CHAPTER 7.0 LIST OF MITIGATION MEASURES AND ENVIRONMENTAL DESIGN CONSIDERATIONS

7.1 Aesthetics and Visual Resources

Mitigation Measures

M-AE-1 All grading plans, landscape plans, and improvement plans for the proposed Project shall be evaluated for Project compliance with the aesthetic design mitigation measures of this EIR, the Resort Village Specific Plan (Development Regulations), the Resort Village Design Plan, and the Resort Village Preserve Edge Plan.

M-AE-2 Pursuant to Chapter IV, Implementation, of the Otay Ranch Resort Village Specific Plan, Site Plans ("D" Designator) shall be evaluated for Project compliance with the Resort Village Design Plan, the Resort Village Preserve Edge Plan, and the provisions of the Specific Plan related to colors, materials, and other architectural characteristics of adjacent buildings, building massing, siting of buildings and structures including setbacks from tops of slopes, architectural colors adjacent to open space, height, use of non-reflective/non-glare surfaces, and other aesthetic design measures of this EIR.

Environmental Design Considerations

AE-ED-1 The Project shall incorporate enhanced parkways throughout the Project site to provide pleasant streetscapes and an overall enjoyable atmosphere.

AE-ED-2 The Resort Village Design Plan directs the Project architecture and landscaping to create cohesive community based on the Italian "Hill Town" theme.

AE-ED-3 Dark roofs of varying shades shall be used rather than lighter colors.

AE-ED-4 Architecture and siting of buildings on lots shall be varied to provide visual interest and variation, regardless of the viewer's location.

AE-ED-5 Residential, resort, recreational, and public buildings, while unified through a common style and theme, shall be varied in massing, elevation, and density.

AE-ED-6 Landscaping shall be installed within each constructed phase as it is finished.

AE-ED-7 Project lighting shall adhere to County codes and requirements.

7.2 Air Quality

Mitigation Measures

M-AQ-1 The applicants shall implement all of the following measures during construction of the proposed Project:

- Water actively disturbed surfaces at least three time daily;
- On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. The use of approved nontoxic soil stabilizers shall be incorporated according to manufacturers' specifications to all inactive construction areas;
- Water sprayers shall be installed on the rock crushing equipment to control particulate emissions during crushing operations;
- Approved chemical soil stabilizers shall be applied according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas;
- Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom permitted) if soil material has been carried onto adjacent paved, public thoroughfares from the Project site;
- Traffic speeds on all unpaved surfaces shall be reduced to 15 mph or less, and unnecessary vehicle traffic shall be reduced by restricting access. Appropriate training to truck and equipment drivers, on-site enforcement, and signage shall be provided;
- The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and for the duration of on-site operation;
- Termination of grading shall occur if winds exceed 25 mph;
- Hydroseeding of graded pads shall occur if development will not occur within 90 days;
- Minimize simultaneous operation of multiple construction equipment units. During construction vehicles in loading and unloading queues shall turn their engines off when not in use to reduce vehicle emissions;
- All construction equipment shall be outfitted with best available control technology (BACT) devices certified by CARB. A copy of each unit's BACT documentation shall be provided at the time of mobilization of each applicable unit of equipment;

- All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications;
- All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used, or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible;
- The use of electrical construction equipment shall be employed where feasible;
- The use of catalytic reduction for gasoline-powered equipment shall be employed where feasible;
- The use of injection timing retard for diesel-powered equipment shall be employed where feasible; and
- Construction diesel fuel shall be comprised of at least 25 percent biodiesel.

M-AQ-2 Project permittees shall implement the following mitigation measures to reduce the air pollutant emissions associated with mobile sources and on-site gas combustion (CAPCOA 2010):

- Plant low-maintenance, drought-resistant plant species that reduce gas-powered landscape maintenance equipment usage and water consumption.
- Equip residential structures with electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.
- All single-family residences shall be constructed with connections for solar water heaters and solar and/or wind renewable energy systems.
- Use regulated low-VOC coatings for all architectural coating activities.
- Incorporate pedestrian trails, paths and sidewalks, and bicycle trails to encourage reduction in vehicle usage and trips.

Environmental Design Considerations

AQ-ED-1 The Project shall incorporate pedestrian trails, paths and sidewalks, and bicycle trails, to encourage reduction in vehicle usage and trips.

AQ-ED-2 Grading shall entail multiple applications of water between dozer/scraper passes to limit dust.

AQ-ED-3 Paving, chip sealing, or chemical stabilization of internal roadways shall occur after completion of grading.

AQ-ED-4 Sweepers or water trucks shall remove "track-out" at any point of public street access.

AQ-ED-5 Chemical binders, tarps, fencing, or other erosion control and suppression measures shall stabilize dirt storage piles.

7.3 Biological Resources

Mitigation Measures

M-BI-1a **Conveyance**. Prior to the approval of the first Final Map for the Project, the Project applicants shall coordinate with the County of San Diego to establish and annex the Project site into a county-administered Community Facilities District to pay for the on-going management and maintenance of the Otay Ranch Preserve. Prior to the recordation of the first Final Map within each Tentative Map, the Project applicants shall convey land within the Otay Ranch Preserve to the Otay Ranch Preserve Owner/Manager or its designee at a 1.188 acre for each "Developable Acre" impacted at Final Map as define by the Otay Ranch RMP. The total required conveyance for this project is 887.7 acres.

M-BI-1b **Biological Monitoring.** Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits for any areas adjacent to the Preserve and the off-site facilities located within the Preserve, the Project applicants shall provide written confirmation that a county-approved biological monitor has been retained and will be on-site during clearing, grubbing, and/or grading activities. The biological monitor shall attend all pre-construction meetings and be present during the removal of any vegetation to ensure that the approved limits of disturbance are not exceeded and provide periodic monitoring of the impact area, including trenches, stockpiles, storage areas, and protective fencing. The biological monitor shall also be responsible for implementing the monitoring as required and specified in the restoration plans. The biological monitor shall be authorized to halt all associated activities that may be in violation of the county's MSCP Subarea Plan and/or permits issued by any other agencies having jurisdictional authority over the Project.

Before construction activities occur in areas adjacent to preserve areas containing sensitive biological resources, all workers shall be educated by a county-approved biologist to recognize and avoid those areas that have been marked as sensitive biological resources.

M-BI-1c **Temporary Fencing**. Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits, the Project applicants shall install prominently colored fencing and signage wherever the limits of grading are adjacent to sensitive vegetation communities or other biological resources, as identified by the qualified monitoring biologist. Fencing shall remain in place during all construction activities. All temporary fencing shall be shown on grading plans for areas adjacent to the Preserve and for all off-site facilities constructed within the Preserve. Prior to release of grading and/or improvement bonds, a qualified biologist

shall provide evidence to the satisfaction of the Director of Planning and Development Services (or his/her designee) and the Director of Parks and Recreation, that work was conducted as authorized under the approved land development permit and associated plans.

M-BI-1d **Upland Restoration**. Restoration areas may incorporate salvaged materials such as seed collection and translocation of plant materials as determined to be appropriate. The project biologist shall review the plant materials prior to grading and will determine if salvage is warranted. If salvage is not appropriate due to site conditions, plant conditions, or reproductive stage of the plants, a letter indicating that will be prepared and submitted to the Director of the Department of Planning and Development Services and the Director of Parks and Recreation. Prior to grading, a Conceptual Upland Restoration Plan (Appendix H of the Otay Ranch Resort Village Biological Resources Technical Report in **Appendix C-3** to this EIR) shall be submitted to and receive approval from the Director of Planning and Development Services (or his/her designee) and the Director of Parks and Recreation.

The Conceptual Upland Restoration Plan shall include the following to ensure the establishment of the restoration objectives: a 24- by 36-inch map showing the restoration areas, site preparation information, type of planting materials (species ratios, source, size of container), planting program, 80% success criteria, 5-year monitoring plan, and detailed cost estimate. The cost estimate shall include planting, plant materials, irrigation, maintenance, monitoring, and report preparation. The report shall be prepared by a county-approved biologist and a state of California licensed landscape architect. The habitat created pursuant to the Conceptual Upland Restoration Plan must be placed within an open space easement dedicated to the County of San Diego prior to or immediately following the approval of the Conceptual Upland Restoration Plan.

M-BI-1e **Limited Building Zone (LBZ) Easement**. In order to protect sensitive biological resources in the adjacent preserve, a Limited Building zone (LBZ) easement will be granted to the County, as shown on the Tentative Map. The purpose of this easement is to limit the need to clear or modify vegetation for fire protection purposes within the preserve, restrict unauthorized access, prohibit landscaping with exotic pest plants that may invade the preserve, and prohibit artificial lighting and focal use areas that would alter wildlife behavior in the preserve. This easement requires the landowner to maintain permanent fencing and signage. The easement precludes 1) placement, installation, or construction of habitable structures, including garages or accessory structures designed or intended for occupancy by humans or animals; 2) landscaping with exotic pest plants; 3) artificial lighting except low-pressure sodium fixtures shielded and directed away from the preserve; and 4) focal use areas including arenas, pools, and patios.

M-BI-1f **Fencing and Signage**. In order to protect the preserve from entry upon completion of construction, an open space fence or wall will be installed along

all open space edges where open space is adjacent to residential uses, along internal streets, and as indicated in the Otay Ranch Resort Village Preserve Edge Plan and Proposed Fencing, Preserve signage, and Fuel Modification Zones (see map Pocket). The barrier must be a minimum construction of vertical metal fencing, but may be other suitable construction material, as approved by Department of Planning and Development Services and the Director of Parks and Recreation. In order to protect the preserve from entry, informational signs will be installed, where appropriate, along all open space edges where open space is adjacent to residential uses, along internal streets, and as indicated in the Otay Ranch Resort Village Preserve Edge Plan. The signs must be corrosion resistant, a minimum of 6 inches by 9 inches in size, on posts not less than three (3) feet in height from the ground surface, and state "Sensitive Environmental Resources Protected by Easement. Entry without express written permission from the County of San Diego is prohibited."

M-BI-1g **Habitat Manager for the Offsite 10.2-acre Parcel**. In order to provide for the long-term management of the proposed 10.2-acre parcel that will be added to the MSCP Preserve, a habitat manager shall be designated either privately selected, a non-profit organization, or a government agency. If a private or non-profit organization is selected as the habitat manager, a Resource Management Plan (RMP) will be prepared and implemented. The final RMP will be completed to the satisfaction of the Director of Department of Planning and Development Services, as follows: 1) the plan will be prepared and approved pursuant to the most current version of the County of San Diego Biological Report Format and Content Requirements; 2) the habitat land to be managed will be owned by a land conservancy or equivalent; 3) open space easements will be dedicated in perpetuity; 4) a resource manager will be selected and approved, with evidence provided demonstrating acceptance of this responsibility; 5) the RMP funding mechanism will be identified and adequate to fund annual costs for implementation; and 6) a contract between the applicant and County will be executed for the implementation of the RMP, and funding will be established with the County as the third party beneficiary. In lieu of providing a private habitat manager as noted above, the applicant may contract with a federal, state, or local government agency with the primary mission of resource management to take fee title and manage the 10.2-acre parcel of land. Evidence of satisfaction must include a copy of the contract with the agency, and a written statement from the agency that (1) the land contains the specified acreage and the specified habitat, or like functioning habitat; and (2) the land will be managed by the agency for conservation of natural resources in perpetuity.

M-BI-2 Prior to widening Otay Lakes Road, the Project applicants shall mitigate for the 11.09 acres of impacts to Cornerstone Lands and complete an MHPA Boundary Adjustment to the satisfaction of the City of San Diego Development Services Director (or his/her designee). Replacement of MHPA lands within Cornerstone Lands is proposed to be at a 1:1 ratio for lands replaced inside the MSCP Preserve. For replacement lands that are located outside of the MSCP Preserve,

the mitigation is at a 4:1 ratio. Mitigation for impacts to the various vegetation communities shall be based on the tier of the impacted lands in accordance with the mitigation ratios provided by the MSCP. The mitigation and MHPA Boundary Adjustment may be implemented within the Otay Ranch Preserve on property surrounding the existing Cornerstone Lands, north of Otay Lakes Road, or may be off-site at a location determined to be acceptable by the City of San Diego.

