IV. Environmental Impact Analysis
D. Geology and Soils

1. Introduction

This section of the Recirculated Draft EIR provides an analysis of the Project's potential impacts with regard to geology and soils, including rupture of a known earthquake fault, seismic ground shaking, soil erosion, geologic unit or soil stability (e.g., lateral spreading, subsidence), expansive soils, and other geologic conditions. The analysis is based on a review of California regulatory requirements, City of Los Angeles requirements, as well as the *Geotechnical Feasibility Report* (Geotechnical Investigation) prepared for the Project by Golder Associates, Inc., which was approved on October 25, 2017,[1] and is included in Appendix D.1 of this Recirculated Draft EIR; the *Geotechnical Feasibility Report Update* (Geotechnical Investigation Update) prepared for the Project by Geotechnical Professionals Inc., dated September 11, 2020, and included as Appendix D.2 of this Recirculated Draft EIR; and the *Methane Investigation Report* (Methane Report), prepared for the Project by Carlin Environmental Consulting, Inc., dated February 13, 2017, and included as Appendix D.3 of this Recirculated Draft EIR.

The Project's potential impacts regarding the remaining environmental topics related to geology and soils, including landslides, soils incapable of supporting the use of septic tanks, and impacts to paleontological resources, were fully evaluated in the Initial Study prepared for the Project included in Appendix A of this Recirculated Draft EIR. The analysis included in the Initial Study prepared for the Project is summarized below.

2. Environmental Setting

a. Regulatory Framework

There are several plans, regulations, and programs that include policies, requirements, and guidelines regarding Geology and Soils at the federal, state, regional,

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[1] *The Grading Division of the Los Angeles Department of Building and Safety reviewed the Geotechnical Feasibility Report and provided comments. The assessment letter provided by the Grading Division of the Los Angeles Department of Building and Safety is included in Appendix D of this Recirculated Draft EIR.*

and local levels. As described below, these plans, guidelines, and laws include the following:

- Earthquake Hazards Reduction Act
- National Pollutant Discharge Elimination System (NPDES)
- Alquist-Priolo Earthquake Act
- Seismic Hazards Mapping Act
- California Coastal Management Program
- California Building Code
- California Division of Oil, Gas, and Geothermal Resources (CalGEM)
- Los Angeles General Plan Safety Element
- General Plan Conservation Element
- Los Angeles Municipal Code (LAMC)

(1) Federal

(a) Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1977 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the Earthquake Hazards Reduction Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended by the NEHRP Reauthorization Act of 2004 (Public Law 108-360).

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide local planning and building code requirements, such as emergency evacuation responsibilities, and seismic code standards, such as those to which a proposed project would be required to adhere.

(b) National Pollutant Discharge Elimination System (NPDES)

The NPDES Program has been responsible for substantial improvements to the water quality in the United States since 1972. The NPDES permit sets erosion control standards and requires implementation of nonpoint source control of surface drainage through the application of a number of Best Management Practices (BMPs). NPDES permits are required by Section 402 of the Clean Water Act.[2]

(2) State

(a) Alquist-Priolo Earthquake Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) was signed into law December 22, 1972 (revised in 1994), and codified into State law in the PRC as Division 2, Chapter 7.5 to address hazards from earthquake fault zones. The purpose of this law is to mitigate the hazard of surface fault rupture by regulating development near active faults. As required by the Alquist-Priolo Earthquake Fault Zoning Act, the State has delineated Earthquake Fault Zones (formerly Special Studies Zones) along known active faults in California, which vary in width around the fault trace from about 200 to 500 feet on either side of the fault trace. Cities and counties affected by the zones must regulate certain development projects within the zones. The State Geologist is also required to issue appropriate maps to assist cities and counties in planning, zoning, and building regulation functions. Local agencies enforce the Alquist-Priolo Earthquake Fault Zoning Act in the development permit process, where applicable, and may be more restrictive than State law requires. According to the Alquist-Priolo Earthquake Fault Zoning Act, before a project that is within an Alquist-Priolo Earthquake Fault Zone can be permitted, cities and counties shall require 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, a structure for human occupancy cannot be placed over the trace of the fault and must be set back a distance to be established by a California Certified Engineering Geologist. Although setback distances may vary, a minimum 50-foot setback is typically required.

[2] *USEPA, Clean Water Act, Section 402: National Pollutant Discharge Elimination System, www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system, accessed June 8, 2023.*

(b) Seismic Hazards Mapping Act

In order to address the effects of strong ground shaking, liquefaction, landslides, and other ground failures due to seismic events, the State of California passed the Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6). Under the Seismic Hazards Mapping Act, the State Geologist is required to delineate "seismic hazard zones." Cities and counties must regulate certain development projects within these zones until the geologic and soil conditions of their project sites have been investigated and appropriate mitigation measures, if any, have been incorporated into development plans. The State Mining and Geology Board provides additional regulations and policies to assist municipalities in preparing the Safety Element of their General Plans and to encourage the adaptation of land use management policies and regulations to reduce and mitigate seismic hazards to protect public health and safety. Under PRC Section 2697, cities and counties must require, prior to the approval of a project located in a seismic hazard zone, submission of a geotechnical report defining and delineating any seismic hazard.

(c) California Coastal Management Program

The California Coastal Commission (CCC) was established by voter initiative in 1972 and later made permanent by the Legislature through adoption of the California Coastal Act of 1976. In partnership with coastal cities and counties, the CCC plans and regulates the use of land and water in the Coastal Zone. Development activities, which are broadly defined by the Coastal Act to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the CCC or the local government. The Coastal Act includes specific policies (see Division 20 of the PRC) that address issues, such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. The policies of the Coastal Act constitute the statutory standards applied to planning and regulatory decisions made by the CCC and by local governments, pursuant to the Coastal Act. PRC Section 30253 states that new development shall minimize risks to life and property in areas of high geologic, flood, and fire hazard. Development should be prevented or limited in high hazard areas whenever possible. However, where development cannot be prevented or limited, land use density, building value, and occupancy should be kept at a minimum. Coastal Zones in the City of Los Angeles are also regulated in local coastal plans under the State Local Coastal Program.

