

OTAY CROSSINGS COMMERCE PARK

APPENDIX F
BIOLOGICAL RESOURCES REPORTS
to the
DRAFT SUPPLEMENTAL
ENVIRONMENTAL IMPACT REPORT

EIR 93-19-006Q, TM 5405RPL⁷
SCH No. 2006041039

Lead Agency:

County of San Diego
Department of Planning and Land Use
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AUGUST 2011

OTAY CROSSINGS COMMERCE PARK

**ON-SITE GRASSLAND AND SAN DIEGO BARREL CACTUS
MITIGATION PLAN
SPA 04-006, TM5405RPL4**

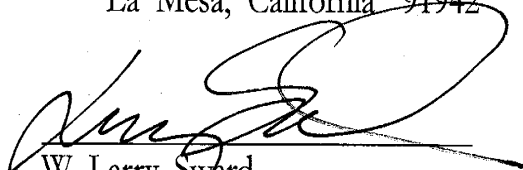
May 11, 2010

Project Proponent :

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Prepared by :

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County-approved
Revegetation Planner

**Otay Crossings Commerce Park
On-site Grassland and San Diego Barrel Cactus Mitigation Plan**

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LIST OF ABBREVIATIONS

AMSL	above mean sea level
Cal-IPC	California Invasive Plant Inventory
CDFG	California Department of Fish and Game
Corps	U.S. Army Corps of Engineers
EOMSP	East Otay Mesa Specific Plan
GPS	global positioning satellite
HELIX	HELIX Environmental Planning, Inc.
MSCP	Multiple Species Conservation Program
QCB	Quino checkerspot butterfly
RPO	Resource Protection Ordinance
SR	State Route
TM	Tentative Map
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator

1.0 INTRODUCTION

This report provides a partial compensatory mitigation plan for direct impacts to non-native grassland and San Diego barrel cactus (*Ferocactus viridescens*) resulting from implementation of the Otay Crossings Commerce Park project (proposed project). The mitigation measures identified herein are based on those contained in the Otay Crossings Commerce Park Biological Technical Report (HELIX Environmental Planning, Inc. [HELIX] 2010a). The proposed mitigation includes restoration of 6.4 acres of grassland habitat and transplantation of 72 San Diego barrel cactus impacted by the project, and is intended to meet the requirements of the County of San Diego's (County's) Resource Protection Ordinance (RPO) and Biological Mitigation Ordinance. Additionally, the grassland mitigation effort will be coordinated with the Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) and burrowing owl (*Athene cunicularia*) program also being implemented on site and on the Lonestar Ridge property (HELIX 2010b).

2.0 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTIES

Kearny PCCP Otay 311, LLC will be responsible for carrying out the required mitigation and monitoring for the Otay Crossings Commerce Park project. Contact information is provided below.

Kearny PCCP Otay 311, LLC
655 W. Broadway, Ste. 1600
San Diego, CA 92101
(619) 702-8130
Contact: John Bragg

2.2 PROJECT LOCATION

The 311.5-acre project site is located in the extreme southeastern portion of Otay Mesa within San Diego County (Figure 1). The property lies to the southeast of the intersection of Otay Mesa and Alta roads just north of the U.S./Mexico border. It occupies portions of Sections 31 and 32 within Township 18 South, Range 1 East of the U.S. Geological Survey 7.5-minute Otay Mesa quadrangle (Figure 2). The site is within the East Otay Mesa Specific Plan (EOMSP) area and contains areas designated in the County's Multiple Species Conservation Program (MSCP; County 1997) as Major Amendment Areas, Minor Amendment Areas, and Minor Amendment Areas Subject to Special Consideration.

2.3 PROJECT SUMMARY

The proposed Otay Crossings Commerce Park project site is a Tentative Map (TM) and Preliminary Grading Plan (Tract 5405) for land designated for Mixed Industrial, Rural Residential, and State Route ([SR]; i.e., SR 11) use in Subarea 2 of the EOMSP. The TM would subdivide the 311.5-acre property into 56 industrial lots ranging in size from 0.9 net acre to 95.4 net acres. The future right-

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of-way for SR 11 and the new Port Of Entry (assumes the selected western alternative) have been tentatively mapped on 2 of the 56 proposed lots, covering approximately 120.0 acres of the site. In addition to proposed on-site development, off-site road improvements will be required along portions of Otay Mesa Road, Alta Road, and Airway Road, and off-site sewer facilities will be required along Alta Road and Via De La Amistad. Approximately 47.4 acres of open space will be preserved along the southern and northeastern portions of the site.

The irregularly shaped project site consists of low rolling hills and mesas and includes several narrow drainages that convey flows to the south. Elevations on site range from approximately 480 feet above mean sea level (AMSL) at points along the southern boundary to approximately 700 feet AMSL in the site's northeastern corner. Soils in the northern/northwestern portion of the site are characterized by Diablo clay, while slopes in the southern/southwestern portion are characterized by Huerhuero loam (Bowman 1973). Several dirt roads cross the site and are regularly traveled by the U.S. Border Patrol.

Surrounding land uses include an auto auction lot on the northwestern boundary, industrial public uses to the west, and a mix of industrial, commercial, and residential uses across the U.S./Mexico border. The parcel to the north is currently being graded for development. Undeveloped lands extend to the east of the site into the foothills of the San Ysidro Mountains.

2.3.1 Vegetation Communities

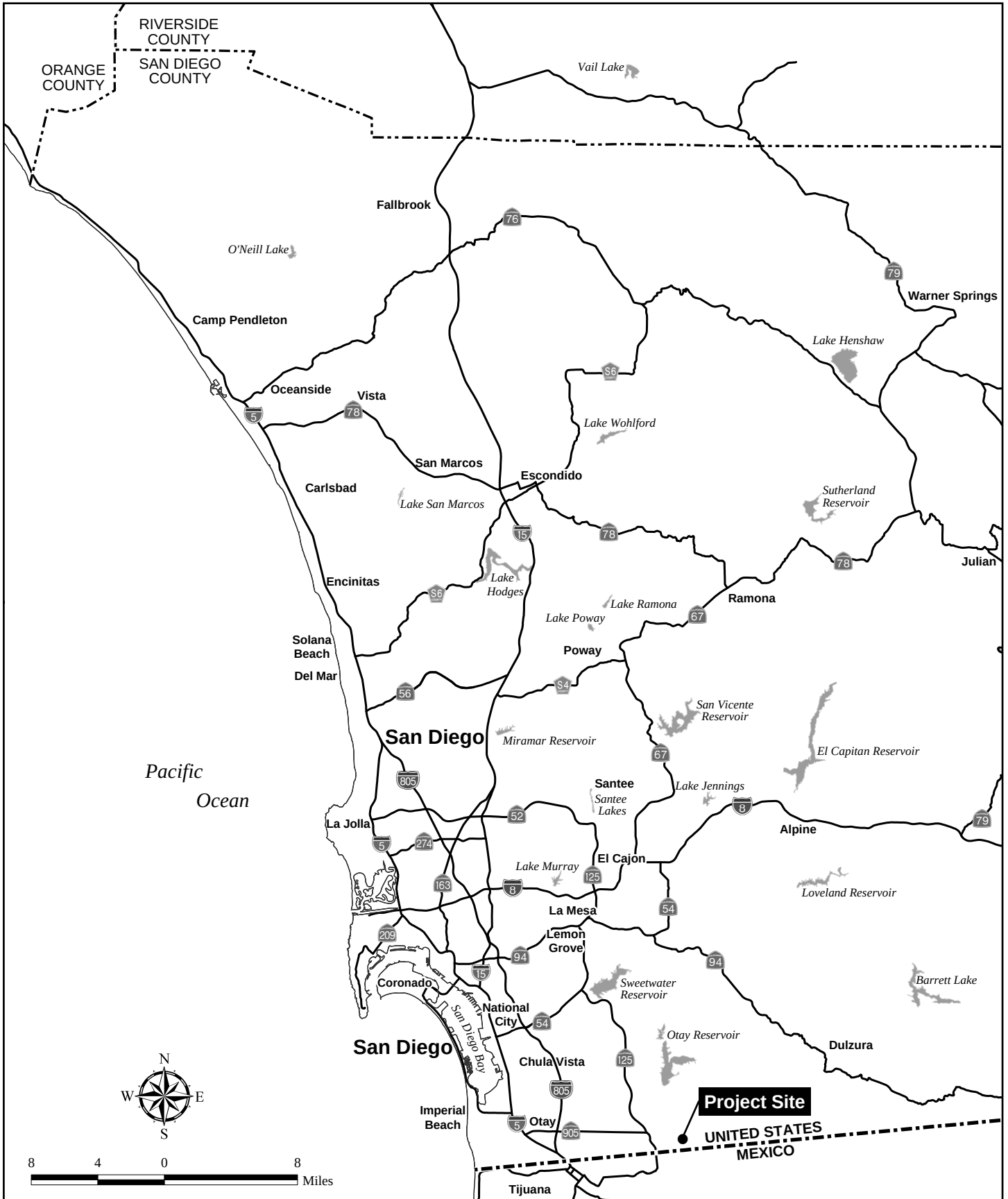
Nine (9) vegetation communities found on the project site (Table 1).

