

Appendix U Avoidance and Minimization Measures

Rancho Mission Viejo

(1) Avoidance/minimization through Project Modifications

Brodiaea

- The permittee shall avoid all impacts to the largest thread-leaved brodiaea population (a threatened facultative wetland plant) of the major population in a key location (as described in Southern NCCP Planning Guidelines) on Chiquadora Ridge as part of construction for Planning Area 2 (*ACOE Special Condition I.A.3*).

Arroyo Toad

- The permittee shall provide wildlife movement corridors along San Juan Creek, Canada Chiquita, Canada Gobernadora, Cristianitos, Gabino, and Talega Creeks. Uses within these corridors shall be as follows:
 - a. The corridor along San Juan Creek upstream of Trampas Canyon to the edge of the RMV property shall provide a 400-meter wide corridor (200-meter setback off the centerline) except for the narrowing due to infrastructure facilities.
 - b. Residential or commercial structures shall not be constructed within the 400-meter corridor.
 - c. Limited fuel modification zones, trails, and related recreational facilities (i.e., interpretative signage, staging areas, picnic areas) are allowed within the 400-meter corridor.
 - d. Infrastructure facilities are allowed including:
 - i) natural treatment systems for water quality treatment and related drainage facilities;
 - ii) outfalls that are located outside of the ordinary high water mark;
 - iii) approved bridge crossings; and
 - iv) water, sewer, and power facilities as set forth in Figure 1 (*ACOE Special Condition I.D.2*)
- The permittee shall undertake telemetry monitoring studies for arroyo toad near Planning Area 8 for five years and submit the results to the Corps before submittal of an application for Planning Area 8. The results shall be used in designing appropriate measures to minimize impacts to the arroyo toad in Planning Area 8 (*ACOE Special Condition I.D.8*).

Vernal Pools/Fairy Shrimp/Western Spadefoot Toad

- Prior to issuance of a grading permit for Planning Area 5, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all vernal pools in the Trampas Sub-basin have been avoided (*GPA EIR Mitigation Measure 4.9-35*).

Dudleya/Western Spadefoot Toad & Southwestern Pond Turtle

- The permittee shall locate any potential orchards to be located in Planning Area 6, within the areas identified in *Figure 205-M (NCCP Minimization Measure 8-2)*.

(2) Avoidance/Minimization through Construction-Related Measures

Wildlife Movement Corridors

- The permittee shall design new arterial roads or existing arterials upgraded to serve Rancho Mission Viejo projects along San Juan Creek, Chiquita Creek, and Gobernadora Creek, as follows in order to protect wildlife:
 - a. The bridge crossings shall provide a minimum of 20 feet of clearance from the stream bottom;
 - b. Chain link fencing or functionally similar barrier of 10 feet in height (or as revised/determined through adaptive management) shall be installed on both sides of the approaches to the bridge for a distance of 100 feet away (or as revised/determined through adaptive management) from the stream to deter wildlife from entering the roadway (*ACOE Special Condition I.C.1*).
- The permittee shall include a wildlife culvert at Chiquita Narrows within the design of Cristianitos Road with the following dimensions: The culvert shall have a minimum dimension of 15 by 15 feet, the bottom of the culvert shall be of a natural substrate, light shall be visible from one end of the culvert to the other, vegetation installed at either end shall be native low growing to prevent predator-prey stalking, and if required for public health and safety, all lighting on the road above the culvert shall be shielded to prevent spill-over effects (*NCCP Minimization Measure 8-1*).

Multiple Species

- Biological resources outside of the Proposed Project impact area shall be protected during construction. To ensure this protection, the Project Applicant shall prepare and implement a

Biological Resources Construction Plan (BRCP) that provides for the protection of the resource and established the monitoring requirements. The BRCP shall contain at a minimum the following:

- a. Specific measures for the protection of sensitive amphibian, mammal, bird, and plant species during construction.
- b. Identification and quantification of habitats to be removed.
- c. Design of protective fencing around conserved habitat areas and the construction staging areas.
- d. Specific construction monitoring programs for sensitive species required by Wildlife Agencies including, but not limited to, programs for the arroyo toad, western spadefoot toad, southwestern pond turtle, cactus wren, and coastal California gnatcatcher. Such measures shall be consistent with prior Section 7 consultations and 1600 agreements; e.g., Arroyo Trabuco Golf Course.
- e. Specific measures required by Wildlife Agencies (e.g., Arroyo Trabuco Golf Course) for the protection of sensitive habitats including, but are not limited to, erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements (*GPA EIR Mitigation Measure 4.9-30*).

