CHAPTER 3.0 ENVIRONMENTAL EFFECTS FOUND NOT TO BE SIGNIFICANT

This chapter of the EIR provides discussions of those effects that were identified as potentially significant during the Initial Study or NOP process but were concluded not to be significant after further analysis.

3.1 Effects Found Not Significant as Part of the EIR Process

3.1.1 Geology and Soils

Advanced Geotechnical Solutions Incorporated (AGS) conducted a geotechnical investigation for the project site and a subsequent investigation for proposed off-site improvement areas. The investigations included field mapping, subsurface exploration and laboratory testing, and additional engineering and geologic analysis. The purpose of the investigation was to evaluate the surface and subsurface soil and geologic conditions and to provide recommendations as to the feasibility of project site development, along with off-site improvements. AGS also reviewed prior geotechnical studies conducted by Pacific Soils Engineering in 2006 and 2007 and reported on May 23, 2007. The geotechnical investigation and supplement prepared by AGS (2012a and 2012b) for the project is summarized below and can be found in its entirety in this EIR as Appendices N-1 and N-2.

3.1.1.1 Existing Conditions

Regulatory Framework

Development of the project is subject to a number of regulatory requirements and industry standards related to potential geologic and soil hazards. Geologic and soil requirements and standards typically involve measures to evaluate risk and minimize potential hazards through design and construction techniques. Summary descriptions of these regulatory guidelines are provided below.

Alquist-Priolo Earthquake Fault Zoning Act

The California Legislature, as a result of the devastation caused by the 1971 Sylmar earthquake, passed the Alquist-Priolo Earthquake Fault Zoning Act in 1972 (Public Resources Code, Division 2, Chapter 7.5, § 2621-2630). This state law requires that proposed developments incorporating tracts of four or more dwelling units investigate the potential for ground rupture within designated Alquist-Priolo Zones. These zones serve as an official notification of the probability of ground rupture during future earthquakes. Where such zones are designated, no building may be constructed on the line of the fault, and before any construction is allowed, a geologic study must be conducted to determine the locations of all active fault lines in the zone. The act also provides that a city or county may establish more restrictive policies, if desired. The project site is not within a state-designated Alquist-Priolo Zone.

California Building Code

The California Building Code (CBC) is based largely on the International Building Code. The CBC includes the addition of more stringent seismic provisions for hospitals, schools, and essential facilities. The CBC contains specific provisions for structures

located in seismic zones. Buildings within San Diego County must conform to Seismic Design Category D and E requirements.

Local Regulations

The Alquist-Priolo Act provides that a city or county may establish more restrictive policies than those within the Alquist-Priolo Act, if desired. The County established Special Study Zones that include late-Quaternary faults mapped by the California Division of Mines and Geology in the County. Late-Quaternary faults (movement during the past 700,000 years) were mapped based on geomorphic evidence similar to that of Holocene faults except that tectonic features are less distinct. Traces of faults within "Special Study Zones" are treated by the County as active unless a fault investigation can prove otherwise.

County Zoning Ordinance Sections 5400-5406 implement the requirements of the Alquist-Priolo Act. The provisions of sections 5400–5406 outline the allowable development, the permitting requirements, and the construction limitations within Fault Rupture Zones, as designated by the Alquist-Priolo Act. The County prohibits any buildings or structures to be used for human occupancy to be constructed over or within 50 feet of the trace of known fault (§5406, Zoning Ordinance).

Chapter 4 of the County Grading Ordinance (which commences at §87.101 of the County Code) includes requirements for the maximum slope allowed for cut and fill slopes, the requirement for drainage terraces on cut or fill slopes exceeding 40 feet in height, expansive soil requirements for cuts and fills, minimum setback requirements for buildings from cut or fill slopes, and reporting requirements including a soil engineer's report and a final engineering geology report by an engineering geologist, which includes specific approval of the grading as affected by geological factors.

County Building Code standards related to geotechnical concerns include applicable portions of the Uniform Building Code (UBC) and related CBC, along with specific County amendments. The County Building Code is implemented through issuance of building permits, which may encompass requirements related to preparation of soils reports and implementation of structural loading and drainage criteria.