M-BI-3 Prior to issuance of any land development permits, including clearing or grubbing and grading and/or construction permits, the Project shall be required to obtain a HLIT permit pursuant to Section 17.35 of the Chula Vista Municipal Code for impacts to Chula Vista MSCP Tier I, II, and II vegetation communities as shown in **Table 2.3-11** and in accordance with Table 5-3 of the Chula Vista MSCP Subarea Plan. Mitigation for off-site impacts outside of Otay Ranch shall be in accordance with the Chula Vista MSCP Subarea Plan and the Chula Vista HLIT Ordinance.

Prior to issuance of any land development permits, the Project applicants shall mitigate for direct impacts pursuant to Section 5.2.2 of the City of Chula Vista MSCP Subarea Plan. In compliance with the Subarea Plan, the applicants shall secure mitigation credits within a City- and wildlife-agency-approved conservation bank or other approved location offering mitigation credits consistent with the ratios specified in **Table 2.3-11** herein.

The Project applicants shall be required to provide verification of purchase to the City of Chula Vista prior to issuance of any land development permits.

In the event that Project applicants are unable to secure mitigation through an established mitigation bank approved by the City of Chula Vista and the wildlife agencies, the Project applicants shall secure the required mitigation through the conservation of an area containing in-kind habitat within the City of Chula Vista's MSCP Subarea Plan or MSCP Planning Area in accordance with the mitigation ratios contained in Table 5-3 of the City of Chula Vista's MSCP Subarea Plan and subject to wildlife agency concurrence.

Prior to issuance of any land development permit for the widening of Otay Lakes Road, and to the satisfaction and oversight of the city's Development Services Director (or his/her designee), the Project applicants shall secure the parcel(s) that would be permanently preserved for in-kind habitat impact mitigation, if a mitigation bank purchase is unavailable, prepare a long-term management and monitoring plan for the mitigation area, secure an appropriate management entity to ensure that long-term biological resource management and monitoring of the mitigation area is implemented in perpetuity, and establish a long-term funding mechanism for the management and monitoring of the mitigation area in perpetuity.

The long-term management and monitoring plan shall provide management measures to be implemented to sustain the viability of the preserved habitat and

identify timing for implementing the measures prescribed in the management and monitoring plan. The mitigation parcel shall be restricted from future development and permanently preserved through the recordation of a conservation easement or other mechanism approved by the wildlife agencies as being sufficient to ensure that the lands are protected in perpetuity. The conservation easement or other mechanism approved by the wildlife agencies shall be recorded prior to issuance of any land development permits.

M-BI-4 Prior to impacts occurring to waters and wetlands under the jurisdiction of ACOE, CDFW, and RWQCB, the Project applicants shall obtain the following permits: ACOE 404 permit, RWQCB 401 Water Quality Certification, and a CDFW Code 1600 Streambed Alteration Agreement. Impacts shall be mitigated at a 1:1 ratio by creation or purchase of credits for the creation of jurisdictional habitat of similar functions and values. A suitable mitigation site shall be selected and approved by the resource agencies during the permitting process. The ratio of wetland mitigation shall be 3:1 overall. A total of 2.15 acres of wetlands shall be created (1:1 creation-to-impact ratio). An additional 4.30 acres of wetlands shall be enhanced (2:1 enhancement-to-impact ratio). Creation/enhancement shall occur within the Dulzura Creek/Otay River watershed in accordance with a Conceptual Wetlands Mitigation and Monitoring Plan (Appendix I of the Otay Ranch Resort Village Biological Resources Technical Report in **Appendix C-3** to this EIR) approved by the County of San Diego and appropriate resource agencies. The wetland creation shall include at least a 1:1 ratio of each of the wetland vegetation communities impacted. The remainder of the creation/enhancement obligation may be fulfilled with any wetlands type.

Prior to issuance of land development permits, including clearing, grubbing, and grading permits that impact jurisdictional waters, the Project applicants shall prepare a Wetlands Mitigation and Monitoring Plan to the satisfaction of the Director of Planning and Development Services (or his/her designee), the Director of Parks and Recreation, ACOE, RWQCB, and CDFW. The Conceptual Wetlands Mitigation and Monitoring Plan shall, at a minimum, prescribe site preparation, planting, irrigation, and a 5-year maintenance and monitoring program with qualitative and quantitative evaluation of the revegetation effort and specific criteria to determine successful revegetation. The temporary impacts to ephemeral and intermittent waters shall be mitigated by restoring them to original their conditions immediately upon completion of the Project, and shall be subject to all of the success criteria and monitoring as the permanent impacted wetlands.

M-BI-5 Prior to impacts occurring to waters and wetlands within the City of San Diego Cornerstone Lands, under the jurisdiction of ACOE, CDFW, and RWQCB, the Project applicants shall obtain the following permits: ACOE 404 permit, RWQCB 401 Water Quality Certification, and a CDFW Code 1600 Streambed Alteration Agreement. Impacts shall be mitigated at a 1:1 ratio by creation or purchase of credits for the creation of jurisdictional habitat of similar functions and values. A suitable mitigation site shall be selected and approved by the resource agencies

during the permitting process. The ratio of wetland mitigation shall be 3:1 overall. A total of 2.15 acres of wetlands shall be created (1:1 creation-to-impact ratio). An additional 4.30 acres of wetlands shall be enhanced (2:1 enhancement to impact ratio). Creation/enhancement shall occur within the Dulzura Creek/Otay River watershed in accordance with a Conceptual Wetlands Mitigation and Monitoring Plan (Appendix I of the Otay Ranch Resort Village Biological Resources Technical Report in **Appendix C-3** to this EIR) that is approved by the County of San Diego and the appropriate resource agencies. The wetland creation shall include at least a 1:1 ratio of each of the wetland vegetation communities impacted. The remainder of the creation/enhancement obligation may be fulfilled with any wetlands type.

Prior to issuance of land development permits, including clearing, grubbing, and grading permits that impact jurisdictional waters, the Project applicants shall prepare a Wetlands Mitigation and Monitoring Plan to the satisfaction of the Director of Planning and Development Services (or his/her designee), ACOE, and CDFW. The Conceptual Wetlands Mitigation and Monitoring Plan shall, at a minimum, prescribe site preparation, planting, irrigation, and a 5-year maintenance and monitoring program with qualitative and quantitative evaluation of the revegetation effort and specific criteria to determine successful revegetation. The temporary impacts to ephemeral and intermittent waters shall be mitigated by restoring them to original conditions immediately upon completion of the Project, and shall be subject to all of the success criteria and monitoring as the permanent impacted wetlands.

M-BI-6 Prior to impacts occurring to waters within the County of San Diego under the jurisdiction of ACOE, CDFW, and RWQCB, the Project applicants shall obtain the following permits: ACOE 404 permit, RWQCB 401 Water Quality Certification, and a CDFW Code 1600 Streambed Alteration Agreement. Impacts shall be mitigated at a 1:1 ratio by creation or purchase of credits for the creation of jurisdictional habitat of similar functions and values. A suitable mitigation site shall be selected and approved by the resource agencies during the permitting process. The ratio of wetland mitigation shall be 3:1 overall. A total of 0.01 acre of waters of the U.S. shall be created (1:1 creation-to-impact ratio). An additional 0.02 acre of waters of the U.S. shall be enhanced (2:1 enhancement-to-impact ratio). Creation/enhancement shall occur within the Dulzura Creek/Otay River watershed in accordance with a Conceptual Wetlands Mitigation and Monitoring Plan (Appendix I of the Otay Ranch Resort Village Biological Resources Technical Report in **Appendix C-3** to this EIR) that is approved by the County of San Diego and the appropriate resource agencies. The wetland creation shall include at least a 1:1 ratio of each of the wetland vegetation communities impacted. The remainder of the creation/enhancement obligation may be fulfilled with any wetlands type.

Prior to issuance of land development permits, including clearing, grubbing, and grading permits that impact jurisdictional waters, the Project applicants shall

prepare a Wetlands Mitigation and Monitoring Plan to the satisfaction of the Director of Planning and Development Services (or his/her designee), ACOE, and CDFW. The Conceptual Wetlands Mitigation and Monitoring Plan shall, at a minimum, prescribe site preparation, planting, irrigation, and a 5-year maintenance and monitoring program with qualitative and quantitative evaluation of the revegetation effort and specific criteria to determine successful revegetation. The temporary impacts to ephemeral and intermittent waters shall be mitigated by restoring them to their original conditions immediately upon completion of the Project, and shall be subject to all of the success criteria and monitoring as the permanently impacted wetlands.

M-BI-7 **Option No. 1:** This option consists of mitigation in the form of restoration of vernal pools within the Resort Village Project site. This option shall involve restoration and reconfiguration of the K8 vernal pool group. These vernal pools are proposed to be preserved, and a 100-foot minimum buffer is provided for protection of the pools and their watershed. Mitigation shall involve reconfiguration and reconstruction of the mima mounds and basins, removal of weedy vegetation, revegetation of the mounds with upland sage scrub species, and inoculation of the pools with vernal pool species. A Conceptual Vernal Pool Mitigation Plan shall be prepared that outlines the location and activities of the restoration (Appendix J of the Otay Ranch Resort Village Biological Resources Technical Report in **Appendix C-3** to this EIR). The plan will be submitted to and be to the satisfaction of, both the Directors of the Departments of Planning & Development Services and Parks and Recreation. A ratio of at least 1:1 restoration shall include the establishment of new vernal pool basins within the K8 vernal pool group. The balance of the mitigation ratio shall include enhancement of the existing pools. There is a total of 0.26 acre available for enhancement within the existing pools. The additional restoration mitigation requirement (a total of 0.112 acre) shall be directed toward establishing new basins within the K8 vernal pool group to the greatest extent feasible. An additional area of potential vernal pool restoration is located within the K9 mesa, if needed. This area is also composed of suitable soils for vernal pools. These soils are present on the K6 and K8 mesas. This additional area is composed of nonnative grass species, is of relatively flat topography, and exhibits some mounding characteristics similar to mima mounds.

Based on the inundation records, fairy shrimp surveys, and floral inventory, the following potential vernal pools meet the previously applied ACOE jurisdictional criteria:

- K6 – Vernal Pools 1, 3, 5, 6, 7, 8, 9, 10, 12, and 13 (0.11 acre – total basin area)
- K8 – Vernal Pools 1, 2, 4, 5, 6, 7, 8, 10, 11, 13, 14, 15, 16, A1, and A4 (0.26 acre – total basin area)

Assuming all of K6 is impacted and the mitigation requirement is a combination of 2:1 and 5:1, as outlined above, a total mitigation of 0.239 acre shall be required. This is typically satisfied by providing at least 1:1 as restoration and the

balance as enhancement. Enhancement within the K8 pools will likely be restricted by the resource agencies to those pools not containing fairy shrimp. **Table 2.3-12** summarizes the existing conditions of the pools within the K8 mesa.

Option No. 2: This option consists of mitigation in the form of purchase of vernal pool mitigation bank credits for a total of 0.239 acre at a combined 2:1 and 5:1 mitigation ratio.

M-BI-8 Prior to the issuance of land development permits, including clearing or grubbing and grading permits, for areas with salvageable California adolphia, the Project applicants may prepare a Resource Salvage Plan if seed collection is considered to be warranted. As described above in **M-BI-1d**, the project biologist shall review the California adolphia (approximately 20 plants) proposed to be impacted prior to grading and will determine if salvage is warranted. If salvage is not appropriate due to site conditions, plant conditions, or reproductive stage of the plants, a letter indicating that will be prepared and submitted to the Director of the Department of Planning and Development Services and the Director of Parks and Recreation. If determined that salvage is appropriate, a Resource Salvage Plan shall be prepared by a county-approved biologist to the satisfaction of the Director of Planning and Development Services (or his/her designee) and the Director of Parks and Recreation.

