
San Dieguito Wetlands Final Planting Plan (Condition 5)

SAN DIEGUITO LAGOON
DEL MAR, SAN DIEGO COUNTY, CALIFORNIA

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- A. Coastal Commission Planting Plan Guidance for Special Condition #5, February 3, 2006
- B. Special Provisions/ Planting Specifications
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- E. RECON Qualifications, Resume, Peter Tomsovic, Planting Program Manager

INTRODUCTION

The following table summarizes the planting plan proposed by Southern California Edison associated with implementation of the San Dieguito Wetlands Restoration Project Final Restoration Plan. This plan is being submitted to the Coastal Commission in Compliance with Condition 5 of the Coastal Development Permit approved on October 12, 2005 for the San Dieguito Wetlands Restoration Project¹:

Landscape Plans/Planting Program. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicants shall submit to the Executive Director for review and written approval, final planting plans for the San Dieguito Wetlands Restoration Project that have been approved by the City of Del Mar and City of San Diego. Said plans shall be in substantial conformance with the planting program identified in Section 4.3 of the FRP, the submittal *San Dieguito Lagoon Wetland Restoration Project Specifications for Wetland Mitigation and Restoration* prepared by Wetland Research Associates, Inc. and dated October 15, 2003 and Addendums (Memoranda) to this submittal dated October 15, 2004, and the two sets of plans submitted June 20, 2005, (City of Del Mar Sheets 27-30; and 40, dated 6/17/05, and City of San Diego Sheets 62-65, and 82-89 dated 5/26/05) and shall incorporate the following:

- A. The propagules (seeds or rhizomes or cuttings) for the containers and seed mixes shall be collected from coastal populations between the Palos Verde peninsula and the Mexican border. Seed mixes shall be certified as being "weed free" to insure the plants are appropriate and there are no unintended genetic consequences.
- B. The plant palette on the final plans shall include only native species. Native plants shall be established as soon as possible in order to reduce colonization by invasive species.
- C. Plant materials that may be impacted by the restoration and construction activities shall be salvaged and used in the restoration to the extent practicable.
- D. Revegetation of the freshwater treatment ponds shall occur within 90 days of completion of grading and infrastructure improvements. Planting shall be done in accordance with the mitigation program approved pursuant to Special Condition #8.
- E. Weed and invasive control in TP41 shall be implemented in accordance with the document titled *M41 Parcel – Treatment Marsh Descriptions* submitted 2/11/04; however, the final plans shall indicate invasive plant materials from the treatment ponds shall be removed annually.
- F. The slope (approximately 5.16 acres) of the W45 module, to be constructed to provide non-tidal wetlands to offset temporary and permanent impacts associated with restoration activities, shall be covered with wetland topsoil and planted with pickleweed (*Salicornia virginica*). The remaining area of W45 (approximately 3.49 acres) shall be graded to elevations between 5 to 6 ft., NGVD, covered with wetland topsoil and planted with pickleweed or other appropriate seasonal saltmarsh species.

¹ Conditions 5d and 5e apply to the JPA stormwater treatment ponds and plans in compliance with these conditions will be submitted separately by JPA and are not required for the initiation of the Edison portion of the restoration effort.

- G. Provisions for planting characteristic middle and upper salt marsh species other than *Salicornia virginica*, such as *Jaumea carnosa*, *Batis maritima*, *Distichlis spicata*, *Frankenia salina*, *Monanthochloae littoralis*, and *Salicornia subterminalis*.

The applicants shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Coastal Commission-approved amendment to this coastal development permit pursuant to the Commission's regulations unless the Executive Director determines that the changes are minor and within the scope of the Commission's permit approval and no amendment is required.

On February 3, 2006, the Coastal Commission provided further guidance on the elements that should be included (where applicable) to the final planting plan (Appendix A). For ease of comparison and to provide a references to where the specific materials are found, the Final Planting Plan was formatted as a table to address the requested information and provide a readily referenced guide to the various documents that support the various components of the plan.