Among other requirements, as outlined in subchapter 3.1.3, Hydrology and Water Quality, the County Stormwater Ordinance/Stormwater Standards Manual requires construction-related BMPs to address issues, including erosion and sedimentation.

The San Diego County General Plan Safety Element is intended to include safety considerations in the planning and decision-making process by establishing policies related to future development that will minimize the risk of personal injury, loss of life, property damage, and environmental damage associated with natural and man-made hazards. Of the geological hazards, seismic hazards pose the highest potential for causing widespread damage. All of San Diego County is located within Seismic Zone 4 (§1629.4.1 of the CBC), which is the highest Seismic Zone and, like most of southern California, is subject to ground shaking. Active faults in the region include segments of the San Jacinto, Elsinore, and Rose Canyon fault zones. Seismic hazard policies listed below reflect state law and adopted guidelines including the CBC, Alquist-Priolo Earthquake Fault Zoning Act, and the state's Guidelines for Evaluating and Mitigating Seismic Hazards in California (Special Publication 117).

Applicable goals and policies in the Safety Element include the following:

GOAL S-7

Reduced Seismic Hazards. Minimized personal injury and property damage resulting from seismic hazards.

Policies

S-7.1 Development Location. Locate development in areas where the risk to people or resources is minimized. In accordance with the California Department of Conservation Special Publication 42, require development be located a minimum of 50 feet from active or potentially active faults, unless an alternative setback distance is approved based on geologic analysis and feasible engineering design measures adequate to demonstrate that the fault rupture hazard would be avoided.

S-7.2 Engineering Measures to Reduce Risk. Require all development to include engineering measures to reduce risk in accordance with the CBC, UBC, and other seismic and geologic hazard safety standards, including design and construction standards that regulate land use in areas known to have or potentially have significant seismic and/or other geologic hazards.

S-7.3 Land Use Location. Prohibit high-occupancy uses, essential public facilities, and uses that permit significant amounts of hazardous materials within Alquist-Priolo and County special studies zones.

Environmental Setting

Geological Setting

The project site is located within the Peninsular Ranges Geomorphic Province, a region characterized by northwest-trending structural blocks and intervening fault zones. Typical lithologies in the Peninsular Ranges include a variety of igneous intrusive (i.e., formed below the surface) rocks associated with the Cretaceous (between approximately 65 and 135 million years old) Southern California Batholith (a large igneous intrusive body), with such igneous bodies typically intruded into older metavolcanic or metasedimentary units in western San Diego County.

This portion of San Diego County is made up of foothills that span elevations from 600 to 2,000 feet above MSL. It is characterized by rolling and hilly uplands that contain frequent narrow and winding valleys. The project site is in the lower rolling hills area.

The rolling hills are predominantly composed of tonalite of the Couser Canyon geologic formation with a minor amount of the granodiorite of Indian Mountain exposed at the northern boundary of the project site (AGS 2012a). Tonalite is an igneous, plutonic (intrusive) rock, of felsic composition, with phaneritic texture. Granodiorite is an intrusive igneous rock similar to granite, but containing more plagioclase than orthoclase-type feldspar. These two bedrock types are referred to with the more common term “granite” throughout this EIR. These igneous rocks are deeply (5 to 40 feet) weathered within the project site. The geologic units underlying the project site are characterized by weathered and decomposed granitic rocks with a very minor amount of exposed

outcrops of hard granitic boulder corestones. A relatively thin veneer of surficial units including undocumented artificial fill, topsoil, alluvium, and alluvial terrace deposits cap the granitic rocks. Attachments to the geotechnical investigation (see Appendixes N-1 and N-2) show the presently mapped location of the units. A brief description of the units is described below.

Surficial units on-site and off-site include undocumented artificial fill (afu), topsoil (unmapped), Quaternary alluvium (map symbol Qal), and Quaternary older alluvium (map symbol Qoal). On-site soils are shown on Figure 2.4-2. Detailed descriptions of these units are presented below.