The Resource Salvage Plan shall, at a minimum, evaluate options for seed collection within the Preserve or from the plants proposed to be impacted. The Resource Salvage Plan shall include collection methods and timing. Relocation efforts may include seed collection and/or transplantation to a suitable receptor site within the slope restoration areas and will be based on the most reliable methods of successful restoration. The plan shall also contain a recommendation for method of salvage and relocation/application based on feasibility of implementation and likelihood of success; identification of receptor locations; discussion of the goals of the plan; maintenance activities during the monitoring period; monitoring plan; and inclusion of performance standards, reporting schedules, and long-term management. As an alternative, the California adolphia may be included within planting palettes for the slope revegetation areas that shall receive monitoring and shall be required to meet restoration goals and success criteria. Prior to grading the project, a Conceptual Upland Restoration Plan (Appendix H of the Otay Ranch Resort Village Biological Resources Technical Report in **Appendix C-3** to this EIR), as noted in **M-BI-1d**, will be submitted to and receive approval from the Director of the Department of Planning and Development Services (or their designee) and the Director of Parks and Recreation. The program shall include, at a minimum, an implementation plan, maintenance and monitoring program, estimated completion time, and any relevant contingency measures. The program shall also be subject to the oversight of the Director of Planning and Development Services (or his/her designee) and the Director of Parks and Recreation.

M-BI-9a Take Authorization: Prior to the issuance of the first grading permit that impacts Quino checkerspot butterfly, the Project applicants shall demonstrate to the satisfaction of the Director of Planning and Development Services (or his/her designee) it has secured the necessary take authorization for Quino checkerspot butterfly through either the Section 7 Consultation, Section 10 incidental take permit requirements, or the MSCP Subarea Plan Quino Checkerspot Butterfly Amendment, if/when approved. The Project shall provide preservation of 962 acres of the required mitigation of 966 acres (2 x 483 acres). The Project is required to provide an additional 4 acres of occupied habitat. This mitigation is proposed to be accomplished by restoration of unsuitable habitat within the Preserve to suitable coastal sage scrub. **Figure 2.3-18** illustrates the location of these potential restoration areas. A total of 6.3 acres is designated as potential restoration of which 4 acres will be needed.

M-BI-9b Quino Management/Enhancement Plan: Prior to the issuance of the first grading permit that impacts Quino checkerspot butterfly, the Project applicants shall prepare a long-term Quino Checkerspot Butterfly Management/Enhancement Plan that shall, at a minimum, include a survey methodology for on-site preserve areas pre- and post-construction to monitor effects on Quino checkerspot butterfly population health. This plan will be submitted to, and be to the satisfaction of, both the Directors of the Department of Planning & Development Services and of Park and Recreation. The Quino Checkerspot Butterfly Management/ Enhancement Plan shall be superseded or unnecessary upon completion and adoption of the County of San Diego Quino Checkerspot Butterfly MSCP Amendment. Adaptive management techniques shall be developed within the plan with contingency methods for changed circumstances. These measures shall ensure that the potential loss of individuals and the loss of habitat for the species related to the proposed development are adequately offset by measures that will enhance the existing preserved population, and shall provide data that will help the species recover throughout its range.

M-BI-10 Prior to the issuance of the first grading permit that impacts the K6 vernal pool complex, the Project applicants shall demonstrate to the satisfaction of the Director of Planning and Development Services (or his/her designee) that the Project has secured take authorization of San Diego fairy shrimp through Section 7 Consultation, a Section 10 incidental take permit, or as may be incorporated into the provisions of the MSCP Subarea Plan Quino Checkerspot Butterfly Amendment to achieve the best results toward the survival and recovery of the species.

M-BI-11 To avoid any direct impacts to raptors and/or any migratory birds protected under the MBTA, removal of habitat that supports active nests on the proposed area of disturbance shall occur outside of the breeding season for these species. If removal of habitat on the proposed area of disturbance must occur during the breeding season, the Project applicants shall retain a County-of-San-Diego-approved biologist to conduct a pre-construction survey to determine the presence

or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction, and the results shall be submitted to the County of San Diego for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan, as deemed appropriate by the County of San Diego, shall be prepared and include proposed measures to be implemented to ensure that disturbance of breeding activities are avoided. The report or mitigation plan shall be submitted to the County of San Diego for review and approval, and implemented to the satisfaction of the Director of Planning and Development Services (or his/her designee). The County of San Diego's mitigation monitor shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

M-BI-12 Four wildlife culverts shall be constructed to provide and improve habitat linkages and movement corridors (**Figure 2.3-14**). In general, the design of the wildlife culverts has been developed to be consistent with the MSCP Subarea Plan, where feasible. The wildlife culverts shall have fencing to funnel wildlife movement, shall have a natural bottom with native vegetation at either end, and shall be of size and height of opening so there is direct line of site from one end to the other. Because there is natural light within the culverts, low level illumination is not included. Traffic is generally of low volume on the internal crossings hence the sound insulation is of little benefit. The details of each wildlife culvert or crossing that shall be provided are presented below.

Internal Wildlife Crossing No. 1 (214 feet long × 28.83 feet wide × 13.17 feet tall = openness ratio of 0.44)

This arch culvert structure shall be situated internal to the project site along Strada Piazza, which connects the central portion of the open space to the lake. The 150-foot length is augmented by wing walls on either side of the crossing structure. This is beneficial as it effectively visually decreases the length of the culvert.

Otay Lakes Road Wildlife Crossing No. 1 (95 feet long × 20.75 feet wide × 12.08 feet tall = openness ratio of 0.68)

This structure shall be located south of Internal Wildlife Crossing no. 1 along Otay Lakes Road. The culvert is sized appropriately and should function as intended. It is well below the grade of Otay Lakes Road to prevent wildlife movement up to the surface of the roadway. There is also a six foot wildlife path with a soft surface along this crossing to allow for wildlife movement.

Internal Wildlife Crossing No. 2 (248 feet long × 43.00 feet wide × 16.18 feet tall = openness ratio of 0.63)

This structure shall be situated along Strada Piazza, which is a single non-split roadway at this location. The culvert slopes 12% to the south. This culvert

conveys wildlife to a location just east of Lower Otay Lake to quality riparian habitat and lands to the east. Wing walls occur at both ends of the culvert. There is also a six foot wildlife path with a soft surface along this crossing to allow for wildlife movement.

Otay Lakes Road Wildlife Crossing No. 2 (58 feet long × 20.75 feet wide × 12.08 feet tall = openness ratio of 1.12)

This structure shall be located south of Internal Wildlife Crossing no. 2 under Otay Lakes Road. This crossing is also located below the grade of Otay Lakes Road to prevent wildlife from gaining access to the surface of the roadway. There is also a six foot wildlife path with a soft surface along this crossing to allow for wildlife movement.

M-BI-13 Prior to issuance of grading permits for development areas adjacent to the Preserve, the Project applicants shall develop a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall be developed, approved, and implemented during construction to control storm water runoff such that erosion, sedimentation, pollution, and other adverse effects are minimized. The following performance measures contained in the Project's Preserve Edge Plan (**Appendix C-23**) shall be implemented to avoid the release of toxic substances associated with urban runoff:

- Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.
- Where deemed necessary, storm drains shall be equipped with silt and oil traps to remove oils, debris, and other pollutants. Storm drain inlets shall be labeled "No Dumping–Drains to Ocean." Storm drains shall be regularly maintained to ensure their effectiveness.
- Parking lots shall be designed to allow storm water runoff to be directed to vegetative filter strips and/or oil-water separators to control sediment, oil, and other contaminants.
- Permanent energy dissipaters shall be included for drainage outlets.

The BMPs contained in the SWPPP shall include silt fences, fiber rolls, gravel bags, and soil stabilization measures such as erosion control mats and hydro-seeding.

M-BI-14

- During construction, material stockpiles shall be covered when not in use. This will prevent fly-off that could damage nearby sensitive plant communities. During grading and construction, graded areas shall be periodically watered to minimize dust affecting adjacent vegetation.
- During Project operation, all recreational areas that use chemicals or animal by-products, such as manure, that are potentially toxic or impactive to sensitive habitats or plants shall incorporate methods on-site to reduce

impacts caused by the application and/or drainage of such materials into Preserve areas.

- No invasive nonnative plant species shall be introduced into areas immediately adjacent to the Preserve. All slopes immediately adjacent to the Preserve shall be planted with native species that reflect the adjacent native habitat.
- During construction, material stockpiles shall be placed such that they cause minimal interference with on-site drainage patterns. This will protect sensitive vegetation from being inundated with sediment-laden runoff.
- Dewatering shall be conducted in accordance with standard regulations of RWQCB. A National Pollutant Discharge Elimination System (NPDES) permit, issued by RWQCB to discharge water from dewatering activities, shall be required prior to start of construction. This will minimize erosion, siltation, and pollution within sensitive communities.
- Design of drainage facilities shall incorporate long-term control of pollutants and storm water flow to minimize pollution and hydrologic changes. An Urban Runoff Plan and operational BMPs shall be approved by the San Diego County Department of Planning and Development Services prior to construction.
- Grading and/or improvement plans shall include the requirement that a fencing and signage plan be prepared and that permanent fences or walls be placed along the open space boundaries. Placement of permanent fencing or walls is required at the conclusion of the grading activity and prior to Record Plan approval.
- A hydroseed mix that incorporates native species, is appropriate to the area, and is without invasives shall be used for slope stabilization in transitional areas.
- Peruvian pepper trees and other invasive vegetation would not be planted in streetscapes, or within 50 feet of the Preserve, where they could impact native habitat.

M-BI-15

- No clearing, grading, or grubbing activities may occur within occupied gnatcatcher habitat during the breeding season for coastal California gnatcatcher (February 15 to August 15, annually). If construction occurs during the breeding season, a nesting survey for California gnatcatcher shall be conducted prior to the onset of construction and construction may occur if active nests can be avoided and provided an adequate buffer or noise levels are documented to be below 60 dBA L_{eq} at the nest site.
- No clearing, grading, or grubbing activities may occur within occupied gnatcatcher habitat during the breeding season for coastal California

gnatcatcher (February 15 to August 15, annually). If construction occurs during the breeding season, a nesting survey for California gnatcatcher shall be conducted prior to the onset of construction and construction may occur if active nests can be avoided and provided an adequate buffer or noise levels are documented to be below 60 dBA L_{eq} at the nest site.

- When clearing, grading, or grubbing activities occur during the breeding season for raptors (January 15 to July 31, annually), nesting bird surveys shall be conducted by a qualified biologist for the San Diego County Department of Planning and Development Services to identify active nest locations. Construction activities shall be restricted or modified such that noise levels related to those activities are below 60 dBA L_{eq}, or other Wildlife Agency approved restrictions, in the vicinity of the active nest site.

- Lighting of all developed areas adjacent to the preserve shall be directed away from the preserve, wherever feasible and consistent with public safety. Where necessary, development shall provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the preserve and sensitive species from night lighting. Consideration shall be given to the use of low-pressure sodium lighting.

- Uses in or adjacent to the preserve shall be designed to minimize noise impacts. Berms or walls shall be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the preserve. Excessively noisy uses or activities adjacent to breeding areas must incorporate noise-reduction measures or be curtailed during the breeding season of sensitive bird species.

- Grading and/or improvement plans shall include the requirement that a fencing and signage plan be prepared and that permanent fences or walls be placed along the open space boundaries. Placement of permanent fencing or walls is required at the conclusion of the grading activity and prior to Record Plan approval.

Environmental Design Considerations

BI-ED-1 The Project has been designed around an extensive open space system in close coordination with USFWS. Development areas have been moved specifically to preserve important wildlife corridors, species, and habitat.

BI-ED-2 The Project includes 141 acres of internal open space.

BI-ED-3 The Project includes a modification of Otay Lakes Road to accommodate wildlife under-crossings toward the eastern end of Lower Otay Lake. The under-crossings are designed to provide sufficient light to encourage use.

BI-ED-4 Programs for coastal sage scrub and vernal pool restoration shall be implemented as part of Project development.

BI-ED-5 A total of 1,091.46 acres of land shall be designated for Preserve uses, including 10.71 acres of thorn mint preserve.

BI-ED-6 Restoration areas will incorporate salvaged materials, such as individual cactus, native plant mulching, selective soil salvaging, seed collection, and translocation of plant materials as determined to be appropriate. Prior to grading the project, a Conceptual Upland Restoration Plan (**Appendix H**) will be submitted to and receive approval from the director of the Department of Planning and Development Services. All slopes immediately adjacent to the Preserve shall be planted with native species that reflect the adjacent native habitat. No invasive and/or non-native plant species shall be introduced.