(d) California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations (CCR), Part 2, was promulgated to safeguard the public health,

safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or those standards are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2022 edition of the CBC is based on the 2021 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2022 edition of the CBC was published by the California Building Standards Commission on July 1, 2022, and became effective January 1, 2023. Every three years, the State adopts new codes (known collectively as the California Building Standards Code) to establish uniform standards for the construction and maintenance of buildings, electrical systems, plumbing systems, mechanical systems, and fire and life safety systems. Sections 17922, 17958, and 18941.5 of the California Health and Safety Code require that the latest edition of the California Building Standards Code apply to local construction 180 days after publication. The significant changes to Title 24 in the 2022 edition can be found at California Department of General Services website.[3]

(e) California Division of Oil, Gas, and Geothermal Resources (CalGEM)

CalGEM regulates production of oil and gas, as well as geothermal resources, within the State of California. CalGEM requirements in preparation of environmental documents under CEQA are defined in CCR, Title 14, Division 2, Chapter 2. Staff also assists operators in avoiding or reducing environmental impacts from the development of oil, gas, and geothermal resources in California, including subsidence (pursuant to PRC Sections 3315 et seq.). CalGEM regulations, which are defined in CCR, Title 14, Division 2, Chapter 4, include well design and construction standards, surface production equipment and pipeline requirements, and well abandonment procedures and guidelines to ensure effectiveness in preventing migration of oil and gas from a producing zone to shallower zones, including potable groundwater zones, as well as subsidence.

[3] *California Department of General Services, California Building Standards Code, www.dgs.ca.gov/BSC/Codes#@ViewBag.JumpTo/, accessed June 8, 2023.*

(3) Local

(a) City of Los Angeles General Plan

(i) Safety Element

The City's General Plan Safety Element, which was adopted in 1996, addresses public safety risks due to natural disasters, including seismic events and geologic conditions, and sets forth guidance for emergency response during such disasters. The Safety Element also provides maps of designated areas within Los Angeles that are considered susceptible to earthquake-induced hazards such as fault rupture and liquefaction.

(ii) Conservation Element

The City's General Plan Conservation Element, adopted in September 2001, recognizes paleontological resources in Section 3: "Archeological and Paleontological" and identifies site protection as important, stating, "Pursuant to CEQA, if a land development project is within a potentially significant paleontological area, the developer is required to contact a bona fide paleontologist to arrange for assessment of the potential impact and mitigation of potential disruption of or damage to the site. Section 3 of the Conservation Element, includes policies for the protection of paleontological resources. As stated therein, it is the City's objective that paleontological resources be protected for historical, cultural research, and/or educational purposes. Section 3 sets as a policy to continue the identification and protection of significant paleontological sites and/or resources known to exist or that are identified during "land development, demolition, or property modification activities."

(b) Los Angeles Municipal Code

Chapter IX of the LAMC contains the City's Building Code, which incorporates by reference the CBC, with City amendments for additional requirements. LADBS is responsible for implementing the provisions of the LAMC. To that end, LADBS issues building and grading permits for construction projects. Building permits are required for any building or structure that is erected, constructed, enlarged, altered, repaired, moved, improved, removed, converted, or demolished. Grading permits are required for all grading projects other than those specifically exempted by the LAMC. LADBS has the authority to withhold building permit issuance if a project cannot mitigate potential hazards to the project or which are associated with the project. Throughout the permitting, design, and construction phases of a building project, LADBS engineers and inspectors confirm that the requirements of the LAMC pertaining specifically to geoseismic and soils conditions are being implemented by project architects, engineers, and contractors.

The function of the City's Building Code is to protect life safety and ensure compliance with the LAMC. Chapter IX addresses numerous topics, including earthwork and grading activities, import and export of soils, erosion and drainage control, and general construction requirements that address flood and mudflow protection, landslides, and unstable soils. Additionally, the LAMC includes specific requirements addressing seismic design, grading, foundation design, geologic investigations and reports, soil and rock testing, and groundwater.

Specifically, LAMC Section 91.1803 requires a Final Geotechnical Report with final design recommendations prepared by a California-registered geotechnical engineer and submitted to the LADBS for review prior to issuance of a grading permit. Final foundation design recommendations must be developed during final project design, and other deep foundation systems that may be suitable would be addressed in the Final Geotechnical Report. All earthwork (e.g., excavation, site preparation, any fill backfill placement, etc.) must be conducted with engineering control under observation and testing by a Geotechnical Engineer and in accordance with LADBS.

b. Existing Conditions

(1) Regional Geology

The Project Site is located in the west portion of the Los Angeles Basin, a seismically active coastal plain area bounded by the Santa Monica Mountains on the north, the Elysian Hills and Repetto Hills on the northeast, the Puente Hills and Whittier Fault on the east, the Palos Verdes Peninsula and Pacific Ocean on the west and south, and the Santa Ana Mountains and San Joaquin Hills on the southeast. The basin is underlain by a deep structural depression which has been filled by both marine and continental sedimentary deposits underlain by a basement complex of igneous and metamorphic composition. The basement surface within the central portion of the basin extends to a maximum depth of approximately 32,000 feet below sea level. Regionally, the Project Site is located within the northern portion of the Peninsular Ranges geomorphic province. This geomorphic province is characterized by northwest-trending physiographic and geologic features.

(2) Regional Faulting and Seismicity

The numerous faults in Southern California include active, potentially active, and inactive faults. Based on criteria established by the California Geological Survey, active faults are those that have shown evidence of surface displacement within the past 11,000 years (i.e., Holocene-age). Potentially active faults are those that have shown evidence of surface displacement within the last 1.6 million years (i.e., Quaternary-age). Inactive faults are those that have not shown evidence of surface displacement within the last 1.6 million

years. The Southern California region also includes blind thrust faults, which are faults without a surface expression. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. Since the seismic risk of these buried thrust faults in terms of recurrence and maximum potential magnitude is not well established, the potential for earthquakes with magnitude (M) higher than 6.0 occurring on buried thrust faults cannot be precluded. The known faults in the vicinity of the Project Site are discussed below and shown in Figure IV.D-1 on page IV.D-9.

(a) Active Faults

The Alquist-Priolo Earthquake Fault Zoning Act defines "active" and "potentially active" faults utilizing the same aging criteria as those used by the California Geological Survey, as described above. However, according to the Alquist-Priolo Earthquake Fault Zoning Act, only those faults which have direct evidence of movement within the last 11,000 years are required to be zoned. The California Geological Survey considers fault movement within this period a characteristic of faults that have a relatively high potential for ground rupture in the future.

As discussed in the Regulatory Framework above, the Alquist-Priolo Earthquake Fault Zoning Act requires the State Geologist to establish earthquake fault zones around the surface traces of active faults and to issue appropriate maps to assist cities and counties in planning, zoning, and building regulation functions. These zones, which generally extend from 200 to 500 feet on each side of a known active fault, are based on the location precision, complexity, or regional significance of the fault. The zones identify areas where potential surface fault rupture along an active fault could prove hazardous, and identify where special studies are required to characterize hazards to habitable structures. If a site lies within an Earthquake Fault Zone on an official California Geological Survey map, then a geologic fault rupture investigation must be performed before issuance of permits to demonstrate that the proposed development is not threatened by surface displacement from the fault.

