



Restoration Plan for Sensitive Vegetation in Temporary Impact Areas

Submitted to:

California Public Utilities Commission
U.S. Department of Interior Bureau of Land Management
U.S. Fish and Wildlife Service
California Department of Fish and Game
U.S. Department of Agriculture Forest Service

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ABBREVIATIONS AND ACRONYMS

BLM	Bureau of Land Management, U.S. Department of Interior
BMP	Best Management Practice(s)
BO	Biological Opinion
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CNDDDB	California Natural Diversity Database
CNF	Cleveland National Forest
CPUC	California Public Utilities Commission
Final EIR/EIS	Final Environmental Impact Report & Environmental Impact Statement
HAP/HMP	Habitat Acquisition Plan and Habitat Management Plan
HMMP	Habitat Mitigation and Monitoring Plan
MMCRP	Mitigation Monitoring Compliance, and Reporting Plan
MP	Mile Post
NTRP	Native Tree Restoration Plan
RPD	Record of Decision
ROW	Right-of-Way
RPSP	Restoration Plan for Special Status Plants
RPSV	Restoration Plan for Sensitive Vegetation Communities in Temporary Impact Areas
SDG&E	San Diego Gas and Electric Company
SRPL	Sunrise Powerlink
SWPPP	Storm Water Pollution Prevention Plan
USFS	United States Forest Service, U.S. Department of Agriculture
USFWS	United States Fish and Wildlife Service

1. INTRODUCTION

This revised final *Restoration Plan for Sensitive Vegetation in Temporary Impact Areas* (RPSV) replaces all earlier versions of the document.

This section describes the purpose and organization of the RPSV and its relationship to other mitigation plans for San Diego Gas and Electric Company's (SDG&E's) Sunrise Powerlink Project (Project). This section also summarizes roles and responsibilities for plan implementation.

1.1 PURPOSE

This RPSV was prepared in accordance with mitigation requirements specified in:

- The Final Environmental Impact Report and Environmental Impact Statement (Final EIR/EIS) for the Project, which was prepared and approved by the California Public Utilities Commission (CPUC) and U.S. Department of Interior Bureau of Land Management (BLM) as lead agencies;
- The Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) for the Project (a component of the Final EIR/EIS), specifically measures B-1a and G-CM-16;
- The Records of Decision (RODs) issued by the BLM and U.S. Department of Agriculture Forest Service (USFS) for the Final EIR/EIS; and
- The reintitiated Biological Opinion (BO) issued by the U.S. Department of Interior Fish and Wildlife Service (USFWS) pursuant to Section 7 of the federal Endangered Species Act (FESA).

As worded in the Final EIR/EIS and MMCRP and repeated in the RODs and BO:

- Areas temporarily impacted by the Project must be restored to pre-construction conditions,
- The restoration of sensitive vegetation in temporary impact areas must be planned and implemented by a qualified habitat restoration specialist.
- A habitat restoration plan must be prepared and approved prior to vegetation clearing activities;
- Specific types of measures must be addressed in the restoration plan;
- Restoration sites must be maintained and monitored for five years or until the established success criteria are met; and

- Where it is determined that restoration requirements cannot be met, offsite mitigation must be provided at the ratios established for impacts to each type of sensitive vegetation.

This RPSV is the habitat restoration plan cited in the Final EIR/EIS, MMCRP measures B-1a and G-CM-16, the RODs, and the BO. It was prepared by restoration specialists at ICF International and Chambers Group and has been reviewed and approved by the CPUC, BLM, USFWS, USFS, and CDFG.

1.2 ORGANIZATION

Following this introduction (section 1), the RPSV is organized into five sections:

- Section 2 identifies the types of impact areas and vegetation communities subject to the RPSV;
- Section 3 describes the sequence and types of activities required to restore vegetation within the temporary impact areas;
- Section 4 provides guidelines for restoring the sensitive vegetation communities and listed species' habitat in the Project's temporary impact areas;
- Section 5 identifies the maintenance, monitoring, and reporting requirements that will apply to the restoration sites; and
- Section 6 describes the required content of site-specific restoration plans and the process by which those plans will be prepared and approved.

1.3 RELATIONSHIP TO OTHER PROJECT MITIGATION PLANS

In addition to the RPSV, there are other required mitigation plans for the Project that address restoration requirements. These include the following documents:

- Habitat Acquisition Plan and Habitat Management Plan (HAP/HMP),
- Cleveland National Forest (CNF) HAP/HMP,
- Weed Control Plan (WCP),
- Storm Water Pollution Prevention Plans (SWPPPs),
- Habitat Mitigation and Monitoring Program (HMMP),
- Restoration Plan for Special Status Plants (RPSP), and
- Native Tree Restoration Plan (NTRP).

Table 1 provides a brief description of each plan and relationship of the RPSV to each.

Table 1. Relationship of the RPSV to Other Project Mitigation Plans

Document	Description	Relationship of the RPSV
Habitat Acquisition Plan and Habitat Management Plan (HAP/HMP)	The HAP/HMP addresses the offsite mitigation requirements for the Project's impacts on sensitive vegetation communities and listed species outside of Cleveland National Forest. The impacts are those identified in the Project Modification Report (PMR) dated May 2010. The HAP/HMP identifies nine properties that will be conserved and managed through funding provided by SDG&E and includes a management plan for each property. Each management plan identifies the mitigation function of the property, the proposed land manager and owner, management tasks necessary to conserve the property's mitigation values, funding required for initial and ongoing management, and the current status of the land acquisition. Under the HAP/HMP, approximately 8,940 acres will be acquired, and approximately \$17,072,416 will be provided for management. As of September 22, 2010, five of the properties (2,460 acres) have been acquired.	The RPSV addresses the onsite (restoration) requirements for the impacts of the Project as presented in the May 2010 PMR. It covers the temporary impacts to the same vegetation types addressed in the HAP/HMP. The RPSV also provides information and guidelines that can be considered in the management of the HAP/HMP properties. The acres of habitat conserved on the nine HAP/HMP properties exceed the amount required to meet the offsite requirements specified for the Project. This provides assurances to the agencies that temporary impacts will still be fully mitigated if restoration is not 100% successful.
Cleveland National Forest HAP/HMP	The CNF HAP/HMP will identify the offsite mitigation lands for Project impacts to sensitive vegetation and species in CNF and will include a management plan for those properties. USFS has provided SDG&E with a list of potential mitigation properties and has indicated that, based on the requirements specified in the USFS ROD, at least 185.56 acres are needed as mitigation.	The RPSV will be the onsite (restoration) counterpart to the offsite mitigation identified in the CNF HAP/HMP.
Weed Control Plan (WCP)	The WCP covers the identification and control of noxious weeds within the Project ROW and impact areas for the life of the Project. Requirements include a pre-construction inventory of noxious weeds in the Project area, annual surveys during construction and for two years after construction, surveys every two years after construction, implementation treatment and preventive measures during operations and maintenance as well as construction.	The WCP measures apply to the temporary impact areas during construction and restoration. Once the temporary impact areas are restored under the RPSV, the WCB would only apply to the portions of those areas within the Project right-of-way (ROW). WCP measures will be coordinated with RPSV weed control measures in the temporary impact areas.
Storm Water Pollution Prevention Plans (SWWPs)	SWPPPs are plans required under the Project's National Pollution Discharge Elimination System (NPDES) and General Construction Permit. Each SWPPP includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants. Among other issues, the SWPPPs address erosion and sediment controls during and after construction at each Project impact area.	The SWPPP measures at temporary impact areas will be planned and implemented with the RPSV restoration requirements in mind, and vice versa. The site-specific restoration plans will be SWPPP revegetation program for the location.
Habitat Mitigation and Monitoring Plan (HMMP)	The HMMP identifies the offsite properties where jurisdictional waters and wetland/riparian resources will be preserved, enhanced, and/or restored as a condition of the Project's 401/404 permits and Streambed Alteration Agreement (SAA). The HMMP indicates where the HMMP measures will be implemented, what success criteria will apply, the cost of those measures, and the source of assured funding for those measures. Temporary as well as permanent impacts to dry washes and riparian/wet-land habitats are covered by the HMMP. After the HMMP success criteria are met, long-term management of the offsite property is guided by the HAP/HMP.	The measures in the RPSV for restoring riparian and wetland vegetation in temporary impact areas are based on those in the HMMP. The measures in the RPSV for upland vegetation identify how restoration adjacent to riparian/wetland types in temporary impact areas would be addressed.

Document	Description	Relationship of the RPSV
Restoration Plan for Special Status Plant Species (RPSV)	The MMCRP requires that impacts to listed plants be mitigated through salvage and relocation and/or offsite conservation at a 2:1 ratio and that impacts to CNPS List 1 and 2, BLM sensitive species, and USFS sensitive species be mitigated through reseeding or relocation as part of the restoration of temporary impact areas or via offsite habitat conservation. No listed plants and nine CNPS List 1 or 2, and/or BLM or USFS sensitive species will be affected. The RPSV provides for the reseeding/relocation of 9 non-listed species and for the offsite conservation of 4 non-listed species.	Most RPSV measures will be implemented in temporary impact areas as part of site-specific RPSV plans.
Native Tree Restoration Plan (NTRP)	The MMCRP requires that Project impacts to native trees be mitigated through the planting of replacement trees and/or the conservation of existing woodlands at specified ratios. The NTRP identifies the methods and ratios that will apply in circumstances when replanting is required; it also identifies the woodland conservation that SDG&E is providing in advance of impacts.	The RPSV addresses restoration of woodlands, with a focus on understory vegetation. SDG&E is mitigating impacts to native trees in two ways: 1) for impacts outside of CNF, woodlands are being conserved at the specified ratios; 2) for impacts within CNF, SDG&E has prepared and submitted a NTRP.

1.4 ROLES AND RESPONSIBILITIES

Restoration of sensitive vegetation communities and listed species’ habitat within temporary impact areas will be funded, managed, implemented, maintained, and reported by a variety of responsible parties.

- SDG&E is responsible for funding, implementing, and successfully completing the restoration activities in this RPSV.
- SDG&E will retain a Restoration Program Manager to oversee RPSV implementation. The Program Manager’s responsibilities include but are not limited to:
 - 1) managing the schedule of restoration activities;
 - 2) overseeing preparation and implementation of the site-specific restoration plans;
 - 3) overseeing the work all contractors retained for restoration tasks;
 - 4) preparing reports on RPSV implementation, including reports on maintenance and monitoring tasks;
 - 5) maintaining communications with the Project Biological Monitor appointed by the CPUC; and
 - 6) ensuring that RPSV activities occur according to schedule and within the requirements of all applicable Project permits.
- Restoration Contractors (including Restoration Specialists and Restoration Monitors), Maintenance Contractors, and other parties retained by SDG&E will be responsible for site-specific planning and implementation of restoration activities as directed by the Restoration Program Manager.

2. IMPACT AREAS, VEGETATION COMMUNITIES, AND SPECIES OF CONCERN

This section provides a brief description of the types of temporary areas where restoration is required and estimated amount and types of sensitive vegetation communities in those areas. This section also identifies special status wildlife and plant species whose presence and/or habitat requirements are a consideration in planning restoration within the temporary impact areas.

2.1 PROJECT IMPACT AREAS

The construction phase of the Project entails a combination of permanent and temporary ground disturbance.

Permanent impact areas include:

- Structure pad areas – 100 feet (ft) x 100 ft areas that include the concrete foundations of the transmission line structures (lattice towers and poles).
- Maintenance areas – 75 ft x 35 ft areas adjacent to over lapping the structure pad area at sites constructed by conventional methods; established to provide storage and provide access to the structure during operations and maintenance.
- Tower staging access pads (TSAPs) – 100-ft diameter areas for equipment loading/work staging for structures built and maintained by helicopter.
- The Suncrest Substation – a 76-acre area that includes the substation facility, where the 500 kilovolt (kV) portion of the transmission line converts to 230 kV.
- Permanent access roads – new roads and improved existing roads that provide access to the structure and substation work sites and also will be used during operations and maintenance.
- Grading areas – locations not encompassed by the above impact areas, where grading is required for infrastructure. Ranging in size from 0.04 to 1.8 acres.

Temporary impact areas include:

- Work Areas – 200 ft x 200 ft or 200 ft x 400ft areas encompassing a structure pad, used during construction only to establish tower foundations, complete conventional tower assembly and erection, and store and maintain equipment for tower assembly. Work areas are not required for structures constructed by helicopter.
- Stringing areas – areas where wire stringing and tensioning equipment is used and stored during construction; also used for temporary storage of wire/conductor supplies. Ranging in size from one to several acres.
- Construction yards – ranging in size from 5 to 100 acres, used for equipment and construction materials storage, crew staging, and field office operations.
- Guard areas -- Three vertical poles with cross arms, used to prevent wires from contacting the ground during stringing; used at road crossings. Bucket trucks also can serve as guard structures. Installation and removal typically disturbs approximately 150 square ft per set of three poles.
- Temporary access roads – new roads or improved existing roads (20 ft wide) that are used only to provide access during construction and will be decommissioned afterwards.

The temporary impact areas are where restoration will occur. Table 2 indicates the number of sites per type of temporary impact and provides a description of the type and duration of activities and the anticipated post-construction condition at each type of site. The number of sites per type of impact is based on the information in the May 2010 PMR.

For additional details regarding Project activities and structures (temporary and permanent), see the Project Description in chapter B of the Final EIR/EIS and the Project's final Construction Plans, Drawings, and Specifications. For structures within CNF, see Exhibit 4 of the USFS Special Use Permit.

2.2 VEGETATION COMMUNITIES

The Project affects seven sensitive vegetation communities, each of which occurs in the temporary impact areas. Table 3 identifies the sensitive vegetation communities by type, and the estimated acres within temporary impact areas. Table 4 indicates the acres of sensitive vegetation per type of temporary impact area. Appendix A provides additional detail regarding the location and Project activity within each temporary impact area.

2.3 SPECIES OF CONCERN

There are 22 special status wildlife and plant species that will be affected by Project activities in temporary impact areas, and their occurrence and/or habitat requirements will be addressed during site-specific restoration planning. Mitigation for temporary impacts to these species is required under the MMCRP, BO, and/or other Project determinations and will be coordinated with implementation of the RPSV. The species are:

- Wildlife
 1. Quino checkerspot butterfly, *Euphydryas editha quino* (FE)
 2. Arroyo toad, *Bufo californicus* (FT)
 3. Barefoot banded gecko, *Coleonyx switaki* (ST)
 4. Flat-tailed horned lizard, *Phrynosoma mcallii* (PFT)
 5. Coastal California gnatcatcher, *Polioptila californica californica* (FT, CSC)
 6. Peninsular bighorn sheep, *Ovis canadensis nelsoni* (FT, ST)

- Plants
 7. Delicate clarkia, *Clarkia delicata* (CNPS 1B.2, CNF Sensitive)
 8. Desert beauty, *Linanthus bellus* (CNPS 2.3)
 9. Haydon's lotus, *Lotus haydonii* (CNPS 1B.3)
 10. Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus* (CNPS 1B.2, BLM and CNF Sensitive)
 11. Payson's caulanthus, *Caulanthus simulans* (CNF Sensitive, CNPS 4.2)
 12. Rayless ragwort, *Senecio aphanactis* (CNPS 2.2)
 13. San Diego gumplant, *Grindelia hirsutula* var. *hallii* (CNPS 1B.2)
 14. Sticky geraea, *Geraea viscida* (CNPS 2.3)
 15. Tecate tarplant, *Deinandra floribunda* (CNPS 1B.2, BLM and CNF Sensitive)

Appendices B (wildlife) and C (plants) provide information based on the May 2010 PMR regarding the location and type of Project activity in the temporary impact areas where the special status species or their habitat occur.

The wildlife species in the above list also occur or are assumed to occur in the Project's permanent impact areas and include all listed species that will be affected by the Project. Other listed species and species proposed for listing occur within the Project area, but impacts are being avoided through a variety of approved measures. These species include but are not limited to bald and golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetoscanadensis*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). The impact avoidance measures for these species that apply to construction activities also will apply to restoration activities within temporary impact areas. There also are numerous non-listed special status wildlife species associated with the sensitive vegetation communities that will be restored. Examples of these other species are listed for each vegetation community in section 4 of this RPSV. In addition, one species has been identified for special consideration in the restoration of chaparral, coastal scrub, and mix woodland communities. The species is the Hermes copper butterfly (*Lycaena hermes*), which is a species of local importance but one for which mitigation for habitat impacts is not required under the MMCRP.

Of the plant species listed above, six also occur in permanent impact areas: delicate clarkia, desert beauty, Jacumba milk-vetch, Payson's caulanthus, sticky geraea, and Tecate tarplant. Haydon's lotus, San Diego gumplant, and rayless ragwort only occur in temporary impact areas. Not included in the above list are five special status plants that occur only in permanent impact areas: Lakeside ceanothus, hairy stickleaf, felt leaved monardella, Nuttall's scrub oak, and Moreno currant (see RPSP for more information about these five species).

Table 2. Temporary Impact Areas Where Restoration Will Occur

Type (number ¹)	Anticipated Activities /Duration	Anticipated Post-Construction Site Condition
Access Roads (5.24 miles)	Temporary access roads will be used to access tower sites where conventional construction is necessary but the roads are not allowed to remain. These roads will be in place for approximately six to eight weeks duration to accommodate the tower construction process.	Expect all vegetation to be removed, grading to be performed and heavy equipment use during the construction period will result in a moderate to high degree of soil compaction. Decompaction, weed removal, soil re-contouring (and amending), and hydro-seeding would be required.
Guard Structures (239)	Guard structures consist of three metal poles that will be installed in the ground within a variety of habitat areas to prevent wires from contacting the ground during stringing. Each guard structure will be in place for up to four weeks during wire installation.	Expect ground disturbance consisting of three divot holes for the three poles or vegetation crushing and/or soil compaction from the use of bucket trucks. Actual ground disturbance, including impacts from the transport, installation, and removal of poles and equipment, will be documented in pre- and post-construction reports. Restoration generally will entail soil replacement and/or minor broadcast seed application, with follow up weed monitoring/maintenance.
Construction Yards (19)	Construction yards will have multiple uses that are anticipated to extend over one year at most sites, and over two years at yards where field offices will be established (Alpine, Rough Acres). These activities include tower steel and construction materials (soil, rock, concrete) storage, contractor vehicle and heavy equipment parking, helicopter landing, vehicle wash stations, etc.	Expect all woody vegetation to be removed where necessary, with relatively level areas and sparse vegetation crushed. Expect rock and/or steel plates to be used in some areas, and grading to fit the needs of the contractor at these sites. Due to varied uses and extended duration of impacts, a high degree of soil compaction may occur. Trash and debris removal, soil decompaction, weed removal, soil re-contouring (and amending), and hydro-seeding would be required throughout each site.
Stringing Sites (78)	Stringing sites will be used after tower construction is completed and during wire pulling and installation. Wire stringing activities are anticipated to occur for approximately four weeks at each pull site.	Expect most sites to use drive and crush, as opposed to blading and direct removal of vegetation. Heavy equipment will be used on the site so some degree of localized soil compaction is anticipated. Where grading and vegetation/soil removal are necessary, soil salvage would be recommended. Decompaction, soil re-contouring (and amending), and hydro-seeding would be required in portions of each site.
Work Areas (205)	Temporary work areas will be used to establish tower foundations, complete conventional tower assembly and erection, and store and maintain equipment for tower assembly. These areas will receive heavy foot traffic as well as a variety of heavy equipment, steel, tools, and other construction materials. Construction activities are anticipated to occur over three to six weeks at most tower sites.	Expect most temporary work areas to be graded and have vegetation removed. Soil salvage is not anticipated in these areas but would be recommended where feasible. Heavy machinery and foot traffic would result in some degree of soil compaction. Decompaction, weed removal, soil re-contouring (and amending), and hydro-seeding would be required throughout each site.

Note

¹ Number of impact sites is from the data base for the May 2010 PMR.

Table 3. Sensitive Vegetation Communities in Temporary Impact Areas by Vegetation Type (acres)

Community	Vegetation Type	Acres in Temporary Impact Areas ¹
Chaparral	Chamise Chaparral	33.71
	Northern Mixed Chaparral	51.40
	Redshank Chaparral	2.56
	Scrub Oak Chaparral	1.16
	Semi-Desert Chaparral	118.78
	Southern Mixed Chaparral	16.35
	Total	223.96
Coastal and Montane Scrub	Big Sagebrush Scrub	8.43
	Diegan Coastal Sage Scrub	21.92
	Diegan Coastal Sage Scrub – Inland Form	6.97
	Flat-Topped Buckwheat Scrub	29.62
	Total	66.94
Desert Scrub and Dune	Sonoran Creosote Bush Scrub	117.40
	Sonoran Mixed Woody and Succulent Scrub	6.75
	Sonoran Mixed Woody Scrub	14.07
	Sonoran Desert Wash Scrub	0.58
	Sonoran Desert Scrub	3.47
	Total	142.27
Grassland and Meadow	Non-Native Grassland	48.31
Herbaceous Wetland, Freshwater Marsh and Streams	Non-Vegetated Channel	2.37
Riparian Forest and Woodland	Southern Coast Live Oak Riparian Forest	0.08
Woodland and Forest	Coast Live Oak Woodland	3.60
	Peninsular Juniper Woodland and Scrub	0.32
	Total	3.92

Note

¹ Acreage estimates are from the May 2010 PMR.

Table 4. Sensitive Vegetation in Temporary Impact Areas by Area Type (acres)

Temporary Impact Type	Vegetation Type	Acres ¹
Access Roads	Chaparrals	1.64
	Coastal and Montane Scrub Habitats	2.81
	Desert Scrub and Dune Habitats	0.87
	Grasslands and Meadows	0.73
	Herbaceous Wetlands, Freshwater, and Streams	0.07
	Woodlands and Forests	0.02
Access Road Total		6.14
Construction Yards	Chaparrals	105.84
	Coastal and Montane Scrub Habitats	39.50
	Desert Scrub and Dune Habitats	83.82
	Grasslands and Meadows	38.65
	Herbaceous Wetlands, Freshwater, and Streams	0.31
	Woodlands and Forests	1.87
Construction Yard Total		269.99
Guard Areas	Chaparrals	0.38
	Coastal and Montane Scrub Habitats	0.12
	Desert Scrub and Dune Habitats	0.11
	Grasslands and Meadows	0.02
	Herbaceous Wetlands, Freshwater, and Streams	0.01
	Riparian Forests and Woodlands	0.03
	Woodlands and Forests	0.04
Guard Areas Total		0.71
String Sites	Chaparrals	66.35
	Coastal and Montane Scrub Habitats	14.50
	Desert Scrub and Dune Habitats	23.78
	Grasslands and Meadows	7.00
	Herbaceous Wetlands, Freshwater, and Streams	0.72
	Woodlands and Forests	0.46
String Site Area Total		112.80
Work Areas	Chaparrals	49.76
	Coastal and Montane Scrub Habitats	10.00
	Desert Scrub and Dune Habitats	33.68
	Grasslands and Meadows	2.01
	Herbaceous Wetlands, Freshwater, and Streams	1.26
	Riparian Forests and Woodlands	0.06
	Woodlands and Forests	1.53
Work Area Total		98.31
Grand Total		487.95

Note

¹ Acreage estimates are from the May 2010 PMR.

3. STANDARD RESTORATION PRESCRIPTIONS

This section describes the sequence and types of activities required to restore vegetation communities in the temporary impact areas and indicates the timing of the restoration activities in relation to construction activities.

3.1 ACTIVITIES BEFORE AND DURING CONSTRUCTION

3.1.1 PRE-IMPACT SITE DOCUMENTATION

As also described in “6. Site-Specific Restoration Plans,” data on existing biological conditions will be compiled at the temporary impact areas prior to the initiation of Project construction activities at those sites. At sites that will be graded and sites where soil will be compacted for a prolonged period, soil density will be tested to determine existing conditions and establish a target value. Collection of the data will be coordinated with preparation of the site description for the applicable SWPPP. The information will be compiled from site assessments and past surveys conducted for the Project and will include but not be limited to:

- A plant species list (native and non-native plants);
- Distribution and characteristics of vegetation communities;
- Distribution and characteristics of habitat for special status wildlife species;
- Known or assumed occurrence of listed and other special status species;
- Known locations and estimated size of special status plant populations;
- Location of Federal and State waters;
- Weed survey results;
- Soil types, density, and conditions; and
- Site photos

For early planning and reporting purposes, the extent of impact areas has been estimated as closely as possible based on previous field delineations and construction plans, but on-site verification of the construction footprint and environmental conditions will provide the most accurate and detailed assessment of actual impacts. In addition, while early survey work provided sufficient information to characterize basic vegetation and habitat conditions at most sites, the Restoration Specialists can provide a more exact assessment of species and habitat within the actual area of impact. Vegetation around the areas of temporary impacts will be surveyed and separate species lists will be compiled for the areas considered to be “waters” or non-vegetated channel, and the adjacent upland areas. The Project Restoration Specialists will document the existing topography for temporarily impacted waters within the construction footprint. This information will be important for re-contouring channel banks

and other soil surfaces to pre-project conditions. If wetlands are present, vegetation within the wetlands will be described separately.

The Restoration Program Manager will determine the need for collection of any additional site specific information to inform the restoration process.

3.1.2 SEED COLLECTION

Collection of seed for restoration of sensitive vegetation will be closely coordinated with collection of seed for special status plant restoration and for revegetation of impact areas not covered by the RPSV. Seed collection in CNF within the Project ROW and impact areas is covered by the Project's Special Use Permit from USFS; seed collection in CNF outside the ROW and impact areas requires a separate permit from USFS. For all seed collecting in CNF, SDG&E shall provide an advance schedule and map showing areas where seed collection will occur. This schedule and map shall be provided at least one week in advance of seed collection.

Native plant seeds will be collected from permanent and temporary Project impact areas, as well as non-impacted portions of the project ROW prior to beginning Project construction activities. Initial seed collection efforts will focus on sensitive plant species located within Project impact areas, and subsequent seed collection will include more common plant species that will comprise the volume of the seed mixes utilized for Project restoration activities. Seed collection from the Project ROW will occur on an annual basis through the end of the construction period to ensure adequate seed supplies for all Project restoration activities, including potential remedial seeding.

All seed material will be collected by a professional contract seed-collector who is qualified and authorized to collect native seed from wild source populations. Species flowering periods, annual rainfall patterns, elevation, and general field variability of plant populations all influence the timing of seed set, so collection managers will inspect native seed sources prior to mobilizing crews to identify optimal collection times for the desired species and for efficiency, seed will be collected for multiple species concurrently when possible. Seed material will consist of locally endemic native seed collected from the Project ROW where approved by the CPUC, BLM, USFWS, CDFG, and – for restoration within Cleveland National Forest (CNF) -- USFS, or from approved areas no more than 20 miles outside of the Project ROW (e.g. offsite habitat acquisition/mitigation parcels, etc.). Collecting seed for Project restoration activities from this predefined region will ensure consistency with the MMRP, and will protect the regional biodiversity and evolutionary fitness of native plant populations from genetic contamination potentially introduced by seed material obtained commercially or from other bioregions. The Restoration Program Manager will designate a Restoration Specialist to oversee quality controls on seed collection, including use of qualified seed collectors.

Availability of seed may be limited by edaphic factors including drought during the collection period, so flexibility in species selection and application rates will be necessary. Actual amounts of seed necessary will ultimately be determined by the purity and germination rates of the collected seed. Seed utilized will not contain more than 0.5 percent weed (as defined by Cal-IPC, 2006) seed by volume. All seed material will be separated and clearly labeled with the date of collection, location, and species by

scientific name. All seed material will also be weighed, cleaned, and tested for purity and germination values. Seed material will then be mixed for the appropriate acreage of each habitat type within the various restoration sites along the Project ROW. Seeds will be stored in a cool, dry environment until delivery.

To ensure an adequate supply, seed collection for the RPSV was initiated in September 2010 and is expected to continue through at least December 2011. The duration of the seed collection will be based on the total volume that will be specified within the site-specific restoration plans.

3.1.3 VEGETATION CLEARING AND PLANT SALVAGE

All temporary impact locations where perennial shrubby vegetation is present will be pruned by hand, mowed, chained and/or mulched prior to the commencement of other construction activities. These activities will aid in preserving the underground biomass (roots, tubers, or caudex) of native perennial plant species as well as the mycorrhizal network and seed bank in the temporarily impacted location. These activities are of particular importance in chaparral and desert scrub vegetation communities.

Live plant material will be salvaged where the RPSP requires that sensitive plant species be removed from an impact area prior to construction, stored onsite during construction, and transplanted into the site after construction has been completed. The Restoration Program Manager also will have the option to identify areas where native plant salvage will be implemented.

3.1.4 SOIL SALVAGE

Salvaging soils prior to construction generally will be implemented to restore temporary Project impact areas in which excavation of soil is necessary. Prior to the commencement of grading, the Restoration Specialist will identify how many inches of topsoil will be salvaged onsite. Generally, at least the upper six to eight inches of topsoil will be salvaged, especially in areas containing a high proportion of native plant species. In CNF, at least 12 inches will be salvaged, more if site conditions would allow. Areas with high densities of non-native or invasive plant species will be excluded from soil salvaging efforts. Salvaging topsoil will help to retain the beneficial soil mycorrhizal network, microorganisms, and native seed bank and assist in the establishment of native plants. All existing native vegetation will be mulched into the topsoil prior to salvage, and the topsoil will be stockpiled within the temporary impact area during construction. The height and configuration of the topsoil stockpiles will be identified in the site-specific restoration plans and will take into consideration the size of the work area, erosion control requirements, visual impacts, and related matters. The stockpile will be monitored and maintained to control invasive weeds; native plant material will be encouraged to grow on the stockpile. To minimize compaction, no equipment will be allowed to travel over or park on the stockpile under any circumstances. Silt fencing will be installed around the stockpile to prevent erosion and as a barrier to preclude any unauthorized access.

