E. SOILS AND GEOLOGY

The purpose of this section is to assess impacts related to geologic resources resulting from construction and development of the proposed project and adjacent Add Area, such as seismically induced groundshaking, fault rupture, landsliding, and weak or unstable soil conditions. A geotechnical report was prepared for the project site by C.Y. Geotech Inc., dated August 31, 2007. The report documented existing subsurface conditions, evaluated potential seismic hazards and identified construction recommendations and is provided in its entirety in Appendix E of this Draft EIR.

EXISTING CONDITIONS

SITE OVERVIEW

Project Site

The project site is located at 13005-13609 Victory Boulevard in the North Hollywood area in the City of Los Angeles. The completely paved 12.53-acre site is roughly trapezoidal-shaped and fairly level. In its current condition, the site is occupied by a shopping center consisting of commercial buildings and surface parking. It includes mostly surface parking uses in the central portion of the site and along most of its western boundary that it shares with the Tujunga Wash. Most of the buildings are located along the northern and eastern portions of the site. The site does include some frontage along Victory Boulevard.

Add Area

The Add Area, as described in Chapter II, Project Description, includes approximately 6.7 acres located directly east of the project site. This area is bounded by Victory Boulevard to the south, the project site to the west, Hamlin Street to the north and Coldwater Canyon Avenue to the east. In its current condition, this area is occupied with 18,414 square feet of self storage uses, Catholic Church and associated school, private school, fast food restaurant, and miscellaneous retail uses. For analysis purposes, the self storage uses are assumed to be removed and developed with 39 multi-family residential units. The private school would be removed and developed with retail office uses while the existing fast food and miscellaneous retail uses would be developed with housing and retail uses. The church and associated school are assumed to remain in their existing condition.

EARTH MATERIALS

Earth materials encountered in the borings during field exploration consisted of artificial fill and alluvium. Artificial fill was encountered from the ground surface to a depth of 1 foot. The fill soil consists of light brown gravelly silty sand in a slightly moist and moderately dense condition. The fill soil is not considered suitable to be used for foundation and slab support.[1]

Alluvium was encountered underlying fill soil and consists primarily of light brown and grayish brown silty sand, gravelly sand and brown clayey silty sand and silty sand.[2] The alluvial soil was observed in a slightly moist to moist and moderately dense to dense condition.

[1] C.Y. Geotech, Inc. *Soil Engineering Investigation 13005-13069 Victory Boulevard, Van Nuys, California.* August 31, 2007.
[2] Ibid.

(Descriptions of the soils and results from laboratory tests on the soils are included in the appendices of the Soils Investigation included as Appendix E of this EIR.)

A laboratory expansion index test showed expansion indexes of 3, 4, and 26 for the tested alluvial soil.[3] A soil with an expansion index in the range of 0-20 is classified as a very low expansive soil and 21 to 50 is classified as a low expansive soil.

SLOPE STABILITY

The project area, including project site and Add Area, are fairly level and free from the potential of landslide. The site is not located within any of the earthquake induced landslide zones mapped in the CDMG Seismic Hazard Maps. No landslide was mapped within the site or in the site vicinity in the published geologic map. No evidence of deep-seated slope failure or other types of slope failure was observed within the site during the site investigation.

As part of the site investigation, three wedge slope stability analyses were performed to determine the equivalent fluid pressures for the design of 10-foot, 20-foot and 30-foot high basement retaining wall. (See Appendix E for a detailed discussion of the analysis pertaining to subterranean basement walls.)

GROUNDWATER

Groundwater was not encountered to the maximum depth (80 feet) of site explorations. Historic high groundwater data is available from the California Division of Mines and Geology, these data indicate that depth to the historic high groundwater level approximately 0.5 miles to the south, is approximately 20 feet below the ground surface.[4] According to the Geological Report prepared for the site, groundwater that underlies the site at depth does not appear to be close enough to the surface to substantially affect the stability of the site and proposed development.[5]

It should be noted that fluctuations in the level of the groundwater may occur. Groundwater levels may rise or fall as a result of climatic conditions (high or low precipitation) and/or alterations in the existing groundwater recharge area (i.e. changes in landscaping irrigation rates, surface drainage and surface water infiltration conditions).