As illustrated in Figure IV.D-1, no known active faults have been mapped within or immediately adjacent to the Project Site. In addition, the Project Site is not located within an Alquist-Priolo Earthquake Fault Zone. The closest major active (and zoned) fault near the Project Site is the Santa Monica Fault, located approximately 3.4 miles north of the Project Site, which could generate a maximum magnitude earthquake of 6.8.

(b) Seismicity

While no known active faults have been mapped across the Project Site and the Project Site is not located within an Alquist-Priolo Earthquake Fault Zone, the Project Site is located within the seismically active region of Southern California and would potentially

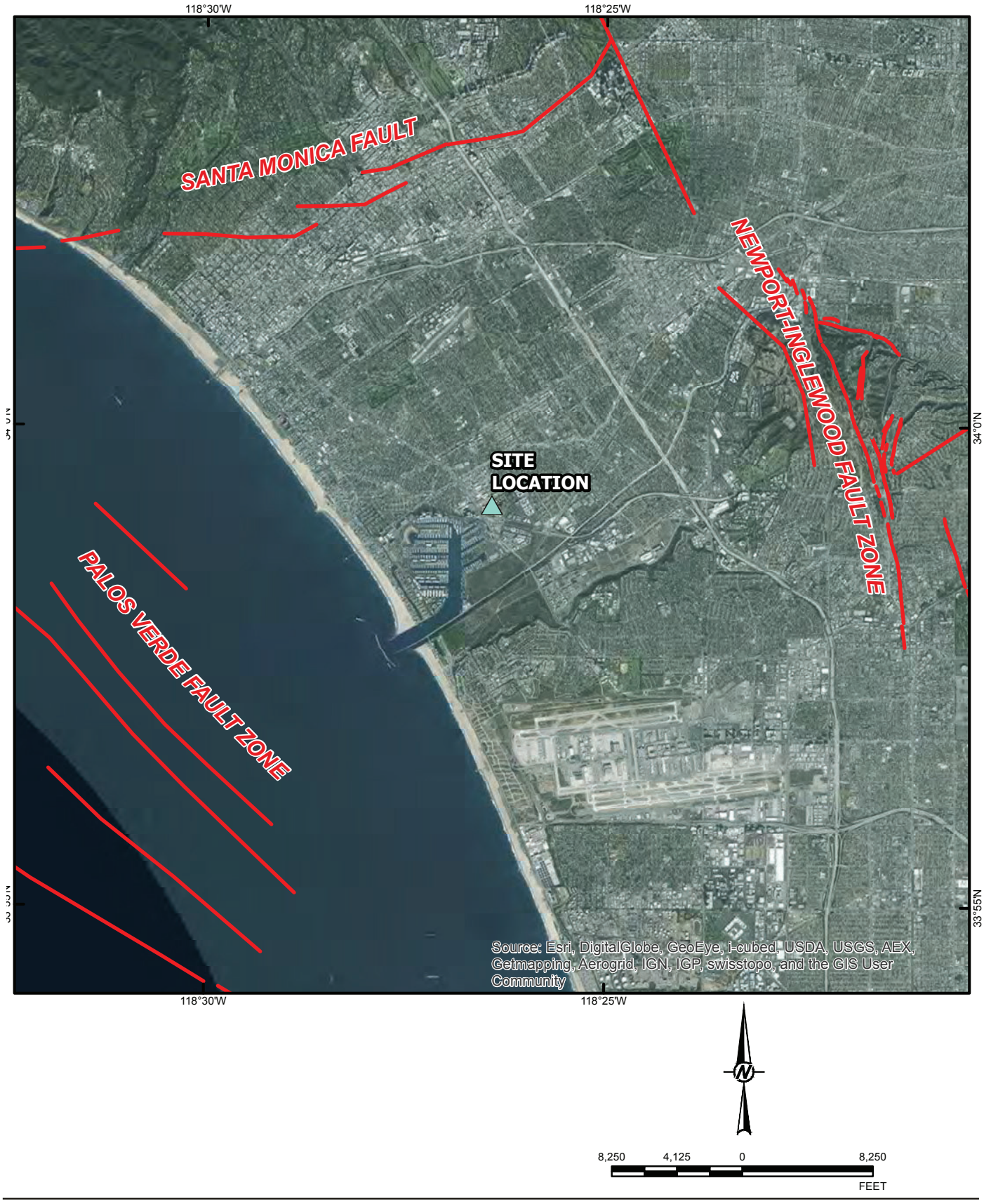

Figure IV.D-1
Regional Fault Map

Source: Golder Associates, 2017.

be subject to strong seismic ground shaking if a moderate to strong earthquake occurs on a local or regional fault.

(3) Local Geology

(a) Soil Conditions

The Project Site is relatively flat and generally characterized by gently sloping topography. According to the Geotechnical Investigation and Geotechnical Investigation Update, the Project Site is located on alluvial soils that are derived from the nearby Ballona Creek. The alluvial soils that underlie the Project Site are characterized primarily as silt and clay with layers of clayey sand and silty sand that extend approximately 16 to 20 feet below the Project Site. Further beneath the silt and clay is a layer of medium dense to very dense sand with silt and gravel that extends approximately 32 to 40 feet below the silt and clay layer. The sand with gravel layer is underlain by another layer of sand and clay that extended to the depth explored (59 feet).

(b) Groundwater

According to the Geotechnical Investigation and Geotechnical Investigation Update included in Appendix D of this Recirculated Draft EIR, the historic high groundwater level beneath the Project is approximately six feet below the existing ground surface. According to the Geotechnical Investigation Update, groundwater has been encountered at the Project Site at approximately 16 to 17 feet below ground surface.

(c) Liquefaction

Liquefaction is a phenomenon whereby saturated, granular soils lose their inherent shear strength due to excess pore water pressure buildup, such as that generated during repeated cyclic loading from an earthquake. Liquefaction is associated primarily with low density, granular, saturated soil in areas where the groundwater table is 50 feet or less below the ground surface. Liquefaction-related effects can include sand boils, excessive settlement, bearing capacity failures, and lateral spreading.