In desert areas (e.g., east of Mountain Springs Grade), the focus will be on retaining plant nutrients in "islands of fertility" (Garcia-Moya, 1970) around the bases of shrubs, (Soil nitrogen content decreases significantly as a function of radial distance from the center of the shrub canopy.) This type of soil

material will be left in place in areas of temporary disturbance. Shrubs will be trimmed to a low height or to the crown, and allowed to re-sprout using their existing mature root system. Additionally, annual plants will grow quickly in the relatively undisturbed high-nutrient island under the canopy of a shrub. These shrubs are generally the key species of these desert plant communities.

3.1.5 WEED AND EROSION/SEDIMENT CONTROL

During construction, control of noxious weeds within temporary impact areas will occur as prescribed in the WCP. Erosion and sedimentation controls, including onsite storage of top soils or plant materials, will occur as prescribed in the applicable SWPPP.

3.2 POST-CONSTRUCTION ACTIVITIES

3.2.1 TRASH AND DEBRIS REMOVAL

After completion of Project construction activities, the Restoration Contractor will remove any trash and debris from the temporary impact area(s) to be restored. This includes all man-made materials and construction debris (e.g., concrete washout, wire, hardware, metal, plastic, glass, ceramic, rubber, etc.) that may be left onsite. Organic materials including woody debris, plant material, straw, sand, and minor amounts of rock or gravel base materials may be incorporated into the site soils prior to soil decompaction. The Restoration Contractor will be responsible for removal of all trash and debris from the restoration site to an approved waste disposal site (licensed landfill).

3.2.2 WEED CONTROL

Weed control following construction will occur as prescribed in the WCP and the applicable site-specific restoration plan. The restoration site(s) will be maintained in weed-free condition prior to seed installation, and the last application of weed controls will occur a minimum of 30 days before seeding activities are initiated. Weed control will entail the use of manual and mechanical methods (e.g., removal by hand or string trimmers) and selective use of herbicides. Any use of herbicides is predicated on compliance with all applicable regulations and securing any required authorizations from the agency with land use control over the site. Where herbicide use is allowed, manufacturer specifications regarding the length of time which must pass following herbicide application prior to planting and seeding will be followed.

Table 5 below displays the Project list for those species that must be controlled within Project restoration areas. The weed species list comes from direct observation of weed species occurring along the Project route as recorded by Recon Environmental during the rare plant survey and documented in the Rare Plant Survey Report (Recon, 2009). Weed species observed are presented below, with the associated California Invasive Plant Council (Cal-IPC) listing (Cal-IPC, 2006).

Table 5. Invasive Plant Species List¹

Scientific Name	Common Name	Cal-IPC Rating ²
<i>Brassica tournefortii</i>	Sahara mustard	High
<i>Bromus madritensis</i>	red brome	High
<i>Bromus tectorum</i>	cheat grass, downy brome	High
<i>Cortaderia selloana</i>	pampas grass	High
<i>Foeniculum vulgare</i>	Fennel	High
<i>Tamarix ramosissima</i>	salt cedar	High
<i>Atriplex semibaccata</i>	Australian saltbush	Moderate
<i>Avena barbata</i>	slender wild oat	Moderate
<i>Avena fatua</i>	wild oat	Moderate
<i>Brassica nigra</i>	black mustard	Moderate
<i>Bromus diandrus</i>	ripgrut grass	Moderate
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate
<i>Centaurea melitensis</i>	tocolote, star-thistle	Moderate
<i>Cirsium vulgare</i>	bull thistle	Moderate
<i>Cynodon dactylon</i>	Bermuda grass	Moderate
<i>Dittrichia graveolens</i>	Stinkwort	Moderate
<i>Hirschfeldia incana</i>	short-pod mustard	Moderate
<i>Lolium multiflorum</i>	Italian ryegrass	Moderate
<i>Nicotiana glauca</i>	tree tobacco	Moderate
<i>Oxalis pes-caprae</i>	bermuda buttercup	Moderate
<i>Sisymbrium irio</i>	London rocket	Moderate
<i>Vulpia myuros</i>	rattail fescue	Moderate
<i>Brassica rapa</i>	field mustard	Limited
<i>Bromus hordeaceus</i>	soft chess	Limited
<i>Descurainia sophia</i>	fine-leaf tansy-mustard	Limited
<i>Erodium botrys</i>	long-beak filaree	Limited
<i>Helminthotheca echioides</i> [<i>Picris echioides</i>]	bristly ox-tongue	Limited
<i>Hypochaeris glabra</i>	smooth cat's-ear	Limited
<i>Marrubium vulgare</i>	Horehound	Limited
<i>Medicago polymorpha</i>	California bur clover	Limited
<i>Polypogon monspeliensis</i>	annual beard grass	Limited
<i>Rumex crispus</i>	curly dock	Limited
<i>Salsola tragus</i>	Russian thistle, tumbleweed	Limited
<i>Schismus barbatus</i>	Mediterranean schismus	Limited
<i>Tamarix</i> sp.	Tamarisk	Limited

Notes

- 1 List is from the Project's Weed Control Plan.
- 2 Species organized according to invasiveness rating by the California Invasive Plant Council (Cal-IPC, 2006).

3.2.2.1 PHYSICAL REMOVAL METHODS

Physical weed control methods are labor intensive and will generally be utilized to control relatively small populations of weeds, or used in sensitive habitats where wildlife may be indirectly affected by weed removal activities. These weed control methods may provide an advantage in native habitats where desirable species are left in place while removing surrounding weeds. Recommended physical control methods are as follows:

- Dethatching, or removal of a layer of dead vegetation, will be utilized where dense plant litter may prevent native seed from germinating. Care will be taken when using this method because it can cause soil disturbance and thereby promote weed establishment;
- Hand pulling will be utilized to remove annual and biennial species in relatively small areas (e.g. less than one acre) prior to seed set and minimize soil disturbance;
- Cutting will be utilized to remove shrub and tree species. This method will require follow-up herbicide applications to kill the root system and prevent resprouting; and
- Mechanical removal will be utilized to remove weed infestations from large areas (e.g. greater than one acre) where few or no native plant species are present. This method will utilize a mower, weed whacker, or tiller.

There also may be opportunities to use methods such as solarization and composting on topsoils salvaged from areas dominated by non-natives to kill non-native seed and improve likelihood of native plant recovery during restoration.

3.2.2.2 CHEMICAL WEED REMOVAL METHODS

Chemical means of controlling weeds consists of the application of herbicides. Herbicides can be a very effective method in controlling weed species by killing or inhibiting plant growth. The appropriate method of chemical application varies based on species and also with the degree of infestation, time of year, temperature, and environmental conditions. Herbicides will be used to control weeds by a qualified applicator licensed by the State of California Department of Pesticide Regulation and only where directed by the Restoration Contractor.

Per the weed control plan adopted for this Project, SDG&E will designate a Weed Control Manager to oversee weed removal efforts and to approve any trained staff or certified pesticide applicators who will handle herbicides. The environmental risks of using herbicides will be minimized by using marker dyes to make the herbicide visible in areas where it has been applied. Higher visibility is desirable because it allows personnel to more effectively protect themselves against contamination; prevents unintended multiple application to a particular area or plant; ensures complete coverage of the target area and plants; and informs personnel of overspray and wind-drift issues, which protects non-target plants.

3.2.2.3 USE OF HERBICIDES WITHIN CNF

For sites in CNF, authorization for use of herbicides is not permitted without additional environmental analysis, in accordance with NEPA and other applicable laws.

3.2.3 SOIL DECOMPACTION

Decompaction of soils following construction activities is anticipated to be required for portions of all stringing sites, as well as throughout all construction yards and temporary access road areas. Decompaction of soils will improve water infiltration and allow for plant root growth in restoration

areas. These Project areas will be decompacted by ripping/cross ripping, to a depth of at least 12 inches when possible, with ripper teeth mounted to the back of a bulldozer, or disking and scarifying less compacted surfaces using farming implements including tillers and disks pulled by tractors. After the compacted soil surface is broken up, implements to smooth the rough surface and return it to its original contour (e.g., drag harrows with both spike-tines and flex-tines, or link-chain harrows) will be utilized. On temporary access roads, berms will be broken up and leveled to allow natural drainage of the area.

3.2.4 SOIL RE-CONTOURING

Sites that require grading or that are partially or entirely located on slopes will be contour-graded to as close to the pre-impact condition as possible prior to the implementation of restoration activities. Soil re-contouring will be planned and implemented so that the reshaped land matches surrounding landforms and the photos of pre-impact conditions (also see 6.4 Site Plans). The following landform grading techniques will be incorporated during re-contouring to return the topography of the sites to a condition that blends with the surrounding undisturbed habitat areas:

- Varying slope ratios will be used to avoid the regularity and linearity of straight graded 2:1 slopes throughout the project site. Slope ratios will vary in the horizontal planes and both steep and flat gradients should be incorporated;
- Drainage devices, V-ditches, terrace drains, and benches will be constructed on an angle as inconspicuously as possible (i.e., with a backcut). Any portion of a drainage device that is visible from a distance will be tinted with an appropriate earthen tone color to be disguised with the surrounding habitat; and
- In areas where newly graded slopes meet the existing landform, the graded slope will transition in a manner that appears natural (i.e., contours will be smoothed rather than end abruptly at existing contours).

3.2.5 SPREADING OF SALVAGED SOIL

In areas where top soil has been salvaged, the Maintenance Contractor will scarify the finished grade to a minimum depth of six inches and spread the salvaged soil over the restoration area to the maximum depth based on availability of soil. The loose top soil will then be tamped into the scarified surface by track walking the area with a dozer or a sheep foot roller. Track walking should be perpendicular to the contours on any slope. Topsoil surfaces should be left in a roughened (scarified) condition suitable for planting.

3.2.6 RESTORATION OF TEMPORARY IMPACTS TO 'WATERS'

The Project temporary impacts to 'waters' will be restored after Project construction is complete as closely as possible to pre-construction conditions. Information collected by biological monitors and Restoration Specialists prior to and during the Project construction phase will be utilized to facilitate this

restoration process. Restoration activities will generally include removal of fill material from 'waters', and restoration of previous grade and soil surface contours as described above.

Removal of fill, if applicable, in 'waters' will include excavation of road bed materials placed in drainages and/or removal of any temporary culverts. Where imported gabion or cobble was used as fill material, complete removal with machinery and by hand is anticipated to be completed. Where soil fill was used, the material will be excavated to the depth and width of the original stream or dry wash contours, as determined by measurements taken by biological monitors and/or restoration Specialists. The restored channel will be matched to the undisturbed upstream and downstream portions to approximate pre-project conditions. Following removal of any fill material, the grade and contours of channel banks at temporary impact sites will be restored.

3.2.7 SOIL TESTING

Following soil decompaction and re-contouring activities, the Restoration Specialist will determine if soil sampling should be conducted. A standard composite soil sampling method will be used to represent average soil conditions onsite and to reduce sampling effort and analytical cost. The proposed restoration site will be subdivided into areas of uniform soil based on soil color, slope, texture, and drainage. Each area with distinguishable soils within the restoration site and adjacent habitat will be sampled separately. Composite samples will consist of 2 to 10 randomly selected soil cores from areas with similar soils throughout the site. Each soil core will be taken from 0 to 4 inches below the surface and combined to make the composite sample. If most of the areas within the restoration site are uniform, two composite soil samples will suffice. The number of composite samples taken from each site will depend on local site conditions and will be determined by the Restoration Specialist. Samples will be sent to a soil lab for Standard Agricultural Suitability Analysis. The analysis will identify percentages of organic matter, textural classification, textural tests, silt sand clay content, sodium absorption rate (SAR), electrical conductivity (ECe), cation exchange capacity, boron content, deleterious material, pH, mineral and plant-nutrient content of topsoil and elemental data, corrective recommendations and soil amendment recommendations.

3.2.8 SOIL AMENDMENTS

In connection with the soil analysis, the Restoration Specialist will assess whether organic soil amendments should be considered to improve moisture and nutrient holding capacity. In deciding whether or not to add compost or other micronutrient supplements such as phosphorus and potassium, the Restoration Specialist will consider existing scientific information and "lessons" learned from similar projects. Amendments that would favor non-native annual grasses and forbs will be avoided. Any compost used must be weed free. (Compost may also be added to a hydroseed mixture prior to application.) If soil amendments are proposed, the site-specific plan for that area shall include a description of the scientific basis, type and source of additives, and application method for the amendment(s).

3.3 SEED APPLICATION

3.3.1 SEED SOURCES

Seed material will be installed following the completion of all necessary soil preparation activities described above. The seed lists presented in Section 4 are composed of plant species known to occur in the Project impact areas and are based upon the results of plant surveys conducted for the Project. Species selected for seeding have been observed in habitats with similar conditions to those present onsite prior to construction activities. These Project-specific seed mixes are expected to return temporary Project impact areas to fully functional plant communities with the restoration timeframe.

For sites on CNF, the seed mixture and method of application must be approved in advance by USFS.

3.3.2 SEED APPLICATION TIMING

To promote successful plant establishment, seeding will ideally occur between October 1 and March 15 annually to take advantage of winter rains and cooler, moderate temperatures. Project construction is anticipated to begin in Fall/Winter 2010, and continue through approximately 2012. Due to the large number of temporary impact sites to be restored and the fact that restoration will ultimately be driven by completion of the construction schedule in any given area, these seed application timing conditions may not always be met. The use of hydroseed with wood fiber and a binder, as prescribed in Table 6 below, will facilitate seed application outside of this seasonal window assuming the restoration site will not be subject to significant surface disturbance prior to the onset of the winter rain season in southern California. If the site(s) are disturbed after seed application, the Restoration Contractor will reapply the seed mix between October 1 and March 15.

3.3.3 MYCORRHIZAL INOCULATION

The restoration areas will receive granular mycorrhizal inoculum. The application of multi-species commercial inoculum will be avoided. The inoculum will contain only a single species of fungus to minimize the potential for persistence of non-native fungi. Note that native fungal species can typically return to a site naturally within one to three years if suitable host plants are available (St. John, 1998). Mycorrhizal inoculum provides symbiotic organisms that are often the key to the success of a restoration project. Natives require these organisms, and weeds typically do not. Their presence can sometimes make weeds less troublesome on a restoration project. The following conditions apply to the use of inoculum:

- Endo (arbuscular) mycorrhizal inoculum will be registered by the California Department of Food and Agriculture and consist of spores, mycelium, and mycorrhizal root fragments in a solid carrier suitable for handling by broadcast seeding, hydroseeding, or drill seeding. The carrier will be the material in which the inoculum was originally produced and may include organic materials, vermiculite, perlite, calcined clay, or other approved materials consistent with mechanical application and good plant growth.

- A single species inoculum will be used when available. However, if this is not feasible, for each endomycorrhizal inoculum the species *Glomus intraradicis* will be a minimum of 50 percent of the propagules. The inoculum will carry a supplier's guarantee of 80,000 propagules minimum per kg; the minimum propagule count will be shown on each label provided. If more than one fungal species is claimed by the supplier, the label will include a guarantee for each species claimed.
- Endomycorrhizal inoculum is a live material that will be stored, transported, and applied at temperatures of less than 90 degrees Fahrenheit (32°C). If temperatures will exceed 90 degrees Fahrenheit, the inoculum will be covered or incorporated within three hours of its application.

3.3.4 SEEDING METHODS

One or a combination of three available methods of seed application may be used depending upon the specific restoration site conditions. These include hydroseeding, broadcast (or hand-broadcast) seeding, and land imprinting. Where these specifications apply to only a single seeding method, they should be considered as applicable only if the Restoration Contractor selects the corresponding method.

For sites on CNF, the seed mixture and method of application must be approved in advance by USFS.

3.3.5 HYDROSEEDING

Hydroseeding is a conventional method of revegetation widely used in large scale revegetation efforts. The effective method of combining seed mixtures with the necessary agents including fertilizer, fiber mulch, tackifier, dyes, and other additives, allows for the quick germination of seeds, which can be spread over a large area using trucks and/or trailer mounted tanks. Hydroseed hoses typically do not exceed 300 feet, and application requires that water be provided for the slurry mixture by a water truck or other method. Although all of the identified restoration sites are located in areas accessible by road, there may be instances where a restoration site could be accessed and hydroseeded by helicopter.

For sites on CNF, the seed mixture and method of application must be approved in advance by USFS.

3.3.5.1 HYDROSEEDING APPLICATION

The restoration areas will be seeded using a two-stage hydroseed application method. Preventive measures will be taken to avoid damage to adjacent, undisturbed vegetation. The hydroseed application should be conducted under the direction of the Restoration Contractor in accordance with the following requirements:

- All hydroseed mixing will be completed in a clean tank. The tank will be rinsed a minimum of three times. It is the Restoration Contractor’s responsibility to locate a washout area where rinsing can be carried out legally. The hydroseeder will be equipped with a built-in continuous agitation and recirculation system of sufficient operating capacity to produce homogeneous slurry and a discharge system that will apply slurry to the designated areas at a continuous and uniform rate;
- The slurry preparation will take place within the Project ROW whenever possible and should be started by adding water to the tank with the engine running at half-throttle. Good recirculation will be established when the water level has reached the height of the agitator shaft. At this time, the seed and inoculum will be added. The fiber (first application) or tackifier (second application) will be added when the tank is at least 30 percent filled with water. The hydroseeding Restoration Contractor will commence spraying once the tank is full and a homogeneous slurry has been created;
- The hydroseeding Restoration Contractor will spray designated areas with the slurry in a sweeping motion and in an arched stream until a uniform coat is achieved, with no slumping or shadowing as the material is spread at the required rate;
- The hydroseed slurry must float down from the arched stream as opposed to being shot directly at the ground. During hydroseeding, adjacent plants will be protected from damage (including but not limited to coating with seed or tackifier, damage by direct spray, and damage by dragging the hose). The tanks will be emptied completely during each stage of hydroseeding. Excessive coating on adjacent plants will be removed before the end of the day;
- Any slurry mixture that has not been applied by the hydroseeding Restoration Contractor within one hour after mixing will be rejected and replaced at the Restoration Contractor’s expense. In addition, no construction activity or vehicular or mechanical tracking will occur within the designated hydroseeded areas after hydroseed has been applied.

The hydroseed specifications for the first and second hydroseed application within all restoration areas are summarized below in Table 6.

Table 6. Hydroseed Application Specifications

First Hydroseed Application	Second Hydroseed Application (within 2 hours of first application)
Specified seed and suitable carrier	1,500 lbs/acre of long strand wood fiber
500 pounds lbs/acre of long-strand wood fiber	90 lbs/acre of M-Binder
60 lbs/acre of endomycorrhizal inoculum	N/A

3.3.5.2 EQUIPMENT AND SUPPLIES FOR HYDROSEEDING

Fiber Mulch

Fiber mulch used hydroseeding will only be 100 percent long-stranded wood fiber. Fiber will not contain recycled wood pulp products. The mulch will be applied at a rate of between 1,500 and 3,000 pounds per acre or per manufacturer's recommendation. The mulch may contain dyes to provide visual cues to which areas have and have not received seed. The color of any dyes added to mixes will be identified in the site-specific restoration plan for the area. Tan or brown hues that blend with the landscape are preferred.

Compost

Compost may be utilized in lieu of fiber mulch or combined with fiber mulch. It is a product produced by the controlled biological decomposition of organic matter that has been sanitized through the generation of heat and stabilized to be beneficial to plant growth. Compost is usually derived from chipped, shredded or ground vegetation or clean processed wood products and has numerous biological and physical benefits. Several commercial brands are available. In all cases, the manufacturer's application rate recommendation will be followed.

Binder

Tackifier forms a firm, resilient, re-absorbent membrane that fastens seed to the soil surface. Tackifier used hydroseeding will be Ecology Controls, M-Binder, or an equivalent product. The binder will be applied at 90 pounds per acre or per manufacturer's recommendation.

Water

Water will be obtained by the Restoration Contractor in compliance with the Project water use plan and will be free of harmful impurities, excess chlorine, and salts.

3.3.6 BROADCAST SEEDING

Broadcast seeding will be utilized for guard areas and other very small restoration areas at the discretion of the Restoration Program Manager. Broadcast seeding involves the mechanical spreading of a seed mixture over the desired revegetation site.

3.3.6.1 SITE PREPARATION AND APPLICATION OF BROADCAST SEEDING

Adequate site preparation is recommended to allow for the germination of the seed mixture. Site preparation may involve scarifying or decompacting soils, debris removal, pre-watering to aid seed adhesion, and installation of site-specific BMPs, including drift fencing, straw wattles, and other materials and measures as needed.

- Seed will not be broadcast on a windy day;

- Clean seeds will be mixed with one to four parts of an inert carrier, such as moist sand or saw dust;
- The seeds will be broadcast dry to soil containing residual moisture within 0.25 inch of the soil surface. If the soil does not contain residual moisture, then, if possible, the site will be watered thoroughly with a water truck prior to sowing to adequately moisten the upper layer of the soil;
- Broadcast seeding will be followed immediately by raking and pressing the seeds into contact with the soil, using weighted rollers or other appropriate equipment. The roller may be weighted with water, depending on soil conditions;
- Seed also may be broadcast by hand over smaller sites. Seed will be mixed with a carrier as stated above, and divided into two equal parts. Half of the seed will then be hand-broadcast by walking across the entire site in a north-south orientation, or another linear orientation appropriate for the site. The remaining half of the seed will then be hand-broadcast by walking across the site in an east-west orientation, or perpendicular to the first application. This method ensures even distribution of seed throughout the site.

3.3.7 IMPRINT SEEDING

Land imprinting may be utilized in large areas with flat terrain (e.g., construction yards) at the discretion of the Restoration Program Manager. This method will be used on a grade of 2:1 slope or less and when soil conditions are such that the imprinter leaves an impression the full depth of the imprinter tooth. Land imprinting is used to create seed "safe sites" that collect water and shade seedlings to promote establishment.

3.3.7.1 SEEDBED PREPARATION AND TREATMENT FOR LAND IMPRINTING

- The soil may be imprinted when dry if it is soft enough to allow penetration of the imprinting teeth to their full depth and firm enough to permit the formation of smooth-walled, firm impressions. If the dry soil does not allow formation of quality impressions, it may not be imprinted until rainfall or irrigation leaves it in a suitable condition;
- Soil that is too hard to accept a pattern that conforms to performance specifications with a properly weighted imprinter will be ripped before imprinting. Adjustment of the imprinter ballast is preferred over ripping where feasible;
- Clay soil will not be imprinted while it is so wet that substantial quantities of soil stick to the roller. Shallow soils over bedrock also will not be imprinted.

3.3.7.2 VEGETATIVE COVER

The land imprinting operation will be utilized on bare earth or on land that has only a minimal vegetative cover, except as specified below. If the amount and nature of vegetative cover is sufficient to interfere with soil contact and the formation of quality impressions, such vegetation will be removed by raking, or other suitable means prior to imprinting.

3.3.7.3 OPERATING PROCEDURES

The optimum operating speed is three to four miles per hour. The imprinter will be pulled at a speed low enough to ensure that the full weight of the roller bears upon the soil at all times. If the impressions are longer than 10 inches, the long dimension of each imprint will lie parallel to the contour of the slope. If imprint length is 10 inches or less, the imprinter may be used in any orientation to the slope. The imprinting pattern will extend fully to the boundaries of the reseeding site. The area at the Project restoration area boundary may serve as a turn-around area and will be imprinted by a final pass along the Project perimeter. If conditions do not permit imprinting the perimeter, a turn-around area within the Project restoration site will not be fully imprinted. Any unimprinted turn-around area on the Project boundary will be no wider than the smallest turning radius allowed by the equipment.

3.3.7.4 EQUIPMENT AND SUPPLIES FOR LAND IMPRINTING

The characteristics of imprinting teeth will be:

- The height of the imprinting teeth will be a minimum of four inches. Imprinting teeth will be V-shaped in transverse section and may be rectangular or triangular in longitudinal section;
- The crest-to-crest spacing between teeth will be less than two feet, with one foot being optimum for restoration activities;
- The apical angle of the triangular cross section of the imprinting teeth will be 90 degrees or less, with acute teeth preferred for the steepest slopes.

The desired weight, pressure, and type of tractor are:

- The static pressure on the soil surface is measured by dividing the total weight of the imprinter, including any ballast, by the total area of tooth contact when the teeth have penetrated half way into the soil. The static pressure on the soil surface will be at least 12 pounds per square inch and less than 48 pounds per square inch. The lower weights are for softer soils and the higher weights for harder or drier soils;
- No more pressure will be used than that required to obtain a full-tooth imprint;
- No individual roller will be more than eight feet in length, except in the case of level, rock-free land that will not cause a long roller to leave unimprinted areas. More than one roller may be attached to a single imprinting device as long as each roller swivels independently over surface obstructions. In this case, the combined rollers may be any practical width;

The form of impressions for land imprinting will be:

- A minimum of 70 percent of the soil surface will bear impressions, apart from any peripheral turn-around area and areas rendered untreatable by rocks or other natural features;
- A minimum of 70 percent of the impressions will reach 90 percent of the full tooth depth;

- A minimum of 70 percent of the impressions will have smooth and firm soil for more than 70 percent of their surface area;
- No portion of the imprinted soil profile will exceed 80 percent compaction;
- In lieu of an imprinting machine, dozer track walking perpendicular to the site contours may also be used to create seed “safe sites” prior to hand-broadcasting or hydroseeding.

3.4 CONTAINER PLANTING

Container planting (with supplemental irrigation) is not proposed as a priority restoration technique in this RPSV but may be utilized where deemed necessary by the Restoration Program Manager. Use of container plants on sites within CNF is subject to advance approval by USFS.

To the greatest extent possible, container plants will be propagated and/or grown from seed collected within or immediately adjacent to the Project ROW. If cuttings are obtained to be propagated for planting, they will be collected from within or immediately adjacent to the Project ROW as well. Propagation will be conducted by transferring collected seed or cuttings to a contract-grow nursery for germination, propagation, care, conditioning, and establishment in preparation for planting at restoration sites. The contract-grow nursery will be experienced in the germination, propagation, care, maintenance, conditioning, and establishment of native plants for installation into native habitats. Nursery staff will be proficient in the prevention, identification, and treatment of fungal diseases and other pest or weed infestations that may occur while the plants are under nursery care.

Standard one-gallon containers will be utilized for shrub and perennial herb species to ensure the plants have sufficient root establishment and growth to be resilient to planting shock or harsh conditions of the restoration site. This size container also allows for adequate time at the nursery to properly harden the plants prior to out-planting. Liner, plugs, 4-inch pots, or Deepots™ may be substituted for the one-gallon containers upon approval by the Restoration Program Manager.

It is anticipated that container plants will not be used as a general component of the restoration effort. However, container plants may be used in special circumstances (i.e. remedial measures) as approved by the Restoration Program Manager.

3.4.1.1 CONTAINER PLANT MATERIAL INSPECTION

The Restoration Specialist will be responsible for inspection of any and all container plants used at the restoration site(s). The plants may be inspected at the nursery immediately prior to shipment for delivery to the planting location, or immediately upon delivery. At least 10 percent of container plants will be inspected for plants with coiled roots (rootbound), disease infestation, insufficient root development, signs of micronutrient deficiencies, or other conditions less than favorable for out-planting. Plants found to be deficient will not be accepted for planting within the restoration sites. If any of these conditions are observed upon inspection, an additional 10 percent of the plant material will be inspected until the delivery is either accepted or rejected and returned to the nursery. Upon delivery to the restoration site, plants will be stored in a safe location, protected from adverse weather, browsing

by herbivores, vandalism, or other conditions that may be detrimental to the plant prior to planting. Container plants will be delivered and maintained in a manner consistent with the following specifications:

- All plants will be hardened to frost/drought;
- All plant species that would normally host mycorrhizal fungi will be inoculated with mycorrhizal fungi;
- Plants will not be grown with excessive fertilization at the nursery;
- Plant root systems will fill the containers, but not be root-bound at time of delivery;
- Plant materials will be properly labeled as to genus, species, subspecies or variety, and source;
- Plant materials will be provided in quantities and sizes specified;
- Plants will be ready for planting during the specified planting period;
- No plants showing signs of serious pest infestation or disease will be accepted;
- All plant substitutions will require written approval from the Restoration Program Manager;
- Plants will not be subjected to breakage or desiccation during transport. Any broken or desiccated plants will be rejected;
- Plant materials will be inspected and approved by the Restoration Specialist prior to delivery;
- Upon delivery to the restoration site(s), plants will be stored in a safe location, evenly spaced, upright, and watered as needed until planting. All materials will be protected from adverse weather, vandalism, or other conditions that may be detrimental to the plant(s); and
- During unloading, plant containers will be placed on the ground and not be dropped from any height. Dropping a container on the ground may break the root mass holding the rootball together causing the rootball to fall apart during removal from the container and irreparably damaging the plant.

