKING PLAN B1 AND B1.5

Scale: "=1'-0"

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A-2.1

RESIDENTIAL PARKING

ADA	1 SPACE
S	64 SPACES (2 EV)
C	14 SPACES
TOTAL	79 SPACES

7 OUT OF 18 PARKING SPACES ARE COMPACT (40%)

ADA	2 SPACES
S	9 SPACES (2 EV AND 2 CLEAN AIR)
C	7 SPACES
TOTAL	18 SPACES

102 CARS

1 SUBTERRANEAN PARKING PLAN B1 AND B1.5

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

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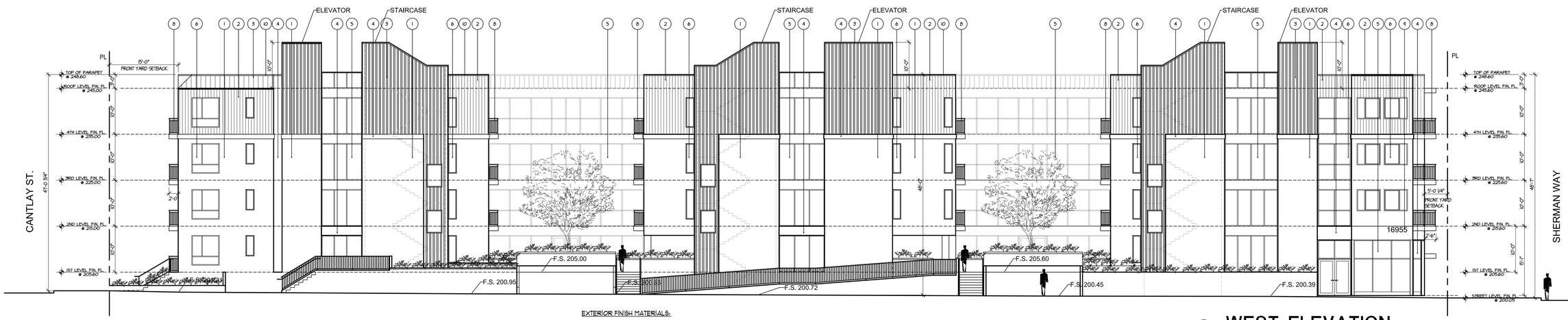

WEST ELEVATION

SCALE: 3/32" = 1'-0"

EXTERIOR FINISH MATERIALS:

1. 7/8"TMK. STEEL TROWELED SMOOTH FINISH CEMENT PLASTER, "OMEGA PRODUCTS INTERNATIONAL" COLOR BIRCH WHITE # 15
2. COMPOSITE WOOD PANELS "TRESPA" (AGED ASH PUT) OR EQUAL
3. CORRUGATED METAL SIDING (BURGANDY COLOR)
4. METAL PANEL TRIM AND FASCIA, "ALPOLIC" OR EQUAL BLACK COLOR(TYP.).
5. DUAL GLAZED LOW "E" VISION GLASS, ANODIZED FRAME CURTAIN WALL ASSEMBLY(TYP.).
6. ANODIZED ALUMINUM DOOR AND WINDOWS W/ DUAL GLAZED LOW "E" VISION GLASS.
7. 1/4" PL ALUMINUM REVEAL, "PRY REGLET" OR EQUAL(TYP.)
8. 42" HIGH, STEEL RAILING PAINTED DUNN EDWARDS DE6751 ASH GRAY.
9. 12" HIGH, 1" STROKE, STAINLESS STEEL ADDRESS NUMBERS
10. SHEET METAL COPING.

EAST ELEVATION

SCALE: 3/32" = 1'-0"

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Project Address:

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ELEVATIONS

Scale: "=1'-0"

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A-3.1

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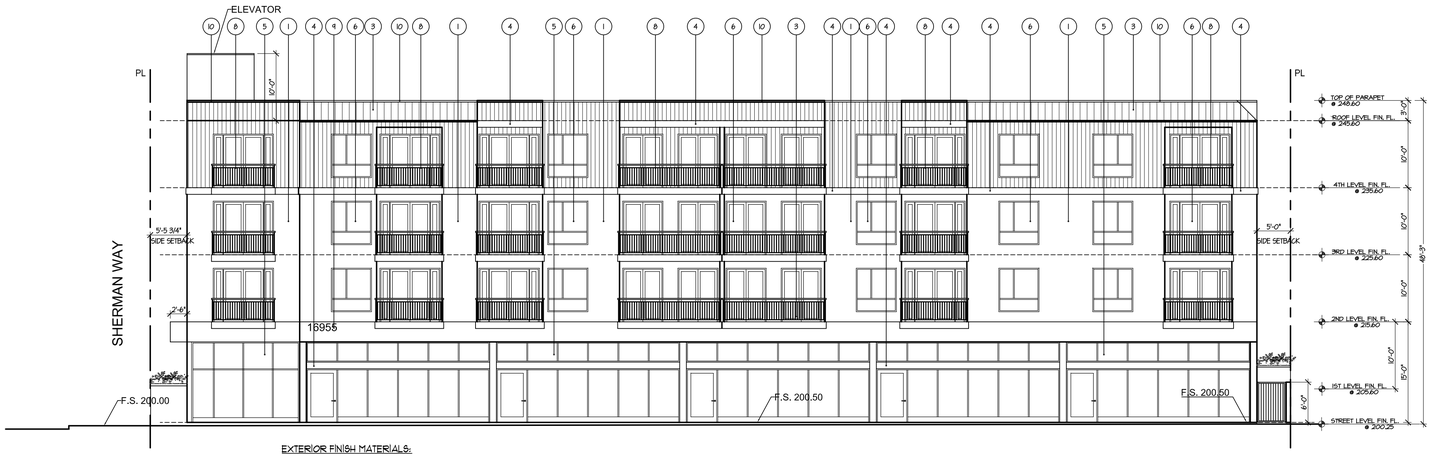