As illustrated in Figure IV.D-2 on page IV.D-11 and according to the California Geological Survey, the Project Site is located within an area prone to liquefaction.[4] In addition, the Project Site is located in an area that has been identified as being potentially susceptible to liquefaction in the City of Los Angeles Safety Element, and the City's Zoning

[4] *State of California, California Geologic Survey, Venice Quadrangle, Seismic Hazard Zones (March 25, 1999) Map.*

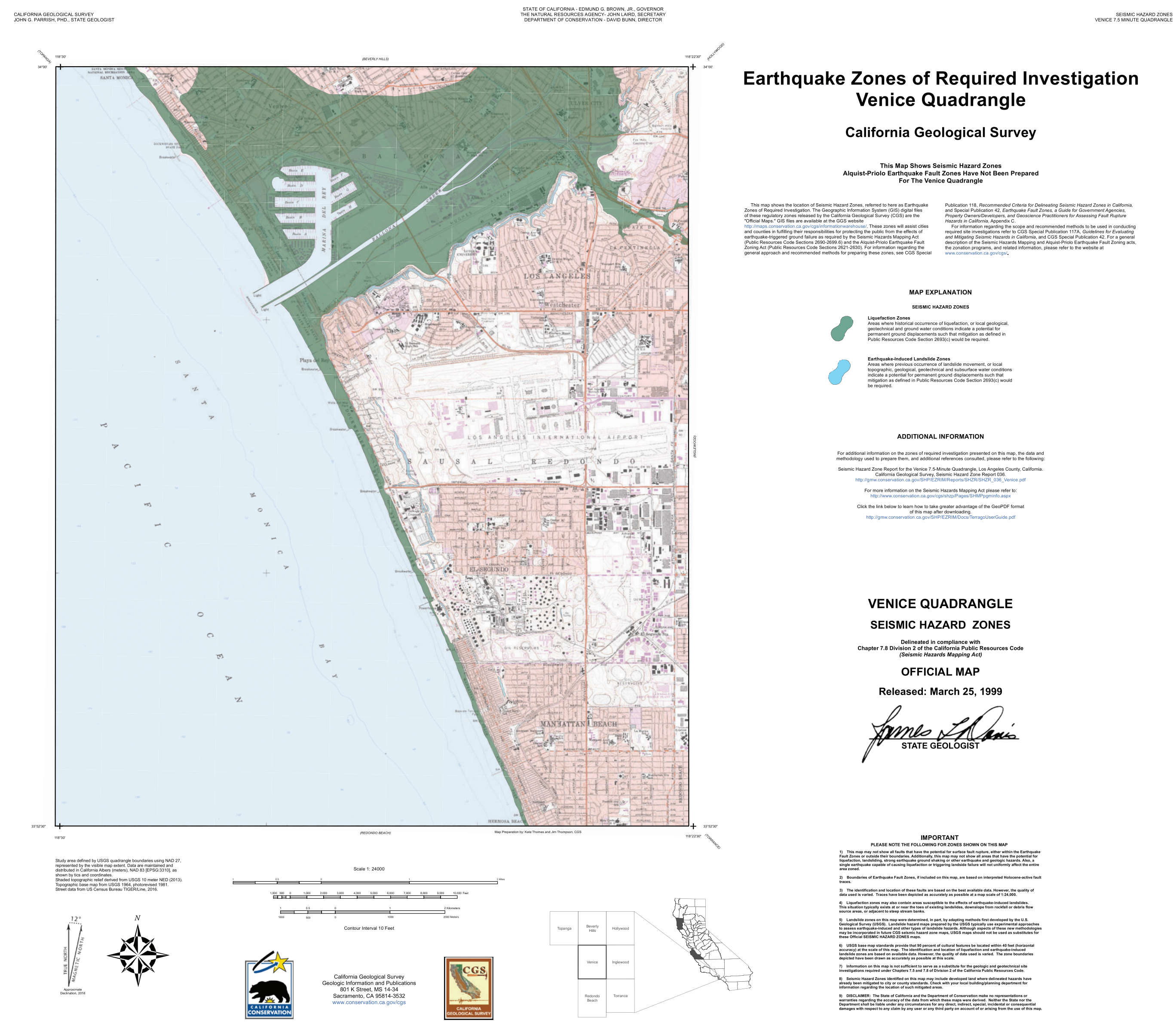

Figure IV.D-2
Seismic Hazard Map

Source: US Geological Survey, 1999.

Information and Map Access System.[5,6] Furthermore, according to the Geotechnical Investigation and Geotechnical Investigation Update, groundwater has been encountered at the Project Site at approximately 16 to 17 feet below ground surface. Thus, there is a potential for liquefaction and settlement to occur on the Project Site.

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, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area, such as an unlined river channel. Since there is a potential for liquefaction at the Project Site, there is also a potential for lateral spreading to occur at the Project Site.

(d) Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. According to the Geotechnical Investigation, the Southern California Gas Company operates a natural gas storage field beneath Playa del Rey, south of the Project Site. The natural gas storage area does not extend below the Project Site. Furthermore, no large-scale extraction of groundwater, gas, oil, or geothermal energy is occurring, or is planned at the Project Site. Therefore, there is little to no potential for ground subsidence due to withdrawal of fluid or gas at the Project Site.

(e) Expansive Soils

Expansive soils are soils that swell when subjected to moisture and shrink when dried. Expansive soils are typically associated with clayey soils. According to the Geotechnical Investigation, the alluvial soils on the Project Site have a low expansion potential.

(f) Other Geologic Conditions

(i) Corrosive Soils

Based on geotechnical explorations and sampling of the soil underlying the Project Site, the Project Site soils were found to be corrosive. Corrosive soils are characterized by their ability to degrade concrete and corrode ferrous materials in contact with water or soil.

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[5] *Los Angeles General Plan Safety Element, Exhibit B, Areas Susceptible to Liquefaction (November 1996), p. 49.*

[6] *City of Los Angeles Department of City Planning, ZIMAS, Parcel Profile Report, http://zimas.lacity.org/, accessed June 8, 2023.*

In particular, concrete is susceptible to corrosion when it is in contact with soil or water that contains high concentrations of soluble sulfates.

(ii) Oil Wells

According to the Division of Oil, Gas, and Geothermal Resources Regional Wildcat Map, the Project Site is not located within the limits of an oil field, and no oil wells have been drilled on the Project Site.[7] There are no active or abandoned oil/gas wells within the footprint of the Project Site. Therefore, the likelihood of encountering an abandoned oil/gas well during construction is low.