Table 1 EXISTING VEGETATION COMMUNITIES		
VEGETATION COMMUNITY*	ACREAGE†	
	On-site	Off-site‡
WETLANDS		
Tamarisk scrub (63810)	0.97	0.00
Disturbed wetland (11300)	0.03	0.00
TIER I		
Native grassland (42100)	0.0	0.1
Tier II		
Diegan coastal sage scrub (including disturbed; 32500)	8.7	0.1
TIER III		
Non-native grassland (42200)	278.5	19.0
TIER IV		
Eucalyptus woodland (11100)	1.0	0.0
Agriculture (18000)	<0.1	0.7
Disturbed habitat (11300)	22.2	5.0
Developed (12000)	<0.1	5.7
TOTAL	311.5	30.6

*Vegetation codes are from Holland (1986) and Oberbauer (2008)

†All wetland areas are presented in acre(s) rounded to the nearest 0.01; upland areas are rounded to the nearest 0.1

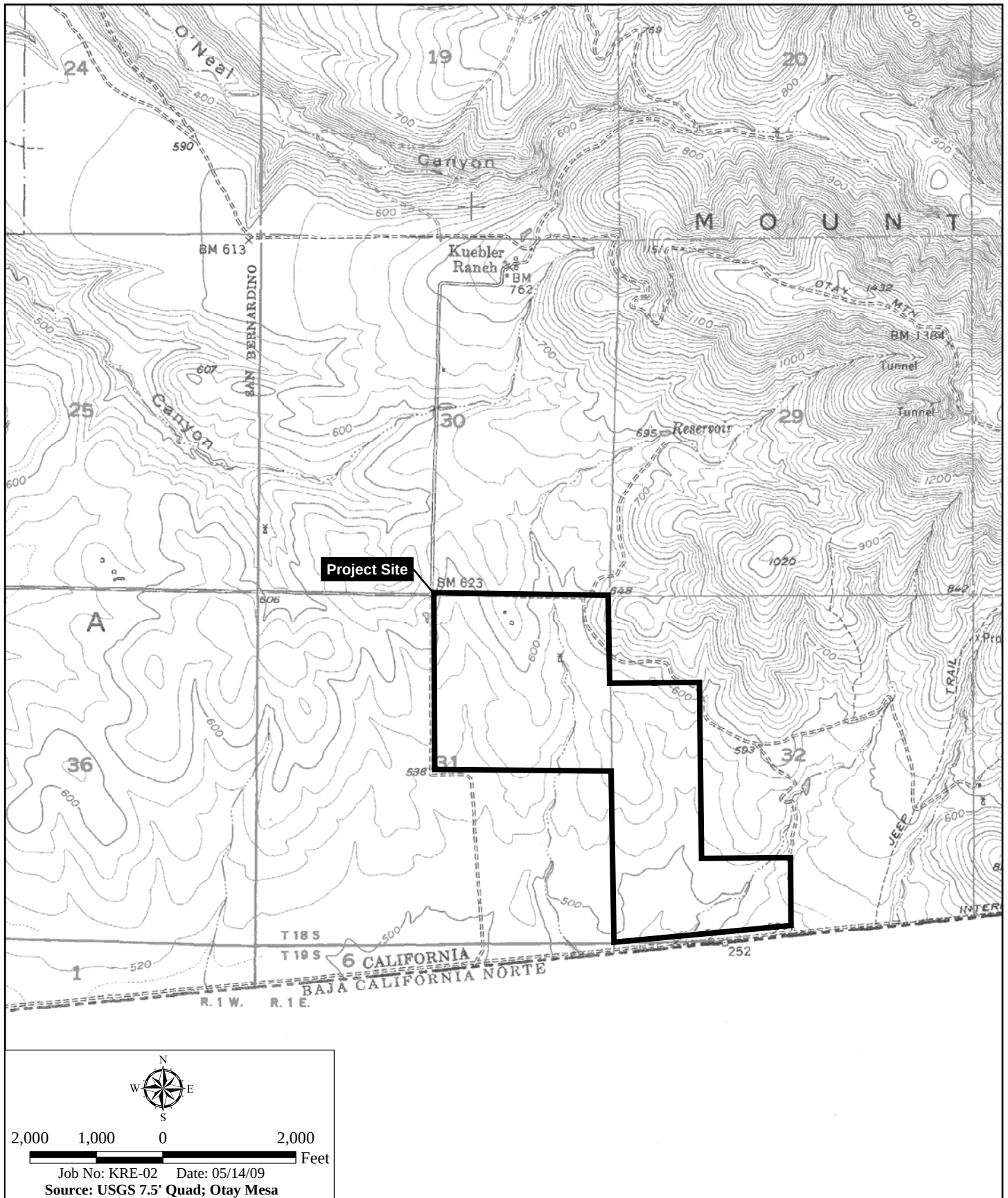
‡Off-site acreages under Sewer Option A; Sewer Options B-1 and B-2 would each include an additional 4.4 acres of impacts.



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Regional Location Map

UPLAND MITIGATION PLAN FOR OTAY CROSSINGS COMMERCE PARK



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Project Location Map

UPLAND MITIGATION PLAN FOR OTAY CROSSINGS COMMERCE PARK

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Figure 2

A complete description of the on site vegetation communities can be found the Biological Resources Report for the Otay Crossing Commerce Park project (HELIX 2010a). A total of 98 plant species were observed on the project site during various biological surveys (Appendix A).

2.3.2 Wildlife

A total of 55 animal species, including 18 invertebrates, 1 amphibian, 4 reptiles, 29 birds, and 3 mammals, were observed on the project site during various biological surveys (Appendix B).

2.3.3 Sensitive Species

Seven (7) sensitive plant species were observed on the project site during rare plant surveys: Otay tarplant (*Deinandra conjugens*), California adolphia (*Adolphia californica*), San Diego barrel cactus, San Diego marsh-elder (*Iva hayesiana*), variegated dudleya (*Dudleya variegata*), San Diego County viguiera (*Viguiera laciniata*), and small-flowered morning glory (*Convolvulus simulans*).

Eleven (11) sensitive animal species were observed/detected on site during various field surveys: San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus woottoni*), QCB, western spadefoot (*Spea hammondi*), coastal western whiptail (*Cnemidophorus tigris multiscutatus*), burrowing owl, California horned lark (*Eremophila alpestris actia*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), grasshopper sparrow (*Ammodramus savannarum*), and white-tailed kite (*Elanus leucurus*).

2.3.4 Sensitive Resources Affected

On- and off-site project development would cause direct impacts to approximately 293.6 acres of upland vegetation communities, comprising approximately 0.1 acre of native grassland, 2.0 acres of Diegan coastal sage scrub (including 0.3 acre of disturbed), 263.3 acres of non-native grassland, 1.0 acre of eucalyptus woodland, 0.7 acre of agriculture, 20.8 acres of disturbed habitat, and 5.7 acres of developed land.

Impacts to U.S. Army Corps of Engineers (Corps) jurisdictional areas would total 0.20 acre, including 0.19 acre of non-wetland Waters of the U.S. on site and 0.01 acre of non-wetland Waters of the U.S. off site. Impacts to California Department of Fish and Game (CDFG) jurisdictional areas would total 0.97 acre, including on-site impacts to 0.73 acre of tamarisk scrub and 0.23 acre of streambed, and off-site impacts to 0.01 acre of streambed. None of the areas impacted is considered jurisdictional under the RPO.