Raptors

- During construction, a construction monitoring program shall be implemented to mitigate for short-term noise impacts to nesting raptors, to the satisfaction of the County of Orange, Manager, Subdivision and Grading. Indirect impacts shall be mitigated by limiting heavy construction (i.e., mass grading) within 300 feet of occupied raptor nests. Occupied raptors nests shall be marked as “Environmentally Sensitive Areas” on grading/construction plans and shall be protected with fencing consisting of T-bar posts and yellow rope. Signs noting the area as an “Environmentally Sensitive Area” will be attached to the rope at regular intervals (*GPA EIR Mitigation Measure 4.9-26*).

Tricolored Blackbird

- Prior to issuance of grading permits for Planning Area 4, the County’s Director of Planning Services/designee shall verify that wetland/riparian habitat for tricolored blackbird at the mouth of Verdugo Canyon has been avoided (*GPA EIR Mitigation Measure 4.9-31*).

Arroyo Toad

- The permittee shall install toad exclusion fencing for any work within 300 feet of a known population of the arroyo toad adjacent to San Juan Creek, Verdugo Creek, Gabino Creek, Cristianitos Creek, and Talega Creek for activities occurring outside of the estivation period (*ACOE Special Condition II.7*).

Fish

- The permittee shall retrofit the existing Cow Camp culvert crossing across San Juan Creek upon receiving authorization to discharge fill materials associated with Planning Area 3 to allow for fish passage. Alternatively, the crossing may be relocated to accomplish the same functional objectives as above and the current crossing may be removed and the disturbed area restored to provide a smooth, continuous longitudinal channel profile. The culverts shall comply with these following guidelines:
 - a. The culvert shall be a minimum of 6 feet in width.
 - b. The bottoms of the culverted crossings shall not be less than 25% of the culvert height.
 - c. Retrofitted culverts shall be at grade (*ACOE Special Condition I.D.3*).
- The permittee shall implement best management practices to prevent the movement of sediment into waters of U.S. Compliance with Ranch Plan EIR Standard Condition 4.5-11 (Erosion and Sediment Control Plan (ESCP)) would satisfy this condition. The ESCP must be designed to minimize the mobilization of fine sediments into downstream waters occupied by steelhead, tidewater goby, and arroyo toad. A copy of the current ESCP shall be provided to the Corps for each project application (*ACOE Special Condition II.8*).
- For each planning area within the San Juan Creek Watershed, the permittee shall survey streams 1,000 feet downstream of each planning area for arroyo chub and partially-armored threespine stickleback prior to construction. If either species are found, downstream turbidity up to 300 feet from the planning area during construction shall not exceed more than 10 NTU over background when the background is less than 50 NTU or a 20 percent increase in turbidity when the background turbidity is more than 50 NTU. Background turbidity values can be obtained by measuring turbidity just upstream of the discharge point during construction. If the turbidity threshold is exceeded, the permittee shall implement additional turbidity control measures within 48 hours to reduce the turbidity to below threshold values (*ACOE Special Condition II.9*).