SEISMIC CONDITIONS

Regional Overview

The project site and Add Area are located in the seismically active Southern California region where earthquakes with a magnitude of 5.0 and greater have occurred throughout historic time. Earthquakes along these faults are a part of a continuous, naturally occurring process, which has contributed to the characteristic landscape of the region. Since 1800, approximately 60 damaging seismic events have occurred in the Los Angeles region.[6] Additionally, after a brief hiatus from 1942 to1970, the southern California region has experienced several earthquakes that have caused considerable damage.[7]

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3 Ibid.
4 bid.
5 Ibid.
6 City of Los Angeles Safety Element. August 8, 1996.
7 Ibid.

The potential exists throughout Southern California for strong ground motion similar to that which occurred during the 1994 Northridge Earthquake. There are a number of faults that have proven to be active and are considered capable of causing earthquakes of significant magnitude. The largest recent earthquake affecting the site was the 1994 Northridge Earthquake. This event had a 6.7 magnitude and occurred on January 17, 1994 at 4:31 a.m., Pacific Standard Time. The 1994 Northridge Earthquake created strong ground shaking for approximately 10 seconds in the Los Angeles area resulting in widespread damage.

Strong ground shaking from a moderate to major earthquake can be expected during the lifetime of any structure in Southern California. This may result in significant damage to the structure, hardscape and adjacent slopes. Since there are so many variables associated with ground movement during an intense earthquake, it is almost impossible to predict the impact of a seismic event to a particular site. However, given the extensive urbanization of the Los Angeles Basin, a large magnitude earthquake (6.9 or greater) could be potentially devastating.

Local and State Seismic Designations

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 requires that special geologic studies be conducted to locate and assess any active fault traces in and around known active fault areas prior to development of structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures.

The Alquist-Priolo Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Alquist Priolo Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The law requires the State Geologist to establish regulatory zones (Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. These maps (Alquist Priolo Maps) are distributed to all affected cities, counties and state agencies for their use in planning and controlling new or renewed construction. Local cities and counties must regulate certain development projects within the zones, which include withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. Projects include all land divisions and most structures for human occupancy. Local agencies are permitted to be more restrictive than the State law requires.

The project site and Add Area are not located within any of the mapped Alquist-Priolo Special Studies Zone and no fault trace of any known active or potentially active fault passes through the project site and Add Area. However, as mentioned above, both the site and Add Area, as all of the southern California areas, is located within a seismically active region and could experience slight to very intense ground shaking as the result of movement along various active faults in the region.

Approximately 30 fault systems are located within a search radius of 50 miles from the site. Fault systems that are located near the site and may affect the stability of the site include the Verdugo fault, Northridge Hills fault, Sierra Madre-San Fernando fault, Santa Monica-Hollywood fault, Newport-Inglewood fault, Elysian Park Seismic fault zone, Santa Susana fault, San Gabriel fault and the Raymond fault. **Table IV.E-1** shows the above-mentioned fault systems that could affect the project site.

TABLE IV.E-1
FAULT SYSTEMS LOCATED NEAR THE PROJECT SITE AND ADD AREA

Fault Zone	Distance (miles)/ Direction From Site	Maximum Credible Magnitude	Maximum Credible Peak Ground Acceleration	Maximum Credible Repeatable High Ground Acceleration
Verdugo	3.1/NE	6.7	0.76g	0.49g
Northridge Hills	4.4/W	6.5	0.64g	0.42g
Sierra Madre-San Fernando	6.9/NE	7.5	0.71g	0.46g
Santa Monica-Hollywood	8.1/S	7.5	0.66g	0.43g
Newport-Inglewood	9.4/S	7.0	0.38g	0.25g
Elysian Park	9.4/E	7.0	0.46g	0.30g
Susana	9.4/N	7.0	0.46g	0.30g
San Gabriel	11.3/E	7.0	0.33g	0.21g
Raymond	11.9/E	7.5	0.51g	0.33g

Source: C.Y. Geotech., Inc. August 31, 2007.

As shown in the table, the largest credible peak ground acceleration (0.76g) and the largest credible repeatable ground acceleration are associated with the Verdugo fault. This fault, located approximately 3.1 miles away is the closest fault to the site. One other fault, the Northridge Hills fault, is also located within a 5-mile radius of the site.