All Otay tarplant, variegated dudleya, and California adolphia in the project site are outside the limits of development and would not be directly impacted; however, 72 of the 193 (37 percent) San Diego barrel cacti and all 138 of San Diego marsh-elder, both of which are County Group B species, would be impacted. Four of the 9 burrowing owl locations would be directly or indirectly impacted. Locations of 2 of the 3 QCB observed on site during 2001 focused surveys also occur within the impact footprint. Habitat occupied by Riverside fairy shrimp, San Diego

fairy shrimp, western spadefoot, coastal western whiptail, California horned lark, loggerhead shrike, grasshopper sparrow, and northern harrier would also be impacted.

2.3.5 Types, Functions, and Values of Habitat to be Restored

Revegetation/restoration required for project impacts to non-native grassland and San Diego barrel cactus are addressed in this mitigation plan. Other direct project impacts requiring mitigation are addressed through habitat-based mitigation discussed in the biological technical report (HELIX 2010a) as well as separate mitigation plans for those resources.

A majority of the non-native grassland on site is of low quality and is dominated by oats (*Avena* spp.), red brome (*Bromus madritensis* ssp. *rubens*), ripgut (*B. diandrus*), ryegrass (*Lolium* sp.), and mustard (*Brassica* sp.). Non-native grassland does provide habitat for birds and small mammals. The San Diego barrel cactus occurs within coastal sage scrub and grassland habitats on site.

2.4 GOALS OF COMPENSATORY MITIGATION

The goal of the restoration plan is to replace functions and services associated with the non-native grassland lost as a result of the proposed project, and replace impacted San Diego barrel cactus.

2.4.1 Responsibilities

2.4.1.1 Project Proponent

Kearny PCCP Otay 311, LLC will be responsible for financing the installation, maintenance, and monitoring of the mitigation effort.

2.4.1.2 County of San Diego/Resource Agencies

As part of the monitoring program, annual reports prepared by the restoration specialist will be submitted to the County and resource agencies for review. It is the County's and resource agencies' prerogative to review these reports for completeness and to participate in annual site inspections, as well as determining the success of the mitigation effort.

2.4.1.3 Compensatory Mitigation Project Designer

A licensed landscape architect will prepare necessary construction documents. No grading or irrigation is proposed.

2.4.1.4 Installation Contractor

The installation contractor will have upland habitat restoration experience, be under the direction of the restoration specialist, and be responsible for completion of soil decompaction, pre-planting weed control, planting, seeding, and maintenance of the mitigation areas. The restoration specialist will educate the contractor(s) on the installation of barrel cactus.

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2.4.1.5 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of the mitigation effort will be the responsibility of a habitat restoration specialist with upland restoration experience. The habitat restoration specialist will educate all participants with regard to mitigation goals and requirements, and directly oversee decompaction, seeding, and maintenance. If necessary, the habitat restoration specialist will provide the project proponent and contractor with a brief report, including a written list of items in need of attention, following each monitoring visit. The habitat restoration specialist will notify the contractor and responsible party if any requested remediation is not addressed.

The habitat restoration specialist will be a permitted biologist who will directly supervise all upland restoration and maintenance.

2.4.1.6 Maintenance Contractor

After the installation contract is completed, the project proponent(s) will hire a maintenance contractor for the duration of the 3-year monitoring period. The maintenance contractor and the installation contractor may be the same entity. The project proponent may change contractors at its discretion. The maintenance contractor will be educated as to the maintenance of native plant habitat and the difference between native plants and weeds. Maintenance will include but not be limited to weed control, trash removal, fence repair, and re-seeding. All activities conducted will be seasonally appropriate and approved by the restoration specialist. The maintenance contractor will meet the restoration specialist at the site when requested and will perform all checklist items in a timely manner, as directed by the project proponent.

2.4.2 Types and Areas of Habitat to be Established

Mitigation for impacts to 6.4 acres of non-native grassland will consist of 6.4 acres of grassland restoration, including 4.9 acres in the southern portion of the site and 1.5 acres in the northeastern portion of the site. A total of 72 San Diego barrel cactus will be transplanted to existing coastal sage scrub within open space on site.

2.4.3 Functions and Values

Grassland restoration will provide wildlife habitat and raptor foraging habitat.

2.4.4 Time Lapse

Restoration of grassland will occur in the fall of the year in which site grading is initiated. The barrel cactus relocation is scheduled to begin in the first week of October prior to project impacts and be finished by the end of the month.

2.4.5 Cost

Installation and materials for the restoration, including maintenance as well as 3 years of biological monitoring and reports, are anticipated to cost approximately \$100,000.

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2.5 DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE

2.5.1 Site Selection

The sites chosen for grassland restoration include 4.9 acres of existing dirt roads and disturbed areas in the southern portion of the site and 1.5 acres in the northeastern portion of the site (Figure 3). The soil and landscape characteristics are the same as those in the immediate area that also supports non-native grassland. The San Diego barrel cactus transplantation areas support existing sage scrub and an existing barrel cactus population. These areas are part of a larger contiguous block of open space and include areas that currently support sensitive species, including the QCB and burrowing owl. The restoration areas will be easily accessible for maintenance and monitoring activities, but will not be accessible to vehicular traffic.

2.5.2 Location and Size of Compensatory Mitigation Site

The 4.9 acres of grassland within the southern portion of the project site will occur at approximately 32.5536078521 north latitude, -116.908837831 west longitude, and Universal Transverse Mercator (UTM) 3601805 North/0508559 East and the 1.5 acres of grassland and San Diego barrel cactus transplantation area is located in the northeastern portion of the site at approximately 32.5659495742 north latitude, -116.91081129 west longitude, and UTM 3603173 North/0508372 East.

2.5.3 Functions and Values

The areas proposed for grassland restoration are disturbed areas supporting little or no vegetation. The functions and values of these areas include very limited wildlife habitat. Percent cover by native/non-native species was not determined for these areas.

2.5.4 Present and Proposed Uses

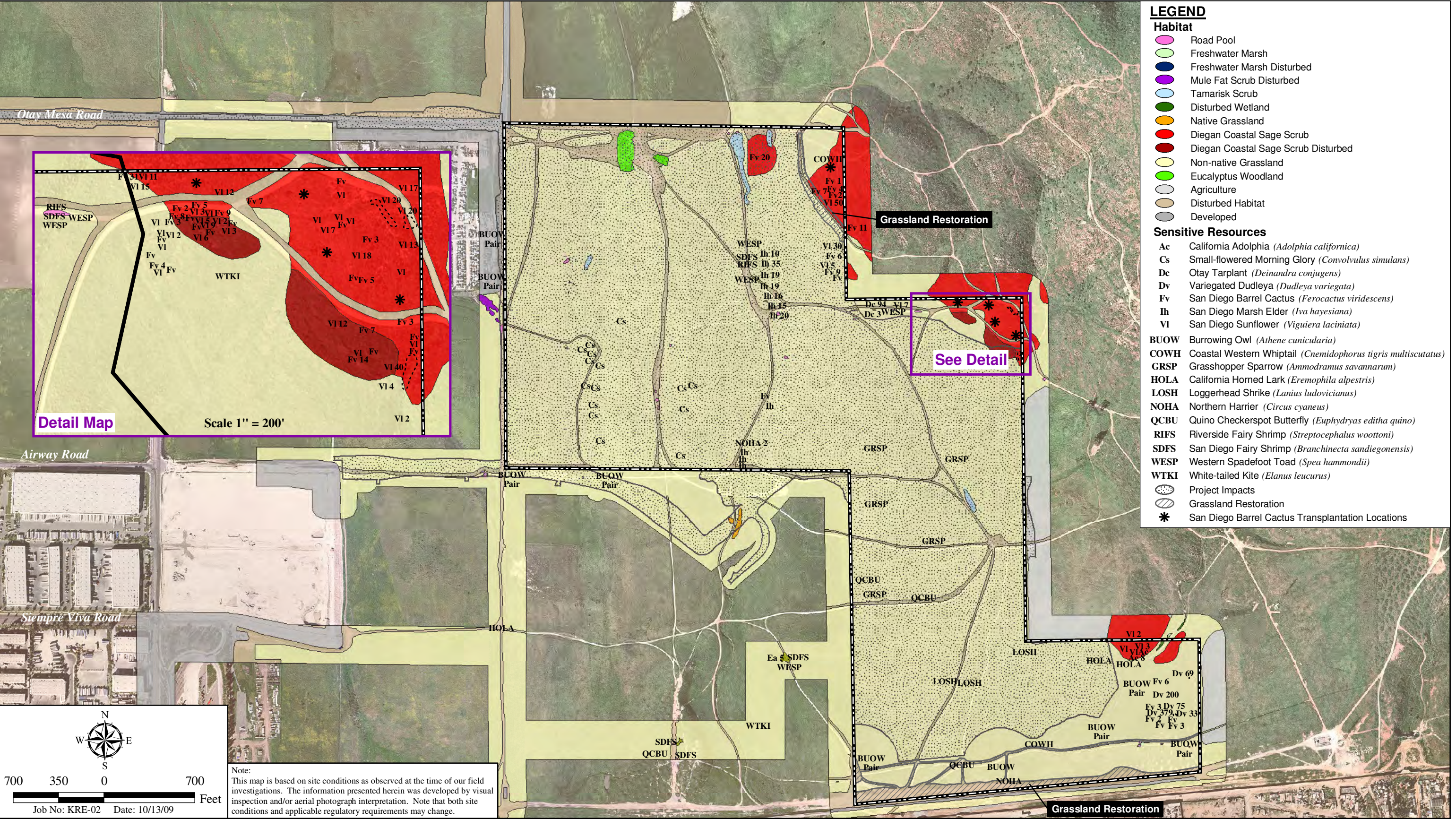
The proposed grassland restoration area and adjacent lands are currently undeveloped. The restoration areas will be used as mitigation for impacts to non-native grassland. Both the grassland restoration areas and the San Diego barrel cactus transplantation areas are within larger blocks of open space.