3.4.1.2 CONTAINER PLANT INSTALLATION

Placement and spacing of planting will be distributed to mimic natural groupings and patterns of vegetation growing in similar habitats. Planting plans may (or may not) be available for each restoration site based on agency requirements. Placement of container plants will be approved by the Restoration Program Manager, Restoration Specialist, and Restoration Contractor prior to installation based on the planting plan or spacing to mimic natural groupings of plants. Installation of container plantings should be accomplished under the direct supervision of the Restoration Specialist.

At the designated planting location(s) the soil will be loosened to a minimum diameter of three times the width and slightly less than the height of the container. Within the loosened soil, planting holes will be slightly wider and slightly less than the depth of the plant container. Each planting hole will be filled with water and allowed to drain until no free moisture remains in the hole. Immediately after draining, the plant will be removed carefully from its container and the root volume loosened somewhat with gentle pressure on the sides of the root mass. Any observed kinked or girdling roots will be cut prior to planting. The plant will immediately be placed in the planting hole so that the top of the container surface is slightly higher than the original soil grade after planting. Soil removed during excavation will be firmed around the root mass to fill air voids and secure the plant in position in the hole. The soil surface may be pressed with a tool or foot to firm the plant into position. A watering basin will be constructed four to six inches wider than the rootball of each plant and three to four inches high. After backfilling of the planting hole, the watering basin around the plant will be filled with water and allowed to drain completely. The basin will be refilled as many times as necessary to ensure that the water penetrates the soil down past the rootball into undisturbed soil. A soil probe or shovel will be used to check how deeply the water has penetrated. All steps will be completed without delays and while assuring that plants at no time show wilting or other indications of water stress. Container plants will be installed before seed is applied to a restoration site. Pruning of plantings will be limited only to that necessary to remove injured twigs and branches as a result of delivery to the restoration site or during planting. Herbivory cages should be installed at all planting locations within desert vegetation communities in accordance with the Desert Bioregion Revegetation/Restoration Guidance.

3.5 WATERING AND IRRIGATION

Natural precipitation will be the water source for all restoration sites, and irrigation systems will not be used except where required as part of remedial actions or where the limited use of container planting has been approved. Many of the restoration sites are not accessible by road and/or are in areas where water would need to be transported and stored onsite.

Where irrigation is proposed, methods may include an overhead spray system, a bubbler system, a combination thereof, and/or drip systems. Where standard electricity is not available, supplemental irrigation applications can be controlled with solar or battery operated controllers. Supplemental irrigation can also include the use of a time-release gel product, such as DriWater® or polyacrylamide gel, which aid in delivery of consistent water to plant roots. The supplemental irrigation method(s) will be determined by the Restoration Program Manager.

3.5.1.1 OVERHEAD SPRAY SYSTEM

An overhead spray system will only be utilized where water is available in sufficient quantities/volume and have a large planting area. An overhead system would include a high efficiency, water conserving, low precipitation sprinkler head, such as a MP Rotator providing overhead irrigation with an output measured in gallons per minute. Lateral and main line standard PVC piping or equivalent will be placed on grade.

3.5.1.2 BUBBLER SYSTEM

A bubbler system will be utilized in small restoration sites for irrigating individual containers, by providing a steady “drip” type of irrigation directly to the plant rootball with an output measured in gallons per hour. The type of bubbler head used will be of the pressure compensating type, (i.e., bubbler output that will not vary due to elevation). The same type of above grade irrigation lines can be used as in an overhead system.

3.5.1.3 COMBINATION OVERHEAD SPRAY/BUBBLER SYSTEM

In certain instances a combination overhead spray/bubbler system may be used. Where larger container plant material may require more water than the seeded material, bubblers, operating on a separate valve, can provide the necessary amount of water without overwatering the seeded plant material.

3.5.1.4 DRIP SYSTEM

A drip system may be utilized where a very high degree of irrigation efficiency is required and where wind may be an issue. Underground drip systems are highly efficient in that little water is lost to evaporation, and water is applied only where needed: in the root zone. Flexible tubing with built-in drippers that are pressure compensating, self flushing, and anti-siphoning, will be installed below the surface to deliver water with flow rates measured by gallons per hour. However, these systems generally require more maintenance than the overhead spray and bubbler systems.

3.5.1.5 HAND WATERING

Where municipal water sources are not available, irrigation systems may be designed to operate through gravity feed from above-ground, portable storage tanks that are filled by water truck as necessary. Other systems may be operated by a direct connection to a water truck with an auxiliary pump. Supplemental irrigation may also be provided from a water truck, towed water buffalo, or pick-up truck bladder with a garden hose.

3.5.1.6 TIME-RELEASE GEL PRODUCT

A time-release gel product, such as DriWater® or equivalent, may be utilized where a municipal water source is not available. Use of time-release gel products can be effective when accessing, transporting, storing or applying water to plants is not feasible yet container plants have been installed. It is an option that can deliver moisture directly to a plant’s roots, making frequent or repeated watering unnecessary and saving labor and equipment costs. Additionally, no water is wasted, and a permanent water source is not needed.

3.6 ACCESS RESTRICTION VIA SIGNAGE AND FENCING

The Restoration/Maintenance Contractors will install, at the direction of the Restoration Specialist or Restoration Program Manger, temporary fencing and/or signage restricting access to the restoration areas when determined that pedestrian traffic or vandalism has become problematic at a site.

3.7 VERTICAL MULCHING

Vertical mulching involves installing plants or dead and downed plant materials into the ground to discourage unwanted entry into restoration areas. This practice may be used at construction yards, stringing areas, or other areas in which public access is not permissible and fencing is not the preferred method of restricting unwanted entry. Vertical mulch is often used in desert environments; however, this approach may be used within other habitats as determined necessary by the Restoration Specialist or Restoration Program Manager. Vertical mulch (shrubs, cacti, grasses, and other plant material either dead or alive) can reduce wind speed and facilitate deposition of blowing soil and organic litter. It also helps to obscure closed roads or barren ROWs, which is especially important at former access roads or staging areas to prevent trespass. Replanted plants for vertical mulch will not be irrigated, are not subject to restoration success criteria, and may be allowed to expire.

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4. RESTORING SENSITIVE VEGETATION COMMUNITIES

This section summarizes the approach for restoring each of the 21 sensitive vegetation communities within the Project temporary impact areas. Each sensitive vegetation community is characterized, and a generalized or community-specific seed palette is provided. The recommended restoration approach is then briefly discussed, together with any special provisions for special status species.

4.1 CHAPARRAL VEGETATION

Chaparral vegetation occurs within more temporary impact areas than any other sensitive vegetation community affected by the Project and accounts for the greatest amount of vegetation to be restored under this RPSV. Appendix A, Table A-1, identifies temporary impact areas with chaparral vegetation by milepost, type of impact area, and structure number.

4.1.1 COMMUNITY DESCRIPTIONS

Six types of chaparral vegetation occur within the temporary impact areas: chamise chaparral, northern mixed chaparral, red shank chaparral, scrub oak chaparral, semi-desert chaparral, and southern mixed chaparral. Each vegetation community is briefly characterized below.

4.1.1.1 CHAMISE CHAPARRAL

Chamise chaparral is characterized by sclerophyllous (thick, stiff, heavily cutinized evergreen leaves, and hard-woody stems) shrubs dominated by chamise, which has the widest range of any chaparral shrub. While chamise stands are often monotypic, common associates within this community may include birch-leaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), chaparral candle (*Hesperoyucca whipplei*), mission manzanita (*Xylococcus bicolor*), and scrub oak (*Quercus berberidifolia*). Burned chamise chaparral, which also occurs within the Project temporary impact areas, is Chamise chaparral that has not fully recovered from recent fire(s). An estimated total of 33.71 acres of chamise chaparral will be temporarily impacted by the Project and restored consistent with the RPSV.

4.1.1.2 NORTHERN MIXED CHAPARRAL

Northern mixed chaparral is characterized by sclerophyllous shrubs forming thick, often impenetrable stands. Vegetation is dominated by scrub oak (*Q. berberidifolia*), chamise, various taxa of manzanita, and ceanothus. Plants within this community typically are deep rooted; and generally, little understory is present. Disturbed northern mixed chaparral has a high proportion of non-native plant species as a

result of natural and/or anthropogenic disturbances. An estimated total of 51.40 acres of northern mixed chaparral will be temporarily impacted by the Project and restored consistent with the RPSV.

4.1.1.3 REDSHANK CHAPARRAL

Redshank chaparral often forms pure stands of redshank that flower in mid-summer. Dominant shrubs in this community typically grow between 6 to 12 feet in height and form a somewhat open canopy. Other associates include chamise, mountain mahogany, and various taxa within the genus *Arctostaphylos*. An estimated total of 2.56 acres of redshank chaparral will be temporarily impacted by the Project and restored consistent with the RPSV.

4.1.1.4 SCRUB OAK CHAPARRAL

Scrub oak chaparral is a dense, evergreen chaparral found at sites generally more mesic than other chaparral communities and typically includes some of the dominant plant species found within southern and northern mixed chaparral (e.g., chamise, birch-leaf mountain mahogany, and manzanita). Scrub oak chaparral is dominated by one of three scrub oak species within San Diego County: Nuttall's scrub oak (*Quercus dumosa*), scrub oak, or Muller's scrub oak (*Quercus cornelius-mulleri*). There typically are zones of hybridization between occurrences of these species. An estimated total of 1.16 acres of scrub oak chaparral will be temporarily impacted by the Project and restored consistent with this RPSV.

4.1.1.5 SEMI-DESERT CHAPARRAL

Semi-desert chaparral is a structurally homogeneous vegetation community typically characterized by sclerophyllous species, such as scrub oak and chamise. However, some key species within this vegetation community are not sclerophyllous, such as juniper, buckwheat, and cacti. Dominant shrub species typically grow between four and six feet. This community most likely goes dormant during cold winters and during late summer and fall during droughts. An estimated total of 118.78 acres of semi-desert chaparral will be temporarily impacted by the Project and restored consistent with this RPSV.

4.1.1.6 SOUTHERN MIXED CHAPARRAL

Southern mixed chaparral is a sclerophyllous shrub dominated vegetation community where the dominant plant species may include big-berry manzanita (*Arctostaphylos glauca*), black sage, California buckwheat (*Eriogonum fasciculatum*), chamise, chaparral whitethorn (*Ceanothus leucodermis*), coast spice bush (*Cneoridium dumosum*), giant stipa (*Achnatherum coronatum*), Nuttall's scrub oak, Ramona-lilac (*Ceanothus tomentosus*), scrub oak, sugar bush (*Rhus ovata*), toyon (*Heteromeles arbutifolia*), and Zaca Lake manzanita (*Arctostaphylos glandulosa* ssp. *zacaensis*). Where this vegetation community is found within the Project area, the dominant plant species are dependent upon slope, aspect, elevation, and edaphic factors. Disturbed southern mixed chaparral has a high proportion of non-native species as a result of natural and/or anthropogenic disturbances. Burned southern mixed chaparral has not fully recovered from recent fire(s). An estimated total of 16.35 acres of southern mixed chaparral will be temporarily impacted by the Project and restored consistent with this RPSV.

4.1.2 RESTORATION APPROACH

The restoration approach for chaparral vegetation communities will focus on preserving native shrubs to the extent possible prior to construction through application of crown pruning, mowing, chaining and/or mulching. Where possible, crushing chaparral vegetation with machinery or pruning to the base of the plants prior to construction will be utilized to preserve root systems and facilitate crown-sprouting during the restoration process. Native topsoil within impact locations where grading is necessary will be salvaged, stockpiled onsite and redistributed within the grading location at the completion of construction to maintain the seed bank and mycorrhizal network. Many native shrubs in these communities are slow growing and may be difficult to establish from seed without the germination enhancing effects of fire, smoke, or other stratification methods. Species specific seed stratification methods will be implemented as applicable prior to their inclusion in the hydroslurry. The focus will be on making extensive seed collections throughout the Project ROW to ensure maximum flexibility in designing effective community-specific seed palettes. The native chaparral communities to be restored exhibit variable levels of plant species diversity, precipitation requirements, and fire tolerance, and these species assemblages will be represented within the community specific seed palettes to the maximum extent practicable. Restoration site preparation and hydroseed application will also be timed to avoid impacts to Quino checkerspot butterfly and/or coastal California gnatcatcher in these native chaparral habitats.

4.1.2.1 SEED PALETTE

A generalized seed palette chaparral vegetation communities is provided in Table 7 below. The palette was developed based on chaparral plant species that were observed and recorded by a variety of SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palette is preliminary, and community-specific mixes with specified seed quantities and application rates per acre will be developed as seed collection progresses and site specific restoration plans are developed. A wide variety of native chaparral plant species are included on the general palette to provide the Restoration Program Manager and Restoration Specialists with options for designing final seed palettes that will reflect the natural diversity, species composition, and relative abundance of species within each Project temporary impact location. Final seed palettes will be developed following collection of reference site data within similar undisturbed habitats. In impact areas where Quino checkerspot butterfly habitat occurs, dot-plantain will be included in the restoration seed mix. Likewise, the seed mix for areas that included habitat for the Hermes copper butterfly will include spiny redberry.

Table 7. Chaparral Generalized Seed Palette

Species	Common Name	Annual/ Perennial	Life Form
<i>Achnatherum coronatum</i>	giant stipa	perennial	grass
<i>Adenostoma fasciculatum</i>	Chamise	perennial	shrub
<i>Adenostoma sparsifolium</i>	red shank	perennial	shrub
<i>Allophyllum glutinosum</i>	blue false-gilia	Annual	herb
<i>Amsinckia menziesii</i>	rancher's fireweed	Annual	herb
<i>Antirrhinum coulterianum</i>	Coulter's snapdragon	annual	herb

Species	Common Name	Annual/ Perennial	Life Form
<i>Antirrhinum kelloggii</i>	climbing snapdragon	annual	herb
<i>Antirrhinum nuttallianum</i>	Nuttall's snapdragon	annual	herb
<i>Artemisia californica</i>	California sagebrush	perennial	shrub
<i>Artemisia dracunculus</i>	Tarragon	perennial	shrub
<i>Artemisia tridentata</i> ssp. <i>Tridentata</i>	big sagebrush	perennial	shrub
<i>Asclepias californica</i>	California milkweed	perennial	herb
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	perennial	herb
<i>Baccharis emoryi</i>	chaparral broom	perennial	shrub
<i>Baccharis pilularis</i>	coyote brush	perennial	shrub
<i>Baccharis sarothroides</i>	broom baccharis	perennial	shrub
<i>Bothriochloa barbinodis</i>	cane bluestem	perennial	grass
<i>Brickellia californica</i>	California brickellbush	perennial	shrub
<i>Bromus carinatus</i>	California brome	annual	grass
<i>Calandrinia ciliata</i>	red maids	perennial	herb
<i>Camissonia bistorta</i>	California sun cup	annual	herb
<i>Camissonia californica</i>	false-mustard	annual	herb
<i>Camissonia hirtella</i>	field sun cup	annual	herb
<i>Carex triquetra</i>	triangular-fruited sedge	perennial	herb
<i>Castilleja affinis</i> ssp. <i>Affinis</i>	coast paintbrush	annual	herb
<i>Castilleja exserta</i>	purple owl's clover	annual	herb
<i>Castilleja foliolosa</i>	woolly Indian paintbrush	annual	herb
<i>Chaenactis artemisiifolia</i>	white pincushion	annual	herb
<i>Chaenactis glabriuscula</i>	yellow pincushion	annual	herb
<i>Cirsium occidentale</i> var. <i>occidentale</i>	cobwebby thistle	perennial	Herb
<i>Collinsia concolor</i>	southern Chinese houses	annual	Herb
<i>Collinsia parviflora</i>	blue-eyed mary	annual	Herb
<i>Cordylanthus rigidus</i>	thread-leaved bird's-beak	annual	Herb
<i>Croton setigerus</i>	dove weed	annual	Herb
<i>Cryptantha intermedia</i>	nievitas cryptantha	annual	Herb
<i>Cryptantha muricata</i>	forget-me-not	annual	Herb
<i>Daucus pusillus</i>	rattlesnake weed	annual	Herb
<i>Deinandra fasciculata</i>	golden tarplant	annual	Herb
<i>Descurainia pinnata</i>	western tansy mustard	annual	Herb
<i>Dodecatheon clevelandii</i>	shooting star, wild cyclamen	perennial	Herb
<i>Elymus elymoides</i>	squirreltail	perennial	herb
<i>Emmenanthe penduliflora</i>	whispering bells	annual	Herb
<i>Encelia californica</i>	common encelia	perennial	Shrub
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	coast California buckwheat	perennial	Shrub
<i>Eriogonum wrightii</i>	Wright's buckwheat, bastard-sage	perennial	Shrub
<i>Eriophyllum confertiflorum</i>	golden yarrow	perennial	Herb
<i>Gilia angelensis</i>	grassland gilia	annual	Herb
<i>Grindelia camporum</i>	Gumplant	perennial	Herb
<i>Gutierrezia sarothrae</i>	Matchweed	perennial	Herb
<i>Hazardia squarrosa</i>	saw-toothed goldenbush	perennial	Shrub
<i>Helianthemum scoparium</i>	peak rush-rose	perennial	shrub
<i>Helianthus annuus</i>	common sunflower	annual	herb
<i>Lessingia glandulifera</i>	valley lessingia	annual	herb
<i>Lotus scoparius</i>	deerweed	perennial	herb

Species	Common Name	Annual/ Perennial	Life Form
<i>Lupinus concinnus</i>	bajada lupine	annual	herb
<i>Lupinus excubitus</i>	grape soda lupine	perennial	herb
<i>Lupinus hirsutissimus</i>	stinging lupine	annual	herb
<i>Lupinus truncata</i>	collar lupine	annual	herb
<i>Nassella cernua</i>	Needle grass	Perennial	herb
<i>Malacothamnus fasciculatus</i>	chaparral mallow	perennial	shrub
<i>Malosma laurina</i>	laurel sumac	perennial	shrub
<i>Mimulus aurantiacus</i>	low bush monkey-flower	perennial	shrub
<i>Mimulus brevipes</i>	hillside monkey-flower	annual	herb
<i>Mirabilis laevis</i>	wishbone bush	perennial	herb
<i>Paeonia californica</i>	California peony	perennial	herb
<i>Pectocarya linearis</i>	comb-bur	annual	herb
<i>Penstemon centranthifolius</i>	scarlet bugler	perennial	herb
<i>Penstemon clevelandii</i>	Cleveland's beard-tongue	perennial	herb
<i>Penstemon spectabilis</i>	violet beard-tongue	perennial	herb
<i>Phacelia cicutaria</i>	caterpillar phacelia	annual	herb
<i>Plantago erecta</i>	dot-seed plantain	annual	herb
<i>Rhamnus croces</i>	Spiny redberry	Perennial	shrub
<i>Salvia apiana</i>	white sage	perennial	shrub
<i>Salvia clevelandii</i>	Cleveland sage, fragrant sage	perennial	Shrub
<i>Salvia columbariae</i>	Chia	annual	Herb
<i>Salvia mellifera</i>	black sage	perennial	Shrub
<i>Trichostema parishii</i>	mountain bluecurls	perennial	Shrub

4.1.2.2 VEGETATION TYPE CONSIDERATIONS

Chamise Chaparral

An estimated total of 33.71 acres of chamise chaparral will be restored. This community is dominated by native shrubs and typically has low species diversity and very low cover values for grasses, herbs, and trees. The seed palette for this community will be comprised of relatively few native shrub species. The community is anticipated to reach a relatively mature form within the maintenance, monitoring, and reporting period.

Northern Mixed Chaparral

An estimated total of 51.40 acres of northern mixed chaparral will be restored. This community is dominated by slow growing native shrubs, and the seed palette for this community will be composed of similar shrub species to southern mixed chaparral, with fewer understory components. Due to the long temporal span required for many of the native shrubs to reach maturity, this community is anticipated to reach a moderately open form within the maintenance, monitoring, and reporting period and require over 20 years to achieve a fully mature form.

Redshank Chaparral

An estimated total of 2.56 acres of redshank chaparral will be restored. This community is dominated by slow growing native shrubs, and the focus will be on crown pruning of redshank prior to construction impacts. The seed palette for this community will be composed of similar shrub species to scrub oak chaparral, with more understory components. Due to the long temporal span required for the dominant native shrubs to reach maturity, this community is anticipated to reach a moderately open form within the maintenance, monitoring, and reporting period and require over 20 years to achieve a fully mature form.

Scrub Oak Chaparral

An estimated total of 1.16 acres of scrub oak chaparral will be restored. This community is also dominated by slow growing native shrubs, and the focus will be on crown pruning of scrub oak prior to construction impacts. The seed palette for this community will be composed of similar shrub species to redshank chaparral, with fewer understory components. Due to the long temporal span required for the dominant native shrubs to reach maturity, this community is anticipated to reach a moderately open form within the maintenance, monitoring, and reporting period and require over 20 years to achieve a fully mature form.

Semi-Desert Chaparral

An estimated total of 118.78 acres of semi-desert chaparral will be restored. This community is dominated by a relatively sparse cover of slow growing native shrubs, succulents, and herbs. Due to the xeric nature of this community and the tendency to occur on soils with low fertility, the focus will be on pre-construction pruning of shrubs in semi-desert chaparral, minimization of soils impacts, heavy application of native seeds within the restoration areas, and vertical mulching. Due to the low available precipitation and long temporal span required for many of the native shrubs and succulents to reach maturity, this community is anticipated to remain in an open, immature form by the end of the maintenance, monitoring, and reporting period and require over 20 years to achieve a fully mature form.

Southern Mixed Chaparral

An estimated total of 16.35 acres of southern mixed chaparral will be restored. This community is dominated by a mixture of slow and fast growing native shrubs, and the seed palette for this community will be composed of similar shrub species to northern mixed chaparral, with more diverse herb and shrub understory components. Due to the long temporal span required for many of the native shrubs to reach maturity, this community is anticipated to reach a moderately open form within the maintenance, monitoring, and reporting period and require up to 20 years to achieve a fully mature form.

4.1.2.3 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Quino Checkerspot Butterfly

Restoration plans for chaparral will take into consideration any Quino habitat that was present and will replicate the habitat at the site. The Quino checkerspot butterfly is associated with specific flora that serves as larval host plants (e.g., dot-seed plantain). Larval host plant species and potential nectaring sources such as dot seed plantain, southern Chinese houses, Coulter's snapdragon, purple owl's clover and thread-leaved bird's-beak will be included in site specific seed mixes for appropriate Quino checkerspot habitat. The preferred habitats largely consist of herbs and forbs occurring on cryptogammic crusts and within clay soils often associated with poor drainage. Onsite restoration as mitigation for temporary impacts to habitats that support the Quino checkerspot butterfly will be completed in kind, and will involve the replacement specific soil parameters onsite. Soil disturbance in Quino checkerspot butterfly habitat will be minimized and may include the use of construction mats to avoid soil compaction. Planting methods in Quino checkerspot butterfly habitat will be limited to seeding. Seeding will occur from October through January to avoid potential butterfly disturbance during the flight season and will be consistent with the restoration procedures outlined in Appendix II in the Recovery Plan for the Quino Checkerspot Butterfly (USFWS 2003). Restoration within this species' habitat will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measures B-7i (CPUC and BLM 2009) and the BO.

Hermes Copper Butterfly

Where habitat for Hermes copper occurred within chaparral, spiny redberry will be included in the seed mix. Hermes copper is a species of local importance but is not a species for which mitigation is required for the Project's impacts.

Coastal California Gnatcatcher

Although the coastal California gnatcatcher is closely associated with variations of coastal sage scrub, chaparral habitats also may support breeding pairs, especially where coastal sage scrub habitat is present nearby or forms a component of the chaparral habitat (Bontrager 1991). Restoration plans for chaparral will take into consideration any habitat for this species that was present and will replicate the habitat at the site. Planting methods for coastal California gnatcatcher habitat may include planting and seeding, but these activities should be completed before breeding season, which generally begins around February 15. Weed control and other maintenance activities completed during nesting season should be conducted and monitored by a qualified biological monitor to avoid any disturbance to the coastal California gnatcatcher. Restoration within this species' habitat will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measure B-7i (CPUC and BLM 2009) and the BO.

Other Sensitive Wildlife

Other sensitive wildlife species known to occur in the chaparral vegetation include California legless lizard (*Anniella pulchra*), San Diego horned lizard (*Phrynosoma coronatum blainvillii*), coastal rosy boa (*Charina trivirgata roseofusca*), San Diego ring-necked snake (*Diadophus punctatus similus*), and Townsend's big-eared bat (*Corynorhinus townsendii*). The occurrence and habitat requirements of these species will be considered during site-specific restoration planning.

4.1.2.4 SPECIAL STATUS PLANT CONSIDERATIONS

Jacumba milk-vetch, Payson's caulanthus, delicate clarkia, Tecate tarplant, sticky geraea, desert beauty, and rayless ragwort occur in chaparral vegetation within temporary impact areas. See the RPSV for the applicable restoration and/or conservation measures.

4.2 COASTAL AND MONTANE SCRUB VEGETATION

Coastal and montane scrub vegetation occurs from approximately milepost 39 through to the terminus of the Project alignment. Except for construction yards, the amount in temporary impact areas typically is less than one acre. Appendix A, Table A-2, identifies temporary impact areas with this vegetation by milepost, type of impact area, and structure number.

4.2.1 COMMUNITY DESCRIPTIONS

Four types of coastal and montane scrub vegetation occur in temporary impact areas: big sagebrush scrub, Diegan coastal sage scrub, Diegan coastal sage scrub – inland form, and flat-topped buckwheat scrub. Each type is briefly characterized below.

4.2.1.1 BIG SAGEBRUSH SCRUB

Big sagebrush scrub is mostly a treeless, soft-woody shrub-dominated community dominated by big sagebrush. Big sagebrush can form pure stands but often occurs with other shrubs, including bitterbrush (*Purshia tridentata*), rubber rabbitbrush (*Chrysothamnus nauseosus*), yellow rabbitbrush (*C. viscidiflorus*), black bush (*Coleogyne ramosissima*), Mormon-tea (*Ephedra viridis*), horsebrush (*Tetradymia canescens*), and hopsage (*Grayia spinosa*). Annual grasses and forbs also typically occur within Big Sagebrush Scrub and include cheatgrass (*Bromus tectorum*) and other nonnative grasses. An estimated total of 8.43 acres of big sagebrush scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.2.1.2 DIEGAN COASTAL SAGE SCRUB

Diegan coastal sage scrub is generally found on steep, xeric slopes with clay rich soils that slowly release stored water. Dominant plant species within Diegan coastal sage scrub communities are generally determined by soil type, slope, and aspect. This community generally intergrades with chaparrals at elevations over 3,000 feet. Typical species found within Diegan coastal sage scrub include coastal

sagebrush, flat-topped buckwheat, laurel sumac (*Malosma laurina*), black sage (*Salvia melifera*) and lemonade berry (*Rhus integrifolia*). Disturbed Diegan coastal sage scrub has a high proportion of non-native plant species as a result of natural and/or anthropogenic disturbances. An estimated total of 21.92 acres of Diegan coastal sage scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.2.1.3 DIEGAN COASTAL SAGE SCRUB – INLAND FORM

Diegan coastal sage scrub –inland form is similar in structure to the coastal form but lower growing, and with a high proportion of non-native species as a result of natural and/or anthropogenic disturbances. This community generally occurs at elevations greater than 1,000 feet elevation. Foothill buckwheat (*Eriogonum wrightii* var. *membranaceum*) or white sages (*Salvia apiana*) are typically the dominant species within this community, with a general lack of California sagebrush. The inland form of this habitat type also may contain species such as matchweed (*Gutierrezia* spp.) and annual buckwheats (*Eriogonum* sp.). Disturbed coastal sage scrub inland form is similar in structure to the coastal form but lower growing, and with a high proportion of non-native plant species as a result of natural and/or anthropogenic disturbances. This community generally occurs at elevations greater than 1,000 feet amsl. Foothill buckwheat (*Eriogonum wrightii* var. *membranaceum*) or white sage (*Salvia apiana*) are typically the dominant species within this community, with a general lack of California sagebrush. The inland form of this habitat type also may contain species such as matchweed (*Gutierrezia* spp.) and cheatgrass (*Bromus tectorum*). An estimated total of 6.97 acres of the inland form of Diegan coastal sage scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.2.1.4 FLAT-TOPPED BUCKWHEAT SCRUB

Flat-topped buckwheat scrub is characterized as a nearly monoculture community of flat-topped buckwheat. This community type usually results from disturbance and typically transitions to coastal sage scrub or chaparral over time. Site factors often include xeric disturbed areas in the coastal and foothill areas of San Diego County. Species characteristic of this community include flat-topped buckwheat and deerweed. An estimated total of 29.62 acres of flat-topped buckwheat scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.2.2 RESTORATION APPROACH

The coastal and montane scrub communities affected by the Project are exposed to more frequent and higher annual levels of precipitation than the chaparral communities, and therefore are anticipated to establish more quickly during the maintenance, monitoring, and reporting period. The restoration approach for will focus on preserving native soils and their intact native seed banks to the extent possible prior to construction activities, and completion of frequent maintenance activities to control the establishment of non-native plant species after seed application. Where soil removal or blading may be necessary, the top three inches of soil will be collected and stored onsite prior to construction. The focus will be on making extensive seed collections throughout the Project ROW to ensure maximum flexibility in designing effective community-specific seed palettes. Restoration site preparation and

hydroseed application will also be timed to avoid impacts to Quino checkerspot butterfly and/or coastal California gnatcatcher in these native coastal and montane scrub habitats.

