IV. Environmental Impact Analysis
F. Geology and Soils

1. Introduction

This section of the Draft EIR analyzes the Project's potential impacts with regard to the geologic and geotechnical hazards specific to the Project Site. The analysis is based on the *Preliminary Geotechnical Evaluation, John Anson Ford Theatres Master Plan* (February 7, 2013); *Geotechnical Exploration Report, Off-Season Two Improvements* (September 10, 2013); and *Addendum No. 3 to Geotechnical Exploration Report, Off-Season Three and Four Improvements* (February 28, 2014), prepared by Leighton Consulting, Inc. These documents (collectively referred to herein as the Geotechnical Reports) are included as Appendix H of this Draft EIR.

2. Environmental Setting

a. Regulatory Framework

(1) State of California

(a) Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act (Public Resources Code Section 2621) was enacted by the State of California in 1972 to address the hazard of surface faulting to structures for human occupancy.[1] The Alquist–Priolo Earthquake Fault Zoning Act was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged homes, commercial buildings, and other structures. The primary purpose of the Alquist–Priolo Earthquake Fault Zoning Act is to prevent the construction of habitable buildings on the surface traces of active faults. The Alquist–Priolo Earthquake Fault Zoning Act is also intended to increase safety and minimize the loss of life during and immediately following earthquakes by facilitating seismic retrofitting to strengthen buildings against ground shaking.

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[1] *The Act was originally entitled the Alquist–Priolo Geologic Hazards Zone Act.*

The Alquist–Priolo Earthquake Fault Zoning Act requires the State Geologist to establish regulatory zones, known as "Earthquake Fault Zones," around the surface traces of active faults; issue maps defining areas of potential surface rupture to assist cities and counties in planning, zoning, and building regulation functions; and continually review new geologic and seismic data, revise existing zones, and delineate additional earthquake fault zones when warranted by new information. Local agencies must enforce the Alquist–Priolo Earthquake Fault Zoning Act in the development permit process by requiring a geologic investigation prepared by a licensed geologist to demonstrate that buildings will not be constructed across active faults. If an active fault is found, habitable structures must be set back a minimum of 50 feet. The Alquist–Priolo Earthquake Fault Zoning Act and its regulations are presented in California Department of Conservation, California Geological Survey (CGS), Special Publication 42, *Fault-Rupture Hazard Zones in California*.

(b) Seismic Safety Act

The California Seismic Safety Commission was established by the Seismic Safety Act in 1975 with the intent of providing oversight, review, and recommendations to the Governor and State Legislature regarding seismic issues. The California Seismic Safety Commission's name was changed to Alfred E. Alquist Seismic Safety Commission in 2006. Since then, the Commission has adopted several documents based on recorded earthquakes, including:[2]

- Research and Implementation Plan for Earthquake Risk Reduction in California 1995 to 2000, report dated December 1994;
- Seismic Safety in California's Schools, "Findings and Recommendations on Seismic Safety Policies and Requirements for Public, Private, and Charter Schools," report dated December 2004;
- Findings and Recommendations on Hospital Seismic Safety, report dated November 2001; and
- Commercial Property Owner's Guide to Earthquakes Safety, report dated October 2006.

(c) Seismic Hazards Mapping Act

The State of California passed the Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690-2699) to address the effects of strong ground shaking,

[2] *Alfred E. Alquist Seismic Safety Commission. Publications, www.seismic.ca.gov/pub.html, accessed March 25, 2014.*

liquefaction, landslides, and other ground failures due to seismic events. Under the Seismic Hazards Mapping Act, the State Geologist is responsible for identifying and mapping seismic hazards zones (e.g., for strong ground shaking, liquefaction, landslides, and other ground failures due to seismic events) as part of the California Geological Survey, formerly known as the California Division of Mines and Geology. The CGS zone maps are used by local governments for planning purposes. For projects within seismic hazards zones, the Seismic Hazards Mapping Act requires developers to conduct geological investigations and incorporate appropriate mitigation measures into project designs before building permits are issued.

State publications supporting the requirements of the Seismic Hazards Mapping Act include the CGS Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* and CGS Special Publication 118, *Recommended Criteria for Delineating Seismic Hazard Zones in California*. The objectives of Special Publication 117 are to assist in the evaluation and mitigation of earthquake-related hazards for projects within designated zones where investigations are required and to promote uniform and effective statewide implementation of the Seismic Hazards Mapping Act. Special Publication 118 presents criteria to assist the State Geologist in fulfilling its obligation under the Seismic Hazards Mapping Act.

(d) California Building Code

The California Building Code (California Code of Regulations, Title 24) is a compilation of building standards, including seismic safety standards for new buildings. The purpose of the California Building Code is to establish minimum standards for safeguarding public health and safety through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures. The California Building Code applies to all occupancies in California, except where stricter standards have been adopted by local agencies. The State recently adopted the 2013 California Building Code, which became effective on January 1, 2014.[3] Specific California Building Code building and seismic safety regulations have been incorporated by reference in the Los Angeles County Building Code (County Building Code).