BI-ED-7 A hydroseed mix that incorporates native species, is appropriate to the area, and is without invasives shall be used for slope stabilization in transitional areas.

BI-ED-8 Peruvian pepper trees and other invasive vegetation would not be planted in streetscapes, or within 50 feet of the Preserve, where they could impact native habitat.

BI-ED-9 Concurrent with recording each final map, pursuant to the RMP and the MSCP requirement, the property owner(s) shall convey land within the Otay Ranch RMP Preserve at a ratio of 1.188 acres for each acre of development area (no conveyance for certain common land uses including school, parks, or Circulation Element roads).

BI-ED-10 Restoration areas will incorporate salvaged materials, such as individual cactus, native plant mulching, selective soil salvaging, seed collection, and translocation of plant materials as determined to be appropriate. Prior to grading the project, a Conceptual Upland Restoration Plan (**Appendix H**) will be submitted to and receive approval from the director of the Department of Planning and Development Services. All slopes immediately adjacent to the Preserve shall be planted with native species that reflect the adjacent native habitat. No invasive and/or non-native plant species shall be introduced.

BI-ED-11 The Conceptual Upland Restoration Plan shall include, but not be limited to, the following to ensure the establishment of the restoration objectives: a 24- by 36-inch map showing the restoration areas, site preparation information, type of planting materials (species ratios, source, size of container, etc.), planting program, 80% success criteria, 5-year monitoring plan, and detailed cost estimate. The cost estimate shall include planting, plant materials, irrigation, maintenance, monitoring, and report preparation. The report shall be prepared by a County approved biologist and a state of California licensed landscape architect. The habitat created pursuant to the Conceptual Upland Restoration Plan must be placed within an open space

easement dedicated to the County prior to or immediately following the approval of the Conceptual Upland Restoration Plan.

BI-ED-12 Temporary impact areas are proposed to be restored to native habitat appropriate for the location and the previous condition of the area. Restoration plans for temporary impact areas will be prepared that include: a 24- by 36-inch map showing the restoration areas, site preparation information, type of planting materials (species ratios, source, size of container, etc.), planting program, 80% success criteria, 5-year monitoring plan, and detailed cost estimate.

BI-ED-13 Prominently colored, sturdy fencing shall be in place wherever the limits of grading are adjacent to sensitive vegetation communities or other biological resources, as identified by the qualified monitoring biologist for the San Diego County Department of Planning and Development Services. Fencing shall remain in place during all construction activities.

BI-ED-14 During construction, material stockpiles shall be covered when not in use. This will prevent fly-off that could damage nearby sensitive plant communities. Implementation of this measure shall be documented by a qualified monitoring biologist for the San Diego County Department of Planning and Development Services. During grading and construction, graded areas shall be periodically watered to minimize dust affecting adjacent vegetation. Implementation of this measure shall be documented by a qualified monitoring biologist for the San Diego County Department of Planning and Development Services.

BI-ED-15 A Storm Water Pollution Prevention Plan (SWPPP) shall be developed, approved, and implemented during construction to control storm water runoff such that erosion, sedimentation, pollution, etc., are minimized. Measures that may be incorporated into the plan include use of silt fencing, haybales, and straw wattles. The SWPPP shall be approved by the San Diego County Department of Planning and Development Services.

BI-ED-16 During Project operation, all recreational areas that use chemicals or animal by-products, such as manure, that are potentially toxic or impactive to sensitive habitats or plants shall incorporate methods on-site to reduce impacts caused by the application and/or drainage of such materials into Preserve areas.

BI-ED-17 No invasive nonnative plant species shall be introduced into areas immediately adjacent to the Preserve. All slopes immediately adjacent to the Preserve shall be planted with native species that reflect the adjacent native habitat. Landscape plans shall be approved by the Project biologist and submitted to the San Diego County Department of Planning and Development Services prior to installation for review and approval.

BI-ED-18 During construction, material stockpiles shall be placed such that they cause minimal interference with on-site drainage patterns. This will protect sensitive vegetation from being inundated with sediment-laden runoff.

BI-ED-19 No clearing, grading, or grubbing activities may occur within occupied gnatcatcher habitat during the breeding season for California gnatcatcher (February 15 to August 15, annually).

BI-ED-20 When clearing, grading, or grubbing activities occur during the breeding season for raptors (January 15 to July 31, annually), nesting bird surveys shall be conducted by a qualified biologist for the San Diego County Department of Planning and Development Services to identify active nest locations. Construction activities shall be restricted or modified such that noise levels related to those activities are below 60 dBA L_{eq}, or other Wildlife Agency approved restrictions, in the vicinity of the active nest site.

BI-ED-21 Uses in or adjacent to the Preserve shall be designed to minimize noise impacts. Berms or walls shall be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the Preserve. Excessively noisy uses or activities adjacent to breeding areas shall incorporate noise-reduction measures or be curtailed during the breeding season of sensitive bird species.

BI-ED-22 Lighting of all developed areas adjacent to the Preserve shall be directed away from the Preserve, wherever feasible and consistent with public safety. Where necessary, development shall provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the Preserve and sensitive species from night lighting. Consideration shall be given to the use of low-pressure sodium lighting. All lighting, landscaping, and berming/grading plans shall be submitted to the San Diego County Department of Planning and Development Services for review and approval prior to construction.

BI-ED-23 Dewatering shall be conducted in accordance with standard regulations of RWQCB. An NPDES permit, issued by RWQCB, to discharge water from dewatering activities shall be required prior to start of construction. This will minimize erosion, siltation, and pollution within sensitive communities.

BI-ED-24 Design of drainage facilities shall incorporate long-term control of pollutants and storm water flow to minimize pollution and hydrologic changes. An Urban Runoff Plan and operational BMPs shall be approved by the San Diego County Department of Planning and Development Services prior to construction.

BI-ED-25 Grading and/or improvement plans shall include the requirement that a fencing and signage plan be prepared and that permanent fences or walls be placed along the open space boundaries. Placement of permanent fencing or walls is required at the conclusion of the grading activity and prior to Record Plan approval.

BI-ED-26 Submit to the director of the Department of Planning and Development Services evidence that permanent signs have been placed to protect all open space easements in accordance with the open space signage exhibit that will be placed on file with the Department of Planning and Development Services as Environmental Review Number 04-19-05.

7.4 Cultural Resources

Mitigation Measures

M-CR-1 Prior to the issuance of grading permits, the Project applicant shall implement or cause the implementation of a data recovery program, as described below, for the following nine sites located within the proposed grading and brushing envelope:

SDI-11,406	SDI-11,409	SDI-12,368	SDI-12,371
SDI-16,303	SDI-16,309	SDI-16,312	SDI-16,326
SDI-16,332			

Data Recovery Program

The data recovery program is contingent upon extracting a sample that will exhaust the data potential of each site. The County has not adopted a policy that identifies the specific level of excavation required to achieve mitigation of impacts by data recovery. In most cases, the level of sampling is dictated by the information potential of the site. Data recovery is commonly discussed in terms of sampling percentages, referring to the percent of the area of the significant subsurface deposit to be excavated. The general approach for achieving the mitigation of impacts through data recovery would begin with an indexing of the site. The site index shall include a sufficient sample of the subsurface deposit, ranging from 2.5 to 4.0 percent of each deposit, to effectively stratify the deposits into areas of differing artifact content, densities, and activity areas. The small percentage value proposed for site indexing is reflective of the basic characterization of each of the significant sites as quarry locations with minimal evidence of occupation activities. The indexing process shall use a static grid to cover each site, with a sample unit placed in each grid cell. Using a grid will produce a very structured, nonrandom, and uniform index of the content of each cultural deposit. Within the portion(s) of each site that retains the greatest research potential, an additional 2 percent of that area shall be excavated. For most sites in the data recovery program, the area excavated shall be between 2.5 and 3 percent of the significant subsurface deposit (area of greater research potential). This volume of recovery would be sufficient to successfully pursue the research objectives of the research design and to provide other researchers with a large information resource. At the sites considered to retain the greatest research potential, a third level of stratified sampling may be implemented to focus block excavations on areas that demonstrate intense artifact recovery, features, or multi-cultural depositional patterns.

The excavation of the subsurface deposits shall be accomplished with standard 1-meter-square test units excavated by hand in 10-centimeter levels. All units shall be screened, mapped, measured, and photographed through standard stratigraphic control measures. A more detailed description of the field methods to be used is provided in Section 10.5 of the Archaeological/Historical Study provided in this EIR, **Appendix C-4**.

For the phases of work at each site, the first phase shall be the site indexing and the second phase shall be the focused investigation. A third phase, if warranted, would be extremely focused on high-potential elements of any significant site. Each phase has specific goals: the site index is a nonrandom representative sample of the entire site, while the second and third phases are focused, biased, and intuitive studies of the area within the deposit that has the greatest potential.

The grid for each site shall be determined by the number of sample units needed to accomplish the sample level of 2.5 percent. For most sites, the grid shall be set at 15-meter or 25-meter intervals. To calculate the grid size, the number of test units that represent the Phase 1 sample was divided into the calculated area of the deposit. The resulting quotient represents the area within each grid cell, and the square root of this value provides the dimension of the grid cell. For example, assuming a site contained 2,000 square meters of a cultural deposit, a 2.5 percent sample would be 50 square meters. The grid size would be determined by dividing the deposit size (2,000 square meters) by the number of units (50), which equals 40 square meters. The square root of 40 square meters is 6.3 meters; thus, the intersection of each grid line is spaced at 6.3 meters. Within each 6.3-meter by 6.3-meter grid cell, one test unit would be excavated to complete the site index.

For consistency, all of the sites shall be treated similarly, with an index phase followed by a focused, intuitive phase in the area of greatest importance. The phases of the sampling procedure to be used at the sites included in the data recovery program are as follows.

Data Recovery Program Phase 1

The first phase of excavation at any particular site shall typically involve a 2.5 percent sample used to index the site content and document intra-site variation. Test units shall be uniformly distributed within each site using a grid system. For most sites, the presence of multiple rock outcroppings would constitute voids in the sample grid. These areas would be deleted from the calculations of site deposits when the data recovery programs are initiated; however, the areas represented by the outcrops cannot be calculated at this time.

Data Recovery Program Phase 2

The second phase of excavation shall consist of a 2 to 4 percent sample of each site area identified as representing the greatest research potential. The stratification of

the site following the Phase 1 work would typically identify an area of approximately 10 percent of the sample area identified as retaining additional research potential. For this sampling phase, the test units must not be randomly placed but shall be intuitively located at the discretion of the archaeologist.

Data Recovery Program Phase 3

The last phase of excavation shall be conducted at any sites that are found to contain particularly important deposits worthy of extended excavation. The sample size of any such area is dependent on the nature of the deposit and research potential.

The procedures noted above shall be applied to each of the sites listed below in addition to any site-specific mitigation measures. The actual number of square meters to be excavated in any particular site would depend on the site size, importance, and research potential. The projected size of the sample for each of the sites listed below is a minimum of 2.5 percent, but the actual size of the sample needed to satisfy the data needs of the research objectives will ultimately be determined by the assessment of the recovery from the sample. The possibility exists that previously unidentified subsurface deposits would be identified during data recovery, increasing the research potential of a significant site. In this case, the sample size of the Phase 1 or Phase 2 excavation may be readjusted. If the recovery from any site is evaluated as redundant even before the minimum Phase 1 sample level of 2.5 percent is achieved, the consulting archaeologist shall request a variance from the County of San Diego to reduce the sample size to reflect the redundancy of the sample. This request would need to be supported by data and analysis from the excavations in progress at the site(s) in question. At each site, a backhoe may be employed following the completed sampling program to search for any anomalies within the site. Trenches would be used to expose portions of the sites; however, the number of trenches used in this type of investigation would be discussed and approved by the County before initiation.