4.2.2.1 SEED PALETTE

A generalized seed palette for coastal and montane scrub vegetation communities is provided in Table 8 below. The palette was developed based on coastal and montane scrub plant species observed and recorded by SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palette is preliminary, and community-specific mixes with specified seed quantities and application rates per acre will be developed as seed collection progresses and site specific restoration plans are developed. A wide variety of native coastal and montane scrub plant species are included on the general palette to provide the Restoration Program Manager and Restoration Specialists with options for designing final seed palettes that will reflect the natural diversity, species composition, and relative abundance of species within each Project temporary impact location. Final seed palettes will be developed following collection of reference site data within similar undisturbed habitats. In impact areas where Quino checkerspot butterfly habitat occurs, dot-plantain will be included in the restoration seed mix. Likewise, the seed mix for areas that included habitat for the Hermes copper butterfly will include spiny redberry.

Table 8. Coastal and Montane Scrub Generalized Seed Palette

Species	Common Name	Annual/ Perennial	Life Form
<i>Achnatherum coronatum</i>	giant stipa	perennial	Grass
<i>Amsinckia menziesii</i>	rancher's fireweed	Annual	Herb
<i>Artemisia californica</i>	California sagebrush	perennial	Shrub
<i>Artemisia dracunculus</i>	Tarragon	perennial	Shrub
<i>Artemisia tridentata</i>	big sagebrush	perennial	Shrub
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	perennial	Herb
<i>Astragalus trichopodus</i>	coast locoweed	perennial	Herb
<i>Baccharis pilularis</i>	coyote brush	perennial	Shrub
<i>Baccharis sarothroides</i>	broom baccharis	perennial	Shrub
<i>Camissonia bistorta</i>	California sun cup	Annual	Herb
<i>Camissonia californica</i>	false-mustard	Annual	Herb
<i>Castilleja exserta</i>	purple owl's clover	Annual	Herb
<i>Cirsium occidentale</i>	cobwebby thistle	perennial	Herb
<i>Clarkia purpurea</i>	four-spot	Annual	Herb
<i>Collinsia concolor</i>	southern Chinese houses	Annual	Herb
<i>Collinsia heterophylla</i>	Chinese houses	Annual	Herb
<i>Cordylanthus rigidus</i>	thread-leaved bird's-beak	Annual	Herb
<i>Deinandra fasciculata</i>	golden tarplant	Annual	Herb
<i>Emmenanthe penduliflora</i>	whispering bells	Annual	Herb
<i>Encelia californica</i>	common encelia	perennial	Shrub
<i>Eriogonum fasciculatum</i>	flat-topped buckwheat	perennial	Shrub

Species	Common Name	Annual/ Perennial	Life Form
<i>Gilia angelensis</i>	grassland gilia	Annual	Herb
<i>Grindelia camporum</i>	Gumplant	perennial	Herb
<i>Gutierrezia sarothrae</i>	Matchweed	perennial	Herb
<i>Hazardia squarrosa</i>	saw-toothed goldenbush	perennial	Shrub
<i>Helianthus annuus</i>	common sunflower	Annual	Herb
<i>Helianthus gracilentus</i>	slender sunflower	perennial	Herb
<i>Isocoma menziesii</i>	coast goldenbush	perennial	Herb
<i>Lasthenia gracilis</i>	common goldenfields	Annual	Herb
<i>Leymus condensatus</i>	giant wild rye	perennial	Grass
<i>Leymus triticoides</i>	beardless wildrye	perennial	Grass
<i>Linantus dianthiflorus</i>	ground pink	Annual	Herb
<i>Lotus scoparius</i>	California broom, deerweed	Perennial	Herb
<i>Lupinus truncatus</i>	collar lupine	Annual	Herb
<i>Malosma laurina</i>	laurel sumac	Perennial	Shrub
<i>Mimulus aurantiacus</i>	low bush monkey-flower	Perennial	Shrub
<i>Osmadenia tenella</i>	Osmadenia	Annual	Herb
<i>Phacelia cicutaria</i>	caterpillar phacelia	Annual	Herb
<i>Plantago erecta</i>	dot-seed plantain	Annual	Herb
<i>Rhamus croces</i>	Spiny redberry	Perennial	Shrub
<i>Sairocarpus coulterianus</i> [<i>Antirrhinum oulterianum</i>]	Coulter's snapdragon	Annual	Herb
<i>Sairocarpus nuttallianum</i> [<i>Antirrhinum n.</i>]	Nuttall's snapdragon	Annual	Herb
<i>Salvia apiana</i>	white sage	Perennial	Shrub
<i>Salvia clevelandii</i>	Cleveland sage	Perennial	Shrub
<i>Salvia columbariae</i>	Chia	Annual	Herb
<i>Salvia mellifera</i>	black sage	Perennial	Shrub
<i>Scrophularia californica</i>	California figwort	Perennial	Herb
<i>Stipa cernua</i> [<i>Nassella c.</i>]	nodding needlegrass	Perennial	Grass
<i>Stipa pulchra</i> [<i>Nassella p.</i>]	purple needlegrass	Perennial	Grass
<i>Trichostema parishii</i>	mountain bluecurls	Perennial	Shrub

4.2.2.2 VEGETATION TYPE CONSIDERATIONS

Big Sagebrush Scrub

An estimated total of 8.43 acres of big sagebrush scrub will be restored. This community has low species diversity, high cover values, and is dominated by several relatively quick to establish plant species. The seed palette for this community will be composed of few species and have a relatively high application rate. The focus will be on soil salvage within big sagebrush scrub areas. The tendency for this community to occur within mesic areas facilitates relatively rapid growth, and this community is anticipated to reach maturity within the maintenance, monitoring, and reporting period.

Diegan Coastal Sage Scrub

An estimated total of 21.92 acres of Diegan coastal sage scrub will be restored. This community has high species diversity, high cover values, and is dominated by several relatively quick to establish plant species. The seed palette for this community will be composed of many grass, herb, and shrub species. The focus will be on soil (and seedbank) salvage within temporary impact areas and completion of frequent maintenance activities to control the establishment of non-native plant species after seed application within Diegan coastal sage scrub. The tendency for this community to occur within relatively mesic areas facilitates moderate growth, and this community is anticipated to reach a mature form within the maintenance, monitoring, and reporting period.

Diegan Coastal Sage Scrub – Inland Form

An estimated total of 6.97 acres of inland Diegan coastal sage scrub will be restored. This community has moderate species diversity and cover values when established, and is dominated by more drought-tolerant herbs and shrub species than the coastal form. The seed palette for this community will resemble the coastal form with fewer grass and herb species. The focus will be on soil (and seedbank) salvage within temporary impact areas and completion of frequent maintenance activities to control the establishment of non-native plant species after seed application within inland Diegan coastal sage scrub. The tendency for this community to occur within relatively xeric areas results in slower growth than the coastal form, so this community is anticipated to reach a moderately mature form within the maintenance, monitoring, and reporting period.

Flat-Topped Buckwheat Scrub

An estimated total of 29.62 acres of flat-topped buckwheat scrub will be restored. This community has very low species diversity and low cover values when mature. The seed palette for this community will be composed of few species and have a relatively high application rate. The focus will be on crown pruning of native shrubs and minimization of impacts to the typically thin soils that occur in this community. Flat-topped buckwheat scrub grows under xeric conditions, and is anticipated to reach a moderately mature form within the maintenance, monitoring, and reporting period.

4.2.2.3 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Quino Checkerspot Butterfly

Restoration plans for coastal scrub vegetation will take into consideration any Quino habitat that was present and will replicate the habitat at the site. The Quino checkerspot butterfly is associated with specific flora that serves as larval host plants (e.g., dot-seed plantain). Larval host plant species and potential nectaring sources such as dot seed plantain, southern Chinese houses, Coulter's snapdragon, purple owl's clover and thread-leaved bird's-beak will be included in site specific seed mixes for appropriate Quino checkerspot habitat. The preferred habitats largely consist of herbs and forbs occurring on cryptogamic crusts and within clay soils often associated with poor drainage. Onsite restoration as mitigation for temporary impacts to habitats that support the Quino checkerspot butterfly

will be completed in kind, and will involve the replacement specific soil parameters onsite. Soil disturbance in Quino checkerspot butterfly habitat will be minimized and may include the use of construction mats to avoid soil compaction. Planting methods in Quino checkerspot butterfly habitat will be limited to seeding. Seeding will occur from October through January to avoid potential butterfly disturbance during the flight season and will be consistent with the restoration procedures outlined in Appendix II in the Recovery Plan for the Quino Checkerspot Butterfly (USFWS 2003). Restoration within this species' habitat will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measures B-7i (CPUC and BLM 2009) and the BO.

Hermes Copper Butterfly

Where habitat for Hermes copper occurred within chaparral, spiny redberry will be included in the seed mix. Hermes copper is a species of local importance but is not a species for which mitigation is required for the Project's impacts.

Coastal California Gnatcatcher

Restoration plans for coastal scrub vegetation will take into consideration any coastal California gnatcatcher habitat that was present and will replicate the habitat at the site. Planting methods for coastal California gnatcatcher habitat may include planting and seeding, but these activities should be completed before breeding season, which generally begins around February 15. Weed control and other maintenance activities completed during nesting season should be conducted and monitored by a qualified biological monitor to avoid any disturbance to the coastal California gnatcatcher. Restoration within this species' habitat will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measure B-7I (CPUC and BLM 2009) and the BO.

Other Sensitive Wildlife

Other sensitive wildlife species that are known to occur in the coastal and montane scrub vegetation communities California Legless Lizard, coastal rosy boa, San Diego horned lizard, San Diego mountain kingsnake (*Lampropeltis zonata pulchra*), and Townsend's big-eared bat. The occurrence and habitat requirements of these species will be considered during site-specific restoration planning.

4.2.2.4 SPECIAL STATUS PLANT CONSIDERATIONS

Payson's caulanthus and Tecate tarplant are associated with coastal sage scrub vegetation as well as chaparral. See RPSP for the applicable restoration and/or conservation measures.

4.3 DESERT SCRUB VEGETATION

Desert scrub vegetation occurs along the first 35 miles of the Project alignment, from the Imperial Valley into San Diego County. It is second only to chaparral in total acres and total number of temporary impact areas. Appendix A, Table A-3, identifies temporary impact areas with this vegetation by milepost, type of impact area, and structure number.

4.3.1 COMMUNITY DESCRIPTIONS

Five types of desert scrub vegetation occur in temporary impact areas: Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, Sonoran mixed woody scrub, Sonoran desert wash scrub, and Sonoran desert scrub. Each vegetation community is briefly characterized below.

4.3.1.1 SONORAN CREOSOTE BUSH SCRUB

Sonoran creosote bush scrub occurs in well-drained soils of slopes, alluvial fans, and valleys rather than upland sites with thin residual soils. The dominant plant species occurring within this community type include creosote bush, white bursage, brittlebush (*Encelia farinosa*), and ocotillo. An estimated total of 117.40 acres of Sonoran creosote bush scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.3.1.2 SONORAN MIXED WOODY AND SUCCULENT SCRUB

Sonoran mixed woody and succulent scrub is the only desert community with substantial dominance of cacti and other stem succulents. This community is made up of shrubs reaching nine feet tall and is similar to Sonoran creosote bush scrub and Sonoran mixed woody scrub but is more varied and usually denser. Most stands have desert agave (*Agave deserti*), brittlebush, ocotillo, indigo bush (*Peucephyllum schottii*), and Mohave yucca (*Yucca schidigera*) in varying proportions. Sonoran mixed woody and succulent scrub is found on rocky, well-drained slopes and alluvial fans, usually at the base of mountains. An estimated total of 6.72 acres of Sonoran mixed woody and succulent scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.3.1.3 SONORAN MIXED WOODY SCRUB

Sonoran mixed woody scrub communities consist primarily of shrubs up to three meters tall. It is similar to Sonoran mixed woody and succulent scrub but less varied (does not contain the abundance of succulent species) and usually more sparse. Most stands have brittlebush and indigo bush in varying proportions. Typical species occurring within this community type include jojoba (*Simmondsia chinensis*), desert apricot (*Prunus fremontii*), white bursage, desert lavender (*Hyptis emoryi*), brittlebush, and limited amounts of succulent species, such as ocotillo and cholla (*Cylindropuntia* sp.). An estimated total of 14.07 acres of Sonoran mixed woody scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.3.1.4 SONORAN DESERT WASH SCRUB

Sonoran desert wash scrub is characterized by the presence of arborescent, often spiny shrubs generally associated with intermittent streams (washes) or drier bajadas (alluvial deposits adjacent to washes). Plants of this vegetation community generally are taller and denser than those of surrounding desert habitats. Canopy species may include various species of mesquite (*Prosopis* sp.), smoketree (*Dalea spinosa*), and catclaw acacia (*Acacia greggii*). Representative subcanopy plants may include arrowweed (*Pluchea sericea*) and brittlebush, as well as a variety of forbs and grasses. An estimated total of 0.58

acre of Sonoran desert wash scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.3.1.5 SONORAN DESERT SCRUB

Sonoran desert scrub is a general category that contains elements of Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, Sonoran mixed woody scrub, and Sonoran wash scrub. When a vegetation community did not discretely fit into one of the five categories described above, it was labeled Sonoran desert scrub. An estimated total of 3.47 acres of Sonoran desert scrub will be temporarily impacted by the Project and restored consistent with this RPSV.

4.3.2 RESTORATION APPROACH

The restoration approach for desert scrub and dune vegetation communities will focus on coordination with the BLM restoration staff to achieve the goals for desert restoration on BLM lands, and achieving consistency with the desert bioregion revegetation/restoration guidance. This includes decompaction of soils, re-contouring impact areas to pre-impact topography and pitting or imprinting soils to aid in seed and water retention. The primary goal of the restoration activities in desert scrub communities is to minimize and avoid soil disturbance to the maximum extent practicable, through any means required, as well as a thorough weeding program. Crown pruning of perennial plant species within temporary impact areas in order to preserve the root system and maximize the chance of re-sprouting will also be conducted to aid in re-establishment of impacted vegetation communities. Utilization of temporary construction mats, or installation of mulch, rock, or sand to minimize machinery impacts and the resulting area requiring restoration after construction activities have ceased will be the primary goal in these delicate communities. The focus also will be on making extensive seed collections throughout the Project ROW to ensure maximum flexibility in designing effective community-specific seed palettes that focus on rapidly germinating desert annual plant species. Woody perennial plant species will be incorporated into site specific seed mixes as determined by the Restoration Program Manager. The native desert scrub communities exhibit variable levels of plant species diversity, but all are subject to infertile soils and extremes in average precipitation and temperature. Vertical mulch installation and application of suitable erosion control materials to control erosion during seasonal flooding events will also be important elements for successful restoration in desert scrub and dune communities.

4.3.2.1 SEED PALETTE

A generalized seed palette for desert scrub and dune communities is provided in Table 9 below. The palette was developed based on desert scrub plant species that were observed and recorded by SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palette is preliminary, and community-specific mixes with specified seed quantities and application rates per acre will be developed as seed collection progresses and site specific restoration plans are produced. A wide variety of native desert scrub plant species are included on the general palette to provide the Restoration Program Manager and Restoration Specialists with options for designing final seed palettes that will reflect the natural diversity, species composition, and relative abundance of species within each

Project temporary impact location. Final seed palettes will be developed following collection of reference site data within similar undisturbed habitats.

Table 9. Desert Scrub and Dune Generalized Seed Palette

Species	Common Name	Annual/ Perennial	Life Form
<i>Abronia villosa</i>	desert sand-verbena	perennial	Herb
<i>Achyronychia cooperi</i>	onyx flower	annual	Herb
<i>Ambrosia acanthicarpa</i>	annual bur-sage	annual	Herb
<i>Ambrosia dumosa</i>	burro-weed	perennial	Shrub
<i>Ambrosia salsola</i> [<i>Hymenoclea</i> s.]	Burrobrush	perennial	Shrub
<i>Atriplex canescens</i>	fourwing saltbush	perennial	Shrub
<i>Atriplex hymenelytra</i>	desert-holly	perennial	Shrub
<i>Atriplex lentiformis</i>	big saltbush	perennial	Shrub
<i>Baileya pauciradiata</i>	short-ray desert marigold	annual	Herb
<i>Bebbia juncea</i>	rush sweetbush	perennial	Shrub
<i>Camissonia boothii</i>	desert lantern	annual	Herb
<i>Camissonia claviformis</i>	Peirson's evening primrose	annual	Herb
<i>Chaenactis artemisiifolia</i>	white pincushion	annual	Herb
<i>Chaenactis fremontii</i>	desert pincushion	annual	Herb
<i>Croton californicus</i>	California croton	perennial	Herb
<i>Cryptantha micrantha</i>	redroot cryptantha	annual	Herb
<i>Dalea mollissima</i>	silk dalea	perennial	Herb
<i>Encelia actoni</i>	Acton's encelia	perennial	Shrub
<i>Encelia farinosa</i>	brittlebush, incienso	perennial	Shrub
<i>Encelia frutescens</i>	rayless encelia	perennial	Shrub
<i>Ephedra californica</i>	desert tea	perennial	Shrub
<i>Ephedra nevadensis</i>	Nevada ephedra	perennial	Shrub
<i>Eriastrum eremicum</i>	desert woolly-star	annual	Herb
<i>Eriogonum inflatum</i>	desert trumpet	perennial	Herb
<i>Eriophyllum wallacei</i>	Wallace's woolly daisy	annual	Herb
<i>Erodium texanum</i>	Texas filaree	annual	Herb
<i>Eschscholzia minutiflora</i>	pygmy gold-poppy	annual	Herb
<i>Fagonia laevis</i>	California fagonia	perennial	Shrub
<i>Geraea canescens</i>	desert sunflower	annual	Herb
<i>Hesperocallis undulate</i>	desert lily	perennial	Herb
<i>Hilaria rigida</i> [<i>Pleuraphis</i> r.]	big galleta	perennial	Grass
<i>Hyptis emoryi</i>	desert lavender	perennial	Shrub
<i>Justicia californica</i>	chuparosa, beloperone	perennial	Shrub
<i>Keckiella antirrhinoides</i>	desert bush penstemon	perennial	Shrub
<i>Krameria erecta</i>	pima rhatany, purple-heather	perennial	Shrub
<i>Langloisia setosissima</i>	bristly langloisia	annual	Herb
<i>Larrea tridentata</i>	creosote bush	perennial	Shrub
<i>Lepidospartum squamatum</i>	Scalebroom	perennial	Shrub
<i>Loeseliastrum schottii</i>	Schott's calico	annual	Herb
<i>Malacothrix glabrata</i>	smooth desert dandelion	annual	Herb
<i>Monoptilon bellioides</i>	Mohave desert star	perennial	Herb
<i>Nicotiana obtusifolia</i>	desert tobacco	perennial	Herb

Species	Common Name	Annual/ Perennial	Life Form
<i>Palafoxia arida</i>	Spanish needles	annual	Herb
<i>Pectis papposa</i>	Cinchweed	annual	Herb
<i>Pectocarya setosa</i>	bristly pectocarya	annual	Herb
<i>Perityle emoryi</i>	Emory's rock daisy	annual	Herb
<i>Petalonyx thurberi</i>	sandpaper plant	perennial	Shrub
<i>Plantago patagonica</i>	desert plantain	annual	Herb
<i>Psoralea emoryi</i>	white dalea	perennial	Shrub
<i>Psoralea schottii</i>	indigo bush	perennial	Shrub
<i>Senecio mohavensis</i>	Mojave groundsel	annual	Herb
<i>Simmondsia chinensis</i>	jojoba, goat nut	perennial	Shrub
<i>Sphaeralcea ambigua</i>	apricot mallow	perennial	Herb
<i>Stillingia linearifolia</i>	linear-leaf stillingia	perennial	Herb
<i>Tiquilia plicata</i>	plicate coldenia	perennial	Herb
<i>Trixis californica</i>	California trixis	annual	Shrub
<i>Uropappus lindleyi</i>	silver puffs	annual	Herb

4.3.2.2 VEGETATION TYPE CONSIDERATIONS

Sonoran Creosote Bush Scrub

An estimated total of 117.40 acres of Sonoran creosote bush scrub will be restored. This community has very low species diversity and cover values when established, and is expected to develop very slowly within restoration sites. The seed palette for this community will resemble Sonoran desert mixed scrub with fewer perennial herbs and shrubs and more abundant annual herb species. The xeric nature of this community results in slow growth, so the community is anticipated to remain extremely open with low diversity through the maintenance, monitoring, and reporting period. The majority of desert scrub community restoration occurs within this vegetation community.

Sonoran Mixed Woody and Succulent Scrub

An estimated total of 6.75 acres of Sonoran mixed woody and succulent scrub will be restored. This community has moderate species diversity and cover values when established, and is expected to develop very slowly within restoration sites. The seed palette for this community will resemble Sonoran desert mixed scrub with more perennial herbs and shrubs and less abundant annual herb species. The focus will not be on replacement of succulent plant species, but will be on heavy seed application and early establishment of the native shrub species in this community. Vertical mulch will be an important component in this vegetation community. The xeric nature of this community results in slow growth, so the community is anticipated to remain extremely open with low diversity through the maintenance, monitoring, and reporting period.

Sonoran Mixed Woody Scrub

An estimated total of 14.07 acres of Sonoran mixed woody scrub will be restored. This community has low species diversity and cover values when established, and is expected to develop very slowly within restoration sites. The seed palette for this community will contain many perennial shrubs and annual herbs, and vertical mulch will be an important component in this vegetation community. The xeric nature of this community results in slow growth, so the community is anticipated to remain extremely open with low diversity through the maintenance, monitoring, and reporting period.

Sonoran Desert Wash Scrub

An estimated total of 0.58 acres of Sonoran desert wash scrub will be restored. This community has moderate species diversity but low cover values when established, and is expected to develop moderately slowly within restoration sites. The seed palette for this community will contain many annual and perennial herbs and shrubs. The focus will be on crown pruning on any mature shrubs, heavy seed application for early establishment of as many of the native herb and shrub species in this community as possible, and application of erosion control materials. The xeric nature of this community, which is also prone to rapid seasonal flooding, results in rapid annual growth along the channel edge and slow growth elsewhere in the community, so the community is anticipated to remain moderately open with low diversity through the maintenance, monitoring, and reporting period.

Sonoran Desert Scrub

An estimated total of 3.47 acres of Sonoran desert scrub will be restored. This community has moderate species diversity but low cover values when established, and is expected to develop very slowly within restoration sites. The seed palette for this community will contain many annual and perennial herb and shrub species, and vertical mulch will be an important component in this vegetation community. The xeric nature of this community results in slow growth, so the community is anticipated to remain extremely open with low diversity through the maintenance, monitoring, and reporting period.

4.3.2.3 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Barefoot Banded Gecko

Only a small amount (1.41 acres) of this species' habitat occurs within temporary impact areas, all in areas with desert scrub vegetation. Temporary as well as permanent habitat impacts to this species are being mitigated through offsite acquisition and management of gecko habitat. Restoration of desert scrub within the temporary impact areas with gecko habitat will be conducted in a manner consistent with the impact avoidance and minimization measures identified in the incidental take permit issued by CDFG for the Project pursuant to Section 2081 of the California Fish and Game Code.

Flat Tailed Horned Lizard

Permanent and temporary impacts to this species' habitat have been mitigated in advance in accordance with the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned

Lizard Interagency Coordinating Committee, 2003) through payment of a fee. Restoration activities in this species' habitat will be conducted in a manner consistent with the Rangewide Management Strategy and the BO and will include measures to avoid and minimize the potential for direct harm.

Peninsular Bighorn Sheep

Habitat for this species is broadly distributed in the desert portion of the Project, with temporary impacts occurring mainly in desert scrub. Mitigation for permanent and temporary impacts to this species includes offsite conservation of large block of contiguous habitat and movement corridors. Restoration of desert scrub vegetation within or adjacent to occupied peninsular bighorn sheep habitat will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measure B-7c (CPUC and BLM, 2009) and the BO.

Other Sensitive Wildlife

Other sensitive wildlife species that are known to occur in the desert scrub communities include coastal rosy boa and, in limited instances, Quino checkerspot butterfly. The occurrence and habitat requirements of these species will be considered during site-specific restoration planning.

4.3.2.4 SPECIAL STATUS PLANT CONSIDERATIONS

Haydon's lotus occurs in desert scrub in a temporary impact area. See the RPSV for the applicable restoration measures.

4.4 GRASSLAND AND MEADOW VEGETATION

Grassland and meadow vegetation occurs at scattered locations along the Project alignment. Appendix A, Table A-4, identifies temporary impact areas with this vegetation by milepost, type of impact area, and structure number.

4.4.1 COMMUNITY DESCRIPTIONS

Only one type of grassland vegetation occurs in the temporary impact areas – non-native grassland,

4.4.1.1 NON-NATIVE GRASSLAND

Non-Native Grassland communities are characterized as being dominated by non-native, annual grasses typically of Mediterranean origin. This vegetation community typically occurs on disturbed sites. Dominant species may include ripgut grass (*Bromus diandrus*), red brome, slender wild oat, Italian ryegrass (*Lolium multiflorum*), and black mustard (*Brassica nigra*). Many of these species are invasive and displace desirable native grass species and increase fire-frequency and soil erosion (Cal-IPC, 2010). An estimated total of 48.31 acres of non-native grassland will be temporarily impacted by the Project and restored consistent with this RPSV.

4.4.2 RESTORATION APPROACH

Non-native grassland occurs throughout the Project ROW, and is dominated by non-native, annual grasses mainly of Mediterranean origin. This vegetation community typically occurs on disturbed sites, and many of the grassland species are invasive and displace desirable native grass species, increase fire-frequency, and increase soil erosion (Cal-IPC, 2010). Because of these ecologically damaging characteristics, non-native grassland areas will be re-vegetated with native annual and perennial grasses and forbs, and success criteria have been modified to account for the high cover of non-native species prior to Project impacts. The focus will be on heavy application of a highly diverse native grass and herb seed mix, and frequent and thorough maintenance treatments of non-native grass and herb species.

4.4.3 SEED PALETTE

A generalized seed palette grassland and meadow vegetation communities is provided in Table 10 below. The palette was developed based on native grassland plant species observed and recorded by SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palette is preliminary, and community-specific mixes with specified seed quantities and application rates per acre will be developed based on the pre-impact evaluation of the restoration sites and as seed collection progresses. A wide variety of native grassland and meadow plant species are included on the general palette to provide the Restoration Program Manager and Restoration Specialists with options for designing final seed palette that will reflect the natural diversity, species composition, and relative abundance of species within each Project temporary impact location. In impact areas where Quino checkerspot butterfly habitat occurs, dot-plantain will be included in the restoration seed mix. A final seed palette will be developed following collection of reference site data within similar undisturbed habitats (CPUC and BLM, 2009).

Table 10. Grassland and Meadow Generalized Seed Palette

Species	Common Name	Annual/ Perennial	Life Form
<i>Achillea millefolium</i>	yarrow, milfoil	perennial	herb
<i>Achnatherum coronatum</i>	giant stipa	perennial	grass
<i>Asclepias californica</i>	California milkweed	perennial	herb
<i>Bromus carinatus</i>	California brome	annual	grass
<i>Calandrinia ciliata</i>	red maids	perennial	herb
<i>Carex praegracilis</i>	cluster field sedge	perennial	grass
<i>Castilleja exserta</i>	purple owls clover	annual	herb
<i>Delphinium parryi</i>	blue larkspur	perennial	herb
<i>Gutierrezia sarothrae</i>	broom snakeweed, matchweed	perennial	herb
<i>Hordeum brachyantherum</i>	meadow barley	perennial	grass
<i>Lasthenia gracilis</i>	common goldenfields	annual	herb
<i>Layia glandulosa</i>	white layia	annual	herb
<i>Lupinus bicolor</i>	miniature lupine	annual	herb
<i>Muhlenbergia rigens</i>	Deergrass	perennial	grass

Species	Common Name	Annual/ Perennial	Life Form
<i>Plantago erecta</i>	dot-seed plantain	annual	herb
<i>Potentilla glandulosa</i>	sticky cinquefoil	perennial	Herb
<i>Rumex salicifolius</i>	willow dock	perennial	Herb
<i>Sidalcea malviflora</i>	Checkerbloom	perennial	Herb
<i>Stipa cernua</i> [<i>Nassella c.</i>]	nodding needlegrass	perennial	Grass
<i>Stipa lepida</i> [<i>Nassella l.</i>]	foothill needlegrass	perennial	Grass
<i>Stipa pulchra</i> [<i>Nassella p.</i>]	purple needlegrass	perennial	Grass
<i>Thysanocarpus curvipes</i>	lace pod	annual	Herb
<i>Trifolium ciliolatum</i>	tree clover	annual	Herb
<i>Tropidocarpum gracile</i>	slender dobie-pod	perennial	Herb
<i>Uropappus lindleyi</i>	silver puffs	annual	Herb
<i>Wyethia ovata</i>	southern mule's ear	perennial	Herb

4.4.3.1 VEGETATION TYPE CONSIDERATIONS

Non-Native Grassland

An estimated total of 48.31 acres of non-native grassland will be restored. This community has moderate species diversity and high non-native plant species cover values when established. These areas will be restored with a grassland and meadow seed mix intended to promote species diversity, with many legume species that can help develop more fertile site soils over time. This community is expected to develop relatively quickly within restoration sites and is anticipated to have a relatively high cover of non-native plant species (approximately 20 percent) by the end of the maintenance, monitoring, and reporting period due to the presence of well-developed non-native plant seed bank on the site soils.