(iii) Methane

The Project Site is located within an area delineated by the City of Los Angeles as a Methane Buffer Zone. Methane is a naturally occurring gas associated with the decomposition of organic materials. In high-enough concentrations, between 50,000 parts per million and 150,000 parts per million by volume in the presence of oxygen, methane can be considered an explosion hazard.

A methane investigation was conducted for the Project Site and the results are provided in the Methane Report, included in Appendix E of this Recirculated Draft EIR. As discussed therein, 11 soil vapor probes were installed approximately five feet below ground surface throughout the Project Site. The methane probe readings indicated the highest methane readings occurred between 1,001 and 5,000 parts per million (high of 1,050 ppm) of methane by volume.

As provided in the Methane Report in Appendix E, the Project would comply with the City of Los Angeles' Methane Mitigation Ordinance No. 175,790. Under this ordinance, the Project Site is categorized as a Level III Site Design with a Design Methane Pressure of equal to and less than 2 inches in the water column. Refer to Section IV.F. Hazards and Hazardous Materials, of this Recirculated Draft EIR for further discussion of the Project's impacts related to methane.

(iv) Landform Alteration

No distinct or prominent geologic or topographic features such as hilltops, ridges, hillslopes, canyons, ravines, rock outcrops, water bodies, streambeds, or wetlands are located on the Project Site.

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[7] *Division of Oil, Gas, and Geothermal Resources Regional Wildcat Map 120.*

3. Project Impacts

a. Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the Project would have a significant impact related to geology and soils if it would result in any of the following:

Threshold (a): Directly or indirect cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- ***i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology[8] Special Publication 42.***
- ***ii. Strong seismic ground shaking.***
- ***iii. Seismic-related ground failure, including liquefaction.***
- ***iv. Landslides.***

Threshold (b): Result in substantial soil erosion or the loss of topsoil.

Threshold (c): Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

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

Threshold (e): Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater.

Threshold (f): Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

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[8] *The Division of Mines and Geology is now the California Geological Survey.*

For this analysis, the Appendix G Thresholds listed above are relied upon. The analysis utilizes factors and considerations identified in the City's L.A. CEQA Thresholds Guide, as appropriate, to assist in answering the Appendix G Threshold questions.

The L.A. CEQA Thresholds Guide identifies the following criteria to evaluate impacts related to geology and soils:

(1) Geologic Hazards

- Cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury.

(2) Sedimentation and Erosion

- Constitute a geologic hazard to other properties by causing or accelerating instability from erosion; or
- 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.

(3) Paleontological Resources

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resource; and
- Whether the paleontological resource is of regional or statewide significance.

(4) Landform Alteration

- One or more distinct and prominent geologic or topographic features would be destroyed, permanently covered or materially and adversely modified. Such features may include, but are not limited to, hilltops, ridges, hillslopes, canyons, ravines, rock outcrops, water bodies, streambeds and wetlands.

b. Methodology

To evaluate potential impacts relative to geology and soils, a Geotechnical Feasibility Report (Geotechnical Investigation) was prepared by Golder Associates, Inc., as provided in Appendix D, of this Recirculated Draft EIR. The Geotechnical Investigation included a review of published geologic data relevant to the Project Site, subsurface cone penetration tests, a soils test boring, and data from previous geological investigations performed adjacent to the Project Site. Additionally, a Geotechnical Investigation Update

was prepared by Geotechnical Professionals, Inc., as provided in Appendix D, of this Recirculated Draft EIR. The Geotechnical Investigation Update included a review of published geologic data relevant to the Project Site and data from previous geological investigations performed within and adjacent to the Project Site.

To address potential impacts associated with paleontological resources, a formal records search was conducted to assess the paleontological sensitivity of the Project Site and vicinity. In addition, an evaluation of existing conditions and previous disturbances within the Project Site, the geology of the Project Site, and the anticipated depth of grading were evaluated to determine the potential for uncovering paleontological resources.

c. Project Design Features

No specific project design features are proposed with regard to geology and soils.

d. Analysis of Project Impacts

As set forth in Section II, Project Description, of this Recirculated Draft EIR, the Project proposes two development options – Option A and Option B. Under Option A, the Project proposes the development of 658 multi-family residential units and up to 27,300 square feet of neighborhood-serving commercial uses, including up to approximately 13,650 square feet of retail space and up to approximately 13,650 square feet of restaurant space. Option B proposes the development of 425 multi-family residential units, 91,162 square feet of office space, and 40,165 square feet of neighborhood-serving commercial uses, including approximately 20,000 square feet of retail space and approximately 20,165 square feet of restaurant space. As the differences in the land use mix under the two development options do not affect the analyses related to geology and soils, the analysis of potential impacts associated with geology and soils provided below accounts for both development options and, the term “Project” used in the analysis below accounts for the potential impacts of both Option A and Option B.

Threshold (a): Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence

of a known fault? Refer to Division of Mines and Geology[9] Special Publication 42.

(1) Impact Analysis

Ground rupture is the visible breaking and displacement of the earth's surface along the trace of a fault during an earthquake. As previously discussed, based on research of available literature and the findings of the Geotechnical Investigation and Geotechnical Investigation Update, no known active or potentially active faults underlie the Project Site. In addition, the Project Site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone. According to the Geotechnical Investigation Update, the closest major active (and zoned) fault near the Project Site is the Santa Monica Fault, located approximately 3.4 miles north of the Project Site. Therefore, no active faults with the potential for surface fault rupture are known to pass directly beneath the Project Site, and the potential for surface rupture due to faulting occurring beneath the Project Site, is considered low. **Thus, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to fault rupture as no known active or potentially active faults underlie the Project Site. Impacts associated with surface rupture from a known earthquake fault would be less than significant.**

(2) Mitigation Measures

Project-level impacts related to fault rupture would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to fault rupture were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

Threshold (a): Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

ii. Strong seismic ground shaking?

[9] *The Division of Mines and Geology is now the California Geological Survey.*

(1) Impact Analysis

As described above, the Project Site is located within the seismically active region of Southern California and would potentially be subject to strong seismic ground shaking if a moderate to strong earthquake occurs on a local or regional fault. However, as discussed above, no active faults with the potential for surface fault rupture are known to pass directly beneath the Project Site. Additionally, state and local building code requirements, as discussed above in the Regulatory Framework, ensure that buildings are designed and constructed in a manner that, although the buildings may sustain damage during a major earthquake, would reduce the substantial risk that buildings would collapse. Specifically, the state and City mandate compliance with numerous rules related to seismic safety, including the Alquist-Priolo Earthquake Fault Zoning Act, Seismic Safety Act, Seismic Hazards Mapping Act, the City's General Plan Safety Element, and the Los Angeles Building Code. Pursuant to those laws, the Project must demonstrate compliance with the applicable provisions of these safety requirements before permits can be issued for construction of the Project. Accordingly, the design and construction of the Project would comply with all applicable existing regulatory requirements, the applicable provisions of the Los Angeles Building Code relating to seismic safety, and the application of accepted and proven construction engineering practices, including the specific geotechnical design recommendations set forth for the Project in the Geotechnical Investigation and Geotechnical Investigation Update.