The California Building Standards Code, which includes the California Building Code as well as other related codes (e.g., California Electrical Code and California Plumbing Code, among others), is based on the International Building Code, with the addition of California amendments based on the American Society of Civil Engineers Minimum Design

[3] *California Building Standards Commission, California Building Standards Code (Title 24, California Code of Regulations), www.bsc.ca.gov/codes.aspx, accessed March 31, 2014.*

Standards 7-10. The California Building Standards Code establishes requirements for general structural design and methods for determining earthquake loads, as well as other loads (flood, snow, wind, etc.), for inclusion in building codes. The provisions of the California Building Standards Code apply to the construction, alteration, movement, replacement, and demolition of every building or structure, and any connected appurtenances, throughout California.

Earthquake design requirements take into account the occupancy category of a structure, site class, soil classifications, and various seismic coefficients, which are used to determine the appropriate Seismic Design Category for a project. The Seismic Design Category is a classification system that combines occupancy categories with the level of expected ground motions at the site and ranges from Seismic Design Category A (very small seismic vulnerability) to Seismic Design Category E/F (very high seismic vulnerability and near a major fault). Design specifications for the structure are then determined according to the applicable Seismic Design Category.

(2) County of Los Angeles

(a) Los Angeles County General Plan

As discussed in greater detail in Section IV.H, Land Use and Planning, of this Draft EIR, the Los Angeles County (County) General Plan directs future growth and development in the County's unincorporated areas and establishes goals, policies, and objectives that pertain to the entire County. The current General Plan, adopted in 1980, includes relevant policies that focus on the enforcement of standards and requirements that reduce seismic and geologic hazards as well as promoting seismically resistant lifelines that serve the County and connect to surrounding areas. Additional discussion of hillside management issues addressed in the General Plan is provided below under Los Angeles County Hillside Requirements. The General Plan policy consistency analysis provided in IV.H, Land Use and Planning, indicates the Project would be consistent with relevant General Plan polices related to geology and soils.

(b) Los Angeles County Building Code

The 2014 County Building Code, effective January 1, 2014, is based on the 2013 California Building Code and the 2012 International Building Code. Relevant provisions address site grading, cut and fill slope design, soil expansion, geotechnical investigations before and during construction, slope stability, allowable bearing pressures and settlement below footings, effects of adjacent slopes on foundations, retaining walls, basement walls, shoring of adjacent properties, and potential primary and secondary seismic effects. The Los Angeles County Department of Public Works (LACDPW) Building and Safety Division is responsible for implementing the provisions of the County Building Code.

(c) Los Angeles County Hillside Requirements

The County sets forth development requirements for Hillside Management Areas in its Hillside Management Area Ordinance (County Code Section 22.56.215). The Ordinance does not preclude development within hillside areas, but rather ensures that development maintains, and where possible enhances, the natural topography, resources, and amenities of the hillside management areas.

The County's current General Plan also addresses hillside development in Appendix A of the Land Use Element, which provides Hillside Management/Performance Review Procedures for development projects in hillside areas. Based on an overarching policy to "manage development in hillside areas to protect their natural and scenic character and to reduce risks from fire, flood, mudslide, erosion and landslide," the review process is intended to ensure site suitability, public safety, and resource protection, and to protect scenic and open lands.[4] With respect to urban hillside management areas, the Hillside Management/Performance Review Procedures serve to ensure that development in urban hillside areas is safe, functionally and attractively designed, and compatible with surrounding uses. General conditions for development are specified and address slope/density standards for residential uses, density transfers from steeper to more level land, and natural or open space standards. Applicable performance review criteria address public safety and quality of design. Finally, the Performance Review Procedures identify findings required for the approval of hillside development.

b. Existing Conditions

(1) Regional Geology

The Project Site is located on the south flank of the eastern Santa Monica Mountains within the Transverse Ranges Geomorphic Province of California. The distinctive uplifted east-west trending geomorphic features of the Transverse Ranges were formed as a result of the compressive forces between the converging Pacific and North American Plates. The Santa Monica Mountains in this area expose north-trending, fault bound blocks containing an assemblage of older Tertiary-age marine and non-marine sedimentary and intrusive and extrusive volcanic rocks. An east-west trending ridge, in line with the main crest of the Santa Monica Mountains, is the principal topographic feature of the area. Cahuenga Pass, a low gap in the ridge, separates this ridge from the main crest of the Santa Monica Mountains formed largely as a result of erosion of soft shale outcrops and resistant sandstone formations to the east.

[4] *County of Los Angeles General Plan Land Use Element, Appendix A, page III-59.*

The present physiographic setting of the Project Site is predominantly northwest to west-facing steep sided to near-vertical (ridge forming sandstone) terrain along the eastern side of the Project Site. The topographic relief across the Project Site varies between approximately 510 feet above mean sea level (msl) along the western portion of the Project Site, adjacent to Cahuenga Boulevard East, to approximately 944 feet above msl along the ridgeline to the east of the existing former motel building. The existing topographic features are related to tectonic uplift, ridgeline erosion, erosion of soft shales, and intrusive-extrusive basaltic flows.