2.6 IMPLEMENTATION PLAN

The restoration specialist will monitor habitat restoration installation activities including soil decompaction and seeding of the grassland restoration areas, and transplantation of the barrel cacti. Installation monitoring will include attendance at 1 pre-construction meeting, and daily monitoring of the site during the remainder of the installation period. Specifically, the restoration specialist will:

- Document pre-construction site status by designating permanent photo locations;
- Ensure that installation personnel understand the project requirements and limitations;

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Grassland and San Diego Barrel Cactus Mitigation Locations

UPLAND MITIGATION PLAN FOR OTAY CROSSINGS COMMERCE PARK

- Inspect perimeter fencing of the restoration site prior to the start of soil decompaction;
- Monitor all soil decompaction activities;
- Inspect plant and seed material prior to installation;
- Monitor the manner in which the plant and seed material is installed; and
- Prepare a letter for submittal to the appropriate regulatory agencies [e.g., CDFG, U.S. Fish and Wildlife Service (USFWS), and County] stating that the installation is complete.

The 3-year maintenance and monitoring period will begin after County and resource agency staff have field verified that all seeding and planting has been installed.

2.6.1 Rationale for Expecting Implementation Success

The compensatory mitigation program is expected to be successful because the grassland restoration site has soils that are appropriate for grassland restoration. Species used in the restoration effort are appropriate for grassland habitat. San Diego barrel cacti have been successfully transplanted elsewhere within San Diego County, and the receptor site already supports a barrel cactus population.

2.6.2 Financial Assurances

A revegetation agreement shall be signed and notarized by the property owner following approval of this revegetation plan and accompanied by the required security as agreed upon by the County.

2.6.3 Schedule

Grassland restoration will occur during the fall of the year in which project site grading is initiated. Installation is anticipated to take 1 month. The barrel cactus relocation is scheduled to begin in the first week of October prior to project impacts and be finished by the end of the month. At this time of year the cactus will be dormant and less likely to suffer negative effects from removal and transplantation. Maintenance and monitoring will be conducted for 3 years following completion of the installation, or until success criteria are met.

2.6.4 Site Preparation

The soil will be decompacted within the proposed grassland restoration areas. Equipment anticipated for decompaction may include, but is not limited to, a bulldozer and skip loader. The goal of decompaction is to break up the top layer of soil that has been compacted by ongoing off road vehicular traffic.

2.6.5 Planting Plan

Seeding will be conducted when decompacting of the soil is complete. Grassland restoration will take place in south-central portion of the site (Figure 4) and the north eastern portion of the site

(Figure 5). San Diego barrel cactus transplantation will occur in the grassland restoration site located in the northeastern on site open space parcels (Figure 5).

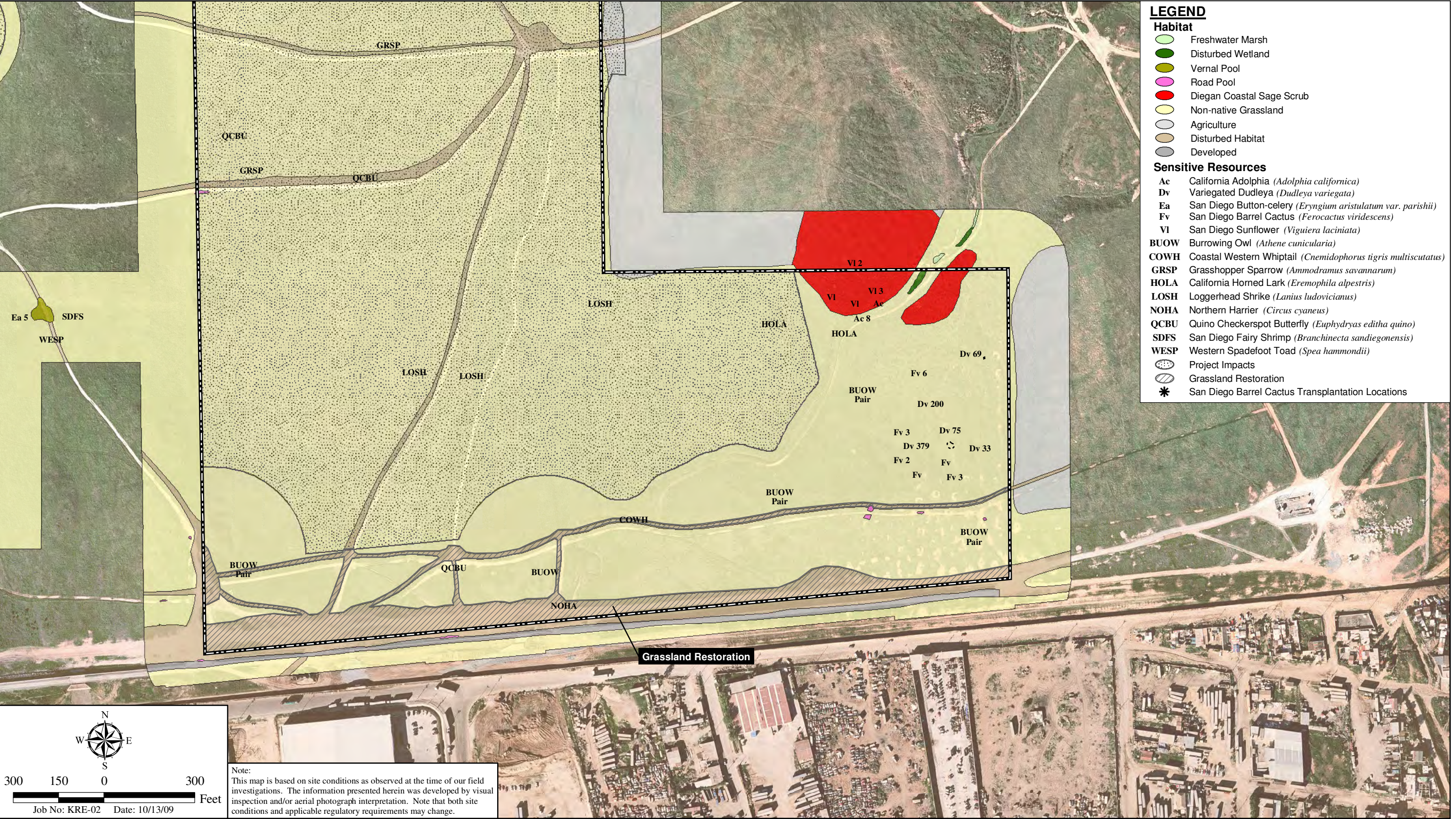
A seed mix of native grassland plant species from the project vicinity will be applied in the 6.4 acres of upland areas proposed for grassland restoration (Table 2). The amount of seed for each species is dependent upon the location of a suitable seed source in the project vicinity. It may be necessary to complement the collected seed with sources outside of the immediate project vicinity.