Artificial Fill, Undocumented (afu)

Undocumented artificial fills are located throughout the project site and off-site improvement areas, and are associated with past and present land use, including residential construction, farming operations, private roadway construction, local water retention embankments, utility construction, pad areas, and other associated land uses. The mapped locations of the most prominent fills are shown on the accompanying plates; however, due to the map scale numerous lesser fills are present but unmapped. Future studies may determine documentation regarding the engineering of fills and how present site development plans would impact the function of these fills. The vast majority of the fills is locally derived and consist of light reddish brown, clayey and silty sands that are commonly dry to slightly moist and loose to moderately dense.

Topsoil (no map symbol)

Surficial weathering over the majority of the project site and off-site areas has resulted in a thin veneer of topsoil. The topsoil is composed of medium brown to reddish brown clayey to silty sands that are dry to slightly moist and loose to moderately dense.

Quaternary Alluvium (Qal)

Alluvial deposits occupy the canyon areas and active drainage courses throughout the project site and off-site improvement areas. The Holocene-aged alluvium varies from a light orange brown to light to medium brown silty and clayey sand to sandy silt that is damp to locally wet, loose and soft to moderately dense and firm. The thickness of the alluvium logged in the on-site borings and trenches reached maximum depths of 13 to 14 feet and are likely deeper in unexplored areas such as portions of the dominant drainage on the southwest portion of the project site. Off-site improvement areas have alluvium from a few feet to greater than 15 feet below the surface, with the deeper deposits found in the Highway 395 and Circle R Road improvement area.

Quaternary Older Alluvium (Qoal)

Early Holocene to Pleistocene Older Alluvium has been mapped on-site and in off-site improvement areas, and is evident in some areas as a distinct geomorphic surface. It has also been observed in some areas on- and off-site below the younger alluvial deposits where it was not removed by erosion by the two distinct depositional episodes. The Older Alluvium has distinctly well-developed reddish to orange-brown color due to its age and exposure to weathering elements since its deposition. Composed of silty to

clayey sands that are moderately hard to hard and slightly moist to moist, the moderately oxidized earth material is well consolidated.

"Granitic Rocks" (Kgr)

Identified and discussed as "granite," the tonalite of Couser Canyon is a "granitic-type" rock that underlies the entire project site and off-site areas with a small exception of some granodiorite of Indian Mountain, along the northern boundary of the project and West Lilac Road. In most areas this unit is deeply weathered and hard boulder corestones were observed at ground surface in only a few areas (AGS 2012a).

Soils

Soil types within the project site and off-site improvement areas consist of a series of sandy loam, coarse sandy loam, sand, and steep gullied land (SANDAG 1995). Sandy loam and coarse sandy loam soils in the following soil series are present: Bonsall, Cieneba, Fallbrook, Greenfield, Placentia, and Visalia (see Figure 2.4-2). Soils on steeper slopes and in gully bottoms are characterized as steep gullied land. These soil types are derived from weathered and decomposed granite or granodiorite. Runoff is described as moderate to rapid and the erosion hazard is on average moderate for these soil types.

Unique Geological Features

Unique geologic features are not common in San Diego. The geologic processes are generally the same as those in other parts of the state, country, and even the world. However, some features stand out as being unique in one way or another within the boundaries of the County. Geologic formations, their structure, and the fossils in them provide information about past environments. Fossil localities and other significant geologic features were identified in the County's Natural Resources Inventory prepared in the early 1970s, which covered the entire County including incorporated areas. For the Natural Resources Inventory, the locations of the features were obtained from published reports and interviews with geologists and paleontologists who did field work in San Diego County up to the early 1970s. In cataloging the unique geologic features, the focus was on fossil localities and less emphasis was given to unique landforms and geologic structures (County of San Diego 2007g). There are no unique geological features identified on the project site or within off-site improvement areas.