(2) Local Geology

(a) Geologic Units

The surficial geologic units encountered at the Project Site include recent and Quaternary-age sediments that form a thin mantle over bedrock belonging to the Topanga Formation. These surficial geologic units include undocumented artificial fill associated with the previous development of the Project Site; debris flows and surficial failures; rockfalls; colluvium or slopewash overlying Topanga Formation Bedrock, which includes Sandstone and Tertiary age extrusive volcanic rocks.

(b) Geologic Structure

Regional uplift of the Santa Monica Mountains is primarily the result of movement along the Santa Monica and Hollywood Faults combined with extrusive igneous intrusions that once occurred along linear fissures in oceanic crust.

(3) Faulting and Seismicity

A fault is defined as a fracture along which rocks or soil on one side have been displaced with respect to those on the other side. In accordance with CGS criteria, a fault is considered active if it has demonstrated surface displacement in the last 11,700 years (i.e., generally corresponding to the Holocene epoch). Faults that have demonstrated movement between 11,700 and 1.6 million years ago (i.e., during the Quaternary period), but lack strong evidence of Holocene movement, are classified as potentially active. Faults that have not moved since the beginning of the Quaternary period are deemed inactive.

The seismically active southern California region is crossed by numerous active and potentially active faults and is underlain by several blind thrust faults, which are low angle reverse faults with no surface exposure. Based on a review of maps and information developed by the CGS, the Project Site does not contain any known active faults and is not within an Alquist–Priolo Earthquake Fault Zone. Faults within close proximity to the Project Site are shown in Figure IV.F-1 on page IV.F-7. Per the latest CGS fault database, the