The following is a discussion of the faults located within the surrounding area. As shown in the above table, all of the faults are located within a 12-mile radius of the site and have the potential to create a maximum credible magnitude between 6.5 and 7.5.

Verdugo Fault

The Verdugo Fault is a northeasterly dipping reverse fault located near the communities of Sun Valley, Burbank and Glendale.[8]

Northridge Hills Fault

The Northridge Hills Fault is a north dipping reverse fault located near the communities of Northridge, Sepulveda and Chatsworth.[9]

Sierra Madre Fault Zone

The San Fernando Fault Zone (SFFZ) is the western extension of the Sierra Madre Fault Zone located further to the east. The project site and Add Area are situated approximately 6.9 miles from the Sierra Madre San Fernando Fault. The Sierra Madre Fault Zone consists of a fault

[8] http://www.data.scec.org/fault_index/verdugo.html
[9] http://www.data.scec.org/fault_index/northhil.html

complex, which is located along the southeasterly margin of the transverse ranges province. The complex extends approximately 75 miles along the southern front of the San Gabriel Mountains from Cajon Pass to San Fernando and along a portion of the Santa Susana Mountains. The 1971 San Fernando Earthquake (6.4 magnitude) occurred along the SFFZ and demonstrated the activity of the western portion of the fault system.

Santa Monica-Hollywood Fault

The Hollywood fault is a complex zone of faulting that includes several inactive, moderately to steeply dipping secondary faults that impact the older alluvial apron but do not extend upward into the younger sediments. In addition to these inactive north dipping structures, the fault zone locally includes south-dipping secondary normal faults within the hanging wall that may still be active. Although these types of faults have been identified within the Hollywood Fault Zone, their location and extent have yet to be resolved. The Hollywood fault is the eastern one to four kilometer long segment of the Santa Monica-Hollywood fault system that forms the southern margin of the Santa Monica Mountains. The fault traverses the cities of Beverly Hills, West Hollywood and Hollywood, where the Santa Monica Mountains are referred to as the Hollywood Hills. Movement on the Hollywood fault over geologic time is thought to be responsible for the growth of the mountains.

Given the extensive urbanization of this portion of the Los Angeles Basin, an earthquake in this fault has the potential to be devastating to Southern California infrastructure and populations. The fault is located approximately 8.1 miles from the project site and Add Area.

Newport-Inglewood Structural Zone

The Newport-Inglewood Structural Zone, located approximately 9.4 miles from the project site and Add Area, is one of several large predominantly right-lateral strike-slip fault zones that parallel the San Andreas Fault in Southern California. Very little geologic evidence of surface faulting has been found within the zone and very few instances of documentation of surface faulting exist. However, the 1933 Long Beach Earthquake (6.3 magnitude) occurred along the Newport-Inglewood Fault Zone. The Newport-Inglewood Structural Zone is classified as active.

Santa Susana Fault

The Santa Susana Fault Zone primarily dips to the north and is located near the communities of Sylmar and San Fernando.[10]

San Gabriel Fault

The San Gabriel Fault zone transects the northeastern part of the Ventura basin and can be traced from the Frazier Mountains area, about 30 miles northwest of Saugus, to the eastern part of the San Gabriel Mountains, a distance of roughly 90 miles. The San Gabriel Fault Zone is located approximately 11.3 miles from the project site and Add Area. The San Gabriel fault is a high-angle right-lateral strike-slip fault, which extends about 46 miles north, westward across Los Angeles County.

[10] http://www.data.scec.org/fault_index/susana.html

Raymond Hill Fault

The Raymond Hill Fault forms the boundary between the Raymond (groundwater) basin and the San Gabriel Valley. The fault trends generally in an east-west direction through an intensely urbanized area. Urbanization has altered most of the geologic features, making it difficult to assess the degree of hazard posed by the fault. The Raymond Hill Fault Zone is located approximately 11.8 miles from the project site and Add Area.