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4. METAL PANEL TRIM AND FASCIA, "ALPOLIC" OR EQUAL BLACK COLOR(TYP.).
5. DUAL GLAZED LOW "E" VISION GLASS, ANODIZED FRAME CURTAIN WALL ASSEMBLY(TYP.).
6. ANODIZED ALUMINUM DOOR AND WINDOWS W/ DUAL GLAZED LOW "E" VISION GLASS.
7. 1/4" Ø. ALUMINUM REVEAL, "PRY REGLET" OR EQUAL(TYP.)
8. 42" HIGH, STEEL RAILING PAINTED DUNN EDWARDS DE6751 ASH GRAY.
9. 12" HIGH, I" STROKE, STAINLESS STEEL ADDRESS NUMBERS
10. SHEET METAL COPING.

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

NORTH ELEVATION

SCALE: 3/32" = 1'-0"

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ELEVATIONS

Scale: "=1'-0"

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A-3.2

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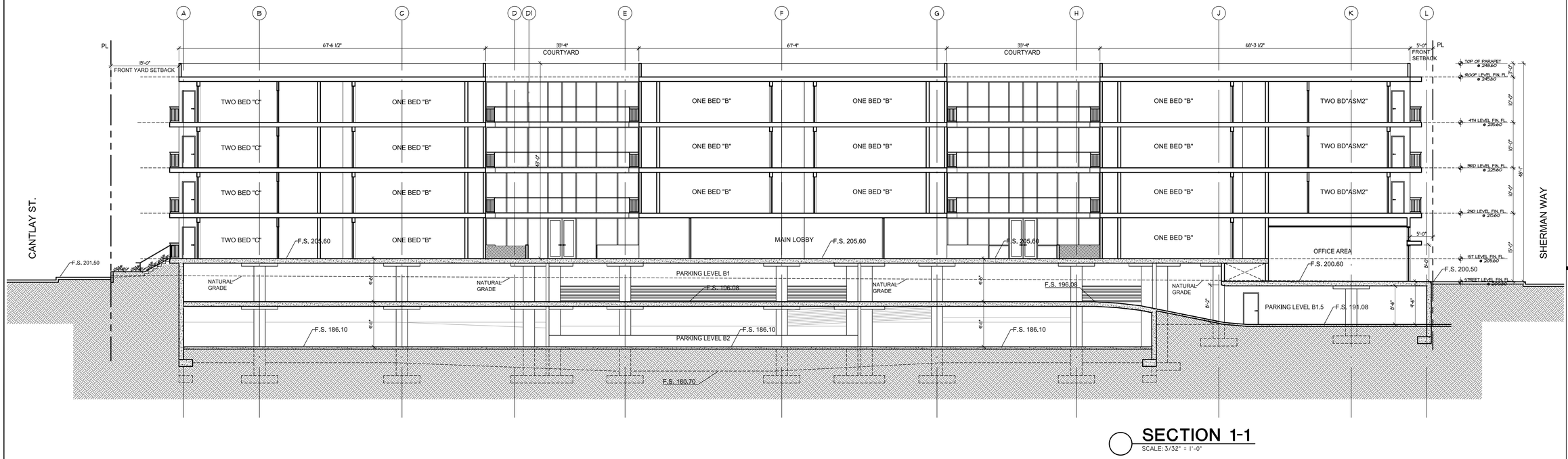
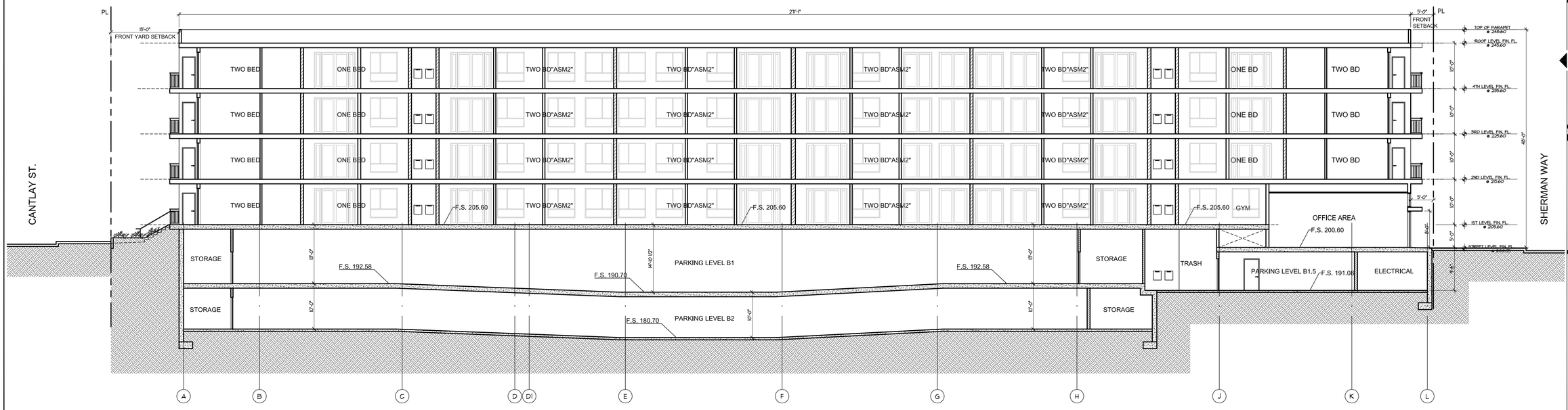