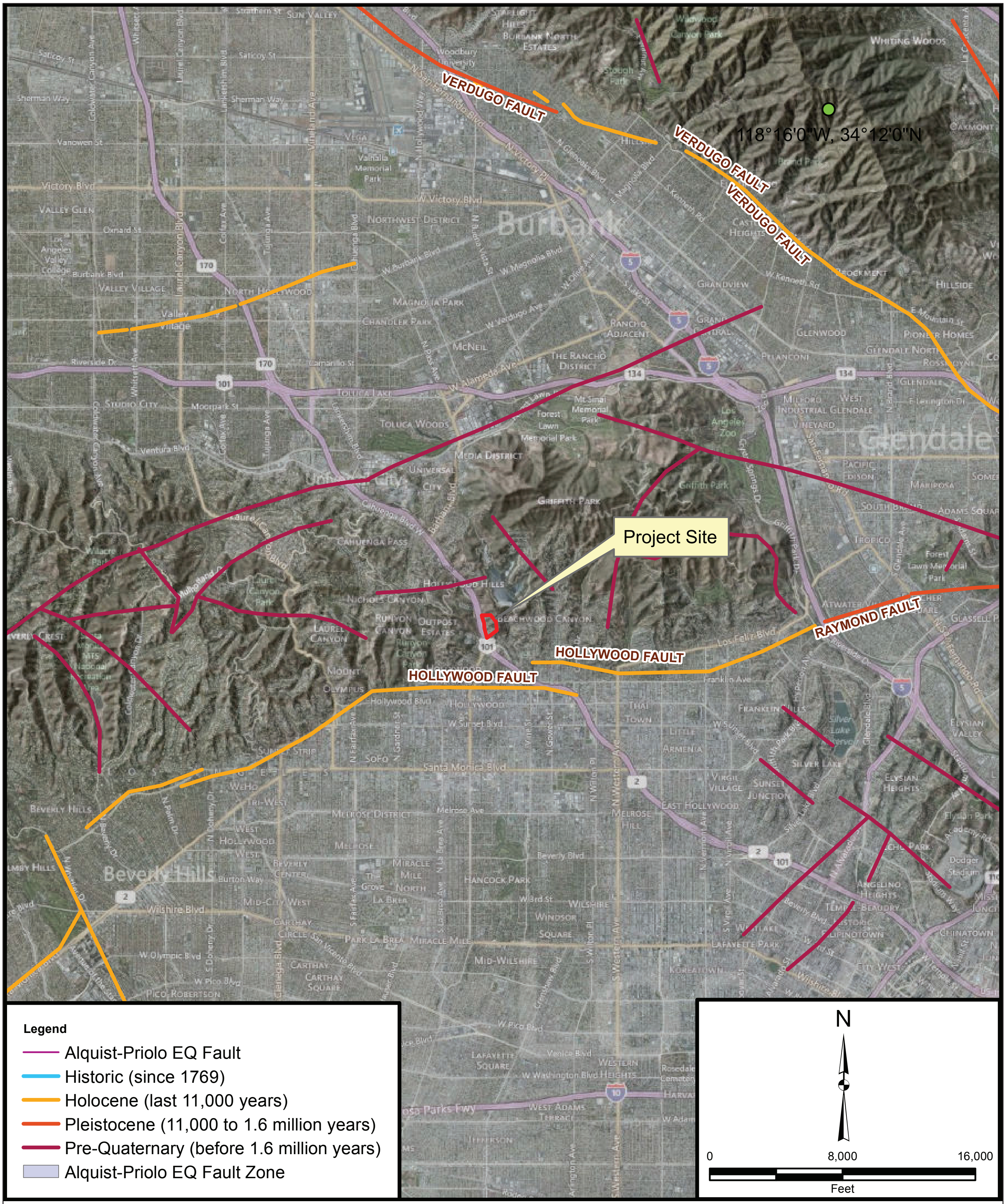

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Figure IV.F-1
Regional Fault Map

Source: Leighton Consulting, Inc. 2013

major active and potentially active fault systems that could produce significant ground shaking at the Project Site include the Hollywood and Santa Monica Fault Zones, and the Upper Elysian Park Thrust Fault. A brief description of the major active fault systems in the Project Site vicinity is provided below.

(a) Hollywood Fault

The Hollywood Fault is located approximately 0.4 mile south of the Project Site extending for nearly 17 km through densely populated areas including the cities of Beverly Hills, West Hollywood and the Hollywood district of Los Angeles. The Hollywood Fault is part of a greater than 200-kilometer-long west trending system of oblique, reverse, and left lateral faults that is truncated on the west by the north-northwest trending erosional escarpment known locally as the West Beverly Hills Lineament marking the presumed left step between the Santa Monica Fault and the Hollywood Fault. Based on geomorphic evidence, stratigraphic correlation between exploratory borings, and fault trenching studies, this fault is considered active and has recently been assigned to a preliminary Alquist–Priolo earthquake fault zone by the California Geological Survey due to re-evaluation of published and unpublished research.[5]

The Hollywood Fault has not produced any damaging earthquakes during the historical period and has had relatively minor micro-seismic activity. It is estimated that the Hollywood Fault is capable of producing a maximum magnitude (Mw) 6.4 earthquake.

(b) Santa Monica Fault Zone

The Santa Monica Fault Zone, located approximately 1.4 miles southwest of the Project Site, is part of the west trending Transverse Ranges Southern Boundary fault system. The Santa Monica Fault extends east from the coastline in Pacific Palisades through Santa Monica and West Los Angeles and merges with the Hollywood Fault near the West Beverly Hills Lineament in Beverly Hills. Based on geomorphic evidence and fault trenching studies, the Santa Monica Fault is considered active by the State Geologist but has not been assigned as an Alquist-Priolo earthquake fault zone. It is estimated that the Santa Monica Fault is capable of producing a maximum magnitude (Mw) 6.6 earthquake.

[5] *California Geological Survey Fault Evaluation Report FER 253, The Hollywood Fault in the Hollywood 7.5' Quadrangle, Los Angeles County, Calfifornia by Hernandez, J.L., Treiman, J.A., February 14, 2014.*

(c) Upper Elysian Park Anticulinorium

Blind or buried thrust faults are faults without surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the southern California area. Due to the buried nature and shallow dip of thrust faults, their existence is sometimes not known until they produce an earthquake. The Elysian Park Anticlinorium is a southward verging anticline approximately 12.4 miles long with a curved, southward-convex axis, lying between the Hollywood Fault on the northwest through the Silver Lake District to the right lateral East Montebello Fault on the east in the City of San Gabriel. Uplift along the structure has produced the Elysian, Repetto, and Monterey Park Hills. The CGS has estimated a maximum magnitude (Mw) 6.4 earthquake for the Elysian Park Thrust fault system.

(d) Seismicity

As with most of Southern California, the Project Site may be subject to future seismic shaking during earthquakes generated by any of the surrounding active faults. Intensity of ground shaking at a given location depends primarily upon earthquake magnitude, site distance from the source, and site response (soil type) characteristics. A number of earthquakes of moderate to major magnitude have occurred in the Southern California area within the last 100 years. According to the United States Geological Survey one of the most recent local earthquakes was a maximum magnitude (Mw) 3.4 earthquake that occurred on September 7, 2012, approximately 3.4 miles southwest of the Project Site. This earthquake is believed to be attributed to movement along the San Vicente Blind thrust fault.[6]

(4) Liquefaction and Lateral Spreading

Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during severe ground shaking. Liquefaction is associated primarily with loose (low density), saturated, fine- to medium-grained, cohesionless soils. According to the State Seismic Hazard Zones Map for the Hollywood Quadrangle illustrated in Figure IV.F-2 on page IV.F-10, portions of the Project Site are located within an area that has been identified by the State as being potentially susceptible to liquefaction. As shown in Figure IV.F-2, State-mapped areas of liquefaction are confined to the western boundary of

6 *According to the USGS, on March 17, 2014, a maximum magnitude 4.4 earthquake occurred approximately 8 miles west of the Project Site along the northern edge of the Santa Monica Mountains. The fault on which the movement occurred is unknown.*