Southern Tarplant

- Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the *key location* and *major population* of southern tarplant in the Chiquita sub-basin have been substantially avoided. Consistency with this mitigation measure for the portion of Planning Area 2 subject to Planning Reserve shall be addressed in accordance with the requirements of the Planning Reserve Designation (*GPA EIR Mitigation Measure 4.9-2*).
- Translocation of southern tarplant shall occur in accordance with Appendix I – Sensitive Plant Translocation, Propagation and Management Plan

Coulter's Saltbush

- Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the *key location* and *major population* of Coulter's saltbush in the Chiquita sub-basin have been substantially avoided. Consistency with this mitigation measure for the portion of Planning Area 2 subject to Planning Reserve shall be addressed in accordance with the requirements of the Planning Reserve Designation (*GPA EIR Mitigation Measure 4.9-3*).
- Translocation of Coulter's saltbush shall occur in accordance with Appendix I – Sensitive Plant Translocation, Propagation and Management Plan

Mud Nama

- Translocation of mud nama shall occur in accordance with Appendix I – Sensitive Plant Translocation, Propagation and Management Plan

Mariposa Lily

- Translocation of Mariposa lily shall occur in accordance with Appendix I – Sensitive Plant Translocation, Propagation and Management Plan

Many-stemmed Dudleya

- Translocation of many-stemmed dudleya shall occur in accordance with Appendix I – Sensitive Plant Translocation, Propagation and Management Plan

Salt Spring Checkerbloom

- Translocation of salt spring checkerbloom shall occur in accordance with Appendix I – Sensitive Plant Translocation, Propagation and Management Plan

Palmer's grapplinghook

- Palmer's grapplinghook seed will be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. Receiver sites will support clay soils and other conditions suitable for Palmer's grapplinghook. In addition, where feasible, clay soils will be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank.

Vernal Barley

- Vernal barley seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. Receiver sites will support clay soils and other conditions suitable for vernal barley. In addition, where feasible, clay soils will be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank.

Small-flowered Microseris

- Small-flowered microseris seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. Receiver sites will support clay soils and other conditions suitable for small-flowered microseris. In addition, where feasible, clay soils will be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank.

(3) Minimization of Indirect Effects

Lighting

- The permittee shall minimize light-spillover associated with the development to minimize indirect impacts to wildlife. Lighting shall be directed away from habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms, placement low near the ground, or other shielding methods (*ACOE Special Condition I.D.7*).
- Lighting shall be shielded or directed away from RMV Open Space habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms or other shielding methods.

- Prior to the issuance of building permits for a tract with public street lighting adjacent to RMV Open Space habitat areas, the County of Orange shall verify that measures to shield such lighting have been incorporated in the building plans (*GPA EIR Mitigation Measure 4.9-28*).

Invasive Species

- The permittee shall refrain from using invasive exotic vegetation within fuel modification zones. Invasive exotic vegetation species are those rated as medium or high by the California Invasive Plant Council in terms of their invasiveness (*ACOE Special Condition I.D.8*).
- The permittee shall conduct an exotic aquatic animal removal program to remove cowbirds, bullfrogs, non-native fishes, etc., as set forth in the Invasive Species Control Plan (Appendix F4 to the SAMP EIS) (*ACOE Special Condition III.6*).
- All plants identified by the California Exotic Pest Plant Council as an invasive risk in southern California shall be prohibited from development and fuel management zones adjacent to the RMV Open Space. The plant palette for fuel management zones adjacent to the RMV Open Space shall be limited to those species listed on the Orange County Fire Authority Fuel Modification Plant List. Plants native to Rancho Mission Viejo shall be given preference in the plant palette.
- Prior to issuance of fuel modification plan approvals, the County of Orange shall verify that: 1) plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California are not included in plans for fuel management zones adjacent to the RMV Open Space and, 2) the plant palette for fuel management zones adjacent to RMV Open Space is limited to those species listed on the Orange County Fire Authority Fuel Modification Plant List.
- Prior to the recordation of a map for a tract adjacent to the RMV Open Space, the County of Orange shall verify that the CC&Rs contain language prohibiting the planting of plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California in private landscaped areas (*GPA EIR Mitigation Measure 4.9-27*).

Access

- Access to the RMV Open Space shall be managed and directed as specified in the Open Space Agreement between the County of Orange and RMV. Where potential conflicts between development and open space are identified per the agreement the following shall occur:
 - a. Prior to the issuance of building permits for a tract adjacent to the RMV Open Space, the County of Orange shall verify that measures, such as fencing, signs, etc., to direct the public to public access points within the RMV Open Space have been incorporated into the

building plans. To the extent that public access points are not identified, the County of Orange shall verify that measures, such as fencing, signs, etc., to prohibit public access have been incorporated into the building plans (*GPA EIR Mitigation Measure 4.9-29*).