Mapping of Liquefaction and Other Hazards

Liquefaction refers to the momentary loss of sheer strength. A site that is susceptible to liquefaction has the following principal conditions:

- the site is located within a seismically active zone,
- the site should have layers of soils that are cohesionless and contain less than 15% of clay size particles,
- groundwater exists within 50 feet of the ground surface or records indicate that the recent water table has been higher than 30 feet or there is a likelihood that groundwater will rise above 50 feet, and,
- soil should have relative densities between 50% to 70%.

In general, liquefaction has three major effects:

- consolidation of loose sediments with resultant settlement of the ground surface
- lateral sliding or spreading, and
- sand boiling.

An earthquake-induced landslide area is an area where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements.

The Seismic Hazards Mapping Act of 1990 addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The purpose of the Act is to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects with in these zones. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site has to be conducted and appropriate mitigation measures incorporated into the project design. Seismic Hazard maps have been completed for much of the Southern California region.

The project site is located within a liquefaction susceptible zones as mapped in the CDMG Seismic Hazards Map.[11] Therefore, a liquefaction evaluation was performed for the project site.

[11] City of Los Angeles Safety Element. August 8, 1996.

According to the evaluation, the occurrence of liquefaction within onsite soils is unlikely due to either high Standard Penetration Test (SPT) blow count, high clay content or above groundwater.[12]

The results of the liquefaction evaluation are presented as part of the Soils Investigation prepared for the proposed project and included in Appendix E. **Table IV.E-2**, presented below, summarizes the findings.

TABLE IV.E-2
SUMMARY OF LIQUEFACTION EVALUATION

Depth	Water Table=20 Ft. Overburden From Depth=0 Ft.	Water Table=20 Ft. Overburden From Depth = 30 Ft.[1,2]	Reasons Why Not Susceptible To Liquefaction
0' - 20'	Not Susceptible	---- / above basement	Above groundwater
20' - 30'	Not Susceptible	---- / above basement	high SPT blow count and/or clay content
30' - 80'	Not Susceptible	Not Susceptible	high SPT blow count and/or clay content

Source: C.Y. Geotech., Inc. August 31, 2007.
[1] Calculated from the bottom of basement.
[2] Groundwater surface was assumed at the bottom of basement.

Ground Rupture

Ground rupture describes a phenomenon in which a gap or rupture of the ground surface occurs during earthquake movement along the intersection of the upper edge of the faulty zone and the ground surface. As stated above, the project site and Add Area are not located within any of the mapped Alquist-Priolo Special Studies Zones and no fault trace of any known active or potentially active fault crosses the site. According to the Geotechnical Report, the potential for ground rupture or cracking within the site due to shaking from local seismic events is low.

Landsliding and Lateral Spreading

Earthquake-induced landsliding describes a phenomenon in which slopes fail or distress during earthquake shaking. Earthquake-induced lateral spreading describes a phenomenon in which ground surface has lateral movement during earthquake shaking. Lateral spreading can act subsequent to the phenomenon of liquefaction. As the site is flat, it is not subjected to earthquake-induced landsliding. The liquefaction evaluation indicated that the site is not susceptible to liquefaction and therefore, not subjected to earthquake-induced landsliding or lateral spreading.

Ground Lurching

Ground lurching is defined as an earthquake motion at right angles to nature or artificial slopes that results in a series of more or less parallel cracks separating the ground into rough blocks. Lurching is also sometimes used to describe undulating surface waves in soils. Materials which are most susceptible to lurching effects are unconsolidated with low cohesion. Since the site is

[12] Ibid.

generally flat, it is not subject to earthquake-induced ground lurching parallel to the slope. Similarly, the adjacent Add Area is also generally flat and is not subject to earthquake-induced ground lurching.

Seiches and Tsunamis

Seiches are an oscillation of the surface of an inland body of water that varies in period from a few minutes to several hours. Seismic activity can induce such oscillations. Tsunamis are large sea waves produced by submarine earthquakes or volcanic eruptions.

The project site and Add Area are not located close to an inland body of water and are at an elevation sufficiently above sea level to be outside the zone of a tsunami run-up.