Backhoe Trenching

All sites that are subject to data recovery and test unit excavations shall be subject to backhoe trenching following the test unit excavations to search for any unusual features or anomalies that would need to be examined further. The number and locations of the trenches to be excavated at each site shall be determined by the archaeologist on the basis of the size of the site and the recovery from the test units. If the trenches reveal the presence of deposits or features within a site that were not previously detected, then additional test units shall be excavated to expose the features and permit further investigation and recordation. For those four significant sites (SDI-12,368; SDI-16,312; SDI-16,326; and 16,332) that lie partially within the development envelope and partially within the Preserve (open space), the data recovery mitigation program would include portions of these sites within the development envelope as well as an area 10-feet-wide extending into the open

space portion of the site. This extension of the data recovery program into the open space portions of the sites is intended to provide mitigation for indirect impacts in the buffer area of the open space that directly affects the development envelope.

Data Recovery Procedures

For all sites that are subject to data recovery, the program to carry out the necessary data recovery procedures, including the applicable field methodologies, laboratory analyses, and special studies for these sites, shall be provided as described below.

The data recovery program must be consistent with the policies and guidelines of the County and with the California Office of Historic Preservation (OHP) publication, Guidelines for Archaeological Research Design Preservation Planning Bulletin No. 5 (1991).

Field Methods

The data recovery program shall focus on the excavation of test units measuring 1-meter-square to a minimum depth of 30 centimeters or until bedrock is encountered. If cultural materials are present beyond this depth, the excavation shall continue until one sterile level is exposed. The units shall be excavated in controlled, 10-centimeter levels. All removed soils shall be sifted through l/8-inch mesh hardware cloth. All artifacts recovered during the screening process shall be properly labeled with provenience information in the field and subsequently subjected to standard laboratory procedures of washing (if appropriate) and cataloging. The excavation of the units shall be documented with field notes, illustrations, and photographs.

At the conclusion of the test unit excavations, backhoe trenches may be excavated to investigate the site(s) further and search for any unusual features or artifact concentrations. When a backhoe is used, the methodology to be followed is outlined below:

- All trenches must be excavated under the supervision of the Project archaeologist.
- All trenches must be mapped, measured, photographed, and sketched.
- Periodic screening of the excavated material from the trenches shall be conducted.
- Provenience data for all screened soil shall be recorded.

Based on data from the backhoe trenches, the data recovery program could be expanded to focus on features or unique deposits that differ from the materials already studied.

Any features discovered during the archaeological excavations shall be exposed through careful hand excavation. Additional test units may be needed to fully expose the features, which shall then be recorded by sketching and photography. Any datable materials found in association with discovered features shall be collected for radiocarbon dating. If obvious datable samples cannot be found at the sites in the data recovery program, then several bulk soil samples may be collected and processed in an attempt to date the deposits.

At each site, column samples shall be taken to permit microanalysis of midden contents. The columns shall measure 10 centimeters square and shall conform to the walls of selected completed test units to the bottom of the deposit. All of the soil from the column shall be collected and not screened in the field. The samples shall be returned to the laboratory for analysis. In addition, during hand excavation, special attention shall be given to the identification of lithic tools found in situ and their potential for residue analysis. When possible, such tools shall be bagged separately, thereby excluding them from the wet-screening process. A sample of the surrounding soil shall be collected to serve as a control sample, should the artifact be chosen for pollen, phytolith, or blood residue analyses.

Throughout the field operations, standard archaeological procedures shall be implemented. All test units and features shall be mapped using the established datums.

Laboratory Analysis

All of the materials recovered from the field excavations shall be subjected to standard laboratory analysis. Artifacts may be washed, if necessary, to permit proper identification. The artifacts shall be sorted and cataloged, including counts, materials, condition, weight, provenience, and unique artifact identification numbers.

The lithic artifacts recovered from the Project site shall be subjected to analysis, which shall include recordation of critical measurements and weight, and inspection for evidence of use/wear, retouch, patination, or stains. The recovered flakes (or a representative sample) shall be subject to an analysis of attributes such as size, condition, type, termination, and material. The attribute analysis shall include the flake collections recovered during the testing program.

Nonlithic materials, such as ecofacts (shell and bone), shall be subject to specialized analyses. The shell shall be cataloged by species and weight of recovery per level. The bone material shall be weighed and subsequently submitted for specialized faunal analysis. The laboratory analysis of the column samples may include flotation procedures to remove seeds and other microfaunal remains from the soil, followed by the screening of the remainder through a 1/16-inch mesh sieve, if the potential for nonlithic materials is noted in the deposit.

Other specialized studies that shall be conducted if the appropriate materials are encountered during the data recovery program include marine shell species identification, faunal analysis, otolith analysis (for seasonality), oxygen isotopic analysis (also for seasonality), radiocarbon dating, obsidian sourcing and hydration, and blood residue and phytolith studies. These specialized studies are briefly described below.

Shell Analysis

Analysis of any shell recovery would include the speciation of all shell fragments collected. The shell shall be recorded by weight and shall include a count of hinges to determine the minimum number of individuals represented by the recovery.

Faunal Analysis

Any bone material recovered during the data recovery program shall be analyzed by a faunal expert to identify species, types, age, and evidence of burning or butchering. The prehistoric bone recovery shall provide information concerning diet, activity areas within the sites, the habitats exploited, and methods of processing.

Radiocarbon Dating

This dating technique shall be attempted whenever possible. The investigations conducted thus far have not recovered any dateable material, although bulk soil dating was not attempted to determine if the deposits contained sufficient carbon for dating. The radiocarbon dating would be useful in conjunction with the stratigraphic recovery of cultural materials to establish the chronology of the sites. Therefore, the collection of samples for dating should be based on the presence of diagnostic artifacts, features, or geological strata delineations. In conjunction with the research topics, any possible opportunities to delineate parts of sites into Late Prehistoric and Archaic periods shall be advanced through the use of dating methods.

Blood Residue Studies

Organic residue on lithic artifacts may be useful in the determination of the species of animals represented by the residue. However, the use of blood residue studies is necessarily dependent upon the identification of such residues on artifacts. The detection of blood residue shall be made prior to any washing of artifacts so that the residue samples will not be lost.

Isotopic Profiles

The analysis of Oxygen-18 isotopic profiles from shells may be used to determine the season during which the shells were collected. This process measures the ratio of isotopes of oxygen, which is determined by water temperature. A minimum of

five shells shall be used in this analysis, particularly if no other means of determining seasonality can be used. Use of his type of analysis is not likely due to the paucity of shell at the site.

Obsidian Hydration and Sourcing

Any recovered obsidian artifacts shall be submitted to a specialist to determine the source of the lithic material. The obsidian shall also be analyzed to produce hydration readings, which may then be used to provide relative dates for the use of the artifacts.

Monitoring

All brushing and grading activities within the Project site shall be monitored on a full-time basis by one or more archaeologists, as dictated by the size of the grading operation. All utility excavations, road grading, or brush removal must be coordinated with the archaeological monitor. Any known resources that are graded must be intensively monitored during grading to ensure that any important features, isolates, or deposits are either recorded and collected, or excavated. Should any resources be encountered during the monitoring of the brushing and grading that were not previously recorded, the action shall be temporarily halted or redirected to another area while the nature of the discovery is evaluated. Any resources that may be encountered shall require testing to determine their significance. If the testing demonstrates that a resource is significant, then a data recovery program shall be implemented consistent with these mitigation measures.

Cultural Material Curation

Cultural materials recovered from the Project site shall be permanently curated at a facility that meets federal standards per 36 Code of Federal Regulations (CFR) Part 79, and therefore would be professionally curated and made available to other archaeologists/researchers for further study. No other collections from previous studies could be located at the time of this study. Should any additional collections be discovered from previous studies, these will be curated with the collections generated from the site evaluations.

Site-Specific Data Recovery Programs

As part of the data recovery program and other actions described above under mitigation measure M-CR-1, the Project applicant shall also cause a Data Recovery program to be implemented for each of the nine CEQA significant prehistoric sites that would be impacted by implementation of the proposed Project as described below.

M-CR-1a Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-11,406, which shall focus on a

uniform indexing of the subsurface deposit. This first level of index sampling shall consist of a 2.5 percent sample of the 858-square-meter deposit. This represents a sample of 21 square meters for the Phase 1 index. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 858 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1b Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-11,409, which shall focus on a uniform indexing of the subsurface deposit. This first level of index sampling shall consist of a 2.5 percent sample of the 10,637-square-meter subsurface deposit. This represents a sample of 266 square meters for the Phase 1 index. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 5 percent of the 10,637 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1c Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-12,368, which shall focus on a uniform indexing of the focused subsurface deposit. This first level of index sampling shall consist of a 2.5 percent sample of the 1,735-square-meter deposit. This represents a sample of 43 square meters for the Phase 1 index. The County of San Diego has also required that a 10-foot-wide buffer within the open space portion of SDI-12,368 be subjected to data recovery. This will add five test units to the sample. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 1,735 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1d Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-12,371, which shall focus on a uniform indexing of the subsurface deposit. This first level of index sampling shall consist of a 2.5 percent sample of the 781-square-meter deposit. This represents a sample of 20 square meters for the Phase 1 index. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 781 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1e Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-16,303, which shall focus on a uniform indexing of the subsurface deposit. This first level of index sampling shall consist of a 2.5 percent sample of the 67-square-meter deposit. This represents a sample of 2 square meters for the Phase 1 index. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 67 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1f Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-16,309, which shall focus on a uniform indexing of the subsurface deposit. This first level of index sampling shall consist of a 2.5 percent sample of the 5,496-square-meter deposit. This represents a sample of 137 square meters for the Phase 1 index. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 5,496 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1g Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-16,312, which shall focus on a uniform indexing of the subsurface deposit. Approximately 24 percent of this site will be impacted, including 1,618 square meters of the 4,967-square-meter deposit identified. This first level of index sampling shall consist of a 2.5 percent sample of the 1,618-square-meter deposit. This represents a sample of 41 square meters for the Phase 1 index. The County of San Diego has also required that a 10-foot-wide buffer within the open space portion of SDI-16,312 be subjected to data recovery. This will add eight test units to the sample. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 1,618 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations, but it is estimated to be a sample of three additional test units.

M-CR-1h Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-16,326, which shall focus on a uniform indexing of the subsurface deposit. The site contains three separate deposits, of which only the western deposit will be impacted. The western subsurface component encompasses an area of 860 square meters. This first level of index sampling shall consist of a 2.5 percent sample of the 860-square-meter deposit. This represents a sample of 22 square meters for the Phase 1 index. The County of San Diego has also required that a 10-foot-wide buffer strip within the open space portion of SDI-16,326 be subjected to data recovery. This will add eight test units to the sample. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 860 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1i Prior to the issuance of a grading permit, the Project applicant shall cause a Data Recovery program to be implemented for Site SDI-16,332, which shall focus on a uniform indexing of the subsurface deposit. The total area of the subsurface deposits is approximately 1,731 square meters. The development will impact approximately one-third of SDI-16,332, including 924 square meters of the significant subsurface deposits. This first level of index sampling shall consist of a 2.5 percent sample of the 924-square-meter deposit. This represents a sample of 23 square meters for the Phase 1 index. The County of San Diego has also required that a 10-foot-wide buffer strip within the open space portion of SDI-16,332 be

subjected to data recovery. This will add seven test units to the sample. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately 10 percent of the 924 square meters; the exact number of Phase 2 excavations shall depend on the results of the Phase 1 excavations.

M-CR-1j All cultural materials recovered from the Project, either during the mitigation program or during the past archaeological testing programs, shall be professionally prepared for permanent curation at a local facility meeting the criteria for such curation centers as listed in 36CFR79. The cost to curate collections shall be the responsibility of the applicant. Copies of field notes, reports, maps and catalog data shall be included with the curated collection.

M-CR-2a All sites, regardless of significance status, that are located outside of the development area shall be placed in open space easements. The sites may be included in general Project-wide open space preserves, in which case, site-specific easements would not be necessary. For sites that would be preserved within the development envelope, easements shall be dedicated for individual sites unless incorporated within larger biological or other open space designation. The open space designation shall include language that prohibits any type of surface modification to the sites or intrusions into the site by grading, trenching, or other development-related improvements. For any sites located within open space, a park area, or the Preserve, specific requirements for individual sites are necessary to ensure that the sites are not impacted by maintenance or landscaping. Open space areas shall be transferred to County Department of Parks and Recreation (County Parks) and maintained as part of the Preserve. County Parks shall assume responsibility for the protection of the sites in the open space areas as part of the management of the Preserve. Aside from temporary fencing during grading and construction to ensure preservation during this period, no individual site preservation measures are deemed necessary during development activities. Subsequently, the long-term protection of the sites will be achieved through management of the Preserve by County Parks. During grading or brushing, the monitoring archaeologist shall determine the need for temporary fences and direct their installation to provide a physical barrier between the grading machinery and adjacent significant cultural resources that are designated for preservation or eventual data recovery. Once the open space areas are transferred to the Preserve, it will become the responsibility of the Preserve owner/manager to maintain the easements for the archaeological sites.