SECTION 1-1

SCALE: 3/32" = 1'-0"



SECTION 2-2

SCALE: 3/32" = 1'-0"

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SECTIONS 1-1 AND 2-2

Scale: "=1'-0"

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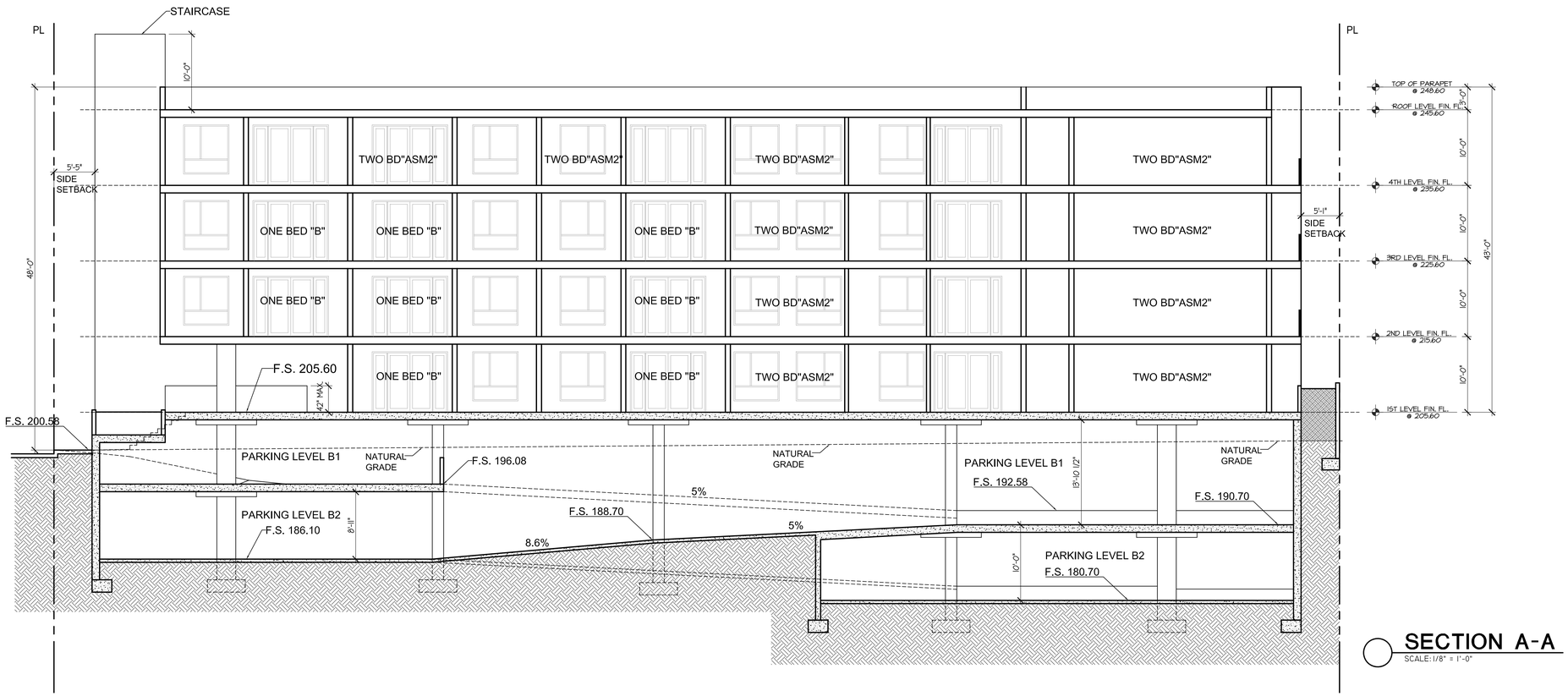

SECTION A-A
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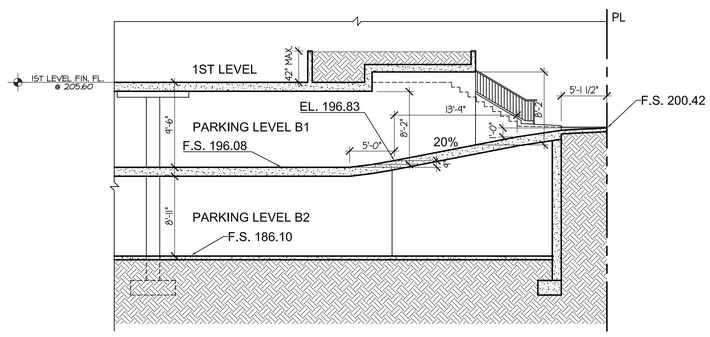