Table 2
GRASSLAND SEED MIX

Scientific Name	Common Name	Percent Purity	Percent Germination	Pounds Per Acre
<i>Amsinkia menziesii</i>	rancher's fiddleneck	40	60	1.0
<i>Artemisia californica</i>	California sagebrush	15	60	1.0
<i>Castilleja exserta</i>	purple owl's clover	50	50	1.5
<i>Cryptantha intermedia</i>	Nievas cryptantha	10	50	1.0
<i>Collinsia heterophylla</i>	Chinese houses	98	85	0.5
<i>Dichelostemma capitatum</i>	blue dicks	90	80	0.5
<i>Lasthenia gracilis</i>	goldfields	70	50	1.5
<i>Nassella lepida</i>	foothill needlegrass	90	60	2.0
<i>Nassella pulchra</i>	purple needlegrass	90	80	3.0
<i>Plantago erecta</i>	dot-seed plantain	90	80	3.0
TOTAL				15.0

A total of 72 barrel cactus will be salvaged from the impacted portions of the project (Figure 5) for transplantation. The following specific measures will be incorporated during the cacti salvage:

- A pre-construction meeting will be held on site with the restoration specialist and the landscape contractor to review the plan and identify work areas.
- The restoration specialist will flag the entire salvage area. All salvage activities will be limited to this flagged area to avoid impacts to adjacent preserved species.
- Each cactus to be removed will be numbered and tagged. In addition, the south facing side of each cactus will be marked with a biodegradable fluorescent paint. The paint marks will be used during transplantation to realign the cacti with the sun.
- Removal of cacti will be conducted by the landscape contractor using only hand tools. Care will be taken to avoid damage to the cactus. As much of the root as possible will be salvaged.
- The salvaged cacti will be removed from the site and stored at the landscape contractor's nursery. The cacti will be spread out under a shade structure for approximately one week to allow the roots to callous over. Once the roots have callused the cacti will be ready for transplantation on site.
- Vehicular activity on site will be restricted to existing roads. No off-road driving will occur. Salvaged plants will be carried to and from the transport vehicles by hand.



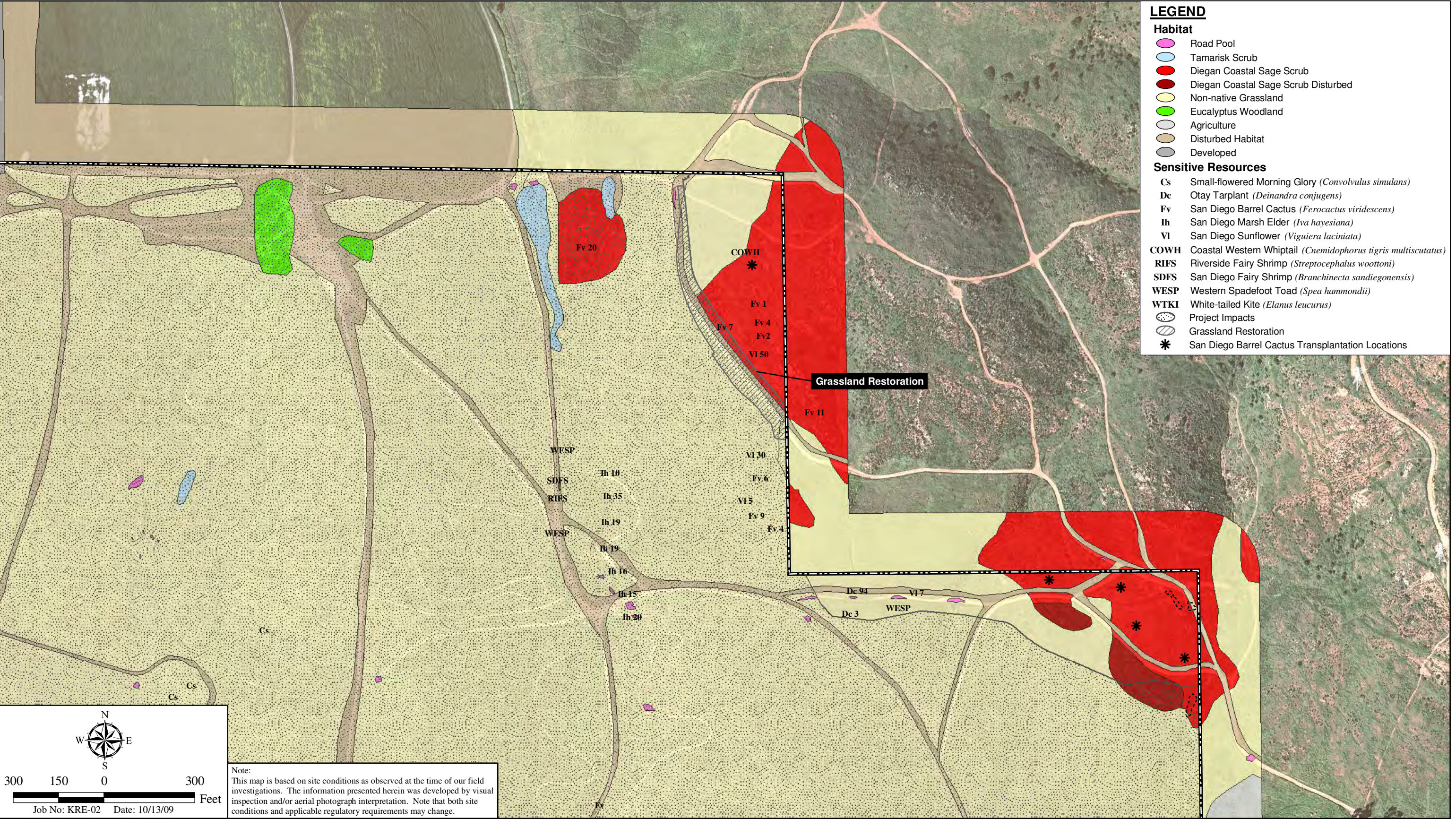
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Grassland and San Diego Barrel Cactus Mitigation

UPLAND MITIGATION PLAN FOR OTAY CROSSINGS COMMERCE PARK

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Figure 4



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Grassland and San Diego Barrel Cactus Mitigation

UPLAND MITIGATION PLAN FOR OTAY CROSSINGS COMMERCE PARK

The salvaged barrel cactus will be transplanted within open space in the northeastern portion of the site (Figure 5). This area supports Diegan coastal sage scrub habitat and has appropriate characteristics for successful cactus transplantation.

Specific planting locations will be identified in the field and recorded with a global positioning satellite (GPS) survey system with a horizontal accuracy of one decimeter (4 inches). Fifteen transplant locations will be identified. Each location represents a grouping of 5 to 7 individual cactus transplants. The following specific measures will be taken during the cactus transplantation:

- The revegetation specialist will flag the transplant areas and identify individual planting (receptor) locations. Each planting location will be flagged with a pin flag and labeled. Following planting, the cacti locations will be permanently staked and labeled with re-bar and re-bar caps. Each planting location will also be surveyed with a GPS system and mapped.
- The planting locations will have suitable slope, soil, aspect and vegetation for successful transplantation. Each cactus will be planted such that it maintains the same solar orientation it had prior to being moved.
- Cactus will be planted in groups of 5 to 7 in as natural a condition as possible. Spacing of the cacti within each group will range from 1 to 3 feet.
- Care will be taken to ensure proper soil placement around the cactus roots. Soil preparation will include breaking up large clods and removing rocks and debris that could form air pockets around the roots. Each cactus will be watered-in by hand to aid in soil settlement. Following planting, small rocks will be placed around the base of each cactus to prevent soil loss and help maintain proper soil moisture. In addition, these rocks will help protect the cacti from the digging of curious animals.
- The landscape contractor will provide progress and project completion photos in a digital format.
- The landscape contractor will remove all trash and debris generated during the salvage and transplantation effort.