M-CR-2b Prior to any improvements to existing trails or development of new trails, improvement plans shall be reviewed by the Project archaeologist under the direction of the County to determine the potential for impacts to cultural resources, and the need for additional field research, testing, mitigation for potential impacts during construction and use, and monitoring of construction. The requirements of mitigation measure M-CR-1 for data recovery and analysis, including Native

American monitoring, shall be applied during all subsequent surveys if new cultural resources are identified.

M-CR-3 In the event that human burials are encountered, standard procedures for such discoveries shall be implemented, including notification of the County Coroner's Office, the County, the Native American Heritage Commission and local Native American representatives. Fieldwork shall cease in the area of any such discovery. The Native American representative and the County shall be consulted to determine a preferred course of action, and the burial shall be treated according to the requirements of Public Resources Code §5097.98.

M-CR-4 Paleontological monitoring shall be conducted during all mass grading and excavation activities in surface exposures of the Otay Formation to mitigate any adverse impacts (i.e., loss or destruction) to potential nonrenewable paleontological resources. A mitigation monitoring and reporting program consistent with County and CEQA guidelines and requirements shall be developed and implemented prior to any mass grading and/or excavation-related activities, including utility trenching, within the Otay Formation. The mitigation monitoring and reporting program shall be conducted in accordance with the following procedures:

A. A Qualified Paleontologist or Paleontological Resources Monitor (under the supervision of the Qualified Paleontologist) shall be on-site during all excavation operations within geologic formations that may contain paleontological resources (i.e., the Otay Formation). The Qualified Project Paleontologist is a person with a Ph.D. or master's degree in paleontology or related field, and who has knowledge of San Diego County paleontology, and documented experience in professional paleontological procedures and techniques. A Paleontological Monitor is defined as an individual with at least 1 year of experience in field identification and collection of fossil materials. The Paleontological Monitor shall work under the direct supervision of the Qualified Paleontologist. The applicant shall authorize the Qualified Paleontologist and/or Paleontological Monitor to direct, divert, or halt any grading activity, and to perform all other acts required by the provisions listed below.

B. The Qualified Paleontologist and/or Paleontological Monitor shall monitor all grading and excavation activities of undisturbed formations of sedimentary rock;

C. If paleontological resources are unearthed, the Qualified Paleontologist or Paleontological Monitor shall do the following:

1. Direct, divert, or halt any grading or excavation activity until such time that the sensitivity of the resource can be determined and the appropriate recovery implemented.

2. Salvage unearthed fossil remains, including simple excavation of exposed specimens or, if necessary, plaster-jacketing of large and/or fragile specimens or more elaborate quarry excavations of richly fossiliferous deposits.

3. Record stratigraphic and geologic data to provide a context for the recovered fossil remains, typically including a detailed description of all paleontological localities within the Project site, as well as the lithology of fossil-bearing strata within the measured stratigraphic section, if feasible, and photographic documentation of the geologic setting.

4. Prepare collected fossil remains for curation to include cleaning the fossils by removing the enclosing rock material; stabilizing fragile specimens using glues and other hardeners, if necessary; and repairing broken specimens.

5. Curate, catalog, and identify all fossil remains to the lowest taxon possible; inventory specimens; assign catalog numbers; and enter the appropriate specimen and locality data into a collection database.

6. Transfer the cataloged fossil remains to an accredited institution (museum or university) in California that maintains paleontological collections for archival storage and/or display. The transfer shall include copies of relevant field notes, maps, stratigraphic sections, and photographs.

D. The Qualified Paleontologist shall prepare a final Paleontological Resources Mitigation Report summarizing the field and laboratory methods used, the stratigraphic units inspected, the types of fossils recovered, and the significance of the curated collection.

E. Submit two hard copies of the final Paleontological Resources Mitigation Report to the Director of PDS for final approval of the mitigation, and submit an electronic copy of the report according to the County PDS' Electronic Submittal Format Guidelines.

Environmental Design Considerations

CR-ED-1 Grading operations shall be conducted in accordance with a monitoring and recovery program for potential paleontological and/or cultural artifacts.

7.5 Geology and Soils

Mitigation Measures

M-GE-1a Otay Lakes Road, Widening & Realignment (**Appendix C-8**): Excavations of cut slopes shall be observed during grading by an engineering geologist to evaluate

whether the soil and geologic conditions differ significantly from those expected. Cut slopes that expose shared claystone bedding may require slope stabilization consisting of stability fills.

M-GE-1b Area A and B, Tentative Map (**Appendices C-6 and 7**): Because of the potential presence of adverse geologic structures, the geologic structure of permanent cut slopes composed of Otay Formation, Fanglomerate materials, or metavolcanic rock should be analyzed in detail by an engineering geologist during grading operations. Grading of cut and fill slopes and intermediate terrace benching shall be designed in accordance with the requirements of the local building codes and the 2010 California Building Code (CBC). Additional recommendations for slope stabilization may be necessary if adverse geologic structure is encountered. Mitigation of unstable cut slopes can be achieved by the use of drained stability fills. In addition, cut slopes exposing cohesionless surficial deposits or rock slopes with unfavorable geologic structure may require stability fills. In general, the Typical Stability Fill Detail presented in Figure 10 (**Appendices C-6 and 7**) should be used for design and construction of stability fills, where required. The backcut for stability fills should commence at least 10 feet from the top of the proposed finished-graded slope and should extend at least 3 feet into formational materials. For slopes that exceed 30 feet in height, the inclination of the backcut may be flattened as determined by the engineering geologist during grading operations.

M-GE-2a Otay Lakes Road, Widening & Realignment (**Appendix C-8**): Mitigation measures will be required along the eastern portion of the roadway due to the steepness of the natural slopes and boulder outcrops above the proposed cut slope. The areas of proposed rock fall mitigation are shown on **Figures 2.5-2A** and **2.5-2B.** The mitigation shall consist of the construction of a rock fall debris fence or other acceptable catchment device at the toe of the proposed cut slope. The hard rock slopes should be evaluated by an engineering geologist during site development and final locations of the debris fence or alternative method shall be provided at that time.

M-GE-2b Area A and Area B, Tentative Map (**Appendices C-6 and 7**): Mitigation shall consist of the construction of rock fall debris fences or other acceptable catchment device at the toe of proposed slopes or at the edge of daylight cut or fill areas. The area of proposed rock fall mitigation for Area A is shown on **Figure 2.5-2A** and Area B on **Figure 2.5-2B**. Area A consists of the northern-most section of proposed residential development, east of Upper Otay Lake and the northern section of Lower Otay Lake. Area B encompasses the eastern-most section of proposed residential development and resort. The hard rock slopes shall be evaluated by an engineering geologist during site development and final locations of the debris fences or alternative method shall be provided at that time.

M-GE-2c Area A and Area B, Tentative Map (**Appendices C-6 and 7**): Hard rock slopes shall be analyzed in detail by an engineering geologist during the grading operations. In areas where loose or potentially hazardous rock is encountered during

grading, the loose material shall be scaled off the slope face to mitigate the hazard. If adverse geologic structures are encountered during grading, rock slope stabilization measures such as rock bolting, or rockfall protection systems may be necessary.

M-GE-2d When all measures to mitigate rock fall hazards have been provided, a professional opinion from an engineering geologist shall be provided that indicates that the potential risk for rockfall hazards to impact the proposed development would be less than significant with the mitigation measures that were implemented. It should also be stated that with mitigation measures incorporated, the proposed development is considered safe for human occupancy.

Environmental Design Considerations

GE-ED-1a All site-specific requirements outlined in the Geotechnical Report for the Project shall be implemented. Specifically, seismic design coefficients have been developed based on the largest probable earthquake in the Project site. Structures developed as part of the proposed Project are required to adhere to these coefficients and criteria and be consistent with the Uniform Building Code (UBC).

GE-ED-1b Unsuitable bearing materials encountered on-site, including soil, alluvium, colluvium, weathered bedrock, and uncompacted artificial fill, shall be removed prior to the placement of compacted fill. The actual removal depths shall be evaluated by the geotechnical engineer during grading operations. These materials may be reused as compacted fill provided they are moisture conditioned and properly compacted per all specifications in the Project's Geotechnical Report. The bottom of the excavations shall be scarified to a depth of at least 8 inches, moisture conditioned as necessary, and properly compacted. Excavated soils with an expansion index greater than 50 shall be kept at least 3 feet below finish grades in areas of the structural fill. Sheet-graded pads shall be capped with at least 6 feet of low expansive soils to accommodate minor regrading.

GE-ED-1c Building pads with cut-fill transitions shall be undercut at least 3 feet, sloped 1 percent to the adjacent street or deepest fill, and replaced with property compacted very low to low expansive fill soils to limit the differential settlement potential and provide a uniform bearing surface for structures. Where the thickness of the fill below the building pad exceeds 15 feet, the depth of the undercut shall be increased to one-fifth of the maximum fill thickness. This shall be done in conformance with the guidance provided in the Geotechnical Report, in **Appendix C-6 and 7** to this EIR.

GE-ED-1d Proposed building pads that expose bedrock materials at or near finish grade shall be over-excavated and replaced with compacted engineered fill a minimum of 3 feet below proposed finish grade as shown in the Geotechnical Report, **Appendix C-6 and 7** to this EIR. All excavation and lot over-excavation bottoms shall be sloped to a minimum of 1 percent and drain toward the adjacent on-site streets or driveways

to promote subsurface drainage along the bedrock/fill contact. Where steep transitions occur beneath proposed buildings, additional over-excavation (more than 5 feet) may be required, as determined in the field during grading by the Project geotechnical engineer, to reduce the potential for differential settlement. Proposed building pads located above buttress or stabilization fills shall be over-excavated a minimum of 5 feet and capped with a compacted fill blanket to reduce the potential for differential settlement. The removal bottoms shall be observed by the Project geotechnical engineer to evaluate the presence of loose materials and require deeper excavations, if necessary. All excavation and fill requirements specified in the Project Geotechnical Report shall be adhered to.

GE-ED-1e Import fill shall consist of granular materials with a very low to low expansion potential (expansion index of 50 of less), generally free of deleterious material and rock fragments larger than 6 inches, and shall be compacted as recommended in the Project Geotechnical Report.

GE-ED-2 A geotechnical engineer or engineering geologist shall evaluate the hard rock slopes during construction and provide specific design requirements based on each rock fall hazard area, including those identified in **Figure 2.5-1**. Variable slope ratios not exceeding 2:1 shall be used when developing grading plans unless: a report is received from a soil engineer certifying that he or she has investigated the property and that in his or her opinion the proposed steeper slope will be stable and will not endanger any public or private property or result in the deposition of debris on any public way or interfere with any existing drainage course. Avoidance of potential hazards from rock falls may include the stabilization of slopes; construction of rock fall protection devices such as catchment basins or rock debris fences; and/or the removal of boulders presenting a potential rock fall hazard and their placement in a non-hazard position such as a deep fill, the toe of a slope, a canyon bottom, or other safe location. Specific recommended environmental design measures are contained in the Geotechnical Report prepared for the Project (Geocon 2010a).

GE-ED-3 Otay Lakes Road is realigned from its location as shown on the approved Otay SRP to follow the existing location adjacent to Lower Otay Lake. The realignment reduces significant grading and landform alteration impacts.

GE-ED-4 All grading operations and construction shall be conducted in conformance with applicable County regulations and in conformance with the recommendations included in the geotechnical reports for the Project.

GE-ED-5 Following grading, lots with fill or cut slopes shall be revegetated with shrubs and ground cover for erosion control, as well as box trees to minimize visual dominance of the graded slope.