SECTION C-C
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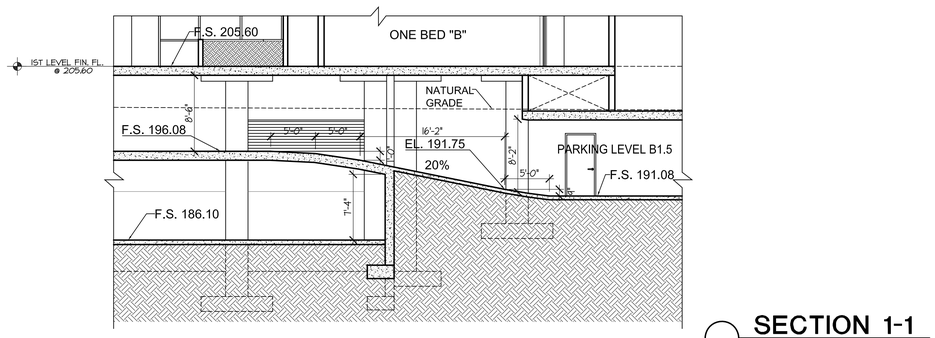

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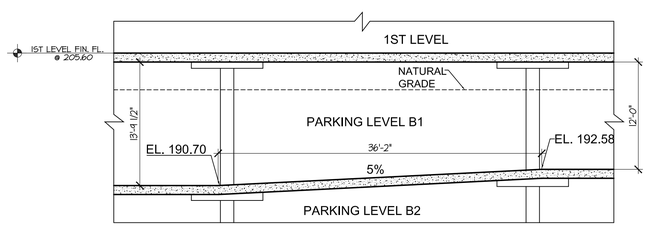

SECTION 2-2
SCALE: 1/8" = 1'-0"

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SECTION A-A, C-C, 1-1, 2-2

Scale: "=1'-0"

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Earth Pressure Calculation

Client: George	Job No.:
By: CR	Date: 6/12/2023

SOIL PROPERTIES

Unit Weight, γ (pcf):	125
Cohesion, c (psf):	0
Friction Angle, ϕ (deg):	30

Seismic Earth Pressure - Mononobe-Okabe Method

Wall Friction Angle, δ (deg):	30
Recommended δ(deg)= 2/3 ϕ:	20.00
Backslope Angle w/ htal., β (deg):	0
Back of Wall Angle w/ vcal., θ (deg):	0
Htal. Ground Acc., k_h (g's):	0.305
Vcal. Ground Acc., k_v (g's):	0
ψ (rad):	0.29604
Height of Wall, H (ft):	10

Pseudo, ϕ (deg): 30.00 (obtaining ϕ from γ.Hwall & 0)

Active Earth Pressure		Pasive Earth Pressure	
K_{AE}:	0.617	KP_E:	1.454
P_{AE} (lb):	3340	P_{PE} (lb):	7869
E.F.P. (pcf):	**66.79**	E.F.P. (pcf):	157.39

NOTE: Values represent combined effect of static & dynamic stresses

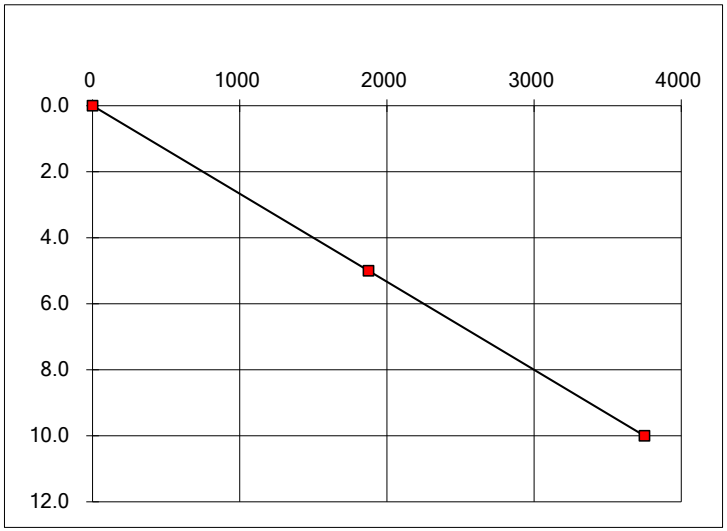
SOIL FRICTION FACTOR: 0.58 SQRT(Nphi) . 1.73 Nphi . . . 3.00 (k_p)

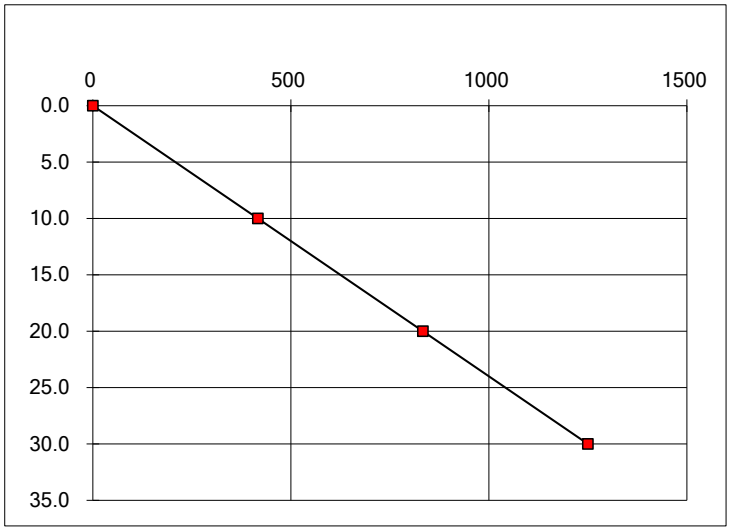
PASSIVE PRESSURE

Pp =(2*COHESION*sqrt(Nphi)) + (UNIT WEIGHT*DEPTH*Nphi)
Pp = 0 psf + 375.0 pcf * DEPTH (feet)
Pp = 0 psf at a depth of 0.0 feet
Pp = 1875 psf at a depth of 5.0 feet
Pp = 3750 psf at a depth of 10.0 feet