Geologic Structure and Seismicity

The San Andreas fault zone is the dominant and controlling tectonic stress regime of southern California. As the boundary between the Pacific and North American structural plates, this northwest trending right lateral, strike–slip, active fault has controlled the crustal structural regimes of southern California since Miocene time. Numerous related active fault zones with a regular spacing, including the Elsinore-Whittier-Chino, Newport-Inglewood-Rose Canyon, and San Jacinto fault zones characterize the stress regime and also trend to the northwest as do the Santa Ana Mountains and the Peninsular Ranges.

The Temecula section (Wildomar Fault) of the Elsinore fault zone is closest to the project site and is located 7.8 miles to the northeast. The next closest fault zone to the project

site is the Oceanside section of the Newport-Rose Canyon fault zone at approximately 20 miles to the southwest. The Anza section of the San Jacinto fault zone is approximately 32 miles to the northeast and the San Bernardino section of the San Andreas fault zone is about 55 miles to the northeast.

Seismic Hazards

Earthquake-related geologic hazards pose a significant threat and can impact extensive regions of land. Earthquakes can produce fault rupture and strong ground shaking, and can trigger landslides, soil liquefaction, tsunamis, and seiches. In turn, these geologic hazards can lead to other hazards such as fires, dam failures, and chemical releases.

Primary effects of earthquakes include violent ground shaking, and sometimes permanent displacement of land associated with surface rupture. Ground shaking is the earthquake effect that produces the vast majority of damage. The project site and off-site improvements are not within a County near-source shaking zone (see Appendixes N-1 and N-2). The project site and off-site areas are within Seismic Design Category D of the CBC. Major earthquakes occurring on the Elsinore Fault System could subject the project site to moderate-to-severe ground shaking within the life span of the structures associated with the project.

Secondary effects of earthquakes include near-term phenomena such as liquefaction, landslides, fires, tsunamis, seiches, and floods. Long-term effects associated with earthquakes include phenomena such as regional subsidence or emergence of landmasses and regional changes in groundwater levels.

Liquefaction occurs primarily in saturated, loose, sandy soils in areas where the groundwater table is generally 50 feet or less below the surface. The project site and off-site improvement areas are not located within any identified Liquefaction Hazard Zones, as mapped by the County. However, there are potentially liquefiable soils present, as alluvium underlies portions of the project site and off-site improvement areas.

Landslides are commonly defined as the movement of rock, detritus, or soils caused by the action of gravity. Landslides can be triggered by one or more specific events, or a combination of events, such as seismic activity, gravity, fires, and precipitation. The project site is not within or adjacent to a “Landslide Susceptibility Area”, as designated by the County’s Multi-jurisdictional Hazard Mitigation Plan (County of San Diego 2010d). No evidence of past landsliding or debris flows has been mapped within the project site or off-site improvement areas (see Appendixes N-1 and N-2).

Expansive Soils

Certain types of clay soils expand when they are saturated and shrink when dried. These are called “expansive soils” and can pose a threat to the integrity of structures built on them without proper engineering. Based upon the sampling and associated laboratory testing conducted by AGS and Pacific Soils Engineering, near surface soils in on- and off-site project areas are considered to exhibit “very low” to “moderately” expansive potential, with the majority of the soils being classified as having “very low” to “low” expansion potential. No specific areas were identified on- or off-site where soils with high expansion characteristics are present.

3.1.1.2 Analysis of Project Effects and Determination as to Significance

The project would result in a significant impact if it would:

1. *Exposure to Seismic-related Hazards*: Expose people or structures to substantial adverse impacts involving rupture of a known earthquake fault or other seismic-related hazards.

2. *Soil Erosion/Loss of Topsoil*: Result in substantial soil erosion or the loss of topsoil.

3. *Soil Stability*: Be located on unstable soils, or would become unstable due to the project, and would be exposed to seismic-related hazards.

4. *Expansive Soils*: Be located on expansive soil, creating substantial risks to life or property.

5. *Wastewater Disposal Systems*: Have soils incapable of adequately septic tanks or alternative waste water disposal systems.

6. *Unique Geologic Feature*: Directly or indirectly destroy a unique geologic feature.