The table includes goals of the planting program, rationale for the planting plan design, suggested follow-up maintenance activities, and guidelines for assessing achievement of planting program goals for each habitat type (low, mid, and high marsh), and for special planting areas (M45 mitigation wetland, berms and upland disposal areas). Information presented in the table was compiled from a number of source documents, including:

San Dieguito Wetlands Restoration Project Final Restoration Plan. Prepared by Southern California Edison Company (SCE). Submitted to the California Coastal Commission. October 2001, revised August 2004.

Construction Specifications/Special Provisions for the San Dieguito Wetlands Restoration Project. Prepared by WRA. Prepared by Project Design Consultants (PDC) and WRA. January 4, 2006. (Appendix B)

Grading Plans for the San Dieguito Restoration Plan, City of San Diego set. Prepared by PDC and WRA. January 17, 2006.

Grading, Drainage, Erosion & Sediment Control Plan for the San Dieguito Wetlands Restoration Plan, City of Del Mar set. Prepared by PDC and WRA. December 28, 2005.

Habitat Mitigation and Monitoring Plan (HMMP) for the San Dieguito Wetlands Restoration Project. Prepared by SCE. Submitted to the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Game. May 2005, revised March 2006. (Appendix C)

SONGS Coastal Development Permit (Permit No. 6-81-330-3, as amended; formerly permit No. 183-73). Issued by the California Coastal Commission, 1997.

Coastal Commission. 2006. Letter dated June 7, 2006 to David Kay and Dick Bobertz.

Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the San Dieguito Wetland Restoration Project. September 2000.

San Dieguito Monitoring Plan, The SONGS Wetland Mitigation Program. Prepared by California Coastal Commission, Draft May 18, 2005.

Edison has hired a contractor for the planting work, RECON and the overall manager for the Planting Program will be Mr. Pete Tomsovic. Mr. Tomsovic's resume is attached as Appendix E. The qualifications for RECON are as follows:

RECON has been recognized throughout the state for its innovative approach to habitat restoration and revegetation. We have successfully developed and implemented numerous large-scale revegetation and mitigation plans and programs for a variety of natural communities. RECON restoration ecologists are active in the development of improved methods and techniques to make the restoration of natural vegetation communities successful, including large-scale topsoil and seedbank translocation, salvage and propagation of thousands of native plants, and intensive weeding programs designed to substantially reduce competition with non-natives.

RECON specializes in planning, implementing, and monitoring habitat restoration projects in compliance with mitigation requirements. Our restoration team is made up of project managers, field supervisors, field crew chiefs, growing facility crew chiefs, and field maintenance workers

RECON also monitors the physical construction of the sites and conducts long-term mitigation monitoring. Our success on projects can be attributed to our ability to control all aspects of the restoration process. By having the planting and maintenance crews under in-house supervision, all restoration tasks from seed collection to weeding are completed in a timely manner. We are highly responsive to demanding schedules and can be available to provide restoration and consulting services on short notice. Close coordination with our clients and the site maintenance crews, and early recognition of potential problems and their hasty remediation, have helped us meet restoration goals and have allowed the regulatory agencies and jurisdictions to accept our sites as successful.

RECON is a leader in developing and applying innovative techniques for native plant propagation and maintenance to ensure successful mitigation. RECON maintains growing facilities for the sole purpose of growing plants for our clients' mitigation sites. Our growing facilities include seed storage areas, container plant propagation areas, shade houses, green houses, and open fields. Plants are grown in all sizes of containers from flats to 15-gallon pots. Our largest facility has over 200,000 native plants of various sizes. New techniques for growing many native plants quickly, both in the field and in containers, have been developed by RECON.

RECON is very knowledgeable of the local habitats, plant and animal species, and agency expectations. RECON has successfully restored and recently achieved agency acceptance of a 75-acre habitat restoration project in the San Dieguito River Watershed, approximately one-mile from the San Dieguito Lagoon restoration site. We are currently restoring an additional 200 acres of native habitats within the watershed and adjacent watershed. RECON has successfully restored a wide range of habitat types found within the watershed.

In addition, Edison's wetland consultant, Dr. Michael Josselyn, of WRA, Inc will be reviewing work products prepared by RECON as well as submittals as required during the project effort.