4.4.3.2 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Quino Checkerspot Butterfly

Restoration plans for non-native grassland will take into consideration any Quino habitat that was present and will replicate the habitat at the site. The Quino checkerspot butterfly is associated with specific flora that serves as larval host plants (e.g., dot-seed plantain). Larval host plant species and potential nectaring sources such as dot seed plantain, southern Chinese houses, Coulter's snapdragon, purple owl's clover and thread-leaved bird's-beak will be included in site specific seed mixes for appropriate Quino checkerspot habitat. The preferred habitats largely consist of herbs and forbs occurring on cryptogammic crusts and within clay soils often associated with poor drainage. Onsite restoration as mitigation for temporary impacts to habitats that support the Quino checkerspot butterfly will be completed in kind, and will involve the replacement specific soil parameters onsite. Soil disturbance in Quino checkerspot butterfly habitat will be minimized and may include the use of construction mats to avoid soil compaction. Planting methods in Quino checkerspot butterfly habitat will

be limited to seeding. Seeding will occur from October through January to avoid potential butterfly disturbance during the flight season and will be consistent with the restoration procedures outlined in Appendix II in the Recovery Plan for the Quino Checkerspot Butterfly (USFWS 2003). Restoration within this species' habitat will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measures B-7i (CPUC and BLM 2009) and the BO.

Other Sensitive Wildlife

Other sensitive wildlife species that are known to occur in the grassland and meadow communities include southwestern pond turtle (*Clemmys marmorata pallida*), California legless lizard, San Diego horned lizard, San Diego ring-necked snake, Townsend's big-eared bat, and pallid bat (*Antrozous pallidus*). The occurrence and habitat requirements of these species will be considered during site-specific restoration planning.

4.4.3.3 SPECIAL STATUS PLANT CONSIDERATIONS

The plant species of concern are not associated with non-native grassland. However, in some temporary impact areas, non-native grassland is intermixed with chaparral, coastal scrub, and woodland vegetation that does support special status plants.

4.5 HERBACEOUS WETLANDS, FRESHWATER, AND STREAM VEGETATION

Herbaceous wetlands, freshwater, and stream vegetation occurs in connection with water resources that are protected under federal and state law and have been avoided by the Project to the maximum extent possible. Appendix A, Table A-5, identifies temporary impact areas with this vegetation by milepost, type of impact area, and structure number.

4.5.1 COMMUNITY DESCRIPTIONS

Non-vegetated channel is the only type of this community that occurs in the temporary impact areas.

4.5.1.1 NON-VEGETATED CHANNEL

Non-vegetated channel, as mapped within the Project ROW and Project impact areas, refers to ephemeral stream channels or desert dry washes where infrequent water presence and/or frequent scour during seasonal precipitation events within the channel or wash limits the establishment of perennial and/or annual plant species. An estimated total of 2.37 acres of non-vegetated channel will be temporarily impacted by the Project and restored consistent with this RPSV.

4.5.2 RESTORATION APPROACH

The majority of temporary Project impacts to 'waters' disturb portions of stream channels or desert dry washes with ephemeral stream hydrology. The most common temporary Project impacts in these areas will be "fill," or placement of soil or rock in a waterway in order to create a stable road bed or base for construction equipment. In several instances, culverts may be placed in waterways, and these are also considered "fill." When rock or other materials will be brought from offsite locations to facilitate construction activities in and adjacent to 'waters', only clean fill materials will be allowed. In some Project areas, it may be necessary for construction crews to perform excavation within jurisdictional areas. Excavations may destroy portions of the stream banks where present, and these will also be restored after Project construction is completed. Due to the sensitivity of the watershed associated within herbaceous wetlands, freshwater and stream habitats, restoration site preparation activities will consist of applying placing BMPs (e.g., sandbags, silt fencing), soil testing, and hand weeding. These activities will occur as part of implementation of the HMMP. Restoration of vegetation on the edges of stream channels will occur under this RPSV within temporary impact areas and under the HMMP on the mitigation lands identified for impacts to federal and state waters. Avoidance and minimization measures as outlined in the MMCRP, BO, Project permits, and other Project determinations will be followed.

4.5.2.1 SEED PALETTE

Seed palettes for restoring temporary impacts to dry washes and non-vegetated stream channels are presented below in Tables 11, 12, and 13. The seed palettes have been developed based on native plant species observed and recorded by SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palettes are subject to change, and specified seed quantities and application rates per acre will be developed for these palettes as seed collection progresses. The seed palettes will be verified and finalized following collection of reference site data within similar undisturbed habitats (CPUC and BLM, 2009). The hydroseed mixes below will be applied within Project temporary impact areas to dry washes, and ephemeral and intermittent stream channels. The seed mixes are designed to provide rapid erosion control within the first growing season, where possible, and re-introduce native grasses, herbs, and/or shrubs to the edges of the channel and the stream banks where the jurisdictional areas transition into upland vegetation communities. Three distinct preliminary seed mixes have been designed for various portions of the Project ROW, which are identified by milepost in the following tables. These seed mixes will be applied by hydroseed as described in Section 3 (where possible), or by hand broadcasting in temporary impact areas of the Project ROW where hydroseed equipment cannot gain access. The mixes are intended to be applied to the stream banks and adjacent upland areas extending approximately 10 to 15 feet outward from the top of bank on both sides of the stream channel or dry wash.

Table 11. Desert Dry Wash Seed Palette (MP 0-34)

Species	Common Name	Annual/ Perennial	Life Form
<i>Ambrosia dumosa</i>	Burrobush	perennial	Shrub
<i>Camissonia boothii</i>	Booth's evening primrose	annual	Herb
<i>Cryptantha muricata</i>	Redroot cryptantha	perennial	Herb
<i>Geraea canescens</i>	desert sunflower	annual	Herb
<i>Plantago patagonica</i>	wooly plantain	annual	Herb
<i>Pleuraphis rigida</i>	big galleta grass	perennial	Grass

Table 12. Interior Mountain Non-Vegetated Channel Seed Palette (MP 34-92)

Species	Common Name	Annual/ Perennial	Life Form
<i>Artemisia douglasiana</i>	Douglas' mugwort	perennial	Herb
<i>Chaenactis artemisifolia</i>	white pincushion	annual	Herb
<i>Elymus trachycaulis ssp. trachycaulis</i>	slender wheatgrass	perennial	Grass
<i>Gutierrezia californica</i>	California matchweed	perennial	Shrub
<i>Mimulus bicolor</i>	yellow monkeyflower	Annual	Herb
<i>Sisyrinchium bellum</i>	blue-eyed grass	perennial	Herb

Table 13. Coastal Slope and Foothill Non-Vegetated Channel Seed Palette (MP 92-117)

Species	Common Name	Annual/ Perennial	Life Form
<i>Bromus carinatus</i>	California brome	perennial	Grass
<i>Eschscholtzia californica</i>	California poppy	annual	Herb
<i>Plantago erecta</i>	dotseed plantain	perennial	Herb
<i>Lotus scoparius</i>	Deerweed	perennial	Shrub
<i>Muhlenbergia rigens</i>	Deergrass	perennial	Grass
<i>Phacelia distans</i>	common phacelia	annual	Herb

4.5.2.2 VEGETATION TYPE CONSIDERATIONS

Non-Vegetated Channel

An estimated total of 2.37 acres of non-vegetated channel will be restored. This community has moderate species diversity and cover values when established. These areas will be restored with regional seed mixes intended to provide rapid erosion control (within one growing season) and a native plant buffer along the stream channel edge. This community is expected to develop slowly in the desert dry washes, and relatively quickly within the coastal slope and foothill restoration sites. The focus will

be on matching the stream grade and channel dimensions after construction to the undisturbed upstream and downstream sections of the channel or dry wash, and on installation of erosion control materials and BMPs to maintain favorable surface hydrology conditions. Unvegetated channels are anticipated to be well-developed by the end of the maintenance, monitoring, and reporting period.

4.5.2.3 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Small areas of dry wash occur in multiple temporary impact areas. Where the impact area has been identified as habitat for one of the special status wildlife species, restoration activities will be conducted in accordance with the impact avoidance and minimization measures for those species specified in the MMRCP and BO. Habitat for arroyo toad and peninsular bighorn sheep are known to occur in temporary impact areas with dry washes.

Other sensitive wildlife species that are known to occur in the herbaceous wetland, freshwater, and stream communities include southwestern pond turtle, California legless lizard, San Diego ring-necked snake, and two-striped garter snake (*Thamnophis hammondi*). The occurrence and habitat requirements of these species will be considered during site-specific restoration planning.

4.5.2.4 SPECIAL STATUS PLANT CONSIDERATIONS

Tecate tarplant occurs in dry washes in temporary impact areas.

4.6 RIPARIAN WOODLAND AND FOREST VEGETATION

Riparian woodland and forest vegetation occurs in areas with water resources that are protected by federal and state law and have been avoided to the maximum extent possible by the Project. Appendix A, Table A-6, identifies temporary impact areas with this vegetation by milepost, type of impact area, and structure number.

4.6.1 COMMUNITY DESCRIPTIONS

The total amount of this community in temporary impact areas is 0.086 acre. Southern coast live oak riparian forest occurs at the site of guard areas and in one temporary work area.

4.6.1.1 SOUTHERN COAST LIVE OAK RIPARIAN FOREST

Southern coast live oak riparian forest varies from dense to open, evergreen riparian forest dominated by coast live oak and a variety of willow species. Subdominant species may include western sycamore (*Platanus racemosa*), poison oak (*Toxicodendron diversilobum*), mule fat (*Baccharis salicifolia*), Mexican elderberry (*Sambucus mexicana*), and Douglas' mugwort (*Artemisia douglasiana*). Common associates in the canopy of this vegetation community include Fremont's cottonwood (*Populus fremontii*), black willow (*Salix gooddingii*), and arroyo willow (*Salix lasiolepis*). This community occurs along the outer floodplains of canyons and valleys on fine-textured alluvial soils associated with larger creeks (Holland,

1986). This community is typically richer in herbaceous species in the understory rather than shrub species (Holland, 1986).

4.6.2 RESTORATION APPROACH

The Project is not anticipated to result in impacts to individual oak, willow, cottonwood, sycamore, or ash trees within southern coast live oak riparian woodland vegetation communities. Temporary impacts will result to the understory of this community only, so restoration of temporary impacts will focus solely on the native understory of the riparian woodland areas.

4.6.2.1 SEED PALETTE

A seed palette for southern coast live oak riparian forest is presented below in Table 14. The seed palette has been developed based on native riparian woodland and forest plant species observed and recorded by SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palettes are subject to change, and specified seed quantities and application rates per acre will be developed for the palette as seed collection progresses and site specific restoration plans are produced. The seed palette will be verified and finalized following collection of reference site data within similar undisturbed habitats (CPUC and BLM, 2009).

Table 14. Southern Coast Live Oak Riparian Forest Seed Palette

Species	Common Name	Annual/ Perennial	Life Form
<i>Artemisia douglasiana</i>	Mugwort	Perennial	Shrub
<i>Baccharis salicifolia</i>	mule fat	Perennial	Shrub
<i>Bromus carinatus</i>	California brome	Annual	Grass
<i>Carex praegracilis</i>	cluster field sedge	Perennial	Grass
<i>Mimulus guttatus</i>	common monkey-flower	Annual	Herb
<i>Rosa californica</i>	California rose	Perennial	Shrub
<i>Rubus ursinus</i>	California blackberry	Perennial	Vine
<i>Stachys ajugoides</i>	hedge nettle	Perennial	Herb
<i>Toxicodendron diversilobum</i>	poison oak	Perennial	vine, shrub
<i>Urtica dioica</i>	hoary nettle	Perennial	Herb

4.6.2.2 VEGETATION TYPE CONSIDERATIONS

Southern Coast Live Oak Riparian Forest

An estimated total of 0.08 acre of southern coast live oak riparian forest will be restored. This community has moderate species diversity and plant species cover values when established. The focus will be on avoidance of root zone impacts to coast live oak and other tree species during construction activities, as well as restoration of understory species with a diverse mix of annual and perennial grasses, herbs, and shrubs. This community occurs in relatively mesic areas and is expected to develop

relatively quickly within restoration sites. The restored understory areas are anticipated to be well-developed by the end of the maintenance, monitoring, and reporting period.

4.6.2.3 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Arroyo Toad

If used, container planting methods within riparian forest and woodland habitats should be completed in the winter months before the breeding season of arroyo toad. Restoration activities within this species' habitat will be conducted in a manner consistent with the impact avoidance and minimization measures in MMCRP measures B-7j and B-12b (CPUC and BLM 2009) and in the BO.

Least Bell's Vireo and Southwestern Willow Flycatcher

Sensitive bird species such as the least Bell's vireo and southwestern willow flycatcher are known to use riparian woodland and forest habitats for nesting and foraging. Least Bell's vireo prefers to nest in low, dense, scrubby vegetation in early successional areas and is particularly dependent on corridors of willow dominated habitat along rivers and streams. The southwestern willow flycatcher is known to breed in a variety of riparian habitats with multi-tiered canopies and saturated soils or surface water present (Grinnell and Miller, 1944). Planting methods for riparian woodland and forest or riparian scrub habitats may include planting and seeding, but these activities should be completed before or after the nesting season (typically from mid-March to September). Weed control and other maintenance activities completed during nesting season should be monitored by a biological monitor to avoid any disturbance to sensitive bird species. Restoration within these species' habitats will be conducted in a manner consistent with the impact avoidance and minimization measures set forth in MMCRP measures B-7e (CPUC and BLM 2009).

Other Sensitive Wildlife

Other sensitive wildlife species that are known to occur in southern coast live oak riparian forest include bald eagle, California spotted owl (*Strix occidentalis occidentalis*), southwestern pond turtle, large-blotched salamander (*Ensatina eschscholtzii klauberi*), California legless lizard, San Diego horned lizard, San Diego ring-necked snake, San Diego mountain kingsnake (*Lampropeltis zonata pulchra*), two-striped garter snake, Townsend's big-eared bat, pallid bat, and western red bat (*Lasiurus blossevillii*). The occurrence and habitat requirements of these species will be considered in site-specific restoration planning.

4.6.2.4 SPECIAL STATUS PLANT CONSIDERATIONS

None of the special status plants is known to occur in the riparian forest and woodland within temporary impact areas.

4.7 WOODLAND AND FOREST VEGETATION

Woodland and forest vegetation occurs in a limited number of temporary impact areas along the Project alignment. Appendix A, Table A-7, identifies temporary impact areas with this vegetation by milepost, type of impact area, and structure number.

4.7.1 COMMUNITY DESCRIPTIONS

The two types of this vegetation that occur in temporary impact areas are coast live oak woodland and peninsular juniper woodland and scrub.

4.7.1.1 COAST LIVE OAK WOODLAND

Coast live oak woodland is an evergreen woodland community, dominated by coast live oak that may reach a height of 35 to 80 feet. The shrub layer may consist of toyon, Mexican elderberry, fuchsia-flowered gooseberry (*Ribes speciosum*), and poison oak. A dense herbaceous understory is often present with miner's lettuce (*Claytonia perfoliata* var. *perfoliata*) and chickweed (*Stellaria media*) as potential dominant species. This community occurs along the coastal foothills of the Peninsular Ranges, typically on north-facing slopes and in shaded ravines. An estimated total of 3.60 acres of coast live oak woodland occur in the temporary impact areas,

4.7.1.2 PENINSULAR JUNIPER WOODLAND AND SCRUB

Peninsular juniper woodland and scrub is relatively xeric, dense woodland dominated by California juniper (*Juniperus californica*) with lesser components within the vegetation community comprised of honey mesquite, sugar bush, silver cholla, and California buckwheat. This community is located on alluvial fans and desert slopes. An estimated total of 0.32 acre of peninsular juniper woodland and scrub occurs in the temporary impact areas.

4.7.2 RESTORATION APPROACH

As with the riparian forest and woodland community, restoration of this community in temporary impact areas will focus on the understory vegetation. Acorns and juniper berries also will be planted. Project impacts to native trees are being mitigated through acquisition and preservation of woodlands.

4.7.2.1 SEED PALETTE

Seed palettes for coast live oak woodland and peninsular juniper woodland and scrub are presented in Tables 15 and 16. The seed palettes have been developed based on native woodland and forest plant species observed and recorded by SDG&E staff and contractors between 2008 and 2010 on or adjacent to the Project ROW. The seed palettes are subject to change, and specified seed quantities and application rates per acre will be developed for these palettes as seed collection progresses and site specific restoration plans are developed. The seed palettes will be verified and finalized following collection of reference site data within similar undisturbed habitats (CPUC and BLM, 2009).

Table 15. Coast Live Oak Woodland Seed Palette

Species ¹	Common Name	Annual/Perennial	Life Form
<i>Artemisia douglasiana</i>	mugwort	Perennial	Herb
<i>Allophylum gilioides</i>	straggling false-gilia	Annual	Herb
<i>Allophylum glutinosum</i>	blue false-gilia	Annual	Herb
<i>Bromus carinatus</i>	California brome	Annual	Grass
<i>Cirsium occidentale</i>	cobwebby thistle	Perennial	Herb
<i>Claytonia perfoliata</i>	miner's lettuce	perennial	Herb
<i>Collinsia parviflora</i>	blue-eyed Mary	annual	Herb
<i>Elymus glaucus</i>	blue wildrye	perennial	Grass
<i>Emmenanthe penduliflora</i>	whispering bells	annual	Herb
<i>Eriogonum fasciculatum</i>	flat-topped buckwheat	perennial	Shrub
<i>Galium andrewsii</i>	moss-leaf bedstraw	perennial	Herb
<i>Galium aparine</i>	goose grass	annual	Herb
<i>Gilia capitata</i>	ball gilia	annual, perennial	Herb
<i>Keckiella ternate</i>	summer bush penstemon	perennial	Shrub
<i>Leptosiphon floribundus</i>	summer snow	annual	Herb
<i>Lessingia glandulifera</i>	valley lessingia	annual	Herb
<i>Lupinus bicolor</i>	miniature lupine	annual	Herb
<i>Nemophila menziesii</i>	baby blue-eyes	annual	Herb
<i>Pectocarya setosa</i>	bristly pectocarya	annual	Herb
<i>Penstemon spectabilis</i>	violet beard-tongue	perennial	Herb
<i>Phacelia minor</i>	wild Canterbury-bell	annual	Herb
<i>Scutellaria tuberosa</i>	Danny's skullcap	perennial	Herb
<i>Viola purpurea</i>	golden violet	perennial	Herb

Note

¹ Due to the large size of coast live oak acorns and low germination rates it has been excluded from the proposed hydroseed mix. The Restoration Specialist may choose to hand seed acorns at their discretion.

Table 16. Peninsular Juniper Woodland Seed Palette

Species ¹	Common Name	Annual/Perennial	Life Form
<i>Allophylum gilioides</i>	straggling false-gilia	annual	Herb
<i>Allophylum glutinosum</i>	blue false-gilia	annual	Herb
<i>Cirsium occidentale</i>	cobwebby thistle	perennial	Herb
<i>Cryptantha intermedia</i>	nievitas cryptantha	annual	Herb
<i>Emmenanthe penduliflora</i>	whispering bells	annual	Herb
<i>Encelia actonii</i>	Acton's encelia	perennial	Shrub
<i>Ericameria pinifolia</i>	pine-bush	perennial	Shrub
<i>Eriogonum fasciculatum</i>	flat-topped buckwheat	perennial	shrub
<i>Gilia capitata</i>	ball gilia	annual, perennial	Herb
<i>Lessingia glandulifera</i>	valley lessingia	annual	Herb
<i>Lupinus bicolor</i>	miniature lupine	annual	Herb
<i>Pectocarya setosa</i>	bristly pectocarya	annual	Herb
<i>Penstemon spectabilis</i>	violet beard-tongue	perennial	Herb
<i>Phacelia minor</i>	wild Canterbury-bell	annual	Herb

Note

¹ Due to the size of peninsular juniper berries and low germination rates it has been excluded from the proposed hydroseed mix. The Restoration Specialists may choose to hand seed berries at their discretion.

4.7.2.2 VEGETATION TYPE CONSIDERATIONS

Coast Live Oak Woodland

An estimated total of 3.60 acres of coast live oak woodland will be restored. This community has moderate species diversity and plant species cover values when established. The focus will be on avoidance of root zone impacts to coast live oak trees during construction activities, and restoration of understory species with a diverse mix of annual and perennial grasses, herbs, and shrubs. This community occurs in relatively mesic areas and is expected to develop relatively quickly within restoration sites. The restored understory areas are anticipated to be well-developed by the end of the maintenance, monitoring, and reporting period.

Peninsular Juniper Woodland and Scrub

An estimated total of 0.32 acres of peninsular juniper woodland and scrub will be restored. This community has low species diversity and cover values when established. The focus will be on crown pruning of mature juniper shrubs/trees in impact areas to promote crown sprouting during the restoration period, and heavy seed application of native herb and shrub understory components of juniper woodland and scrub. This community is expected to develop slowly within restoration sites and is anticipated to remain moderately open by the end of the maintenance, monitoring, and reporting period.

4.7.2.3 SPECIAL STATUS WILDLIFE CONSIDERATIONS

Where the impact area has been identified as habitat for one of the special status wildlife species, restoration activities will be conducted in accordance with the impact avoidance and minimization measures for those species specified in the MMRCP and BO. Habitat for arroyo toad is known to occur in some temporary impact areas with oak woodland; peninsular bighorn sheep habitat is known to occur in areas with juniper woodland.

Other sensitive wildlife known to occur in coast live oak woodland and peninsular juniper woodland and scrub include bald eagle, California spotted owl, large-blotched salamander, California legless lizard, San Diego horned lizard, San Diego mountain kingsnake, San Diego ring-necked snake, two-striped garter snake, Townsend's big-eared bat, pallid bat, and western red bat. The occurrence and requirements of these species will be considered in site-specific restoration planning.

4.7.2.4 SPECIAL STATUS PLANT CONSIDERATIONS

Haydon's lotus occurs within peninsular juniper woodland.

4.8 OTHER AREAS

Within many temporary impact areas, a portion of the land is already disturbed or the vegetation that will be removed is not part of a sensitive community. Restoration of these areas will be addressed through the site-specific planning process. If the area has been identified as habitat for any of the 15 special status wildlife or plant species, the restoration will be planned with the occurrence and requirements of those species in mind. (Quino checkerspot butterfly habitat is known to include disturbed areas; several special status plants occur within existing roads.) If the area is not habitat for any of the 15 special status species, revegetation will be planned to meet the requirements of the applicable SWPPP. In both cases, seed mixes will be determined in the site-specific restoration plan for the temporary impact area, and the applicable species' impact avoidance and minimization measures will be implemented.

Some temporary impact areas are adjacent to permanent impact areas where some revegetation will occur under the SWPPP for the site. The site-specific plan for the temporary impact area will identify such circumstances, and the seed mix and restoration for the permanent impact area will be coordinated with that for the temporary impact area.

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5. MAINTENANCE, MONITORING, AND REPORTING REQUIREMENTS

This section describes the maintenance, monitoring, and reporting requirements that will apply to the restoration sites.

5.1 MAINTENANCE, MONITORING, AND REPORTING PERIOD

Maintenance in the form non-native and invasive plant removal will be initiated at each restoration site prior to planting, as detailed in the Weed Control Plan and section 3.2.2 of this RPSV. Thereafter, each restoration site will be maintained and monitored for a minimum of five years or until the success criteria identified in the applicable site-specific restoration plan are achieved. The time required to meet success criteria at a specific site, and therefore the duration of the post-planting maintenance and monitoring period, will depend on the level of disturbance at the site and the type of vegetation community being restored. Generally the following guidelines will apply:

1. Except at sites where the top soil has been removed and chaparral or desert scrub communities are being restored, the standard post-planting maintenance and monitoring period will be five years.
2. At sites where the top soil has been removed and chaparral or desert scrub communities are being restored, the standard post-planting maintenance and monitoring period will be ten years.

Table 17 provides a generalized schedule of pre- and post-planting maintenance, monitoring, and reporting activities. The Restoration Program Manager will prepare and maintain a master schedule of maintenance, monitoring, and reporting tasks for all of the restoration sites.

5.2 MAINTENANCE AND MONITORING BEFORE AND DURING PLANTING

Removal of non-native and invasive plants will occur at the post-construction site in accordance with the Weed Control Plan and section 3.2.2 of this RPSV. Erosion control and runoff diversion will occur in accordance with the applicable SWPPP until the site-specific restoration plan has been approved for the location.

Table 17. Generalized Schedule of Maintenance, Monitoring, and Reporting Activities Before, During, and After Planting

Task	Pre-Planting Period	Installation Period	Post-Planting Period		
			Year 1	Year 2	Year 3 through Completion
Pre-Construction Site Documentation	Prior to disturbing sensitive vegetation in temporary impact areas				
Post-Construction Site Documentation	As soon as possible after cessation of activities and removal of equipment and no later than when site measures are required under the applicable Storm Water Pollution Prevention Plan (SWPPP).				
Pre-Restoration Site Weeding	As per Weed Control Plan and at least 30 days prior to planting.				
Site-Specific Restoration Plan (Site Plan)	At least 45 days prior to site preparation for restoration, excluding weeding activities.				
Restoration Site Installation		As specified in Site Plan			
As-Built Report			No later than 120 days after planting		
Maintenance and Monitoring Site Visits			At least monthly for first 120 days after planting; at least 4 additional site visits during remainder of year.	Six site visits, with one at the peak of growing season per vegetation community restored. ¹	Quarterly through Year 5, as specified in Site Plan thereafter ²
Maintenance and Monitoring Reports			Monthly first 120 days after planting; quarterly thereafter.	Quarterly	Quarterly through Year 5, as specified in Site Plan thereafter ²
Reference Photos	Include in pre- and post-construction documentation		Day planting completed, 120 days later, and 1 year after planting is completed.	Annually	Annually
Remedial and Contingency Measures	As needed	As needed	As needed	As needed	As needed
Performance Evaluation Reports			Annually	Annually	Annually

Notes

- 1 One of the site visits for desert scrub vegetation communities should be conducted between February and March, between March and April for coastal and montane scrub communities, and between July and August for wetland/riparian communities.
- 2 For sites where the top soil has been removed and chaparral or desert scrub will be restored, the standard maintenance and monitoring period after planting will be 10 years. It is anticipated that maintenance and monitoring site visits and reports would be less frequent for such sites during years 6 through 10 than during years 1-5.

5.3 MAINTENANCE AND MONITORING AFTER PLANTING

5.3.1 AS-BUILT ASSESSMENT

In addition to the maintenance and monitoring reports, an As-Built assessment report will be prepared for each restoration site by the Restoration Program Manager and submitted to the CPUC, BLM, USFWS, and CDFG (and USFS for restoration on their managed lands) no later than 120 days after the hydroseeding of the site(s) included in the report. More than one restoration site may be included in each as-built report. Each as-built report will document what preparation activities were implemented for each site, specify the quantities, types, and dates of hydroseed installed, and provide photographs taken from pre-designated points at each site. The Restoration Specialist will keep records of site preparation activities and restoration activities. In addition, any substantial problems encountered, or necessary changes made to the Program in the field will be recorded and included in the As-Built assessment report. Recommendations for corrective measures, if any, will be made by the Restoration Specialist immediately upon conclusion of the onsite As-Built assessment.

5.3.2 MAINTENANCE ACTIVITIES

Maintenance activities will be initiated concurrent with installation and will continue until the success criteria for the site have been met. Maintenance activities on the site will be conducted monthly during the 120-day establishment period, quarterly during the remainder of year one of the project, and quarterly or as directed by the Restoration Specialist during the rest of the period. Recommendations for maintenance efforts will be based upon qualitative site observations and will include maintenance items listed below.

5.3.2.1 *NON-NATIVE/INVASIVE PLANT REMOVAL*

Non-native and invasive plant (weed) control will begin with the 120-day establishment period and continue at a minimum throughout the maintenance, monitoring, and reporting period as needed. The Restoration Specialist will monitor physical and/or chemical herbicide applications within the restoration areas and provide recommendations for additional weed control if necessary. All debris and slash generated from weed removal activities will be disposed of offsite in a legally acceptable manner.

Weed control measures may include the same methods used during post-construction, including direct physical or mechanical removal (e.g., cutting with weed whip machines, mowing) and herbicide application. Any use of herbicides is predicated on compliance with all applicable regulations and securing any required authorizations from the agency with jurisdiction over the site. Weeding will be performed as recommended by the Restoration Specialist to keep any weeds establishing on the restoration sites at manageable levels and to reducing non-native annual grass and forb competition with native seedlings in the years following native seeding. The species presented in Section 3 will be removed before seed-set (other species that appear may be added to this list if deemed necessary by the Restoration Specialist). Implementation will be coordinated with implementation of the WCP.

5.3.2.2 TRASH/DEBRIS REMOVAL

Trash will be removed from the restoration areas by hand during monthly (120-day installation period) and quarterly maintenance visits. Trash consists of all man-made materials, equipment, or debris dumped, thrown, washed, blown, and left within the restoration areas. Deadwood and leaf litter of native trees and shrubs will not be removed. The Restoration/Maintenance Contractors will be responsible for prompt trash and debris removal. Following each site inspection, the Restoration Specialists will communicate any additional trash and debris removal requirements to the Restoration Contractor.