Issue 1: Exposure to Seismic-Related Hazards

Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, the project would have a significant impact if it would expose people or structures to potential substantial adverse impacts, 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 or based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction or landslides.

Specifically, based on the County of San Diego Guidelines for Determining Significance – Geologic Hazards (County of San Diego 2007g), the project would result in a significant impact from fault rupture if:

a. The project proposes any building or structure to be used for human occupancy over or within 50 feet of the trace of an Alquist-Priolo Fault or County Special Study Zone Fault.

b. The project proposes the following uses within an Alquist-Priolo Zone which are prohibited by the County:

    i. Uses containing structures with a capacity of 300 people or more. Any use having the capacity to serve, house, entertain, or otherwise accommodate 300 or more persons at any one time.

    ii. Uses with the potential to severely damage the environment or cause major loss of life. Any use having the potential to severely damage the environment

or cause major loss of life if destroyed, such as dams, reservoirs, petroleum storage facilities, and electrical power plants powered by nuclear reactors.

iii. Specific civic uses. Police and fire stations, schools, hospitals, rest homes, nursing homes, and emergency communication facilities.

The project would result in a significant impact from ground shaking if the project site is located within Seismic Design Category E and F of the CBC and the project does not conform to the CBC.

The project would have the potential to expose people or structures to substantial adverse effects from liquefaction if:

a. The project site has potentially liquefiable soils; and

b. The potentially liquefiable soils are saturated or have the potential to become saturated; and

c. In-situ soil densities are not sufficiently high to preclude liquefaction.

The project would result in a significant impact from landslide risk if:

a. The project site would expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving landslides.

b. The project is located on a geologic unit or soil that is unstable, or would become unstable as a result of the project, potentially resulting in an on- or off-site landslide.

c. The project site lies directly below or on a known area subject to rockfall which could result in collapse of structures.

Analysis

Fault Rupture

No Alquist-Priolo Earthquake fault zones or San Diego County fault zones are located on-site or within the off-site improvement areas. The most influential geologic faults potentially affecting the project site are the active and potentially active Williard, Wildomar, Wolf Valley, and Temecula segments of the Elsinore Fault System. No faults have been mapped on-site or within the off-site improvement areas on published geologic maps and none were observed during this and previous geologic studies. Since there are no known active faults on the project site or within the off-site improvement areas, the potential impact of rupture of a known earthquake fault is **less than significant**.

Ground Shaking

As discussed above, the project site and off-site improvement areas are not within a County near-source shaking zone (see Appendixes N-1 and N-2). The project site and off-site improvement areas are within Seismic Design Category D of the CBC. Major

earthquakes occurring on the Elsinore Fault System could subject the project site and off-site improvement areas to moderate-to-severe ground shaking within the life span of the structures associated with the project. As part of the geotechnical investigation, earthquake shaking hazards were calculated. Residential and commercial structures would be constructed to withstand the peak ground motions identified in the geotechnical investigation. This would be verified prior to the issuance of a grading permit.

Critical structures, such as the school and WRF, would require a subsequent site-specific geotechnical investigation, prior to issuance of a building permit, which would detail ground motion parameters with respect to the particular structure.

The project site is considered to be comparable to the surrounding developed area with respect to seismic shaking. Construction of all proposed structures would be in conformance with the CBC, as well as all recommendations found in Section 7.0 of the geotechnical investigation, thereby reducing the potential impacts associated with strong seismic shaking to a level that is **less than significant**.

Liquefaction

The project site and off-site improvement areas are not located within any identified Liquefaction Hazard Zones, as mapped by the County. However, there are potentially liquefiable soils present, as alluvium underlies portions of the project site and off-site improvement areas. The geotechnical investigations (see Appendixes N-1 and N-2) identify measures to reduce potential impacts associated with liquefaction. The geotechnical investigations states that, after remedial grading, saturated alluvium would be entirely removed within the project's development footprint areas. The remedial grading and removal of alluvium, as recommended by the geotechnical investigation, would reduce potential impacts associated with liquefaction, including lateral spreading and dynamic settlement, to **less than significant**.