2.7 MAINTENANCE DURING MONITORING

2.7.1 Maintenance Activities

A 3-year maintenance program is proposed to ensure the successful establishment and persistence of the grassland habitat and transplanted San Diego barrel cactus. The maintenance program will involve removal of trash, weed control, and any remedial measures deemed necessary for the success of the restoration program (e.g., re-seeding and re-planting). Maintenance activities will be directed by the restoration specialist.

2.7.1.1 General Maintenance

Damage to plants occurring as a result of unusual weather or vandalism will be repaired as directed by the restoration specialist. The cost of such repairs will be paid for as extra work.

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It is the maintenance contractor's responsibility to keep all planted areas free of debris and to monitor plant material condition and health, weeding, and erosion control. The maintenance contractor also will be responsible for replacing any dead or terminally diseased plants at the direction of the restoration specialist. No post-installation pruning is necessary unless otherwise directed by the restoration specialist.

These maintenance guidelines are tailored to native plant establishment. Maintenance personnel will be informed of the habitat restoration program so that they understand the goals of the effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise all maintenance.

2.7.1.2 Non-native Plant Control

Weed control will be limited to certain highly invasive plant species that have been targeted for complete eradication within the restoration areas: fennel (*Foeniculum vulgare*), pampas grass (*Cortaderia* sp.), giant reed (*Arundo donax*), artichoke thistle (*Cynara cardunculus*), star thistle (*Centaurea solstitialis*) and tamarisk (*Tamarix* sp.). These species are rated as either High or Moderate in the California Invasive Plant Inventory prepared by Cal-IPC (2006), which includes highly invasive pest plants that have been documented as aggressive invaders that displace natives and disrupt natural habitats. There will be no tolerance for these species within the restoration area. Additional species may be added to this list if found to be a threat to the long-term success of the restoration effort. One other species, mustard (*Brassica* sp.) will also be targeted, although complete eradication is not the goal for this species. Non-native grasses will not be specifically targeted for removal.

2.7.1.3 Other Pests

Insects, vertebrate pests, and diseases will be monitored. Generally speaking, a high threshold of tolerance will be permitted before control measures are considered. Only a licensed pest control adviser as required by law will make specific recommendations. All applicable federal and state laws and regulations will be closely followed. The restoration specialist will be consulted on any pest control matters.

2.7.1.4 Fertilization

Fertilizer will not be applied except in extraordinary circumstances and only at the written direction of the restoration specialist.

2.7.1.5 Sensitive Species Issues

Maintenance activities will not include use of heavy equipment or vehicles and as such are not anticipated to have adverse effects on sensitive species. Nonetheless, all maintenance activities will be carried out under the direction of the restoration specialist, as necessary, in order to avoid any impacts to sensitive species.

2.7.2 Schedule

Following installation, a restoration specialist will monitor maintenance activities conducted by the maintenance crews during the 3-year maintenance and monitoring period (Table 3). Regular maintenance, trash removal, and weed control will be conducted during the 3 year maintenance period following implementation of the mitigation program or until the mitigation program is deemed successful.

The initial 90-day establishment period (if required) will occur within the first 3 months of the 3-year period. Monitoring visits will be conducted monthly from December through May and twice in the remainder of the year (July and September) in Years 1 and 2. Quarterly visits (March, June, September, and December) will be conducted during Year 3. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development.

Table 3 MAINTENANCE MONITORING SCHEDULE	
PHASE	SCHEDULE
Installation	
Site preparation and installation	Daily
Post Installation	
Years 1 and 2	
December to May	Monthly
June to November	Twice: July and September
Year 3	Quarterly: March, June, September, and December

Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided as necessary to the installation/maintenance contractor(s) and project proponent(s).

2.8 MONITORING PLAN

2.8.1 Performance Standards for Target Dates and Success Criteria

The following standards will be used to determine the successful completion of the 3-year mitigation and monitoring program. Attainment of these standards indicates the mitigation areas are progressing toward the habitat functions and values specified for this plan. Methods used to measure these success criteria are described in the following text. The CDFG, USFWS and County may terminate monitoring earlier than 3 years if success criteria are met and it is recommended by the restoration specialist in a year-end report. Likewise, if the restored areas fail to meet the Year 3 standards after the full monitoring term, a specific set of remedial measures (approved by the

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CDFG, USFWS, and County) will be implemented, and the monitoring and maintenance period will be extended until all Year 3 standards are met or as otherwise provided in this document. Only areas failing to meet the success standards will require additional work (i.e., not all of the areas originally restored).

Technical monitoring will include both qualitative (visual assessment) and quantitative (transect data collection) sampling within the grassland area. This sampling will include assessments of cover (native and non-native), height of shrub species, and lists of wildlife and plant species observed on site each year. In Years 1 and 2, monitoring will be qualitative in nature and be based on a visual and photographic survey of the restoration areas. In Year 3, quantitative transect monitoring will be conducted in the restoration area. Success criteria milestones are provided below.

San Diego barrel cactus monitoring will be limited to assessing the number of live cacti and their overall health.

Species Richness

Species richness is the number of native species present in a given area. During the annual monitoring, species richness within the restoration areas will be determined by visual assessment only in Years 1 and 2. Species richness within the restoration areas should consist of 4 native species within the belt and point intercept transects in Year 3. If the species richness goal for Year 3 is not met, corrective measures (e.g., reseeding, planting, etc.) will be taken to ensure eventual achievement.

Vegetative Cover

Native and non-native (weed) plant species cover will be measured to assess project success. Annual performance goals have been set to track the progress of the mitigation effort. No specific cover criteria have been established for Years 1 or 2. For Year 3, the total grass species cover will total 30 percent or higher. If the annual goals for native and non-native cover are not met, additional measures (e.g., reseeding, weeding, etc.) will be taken as necessary to ensure final success.

Non-native/Invasive Plant Cover

Weeds are typically a problem in habitat restoration projects, particularly at their outset. As the restoration takes hold, weed problems should decrease. Although weeds are expected to be a problem, focused maintenance efforts should reduce weed cover to an acceptable level. All Cal-IPC High- or Moderate-rated species will be included in the weed control effort. There will be no tolerance for these species within the restoration areas. At the end of the 3-year maintenance and monitoring period, the acceptable cover value for Cal-IPC High- or Moderate-rated species will be zero. Additional species may be added to this list if found to be a threat to the long-term success of the restoration effort. Weeds will be controlled as specified in the maintenance monitoring section. At the end of the 3-year monitoring period, weed species (other than non-native grasses) shall account for no more than 10 percent of the grassland habitat.

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Success of the barrel cactus relocation program will be determined by survivorship and will be assessed by the revegetation specialist. Complete, or 100 percent, survivorship is required at the end of the 120-day establishment period. All dead cacti must be replaced by the landscape contractor under the direction of the restoration specialist during this period. Success criteria for the 3-year monitoring period is 60 percent survivorship (Table 4).

Table 4 SAN DIEGO BARREL CACTUS SUCCESS CRITERIA	
120-Day Establishment Period	100%*
Year 1	80%
Year 2	65%
Year 3	60%

*Percent of cacti surviving.

If the annual goals for establishment are not met, additional measures (e.g., replanting of additional barrel cacti) will be taken as necessary to ensure final success.

2.8.2 Target Functions and Values

Upon meeting success criteria, the grassland areas will provide at least 6.4 acres of wildlife habitat for birds such as burrowing owls and other raptors and small mammals on which they feed. The grassland areas will have a net functional lift in habitat values over the existing condition by providing nesting habitat for ground nesting raptors and greater vegetative cover and increased prey base. Values will include supporting biological diversity by maintaining populations of rare species such as the burrowing owl noted above.

2.8.3 Monitoring Methods

A total of 3 50-meter transects will be used to collect data for the technical monitoring within the restoration area. These transects will be randomly located during the first quantitative sampling event (to occur in Year 3). Species data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Species cover data will be collected by recording all of the species intercepted at each 0.5-meter interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 meters), shrub (0.6 to 2 meters), and tree (greater than 2 meter) layers. Species richness data will be collected by noting all species occurring within 5 meters of each transect.