In order to assure compliance with the Final Restoration Plan as well as considering site specific issues as they arise during construction, Edison has required that the Contractor submit a number of items related to the planting plan and the nesting sites during construction (Appendix D). These submittals will allow Edison to assure that specific requirements are being met and to determine if modifications to the planting program are needed. Edison will make such submittals available to Coastal Commission staff.

Finally, Edison expects that during the conduct of the restoration project, Coastal Commission independent scientific staff will have relevant information gathered from reference sites on wetland vegetation that may be useful in determining final performance standards for the restored site. Edison would look forward to receiving such information and determining if any additional modifications to the planting plan is needed.

SAN DIEGUITO WETLANDS FINAL PLANTING PLAN (CONDITION 5)
April 28, 2006

ELEMENT OF PLANTING PROGRAM	DESCRIPTION		SOURCE
Low Marsh			
Goal of Planting Program		Condition A of the SONGS Coastal Development Permit requires that “the restored wetland shall have a <i>Spartina</i> canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over three feet tall.” There is a limited amount of <i>Spartina</i> within the SDL at present and it is insufficient to provide the seed source for establishment of this species. The goal of this planting effort is to introduce additional plant material that will reproduce within the wetlands and eventually provide a greater seed source for the spread and establishment of native <i>Spartina foliosa</i> .	SONGS Coastal Development Permit (Condition A) Final Restoration Plan Section 4.3.1
Planting Program rationale	Locations of Planting	<i>S. foliosa</i> will be planted in the low marsh. The Contractor shall plant <i>Spartina foliosa</i> within the top one-half (2.0' to 2.5' NGVD) of its target elevation range (1.5' to 2.5' NGVD).	Construction Specifications Section 308-4.11.6
	Planting rationale	Low marsh habitat is suitable for <i>S. foliosa</i> since conditions there meet the inundation and salinity requirements of the plant. It is expected that once established, the new plant material will produce sufficient seed and vegetative growth to naturally establish the species within suitable elevational ranges for the species. A similar result has been achieved at Batiquitos Lagoon where similar techniques were used to establish this species.	Based on experience at Batiquitos Lagoon revegetation effort
	Spatial arrangement	In Cordgrass Area-1, plots shall be 50' wide and cover the elevation range of the planting area. Spacing between plots shall be 50' on center. In Cordgrass Area-2, plots shall be 200' wide and cover the entire elevation range of the planting area, with spacing occurring at 200'. Within the planting plots, plants shall be planted at spacings of three feet.	Construction Specifications Section 308-4.11.6 Grading Plan for San Dieguito wetlands (Revegetation plan figure, pg 65).

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Origin of Propagules	<p>Plants shall be collected from the Batiquitos Lagoon or the Tijuana Estuary or other geographic locations between the Palos Verde peninsula and the Mexican border.</p> <p>Prior to commencement of work, the Contractor will consult with the California Department of Fish and Game and the US Fish and Wildlife to gain approval for collection from one or more of the collection sites or demonstrate that such approval is not necessary. Contractor is to supply Edison with Donor Site Authorization (Specification 308-4.11.2)</p> <p>The Contractor shall collect and transplant bare root plants with a minimum rhizome length of three inches. The rhizome shall contain an intact root system and at least one live culm and one live bud. Approximately 14,000 plants will be required. Plant material shall be collected from the donor site between February 1st and March 15th. Plant material shall be transplanted to the site within three days of collection.</p>	<p>Construction Specifications Section 212-1.4.8</p> <p>Final Restoration Plan Section 4.3.4.3</p> <p>CDP Condition 5a.</p>
	Soil Salinities	The Contractor shall submit the results of soil salinity tests for each wetland module. The test results shall contain a copy of summary, analysis, and recommendations from the soil laboratory that analyzed the samples. The test results shall be submitted at least thirty days prior to planting each wetland module.	Construction Specifications 308-4.11.2
	Overall Schedule	Planting of cordgrass is expected to be initiated 2 to 3 years after the start of construction, after suitable grades are created, soil salinity tests are completed to the satisfaction of Edison, and tidal action is restored to the lagoon. The contractor is to prepare a project planting schedule for approval by Edison.	
Follow-up Maintenance	Irrigation	No irrigation is anticipated as being required once tidal action is restored.	
	Weeds	No weed management is anticipated for this habitat as there are no known weeds that would become established in this zone.	