Landslides

The project site and off-site improvement areas are not within or adjacent to a "Landslide Susceptibility Area," as designated by the County's Multi-jurisdictional Hazard Mitigation Plan (County of San Diego 2010d). The majority of the project site and off-site improvement areas slope to the southwest at shallow to moderate slope ratios and is capped by a relatively thin veneer of surficial earth material underlain by granitic rocks and is not considered susceptible to mass wasting. No evidence of past landsliding or debris flows has been mapped within the project site or off-site improvement areas. Since there is no steep terrain off-site or on-site, the potential for debris flows emanating from the mouths of the up-gradient drainages is considered to be low. The potential for rock fall is considered to be very low given the lack of rock outcrops within the proposed limits of the development and off-site improvement areas. The potential for seismically induced landslides on engineered fill slopes is considered to be very low. Likewise, the potential for seismically induced landslides on cut slopes excavated in the granitic rock, or on the remaining shallow natural slopes, is considered to be very low. Overall, impacts associated with landslides would be **less than significant**.

Additional standard practices that would be implemented in order to reduce impacts associated with seismic hazards include review of project plans by a geotechnical engineer to ensure compatibility with geotechnical conclusions, review and appropriate

modification of applicable field activities by the geotechnical engineer (e.g., grading and manufactured slope construction), and conformance with appropriate regulatory guidelines and industry standards for project design and construction elements. Specifically, such conformance would encompass design and construction elements such as seismic loading, excavation, and grading (e.g., removal of unsuitable materials and site preparation); fill parameters (e.g., composition, moisture content, and application methodology), foundations, and footings; manufactured slopes/retaining walls; pavement; drainage; and oversize materials.

The above recommendations and standards have been included in the project environmental design considerations (see Table 1-3), where applicable, and are part of project design. The potential for seismic hazards take these design and related considerations into account. Overall, impacts associated with seismic hazards would be **less than significant.**

Issue 2: Soil Erosion or Loss of Topsoil

Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, the project would have a significant impact if it would result in substantial soil erosion or the loss of topsoil.

Analysis

Proposed grading, excavation, demolition, and construction activities associated with the project would increase the potential to expose topsoil to erosion. While graded or excavated areas and fill materials would be stabilized through efforts such as compaction and installation of hardscape and landscaping, erosion potential would be higher during construction of the project than under existing conditions. Erosion and sedimentation are not considered to be significant long-term concerns for the project, as all developed areas would be stabilized through the installation of hardscape, landscaping, or native revegetation. The project would also incorporate long-term water quality controls pursuant to the County Stormwater Ordinance, Stormwater Standards Manual, and related National Pollutant Discharge Elimination System (NPDES) Municipal Permit requirements, including measures to avoid or reduce erosion and sedimentation effects, as detailed in subchapter 3.1.3, Hydrology and Water Quality. Short-term erosion and sedimentation impacts would be addressed through conformance with the NPDES Construction Permit and County Stormwater Ordinance/Stormwater Standards Manual which include developing and implementing an authorized SWPPP for proposed construction, including erosion and sedimentation BMPs. Overall, the project design includes erosion control measures and a landscaping plan that comply with current San Diego County regulations (including the County Grading Ordinance, the CBC, and the Watershed Protection Ordinance), to prevent soil erosion on- and off-site (see Table 1-3). Therefore, impacts associated with erosion, loss of topsoil, and siltation would be **less than significant**.

Issue 3: Soil Stability

Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance – Geologic Hazards (County of San Diego 2007g), the project would have a potentially significant impact if it would 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.

Analysis

The project would result in a significant impact if future development would be located in geologically hazardous areas, as described above, under Guidelines for Determining Significance. The soil stability risks that can cause such geologic hazards are addressed individually below.

Landslide, Lateral Spreading, or Collapse

Landslides can be caused by ground shaking from an earthquake or water from rainfall or other origins that infiltrate slopes with unstable material. Lateral spreading is shallow, water-saturated landslide deformation often triggered from seismically induced liquefaction. Collapse refers to collapsible soils, which may appear to be strong and stable in their natural (dry) state, but then rapidly consolidate under wetting, generating large and often unexpected settlements.