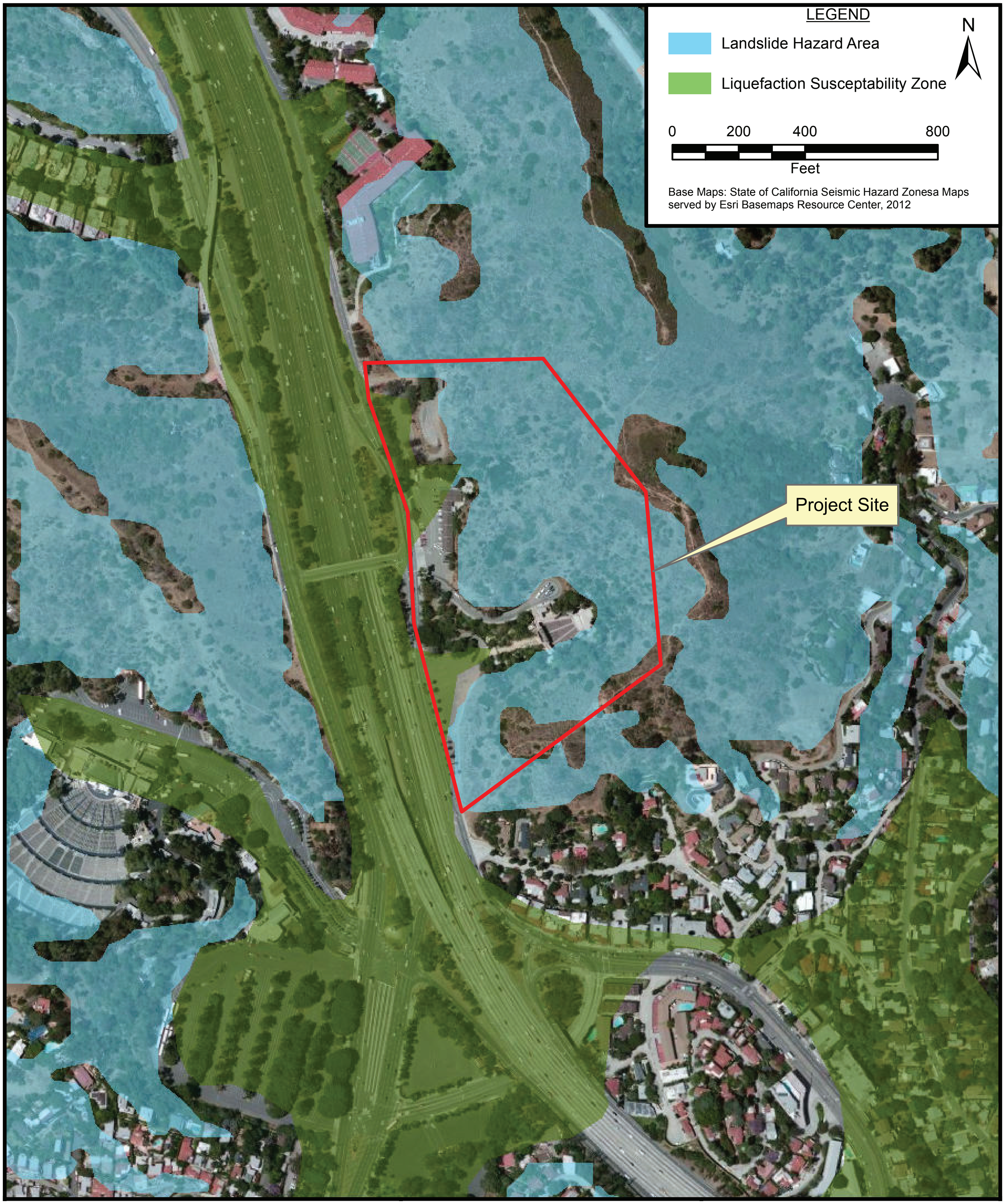

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Figure IV.F-2
Seismic Hazards Map

Source: Leighton Consulting, Inc. 2013

the Project Site, along Cahuenga Boulevard East and portions of the north and south parking lots.

Lateral spreading is a phenomenon in which large blocks of intact, non-liquefied soil move downslope on a liquefied soil layer. Lateral spreading is often a regional event. For lateral spreading to occur, a liquefiable soil zone must be laterally continuous, unconstrained laterally in at least one direction and free to move along sloping ground. Due to the topographic relief and the potential for liquefaction within portions of the Project Site, there is a potential for lateral spreading within the Project Site.