ACTIVE PRESSURE

Pa = -(2*COHESION/sqrt(Nphi)) + (UNIT WEIGHT*DEPTH/Nphi)
Pa = 0 psf + 41.7 pcf * DEPTH (feet)
Pa = 0 psf at a depth of 0.0 feet
Pa = 417 psf at a depth of 10.0 feet
Pa = 833 psf at a depth of 20.0 feet
Pa = 1250 psf at a depth of 30.0 feet





BEARING CAPACITY -- TERZAGHI EQUATION

Client:	0	Type of Footing:	SQUARE
Job No:	0	Type of shear:	GENERAL
By:	CR	Factor of safety:	3

SOIL PROPERTIES:

UNIT WEIGHT =	120	pcf
COHESION =	140	psf
FRICTION ANGLE =	30	degrees

BEARING CAPACITY FACTORS:

Nc =	37.2
Nq =	22.5
Ngamma =	19.7

FOOTING SHAPE MULTIPLIERS:

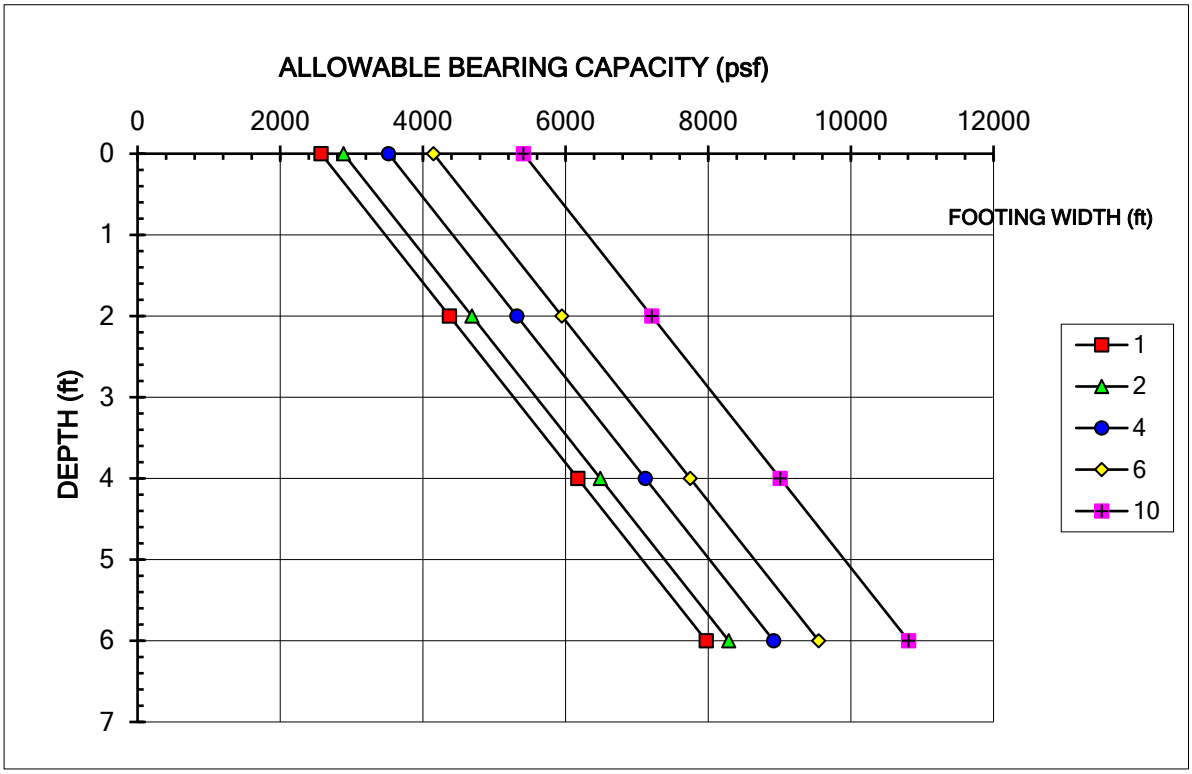
Sc =	1.3
Sgamma =	0.8

TERZAGHI EQUATION:

Allowable bearing capacity = (Sc(c*Nc) + gamma*DEPTH*Nq + 0.5*Sgamma*gamma*WIDTH*Ngamma) / FS

Allowable bearing capacities (psf) for various footing depths and widths:

	Footing Width (ft)				
Depth (ft)	1	2	4	6	10
0	2572	2887	3518	4148	5409
2	4372	4687	5318	5948	7209
4	6172	6487	7118	7748	9009
6	7972	8287	8918	9548	10809



GEOBODEN, INC.
Geotechnical Consultants

August 23, 2023 Shermanway-1-01

Lion Signature, INC
100 Franklin Court,
Glendale Ca 91205

Subject: **Response to City of Los Angeles Soils Report Review Letter**
Proposed Apartment Building
Lot LT 1 Of Tract No. 28401
16949-16955 West Sherman Way
Los Angeles, California 91406

Reference: CHANGE OF ENGINEER OF RECORD FOR GEOTECHNICAL INVESTIGATION, Proposed Apartment Building, Lot LT 1 Of Tract No. 28401 16949-16955 West Sherman Way, Los Angeles, California 91406, prepared by Geoboden, Inc., dated June 12, 2023

This letter is presented in response to the City of Los Angeles Department of Building and Safety Soils Report Review Letter, dated July 11, 2023 following the review of our referenced report dated June 12, 2023. Item numbers below correspond to the review sheet item numbers. A copy of the review sheet is attached for your reference.