As discussed above under Issue 1, potential impacts due to landslides would be less than significant. Potential impacts resulting from lateral spreading would be less than significant, due to the removal of alluvial deposits, as recommended in the geotechnical investigations (see Appendixes N-1 and N-2). There is a potential for differential settlement due to collapsible soils that may consolidate under wet conditions. Recommendations set forth in the geotechnical investigations have been incorporated into the project design in order to reduce impacts associated with collapsible soils, including removal/recompaction measures and foundation design measures. For example, the geotechnical investigations recommend that removal of unsuitable soils would be required prior to fill placement along the project grading limits. A 1:1 projection, from toe of slope or grading limit, outward to competent materials should be established, when possible. Additional standard design measures are also detailed in Table 1-3. Implementation of the recommended grading, structural design, and civil engineering design measures detailed in the geotechnical investigation would reduce potential impacts associated with landslides, lateral spreading, and collapsible soils to **less than significant.**

Subsidence

Subsidence refers to elevation changes of the land whether slow or sudden. Subsidence can cause a variety of problems including broken utility lines, blocked drainage, or distorted property boundaries and survey lines. According to the geotechnical investigations (see Appendixes N-1 and N-2), the underlying geologic formations on the

project site and off-site improvement areas are mostly granitic, which have a very low potential of subsidence. Impacts would be **less than significant**.

Liquefaction

As discussed in Issue 1, there are potentially liquefiable soils on-site and in off-site improvement areas. The remedial grading and removal of alluvium, as recommended by the geotechnical investigations (see Appendixes N-1 and N-2), would reduce potential impacts associated with liquefaction to **less than significant**.

Issue 4: Expansive Soils

Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance – Geologic Hazards (County of San Diego 2007g), the project would have a significant impact if it would be located on expansive soil, as defined in Section 1802A.3.2 of the CBC, creating substantial risks to life or property.

Analysis

On-Site Conditions

Based upon the sampling and associated laboratory testing conducted by AGS and Pacific Soils Engineering, on-site and off-site improvement areas have near surface soils that are considered to exhibit “very low” to “moderately” expansive potential, with the majority of the soils being classified as having “very low” to “low” expansion potential. No specific areas were identified on- or off-site where soils with high expansion characteristics are present. It is possible that during grading operations, clay soils with high expansion characteristics may be found in filled fractures of rock. As detailed in Section 7 of the Geotechnical Investigation, upon the completion of rough grading, finish grade samples should be collected and tested to develop specific recommendations as they relate to final foundation design recommendations for individual lots. Structural project design measures are to be included in the project to reduce potential impacts from expansive soils, including the following: a revised foundation design; and additional grading measures, which may include pre-saturation and overexcavation. Compliance with the recommendations set forth in the geotechnical investigations (see Appendixes N-1 and N-2) prepared for this project would ensure impacts associated with expansive soils are **less than significant**.

Issue 5: Wastewater Disposal Systems

Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, the project would have a significant impact if it would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Analysis

The project would not allow the use of septic tanks or alternative wastewater disposal systems. Commercial and residential structures would use sewers that would connect to the Lower Moosa Canyon WRF and/or the on-site WRF. The analysis of wastewater treatment options are detailed in subchapter 3.1.3. The removal of existing septic tanks is discussed in subchapter 2.7, Hazards and Hazardous Materials. Therefore, because the project does not propose septic or alternative disposal systems, impacts would be **less than significant**.

Issue 6: Unique Geologic Feature

Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, the project would have a significant impact if it would directly or indirectly destroy a unique geologic feature.

Based on the County's Guidelines for Determining Significance – Unique Geology (San Diego County 2007h), a significant impact would occur if the project would materially impair a unique geologic feature by destroying or altering those physical characteristics that convey the uniqueness of the resource. A geologic feature is unique if it meets one of the following criteria:

a. Is the best example of its kind locally or regionally;

b. Embodies the distinctive characteristics of a geologic principle that is exclusive locally or regionally;

c. Provides a key piece of geologic information important in geology or geologic history;

d. Is a "type locality" of a formation;

e. Is a geologic formation that is exclusive locally or regionally;

f. Contains a mineral that is not known to occur elsewhere in the County; or

g. Is used repeatedly as a teaching tool.