(4) Restoration of Temporary Impact Areas

- All temporarily impacted upland areas shall be restored to pre-construction elevations within one month following completion of work. All temporarily impacted upland areas will be restored to equivalent or better conditions compared to the existing condition at the time of impact. Re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within one growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water.

(5) Grazing Management Plan Species Avoidance Measures after Reserve Dedication

Arroyo Toad

- Cattle shall be seasonally excluded from active breeding pools and adjacent sand bars and benches to the maximum extent practical within lower Gabino Creek during arroyo toad breeding season. To the extent feasible and/or necessary, temporary fencing around active breeding pools and adjacent sand bars and benches shall be erected to discourage cattle from entering these areas (*Grazing Management Plan*).
- Cattle shall be seasonally excluded from active breeding pools and adjacent sand bars and benches to the maximum extent practical within San Juan Creek during arroyo toad breeding season. To the extent feasible and/or necessary, temporary fencing around active breeding pools and adjacent sand bars and benches shall be erected to discourage cattle from entering these areas (*Grazing Management Plan*).

Vernal Pools/Fairy Shrimp

- If recommended by the Science Panel, cattle shall be seasonally excluded from the Radio Tower Road vernal pools once sufficient rainfall has occurred to result in the pools ponding (i.e., holding water) to a depth of at least 1 inch lasting for at least 24 hours. To the extent necessary (i.e., if cattle are being grazed in the Radio Tower Road pasture), temporary fencing shall be erected around the pools to discourage cattle from entering the pools. If erected, fencing shall remain in

place until the pools are sufficiently dry that cattle hooves do not result in soil disturbance and compaction.

Southwestern Willow Flycatcher/Least Bell's Vireo

- Grazing within GERA for fuel modification purposes once every three years shall be conducted outside the breeding season for southwestern willow flycatcher and least Bell's vireo (February 15 to July 15).

(6) MSAA Avoidance/Minimization Measures

- The permittee shall implement a contractor education program to provide an overview and understanding of the project construction special conditions. A copy of the Special Conditions must be included in all bid packages for the project and be available at the work site at all times during periods of work and must be presented upon request by any Corps or other agency personnel with a reasonable reason for making such a request (*ACOE Special Condition II.1*).
- The permittee shall perform initial vegetation clearing in waters of the U.S. between September 15 and March 15. Work in waters may occur between March 15 and September 15 if breeding bird surveys indicate the absence of any nesting birds within a 50-foot radius (*ACOE Special Condition II.2*).
- In all areas external to the planning area boundaries, the permittee shall provide plans to the Corps showing the limits of grading, upland haul routes, fueling and storage areas for vehicles outside of waters of the U.S., temporary impact areas, dewatering areas, and temporary access roads within waters of the U.S. Plans shall be provided with each project application for each planning area for review prior to project impacts (*ACOE Special Condition II.3*).
- The permittee shall place, heavy equipment working in or crossing wetlands on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment, when practicable and if personnel would not be put into any additional potential hazard. Temporary construction mats shall be removed promptly after construction (*ACOE Special Condition II.4*).
- The permittee shall only discharge dredged or fill material into waters of the U.S. that is free from pollutants in toxic amounts (see Section 307 of the Clean Water Act). The permittee shall not place within waters of the U.S. unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.).
- This condition is satisfied through the use of on-site materials from balanced cut-and-fill grading operations for every Planning Area except for Planning Area 8.