5.3.2.3 EROSION CONTROL

The Restoration Specialists will monitor the sites at each visit for erosion. The Restoration/Maintenance Contractors are responsible for preventing erosion through application of BMPs where required. In addition to the establishment of native vegetation, which will minimize erosion, non-vegetative erosion control measures may be used as prescribed by the Restoration Specialist or Restoration Program Manager. Such erosion control measures, or BMPs, may include the application of wood straw, wood chips, certified weed-free straw mulch, jute netting, sandbags, soil binders, trenches, or dissipaters. Wood straw or wood chips will be the preferred application on sites in CNF. Any such measures must preclude the introduction of weed species into the seed bank of areas where native vegetation either occurs or is to be restored. Drainage and sedimentation control devices will be routinely cleaned, maintained, and repaired prior to and during the rainy season by the Restoration/Maintenance Contractor. All repairs to these systems will be executed immediately to offset erosion problems. All erosion control and remedial measures must be consistent with the SWPPP for the site.

5.3.2.4 ACCESS RESTRICTION

The Restoration/Maintenance Contractors will install, at the direction of the Restoration Specialist or Restoration Program Manger, temporary fencing and/or signage restricting access to the restoration areas when determined that pedestrian traffic or vandalism has become problematic at a site. Vertical mulch (described below) may also be used to restrict access to restoration areas.

5.3.2.5 VERTICAL MULCHING

Vertical mulching involves installing plants or dead and downed plant materials into the ground to discourage unwanted entry into restoration areas. This practice may be used at construction yards, stringing areas, or other areas in which public access is not permissible and fencing is not the preferred method of restricting unwanted entry. Vertical mulch is often used in desert environments; however, this approach may be used within other habitats as determined necessary by the Restoration Specialist or Restoration Program Manager. Vertical mulch (shrubs, cacti, grasses, and other plant material either dead or alive) can reduce wind speed and facilitate deposition of blowing soil and organic litter. It also helps to obscure closed roads or barren ROWs, which is especially important at former access roads or staging areas to prevent trespass. Replanted plants for vertical mulch will not be irrigated, are not subject to restoration success criteria, and may be allowed to expire.

5.3.3 MONITORING AND REPORTING TASKS

Maintenance and performance monitoring are required and must be reported. Maintenance monitoring will be conducted by the Restoration Specialists to determine the effectiveness of maintenance activities on each restoration site. The Restoration Specialist shall prescribe any additional maintenance activities that may be required. Performance monitoring will be completed by the Restoration Specialists to document restoration site progress relative to the established performance criteria, and for the Restoration Specialist to prescribe any remedial measures that may be required to ensure that each restoration site meets the performance criteria established for the site.

5.3.3.1 MAINTENANCE MONITORING

The Restoration Specialists will perform regular maintenance inspections according to the schedule established for the site (see Table 17 for generalized schedule). Qualitative monitoring will be conducted during each maintenance monitoring visit to assess seedling recruitment from native hydroseed and natural sources, native plant vigor and development, soil moisture content, presence/absence of plant pests or diseases, erosion and/or drainage conditions onsite, presence/absence of non-native or invasive plant species, trash or debris accumulation, wildlife presence/absence, and project fencing and signage condition (where applicable). The Restoration Specialists will also monitor the installation and maintenance of all best management practices (BMPs) outlined in accordance with the restoration standards of the CPUC, BLM, USDA Forest Service, and all other respective agencies. Qualitative monitoring will also require establishment of photo points to visually document restoration site progress. A series of fixed photo points will be established by the Restoration Specialist within each restoration site. A minimum of four photo points per site will be established to allow visual evaluation of the site. Photo points will be keyed to permanent features unlikely to change or disappear during the monitoring periods. Where no such feature is available, a monument will be marked by GPS coordinates and or a 2-foot (0.6 m) length of 0.5-inch (1.2 cm) rebar will be driven into the ground with 2 inches (5 cm) left exposed above the ground. All photo points will be marked on an aerial photograph showing GPS coordinates and permanent landscape features. Photos will be taken during all maintenance monitoring site visits by the Restoration Specialists. Following each maintenance inspection, the Restoration Specialists will submit maintenance monitoring reports to the Restoration Contractor and to SDG&E via the Restoration Program Manager.

5.3.3.2 MAINTENANCE MONITORING REPORTS

Following each maintenance inspection, the Restoration Specialist will submit a maintenance monitoring report to the Restoration/Maintenance Contractors and to SDG&E via the Restoration Program Manager. The Restoration Program Manager will provide a standardized report form that Restoration Specialists will utilize for maintenance monitoring and reporting. The ultimate purpose of the maintenance monitoring reports is to advise all parties whether sufficient progress is being made to ensure on-schedule, successful completion of the Program. All qualitative monitoring visits to the restoration sites will be documented with a monitoring report, which will be submitted to the Restoration/Maintenance Contractors via the Restoration Program Manger. Any restoration site deficiencies will be noted in the monitoring report, with accompanying recommendations for

maintenance and/or remedial actions. Maintenance monitoring and reporting will be performed monthly during the 120-day period with four more site visits the remainder of year one, six site visits during year two and quarterly or as other determined in the plan for the site for the remainder of the period. If any portion of the monitoring program for a site is extended past the standard period (five or 10 years), the reporting requirements during the extended period will be the same as the last year of the standard period or as other determined in consultation with USFWS and CDFG.

5.3.3.3 PERFORMANCE MONITORING

Performance monitoring will include quantification of vegetative cover and the establishment of a series of fixed photo-points throughout the restoration area. Annual performance monitoring will be completed by the Restoration Specialists one year after installation and will continue, at a minimum, annually until the restoration sites have met the success criteria for the site. Quantitative monitoring will be conducted to determine total bare ground cover, total native species cover and composition, total non-native species cover and composition, vertical stratification of native herb, shrub, and tree species on each restoration site, and overall plant species diversity. All quantitative monitoring will be conducted using permanent vegetation transects or quadrats (see Table 18 below).

Table 18. RPSV Performance Monitoring Methods and Target Sampling Area

Project Area	Performance Monitoring Method	Target Sampling Area (% of Restoration Site)
Access Roads	Quantitative monitoring using up to 30 randomly placed 1-meter by 1-meter square quadrats. Number of quadrats will be adjusted based on actual disturbance area.	2%
Guard Areas	Qualitative monitoring	N/A
Construction Yards	Quantitative monitoring using up to 30 and no fewer than 2 randomly placed 50-meter long by 5-meter wide point-intercept transects. Lengths may be shorter than 50-meters long due to the size of the restoration area. Final number and length of transects will be adjusted based on actual disturbance area.	2%
Stringing Sites	Quantitative monitoring using up to 3 randomly placed 25-meter long by 5-meter wide point-intercept transects. Lengths may be shorter than 50-meters long due to the size of the restoration area. Final number and length of transects will be adjusted based on actual disturbance area.	2%
Work Areas	Quantitative monitoring using up to 20 randomly placed 1-meter by 1-meter square quadrats. Number of quadrats will be adjusted based on actual disturbance area.	2%

Permanent vegetation transects will be utilized within larger restoration sites and will be marked with Global Positioning System (GPS) coordinates, and the direction of each transect will be recorded using a compass. The starting point for each transect will be determined by overlaying a grid onto aerial photographs of the Project route and randomly selecting transect locations that do not overlap. The permanent vegetation transects will be sampled using the point-intercept method (Canfield 1941), and adapted by California Native Plant Society (CNPS, 2001). A transect tape will be run between two posts generally between 25 to 50 meters apart, and a vegetative intercept line will be visually projected above

and below the tape at every half-meter mark. Each plant within the herb, shrub, or tree strata that intercepts the projected line will be recorded, by species. In addition, all plant species present within the five-meter wide “species richness” portion of the transect will be recorded by species. All data will be utilized to determine total percent bare ground, percent native plant cover, percent non-native plant cover, overall species richness and diversity, and percent Quino host/nectar plant (where required). The percent cover for each species (including bare ground) will be 100 times the number of observations of that species, divided by the total number of sample points.

Permanent vegetation quadrats (1-meter by 1-meter) will be utilized within smaller restoration sites, and the center point for each quadrat will be marked with Global Positioning System (GPS) coordinates. The position for each quadrat will be determined by overlaying a grid onto aerial photographs of the Project route and randomly selecting locations that do not overlap. Every plant species in each quadrat will be recorded by number and estimated cover. All data will be averaged to determine total percent bare ground, percent native plant cover, percent non-native plant cover, overall species richness and diversity, and percent Quino host/nectar plant (where required). The same quadrats will be re-sampled each year to reduce the likelihood that changes detected from year to year will be due to chance alone. All field data will be recorded on standardized data sheets.

5.3.3.4 PERFORMANCE MONITORING REPORTS

The data collected for all Project restoration sites within a given year will be compiled and included in an annual monitoring report. Due to the large number of individual restoration sites, the Restoration Program Manager will determine how annual reports will be structured by the Restoration Contractor to meet agency requirements and facilitate a thorough and timely review. Annual monitoring reports will be submitted to the CPUC, BLM, USFWS, and CDFG (and USFS for restoration on USFS lands) during the maintenance, monitoring, and reporting period of the Program. Annual performance reports outlining the results of the restoration performance monitoring will be submitted on a specified date. It is anticipated that all sites installed in the same year will have the same reporting date. The performance reports will describe the existing conditions of the restoration sites derived from quantitative data collection. The reports will provide a comparison of annual success criteria with field conditions, identify any shortcomings of the restoration sites, and recommend remedial measures necessary for the successful completion of the Program. Each yearly report will provide a summary of the accumulated data.

5.3.4 REMEDIAL MEASURES

If at any time the restoration areas do not meet the performance standards, the Restoration Specialists will be responsible for notifying the Restoration Contractors, who shall implement any additional maintenance activities and restore Program compliance with the performance standards. The Restoration Specialists will continue to see that remedial measures are implemented after the monitoring period identified in the site specific restoration plan if the targeted success criteria have not been achieved by the end of this period. In addition, the Restoration Specialists may continue the successful techniques and/or employ adaptive management protocols and recommendations to ensure the successful revegetation of each restoration area (Aspen Environmental Group, 2008).

All remedial measures will comply with the maintenance and monitoring requirements in accordance with the CPUC, BLM, USFS, and applicable state and federal agencies for habitat restoration in the State of California (Aspen Environmental Group, 2008). Remedial measures may include additional seeding, erosion control, weeding, irrigation, container planting or other measures necessary to comply with the maintenance and monitoring requirements of the CPUC, BLM, and USFS.

5.3.4.1 INITIATING PROCEDURES FOR REMEDIAL MEASURES

If performance criteria are not met for any portion of the Program, the Restoration Specialists and Restoration Program Manager will prepare an analysis of the cause(s) of failure within the appropriate annual report and propose remedial actions for agency approval. If any of the restoration sites have not met the performance criteria by the end of the maintenance, monitoring, and reporting period, SDG&E's maintenance, monitoring, and reporting obligations will continue until remedial measures are implemented to bring the restoration site(s) into compliance with the established standards or until the agencies grant final Program compliance/approval.

5.3.4.2 ADAPTIVE MANAGEMENT

Adaptive management will be implemented in the event of unforeseen or probable but unpredictable circumstances. Adaptive management is defined, for the purposes of this Program, as a flexible, iterative approach to the long-term management of restoration sites that is directed over time by the results of ongoing monitoring activities and direct observation of environmental stressors that are producing adverse results within the restoration site(s). Adaptive management will include the utilization of regular quantitative assessments and rapid qualitative assessment data gathered in the field during the Program to assess the health and vigor of all vegetation communities and restoration sites. Following an event that causes damage to all or part of the restoration site(s), these data will be used in part to drive management considerations for repair of the damaged areas. Achieving the performance criteria of the Program through establishment of self-sustaining native vegetation communities in temporary project impact areas will be the focus of all adaptive management decisions. Individual environmental stressors are discussed below along with an anticipated range of management responses to correct any damage that may occur to the restoration sites.

Excessive Browse

Grazing and browsing by native mammals is expected to occur within the majority of restoration sites. The plant palettes for each vegetation community have been designed to incorporate a moderate level of plant browsing. If browse levels should become elevated on any site(s) (i.e., if significant plant mortality and cover reduction occurs) as indicated by qualitative or quantitative monitoring of the restoration site(s), remedial measures will be implemented. Browse guards (plastic fencing) may be installed around the base of young shrubs in affected areas to reduce plant mortality, or around portions of the restoration site(s). In addition, remedial seeding may be necessary depending upon the stage of the restoration project. The hydroseed mix may be adjusted prior to re-application to include species that are less palatable to browsing mammals in the area. Each of these options would require the use of Program contingency funds to restore affected areas.

Fires

Periodic fire is important to the regeneration of many of the chaparral and coastal and montane scrub vegetation communities within the Program restoration sites and can help to maintain high levels of biodiversity. Fire at intervals of more than 20 years are often necessary to maintain these vegetation communities in optimal condition, but more frequent fires due to natural or human-induced causes may result in decreased shrub regeneration, increased invasion by non-native grasses, and an over-all decrease in bio-diversity. Fire can be managed on the restoration sites to the extent that human induced fires may be prevented, but naturally occurring wildfires are expected to occur within these vegetation communities on and adjacent to the Program restoration sites. If fire destroys any portion of a restoration site or sites prior to achieving the performance criteria, the site(s) will be qualitatively monitored at more frequent intervals, to be determined by the Restoration Specialists and Restoration Program Manager, and remedial measures will be incorporated as necessary. The seed palettes for these communities have been designed with as many fire-resistant native plant species as possible and are expected to recover within several growing seasons after a fire event. Fire within other vegetation communities (e.g., woodlands and forests, riparian woodland and forests) may produce more long-lasting damage to woody canopy species and may require remedial seeding as directed by the Restoration Specialist, and potentially extending the maintenance, monitoring, and reporting period to allow the restoration site(s) to achieve the Program performance criteria. Depending upon the degree of damage, slash removal, container planting, and supplemental watering may also need to be considered in these areas (if possible), subject to approval by the Restoration Program Manager who would authorize the use of program contingency funds.

Flooding

Flooding is anticipated to occur in many of the restoration sites for the Program, especially within the desert and dune vegetation communities in eastern Imperial and extreme western San Diego Counties where broad desert dry washes are prevalent in and adjacent to the Program restoration sites. In addition, many of the ephemeral stream channels temporarily impacted by the Project in the remaining vegetation communities in San Diego County may be subject to periodic flooding. The seed mixes for these areas have been designed to provide erosion control with native grass, herb, and shrub species to the greatest extent feasible, and target cover values for these areas have been adjusted to factor in the relatively high disturbance rates that may occur due to seasonal flooding. Flooding is anticipated to periodically reduce overall plant cover within and adjacent to stream channels and desert dry washes, but with application of erosion control materials at all Program restoration sites in conformance with the Project SWPPP, seasonal flooding is not anticipated to reduce cover below a level in conformance with the Program performance standards. If qualitative and/or quantitative monitoring of the dry wash or stream channel areas indicates that cover is being reduced below tolerable levels, re-contouring of restoration sites within the first two years after seed application, installation of additional erosion control materials, and/or remedial seeding may be recommended by the Restoration Specialists. These remedial measures would be subject to approval by the Restoration Program Manager, who would authorize the use of program contingency funds.

Prolonged Drought

Seasonal drought is anticipated to occur within all of the Program restoration sites annually, and all vegetation community seed palettes have been designed with drought-tolerant native plant species that are capable of withstanding drastic seasonal fluctuations in available moisture onsite. Drought conditions are anticipated to be most extreme in the desert portion of the Project, including the Imperial Valley, Mountain Springs Grade, and Jacumba area restoration sites. All program sites are anticipated to be restored with seed application only and without supplemental irrigation, so target cover values for all vegetation communities have been adjusted based on the Program specifications and expected temporal development in each Project area. However, an extended drought could potentially occur during any portion or all of the Program maintenance, monitoring, and reporting period including low seasonal rainfall and prolonged high temperatures that may negatively affect any of the Program restoration site(s) (*e.g.*, lower plant cover, higher plant mortality, increased potential for pest infestations onsite, *etc.*). Since supplemental irrigation is not possible in most Program restoration areas (either by fixed irrigation system or hand watering), remedial measures for prolonged drought would be limited to remedial seeding prior to any anticipated precipitation, extension of the maintenance, monitoring, and reporting period, and/or negotiation with the resource agencies to adjust the Program performance criteria for expected vegetation community development under extended drought conditions. These remedial measures will be recommended as required by the Restoration Specialists and would be subject to approval by the Restoration Program Manager, who would authorize the use of program contingency funds.

5.3.4.3 REMEDIAL MEASURE FUNDING MECHANISMS

The same funding source available for the Program, as established by the SDG&E, will be available for any additional planning, implementation, maintenance, monitoring, and/or reporting of any remedial measures that may be required to achieve the Program performance criteria.

5.3.5 COMPLETION OF ONSITE RESTORATION PROGRAM

5.3.5.1 NOTIFICATION OF COMPLETION

The Restoration Program Manager will notify the CPUC, BLM, USFWS, and CDFG and any other applicable regulatory agencies upon submitting the annual report for the final year that the Program performance criteria have been met, and request acceptance of the Program restoration sites and release from the agency permit conditions. Early release will not be possible per the SRPL FEIR/EIS.

5.3.5.2 REGULATORY AGENCY CONFIRMATION

Following receipt of the notification of completion, the CPUC, BLM, USFWS, and CDFG and any other applicable regulatory agencies may have personnel visit the restoration sites to confirm the successful completion of the Program.

6. SITE-SPECIFIC RESTORATION PLANS

This section identifies the process by which individual restoration plans will be prepared for temporary impact areas and submitted to the appropriate agencies for review and approval. The goal of site-specific planning is to ensure that the restored site matches the existing look of the land and its vegetation.

6.1 PRE- AND POST-CONSTRUCTION DOCUMENTATION

Prior to any disturbance of sensitive vegetation in a temporary impact area, a Restoration Specialist designated by the Restoration Program Manager will document site conditions and compile the information specified in section 3.1.1 of this RPSV. In addition, the Restoration Specialist will identify and map areas within the site where seed collection, plant material salvage, and/or soil salvage must occur prior to vegetation disturbance. The Restoration Specialist also will identify any constraints on the pre-impact activities and confirm the location of the construction impact area(s) based on the final approved construction plan for the site. The information and maps will be provided to the Restoration Program Manager and compiled into a pre-impact documentation report for the temporary impact areas. The Restoration Manager will be responsible for maintaining the documentation of pre-impact conditions and will provide electronic copies to the responsible agencies.

After construction is complete, the Restoration Specialist will document site conditions, including the location of stored topsoil, stored mulch and plant materials, undisturbed vegetation on the site, and the area disturbed by the temporary Project activities. The information will be provided to the Restoration Program Manager and compiled into a post-impact documentation report for the temporary impact areas. The Restoration Manager will be responsible for maintaining the documentation of post-impact conditions and will provide electronic copies to the responsible agencies.

6.2 IDENTIFICATION OF REFERENCE SITES

Using the data collected on the impact areas, the Restoration Program Manager will work with the Restoration Specialists and the wildlife agencies to select appropriate reference sites that will be used for judging the performance of each restoration area. Reference sites will be selected for each of the vegetation communities temporarily impacted by the project. All reference sites will be selected from within undisturbed portions of the ROW and within 100 meters of temporary impact locations. The close proximity to the impact sites will provide environmental conditions that should be consistent between the sites on a year to year basis. This will provide monitoring data that can be directly comparable when analyzing both sites. The Restoration Manager will be responsible for compiling and maintaining information about each potential reference sites.

The final selection of reference sites will be determined in cooperation with USFWS and CDFG (and USFS for restoration on CNF lands) as part of the site-specific restoration planning process. Rebar will be installed at the start and finish points of the selected monitoring transects per vegetation community and will be identified with either fluorescent paint or cap on the ends of the rebar for easy identification. A metal tag will be affixed at the start point of each transect which will identify the restoration site as well as the reference site numbers.

6.3 DEVELOPMENT OF PERFORMANCE STANDARDS AND SUCCESS CRITERIA

As the basis for the performance standards and success criteria in the site-specific restoration plans, the Restoration Program Manager and Restoration Specialists will work in coordination with USFWS, CDFG, the CPUC Biological Monitor, BLM, and – for restoration within CNF – USFS to identify appropriate performance standards and success criteria for the sensitive vegetation communities and listed species' habitat restored in the temporary impact areas. Development of the standards and criteria will begin when data on the impact areas has been compiled and reference areas from which performance standards are to be based have been identified. Key issues to be considered include but are not limited to:

- Whether or not top soil has been permanently removed;
- The differences in the growth rates of the vegetation communities that will be restored (chaparral and desert scrub communities develop over a longer period than do the coastal and montane scrubs and riparian communities);
- Appropriate performance standards for restoration sites that will not include irrigation systems; and
- Short- term and long-term standards for determining if a restored site is self-sustaining;

To provide a consistent framework for evaluating restoration sites within the same communities and habitats, it is recommended that the performance standards/success criteria focus on quantifiable cover attributes, including: percent bare ground, percent native cover, percent non-native cover, and overall species diversity based on the seed mix and volunteer species within the restoration site. For sites where Quino habitat is being restored, the standards/criteria also should include percent cover of larval and nectaring plant species. The percentages for the vegetation and Quino categories would be determined based on the best available scientific information and the data from the impact areas and reference sites. The goal for identification of performance standards will be to produce a matrix that can help guide preparation of the individual restoration plans.

6.4 SITE PLANS

The preparation of site-specific restoration plans will begin with the documentation of pre-construction conditions (see section 6.1). The goal is to have an approved restoration plan in place prior to the

cessation of construction activities at the site. Each site-specific plan will include one or more temporary impact areas where sensitive vegetation must be restored. If more than one restoration site is included, the sites must have the same bio-geographical characteristics and be scheduled for restoration in the same period. Individual site plans will be prepared for each restoration site within CNF.

Each plan will include but is not limited to the following components:

1. A summary of pre- and post-construction site conditions. Changes in site conditions since preparation of the post-construction documentation and initiation of the restoration plan will be identified.
2. A detailed description of and schedule for the restoration prescriptions, maintenance and monitoring tasks, and reporting requirements, including provisions for restoring habitat for any of the 15 special status species identified in this RPSV;
3. Performance standards and success criteria appropriate to the type of vegetation being restored and the level of disturbance at the site;
4. Provisions for remedial measures and adaptive management responses to changes in circumstances; and
5. An estimate of implementation of costs.

Plans for restoration sites that require grading and/or soil re-contouring shall include a component that includes the following:

1. Measures to ensure that compaction matches but does not exceed pre-impact site natural compaction;
2. Measures to ensure erosion control and watershed protection; and
3. Measures and standards for slope stability.

Each restoration plan will be submitted by the Restoration Program Manager to USFWS, CDFG, the CPUC biological monitor, BLM, and – for restoration on CNF lands – USFS at least 45 days prior to the initiation of any restoration activities. Plans entailing restoration of Quino habitat must be approved in writing by USFWS. Plans entailing restoration on CNF lands will be subject to the review and approval process determined by USFS. For all other restoration plans, the reviewing agencies will have 45 days to provide comments. If no comments are received within the 45 day comment period, the plan will be deemed approved. If comments are received during the 45 days from one or more agency, the Restoration Project Manager will work with the commenting agency or agencies to address the issues and resubmit the revised plan. A 15-day review period will apply to the revised plan, unless a different review period is requested by one of the commenting agencies.

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**APPENDIX A: PROJECT TEMPORARY IMPACTS BY VEGETATION
COMMUNITY**

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Table A-1. Temporary Project Impacts to Chaparral Vegetation Communities

Map Book Page	Chaparral Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage	
MS-031	Semi-desert Chaparral	String Site Area	MP-33	EP244	0.448	
		Work Area		EP244	0.647	
				EP246	0.274	
MS-032	Semi-desert Chaparral	Guard_Areas	MP-33	EP243	0.003	
		String Site Area	MP-34	EP243	0.007	
			MP-33	EP243	1.238	
				EP244	0.339	
	Semi-desert Chaparral - Disturbed	Work Area	MP-34	EP243	0.510	
		Construction Yard		EP242	15.358	
		String Site Area		EP243	0.007	
		Work Area		EP243	0.001	
MS-033	Semi-desert Chaparral	Guard_Areas	MP-35	EP236-1	0.007	
		String Site Area		EP239-1	0.003	
				EP237-1	2.316	
MS-034	Semi-desert Chaparral	Guard_Areas	MP-36	EP233-1	0.007	
MS-035	Semi-desert Chaparral	Guard_Areas	MP-37	EP228	0.008	
			MP-38	EP225-1	0.003	
		EP226-1		0.003		
		String Site Area		EP225-1	0.761	
	Semi-desert Chaparral - Disturbed	Guard_Areas	MP-37	EP226-1	0.715	
EP228				0.002		
MS-036	Redshank Chaparral	Access Road	MP-39	EP220-1	0.189	
	Semi-desert Chaparral	String Site Area		EP220-1	1.468	
		Access Road		EP220-1	0.270	
		Guard_Areas		EP221-2	0.007	
		String Site Area		EP220-1	0.312	
		Work Area		EP221-2	0.059	
				EP220-1	0.137	
MS-037	Northern Mixed Chaparral	Guard_Areas	MP-39	EP219-1	0.007	
		String Site Area		EP219-1	1.557	
		Work Area		EP219-1	0.646	
	Guard_Areas	EP219-1		0.002		
	Semi-desert Chaparral	String Site Area	MP-40	EP219-1	0.303	
		Work Area	MP-40	EP219-1	1.788	
				EP219-1	0.000	
			MP-39	EP220-1	0.436	
MS-038		Chamise Chaparral	Work Area	MP-40	EP215	0.035
	Northern Mixed Chaparral	EP217-1			0.629	
		EP218-1			0.421	
		Semi-desert Chaparral			Guard_Areas	EP215
	String Site Area				EP215	0.242
	Work Area				EP214	0.094
					EP215	0.310
MS-039	Chamise Chaparral	Work Area	MP-41	EP213	0.005	
	Semi-desert Chaparral	Guard_Areas		EP211	0.003	
		Work Area	MP-40	EP214	0.004	
			MP-41	EP211	0.497	

Map Book Page	Chaparral Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage	
MS-040	Northern Mixed Chaparral	Guard_Areas	MP-41	EP209-1	0.002	
	Semi-desert Chaparral - Disturbed	Construction Yard	MP-42	EP206-1	10.093	
		Work Area		EP207	0.223	
MS-041	Semi-desert Chaparral	Access Road	MP-43	EP203-3	0.001	
		Construction Yard	MP-42	EP204-3	0.071	
				EP205-2	1.755	
		Guard_Areas	MP-43	EP206-1	0.002	
		String Site Area		EP203-3	0.984	
		Work Area	MP-42	EP204-3	1.589	
	EP204-3			0.536		
	MP-43		EP205-2	0.606		
			EP206-1	0.199		
	Semi-desert Chaparral - Disturbed	Construction Yard	MP-42	EP203-3	0.330	
				EP205-2	0.161	
		Guard_Areas	MP-42	EP206-1	29.090	
				EP205-2	0.003	
Work Area	MP-42	EP206-1	0.001			
		EP206-1	0.366			
MS-042	Semi-desert Chaparral	Guard_Areas	MP-43	EP201-3	0.007	
		Work Area		EP200A-1	0.665	
	EP201-3			0.594		
	EP202-3			0.638		
	Semi-desert Chaparral - Disturbed	EP203-3		0.275		
EP201-3	0.015					
MS-043	Redshank Chaparral	Work Area	MP-44	EP200-3	0.104	
	Semi-desert Chaparral	Guard_Areas		EP197-2	0.003	
		Work Area		EP198-3	0.003	
	EP196-1			0.460		
	EP197-2			0.579		
	EP198-3	0.485				
Semi-desert Chaparral - Disturbed	EP200-3	0.377				
MS-044	Redshank Chaparral	String Site Area	MP-45	EP193-1	0.483	
	Semi-desert Chaparral			EP192-1	1.158	
				EP193-1	1.417	
	Work Area			EP192-1	0.446	
				EP193-1	0.044	
MS-045	Redshank Chaparral	Work Area	MP-46	EP191-1	0.315	
	Semi-desert Chaparral			Guard_Areas	EP190-2	0.007
				Work Area	EP190-2	0.655
					EP191-1	0.329
MS-046	Scrub Oak Chaparral	Work Area	MP-47	EP186-1	0.649	
	Semi-desert Chaparral	Access Road	MP-46	EP187-2	0.001	
		String Site Area		EP187-2	1.409	
			MP-47	EP187-2	1.706	
MS-047	Chamise Chaparral	Work Area	MP-48	EP181	0.471	
	Scrub Oak Chaparral		MP-47	EP184-1	0.341	
	Semi-desert Chaparral	Guard_Areas		EP184-1	0.003	
		Work Area		EP184-1	0.278	
			EP185-1	0.593		
	Semi-desert Chaparral - Disturbed	Guard_Areas	MP-48	EP181	0.106	
			EP182	0.595		
MP-47	EP184-1	0.003				