Analysis

According to the geotechnical investigations (see Appendixes N-1 and N-2), there are no unique geologic features on-site or in proximity to off-site improvement areas. Therefore, the project would not directly or indirectly destroy a geologic feature that meets the above criteria. There would be **no impact** associated with the destruction of a unique geologic feature.

3.1.1.3 Cumulative Impact Analysis

Issue 1: Exposure to Seismic-related Hazards

All potential geological hazard impacts would be avoided or reduced below identified significance guidelines through conformance with geotechnical recommendations and established regulatory requirements as part of the project design. Potential geology and soils impacts are inherently restricted to the areas proposed for development and would not contribute to cumulative impacts associated with other planned or proposed development. As with the project, cumulative area projects with similar potential would be required to implement similar site-specific measures to address potential impacts to seismic hazards. Because of the site-specific nature of these potential hazards and the measures to address them, there would be no connection to similar potential issues or cumulative effects to or from other properties. The project, in combination with other cumulative projects, would result in a **less than significant** contribution to a cumulatively considerable impact.

Issue 2: Soil Erosion/Loss of Topsoil

Potential impacts related to erosion and siltation are less than significant due to erosion control measures, adherence to the recommendations of the geotechnical investigations (see Appendixes N-1 and N-2), landscaping plans, and conformance with current San Diego County regulations, as well as the CBC. Based on the strict requirements identified in the listed NPDES permits and the fact that other planned and proposed developments in the project vicinity would be required to implement similar controls, the project in combination with other cumulative projects, would result in a **less than significant** contribution to a cumulatively considerable impact.

Issue 3: Soil Stability

Potential soil stability impacts would be reduced or avoided altogether through implementation of recommendations of the geotechnical investigations (see Appendixes N-1 and N-2), which would ensure compliance with the CBC. Other development projects in the area would be similarly required to comply with the CBC, and would have to demonstrate compliance during environmental review. Cumulative project compliance with existing regulations would ensure that a significant cumulative impact would not occur. The project, in combination with other cumulative projects, would result in a **less than significant** contribution to a cumulatively considerable impact.

Issue 4: Expansive Soils

No highly expansive soils were found on-site or in off-site improvement areas; if encountered, impacts would be avoided through implementation of recommendations of the geotechnical investigation, which would ensure compliance with the CBC. Other development projects in the area would be similarly required to comply with the CBC, and would have to demonstrate compliance during environmental review. Cumulative project compliance with existing regulations would ensure that a significant cumulative impact associated with expansive soils would not occur. The project, in combination with other cumulative projects, would result in a **less than significant** contribution to a cumulatively considerable impact.

Issue 5: Wastewater Disposal Systems

The project would not allow the use of septic tanks or alternative wastewater disposal systems. Other cumulative projects within the area that may require the use of wastewater disposal systems would be evaluated on a project-by-project basis, and would be required to comply with existing regulations regarding the placement of septic tanks. The project, in combination with other cumulative projects, would result in a **less than significant** contribution to a cumulatively considerable impact.

Issue 6: Unique Geologic Feature

The project would not directly or indirectly destroy a unique geologic feature. Cumulative projects would be subject to environmental review by the County, and thus would be evaluated on a project-by-project basis for potential impacts to unique geologic features that were identified in the Natural Resources Inventory. The project, in combination with other cumulative projects, would result in **no** contribution to a cumulatively considerable impact.

3.1.1.4 Conclusion

No geologic or soil conditions were encountered that would significantly affect the development of the project provided the grading is completed in accordance with the CBC, the County Grading Ordinance, and the geotechnical reports' recommendations. These recommendations are listed as project design considerations in Table 1-3 and would preclude impacts associated with geologic hazards resulting from implementation of the project.

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