- For Planning Area 8, the permittee shall prepare an updated Phase I Environmental Site Assessment (GPA EIR Mitigation Measure 4.14-13), prepare a comprehensive closure plan (GPA EIS Mitigation Measure 4.14-15), prepare a Health and Safety Contingency Plan (GPA EIR Mitigation Measure 4.14.1), remove all underground storage tanks (GPA EIR Mitigation Measure 4.14-6), and in the event that toxic materials are discovered during construction, an in the field assessment (GPA EIR Mitigation Measure 4.14-2). Such assessments shall be provided to the Corps. The permittee shall not discharge fill materials associated with Planning Area 8 containing toxic amounts of pollutants (*ACOE Special Condition II.5*).
- The permittee shall identify the limits of impacts in the field with brightly-colored flags, tape, or other marking to prevent unauthorized grading outside approved footprints (*ACOE Special Condition II.6*).
- The permittee shall restore all temporarily impacted areas to pre-construction elevations within one month following completion of work. If wetlands or non-wetland waters of the U.S. vegetated with native wetland species were impacted, re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within 1 growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water (*ACOE Special Condition II.10*).
- During construction of each Planning Area or associated infrastructure, the permittee shall provide weekly construction reports via e-mail, fax, and/or mail demonstrating status of compliance with all project construction special conditions. Appropriate photos shall be submitted to show establishment of project construction minimization features (*ACOE Special Condition II.12*).

Santa Margarita Water District

(1) Avoidance/Minimization through Construction-Related Measures

- The permittee shall implement a contractor education program to provide an overview and understanding of the project construction special conditions. A copy of the Special Conditions must be included in all bid packages for the project and be available at the work site at all times during periods of work and must be presented upon request by any Corps or other agency personnel with a reasonable reason for making such a request (*ACOE Special Condition SMWD II.1*).

- The permittee shall perform initial vegetation clearing in waters of the U.S. between September 15 and March 15. Work in waters may occur between March 15 and September 15 if breeding bird surveys indicate the absence of any nesting birds within a 50-foot radius (*ACOE Special Condition SMWD II.2*).
- With each project LOP application, the permittee shall provide plans to the Corps showing the limits of grading, upland haul routes, fueling and storage areas for vehicles outside of waters of the U.S., temporary impact areas, dewatering areas, and temporary access roads within waters of the U.S. The permittee shall conform the grading to pre-identified impacts (*ACOE Special Condition SMWD II.3*).
- The permittee shall place heavy equipment working in or crossing wetlands on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment, when practicable and if personnel would not be put into any additional potential hazard. Temporary construction mats shall be removed promptly after construction (*ACOE Special Condition SMWD II.4*).
- The permittee shall only discharge dredged or fill material into waters of the U.S. that is free from pollutants in toxic amounts (see Section 307 of the Clean Water Act). The permittee shall not place within waters of the U.S. unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) (*ACOE Special Condition SMWD II.5*).
- The permittee shall identify the limits of impacts in the field with brightly-colored flags, tape, or other marking to prevent unauthorized grading outside approved footprints (*ACOE Special Condition SMWD II.6*).
- The permittee shall install toad exclusion fencing for any work within 300 feet of a known population of the arroyo toad adjacent to San Juan Creek, Verdugo Creek, Gabino Creek, Cristianitos Creek, and Talega Creek for activities occurring outside of the estivation period (*ACOE Special Condition SMWD II.7*).
- The permittee shall implement best management practices to prevent the movement of sediment into waters of U.S. The permittee shall develop a program-level plan to minimize the mobilization of fine sediments into downstream waters. A copy of the plan shall be provided to the Corps before issuance of the final permit (*ACOE Special Condition SMWD II.8*).
- The permittee shall restore all temporarily impacted areas to pre-construction elevations within one month following completion of work. If wetlands or non-wetland waters of the U.S. vegetated with native wetland species were impacted, re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within 1 growing season. If re-

vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water (*ACOE Special Condition SMWD II.9*).

- During work on each infrastructure project, the permittee shall provide weekly construction reports via e-mail, fax, and/or mail demonstrating status of compliance with all project construction special conditions. Appropriate photos shall be submitted to show establishment of project construction minimization features (*ACOE Special Condition SMWD II.11*).
- The permittee shall allow the Corps to inspect the site at any time during and immediately after project implementation provided a 24-hour advance notice is given to the permittee (*ACOE Special Condition SMWD II.12*).