Specifically, the Project would be required to comply with the Los Angeles Building Code, which incorporates current seismic design provisions of the 2022 California Building Code, with City amendments, to minimize seismic impacts. The 2022 California Building Code incorporates the latest seismic design standards for structural loads and materials, as well as provisions from the National Earthquake Hazards Reduction Program to mitigate losses from an earthquake and maximize earthquake safety. LADBS is responsible for implementing the provisions of the Los Angeles Building Code, and the Project would be required to comply with the plan review and permitting requirements of LADBS, including the recommendations provided in a final, site-specific geotechnical report subject to review and approval by LADBS. The final geotechnical report would include the recommendations of the Geotechnical Investigation and Geotechnical Investigation Update, both included in Appendix D of this Recirculated Draft EIR, and its final recommendations would be enforced by the LADBS for the construction of the Project. **Through compliance with regulatory requirements, including the implementation of the site-specific geotechnical recommendations contained in a final design-level geotechnical engineering report, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to strong seismic ground shaking. Thus, impacts related to strong seismic ground shaking would be less than significant.**

(2) Mitigation Measures

With implementation of regulatory requirements, Project-level impacts related to strong seismic ground shaking would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to strong seismic ground shaking were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

Threshold (a): Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

iii. Seismic-related ground failure, including liquefaction?

(1) Impact Analysis

As discussed above, according to the State of California Seismic Hazard Zones Map for the Venice Quadrangle, the Project Site is located within an area susceptible to liquefaction. The City's Safety Element also classifies the Project Site as part of an area that is susceptible to liquefaction. Furthermore, the City's Zoning Information and Map Access System indicates that the Project Site is located in an area that has been identified by the State as being potentially susceptible to liquefaction. As noted in the Geotechnical Investigation and Geotechnical Investigation Update, groundwater has been encountered at the Project Site at approximately 16 to 17 feet below ground surface.

According to the Geotechnical Investigation and Geotechnical Investigation Update, liquefaction is likely to occur at the Project Site in thin layers/lenses generally below 20 feet below ground surface. As discussed in Section II, Project Description, of this Recirculated Draft EIR, the Project (Option B) includes three subterranean parking levels that would extend to a depth of approximately 43 feet below ground surface. Therefore, as part of the construction of the subterranean parking levels, the liquefiable soil layers above the floor of the subterranean parking (i.e., approximately 43 feet below ground surface) would be removed during excavation. As such, the liquefaction potential within the Project Site would be addressed during construction of the Project.

As discussed above, liquefaction-related effects include sand boils, excessive settlement, bearing capacity failures, and lateral spreading. As provided in the Geotechnical Investigation and Geotechnical Investigation Update, the potential for liquefaction-related settlement would be addressed through the installation of mat foundations, as set forth in Mitigation Measure GEO-MM-1, below. Specifically, as detailed

in the Geotechnical Investigation and Geotechnical Investigation Update, with the implementation of mat foundations, the total estimated liquefaction-induced settlement (i.e., seismic settlement) is estimated to be 0.5 inch or less, and the differential seismic settlement is estimated to be 0.25 inch or less. The LADBS limits the total allowable settlement (including seismic) to 4 inches and the total allowable differential settlement (including seismic) to 2 inches. The total and differential settlements (including seismic) of the mat foundation of up to 0.5 inches and 0.25 inch, respectively, would be less than the limits set forth by the LADBS. With regard to lateral spreading, in order for lateral spreading to occur, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area, such as an unlined river channel. As described in Section II, Project Description, of this Recirculated Draft EIR, the Project Site is located in an urbanized area. In addition, the Project Site is relatively flat with a grade sloping to the south and east toward other existing developments. Furthermore, with the removal of the liquefiable soils and installation of mat foundations, the potential for liquefaction-related lateral spreading to occur within the Project Site would be addressed.

As stated above, the Project would also be required to comply with the permitting requirements of the LADBS, including the recommendations provided in a final design-level geotechnical report, as set forth below in Mitigation Measure GEO-MM-1. The final recommendations from that report would be enforced for the construction of the Project. The state and City also mandate compliance with numerous rules related to seismic safety, as provided above in Subsection 2.a, Regulatory Framework. Pursuant to those laws, and the mitigation measures proposed in this Recirculated Draft EIR, the Project must demonstrate compliance with the applicable provisions of these safety requirements before permits can be issued for the construction of the Project.

Based on the above, prior to mitigation, the Project could result in a potential substantial adverse effect, including the risk of loss, injury, or death related to liquefaction.

(2) Mitigation Measures

Project-level impacts related to liquefaction would be potentially significant. Therefore, the following mitigation measure is proposed:

Mitigation Measure GEO-MM-1: Prior to issuance of grading permits, the Applicant shall submit final design plans and a final design-level geotechnical report to the Los Angeles Department of Building and Safety for review and approval. The design-level geotechnical report shall be used for final design of the foundation system for the structures and shall take into consideration the engineering properties beneath the proposed structures and the projected loads. The final report shall

specify geotechnical design parameters that are needed by structural engineers to determine the type and sizing of structural building materials. The final report shall be subject to the specific performance criteria imposed by all applicable state and local codes and standards. The final geotechnical report shall be prepared by a registered civil engineer or certified engineering geologist and include appropriate measures to address seismic hazards and ensure structural safety of the proposed structure. The proposed structure shall be designed and constructed in accordance with all applicable provisions of the California Building Code and the Los Angeles Building Code. The design-level geotechnical report shall address each of the recommendations provided in the *Geotechnical Feasibility Report Marina Marketplace Phase III 13450 W. Maxella Avenue, Marina del Rey, California* prepared by Golder Associates, Inc., dated January 16, 2015 (Revised March 16, 2017) and as updated in the *Geotechnical Feasibility Report Update* dated September 11, 2020, including, but not limited to the following:

- A mat foundation shall be required on native soils with a static allowable bearing pressure per the final geotechnical recommendations.
- A mat foundation with an allowable passive resistance and friction factor shall be based on the recommendations of the geotechnical consultant.
- Waterproofing of the base and sides of the mat foundation shall be required to prevent moisture intrusion and water seepage through walls.
- Basement walls shall be designed per the recommendations of the final geotechnical report.
- Retaining walls shall be designed using the active and at-rest earth pressures provided in the final geotechnical report.
- Wall backfill specifications (e.g., material gradation, compaction requirements, etc.), and surcharge conditions shall be designed per the recommendations of final geotechnical report.
- Walls shall be provided with backdrains to prevent buildup of hydrostatic pressures behind walls or be designed to withstand hydrostatic pressures.
- Backdrains, if utilized, shall be designed per the recommendations of the final geotechnical report.
- Corrosivity testing shall be performed during the final design.
- Concrete mix design shall be reviewed by a qualified corrosion engineer to evaluate the general corrosion potential of the Project Site.