(5) Landslides and Slope Stability

Based on the Seismic Hazard Zone Map for the Hollywood Quadrangle provided in Figure IV.F-2 on page IV.F-10, the hillside portions of the Project Site are located within an area that has been identified by the State as being susceptible to seismically induced landslides. Based on geotechnical investigations within the Project Site, deep seated landslides, in which the sliding surface is deeply located, are not mapped within the Project Site.[7] However, shallow landslides, such as debris flows and rockfalls associated with either seismic activity or with the natural slopes of the Project Site, have been observed within the Project Site. In particular, debris flow areas were encountered during subsurface investigations at the Project Site, and subsequent verbal conversations with Ford Theatres personnel confirmed debris flows have occurred at the Project Site during substantial rainfall events. Areas of thick accumulation of surficial materials, predominately highly weathered basalt, have the potential to develop into debris flows. Further, field mapping and geologic analysis of the sandstone rock outcrops exposed in the southern portion of the Project Site indicated the presence of intersecting pairs of joint sets and conjugate fault planes within the sandstone outcropping. Due to local orientations of the joint sets, the presence of fractured, freshly exposed rock faces, and damage to a steel H-beam installed to provide structural support for the existing retaining walls, the potential exists for detachment and downslope translation of rock.

(6) Settlement

Dynamic compaction may also occur during a major earthquake. Typically, settlements occur in thick beds of dry and loose sands. Since the Project Site is underlain predominantly by bedrock, the potential for seismically induced settlement within the Project Site is low.

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[7] *Personal community with Leighton Consulting, Inc., March 2014.*

(7) Tsunami, Seiche, and Flooding

Tsunamis are large ocean waves generated by sudden water displacement due to a submarine earthquake, landslide, or volcanic eruption. As described above, the Project Site is situated at elevations higher than 500 feet above msl and is approximately 12 miles east of the Pacific Ocean. In addition, the Project Site is not mapped as a tsunami inundation area.[8] Therefore, the Project Site would not be affected by a tsunami.

Seiches are large wave oscillations generated in enclosed bodies of water, which can be caused by ground shaking during an earthquake and can result in inundation. The nearest enclosed body of water to the Project Site is the Hollywood Reservoir, which is located northeast of the Project Site. Based on the proximity of the Hollywood Reservoir to the Project Site and the location and varying ridgeline elevations between the Project Site and the Hollywood Reservoir, the seiche risk at the Project Site is considered low. Therefore, the Project Site is not anticipated to be affected by a seismically induced seiche.

Other forms of inundation include structural failures of dams due to factors including earthquakes, which can result in the flooding of areas located downstream. According to the County of Los Angeles Seismic Safety Element and the City of Los Angeles Safety Element, the Project Site is not located within a potential inundation area associated with the Hollywood Reservoir. In addition, it is noted that the Mulholland Dam, which impounds the Hollywood Reservoir, is continually monitored by the Army Corp of Engineers to guard against the threat of dam failure. Further, the possibility of dam failures during an earthquake has been evaluated by the California Division of Mines and Geology in an earthquake planning scenario for a magnitude 8.3 earthquake on the San Andreas fault and a magnitude 7.0 earthquake on the Newport Inglewood Fault Zone. The analyses indicated the catastrophic failure of a dam as a result of an earthquake is highly unlikely. It is also noted that current design practices, dam review, and modification or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding the maximum earthquake for that particular site. Therefore, the potential for the Project Site to be inundated as a result of dam failure is considered low.

(8) Expansive Soils

Based on geotechnical explorations at the Project Site, the near surface soils are generally granular with localized silt and clay layers. Results of expansion index tests indicate that the onsite soils have a low expansion potential.

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[8] *California Department of Conservation, Los Angeles County Tsunami Inundation Maps, www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/LosAngeles/Pages/LosAngeles.aspx, accessed March 27, 2014.*

(9) Corrosive Soils

Corrosive soils are characterized by their ability to degrade concrete and corrode ferrous materials in contact with water or soil. In particular, concrete is susceptible to corrosion when it is in contact with soil or water that contains high concentrations of soluble sulfates. Results of laboratory testing indicate soluble sulfate contents of 73 and 175 parts per million (ppm), which range from negligible to moderate sulfate exposure. Results of laboratory testing also indicate Project Site soils are highly corrosive to ferrous metals.

3. Environmental Impacts

a. Methodology

To evaluate potential hazards relative to geology and soils, several Geotechnical Reports were prepared by Leighton Consulting, Inc., as provided in Appendix H of this Draft EIR. Preparation of the Geotechnical Reports included review of relevant literature and materials, geologic mapping, geophysical survey, geotechnical exploration (i.e., exploratory soil borings), laboratory testing, and conceptual-level engineering analyses.

b. Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, Project impacts associated with geology and soils would be significant if the Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; Refer to Division of Mines and Geology Special Publication 42.
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction;
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