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Monitoring	Canopy architecture of Pacific cordgrass (<i>Spartina foliosa</i>) is described by the height of stems, and will be determined in quadrats selected in a stratified-random manner in stands of cordgrass. Sampling of cordgrass will be done concurrently with the monitoring of salt marsh vascular plants. From these data, the mean proportion of stems >3 feet tall will be determined. These values will constitute replicates for analyses to compare canopy architecture in the restored wetland with that of the reference wetlands.	Monitoring Plan: the SONGS Wetland Mitigation Program Section 2.2.6
Achievement of planting program goals	Remedial actions	The Contractor shall guarantee the survival of all the plants for 90 days after transplantation. At the end of the guarantee period, the Contractor shall replace, at no additional cost to the client, plant material that is determined by the Wetland Consultant to be either dead or in poor health. The guarantee period shall be 90 days after completion of the planting and approval of the installation by the Wetland Consultant. Subsequent replacement plant material shall be subject to an identical guarantee.	Construction Specifications Section 308-4.11.3
	Goal assessment	The assessment of meeting the goal for the low marsh plant planting program is the establishment of additional sources of cordgrass within the wetland that can provide seed sources and vegetative spread of this species in suitable areas of the wetland.	

ELEMENT OF PLANTING PROGRAM	DESCRIPTION		SOURCE
Mid-Marsh			
Goals of Planting Program		<p>The overall design of the San Dieguito Lagoon project is to create a self-sustaining, natural tidal wetland ecosystem with associated upland habitat elements. The goal for the planting program is to supplement the natural recruitment expected following grading and introduction of tidal action.</p> <p>The primary means to judge success of natural recruitment will be based on the restoration meeting the performance criteria outlined in the SONGS Permit Condition A: <u>The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The percent cover of algae shall be similar to the percent cover found in reference sites.</u></p>	<p>SONGS Coastal Development Permit (Condition A)</p> <p>Final Restoration Plan Section 4.3.1</p>
Planting Program rationale	Location	Natural recruitment of wetland plant species shall occur in mid marsh habitat.	Final Restoration Plan 4.3.4.2
	Planting rationale	No planting is anticipated in this area as natural recruitment should be sufficient to meet the performance criteria. <i>Salicornia virginica</i> will be the primary species to colonize this area.	Final Restoration Plan Section 4.3.4.2
	Spatial arrangement	Natural recruitment will be initiated from seed and plant fragment dispersal and will likely be patchy at first and will eventually fill by vegetative spread	Experience at Batiquitos Lagoon as observed in annual monitoring reports.
	Origin of Propagules	<i>Salicornia virginica</i> will be naturally recruited from surrounding, adjacent areas.	Final Restoration Plan Section 4.3.4.2
	Soil Salinities	Tidal restoration is expected to reduce soil salinities to a suitable range for natural colonization of vegetation.	
	Overall Schedule	The Condition A performance standard requires that cover be similar to reference wetlands. Cover of mid-marsh vegetation is expected to be suitably established for comparison to reference wetlands within 3 to 4 years after the completion of construction and the re-introduction of tidal exchange.	SONGS Coastal Development Permit (Condition A)

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
Follow-up Maintenance	Irrigation	No irrigation required as tidal action will provide water source.	
	Weeds	No weeding required as no known nuisance or weedy species are known for this habitat zone.	
	Monitoring	The proportions of total vegetation cover and open space in the restored and reference wetlands will be estimated using low-level multi-spectral aerial photography acquired during low spring tides. Because the ability to classify ground cover type based on spectral data varies with weather conditions, ground truthing will be conducted during each aerial survey. To ground truth the photographs, transect lines will be established at selected stations in the restored and reference wetlands that contain a mixture of open space and native vegetation. Cover of open space and vegetation will be estimated within replicate 30x30 cm quadrats to match the resolution of pixels in the aerial photographs. Aerial photographs will be taken once per year in late spring to early summer, which is the period of maximum growth of marsh plants. This period also coincides with maximum flowering of some exotic annual species and will maximize the ability to distinguish between native and nonnative vegetation.	Monitoring Plan: the SONGS Wetland Mitigation Program Section 2.2.4
Achievement of planting program goals	Remedial Actions	If natural recolonization rate is not occurring as expected based on experience at other restoration sites (e.g. Batiquitos Lagoon, Tijuana Estuary) within two years after construction is completed, additional planting may be undertaken using nursery grown stock. Additional data collection may be necessary to assess soil conditions, tidal elevations, or tidal inundation for areas where recruitment is not occurring.	Final Restoration Plan Section 4.3.4.2
	Goal Assessment	Assessment of meeting the goal is compliance with the performance standard in Condition A of the SONGS CDP.	SONGS Coastal Development Permit (Condition A)