Wildlife usage of the restoration area will be monitored in May of Year 3 by walking 3 transects along the length of the restoration site and identifying all animals by sight, sign, or vocalization. The number of individuals and species detected shall be recorded.

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2.8.4 Monitoring Schedule

During the establishment period, the restoration specialist will monitor habitat establishment and maintenance activities conducted by the maintenance crews (Table 5).

Table 5 MAINTENANCE MONITORING SCHEDULE	
PHASE	SCHEDULE
Installation	
Site preparation and installation	Daily
Post Installation	
Years 1 and 2	
December to May	Monthly
June to November	Twice: July and September
Year 3	Quarterly: March, June, September, and December

2.8.5 Monitoring Reports

Monitoring memos noting any issues with plant establishment, sediment control, etc., will be provided as necessary to the maintenance contractor and project proponent.

As part of the monitoring program, annual reports will be submitted to the Agencies on September 30th. These annual reports will evaluate the success of the mitigation effort to date, along with providing any recommendations for future work that may be deemed necessary. Each annual monitoring report will include data collected throughout the year in addition to the annual monitoring visit. To detect the overall trend of the site, the annual monitoring report will contain comparisons of the monitoring data for the years that data are collected. The Agencies shall be annually invited to view the mitigation site. Any significant issue or contingency that arises on the job site (e.g. fire or flooding) shall be reported in writing to the County within 2 weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

2.9 COMPLETION OF COMPENSATORY MITIGATION

The permittee shall notify the Agencies of completion of the mitigation effort through submittal of a final (Year 3) monitoring report. After receipt of the final monitoring report, the Agencies may inspect the mitigation site to determine the success of the restoration effort. After evaluating the final report, the agencies shall determine if the restoration effort is acceptable.

2.10 CONTINGENCY MEASURES

2.10.1 Initiating Contingency Measures

If the CDFG, USFWS, and County determine upon receipt of any of the annual monitoring reports that the restoration effort is not meeting success standards for the project, the CDFG, USFWS, and County shall notify the project proponent in writing that the restoration effort may require augmentation for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives to the suggestions of the CDFG, USFWS, and County.

2.10.2 Alternative Locations for Contingency Compensatory Mitigation

Sufficient area for contingency restoration is present at the property. If the success criteria are not being met off site, the Agencies will work together with the permittee(s) to reach an alternative mutually acceptable solution.

2.10.3 Funding

The permittee shall be responsible for all costs associated with any remedial measures.

3.0 REFERENCES

- Bowman, R. 1973. Soil Survey of the San Diego Area. USDA in cooperation with the USDI, UC Agricultural Experiment Station, Bureau of Indian Affairs, Department of the Navy, and the U.S. Marine Corps.
- California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. February.
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- Holland R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California Department of Fish and Game, Sacramento. 156 pp.
- Oberbauer, Thomas. 2008. Terrestrial Vegetation Communities in San Diego County Based on Holland's Descriptions. Revised from 1996 and 2005. July.
- San Diego, County of. 1997. MSCP Subarea Plan. Department of Planning and Land Use. October 22, as amended.
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APPENDIX A

PLANT SPECIES OBSERVED

Appendix A
PLANT SPECIES OBSERVED – OTAY CROSSINGS COMMERCE PARK

<u>FAMILY</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HABITAT†</u>
DICOTS			
Aizoaceae	<i>Mesembryanthemum nodiflorum</i> *	slender-leaved iceplant	DCSS-D
Amaranthaceae	<i>Amaranthus</i> sp.*	tumbleweed	NNG
Anacardiaceae	<i>Malosma laurina</i>	laurel sumac	DCSS, DCSS-D
Apiaceae	<i>Foeniculum vulgare</i> *	fennel	DH, DW
Asteraceae	<i>Ambrosia psilostachya</i>	western ragweed	DW
	<i>Artemisia californica</i>	California sagebrush	DCSS, DCSS-D
	<i>Baccharis pilularis</i>	coyote brush	DCSS, DCSS-D, DH
	<i>Baccharis sarothroides</i>	broom baccharis	DCSS, DCSS-D
	<i>Centaurea melitensis</i> *	star thistle	DH, NNG
	<i>Conyza canadensis</i> *	horseweed	DH
	<i>Cynara cardunculus</i> *	cardoon	NNG
	<i>Deinandra conjugens</i> †	Otay tarplant	NNG
	<i>Deinandra fasciculata</i>	fascicled tarplant	DCSS, DCSS-D, NNG
	<i>Filago californica</i>	California filago	NNG
	<i>Gazania linearis</i> *	gazania	DCSS-D, NNG
	<i>Gnaphalium californicum</i>	California everlasting	DCSS, DCSS-D, NNG
	<i>Grindelia camporum</i> var. <i>bracteosum</i>	gum plant	NNG
	<i>Hedypnois cretica</i> *	Crete hedypnois	NNG
	<i>Helianthus annuus</i>	western sunflower	DCSS, DCSS-D, NNG
	<i>Hypochaeris glabra</i> *	smooth cat's-ear	NNG
	<i>Isocoma menziesii</i> var. <i>menziesii</i>	San Diego goldenbush	DCSS, DCSS-D, NNG
	<i>Iva hayesiana</i> †	San Diego marsh-elder	NNG
	<i>Lactuca serriola</i> *	wild lettuce	DW
	<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	DCSS-D, NNG
	<i>Osmadenia tenella</i>	osmadenia	NNG
	<i>Sonchus oleraceus</i> *	common sow thistle	DH, NNG
	<i>Stylocline gnaphaloides</i>	everlasting nest straw	NNG
	<i>Viguiera laciniata</i> †	San Diego County viguiera	DCSS, DCSS-D, NNG
	<i>Xanthium strumarium</i> *	cocklebur	DW
Boraginaceae	<i>Cryptantha</i> sp.	cryptantha	DCSS, DCSS-D
	<i>Plagiobothrys</i> sp.	popcorn flower	DCSS-D, NNG
Brassicaceae	<i>Brassica nigra</i> *	black mustard	DH, NNG
	<i>Lepidium</i> sp.*	peppergrass	NNG
	<i>Lepidium latifolium</i>	peppergrass	NNG
Cactaceae	<i>Ferocactus viridescens</i> †	San Diego barrel cactus	DCSS, DCSS-D, NNG
	<i>Opuntia littoralis</i>	coastal prickly pear	DCSS, DCSS-D
Capparaceae	<i>Isomeris arborea</i>	bladderpod	DCSS, DCSS-D