As discussed in the Initial Study prepared for the Project, provided in Appendix A of this Draft EIR, the closest active fault to the Project Site is the Hollywood Fault, which is located approximately 0.4 mile south of the Project Site.[9] As such, the Project Site is not within a currently established Alquist–Priolo Earthquake Fault Zone for surface fault rupture hazards.[10] In addition, based on a review of the preliminary 2014 Earthquake Fault Zone Map for the Hollywood Quadrangle released by the California Geological Survey on January 8, 2014, the Project Site would not be within an Alquist–Priolo Earthquake Fault Zone associated with the Hollywood Fault.[11] Therefore, potential impacts associated with rupture of a known earthquake fault would be less than significant. Additionally, since the Project Site is located within a community served by existing sewer infrastructure, wastewater generated by the Project would be accommodated via connections to the existing sewage infrastructure located in the Project area. As such, the Project would not require the use of septic tanks or alternative wastewater disposal systems. Thus, the Project would not result in impacts related to the ability of soils to support septic tanks or alternative wastewater disposal systems. Therefore, further analysis of these issues is not necessary.

c. Project Design Features

Project Design Feature F-1: Prior to the issuance of a grading permit(s), the Applicant shall submit to the County of Los Angeles Department of Public Works for review and approval a final design-level geotechnical investigation report that complies with all applicable State and local code requirements based on final Project designs prepared by a registered civil engineer and certified engineering geologist. The geotechnical investigation report shall include recommendations for the specific building locations and design including those pertaining to site preparation, fills and compaction,

9 *Preliminary Geotechnical Evaluation, John Anson Ford Theatres Master Plan, Leighton Consulting. February 7, 2013.*

10 *Ibid.*

11 *California Department of Conservation. California Geological Survey, Earthquake Fault Zones, Hollywood Quadrangle, Preliminary Review Map, www.consrv.ca.gov/cgs/rghm/ap/Documents/Hollywood_EZRIM.pdf, released January 8, 2014..*

foundations, etc. The geotechnical investigation report shall be prepared to the written satisfaction of the Los Angeles Department of Public Works—Building and Safety Division.

Project Design Feature F-2: Project design and construction shall comply with all applicable current building codes and standards, including those established by the California Geological Survey's "Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication No. 117;" the Uniform Building Code as adopted by the County of Los Angeles; State and County laws, ordinances and Code requirements; and the recommendations set forth in a final geotechnical investigation(s).

d. Analysis of Project Impacts

(1) Strong Seismic Ground Shaking

The Project Site is located within the seismically active region of Southern California and most of Southern California is potentially subject to strong ground motion from movement along a fault or fault zone. Ground shaking can occur in areas adjacent to an earthquake epicenter, as well as in more distant areas for many miles in all directions. Thus, the Project Site could be subject to strong seismic ground shaking and impacts associated with seismic ground shaking could be potentially significant. However, strong ground shaking is common to Southern California, and potential damage caused by seismic shaking is typically reduced through proper structural design and construction techniques that are required as part of compliance with state and local seismic regulations.

As with any new development in the State of California, Project building design and construction would be required to conform to the current seismic design provisions of the California Building Code to minimize potential seismic impacts. In addition, construction of the Project would be required to adhere to the seismic safety requirements contained in the Los Angeles County Building Code. The Project would also be required to comply with the site plan review and permitting requirements of the County of Los Angeles Department of Public Works, Building and Safety Division, including the recommendations provided in site-specific geotechnical reports subject to Building and Safety Division's review and approval, as reflected in Project Design Feature F-1 and Project Design Feature F-2, above. Compliance with regulatory requirements and implementation of project design features would ensure Project construction adheres to the seismic safety requirements contained in the State and County Building Codes and that site-specific engineering recommendations are implemented in accordance with a design-level geotechnical investigation. Therefore, the Project would not expose people or structures to potential substantial adverse effects associated with seismic ground shaking, and impacts would be less than significant.

(2) Liquefaction and Lateral Spreading

As discussed above, portions of the Project Site are located within an area that has been identified by the State as being potentially susceptible to liquefaction. As shown in Figure IV.F-2 on page IV.F-10, these areas are confined to the western boundary of the Project Site, adjacent to Cahuenga Boulevard East and within portions of the north and south parking lots. Given the Project Site's location within an area potentially susceptible to liquefaction, significant impacts with regard to liquefaction and lateral spreading could occur. Accordingly, Mitigation Measure F-1 is provided below to require that Project construction involve a combination of ground modification (remedial grading) and/or structural enhancements that would address potential liquefaction hazards.[12] In addition, Project construction would adhere to the seismic safety requirements contained in the California and County Building Codes applicable to liquefaction and lateral spreading. With compliance with regulatory requirements and incorporation of the recommended structural enhancements into the design and construction of the Project, the Project would not expose people or structures to potential substantial adverse effects related to liquefaction and lateral spreading, and potential impacts would be reduced to a less than significant level.