Map Book Page	Chaparral Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage	
MS-048	Chamise Chaparral	Construction Yard	MP-49	EP178	0.009	
		String Site Area		EP177	1.152	
	Northern Mixed Chaparral	Work Area		EP177	0.281	
				EP176	0.563	
	Semi-desert Chaparral	Access Road		EP177	0.315	
				EP178	0.541	
				EP178	28.872	
		Work Area		String Site Area	EP178	1.409
				MP-48	EP180	0.579
					MP-49	EP178
MS-049	Northern Mixed Chaparral	Guard_Areas	MP-50	EP179	0.404	
				EP173-1	0.005	
		Work Area		EP171	0.001	
				EP172	0.527	
				EP173-1	0.606	
				EP174	0.625	
MS-050	Northern Mixed Chaparral	String Site Area	MP-51	EP175	0.623	
		Work Area		EP170	5.240	
MS-051	Northern Mixed Chaparral	String Site Area	MP-54	EP170	0.485	
		Work Area		EP171	0.528	
MS-052	Northern Mixed Chaparral	Guard_Areas	MP-54	EP141	1.982	
				EP141	0.190	
	Northern Mixed Chaparral - Disturbed	MP-55	EP138-2	0.007		
			MP-54	EP139-1	0.007	
MS-053	Northern Mixed Chaparral	Construction Yard	MP-56	EP138-2	0.005	
				Guard_Areas	EP130-1	17.939
		String Site Area			EP131	1.289
				Work Area	EP130-1	0.005
		EP131			2.350	
		EP130-1		1.501		
MS-054	Chamise Chaparral	Access Road	MP-58	EP131	1.513	
				Guard_Areas	EP124	0.011
					EP125	0.000
	Northern Mixed Chaparral	String Site Area	EP124	0.003		
			EP125	0.003		
			EP125	1.239		
MS-055	Chamise Chaparral	Work Area	MP-57	EP127	1.506	
				Southern Mixed Chaparral	Guard_Areas	EP119-2
	EP120-4	0.007				
MS-056	Chamise Chaparral	Guard_Areas	MP-59	EP119-2	0.002	
				String Site Area	EP116-1	0.002
	Work Area	MP-60	EP113-4		2.193	
			EP114-2	0.756		
MS-057	Chamise Chaparral	String Site Area	MP-62	EP107-3	0.147	
				Northern Mixed Chaparral	Access Road	EP107-3
	Guard_Areas	MP-61	EP107-3			0.007
			String Site Area	MP-62	EP107-3	0.572
	EP108-2	3.785				
	MS-058	Chamise Chaparral	Work Area	MP-62	EP106-3	1.075
EP103-2					1.554	
				EP104-2	1.507	

Map Book Page	Chaparral Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-059	Chamise Chaparral	Guard_Areas	MP-63	EP99-2	0.007
		String Site Area		EP99-2	1.778
		Work Area		EP99-2	1.472
MS-060	Chamise Chaparral	Work Area	MP-64	EP95	1.526
	Southern Mixed Chaparral	Guard_Areas		EP94	0.007
				EP96	0.006
MS-061	Chamise Chaparral	Guard_Areas	MP-65	EP91	0.001
		String Site Area		EP91	0.287
		Work Area		EP91	0.485
	Northern Mixed Chaparral			EP93	0.292
				EP93	0.319
	Southern Mixed Chaparral	Guard_Areas		EP91	0.003
		String Site Area		EP91	1.666
		Work Area		EP91	0.295
	MS-062	Chamise Chaparral		String Site Area	MP-65
Work Area			EP91	1.392	
			EP89-1	0.089	
Northern Mixed Chaparral		Guard_Areas	MP-66	EP91	0.081
		String Site Area		EP91	0.005
		Work Area	MP-66	EP89-1	0.177
Southern Mixed Chaparral			Work Area	MP-65	EP89-1
		Guard_Areas		EP91	0.165
			String Site Area	MP-66	EP84
		Work Area	MP-65	EP91	0.000
MS-063	Northern Mixed Chaparral	String Site Area	MP-67	EP83	0.419
	Chamise Chaparral	Guard_Areas	MP-69	EP77	0.003
	Northern Mixed Chaparral			EP79	0.003
MS-064	Scrub Oak Chaparral	String Site Area	MP-68	EP78	0.097
	Southern Mixed Chaparral	Guard_Areas		EP79	0.001
				MP-69	EP74-1
MS-065	Southern Mixed Chaparral	Guard_Areas	MP-70	EP75-2	0.007
			MP-70	EP74-1	0.003
MS-066	Chamise Chaparral	String Site Area	MP-71	EP67	0.195
	Northern Mixed Chaparral	Work Area		EP69	1.469
	Southern Mixed Chaparral	String Site Area		EP67	0.007
MS-067	Chamise Chaparral	Guard_Areas	MP-71	EP66	0.007
		String Site Area		EP67	2.495
		Work Area		EP67	1.384
	Northern Mixed Chaparral	String Site Area		EP67	0.352
		Work Area		EP67	0.016
	Southern Mixed Chaparral	String Site Area		EP67	0.000
MS-068	Northern Mixed Chaparral	Guard_Areas	MP-73	EP58-2	0.003
				EP62A-1	0.003
MS-069	Southern Mixed Chaparral - Burned	Guard_Areas	MP-74	EP51-1	0.003
				EP53-2	0.007
			MP-75	EP51-1	0.004
MS-070	Southern Mixed Chaparral - Burned	Access Road	MP-75	EP47-2	0.000
		String Site Area		EP47-2	1.582
				EP48	0.498

Map Book Page	Chaparral Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage	
MS-071	Southern Mixed Chaparral - Burned	Guard_Areas	MP-77	EP42	0.003	
				EP43-1	0.003	
		String Site Area	MP-78	EP41	0.001	
Work Area	EP42	1.040				
MS-072	Chamise Chaparral - Burned	Work Area	MP-78	EP39-1	0.730	
	Southern Mixed Chaparral - Burned			EP39-1	0.691	
MS-073	Chamise Chaparral - Burned	Guard_Areas	MP-79	EP36-1	0.006	
		String Site Area		EP36-1	1.733	
		Work Area		EP36-1	1.354	
MS-075	Chamise Chaparral	Guard_Areas	MP-80	EP32-1	0.007	
		String Site Area	MP-81	EP30-2	0.293	
		Work Area	MP-80	EP32-1	0.660	
			MP-81	EP30-2	0.949	
MS-076	Chamise Chaparral	Guard_Areas	MP-82	EP27-1	0.007	
MS-077	Chamise Chaparral	Guard_Areas	MP-82	EP24-1	0.003	
	Southern Mixed Chaparral			EP25-2	0.003	
MS-078	Chamise Chaparral	Access Road	MP-83	EP24-1	0.000	
				EP22-1	0.318	
				EP23-2	0.015	
	Guard_Areas	EP23-2		0.001		
	String Site Area	EP24-1		0.005		
	Southern Mixed Chaparral	EP22-1		0.326		
		EP23-2		0.736		
	Guard_Areas	EP24-1	0.001			
	String Site Area	EP22-1	0.001			
MS-079	Chamise Chaparral	String Site Area	MP-86	EP12-3	1.322	
	Southern Mixed Chaparral	Guard_Areas		EP9-1	1.065	
		String Site Area		EP10-2	0.016	
				EP12-3	0.476	
			EP9-1	0.824		
MS-080	Chamise Chaparral	Work Area	MP-89	EP1-3	0.193	
	Northern Mixed Chaparral			EP1-3	0.171	
	Scrub Oak Chaparral			EP1-3	0.076	
	Southern Mixed Chaparral			EP1-3	0.491	
MS-082	Northern Mixed Chaparral	String Site Area	MP-92	CP96-1	0.069	
				CP95-1	0.931	
	Southern Mixed Chaparral	Work Area	MP-91	CP96-1	0.056	
				MP-92	CP100-1	0.637
				MP-92	CP98-1	0.634
			CP99-2	0.524		
MS-083	Southern Mixed Chaparral	Construction Yard	MP-96	CP87-1	1.270	
MS-084	Southern Mixed Chaparral	Access Road	MP-98	CP88-1	0.009	
		Guard_Areas	MP-99	CP83	0.002	
		String Site Area	MP-98	CP88-1	0.943	
		Work Area		CP87-1	0.010	
			CP88-1	0.310		
MS-085	Southern Mixed Chaparral	Guard_Areas	MP-101	CP70-3	0.003	
				CP71	0.014	
MS-087	Southern Mixed Chaparral - Burned	Access Road	MP-106	CP55	0.062	
		String Site Area		CP55	1.670	
MS-090	Southern Mixed Chaparral	Guard_Areas	MP-107	CP47-2	0.007	
			MP-108	CP46-2	0.016	

Map Book Page	Chaparral Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-091	Southern Mixed Chaparral	Guard_Areas	MP-108	CP44-1	0.007
				CP45-1	0.010
			MP-109	CP46-2	0.003
				CP44-1	0.007
MS-092	Chamise Chaparral	Access Road	MP-110	CP41-2	0.156
		Guard_Areas	MP-109	CP42-1	0.007
				CP43-1	0.002
		String Site Area	MP-110	CP42-1	0.549
				CP40-2	0.352
				CP41-2	0.469
MS-093	Chamise Chaparral	Guard_Areas	MP-111	CP36-1	0.005
	Southern Mixed Chaparral		MP-110	CP37-2	0.003
MS-097	Southern Mixed Chaparral	String Site Area	MP-117	SSDE1	0.013
		Work Area		SSDE1	0.034
MS-098	Southern Mixed Chaparral	Work Area	MP-117	SSDE1	0.000
MS-100	Southern Mixed Chaparral	Work Area	(blank)	SSDE1	0.039
	Southern Mixed Chaparral - Burned			SSDE1	0.060
MS-101	Southern Mixed Chaparral	Work Area	(blank)	SSDE1	0.003
MS-102	Southern Mixed Chaparral	Work Area	MP-117	SSDE1	0.048
				TOTAL	223.973

Table A-2. Temporary Project Impacts to Coastal and Montane Scrub Vegetation Communities

Map Book Page	Coastal and Montane Scrub Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-037	Big Sagebrush Scrub	Guard_Areas	MP-39	EP219-1	0.002
				EP220-1	0.007
		String Site Area		EP220-1	0.126
MS-038	Diegan Coastal Sage Scrub - Inland Form	Access Road	MP-40	EP215	0.130
		Guard_Areas		EP215	0.006
		String Site Area		EP215	1.034
		Work Area		EP214	0.215
				EP215	1.071
				EP218-1	0.220
	EP214			0.063	
Diegan Coastal Sage Scrub - Inland Form – Dist.					
MS-039	Diegan Coastal Sage Scrub - Inland Form	Guard_Areas	MP-41	EP211	0.003
		Work Area	MP-40	EP214	0.128
			MP-41	EP210	0.533
				EP211	0.038
	Diegan Coastal Sage Scrub - Inland Form – Disturbed	MP-40	EP214	0.050	
MS-040	Diegan Coastal Sage Scrub - Inland Form	Guard_Areas	MP-41	EP209-1	0.003
	Diegan Coastal Sage Scrub - Inland Form – Disturbed	Work Area	MP-42	EP208	0.545
				EP207	0.388
				EP208	0.001
MS-041	Flat-topped Buckwheat Scrub	Construction Yard	MP-42	EP204-3	10.160
	Flat-topped Buckwheat Scrub - Disturbed			EP205-2	16.486
				EP205-2	1.171
MS-043	Diegan Coastal Sage Scrub - Inland Form	Work Area	MP-44	EP199-3	0.607
MS-044	Diegan Coastal Sage Scrub - Inland Form	String Site Area	MP-45	EP193-1	0.025
		Work Area		EP192-1	0.004
				EP193-1	0.445
MS-048	Flat-topped Buckwheat Scrub	Work Area	MP-49	EP179	0.165
MS-056	Diegan Coastal Sage Scrub - Inland Form	Work Area	MP-60	EP114-2	0.846
MS-063	Big Sagebrush Scrub	Access Road	MP-67	EP83	0.476
		Guard_Areas	MP-66	EP84	0.002
			MP-67	EP84	0.003
		String Site Area		EP83	3.489
				EP84	3.236
		Work Area	MP-66	EP84	0.153
			MP-67	EP84	0.937
MS-064	Flat-topped Buckwheat Scrub	String Site Area	MP-68	EP78	1.414
MS-067	Flat-topped Buckwheat Scrub	String Site Area	MP-71	EP67	0.011
		Work Area		EP67	0.053
MS-074	Diegan Coastal Sage Scrub	Guard_Areas	MP-80	EP34-1	0.003
				EP35-1	0.003
MS-075	Diegan Coastal Sage Scrub	Guard_Areas	MP-80	EP32-1	0.007
		Work Area		EP32-1	0.889
MS-081	Diegan Coastal Sage Scrub	Access Road	MP-89	SSDE2	0.029
		Construction Yard		SSDE2	9.792
MS-082	Flat-topped Buckwheat Scrub	String Site Area	MP-92	CP95-1	0.165
MS-083	Diegan Coastal Sage Scrub	Construction Yard	MP-96	CP87-1	0.680
	Diegan Coastal Sage Scrub – Disturbed			CP87-1	1.213
MS-084	Diegan Coastal Sage Scrub	Guard_Areas	MP-98	CP85-1	0.003
				CP86	0.011

Map Book Page	Coastal and Montane Scrub Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
			MP-99	CP83	0.004
				CP84	0.007
		Work Area	MP-98	CP87-1	0.031
				CP88-1	0.008
MS-085	Diegan Coastal Sage Scrub	Guard_Areas	MP-101	CP70-3	0.003
				CP71	0.001
MS-086	Diegan Coastal Sage Scrub - Disturbed	Access Road	MP-103	CP64-2	0.679
				CP65-1	0.228
				CP64-2	0.140
MS-088	Diegan Coastal Sage Scrub	Access Road	MP-107	CP50-1	0.628
		Guard_Areas	MP-106	CP53-1	0.003
		String Site Area	MP-107	CP50-1	0.185
	Diegan Coastal Sage Scrub - Disturbed	Guard_Areas	MP-106	CP51-2	0.020
MS-090	Diegan Coastal Sage Scrub	Access Road	MP-107	CP54-1	0.000
				CP49-1	0.211
				CP50-1	0.403
				CP49-1	1.114
MS-092	Diegan Coastal Sage Scrub - Disturbed	Guard_Areas	MP-109	CP50-1	0.227
				CP43-1	0.008
MS-093	Diegan Coastal Sage Scrub	Guard_Areas	MP-110	CP37-2	0.003
			MP-111	CP36-1	0.002
MS-094	Coastal Sage-Chaparral Scrub	Guard_Areas	MP-112	CP28-1	0.007
	Diegan Coastal Sage Scrub		MP-111	CP33A	0.003
			MP-112	CP31-2	0.002
				CP33A	0.003
				CP31-2	1.003
Work Area	CP31-2	1.105			
MS-095	Coastal Sage-Chaparral Scrub	Guard_Areas	MP-113	CP24-1	0.003
		String Site Area	MP-114	CP22-1	0.002
		MP-113	CP23	0.107	
MS-096	Coastal Sage-Chaparral Scrub	Access Road	MP-115	CP15-1	0.023
		Guard_Areas		CP14	0.002
		String Site Area		CP15-1	0.003
		Work Area		CP14	0.091
		CP15-1		0.498	
		CP14		0.055	
MS-097	Coastal Sage-Chaparral Scrub	Guard_Areas	MP-117	CP15-1	0.631
		String Site Area		CP6-1	0.007
		Work Area		CP2	0.009
		SSDE1		0.082	
		CP2		0.015	
		CP3		0.016	
MS-098	Coastal Sage-Chaparral Scrub	Work Area	MP-117	SSDE1	0.112
MS-099	Coastal Sage-Chaparral Scrub	String Site Area	MP-117	SSDE1	0.019
		Work Area		SSDE1	0.028
MS-100	Coastal Sage-Chaparral Scrub	Work Area	(blank)	SSDE1	0.041
MS-101	Coastal Sage-Chaparral Scrub	Work Area	(blank)	SSDE1	0.005
MS-102	Coastal Sage-Chaparral Scrub	Work Area	MP-117	SSDE1	0.002
MS-103	Coastal Sage-Chaparral Scrub	Work Area	(blank)	(blank)	0.003
TOTAL					66.935

Table A-3. Temporary Project Impacts to Desert Scrub and Dune Vegetation Communities

Map Book Page	Desert Scrub/Dune Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-001	Sonoran Creosote Bush Scrub	Access Road	MP-1	EP361	0.317
		Construction Yard		EP361	4.965
		Guard_Areas	MP-0	EP363-1	0.005
		Work Area		EP362-1	0.636
				EP363-1	0.624
MS-002	Sonoran Creosote Bush Scrub	Work Area	MP-1	EP361	0.631
				EP359	0.628
MS-003	Sonoran Creosote Bush Scrub	Access Road	MP-3	EP356	0.001
		String Site Area		EP355	1.384
				EP356	0.377
		Work Area	MP-2	EP356	0.629
				EP357	0.629
	Sonoran Creosote Bush Scrub - Disturbed	Access Road	MP-3	EP358	0.629
				EP356	0.078
		String Site Area	EP356	0.048	
			EP355	0.486	
MS-004	Sonoran Creosote Bush Scrub	String Site Area	MP-3	EP354	0.620
		Work Area		EP355	0.641
MS-005	Sonoran Creosote Bush Scrub	Work Area	MP-3	EP353	0.625
			MP-4	EP351	0.478
	EP352			0.559	
	Sonoran Desert Scrub		MP-3	EP353	0.016
	MS-006	Sonoran Creosote Bush Scrub	Access Road	MP-5	EP349
String Site Area			EP349		2.632
Work Area			MP-4	EP351	0.100
			MP-5	EP349	0.625
MS-007	Sonoran Creosote Bush Scrub	Guard_Areas	MP-5	EP348	0.002
		Work Area		EP348	0.619
	Sonoran Creosote Bush Scrub - Disturbed	Guard_Areas		EP348	0.005
MS-008	Sonoran Creosote Bush Scrub	Construction Yard	MP-6	EP346	9.932
MS-009	Sonoran Creosote Bush Scrub	Guard_Areas	MP-6	EP344	0.003
		String Site Area	MP-7	EP343	0.287
				EP344	0.279
MS-010	Sonoran Creosote Bush Scrub	Guard_Areas	MP-7	EP342	0.003
		String Site Area		EP343	0.006
		Work Area		EP341	0.606
	EP342			0.485	
	Sonoran Creosote Bush Scrub - Disturbed	EP342		0.097	
MS-011	Sonoran Creosote Bush Scrub	Work Area	MP-8	EP338	0.017
				EP339	0.245
				EP340	0.245
MS-012	Sonoran Creosote Bush Scrub	Work Area	MP-9	EP336	0.246
				EP337	0.305

Map Book Page	Desert Scrub/Dune Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-013	Sonoran Creosote Bush Scrub	Work Area	MP-10	EP332	0.638
				EP333	0.638
			MP-9	EP334	0.644
				EP335	0.558
MS-014	Sonoran Creosote Bush Scrub - Disturbed	Construction Yard	MP-11	EP330-1	17.472
		Guard_Areas		EP330-1	0.014
		String Site Area		EP331	0.003
		Work Area		EP330-1	4.007
	Sonoran Mixed Woody Scrub - Disturbed	Work Area		EP330-1	0.565
		Guard_Areas		EP331	0.620
		Work Area		EP329-1	0.011
		Work Area		EP329-1	0.082
MS-016	Sonoran Creosote Bush Scrub	Access Road	MP-13	EP323-1	0.378
		String Site Area		EP323-1	0.217
		Work Area		EP322-1	0.020
MS-018	Sonoran Creosote Bush Scrub - Disturbed	Guard_Areas	MP-15	EP316-2	0.007
		String Site Area	MP-16	EP313	0.431
		Work Area	MP-15	EP316-2	0.620
MS-019	Sonoran Creosote Bush Scrub - Disturbed	String Site Area	MP-16	EP313	0.653
		Work Area		EP313	0.535
MS-020	Sonoran Desert Scrub	Access Road	MP-18	EP306-1	0.088
		String Site Area	MP-17	EP307-1	0.012
			MP-18	EP306-1	1.725
		Work Area	MP-17	EP307-1	0.612
			MP-18	EP306-1	0.573
		MS-021	Sonoran Creosote Bush Scrub	Guard_Areas	MP-18
Work Area	EP303-2			0.528	
Sonoran Creosote Bush Scrub - Disturbed	Guard_Areas		MP-19	EP302-1	0.007
	Work Area			EP302-1	0.572
MS-022	Sonoran Creosote Bush Scrub	Work Area	MP-20	EP300-1	0.014
	Sonoran Creosote Bush Scrub - Disturbed	Access Road	MP-19	EP301	0.000
		String Site Area		EP301	1.905
	Sonoran Desert Wash Scrub	Work Area	MP-20	EP300-1	0.011
MS-023	Sonoran Creosote Bush Scrub	Work Area	MP-20	EP298	0.646
				EP299	0.638
	Sonoran Desert Wash Scrub			EP300-1	0.606
				EP300-1	0.014
MS-024	Sonoran Creosote Bush Scrub	Construction Yard	MP-21	EP296	29.727
		Work Area		EP295	0.564
				EP296	0.638
				EP297	0.646

Map Book Page	Desert Scrub/Dune Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage	
MS-025	Sonoran Creosote Bush Scrub	String Site Area	MP-22	EP292-1	0.553	
		Work Area		EP292-1	0.203	
	EP293			0.431		
	EP294			0.638		
	EP292-1			0.347		
	Sonoran Desert Wash Scrub	String Site Area		EP293	0.207	
Sonoran Mixed Woody and Succulent Scrub	EP292-1		0.707			
MS-026	Sonoran Creosote Bush Scrub	String Site Area	MP-22	EP291-1	0.382	
		Work Area		EP292-1	0.026	
	EP291-1			0.447		
	EP291-1		0.130			
	Sonoran Mixed Woody Scrub		MP-23	EP290	0.545	
Sonoran Mixed Woody and Succulent Scrub	String Site Area	MP-22	EP292-1	0.002		
MS-027	Sonoran Desert Mixed Scrub	String Site Area	MP-27	EP269-1	1.382	
	Sonoran Mixed Woody and Succulent Scrub	Guard_Areas		EP269-1	0.007	
MS-028	Sonoran Mixed Woody and Succulent Scrub	Construction Yard	MP-30	EP257	4.880	
		Work Area		EP257	0.159	
	EP257			0.348		
	Sonoran Mixed Woody Scrub			EP258-3	0.626	
Sonoran Mixed Woody Scrub - Disturbed		EP257	0.051			
MS-029	Sonoran Mixed Woody Scrub	Guard_Areas	MP-30	EP255-2	0.007	
			MP-31	EP256	0.003	
				EP252-1	0.001	
		String Site Area	MP-30	EP255-2	0.670	
			MP-31	EP256	1.529	
				EP255-2	3.217	
		Work Area	MP-30	EP256	0.641	
				MP-31	EP252-1	0.539
					EP254-3	0.664
MS-030	Sonoran Mixed Woody and Succulent Scrub	Guard_Areas	MP-32	EP250	0.005	
		Work Area		EP250	0.649	
	Sonoran Mixed Woody Scrub	Guard_Areas	MP-31	EP252-1	0.004	
		Work Area		EP248	0.007	
			MP-32	EP248	0.554	
	EP249			0.601		
	EP251	0.592				
MS-031	Sonoran Mixed Woody and Succulent Scrub	Work Area	MP-33	EP246	0.301	
	Sonoran Mixed Woody Scrub	Guard_Areas	MP-32	EP247	0.002	
		EP248		0.000		
		Work Area	MP-33	EP245-1	0.572	
				EP246	0.071	
	Sonoran Mixed Woody Scrub - Disturbed	Guard_Areas	MP-32	EP247	0.261	
EP248				0.001		

Map Book Page	Desert Scrub/Dune Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-032	Sonoran Creosote Bush Scrub	Construction Yard	MP-34	EP242	16.849
		Work Area		EP242	0.510
	Sonoran Creosote Bush Scrub - Disturbed	EP240		0.481	
MS-033	Sonoran Desert Mixed Scrub	String Site Area	MP-35	EP237-1	0.421
TOTAL					142.260

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Table A-4. Temporary Project Impacts to Grasslands and Meadow Vegetation Communities

Map Book Page	Grassland/Meadow Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-037	Non-native Grassland - Disturbed	String Site Area	MP-39	EP220-1	0.091
MS-039	Non-native Grassland	Guard_Areas	MP-41	EP209-1	0.003
				EP210	0.003
MS-056	Non-native Grassland	Guard_Areas	MP-59	EP116-1	0.005
		String Site Area	MP-60	EP113-4	1.229
		Work Area		EP114-2	0.010
MS-062	Non-native Grassland	Guard_Areas	MP-65	EP89-1	0.006
		String Site Area		EP89-1	1.868
		Work Area		EP89-1	0.745
MS-067	Non-native Grassland	String Site Area	MP-71	EP67	0.834
		Work Area		EP67	0.009
MS-075	Non-native Grassland	String Site Area	MP-81	EP30-2	1.168
		Work Area		EP30-2	0.600
MS-077	Non-native Grassland	Access Road	MP-82	EP26-1	0.023
		Construction Yard		EP26-1	15.867
		Guard_Areas		EP27-1	0.007
MS-081	Non-native Grassland	Construction Yard	MP-89	SSDE2	0.986
MS-086	Non-native Grassland	Access Road	MP-103	CP66-2	0.069
		Construction Yard		CP66-2	0.820
MS-088	Non-native Grassland	Access Road	MP-107	CP51-2	0.132
		String Site Area		CP51-2	0.037
MS-089	Non-native Grassland	Access Road	MP-106	CP54-1	0.440
		Construction Yard		CP54-1	20.972
MS-095	Non-native Grassland	Access Road	MP-113	CP23	0.061
		String Site Area		CP23	0.209
MS-097	Non-native Grassland	String Site Area	MP-117	SSDE1	1.561
		Work Area		SSDE1	0.000
MS-103	Non-native Grassland	Work Area	(blank)	(blank)	0.004
TOTAL					48.406

Table A-5. Temporary Project Impacts to Herbaceous Wetland, Freshwater, and Stream (HWFS) Vegetation Communities

Map Book Page	HWFS Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-005	Non-vegetated Channel	Work Area	MP-4	EP351	0.036
				EP352	0.086
MS-006	Non-vegetated Channel	String Site Area	MP-5	EP349	0.057
		Work Area	MP-4	EP350	0.032
				EP351	0.000
MS-007	Non-vegetated Channel	Work Area	MP-5	EP347	0.047
			MP-6	EP346	0.020
MS-008	Non-vegetated Channel	Construction Yard	MP-5	EP347	0.003
MS-009	Non-vegetated Channel	Work Area	MP-6	EP344	0.015
				EP345	0.002
MS-010	Non-vegetated Channel	Work Area	MP-7	EP341	0.024
				EP343	0.006
MS-011	Non-vegetated Channel	String Site Area	MP-8	EP338	0.015
		Work Area		EP338	0.115
				EP339	0.010
				EP340	0.051
MS-013	Non-vegetated Channel	Work Area	MP-9	EP335	0.078
MS-015	Non-vegetated Channel	Work Area	MP-12	EP326	0.031
MS-016	Non-vegetated Channel	Access Road	MP-13	EP323-1	0.025
		String Site Area		EP323-1	0.032
MS-017	Non-vegetated Channel	Work Area	MP-14	EP318-1	0.024
				EP320-1	0.107
				EP321-1	0.007
MS-018	Non-vegetated Channel	String Site Area	MP-16	EP313	0.082
MS-019	Non-vegetated Channel	String Site Area	MP-16	EP313	0.059
		Work Area		EP312	0.000
				EP313	0.112
MS-020	Non-vegetated Channel	Access Road	MP-18	EP306-1	0.002
		String Site Area	MP-17	EP307-1	0.011
			MP-18	EP306-1	0.036
		Work Area		EP307-1	0.069
		EP306-1	0.026		
MS-021	Non-vegetated Channel	Work Area	MP-19	EP302-1	0.004
				EP303-2	0.025
MS-024	Non-vegetated Channel	Construction Yard	MP-21	EP296	0.282
MS-025	Non-vegetated Channel	String Site Area	MP-22	EP292-1	0.029
		Work Area		EP292-1	0.047
MS-026	Non-vegetated Channel	String Site Area	MP-22	EP292-1	0.005
		Work Area		EP291-1	0.070
MS-029	Non-vegetated Channel	Guard_Areas	MP-31	EP252-1	0.001
		String Site Area	MP-30	EP255-2	0.172
			MP-31	EP255-2	0.008
Work Area	EP252-1	0.073			
MS-030	Non-vegetated Channel	Work Area	MP-32	EP251	0.044
MS-031	Non-vegetated Channel	Guard_Areas	MP-32	EP247	0.001
				EP248	0.001
		Work Area	MP-33	EP247	0.071