- Buried metallic structures and elements shall be designed with corrosions protection as determined by a qualified corrosion engineer.
- Project Site soils shall be evaluated for expansion in the final geotechnical report.
- All surface water shall be diverted away from excavations.
- All basement excavations including sloping and/or shoring shall be designed per the recommendations of the final geotechnical report.

(3) Level of Significance After Mitigation

Through compliance with regulatory requirements, site-specific geotechnical recommendations contained in a final design-level geotechnical engineering report, and adherence to the mitigation measures provided above, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to liquefaction. As such, with the implementation of Mitigation Measure GEO-MM-1, impacts associated with liquefaction would be reduced to a less than significant level. Overall, Project-level impacts related to liquefaction would be less than significant with implementation of mitigation.

Threshold (a): Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

iv. Landslides?

As summarized in Section VI, Other CEQA Considerations, of this Recirculated Draft EIR, and evaluated in the Initial Study prepared for the Project included in Appendix A of this Recirculated Draft EIR, landslides generally occur in loosely consolidated, wet soil and/or rocks on steep sloping terrain. The Project Site and surrounding area are fully developed and generally characterized by flat topography. The Project Site is not located in a landslide area as mapped by the City of Los Angeles, or within an area identified as having a potential for slope instability. The Project Site would not be susceptible to landslides and the Project would not exacerbate existing hazardous conditions related to landslides. **As determined in the Initial Study, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to landslides. As such, no impacts related to landslides would occur.**

Threshold (b): Would the project result in substantial soil erosion or the loss of topsoil?

(1) Impact Analysis

Development of the Project would require grading, excavation, and other construction activities that have the potential to disturb existing soils and expose soils to rainfall and wind, thereby potentially resulting in sedimentation and erosion. However, construction activities would occur in accordance with erosion control requirements, including grading and dust control measures, imposed by the City pursuant to grading permit regulations. Specifically, Project construction would comply with the Los Angeles Building Code, which requires permits, plans, plan checks, and inspections to ensure that the Project would reduce the sedimentation and erosion effects. In addition, as discussed in detail in Section IV.G, Hydrology and Water Quality, of this Recirculated Draft EIR, the Project would be required to have a Storm Water Pollution Prevention Plan (SWPPP) during construction pursuant to National Pollutant Discharge Elimination System permit requirements. As part of the SWPPP, Best Management Practices would be implemented during construction to reduce sedimentation and erosion levels. Once operational, the Project Site would be paved and landscaped. As such, the Project Site's underlying soils would not be exposed and there would be a limited potential for soil erosion to occur during operation of the Project. **With compliance with regulatory requirements that include the implementation of Best Management Practices, the Project's impacts from soil erosion or the loss of topsoil would be less than significant.**

(2) Mitigation Measures

Project-level impacts related to soil erosion or the loss of topsoil would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to soil erosion or the loss of topsoil were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

Threshold (c): Would the project 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?

(1) Impact Analysis

As evaluated in the Initial Study prepared for the Project included in Appendix A of this Recirculated Draft EIR and summarized in Section VI, Other CEQA Considerations, of this Recirculated Draft EIR, landslides generally occur in loosely consolidated, wet soil and/or rocks on steep sloping terrain. The Project Site and surrounding area are fully developed and generally characterized by flat topography. The Project Site is not located in a landslide area as mapped by the City of Los Angeles, or within an area identified as having a potential for slope instability. **The Project Site would not be susceptible to landslides. As such, no impacts related to landslides would occur.**

As previously discussed, subsidence generally occurs when a large portion of land is displaced vertically, usually due to the rapid and intensive withdrawal of subterranean fluids such as groundwater or oil. According to the Geotechnical Investigation, the Southern California Gas Company operates a natural gas field beneath Playa del Rey, located south of the Project Site. The natural gas storage area does not extend below the Project Site. Furthermore, as discussed in Section IV.G, Hydrology and Water Quality, of this Recirculated Draft EIR, in the event groundwater is encountered during construction of the Project, temporary dewatering or other groundwater control methods could be required within the Project Site. In the event dewatering is required during construction, a temporary dewatering system would be installed and operated in accordance with General National Pollutant Discharge Elimination System Permit requirements. The dewatering system would be designed in accordance with recommendations in the final design-level geotechnical report and such that dewatering-induced ground settlements would be localized and controlled so as not to impact existing adjacent structures. If dewatering is required, it would not involve a large-scale extraction of groundwater. In addition, no large-scale extraction of gas, oil, or geothermal energy is occurring, or is planned at the Project Site. **Therefore, there is little to no potential for significant ground subsidence due to withdrawal of fluid or gas at the Project Site. Impacts related to subsidence would be less than significant.**

The Project's potential impacts associated with liquefaction are addressed above in Threshold (a)iii. As discussed therein, as part of the construction of the subterranean parking levels, the liquefiable soil layers above the floor of the subterranean parking would be removed during excavation. As such, the liquefaction potential within the Project Site would be addressed during construction of the Project. As discussed above, liquefaction-related effects include sand boils, excessive settlement, bearing capacity failures, and lateral spreading. As provided in the Geotechnical Investigation and confirmed in the