(3) Landslides and Slope Stability

As described above, based on the Seismic Hazard Zone Map for the Hollywood Quadrangle, a portion of the Project Site is located within an area that has been identified by the State as being susceptible to seismically induced landslides. Based on the site-specific conditions observed as part of the geotechnical investigations, the Project Site is primarily susceptible to shallow landslide events such as debris flows and rockfalls associated with the natural slopes of the Project Site. As such, the Project could result in potentially significant impacts with regard to landslides and slope stability. Slope stability analyses were conducted for the Project Site and are included within the Geotechnical Reports provided in Appendix H of this Draft EIR. The results of the stability analyses indicate the Project Site would attain sufficient stability with minor surficial grading and the incorporation of slope reinforcement measures as specified in the Geotechnical Report and set forth in Mitigation Measure F-2 provided below, including removal of loose slope materials, repair of the existing damaged crib wall, and installation of retaining walls. In addition, as provided in Mitigation Measure F-2, flexible barriers would also be installed for protection against potential future rockfalls. With implementation of the recommended features and measures set forth in Mitigation Measure F-2 below into the design and construction of the Project, the Project would not expose people or structures to potential

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[12] *Personal communication with Leighton Consulting, Inc., March 2014. Detailed site grading and structural recommendations are included in the Geotechnical Reports provided in Appendix H of this Draft EIR.*

substantial adverse effects related to landslides or slope failures, and potential impacts would be reduced to a less than significant level.

(4) Erosion

Sedimentation and erosion could potentially occur as a result of exposed soils during Project construction. However, construction activities would occur in accordance with erosion control requirements, including grading and dust control measures, imposed by the County pursuant to grading permit regulations. In addition, as discussed in detail in Section IV.G, Hydrology, Water Quality, and Groundwater, of this Draft EIR, the Project would be required to have a Storm Water Pollution Prevention Plan pursuant to the National Pollutant Discharge Elimination System permit requirements. As part of the Storm Water Pollution Prevention Plan, Best Management Practices would be implemented during construction to reduce sedimentation and erosion levels to the maximum extent possible. The County of Los Angeles, as part of normal project approval and construction practice, monitors compliance with these requirements. The Project also would comply with South Coast Air Quality Management District Rule 403, which requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads, as discussed in Section IV.B, Air Quality, of this Draft EIR. With compliance with regulatory requirements and implementation of appropriate Best Management Practices, impacts with respect to soil erosion and the loss of topsoil associated with Project construction would be less than significant.

Project operations could result in a limited degree of soil erosion from vegetated areas. However, as discussed further in Section IV.G, Hydrology and Water Quality, of this Draft EIR, the Project would be required to have a Standard Urban Stormwater Mitigation Plan in place during the operational life of the Project in compliance with National Pollutant Discharge Elimination System permit requirements. The Standard Urban Stormwater Mitigation Plan would include Best Management Practices developed, in part, based on the County's Low Impact Development Standards Manual, which would reduce on-site erosion from vegetated areas within the Project Site. With compliance with these regulatory requirements, impacts with respect to sedimentation and erosion during operation would be less than significant.

(5) Corrosive Soils

As previously discussed, corrosion testing performed suggest the soils within the Project Site could be corrosive to concrete and ferrous metals. Corrosion testing would be performed, as required by the County Building Code, and final recommendations for concrete would be made in accordance with the latest California Building Code requirements. With compliance with all regulatory requirements and implementation of the recommendations set forth in the Geotechnical Reports as well as any subsequent recommendations, as applicable, impacts related to corrosion would be less than significant.

4. Cumulative Impacts

Due to the site-specific nature of geological conditions (i.e., soils, geological features, seismic features, etc), geology impacts are typically assessed on a project-by-project basis, rather than on a cumulative basis. Nonetheless, cumulative growth through 2020 (inclusive of the 27 related projects identified in Section III, Environmental Setting, of this Draft EIR) would expose a greater number of people to seismic and other secondary hazards. However, as with the Project, related projects and other future development projects in the area would be subject to established guidelines and regulations pertaining to building design and seismic safety, including those set forth in the California Building Code and Los Angeles County Building Code (or City of Los Angeles Building Code requirements, as appropriate). Therefore, with adherence to such regulations, cumulative impacts with regard to geology and soils would be less than significant.

5. Mitigation Measures

Mitigation Measure F-1: Project grading shall include a combination of ground modification and/or structural enhancements in areas subject to liquefaction to reduce the risk to an acceptable level (as defined by the California Geological Survey in Special Publication 117a, Chapter 2). Ground modification shall consist of the removal and replacement of undocumented fill with engineered fill. Subsequently, foundations shall be supported on conventional shallow footing systems established on engineered fill or undisturbed bedrock.

Mitigation Measure F-2: In order to minimize, capture, and manage debris flows and rockfalls, the Project shall incorporate a combination of the following measures:

- Remove and recompact loose surficial material and remove rock fall accumulations;
- Construct storm drain and catch basins in swales above proposed retaining walls to provide an outlet for rainfall runoff and to catch eroded materials. Regular maintenance of catch basins to remove eroded materials shall be performed to preserve the basin and drain functionality;
- Install retaining walls; and
- Install flexible barriers or anchored mesh net.

6. Conclusion

With compliance with all regulatory requirements and implementation of the project design features and mitigation measures described above, Project-level impacts related to geology and soils would be less than significant. In addition, cumulative impacts with regard to geology and soils would be less than significant.