1. The original report was prepared by Applied Earth Sciences (AES), dated December 3, 2020, Geotechnical Investigation, And Percolation Testing, Proposed Apartment Building Project, Lot LT 1 Of Tract No. 28401, 16949-16955 West Sherman Way, Los Angeles, California 91406. The report was approved on March 1, 2023 by the Department of Grading. Copies of prior report and Department Approval Letter are saved on a Flash Drive and will be submitted along with this response.

2. We have reviewed all existing records available for the site and properties in the immediate vicinity of the site. Copies of prior reports are saved on a Flash Drive and will be submitted along with this response.

3. Geoboden has reviewed report prepared by Applied Earth Science dated 12/03/2020. Geoboden concurs with the field work, laboratory test data, recommendations and report prepared by AES. Geoboden accepts responsibility for the field and laboratory data as the new Engineer of Record. As of the date of this report, GeoBoden will act as geotechnical consultant of record for all future work within our purview to be performed within the subject site.

Please contact the undersigned if you have any questions or if we may be of any additional assistance.

Respectfully submitted,
GEOBODEN INC.

Shahrokh (Cyrus) E Radvar
Principal Engineer, G.E. 2742

Enclosures

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT REVIEW LETTER

July 11, 2023

LOG # 126734
SOILS/GEOLOGY FILE - 2

Lion Signature
100 Franklin Court
Glendale, Ca 91205

TRACT: 28401
LOT: LT1
LOCATION: 16949-16955 West Sherman Way

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Update Report	Shermanway-1-01	06/12/2023	Geoboden, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report(s) that provide(s) recommendations for the proposed four-story (84-units) apartment building over a two-level subterranean parking. The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by native. The consultants recommend to support the proposed structure(s) on conventional foundations bearing on native undisturbed soils and/or a blanket of properly placed fill.

As of January 1, 2023, the City of Los Angeles has adopted the new 2023 Los Angeles Building Code (LABC). The 2023 LABC requirements will apply to all projects where the permit application submittal date is after January 1, 2023.

The review of the subject report(s) 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 2023 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 subject of the current reference report indicates that the report dated 06/12/2023 is an update to a previous report; however, it does not appear that the previous report was referenced.

2. 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 electronic PDF copy (including exploration logs, geologic map, cross-sections and lab data) of the previous report/s and the Department's review letter/s.

3. Provide a statement of responsibility indicating that you have reviewed and concurred with the field work, laboratory test data, recommendations and report prepared by Applied Earth Science dated 12/03/2020. P/BC 2020-113

The 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 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 flash drive, and the appropriate fees will be required for submittal.

ROCIO DURAN
Structural Engineering Associate II

RD/rd
Log No. 126734
213-482-0480

cc: Geoboden, Inc., Project Consultant
LA District Office

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District VN | Log No. 126734

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

A. Address all communications to the Grading Division, LADBS, 221 N. Figueroa St., 12th Fl., Los Angeles, CA 90012 Telephone No. (213)482-0480.
B. Submit two copies (three for subdivisions) of reports, one "pdf" copy of the report on a CD-Rom or flash drive, and one copy of application with items "1" through "10" completed.
C. Check should be made to the City of Los Angeles.

Attention: Adela to file way

1. LEGAL DESCRIPTION
Tract: 28401
Block: ____ Lots: LT1

2. PROJECT ADDRESS: 16949-16955 West Sherman

3. OWNER: Lion Signature, Inc
Address: 100 Franklin Court
City: Glendale Zip: 91205
Phone (Daytime): (818)535-5287

4. APPLICANT: Geobodeu, Inc.
Address: 5 Hodgenville
City: Irvine Zip: 92620
Phone (Daytime): 949-872-9565 Com
E-mail address: geobodeu@geobodeninc.

5. Report(s) Prepared by: Geobodeu, Inc.
6. Report Date(s): June 12, 2023

7. Status of project: ☒ Proposed ☐ Under Construction ☐ Storm Damage
8. Previous site reports? ☐ YES if yes, give date(s) of report(s) and name of company who prepared report(s)
net
~~Ehrris~~ vardan@secdevelopment.
9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates:
10. Applicant Signature: [signature] Position: Soils Engineer

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED	FEES
☐ Soils Engineering		No. of Lots	
☐ Geology		No. of Acres	
☐ Combined Soils Engr. & Geol.		☐ Division of Land	
☒ Supplemental	181.50	Other	
☐ Combined Supplemental		☒ Expedite	90.75
☐ Import-Export Route		☐ Response to Correction	
Cubic Yards:		☐ Expedite ONLY	
		Sub-total	272.25
		Surcharge	69.91
		TOTAL FEE	342.16

Fee Due: 342.16
Fee Verified By: AM Date: 6/23/23
(Cashier Use Only)

Receipt #
16/2895

Paid on
6/23/23

ACTION BY:

THE REPORT IS: ☐ NOT APPROVED
☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology ____ Date ____

For Soils ____ Date ____

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

SOILS REPORT APPROVAL LETTER

March 1, 2021

LOG # 116196
SOILS/GEOLOGY FILE - 2

Lion Signature
6362 Van Nuys Blvd
Van Nuys, CA 91401

TRACT: 28401
LOT: LT1
LOCATION: 16949-16955 West Sherman Way

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	20-647-02	12/03/2020	Applied Earth Sciences

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provide recommendations for the proposed four-story (84-units) apartment building over garage on grade. The site was occupied with a commercial building and a paved parking lot that will demolished for the new development. The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by native. The consultants recommend to support the proposed structure on conventional foundations bearing on a blanket of properly placed fill a minimum of 3 feet thick.