Map Book Page	HWFS Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-035	Non-vegetated Channel	Guard_Areas	MP-38	EP226-1	0.001
		String Site Area		EP226-1	0.080
MS-036	Non-vegetated Channel	String Site Area	MP-39	EP220-1	0.023
MS-037	Non-vegetated Channel	String Site Area	MP-40	EP219-1	0.002
MS-038	Non-vegetated Channel	String Site Area	MP-40	EP215	0.001
MS-040	Non-vegetated Channel	Work Area	MP-42	EP208	0.001
MS-041	Non-vegetated Channel	Construction Yard	MP-42	EP205-2	0.010
		Work Area		EP204-3	0.029
MS-043	Non-vegetated Channel	Work Area	MP-44	EP198-3	0.005
				EP199-3	0.010
MS-047	Non-vegetated Channel	Work Area	MP-47	EP184-1	0.003
				EP185-1	0.007
MS-048	Non-vegetated Channel	Construction Yard	MP-49	EP178	0.014
MS-049	Non-vegetated Channel	Work Area	MP-50	EP173-1	0.003
MS-053	Non-vegetated Channel	Guard_Areas	MP-56	EP130-1	0.000
MS-063	Non-vegetated Channel	String Site Area	MP-67	EP83	0.006
		Work Area	MP-66	EP84	0.003
MS-064	Non-vegetated Channel	Guard_Areas	MP-68	EP77	0.000
		String Site Area		EP78	0.012
MS-066	Non-vegetated Channel	Work Area	MP-71	EP69	0.010
MS-070	Non-vegetated Channel	String Site Area	MP-75	EP48	0.001
MS-079	Non-vegetated Channel	String Site Area	MP-86	EP9-1	0.000
MS-082	Non-vegetated Channel	String Site Area	MP-92	CP96-1	0.001
		Work Area		CP95-1	0.030
MS-084	Non-vegetated Channel	Guard_Areas	MP-98	CP85-1	0.000
MS-085	Non-vegetated Channel	Guard_Areas	MP-101	CP71	0.000
MS-086	Non-vegetated Channel	Access Road	MP-103	CP64-2	0.001
		String Site Area		CP66-2	0.026
MS-087	Non-vegetated Channel	Access Road	MP-106	CP55	0.001
MS-088	Non-vegetated Channel	Access Road	MP-107	CP50-1	0.005
		String Site Area		CP50-1	0.003
MS-090	Non-vegetated Channel	Access Road	MP-107	CP49-1	0.001
		Guard_Areas	MP-108	CP50-1	0.012
		String Site Area	MP-107	CP46-2	0.001
				CP49-1	0.005
CP50-1	0.010				
MS-091	Non-vegetated Channel	Guard_Areas	MP-108	CP44-1	0.000
MS-092	Non-vegetated Channel	Guard_Areas	MP-109	CP43-1	0.001
MS-093	Non-vegetated Channel	Guard_Areas	MP-110	CP37-2	0.000
TOTAL					2.370

Table A-6. Temporary Project Impacts to Riparian Woodland and Forest Vegetation Communities

Map Book Page	Riparian Woodland/Forest Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-033	Riparian Woodland	Guard_Areas	MP-35	EP239-1	0.003
MS-055	Southern Cottonwood-willow Riparian Forest	Guard_Areas	MP-59	EP119-2	0.003
MS-064	Southern Coast Live Oak Riparian Forest	Guard_Areas	MP-68	EP77	0.003
				EP79	0.002
MS-082	Southern Coast Live Oak Riparian Forest	Work Area	MP-92	CP95-1	0.059
MS-085	Southern Coast Live Oak Riparian Forest	Guard_Areas	MP-101	CP70-3	0.003
				CP71	0.005
MS-088	Southern Coast Live Oak Riparian Forest	Guard_Areas	MP-106	CP53-1	0.003
				CP54-1	0.003
TOTAL					0.086

Table A-7. Temporary Project Impacts to Woodland and Forest Vegetation Communities

Map Book Page	Woodland/Forest Type	Type of Impact Area	Milepost	Structure Number	Temporary Impact Acreage
MS-029	Peninsular Juniper Woodland Scrub	Guard_Areas	MP-31	EP255-2	0.003
MS-031	Peninsular Juniper Woodland Scrub	Guard_Areas	MP-32	EP247	0.004
		Work Area		MP-33	EP248
MS-035	Peninsular Juniper Woodland Scrub	Guard_Areas	MP-37	EP228	0.009
MS-041	Coast Live Oak Woodland - Disturbed	Construction Yard	MP-42	EP204-3	0.183
				EP205-2	0.981
MS-043	Coast Live Oak Woodland	Work Area	MP-44	EP198-3	0.013
MS-051	Coast Live Oak Woodland	String Site Area	MP-54	EP141	0.003
		Work Area		EP141	1.092
MS-055	Coast Live Oak Woodland	Guard_Areas	MP-59	EP119-2	0.001
MS-062	Coast Live Oak Woodland	Guard_Areas	MP-66	EP85-2	0.007
MS-063	Coast Live Oak Woodland	Guard_Areas	MP-66	EP84	0.001
		Work Area		EP84	0.004
			MP-67	EP84	0.123
MS-064	Coast Live Oak Woodland	Guard_Areas	MP-68	EP77	0.003
	Coast Live Oak Woodland - Disturbed	String Site Area		EP78	0.018
MS-069	Coast Live Oak Woodland - Burned	Guard_Areas	MP-75	EP51-1	0.002
MS-086	Coast Live Oak Woodland	Access Road	MP-103	CP66-2	0.023
		Construction Yard	MP-102	CP66-2	0.705
MS-088	Coast Live Oak Woodland	Guard_Areas	MP-106	CP54-1	0.004
MS-094	Coast Live Oak Woodland	String Site Area	MP-112	CP31-2	0.441
TOTAL					3.922

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**APPENDIX B: LISTED AND PROPOSED SPECIES IN TEMPORARY
IMPACT AREAS**

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Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage
0	Flat Tailed Horned Lizard	Guard_Areas	EP363-1	0.00
		Guard_Areas Total		0.00
		Work Area	EP362-1	0.64
			EP363-1	0.62
		Work Area Total		1.26
Flat Tailed Horned Lizard Total				1.26
1	Flat Tailed Horned Lizard	Access Road	EP361	0.32
		Access Road Total		0.32
		Construction Yard	EP361	4.96
		Construction Yard Total		4.96
		Work Area	EP359	0.63
			EP360	0.62
			EP361	0.63
Work Area Total		1.88		
Flat Tailed Horned Lizard Total				7.17
2	Flat Tailed Horned Lizard	Work Area	EP356	0.63
			EP357	0.63
			EP358	0.63
		Work Area Total		1.89
Flat Tailed Horned Lizard Total				1.89
3	Flat Tailed Horned Lizard	Access Road	EP356	0.15
		Access Road Total		0.15
		String Site Area	EP356	2.30
		String Site Area Total		2.30
		Work Area	EP353	0.64
			EP354	0.62
			EP355	0.64
Work Area Total		1.90		
Flat Tailed Horned Lizard Total				4.35
4	Flat Tailed Horned Lizard	Work Area	EP350	0.63
			EP351	0.61
			EP352	0.64
		Work Area Total		1.89
Flat Tailed Horned Lizard Total				1.89
5	Flat Tailed Horned Lizard	Access Road	EP349	0.01
		Access Road Total		0.01
		Guard_Areas	EP348	0.01
		Guard_Areas Total		0.01
		String Site Area	EP349	2.69
		String Site Area Total		2.69
		Work Area	EP347	0.64
			EP348	0.62
			EP349	0.63
		Work Area Total		1.88
Flat Tailed Horned Lizard Total				4.59

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage
6	Flat Tailed Horned Lizard	Construction Yard	EP346	9.93
		Construction Yard Total		9.93
		Guard_Areas	EP344	0.01
		Guard_Areas Total		0.01
		Work Area	EP344	0.62
			EP345	0.63
			EP346	0.63
Work Area Total		1.88		
Flat Tailed Horned Lizard Total				11.82
7	Flat Tailed Horned Lizard	Guard_Areas	EP342	0.01
		Guard_Areas Total		0.01
		String Site Area	EP344	2.80
		String Site Area Total		2.80
		Work Area	EP341	0.63
			EP342	0.58
			EP343	0.65
Work Area Total		1.86		
Flat Tailed Horned Lizard Total				4.67
8	Flat Tailed Horned Lizard	Access Road	EP338	0.00
		Access Road Total		0.00
		String Site Area	EP338	2.14
		String Site Area Total		2.14
		Work Area	EP338	0.64
			EP339	0.65
			EP340	0.63
Work Area Total		1.92		
Flat Tailed Horned Lizard Total				4.06
9	Flat Tailed Horned Lizard	Work Area	EP335	0.64
			EP336	0.64
			EP337	0.64
		Work Area Total		1.91
Flat Tailed Horned Lizard Total				1.91
10	Flat Tailed Horned Lizard	Work Area	EP332	0.64
			EP333	0.64
			EP334	0.64
		Work Area Total		1.92
Flat Tailed Horned Lizard Total				1.92
11	Flat Tailed Horned Lizard	Construction Yard	EP330-1	17.47
		Construction Yard Total		17.47
		Guard_Areas	EP329-1	0.01
			EP330-1	0.01
			EP331	0.00
		Guard_Areas Total		0.03
		String Site Area	EP330-1	4.01
		String Site Area Total		4.01
		Work Area	EP328-1	0.63
			EP329-1	0.65
			EP330-1	0.57
EP331	0.62			
Work Area Total		2.46		
Flat Tailed Horned Lizard Total				23.97

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage	
12	Flat Tailed Horned Lizard	Work Area	EP325-2	0.64	
			EP326	0.63	
			EP327	0.64	
		Work Area Total			1.90
Flat Tailed Horned Lizard Total				1.90	
13	Flat Tailed Horned Lizard	Access Road	EP323-1	0.40	
		Access Road Total			0.40
		String Site Area	EP323-1	1.01	
		String Site Area Total			1.01
		Work Area	EP322-1	0.63	
		Work Area Total			0.63
Flat Tailed Horned Lizard Total				2.04	
14	Flat Tailed Horned Lizard	Work Area	EP318-1	0.64	
			EP319	0.62	
			EP320-1	0.63	
			EP321-1	0.64	
		Work Area Total			2.53
Flat Tailed Horned Lizard Total				2.53	
15	Flat Tailed Horned Lizard	Guard_Areas	EP316-2	0.01	
			EP318-1	0.01	
		Guard_Areas Total			0.01
		Work Area	EP316-2	0.62	
		Work Area Total			0.62
Flat Tailed Horned Lizard Total				0.63	
16	Flat Tailed Horned Lizard	String Site Area	EP313	2.64	
		String Site Area Total			2.64
		Work Area	EP312	0.69	
			EP313	0.65	
		Work Area Total			1.33
	Flat Tailed Horned Lizard Total				3.97
	PENINSULAR BIGHORN SHEEP	Work Area	EP312	0.69	
Work Area Total			0.69		
PENINSULAR BIGHORN SHEEP Total				0.69	
17	Flat Tailed Horned Lizard	Work Area	EP307-1	0.61	
			EP308	0.64	
			EP309	0.58	
			EP310	0.69	
		Work Area Total			2.52
	Flat Tailed Horned Lizard Total				2.52
	PENINSULAR BIGHORN SHEEP	Work Area	EP307-1	0.61	
			EP308	0.64	
			EP309	0.58	
			EP310	0.69	
Work Area Total			2.52		
PENINSULAR BIGHORN SHEEP Total				2.52	

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage	
18	Flat Tailed Horned Lizard	Access Road	EP306-1	0.09	
		Access Road Total		0.09	
		Guard_Areas	EP303-2	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP306-1	2.29	
		String Site Area Total		2.29	
		Work Area	EP304-2	0.63	
			EP306-1	0.63	
	Work Area Total		1.26		
	Flat Tailed Horned Lizard Total				3.65
	PENINSULAR BIGHORN SHEEP	Access Road	EP306-1	0.09	
		Access Road Total		0.09	
		String Site Area	EP306-1	2.29	
		String Site Area Total		2.29	
		Work Area	EP306-1	0.63	
Work Area Total		0.63			
PENINSULAR BIGHORN SHEEP Total				3.01	
19	Flat Tailed Horned Lizard	Access Road	EP301	0.01	
		Access Road Total		0.01	
		Guard_Areas	EP302-1	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP301	4.85	
		String Site Area Total		4.85	
		Work Area	EP301	0.30	
			EP302-1	0.58	
			EP303-2	0.55	
Work Area Total		1.43			
Flat Tailed Horned Lizard Total				6.30	
20	Flat Tailed Horned Lizard	Work Area	EP298	0.65	
			EP299	0.64	
			EP300-1	0.65	
		Work Area Total		1.93	
Flat Tailed Horned Lizard Total				1.93	
21	Flat Tailed Horned Lizard	Construction Yard	EP296	30.01	
		Construction Yard Total		30.01	
		Work Area	EP295	0.65	
			EP296	0.64	
			EP297	0.65	
		Work Area Total		1.93	
Flat Tailed Horned Lizard Total				31.94	
22	Flat Tailed Horned Lizard	String Site Area	EP292-1	1.72	
		String Site Area Total		1.72	
		Work Area	EP291-1	0.65	
			EP292-1	0.64	
			EP293	0.64	
			EP294	0.64	
		Work Area Total		2.56	
Flat Tailed Horned Lizard Total				4.29	
23	Flat Tailed Horned Lizard	Work Area	EP290	0.54	
		Work Area Total		0.54	
		Flat Tailed Horned Lizard Total			

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage	
27	Barefoot Banded Gecko	Guard_Areas	EP269-1	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP269-1	1.40	
		String Site Area Total		1.40	
	Barefoot Banded Gecko Total				1.41
	PENINSULAR BIGHORN SHEEP	Guard_Areas	EP269-1	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP269-1	1.40	
		String Site Area Total		1.40	
	PENINSULAR BIGHORN SHEEP Total				1.41
30	PENINSULAR BIGHORN SHEEP	Construction Yard	EP257	5.00	
		Construction Yard Total		5.00	
		Guard_Areas	EP255-2	0.01	
			EP256	0.00	
		Guard_Areas Total		0.01	
		String Site Area	EP255-2	0.00	
			EP256	2.73	
		String Site Area Total		2.73	
		Work Area	EP256	0.64	
			EP257	0.56	
			EP258-3	0.63	
		Work Area Total		1.83	
		PENINSULAR BIGHORN SHEEP Total			
31	PENINSULAR BIGHORN SHEEP	Guard_Areas	EP255-2	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP255-2	3.72	
		String Site Area Total		3.72	
		Work Area	EP255-2	0.52	
		Work Area Total		0.52	
PENINSULAR BIGHORN SHEEP Total				4.25	
35	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP236-1	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP237-1	2.74	
		String Site Area Total		2.74	
QUINO CHECKERSPOT BUTTERFLY Total				2.74	
36	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP233-1	0.01	
		Guard_Areas Total		0.01	
		QUINO CHECKERSPOT BUTTERFLY Total			0.01
37	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP228	0.02	
		Guard_Areas Total		0.02	
		QUINO CHECKERSPOT BUTTERFLY Total			0.02
44	PENINSULAR BIGHORN SHEEP	Work Area	EP199-3	0.10	
		Work Area Total		0.10	
PENINSULAR BIGHORN SHEEP Total				0.10	
46	PENINSULAR BIGHORN SHEEP	Access Road	EP187-2	0.00	
		Access Road Total		0.00	
		String Site Area	EP187-2	0.11	
		String Site Area Total		0.11	
PENINSULAR BIGHORN SHEEP Total				0.11	

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage	
56	ARROYO TOAD	Work Area	EP130-1	0.01	
		Work Area Total		0.01	
	ARROYO TOAD Total			0.01	
62	QUINO CHECKERSPOT BUTTERFLY	Work Area	EP103-2	1.55	
			EP104-2	0.01	
	Work Area Total		1.56		
QUINO CHECKERSPOT BUTTERFLY Total				1.56	
71	ARROYO TOAD	Guard_Areas	EP66	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP67	3.89	
		String Site Area Total		3.89	
		Work Area	EP67	1.46	
		Work Area Total		1.46	
	ARROYO TOAD Total				5.36
	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP66	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP67	3.89	
		String Site Area Total		3.89	
		Work Area	EP67	1.46	
EP69			1.56		
Work Area Total		3.02			
QUINO CHECKERSPOT BUTTERFLY Total				6.92	
74	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP51-1	0.00	
			EP53-2	0.01	
	Guard_Areas Total		0.01		
QUINO CHECKERSPOT BUTTERFLY Total				0.01	
75	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP51-1	0.01	
			Guard_Areas Total		0.01
	QUINO CHECKERSPOT BUTTERFLY Total				0.01
77	ARROYO TOAD	Guard_Areas	EP43-1	0.00	
			Guard_Areas Total		0.00
	ARROYO TOAD Total				0.00
78	QUINO CHECKERSPOT BUTTERFLY	Work Area	EP39-1	1.42	
			Work Area Total		1.42
	QUINO CHECKERSPOT BUTTERFLY Total				1.42
79	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP36-1	0.01	
		Guard_Areas Total		0.01	
		String Site Area	EP36-1	1.76	
		String Site Area Total		1.76	
		Work Area	EP36-1	1.40	
		Work Area Total		1.40	
QUINO CHECKERSPOT BUTTERFLY Total				3.16	
80	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	EP34-1	0.00	
			EP35-1	0.00	
	Guard_Areas Total		0.01		
QUINO CHECKERSPOT BUTTERFLY Total				0.01	
82	COASTAL CALIFORNIA GNATCATCHER	Guard_Areas	EP24-1	0.00	
			Guard_Areas Total		0.00
	COASTAL CALIFORNIA GNATCATCHER Total				0.00

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage	
83	COASTAL CALIFORNIA GNATCATCHER	Guard_Areas	EP23-2	0.00	
			EP24-1	0.01	
		Guard_Areas Total			0.01
COASTAL CALIFORNIA GNATCATCHER Total				0.01	
86	COASTAL CALIFORNIA GNATCATCHER	Guard_Areas	EP10-2	0.00	
			Guard_Areas Total		0.00
		String Site Area	EP9-1	0.59	
			String Site Area Total		0.59
COASTAL CALIFORNIA GNATCATCHER Total				0.59	
100	COASTAL CALIFORNIA GNATCATCHER	String Site Area	CP75-1	0.18	
			CP76-1	0.27	
		String Site Area Total			0.45
COASTAL CALIFORNIA GNATCATCHER Total				0.45	
101	ARROYO TOAD	Guard_Areas	CP70-3	0.01	
			CP71	0.01	
		Guard_Areas Total			0.03
	ARROYO TOAD Total				0.03
	COASTAL CALIFORNIA GNATCATCHER	Guard_Areas	CP70-3	0.01	
			CP71	0.02	
Guard_Areas Total			0.03		
COASTAL CALIFORNIA GNATCATCHER Total				0.03	
103	ARROYO TOAD	Access Road	CP64-2	0.33	
			CP66-2	0.23	
		Access Road Total			0.56
		Construction Yard	CP66-2	16.53	
			Construction Yard Total		16.53
		String Site Area	CP64-2	0.04	
			String Site Area Total		0.04
ARROYO TOAD Total				17.13	
106	ARROYO TOAD	Access Road	CP51-2	0.01	
			CP54-1	0.73	
		Access Road Total			0.74
		Construction Yard	CP54-1	20.97	
			Construction Yard Total		20.97
	ARROYO TOAD Total				21.71
	COASTAL CALIFORNIA GNATCATCHER	Access Road	CP54-1	0.12	
			Access Road Total		0.12
		Construction Yard	CP54-1	20.97	
			Construction Yard Total		20.97
COASTAL CALIFORNIA GNATCATCHER Total				21.09	
108	COASTAL CALIFORNIA GNATCATCHER	Guard_Areas	CP44-1	0.00	
			Guard_Areas Total		0.00
		COASTAL CALIFORNIA GNATCATCHER Total			

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Temporary Impact Acreage
109	COASTAL CALIFORNIA GNATCATCHER	String Site Area	CP42-1	0.55
		String Site Area Total		0.55
	COASTAL CALIFORNIA GNATCATCHER Total			0.55
	QUINO CHECKERSPOT BUTTERFLY	Guard_Areas	CP42-1	0.01
			CP43-1	0.02
		Guard_Areas Total		0.03
		String Site Area	CP42-1	0.55
	String Site Area Total		0.55	
QUINO CHECKERSPOT BUTTERFLY Total			0.58	
110	COASTAL CALIFORNIA GNATCATCHER	Access Road	CP41-2	0.16
		Access Road Total		0.16
		String Site Area	CP41-2	0.93
		String Site Area Total		0.93
	COASTAL CALIFORNIA GNATCATCHER Total			1.09
	QUINO CHECKERSPOT BUTTERFLY	Access Road	CP41-2	0.16
		Access Road Total		0.16
		String Site Area	CP41-2	0.93
String Site Area Total		0.93		
QUINO CHECKERSPOT BUTTERFLY Total			1.09	
113	COASTAL CALIFORNIA GNATCATCHER	Guard_Areas	CP24-1	0.00
		Guard_Areas Total		0.00
	COASTAL CALIFORNIA GNATCATCHER Total			0.00
115	QUINO CHECKERSPOT BUTTERFLY	Access Road	CP15-1	0.06
		Access Road Total		0.06
		Guard_Areas	CP14	0.00
			CP15-1	0.00
		Guard_Areas Total		0.01
		String Site Area	CP14	0.13
			CP15-1	0.58
		String Site Area Total		0.70
Work Area	CP15-1	0.77		
Work Area Total		0.77		
QUINO CHECKERSPOT BUTTERFLY Total			1.54	
117	COASTAL CALIFORNIA GNATCATCHER	Construction Yard	CP6-1	27.34
		Construction Yard Total		27.34
	COASTAL CALIFORNIA GNATCATCHER Total			27.34

**APPENDIX C: SPECIAL STATUS PLANT SPECIES IN TEMPORARY
IMPACT AREAS**

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Mile Post	Species Common Name	Type of Impact Area	Structure Number	Number of Plants in Temporary Impact Areas		
				On Existing Road	Other Impact Area	TOTAL
MP-32	Pygmy lotus	Work Area	EP247		3	3
		Work Area Total			3	3
MP-33	Sticky geraea	Access Road Existing	EP244	4		4
		Access Road Existing Total		4		4
MP-37	Sticky geraea	Access Road Existing	EP228	2		2
		Access Road Existing Total		2		2
MP-39	Desert beauty	Access Road	EP220-1		530	530
		Access Road Total			530	530
		grading	EP220-1		397	397
			EP221-2		5	5
		grading Total			402	402
		String Site Area	EP220-1		1661	1661
	EP221-2			45	45	
	String Site Area Total			1706	1706	
	Jacumba milk-vetch	String Site Area	EP220-1		4	4
		String Site Area Total			4	4
Sticky geraea	String Site Area	EP220-1		12	12	
	String Site Area Total			12	12	
MP-40	Jacumba milk-vetch	Work Area	EP214		18	18
		Work Area Total			18	18
	Sticky geraea	Access Road Existing	EP215	3		3
		Access Road Existing Total		3		3
	Work Area	EP215		5	5	
		Work Area Total			5	5
MP-41	Jacumba milk-vetch	Access Road Existing	EP211	9		9
			EP213	13		13
		Access Road Existing Total		22		22
		Work Area	EP210		1	1
	EP213			1	1	
	Work Area Total			2	2	
	Sticky geraea	Access Road Existing	EP210	16		16
			EP213	1		1
		Access Road Existing Total		17		17
		Work Area	EP210		11	11
EP213				35	35	
Work Area Total			46	46		

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Number of Plants in Temporary Impact Areas		
				On Existing Road	Other Impact Area	TOTAL
MP-42	Jacumba milk-vetch	Access Road Existing	EP205-2	3		3
		Access Road Existing Total			3	3
		Construction Yard	EP204-3		647	647
			EP205-2		89	89
			EP206-1		65	65
		Construction Yard Total			801	801
		Work Area	EP206-1		7	7
	EP208			24	24	
	Work Area Total			31	31	
	Mountain springs bush lupine	Construction Yard	EP205-2		1	1
		Construction Yard Total			1	1
	Sticky geraea	Construction Yard	EP204-3		1	1
EP205-2				19	19	
Construction Yard Total			20	20		
MP-43	Desert beauty	grading	EP204-3		8	8
		grading Total			8	8
		String Site Area	EP204-3		189	189
		String Site Area Total			189	189
	Jacumba milk-vetch	Access Road	EP204-3		7	7
		Access Road Total			7	7
		Access Road Existing	EP200A-1	12		12
			EP201-3	3		3
			EP202-3	2		2
		Access Road Existing Total			17	17
		grading	EP204-3		1	1
		grading Total			1	1
		String Site Area	EP204-3		5	5
		String Site Area Total			5	5
	Work Area	EP200A-1		14	14	
		EP201-3		3	3	
	Work Area Total			17	17	
	Sticky geraea	Access Road	EP204-3		1	1
		Access Road Total			1	1
		grading	EP203-3		1	1
		grading Total			1	1
String Site Area		EP203-3		4	4	
String Site Area Total			4	4		
Work Area		EP200A-1		80	80	
		EP202-3		2	2	
Work Area Total			82	82		

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Number of Plants in Temporary Impact Areas			
				On Existing Road	Other Impact Area	TOTAL	
MP-44	Jacumba milk-vetch	Access Road Existing	EP196-1	4		4	
			EP197-2	31		31	
			EP198-3	13		13	
			EP200-3	12		12	
		Access Road Existing Total			60		60
		Work Area	EP197-2			5	5
	Work Area Total				5	5	
	Sticky geraea	Access Road Existing	EP200-3	1		1	
			Access Road Existing Total			1	1
		Work Area	EP199-3			2	2
Work Area Total				2	2		
MP-45	Jacumba milk-vetch	Access Road Existing	EP192-1	8		8	
			EP193-1	5		5	
			EP194-2	60		60	
			EP195-1	31		31	
		Access Road Existing Total			104		104
MP-46	Jacumba milk-vetch	Access Road	EP187-2		7	7	
		Access Road Total			7	7	
		Access Road Existing	EP187-2	2		2	
			EP188-1	8		8	
			EP191-1	25		25	
		Access Road Existing Total			35		35
	String Site Area	EP187-2			3	3	
	String Site Area Total				3	3	
	Sticky geraea	Access Road	EP187-2			6	6
			Access Road Total			6	6
Access Road Existing		EP191-1	2		2		
Access Road Existing Total			2		2		
MP-47	Jacumba milk-vetch	Access Road Existing	EP184-1	2		2	
			EP185-1	1		1	
			EP186-1	27		27	
			EP187-2	1		1	
		Access Road Existing Total			31		31
	Sticky geraea	Access Road Existing	EP185-1	5		5	
			EP186-1	9		9	
			EP187-2	7		7	
		Access Road Existing Total			21		21
		String Site Area	EP187-2			32	32
String Site Area Total				32	32		

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Number of Plants in Temporary Impact Areas		
				On Existing Road	Other Impact Area	TOTAL
MP-49	Desert beauty	Construction Yard	EP178		25	25
		Construction Yard Total			25	25
	Jacumba milk-vetch	Access Road Existing	EP178	1		1
			EP179	3		3
		Access Road Existing Total			4	4
		Construction Yard	EP178		34	34
			EP179		1	1
		Construction Yard Total			35	35
		String Site Area	EP178		2	2
		String Site Area Total			2	2
Work Area	EP178		2	2		
Work Area Total			2	2		
MP-54	Sticky geraea	String Site Area	EP141		1	1
		String Site Area Total			1	1
MP-56	Payson's jewelflower	Construction Yard	EP130-1		188	188
		Construction Yard Total			188	188
	Rayless Ragwort	Construction Yard	EP130-1		13	13
		Construction Yard Total			13	13
MP-57	Sticky geraea	Access Road Existing	EP129	15		15
		Access Road Existing Total			15	15
MP-64	Sticky geraea	Access Road Existing	EP95	6		6
		Access Road Existing Total			6	6
MP-65	Sticky geraea	Access Road	EP89-1		16	16
		Access Road Total			16	16
		String Site Area	EP89-1		1	1
			EP91		13	13
		String Site Area Total			14	14
		Work Area	EP89-1		22	22
Work Area Total			22	22		
MP-66	Sticky geraea	String Site Area	EP89-1		2	2
		String Site Area Total			2	2
MP-67	Sticky geraea	grading	EP83		14	14
		grading Total			14	14
		String Site Area	EP83		30	30
		String Site Area Total			30	30
MP-70	Tecate tarplant	Access Road Existing	EP69	16		16
			EP70	78		78
			EP73	150		150
		Access Road Existing Total			244	244

Mile Post	Species Common Name	Type of Impact Area	Structure Number	Number of Plants in Temporary Impact Areas			
				On Existing Road	Other Impact Area	TOTAL	
MP-71	Tecate tarplant	Access Road Existing	EP65-1	534		534	
			EP66	172		172	
			EP68	72		72	
			EP69	162		162	
		Access Road Existing Total			940		940
		grading	EP67			242	242
		grading Total				242	242
		String Site Area	EP67			953	953
		String Site Area Total				953	953
		Work Area	EP67			159	159
	EP69			1	1		
Work Area Total				160	160		
MP-72	Tecate tarplant	Access Road Existing	EP63	40		40	
			EP64	105		105	
			EP65-1	114		114	
		Access Road Existing Total			259		259
MP-73	Tecate tarplant	Access Road Existing	EP58-2	11		11	
		Access Road Existing Total			11		11
MP-74	Tecate tarplant	Access Road Existing	EP51-1	75		75	
			EP52-1	5		5	
		Access Road Existing Total			80		80
MP-75	San Diego gumplant	Access Road Existing	EP49	1		1	
		Access Road Existing Total			1		1
	Tecate tarplant	Access Road Existing	EP49	27		27	
			EP50	4		4	
Access Road Existing Total			31		31		
MP-82	Sticky geraea	Access Road	EP27-1		1	1	
		Access Road Total				1	1
MP-98	Delicate clarkia	Work Area	CP87-1		40	40	
		Work Area Total				40	40
MP-99	Delicate clarkia	Access Road Existing	CP81-1	40		40	
			CP82-1	150		150	
		Access Road Existing Total			190		190
MP-100	Delicate clarkia	Access Road Existing	CP74-2	170		170	
		Access Road Existing Total			170		170
Grand Total				2273	5711	7984	

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