Geotechnical Investigation Update, the potential for liquefaction-related settlement would be addressed through the installation of mat foundations, as set forth in Mitigation Measure GEO-MM-1, above. Specifically, as detailed in the Geotechnical Investigation, with the implementation of mat foundations, the total estimated liquefaction-induced settlement (i.e., seismic settlement) is estimated to be 0.5 inch or less, and the differential seismic settlement is estimated to be 0.25 inch or less. The LADBS limits the total allowable settlement (including seismic) to 4 inches and the total allowable differential settlement (including seismic) to 2 inches. The total and differential settlements (including seismic) of the mat foundation of up to 0.5 inches and 0.25 inch, respectively, would be less than the limits set forth by the LADBS. With regard to lateral spreading, in order for lateral spreading to occur, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area, such as an unlined river channel. As described in Section II, Project Description, of this Recirculated Draft EIR, the Project Site is located in an urbanized area. In addition, the Project Site is relatively flat with a grade sloping to the south and east toward other existing developments. Furthermore, with the removal of the liquefiable soils and installation of mat foundations, the potential for liquefaction-related lateral spreading to occur within the Project Site would be addressed. **Overall, as provided above, through compliance with regulatory requirements, site-specific geotechnical recommendations contained in a final design-level geotechnical engineering report, and implementation of the mitigation measures provided above, impacts associated with liquefaction and lateral spreading would be less than significant with implementation of mitigation.**

Collapsible soils consist of loose, dry, low-density materials that collapse and compact under the addition of water or excessive loading. Soil collapse occurs when the land surface is saturated at depths greater than those reached by typical rain events.[10] According to the Geotechnical Investigation, the Project Site is located on alluvial soils that are derived from the nearby Ballona Creek. The alluvial soils that underlie the Project Site are characterized primarily as silt and clay with layers of clayey sand and silty sand that extend approximately 16 to 20 feet below the Project Site. Further beneath the silt and clay is a layer of medium dense to very dense sand with silt and gravel that extends approximately 32 to 40 feet below the silt and clay layer. The sand layer is underlain by another layer of sand and clay that extended to the depth explored. Due to the type and density of the soils underlying the Project Site, the Project Site soils would not be considered collapsible soils. In addition, as discussed in Section IV.G, Hydrology and Water Quality, of this Recirculated Draft EIR, the subterranean levels of the Project would be designed such that they are able to withstand hydrostatic forces and incorporate comprehensive waterproofing systems in accordance with current industry standards and

[10] *ScienceDirect, Review of collapse triggering mechanism of collapsible soils due to wetting, www.sciencedirect.com/science/article/pii/S1674775516000032, accessed June 8, 2023.*

construction methods. **Therefore, the Project would not 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 collapse. Impacts related to collapse would be less than significant.**

(2) Mitigation Measures

As previously discussed, impacts related to liquefaction would be potentially significant prior to mitigation. To address potential impacts related to liquefaction, Mitigation Measure GEO-MM-1 is provided above.

(3) Level of Significance After Mitigation

Project-level impacts related to geologic or soil stability would be less than significant with implementation of mitigation.

Threshold (d): Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

(1) Impact Analysis

As discussed in the Geotechnical Investigation, the alluvial soils on the Project Site have a low expansion potential. **Therefore, the Project would not be located on expansive soil, which could create substantial direct or indirect risks to life or property. Thus, impacts related to expansive soils would be less than significant.**

(2) Mitigation Measures

Project-level impacts related to expansive soils would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to expansive soils were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

Threshold (e): Would the project 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 wastewater?

As evaluated in the Initial Study prepared for the Project included in Appendix A of this Recirculated Draft EIR and summarized in Section VI, Other CEQA Considerations, of this Recirculated Draft EIR, the Project Site is located within a community served by existing sewage infrastructure. The Project's wastewater demand would be accommodated by the connections to the existing wastewater infrastructure. **As determined in the Initial Study, the Project would not result in impacts related to the ability of soils to support septic tanks or alternative wastewater disposal systems. Therefore, the Project would have no impact related to the ability of soils to support septic tanks or alternative wastewater disposal systems.**

Threshold (f): Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

As evaluated in the Initial Study prepared for the Project, included in Appendix A of this Recirculated Draft EIR and summarized in Section VI, Other CEQA Considerations, of this Recirculated Draft EIR, according to a records search of the paleontological specimen and locality records held by the Vertebrate Paleontology Department of the Natural History Museum of Los Angeles (NHMLA), there are no vertebrate fossil localities that lie directly within the boundaries of the Project Site. However, the records search indicates that within the greater vicinity of the Project Site, there are fossil localities at depth in similar sediments as those underlying the Project Site. While the Project Site has been subject to grading and development in the past, the Project would require excavations at a depth of approximately 43 feet below ground surface, which could potentially disturb previously undiscovered paleontological resources. Therefore, the Project could potentially destroy a unique paleontological resource. Mitigation Measures CUL-MM-2 and CUL-MM-3 would be implemented during construction of the Project to ensure that the Project's potential impact on paleontological resources is addressed. **As determined in the Initial Study, with implementation of CUL-MM-2 and CUL-MM-3 included in the Initial Study, potential impacts to any previously undiscovered paleontological resources would be reduced to less than significant. As such, impacts with respect to Threshold (f) would be less than significant with mitigation incorporated.**

With regard to unique geological features, the Project Site is located within an urbanized area of the City of Los Angeles and has been subject to grading and development in the past. The Project Site does not include any known unique geologic features, and no unique geologic features are anticipated to be encountered during construction of the Project. **Therefore, as determined in the Initial Study, the Project**

would not directly or indirectly destroy a unique geologic feature. The impact associated with unique geologic features would be less than significant.

e. Cumulative Impacts

(1) Impact Analysis

Due to the site-specific nature of geological conditions (i.e., soils, geological features, subsurface 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 2027, the Project's anticipated build-out year (inclusive of the 14 related projects identified in Section III, Environmental Setting, of this Recirculated Draft EIR), would expose a greater number of people to seismic hazards. However, as with the Project, related projects and other future development projects 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 Building Code as well as site-specific geotechnical evaluations that would identify potential effects related to the underlying geologic and soil conditions for a particular related project site. **Therefore, with adherence to applicable regulations and any site-specific recommendations set forth in a site-specific geotechnical evaluation, the Project and related projects would not result in significant cumulative impacts related to geological and soil conditions. As such, the Project's contribution would not be cumulatively considerable, and cumulative impacts would be less than significant.**

With regard to potential cumulative impacts related to paleontological resources, the Project vicinity is located within an urbanized area that has been disturbed and developed over time. Therefore, any subsurface paleontological resources have likely been disturbed by present development. As with the Project, as part of the environmental review processes for the related projects, it is expected that mitigation measures would be established as necessary to address the potential for uncovering of paleontological resources. **Therefore, the Project and related projects would not result in significant cumulative impacts to paleontological resources. As such, the Project's contribution would not be cumulatively considerable, and cumulative impacts would be less than significant.**

(2) Mitigation Measures

Cumulative impacts related to geology and soils would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Cumulative impacts with regard to geology and soils were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.