7.6 Hazards and Hazardous Materials

Mitigation Measures

M-HZ-1a Project grading and improvements plans shall be reviewed by the Director of Public Works to determine that water quality basins are designed to drain within 72 hours and include a mechanism to open a flap gate or similar manual device if the drain time becomes too long. Manual drainage shall be conducted if water is held beyond 72 hours. Routine and semi-annual inspections shall include modification of orifice drain holes, if needed, to provide for optimum performance and suitable drain time.

M-HZ-1b The Director of Public Works shall determine the design of the water quality basins include rip-rap fields at inlet scour-protection points to be self-draining concurrent with the processing of grading and improvement plans.

M-HZ-1c Routine and semi-annual water quality basin inspections to the satisfaction of the Director of Public Works shall include removal of accumulated trash and debris that may capture and hold rainwater or runoff, or that accumulates around the outlet riser pipe or discharge orifice; repair of erosion or low-lying areas where ponding of water develops; identification and elimination of possible vector harborage or burrowing rodent activity; inspection for sufficient vegetation coverage for basin side slopes and floor; reduction of vegetation height to minimize insect harborage, with the height of ground cover grasses reduced to a maximum height of 6 inches; investigation and elimination or minimization of upstream dry season flow sources if dry season flows are persistent and lead to constant ponding; and notification of San Diego County Vector Control if sources are from off-site properties.

7.7 Noise

Mitigation Measures

M-N-1a The Project proponent shall prepare a noise protection easement for those lots identified in **Table 2.7-7** of the Project EIR. The noise protection easement language shall contain a restriction stating that the structure and the outdoor activity area will be placed such that a noise barrier will complement the residence's architecture, reduce noise levels at outdoor activity areas to within acceptable standards, and will not incorporate a solid (opaque) wall in excess of 10 feet.

M-N-1b Concurrent with approval of the Final Map, the Project proponents shall dedicate to the County a noise protection easement on each of the lots identified in **Table 2.7-6** for the receptor shown in **Figures 2.7-3, 2.7-4,** and **2.7-5** of the Project EIR. These easements are for the protection of noise-sensitive locations from excessive traffic noise. The noise protection easements shall be shown on the Final Map(s).

M-N-1c For any lot shown to be exposed to noise levels exceeding 60 dBA CNEL, the noise protection easement shall require that, prior to approval of the building permit or

other development approval, an acoustical study be prepared based on proposed noise barrier placement and housing construction to demonstrate and ensure that interior noise levels are below 45 dBA CNEL.

M-N-1d The Project proponent shall construct a noise barrier at the top of slope and at the back of yards for any Noise Sensitive Land Use that would be exposed to a CNEL greater than 60 dBA, as shown in **Figures 2.7-3, 2.7-4,** and **2.7-5** of the Project EIR. The barrier shall be at the height specified in **Table 2.7-7**. Barriers may be constructed of masonry, wood, and transparent materials, such as glass or Lucite. Earthen berms or a combination of berms and walls could also be used to provide noise attenuation.

M-N-1e Noise barriers, as described in M-N-1d, would not reduce noise levels to second-story elevations due to their lesser barrier heights relative to two-story structures. Where two-story homes are to be located where traffic noise levels would meet or exceed 65 dBA CNEL without abatement (see **Table 2.7-6** of the Project EIR), the noise protection easement required by mitigation measure M-N-1 shall specify that the applicant for a building permit or other development approval must have to demonstrate that interior noise levels due to exterior noise sources would not exceed 45 dBA CNEL prior to approval of the building permit or other development approval. In these cases, it is anticipated that the typical method of compliance would be to provide the homes with air conditioning or equivalent forced air circulation to allow occupancy with closed windows, which for most residential construction would provide sufficient exterior-to-interior noise reduction.

M-N-2 Prior to Site Plan approval of proposed land uses within the mixed-use, resort, public safety, the applicant or designee(s) shall prepare acoustical studies of proposed mechanical equipment, which shall identify all noise-generating equipment (including emergency generators and generators associated with the proposed sewer pump stations), predict property line noise levels from all identified equipment, and recommend mitigation to be implemented (e.g., enclosures, barriers, site orientation) as necessary to comply with the County Noise Ordinance, Section 36.404.

M-N-3 Prior to the issuance of a building permit for commercial land uses containing loading docks, delivery areas, and parking lots, the applicant, or its designee, will prepare an acoustical study(s) of proposed commercial land use site plans, which will identify all noise-generating areas and associated equipment, predict noise levels at property lines from all identified areas, and recommend mitigation to be implemented (e.g., enclosures, barriers, site orientation, reduction of parking stalls), as necessary, to comply with the County Noise Ordinance Section 36.404.

M-N-4 To reduce construction noise impacts associated with rock drilling and crushing noise generated by Project-related blasting activities, Project applicant(s) of all

phases of Project development shall conform to the following requirements, which shall be prominently noted on grading plans:

- All blasting shall be performed by a blast contractor and blasting personnel licensed to operate in San Diego County.
    - Each blast shall be monitored and recorded with an air blast over-pressure monitor and groundborne vibration accelerometer approved by the County that is located outside the closest residence to the blast.
    - A blasting plan, including estimates of the air blast over-pressure level and groundborne vibration at the residence closest to the blast, shall be submitted to the County for review prior to the first blast. Blasting shall not commence until the County has approved the blast plan.
- Blasting shall not exceed 0.1 in/sec peak particle velocity (PPV) at the nearest occupied residence in accordance with the County's Noise Guidelines.
- Blasting shall not be conducted within 1,000 feet of on- or off-site sensitive receptors unless the blasting study concludes that a distance less than 1,000 feet is within an acceptable noise level.
    - All rock drilling activities shall be located a minimum distance of 800 feet from the nearest property line where an occupied structure is located and shall comply with County noise standards pursuant to County Code Noise Ordinance Section 36.404. The 800-foot setback distance may be reduced if a noise study is conducted for rock processing activities and noise levels of such activities would be within acceptable County limits at the reduced distances as determined by the noise study.
    - All rock crushing activities shall be located a minimum distance of 350 feet from the nearest property line where an occupied structure is located and shall comply with County noise standards pursuant to County Code Noise Ordinance Section 36.404. The 350-foot setback distance may be reduced if a noise study is conducted for rock processing activities and noise levels of such activities would be within acceptable County limits at the reduced distances as determined by the noise study.

M-N-5 To reduce construction noise impacts associated with rock drilling and crushing noise generated by Project-related blasting activities, Project applicant(s) of all phases of Project development shall conform to the following requirements, which shall be prominently noted on grading plans:

- All blasting shall be performed by a blast contractor and blasting personnel licensed to operate in San Diego County.
    - Each blast shall be monitored and recorded with an air blast over-pressure monitor and groundborne vibration accelerometer approved by the County that is located outside the closest residence to the blast.
    - A blasting plan, including estimates of the air blast over-pressure level and groundborne vibration at the residence closest to the blast, shall be submitted to the County for review prior to the first blast. Blasting shall not commence until the County has approved the blast plan.
- Blasting shall not exceed 0.1 in/sec peak particle velocity (PPV) at the nearest occupied residence in accordance with the County's Noise Guidelines.
- Blasting shall not be conducted within 1,000 feet of on- or off-site sensitive receptors unless the blasting study concludes that a distance less than 1,000 feet is within an acceptable noise level.
    - All rock drilling activities shall be located a minimum distance of 800 feet from the nearest property line where an occupied structure is located and shall comply with County noise standards pursuant to County Code Noise Ordinance Section 36.404. The 800-foot setback distance may be reduced if a noise study is conducted for rock processing activities and noise levels of such activities would be within acceptable County limits at the reduced distances as determined by the noise study.
    - All rock crushing activities shall be located a minimum distance of 350 feet from the nearest property line where an occupied structure is located and shall comply with County noise standards pursuant to County Code Noise Ordinance Section 36.404. The 350-foot setback distance may be reduced if a noise study is conducted for rock processing activities and noise levels of such activities would be within acceptable County limits at the reduced distances as determined by the noise study.

M-N-6 To reduce impacts associated with groundborne vibration generated by Project-related construction activities, the applicant(s) of all Project phases shall conform to the following requirements, which shall be prominently noted on grading plans:

- Heavy construction equipment shall not be operated within 200 feet of any residential structure.
- Rock blasting shall not be performed within 1,000 feet of a residential structure.

- A vibration analysis assessing the proposed blasting and materials handling associated with proposed project shall be submitted to the County for review prior to the first blast. Blasting shall not commence until the County has approved the plan.

Noise Abatement Measures

NA-1 All emergency generators shall be located within enclosures, behind barriers, or oriented within the site design to eliminate the line of site between sensitive receptors and generators.

NA-2 All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

NA-3 Whenever feasible, electrical power shall be used to run air compressors and similar power tools.

NA-4 Equipment staging areas shall be located as far as feasible from occupied residences or schools.

NA-5 For all construction activity on the Project site, noise attenuation techniques shall be employed, as needed, to ensure that noise remains below 75 dBA L_{eq} at future residences. Such techniques may include, but are not limited to, the use of sound blankets on noise-generating equipment and the construction of temporary sound barriers adjacent to construction sites, between affected uses.

NA-6 All rock crushing activities will be located a minimum distance of 2,000 feet from the nearest property line.

Environmental Design Considerations

N-ED-1 Blasting procedures shall comply with County codes and requirements.

N-ED-2 Project features requiring stationary noise emitting components (generators, outdoor mechanical equipment, etc.) shall comply with the County Noise Ordinance for restriction of sound levels at property lines.

N-ED-3 All emergency generators shall be located within enclosures, behind barriers, or oriented within the site design to eliminate the line of site between sensitive receptors and generators.

N-ED-4 All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with

manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

N-ED-5 Whenever feasible, electrical power shall be used to run air compressors and similar power tools.

N-ED-6 Equipment staging areas shall be located as far as feasible from occupied residences or schools.

N-ED-7 For all construction activity on the Project site, noise attenuation techniques shall be employed, as needed, to ensure that noise remains below 75 dBA L_{eq} at future residences. Such techniques may include, but are not limited to, the use of sound blankets on noise-generating equipment and the construction of temporary sound barriers adjacent to construction sites, between affected uses.

N-ED-8 All rock crushing activities shall be located a minimum distance of 2,000 feet from the nearest property line.

N-ED-9 All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

N-ED-10 Whenever feasible, electrical power shall be used to run air compressors and similar power tools.

N-ED-11 Equipment staging areas shall be located as far as feasible from occupied residences or schools.

N-ED-12 For all construction activity on the Project site, noise attenuation techniques shall be employed as needed to ensure that noise remains below 75 dBA L_{eq} at nearby residences. Such techniques may include, but are not limited to, the use of sound blankets on noise-generating equipment and the construction of temporary sound barriers adjacent to construction sites, between affected uses.

7.8 Transportation and Traffic

Mitigation Measures

M-TR-1 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between Wueste Road and the City/County Boundary from two lanes to four lanes (4-Lane Major with Raised Median), such that the improvements are operational prior to issuance of the 728th building permit.

M-TR-2 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the County of San Diego to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between the City/County Boundary and Project Driveway #1 from two lanes to four lanes (4.2A Boulevard with Raised Median) such that the improvements are operational prior to issuance of the 896th building permit.

M-TR-3 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the County of San Diego to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between Project Driveway #1 and Driveway #2 from two lanes to four lanes (4.2A Boulevard with Raised Median) such that the improvements are operational prior to issuance of the 896th building permit.

M-TR-4 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, a traffic signal at the intersection of Otay Lakes Road and Wueste Road such that the improvements are operational prior to the 1,500th building permit.

M-TR-5 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between Lake Crest Drive and Wueste Road from two lanes to four lanes (4-Lane Major with Raised Median) such that the improvements are operational prior to issuance of the 910th building permit.

M-TR-6 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between Wueste Road and the City/County Boundary from two lanes to four lanes (4-Lane Major with Raised Median) such that the improvements are operational prior to issuance of the 728th building permit.

M-TR-7 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, a traffic signal at the intersection of Otay Lakes Road and Wueste Road such that the improvements are operational prior to the 1,500th building permit.