Settlement due to Seismic Shaking

Granular soils are considered susceptible to earthquake-induced settlement, whether the soils are saturated or dry. The potential and amount of earthquake-induced settlement will be affected by the magnitude of earthquake, the strength of soils and the occurrence of groundwater. According to the Geological Report prepared for the site, the magnitude of earthquake-induced settlement would not significantly affect the integrity and competency of the building structure due to the following reasons:

- the potential of soil liquefaction within the site is low
- the building structure would be provided with three subterranean parking levels, and
- onsite soil below the foundation level is competent with low compressibility

ENVIRONMENTAL IMPACTS

THRESHOLD OF SIGNIFICANCE

Appendix G of the CEQA Guidelines, as amended through January 1, 2004, provides criteria under which a project could have a significant impact. Specifically, the project is considered to have a significant impact if it meets any of the following criteria and cannot be adequately mitigated:

- The project exposes people or structures to the risk of loss, injury or death involving rupture of a known earthquake fault as delineated by an Alquist-Priolo zone map, strong seismic groundshaking, seismically related ground failure including liquefaction or landslides;
- The project results in substantial soil erosion or the loss of topsoil;
- The project is located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; or
- The project would be located on expansive soil creating substantial risks to life or property.

Additionally, the *Draft City of Los Angeles CEQA Thresholds Guide* provides thresholds not encompassed by the CEQA Guidelines. These thresholds state that a significant impact would result if:

- A project would cause or accelerate geologic hazards which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury;

- The project constitutes a geologic hazard to other properties by causing or accelerating instability from erosion or would accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition which would not be contained or controlled on-site; or

- The project would destroy, permanently cover or materially and adversely modify one or more distinct and prominent geologic or topographic features. Such features may include, but are not limited to, hilltops, ridges, hillslopes, canyons, ravines, rock outcrops, water bodies streambeds and wetlands;

For purposes of this Draft EIR, the project is considered to have a significant impact if it exceeds any of the above thresholds as stated by Appendix G of the CEQA Guidelines or the Draft City of Los Angeles CEQA Thresholds Guide.

ENVIRONMENTAL IMPACTS

PROJECT GRADING

The project would develop the existing 12.53-acre site and adjacent Add Area with a 1,300,000 square foot mixed use development that would provide employment, services, entertainment, lodging and housing, while integrating transit, and urban amenities. All existing improvements on the site, including the market, health club, restaurant and other retail uses, which total 151,806 square feet, would be removed to accommodate the proposed project. The existing school and church located in the Add Area would remain under operation.

As stated earlier, the project site and Add Area are completely paved and fairly level. Approximately 592,000 cubic yards of materials would be excavated for project construction. Prior to the development of housing, retail and office uses in this area, existing structures would be removed from both the project site and the Add Area.

According to the Geotechnical Report, the development of the proposed mixed use buildings is feasible from a geotechnical engineering viewpoint provided the recommendations of the Report are incorporated into design and implemented during construction.[13] Recommendations have been included as Mitigation Measures IV.E-1 to IV.E-12.

Proposed grading would consist of excavating (removal) existing soils and then re-compaction for the support of concrete slabs, pavements and pavers. Temporary excavation to a maximum of 30-35 feet in vertical would be required for the construction of subterranean parking levels. According to the Geotechnical Report, shoring protection is required for temporary excavation more than 5 feet in depth.[14]

[13] C.Y. Geotech, Inc. *Soil Engineering Investigation 13005-13069 Victory Boulevard, Van Nuys, California.* August 31, 2007.

[14] Ibid.

Seismic Hazards

Groundshaking

As stated in the setting, the project site and Add Area are not located within any of the mapped Alquist-Priolo Special Studies zone. No known active faults or faults that could result in ground rupture traverse the site and adjacent Add Area. Therefore, no significant impacts would occur on the site and Add Area from potential surface fault rupture.

As previously discussed in this Draft EIR section, there are a number of faults in the Southern California region that have proven to be active and are considered capable of causing earthquakes of significant magnitude. Consequently, the project site and Add Area, as with the rest of the region, could experience significant groundshaking that could result in property damage or loss of life. Earthquake intensity is influenced by site conditions as well as proximity to earthquake epicenters or causative faults. Amplitudes of seismic waves tend to be amplified by passage through soft sediments overlying hard rock. To some extent, attenuation relationships used to calculate peak accelerations account for that tendency.