As of January 1, 2020, the City of Los Angeles has adopted the new 2020 Los Angeles Building Code (LABC). The 2020 LABC requirements will apply to all projects where the permit application submittal date is after January 1, 2020.

The referenced report is acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 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 soils engineer shall review and approve the detailed plans prior to issuance of any permit. This approval shall be by signature on the plans that clearly indicates the soils engineer has reviewed the plans prepared by the design engineer; and, that the plans included the recommendations contained in their reports (7006.1).

10108042021207 2217

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

3. 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.

4. A grading permit shall be obtained for all structural fill (106.1.2).

5. 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.

6. If import soils are used, no footings shall be poured until the soils engineer has submitted a compaction report containing in-place shear test data and settlement data to the Grading Division of the Department; and, obtained approval (7008.2).

7. Compacted fill shall extend beyond the footings a minimum distance equal to the depth of the fill below the bottom of footings or a minimum of three feet whichever is greater, except at locations where lateral over excavation is not possible, in which case the foundations may be deepened to bear in native soils, as recommended (7011.3).

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

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

10. 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).

11. All loose foundation excavation material shall be removed prior to commencement of framing. (7005.3).

12. 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).

13. 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)

14. A supplemental report shall be submitted to the Grading Division of the Department containing recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral support to the public way, adjacent property, or adjacent structures (3307.3). A plot plan and cross-section(s) showing the construction type, number of stories, and location of the structures adjacent to the excavation shall be part of the excavation plans (7006.2).

15. 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).

16. All foundations shall derive entire support from a blanket of properly placed fill a minimum of 3 feet thick, as recommended and approved by the soils engineer by inspection.

17. Footings supported on approved compacted fill or expansive soil shall be reinforced with a minimum of four (4), ½-inch diameter (#4) deformed reinforcing bars. Two (2) bars shall be placed near the bottom and two (2) bars placed near the top of the footing.

18. The foundation/slab design shall satisfy all requirements of the Information Bulletin P/BC 2017-116 "Foundation Design for Expansive Soils" (1803.5.3).

19. 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.

20. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane.

21. The seismic design shall be based on a Site Class D as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

22. The structure shall be connected to the public sewer system per P/BC 2020-027.

23. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner in non-erosive devices or other approved location in a manner that is acceptable to the LADBS and the Department of Public Works[; 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).

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

25. The 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 & 1705.8).

26. 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)

27. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; protection fences; and, dust and traffic control will be scheduled (108.9.1).

28. 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).

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

ROCIO DURAN
Structural Engineering Associate II

RD/rd
Log No. 116196
213-482-0480

cc: Applied Earth Sciences, Project Consultant
VN District Office

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

SOILS REPORT APPROVAL LETTER

September 25, 2023

LOG # 126734-1
SOILS/GEOLOGY FILE - 2

Lion Signature
100 Franklin Court
Glendale, Ca 91205

TRACT: 28401
LOT: LT1
LOCATION: 16949-16955 West Sherman Way

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Update Report	Shermanway-1-01	08/23/2023	Geoboden, Inc.

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	126734	07/11/2023	LADBS
Update Report	Shermanway-1-01	06/12/2023	Geoboden, Inc.
Dept Approval Letter	116196	03/01/2021	LADBS
Soils Report	20-647-02	12/03/2020	Applied Earth Sciences

The Department of Building and Safety accepts this letter and notification of transferring the responsibility for grading geotechnical supervision and recognizes Geoboden, Inc., as the new geotechnical consultant provided all the conditions in the Department's previous approval letters are complied with. The above letter concerning project geotechnical supervision has been received pursuant to Section 91.7008 of the Los Angeles Municipal Code. The Department previously conditionally approved reports for the construction of four-story apartment building over a two-level subterranean parking.

The Grading Division of the Department of Building and Safety has reviewed the referenced report(s) that provide(s) recommendations for the proposed four-story (84-units) apartment building over a two-level subterranean parking. The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by native. The consultants recommend to support the proposed structure(s) on conventional foundations bearing on native undisturbed soils and/or a blanket of properly placed fill.

As of January 1, 2023, the City of Los Angeles has adopted the new 2023 Los Angeles Building Code (LABC). The 2023 LABC requirements will apply to all projects where the permit application submittal date is after January 1, 2023.

The referenced report(s) are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 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. All conditions of the above referenced Department approval letter(s) shall apply.

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

3. If import soils are used, no footings shall be poured until the soils engineer has submitted a compaction report containing in-place shear test data and settlement data to the Grading Division of the Department; and, obtained approval (7008.2).

4. Compacted fill shall extend beyond the footings a minimum distance equal to the depth of the fill below the bottom of footings or a minimum of three feet whichever is greater, except at locations where lateral over excavation is not possible, in which case the foundations may be deepened to bear in native soils (7011.3).

5. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring. 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)

6. Where any excavation, not addressed in the approved reports, would remove lateral support (as defined in 3307.3.1) from a public way, adjacent property or structures, a supplemental report shall be submitted to the Grading Division of the Department containing recommendations for shoring, underpinning, and sequence of construction. Shoring recommendations shall include the maximum allowable lateral deflection of shoring system to prevent damage to adjacent structures, properties and/or public ways. Report shall include a plot plan and cross-section(s) showing the construction type, number of stories, and location of adjacent structures, and analysis incorporating all surcharge loads that demonstrate an acceptable factor of safety against failure. (7006.2 & 3307.3.2)

7. 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).

8. The seismic design shall be based on a Site Class D, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check. According to ASCE 7-16 Section 11.4.8, for structures on Site Class D sites with S1 greater than or equal to 0.2, the parameter SM1 determined by EQ. (11.4-2) shall be increased by 50%. Alternatively, a supplemental report containing a site-specific ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 shall be submitted for review and approval.

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

10. 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.

11. Shoring shall be designed for a minimum EFP of 35 PCF; all surcharge loads shall be included into the design, as recommended. Total lateral load on shoring piles shall be determined by multiplying the recommended EFP by the pile spacing.

12. 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.

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

14. All foundations shall derive entire support from native undisturbed soils, a blanket of properly placed fill, as recommended and approved by the soils engineer by inspection.

15. Footings supported on approved compacted fill or expansive soil shall be reinforced with a minimum of four (4), ½-inch diameter (#4) deformed reinforcing bars. Two (2) bars shall be placed near the bottom and two (2) bars placed near the top of the footing.

16. Retaining walls shall be designed for the lateral earth pressures specified in the section titled "Retaining Walls" starting on page 3 of the 06/12/2023 report. All surcharge loads shall be included into the design.

17. Retaining walls higher than 6 feet shall be designed for lateral earth pressure due to earthquake motions as specified on page 4 of the 06/12/2023 report (1803.5.12). Note: Lateral earth pressure due to earthquake motions shall be in addition to static lateral earth pressures and other surcharge pressures.

18. Basement walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure as specified on page 4 of the 06/12/2023 report (1610.1). All surcharge loads shall be included into the design.

19. 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).

20. 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).

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

22. 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).

23. The use of acceptable prefabricated drainage composites (also known as geosynthetic subdrain systems), as an alternative to traditionally accepted methods of draining retained earth, shall be determined during structural plan check.

24. Where the ground water table is lowered and maintained at an elevation not less than 6 inches below the bottom of the lowest floor, or where hydrostatic pressures will not occur, the floor and basement walls shall be damp-proofed. Where a hydrostatic pressure condition exists, and the

design does not include a ground-water control system, basement walls and floors shall be waterproofed. (1803.5.4, 1805.1.3, 1805.2, 1805.3)

25. Installation of shoring, underpinning, slot cutting and/or pile excavations shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6, 1705.8).

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", whichever is more restrictive. [Research Report #23835]

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

ROCIO DURAN
Structural Engineering Associate III

RD/rd
Log No. 126734-1
213-482-0480

cc: Geoboden, Inc., Project Consultant
LA District Office

geoboden@geobodeninc.com

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District VN | Log No. 126734-1

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

A. Address all communications to the Grading Division, LADBS, 221 N. Figueroa St., 12th Fl., Los Angeles, CA 90012
Telephone No. (213)482-0480.

B. Submit two copies (three for subdivisions) of reports, one "pdf" copy of the report on a CD-Rom or flash drive, and one copy of application with items "1" through "10" completed.

C. Check should be made to the City of Los Angeles.

Way

1. LEGAL DESCRIPTION
Tract: 28401
Block: _____ Lots: LT 1

2. PROJECT ADDRESS: 16949-16955 West Sherman Way

3. OWNER: Lion Signature, Inc.
Address: 100 Franklin Court
City: Glendale Zip: 91205
Phone (Daytime): (818)535-5287

4. APPLICANT Geoboden, Inc.
Address: 5 Hodgenville
City: Irvine Zip: 92620
Phone (Daytime): 949-872-9565
E-mail address: geoboden@geobodeninc.com

5. Report(s) Prepared by: Geoboden, Inc.

6. Report Date(s): August 23, 2023

7. Status of project: ☒ Proposed ☐ Under Construction ☐ Storm Damage

8. Previous site reports? ☐ YES if yes, give date(s) of report(s) and name of company who prepared report(s)

9. Previous Department actions? ☒ YES if yes, provide dates and attach a copy to expedite processing.
Dates: log # 126734

10. Applicant Signature: _____ Position: Soils Eng.

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED	FEES
☒ Soils Engineering		No. of Lots	
☐ Geology		No. of Acres	
☐ Combined Soils Engr. & Geol.		☐ Division of Land	
☐ Supplemental		Other	
☐ Combined Supplemental		☒ Expedite	90.75
☐ Import-Export Route		☒ Response to Correction	181.50
Cubic Yards:		☐ Expedite ONLY	
		Sub-total	272.25
		Surcharges	69.91
		TOTAL FEE	342.16

Fee Due: 342.16
Fee Verified By: Am Date: 8/24/23
(Cashier Use Only)

Receipt # 1666189
Paid on 8/29/23

ACTION BY:

THE REPORT IS: ☐ NOT APPROVED

☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology _____ Date _____

For Soils _____ Date _____