M-TR-8 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with Caltrans to install, cause to be installed, or make a fair-share payment towards an approved plan or program for the signalization of the intersection of Otay Lakes Road and SR-94 such that the traffic signal is operational consistent with Caltrans requirements.

M-TR-9 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between Lake Crest Drive and Wueste Road and the City/County Boundary from two lanes to four lanes (4-Lane Major with Raised Median), such that the improvements are operational prior to issuance of the 910th building permit.

M-TR-10 Prior to recordation of the first final map, the Project applicant shall enter into an agreement with the City of Chula Vista to secure and construct, or cause to be constructed, the widening of Otay Lakes Road between Wueste Road and the City/County Boundary from two lanes to four lanes (4-Lane Major with Raised Median), such that the improvements are operational prior to issuance of the 728th building permit.

M-TR-11 Otay Lakes Road, between City/County Boundary and Project Driveway #1 (County) - this roadway segment is included in the list of facilities included in the County's TIF Program and is classified as a Major Road (4.1B) in the County of San Diego General Plan Mobility Element. The project applicant proposes to change this roadway segment classification to a Boulevard (4.2A). Accordingly, the project applicant would be responsible for participating in an update to the TIF Program to reflect the change in classification. Subsequently, the project applicant would be responsible for complying with the updated TIF Program to mitigate for cumulative impacts.

M-TR-12 Otay Lakes Road, between Project Driveway #1 and Project Driveway #2 (County) - this roadway segment is included in the list of facilities included in the County's TIF Program and is classified as a Major Road (4.1B) in the County of San Diego General Plan Mobility Element. The project applicant proposes to change this roadway segment classification to a Boulevard (4.2A). Accordingly, the project applicant would be responsible for participating in an update to the TIF Program to reflect the change in classification. Subsequently, the project applicant would be responsible for complying with the updated TIF Program to mitigate for cumulative impacts.

Environmental Design Considerations

TR-ED-1 Otay Lakes Road shall be reclassified, widened, and improved to accommodate existing traffic and traffic from the proposed Project. The road shall be realigned in certain areas where current conditions do not meet County standards.

TR-ED-2 Off-site segment and intersection improvements shall be made as warranted by direct Project traffic and cumulative traffic conditions.

7.9 Hydrology and Water Quality

Environmental Design Considerations

HY-ED-1 Energy dissipaters shall be located to reduce velocity of flows to non-erosive conditions.

HY-ED-2 All storm drains shall be designed to accommodate a 100-year storm event.

HY-ED-3 An authorized SWPPP shall be implemented, pursuant to requirements under the NPDES and applicable County standards and requirements. Detailed BMPs for erosion/sediment control and for use of construction-related hazardous materials such as vehicle fuel shall be included in the plan.

7.10 Public Services

7.10.1 Fire Protection and Emergency Services

Environmental Design Considerations

PS-ED-1 The Project shall reserve a 2.1-acre site for the construction of a public safety site to include a fire station and a sheriff's substation.

PS-ED-2 The Project shall incorporate applicable ignition and fire resistance measures for all structures, including the use of approved sprinkler systems, proper roofing and exterior wall materials, and appropriate design construction of facilities such as eaves, vents, doors, window frames, decks, chimneys, gutters, and fences.

PS-ED-3 Fire-related water supplies and access facilities within the site (fire hydrant design and spacing, adequate fire flow) shall comply with requirements identified in the Fire Protection Plan.

PS-ED-4 Project design shall incorporate appropriate fuel management zones (100 feet wide) in designated areas.

PS-ED-5 Fuel modification zones shall be appropriately maintained by the Homeowners' Association (HOA) or Communities Facilities District (CFD) as outlined in the Fire Protection Plan, including such efforts as inspecting/repairing irrigation systems where permitted, vegetation thinning/pruning, and weed removal.

PS-ED-6 The design of all access-related features, such as streets, driveways, alleys, gates, speed bumps, walkways, and emergency access roads, shall comply with applicable requirements of the San Diego County Fire Code.

PS-ED-7 An emergency plan approved by the Rural Fire Protection District shall be prepared and issued to all Project site residents. The plan shall include procedures and guidelines regarding protective actions to take in the event of an emergency.

7.10.2 Schools

Environmental Design Considerations

PS-ED-8 The Project shall reserve a 10.0-acre elementary school site to accommodate up to 800 students.

PS-ED-9 The Project applicants shall pay statuary school fees or enter into an agreement with the school district to finance school facilities through an assessment mechanism including site acquisition at levels equal to or greater than the statutory school fee requirement.

7.10.3 Parks

Environmental Design Considerations

PS-ED-10 A total of 29.6 acres of recreational park area shall be provided throughout the Project site.

PS-ED-11 Fully improved parks shall be maintained by a CFD or similar assessment mechanism or HOA.

PS-ED-12 Public pathways shall be provided along Otay Lakes Road and throughout the residential neighborhoods.

7.11 Utilities and Service Systems

7.11.1 Water Supply

Environmental Design Considerations

UT-ED-1 The Project shall incorporate water conservation features including a low water usage plant palette to reduce outdoor water consumption on single-family lots by a minimum of 30 percent below business as usual, water efficient irrigation systems, and pervious material.

UT-ED-2 The Project shall include the construction of a 5.0 million gallon reservoir for potable water storage.

UT-ED-3 All indoor residential plumbing products shall carry the USEPA's WaterSense certification.

UT-ED-4 High-efficiency irrigation equipment, such as evapotranspiration controllers, soil moisture sensors, and drip emitters, shall be required for all Project components with separate irrigation water meters.

UT-ED-5 Drought tolerant, low-water usage native plants shall be required in public and private landscaped areas.

UT-ED-6 Natural turf in residential development shall be limited to no more than 30 percent of the outdoor open space.

UT-ED-7 A Water Conservation Plan shall be implemented for single-family homes to reduce outdoor irrigation consumption by a minimum of 30 percent from business as usual.

UT-ED-8 Prior to approval of improvements plans for the first final map filed for County approval, the applicant or designee shall prepare a Subarea Master Plan that identifies the sizing and timing of all on-site and off-site water facilities required for the Project site. This plan shall be reviewed and approved by the Otay Water District prior to approval of the first final map for the Project by the County Board of Supervisors.

UT-ED-9 Should recycled water be permitted for use on the Project site to irrigate open space, parks, and common areas, the applicant or designee shall first obtain all required regulatory approvals from the San Diego Regional Water Quality Control Board, City of San Diego, and California Department of Public Health, Drinking Water Division. The County of San Diego, Department of Planning and Development Services, shall review and confirm that all such regulatory approvals have been obtained before recycled water may be used on the Project site.

7.11.2 Wastewater

Environmental Design Considerations

UT-ED-10 A sewer sanitation district shall be formed by the County to serve the Project site. The new district shall enter into a flow transportation agreement with the City of Chula Vista. In addition, the Project shall construct sewer transmission lines, and pay applicable connection and impact fees.

7.11.3 Gas and Electric

Environmental Design Considerations

UT-ED-11 Residential buildings shall meet the design standards of the United States Green Building Council (USGBC) LEED – New Home Certification or the National Association of Homebuilders (NAHB) National Green Building standard.

UT-ED-12 All single-family structures shall be designed to facilitate the installation or retrofit of photovoltaic systems.

UT-ED-13 Project-wide recycling for single-family, multi-family, resort, school, commercial, and retail establishments shall be required.

UT-ED-14 Electric car plug-in facilities/stations shall be provided in all residential garages and public parking areas.

UT-ED-15 Private residential and commercial structures shall be designed to improve energy conservation 20 percent above the 2008 Building Energy Efficiency Standards in Title 24 of the California Code of Regulations.

UT-ED-16 Indoor residential appliances shall carry the USEPA's ENERGYSTAR® certification.

UT-ED-17 All residential units shall be part of the local utility demand response program to limit peak energy usage for cooling.

UT-ED-18 The use of passive solar design and building orientation shall take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during the summer.

UT-ED-19 Vertical landscape elements, such as trees, large shrubs, and climbing vines, shall be required to shade southern and western building facades to reduce energy needed for heating and cooling.

UT-ED-20 All single-family residential units shall be designed to facilitate the later installation of a system that utilizes solar energy as the primary means of heating domestic potable water.

UT-ED-21 All structures shall include the electrical conduit specifically designed to encourage the later installation of a system that utilizes solar photovoltaic or other renewable energy resources as a means of generating electricity.

UT-ED-22 Energy efficient lighting for streets, parks, and other public spaces shall be installed. And, private developers shall be required to use energy efficient lighting and design.

7.12 Global Climate Change

7.12.1 Land Use and Community Design

Environmental Design Considerations

GCC-ED-1 Pedestrian-Oriented Development. The proposed Project's land use plan locates a school, parks, and commercial land in proximity to residential areas to encourage pedestrian and bicycle travel as an alternative to the automobile. In addition, the Resort Village Trail and Pathway system provide alternate routes to these destinations.

GCC-ED-2 Street Widths, Pavement, and Street Trees. Narrow streets and reduced paving reduce heat build-up and the demand for air conditioning. Street trees provide shade that further reduces ambient air temperatures.

7.12.2 Transit Facilities and Alternative Transportation Modes

Environmental Design Considerations

GCC-ED-3 Public Transportation.

- Public bus service for the proposed Project could be provided by Chula Vista Transit (CVT) and SANDAG. Currently, CVT provides bus service through the Chula Vista Eastern Territories, including the EastLake Business Center and nearby Southwestern College.
- The proposed Otay Ranch Resort may provide shuttle service to major transportation centers in the County.

GCC-ED-4 Transportation Demand Management. A transportation demand management program could be developed to encourage ridesharing and carpooling for residents and employees.

CC-ED-5 Alternative Travel Modes.

- The proposed streets are designed for a maximum travel speed of 30 mph, which allows the roadway to be used by electric carts and bicycles.
- Off-street pathways and trails in the Resort Village will accommodate pedestrian and bicycle travel.
- HOAs could be encouraged to partner with the elementary school to create a "walking school bus program" for neighborhood students to safely walk to and from school to reduce vehicular trips for drop-off and pick-up.

7.12.3 Building Siting and Construction

Environmental Design Considerations

GCC-ED-6 Building and Site Design

- Residential buildings would be designed to the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) – New Home Certification standards, or the National Association of Homebuilders (NAHB) National Green Building standard.
- All single-family structures would be designed to facilitate the installation or retrofit of photovoltaic systems.
- Project-wide recycling for single-family, multi-family, resort, school, commercial, and retail establishments would be required.
- Electric car plug-in facilities/stations would be installed in all residential garages and public parking areas.

GCC-ED-7 Energy Efficiency

- Construction of private residential and commercial structures would improve energy conservation 20 percent above the 2008 Building Energy Efficiency Standards in Title 24 of the California Code of Regulations.
- Indoor residential appliances would be required to carry the USEPA's ENERGYSTAR certification.
- All residential units would be required to be part of the local utility demand response program to limit peak energy usage for cooling.

GCC-ED-8 Water Conservation

- Indoor residential plumbing products would carry the USEPA's WaterSense certification.
- Require high-efficiency irrigation equipment, such as evapotranspiration controllers, soil moisture sensors, and drip emitters for all projects that install separate irrigation water meters.
- Use drought-tolerant, low-water usage native plants in public and private landscaped areas.
- Limit natural turf in residential development to no more than 30 percent of the outdoor open space.
- Implement a Water Conservation Plan for single-family homes to reduce outdoor irrigation consumption by a minimum of 30 percent from business as usual.

7.12.4 Solar Access

Environmental Design Considerations

GCC-ED-9 Use passive solar design and building orientation to take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during the summer.

GCC-ED-10 Require installation of vertical landscape elements such as trees, large shrubs, and climbing vines to shade southern and western building facades to reduce energy needed for heating and cooling.

GCC-ED-11 Design and construct the plumbing system to allow for the retrofit of a water heating system that uses solar energy as the primary means of heating domestic potable water.

GCC-ED-12 Design and construct the electrical system to allow for and encourage the retrofit of renewable energy generation such as photovoltaic panels.

7.12.5 Lighting

Environmental Design Considerations

GCC-ED-13 Energy efficient lighting would be installed for streets, parks, and other public spaces. Private developers would use energy efficient lighting and design.

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