As stated in the setting, approximately 30 fault systems are located within a search radius of 50 miles from the site and adjacent Add Area. Table IV-1 shows the fault systems located in close proximity to the project site. The largest credible peak ground acceleration (0.76g) and the largest credible repeatable ground acceleration are associated with the Verdugo Fault. This fault is located approximately 3.1 miles away. The Northridge Hills Fault is located approximately 5 miles away.

Potential impacts to the project site and Add Area from groundshaking would be reduced through proper engineering design and conformance with current City and State seismic, building and development code requirements. Specifically, the proposed project would be designed to meet seismic safety standards and requirements as set forth in the City of Los Angeles Building Code, subject to the determination and approval of the City of Los Angeles Department of Building and Safety and other responsible agencies. Consequently, no significant impacts from groundshaking would occur as a result of development of the proposed project and Add Area.

Other Seismic Hazards

As indicated in the Existing Conditions discussion above, the likelihood of other geologic hazards impacting the project site and Add Area, such as lurching, shallow ground rupture, landslide, liquefaction, tsunamis, or seiches, is considered low.

The site and Add Area are fairly level and free from the potential of landslide. No evidence of deep-seated failure or other types of slope failure was observed during field exploration.[15]

The liquefaction evaluation indicated that the site is not susceptible to liquefaction and therefore, not subjected to earthquake-induced landsliding or lateral spreading. Similarly, due to its flatness, the project site and Add Area are not subject to earthquake-induced ground lurching parallel to the slope.

[15] Ibid.

The project site and the Add Area are not located close to an inland body of water and are at an elevation sufficiently above sea level to be outside the zone of a tsunami run-up. Therefore, the site and Add Area would not be subject to any tsunami or seiche hazard.

The potential and amount of earthquake-induced settlement is affected by the magnitude of earthquake, the strength of soils and the occurrence of groundwater. According to the Geological Report prepared for the site, the magnitude of earthquake-induced settlement would not significantly affect the integrity and competency of proposed building structure because the potential of soil liquefaction within the site is low and because project design would include 3 subterranean parking levels. Additionally, onsite soil below the foundation level is competent with low compressibility.

No significant geologic impacts resulting from lurching, shallow ground rupture, landslide, liquefaction, tsunamis, or seiches would be expected under development of the proposed project and Add Area.

MITIGATION MEASURES

Extensive site-specific mitigation measures have been identified by the Geotechnical Report for the proposed project. These measures address the site conditions identified in this Draft EIR section. Unless otherwise so specified by the City of Los Angeles, the following measures shall be incorporated into the project's design:

IV.E-1 Unless otherwise specified by the City of Los Angeles, the proposed project shall demonstrate compliance with specific recommendations for grading, foundation design, retaining wall design, temporary excavations, slabs on grade, site drainage, asphalt concrete pavement and interlocking pavers, design review, construction monitoring and geotechnical testing as identified in the Soil Engineering Investigation prepared by C. Y. Geotech, Inc., dated August 31, 2007, and contained herein as Appendix E (or subsequent reports prepared by an appropriately licensed professional), to the satisfaction of the City of Los Angeles Department of Building and Safety, as conditions to issuance of any grading and building permits.

IV.E-2 The project shall comply with the following Department of Building and Safety requirements (if not already covered by mitigation measure 1), prior to issuance of a grading permit for the project:

- Prior to the issuance of a grading permit by the Department of Building and Safety, the consulting geologist and soils engineer shall review and approve project grading plans. This approval shall be conferred by signature on the plans which clearly indicate the geologist and/or soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in the report.

- Prior to the commencement of grading activities, a qualified geotechnical engineer and engineering geologist shall be employed for the purpose of observing earthwork procedures and testing fills for conformance to the recommendations of the City Engineer, approved grading plans, applicable

grading codes, and the geotechnical report approved to the satisfaction of the Department of Building and Safety.

- During construction, all grading shall be carefully observed, mapped and tested by the project engineer. All grading shall be performed under the supervision of a licensed engineering geologist and/or soils engineer in accordance with applicable provisions of the Building Code and to the satisfaction of the City Engineer and the Superintendent of Building and Safety.