Appendix A (cont.)
PLANT SPECIES OBSERVED – OTAY CROSSINGS COMMERCE PARK

<u>FAMILY</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HABITAT†</u>
DICOTS (cont.)			
Caryophyllaceae	<i>Silene gallica</i> *	common catchfly	DCSS-D, NNG
	<i>Spergularia bocconii</i> *	sand-spurry	NNG
	<i>Spergularia</i> sp.*	sand-spurry	NNG
Chenopodiaceae	<i>Atriplex semibaccata</i> *	Australian saltbush	NNG
	<i>Chenopodium</i> sp.*	pigweed	DH, DW, NNG
	<i>Salicornia bigelovii</i>	dwarf glasswort	DW
	<i>Salsola tragus</i> *	Russian thistle	DH, NNG
Convolvulaceae	<i>Calystegia macrostegia</i> ssp. <i>arida</i>	finger-leaf morning-glory	DCSS, DCSS-D
	<i>Convolvulus arvensis</i> *	bindweed	NNG
	<i>Convolvulus simulans</i> †	small-flowered morning glory	NNG
	<i>Crassula connata</i>	pygmy-weed	NNG
Crassulaceae	<i>Dudleya variegata</i> †	variegated dudleya	NNG
Euphorbiaceae	<i>Eremocarpus setigerus</i>	dove weed	DH, NNG
Fabaceae	<i>Lotus scoparius</i> var. <i>scoparius</i>	coastal deerweed	DCSS, DCSS-D
	<i>Medicago polymorpha</i>	bur-clover	NNG
	<i>Medicago sativa</i> *	alfalfa	NNG
Gentianaceae	<i>Centaurium venustum</i>	canchalagua	DCSS, DCSS-D
Geraniaceae	<i>Erodium cicutarium</i> *	red-stem filaree	DH, NNG
	<i>Erodium moschatum</i> *	green-stem filaree	DH, NNG
Lamiaceae	<i>Trichostema lanceolatum</i>	vinegar weed	DCSS, DCSS-D
Malvaceae	<i>Malva parviflora</i> *	cheeseweed	DH, NNG
Nyctaginaceae	<i>Mirabilis californica</i>	wishbone bush	DCSS-D, NNG
Oxalidaceae	<i>Oxalis pes-caprae</i> *	Bermuda-buttercup	NNG
Plantaginaceae	<i>Plantago erecta</i>	dwarf plantain	DCSS-D, NNG
Polygonaceae	<i>Eriogonum fasciculatum</i> ssp. <i>fasciculatum</i>	California buckwheat	DCSS, DCSS-D, NNG
	<i>Linanthus dianthiflorus</i>	ground pink	DCSS, DCSS-D
	<i>Polygonum</i> sp.	knotweed	DH, NNG
	<i>Rumex crispus</i> *	curly dock	DW, TS
Portulacaceae	<i>Calandrinia ciliata</i>	red maids	DCSS, DCSS-D, NNG
Primulaceae	<i>Anagallis arvensis</i> *	scarlet pimpernel	NNG
	<i>Dodecatheon cleveandii</i> ssp. <i>clevelandii</i>	shooting star	DCSS-D, NNG
Rhamnaceae	<i>Adolphia californica</i> †	California adolphia	DCSS
Rubiaceae	<i>Galium</i> sp.	bedstraw	DCSS-D
Tamaricaceae	<i>Tamarix</i> sp.*	tamarisk	TS
Verbenaceae	<i>Verbena</i> sp.	verbena	NNG

Appendix A (cont.)
PLANT SPECIES OBSERVED – OTAY CROSSINGS COMMERCE PARK

<u>FAMILY</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HABITAT†‡</u>
MONOCOTS			
Iridaceae	<i>Sisyrinchium bellum</i>	blue-eyed grass	NNG
Juncaceae	<i>Juncus bufonius</i>	toad rush	NNG
Liliaceae	<i>Bloomeria crocea</i> var. <i>crocea</i>	golden star	DCSS-D, NNG
	<i>Brodiaea jolonensis</i>	mesa brodiaea	DCSS-D, NNG
	<i>Chlorogalum pomeridianum</i>	soap plant	DCSS
	<i>Dichelostemma capitatum</i>	blue dicks	DCSS, DCSS-D, NNG
	<i>Zigadenus fremontii</i>	star-lily	NNG
Poaceae	<i>Avena barbata</i> *	slender wild oat	DCSS, DCSS-D, DH, NNG
	<i>Avena fatua</i> *	wild oat	DCSS-D, DH, NNG
	<i>Bromus diandrus</i> *	common ripgut grass	DCSS, DCSS-D, NNG, DH
	<i>Bromus hordeaceus</i> *	soft chess	NNG
	<i>Bromus madritensis</i> ssp. <i>rubens</i> *	foxtail chess	DCSS, DCSS-D, NNG, DH
	<i>Gastridium ventricosum</i> *	nit grass	NNG
	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i> *	Mediterranean barley	DH, NNG
	<i>Hordeum</i> sp.	barley	NNG
	<i>Lamarckia aurea</i> *	goldentop	DH
	<i>Lolium multiflorum</i> *	Italian ryegrass	NNG
	<i>Lolium</i> sp.*	ryegrass	NNG, DH
	<i>Nassella pulchra</i>	purple needlegrass	NNG
	<i>Nassella</i> sp.	needlegrass	NNG
	<i>Phalaris</i> sp.*	canary grass	DW
	<i>Polypogon monspeliensis</i> *	annual beard grass	DW, DH, NNG
	<i>Schismus barbatus</i> *	Mediterranean grass	DH, NNG
	<i>Vulpia myuros</i> *	fescue	DCSS, DCSS-D, DH, NNG
Typhaceae	<i>Typha</i> sp.	cattail	DW, TS

PTERIDOPHYTES

Selaginellaceae	<i>Selaginella cinerascens</i>	ashy spike-moss	DCSS
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*Non-native species

†Sensitive species

‡Habitat acronyms: DCSS=Diegan coastal sage scrub, DCSS-D=disturbed Diegan coastal sage scrub, DH=disturbed habitat, DW=disturbed wetland, NNG=non-native grassland, TS=tamarisk shrub

APPENDIX B

ANIMAL SPECIES OBSERVED

Appendix B
ANIMAL SPECIES OBSERVED – OTAY CROSSINGS COMMERCE PARK

SCIENTIFIC NAME

COMMON NAME

INVERTEBRATES

<i>Anthocharis sara</i>	Sara orangetip
<i>Apodemia mormo virgulti</i>	Behr's metalmark
<i>Branchinecta sandiegonensis</i> †	San Diego fairy shrimp
<i>Brephidium exilis</i>	western pygmy blue
<i>Coenonympha californica</i>	common California ringlet
<i>Erynnis funeralis</i>	funereal duskywing
<i>Euphydryas editha quino</i> †	Quino checkerspot butterfly
<i>Glaucopsyche lygdamus australis</i>	southern blue
<i>Junonia coenia</i>	buckeye
<i>Papilio eurymedon</i>	pale swallowtail
<i>Papilio zelicaon</i>	Anise swallowtail
<i>Pieris rapae</i>	cabbage butterfly
<i>Plebejus acmon</i>	Acmon blue
<i>Pontia protodice</i>	common white
<i>Pyrgus albescens</i>	common checkered skipper
<i>Streptocephalus woortoni</i> †	Riverside fairy shrimp
<i>Vanessa annabella</i>	west coast lady
<i>Vanessa cardui</i>	painted lady

VERTEBRATES

Amphibian

<i>Spea hammondi</i> †	western spadefoot
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Reptiles

<i>Cnemidophorus hyperythrus beldingi</i>	orange throated whiptail
<i>Cnemidophorus tigris multiscutatus</i> †	coastal western whiptail
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Thamnophis hammondi</i>	two-striped garter snake

Birds

<i>Agelaius phoeniceus</i>	red-wing blackbird
<i>Ammodramus savannarum</i> †	grasshopper sparrow
<i>Athene cunicularia</i> †	burrowing owl
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Carduelis psaltria</i>	lesser goldfinch
<i>Carduelis tristis</i>	American goldfinch

Appendix B (cont.)

ANIMAL SPECIES OBSERVED – OTAY CROSSINGS COMMERCE PARK

SCIENTIFIC NAME

COMMON NAME

VERTEBRATES (cont.)

Birds (cont.)

<i>Carpodacus mexicanus</i>	house finch
<i>Charadrius vociferus</i>	killdeer
<i>Chordeiles acutipennis</i>	lesser nighthawk
<i>Circus cyaneus</i> †	northern harrier
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
<i>Elanus leucurus</i> †	white-tailed kite
<i>Eremophila alpestris actia</i> †	California horned lark
<i>Falco sparverius</i>	American kestrel
<i>Hirundo pyrrhonota</i>	cliff swallow
<i>Icterus bullockii</i>	Bullock's oriole
<i>Lanius ludovicianus</i> †	loggerhead shrike
<i>Mimus polyglottos</i>	northern mockingbird
<i>Passer domesticus</i>	house sparrow
<i>Passerina caerulea</i>	blue grosbeak
<i>Pipilo crissalis</i>	California towhee
<i>Sayornis nigricans</i>	black phoebe
<i>Sturnella neglecta</i>	western meadowlark
<i>Sturnus vulgaris</i>	European starling
<i>Tyrannus verticalis</i>	western kingbird
<i>Tyrannus vociferans</i>	Cassin's kingbird
<i>Zenaidura macroura</i>	mourning dove
<i>Zonotrichia leucophrys</i>	white-crowned sparrow

Mammals

<i>Spermophilus beecheyi</i>	California ground squirrel
<i>Sylvilagus audubonii</i>	desert cottontail
<i>Thomomys bottae</i>	Botta's pocket gopher

†Sensitive species