- Any recommendations prepared by the consulting geologist and/or soils engineer for correction of geologic hazards, if any, encountered during grading shall be submitted to the Department of Building and Safety for approval prior to issuance of a Certificate of Occupancy for the project.

- Grading and excavation activities shall be undertaken in compliance with all relevant requirements of the California Division of Industrial safety, the Occupational Safety and Health Act of 1970 and the Construction Safety Act.

IV.E-3 The project shall conform to applicable criteria set forth in the Recommended Lateral Force Requirements and Commentary by the Structural Engineers Association of California.

IV.E-4 Seismic design for structures and foundations shall comply with the parameters outlined in the 2008 California Building Code as designated for site-specific soil conditions.

IV.E-5 The project shall be designed to conform to the City of Los Angeles Seismic Safety Plan and additional seismic safety requirements not encompassed by compliance with the Building Code and Grading Ordinance as may be identified by the Department of Building and Safety prior to Plan Check approval.

IV.E-6 The structural design of the project shall comply with the seismic standards of the 2008 California Building Code according to the seismic zone and construction type.

IV.E-7 During inclement periods of the year, when rain is threatening (between November 1 and April 15 per the Los Angeles Building Code, Sec. 7002.), an erosion control plan that identifies BMPs shall be implemented to the satisfaction of the City of Los Angeles Department of Building and Safety to minimize potential erosion during construction. The erosion control plan shall be a condition to issuance of any grading permit.

IV.E-8 To the extent feasible, grading shall be scheduled for completion prior to the start of the rainy season (between November 1 and April 15 per the Los Angeles Building Code, Sec. 7002) or detailed temporary erosion control plans shall be implemented in a manner satisfactory to the City of Los Angeles Department of Public Works.

IV.E-9 Appropriate erosion control and drainage devices shall be incorporated to the satisfaction of the Department of Building and Safety. Such measures include interceptor terraces, berms, vee-channels, and inlet and outlet structures.

IV.E-10 If temporary excavation slopes are to be maintained during the rainy season, it will be necessary to direct all drainage away from the top of the slope. No water shall be allowed to flow uncontrolled over the face of any temporary or permanent slope.

IV.E-11 Provisions shall be made for adequate surface drainage away from the areas of excavation as well as protection of excavated areas from flooding. The grading contractor shall control surface water and the transportation of silt and sediment.

IV.E-12 A geological study shall be prepared to assess impacts to geologic resources resulting from project development located in the Add Area.

CUMULATIVE IMPACTS

As with the proposed project, the impacts of related projects are site-specific, with each project subject to individual detailed review by the City of Los Angeles, Department of Building and Safety and other responsible agencies. Site specific conditions and mitigation measures will be imposed upon each related project thereby minimizing any potentially significant cumulative impacts that could result from concurrent development of the proposed project and known related projects. With respect to seismic hazards, the proposed project and all related projects could be subject to severe groundshaking in the event of a major earthquake, and thus expose an increased population and structures to an existing regional seismic hazard. Each of these developments would be designed to conform to applicable seismic safety standards. Therefore, the project would not compound or increase potential cumulative impacts to a level considered cumulatively considerable, therefore, cumulative geology and soil impacts would be less than significant.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Geotechnical hazards are site-specific, and there is little, if any, cumulative geological relationship between the project and the related projects. Any potential hazards from underlying soil and seismic conditions for the proposed project, Add Area and related projects would be mitigated through implementation of the project-specific mitigation measures, including adherence to applicable State and Federal regulations, building codes and sound engineering practices. After mitigation, the proposed project including development of the Add Area, would not expose people or structures to any unstable geologic conditions or seismically related geologic hazards, nor would it accelerate an existing hazard or create a new hazard. No significant prominent geologic or topographic features would be altered by the project, as the site is neither uniquely situated nor prominent in its topography. Compliance with these mitigation measures would ensure that all engineering practices are soundly employed and meet accepted public safety standards. Although the project site and Add Area could be subject to severe groundshaking in the event of a major earthquake, any risks from such hazards would not be greater than those present throughout the North Hollywood community and the Southern California region as a whole. Therefore, the project would not compound or increase potential cumulative impacts to a level considered cumulatively considerable, and cumulative geology and soil impacts would be less than significant.