ELEMENT OF PLANTING PROGRAM	DESCRIPTION		SOURCE
High Marsh			
Goals of Planting Program		<p>The overall design of the San Dieguito Lagoon project is to create a self-sustaining, natural tidal wetland ecosystem with associated upland habitat elements. Natural recruitment of salt marsh vegetation is desired and expected to occur.</p> <p>Because the high marsh zone (3.5 to 4.5 ft) is less frequently inundated and may be subject to greater drying, a program that involves both wetland soil amendment and revegetation is proposed. The goals for the planting program in the high marsh are (1) to utilize salvaged pickleweed and other wetland plant materials to provide a seed source for spread of vegetation into the high marsh and (2) to comply with Condition 5 g of the Coastal Development Permit for the planting of additional plant material at the San Dieguito wetlands.</p>	<p>Final Restoration Plan Section 4.3.1</p> <p>Coastal Commission CDP for San Dieguito Wetland Restoration (Condition 5b, c, and g)</p>
Planting Program rationale	Location	<p>Salvage and Place Pickleweed Fragments</p> <p>Pickleweed fragments will be placed in the high marsh habitat. Within specified areas, pickleweed fragments shall be placed within the elevation ranges indicated on the drawings. The elevation range refers to finished grade. The contractor shall stake the following finished grade elevations: 3.5' and 4.5' NGVD. Stakes shall be placed at a minimum interval of fifty (50) feet. Elevation benchmarks shall be provided for use in performing these elevation layouts.</p> <p>The Contractor will prepare a Pickleweed Salvage and Placement Plan to be approved by Edison prior to undertaking this work as described in the Construction Specifications. Because this Plan contains elements that require demonstration of the contractor in conducting this work, the Contractor may propose modifications to the specifications based on such demonstration and experience.</p>	<p>Construction Specifications Section 308-4.13.9</p> <p>CDP Condition 5c</p>

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Planting rationale	<i>Salicornia</i> species are the primary candidates for salvage and transplanting. The salvaging of these species will occur from the areas that are impacted by the project and such salvage was requested by the Coastal Commission staff during review of the project. It is expected that pickleweed fragments will resprout if placed in a manner described in the specifications; however, the Contractor may propose modifications to the specifications and may also add nursery grown species from seed collected at San Dieguito Wetlands.	
	Spatial arrangement	The pickleweed fragments shall be distributed over the placement areas by hand. The contractor shall roto-till or disc fragments to a depth of two to four inches.	Construction Specifications Section 308-4.13.10
	Origin of Propagules	Prior to construction, the Contractor shall stake areas within the limit of grading that are designated for salvage pickleweed fragments.	Construction Specifications Section 308-4.13.4, 308-4.13.6, 308-4.13.7
	Soil Salinities	A Wetland Topsoil Amendment Program is proposed for all areas that are between 3.5 and 4.5 ft. The Contractor shall undertake the topsoil amendment program in compliance with the Construction Specifications and provide soil testing to Edison prior to placement of pickleweed fragments or nursery grown species.	Construction Specifications 308-2.5
	Overall Schedule	Pickleweed fragments shall be collected and placed between November 1 st and February 1 st . If another period of time is selected for the transplanting, the Contractor shall prepare a plan to assure that the areas that are transplanted are regularly watered and provide such plan to Edison. The Condition A performance standard requires that cover be similar to reference wetlands. Cover of high marsh vegetation is expected to be suitably established for comparison to reference wetlands within 3 to 4 years after the completion of construction and the re-introduction of tidal exchange.	Construction Specifications Section 308-4.13.3 SONGS Coastal Development Permit (Condition A)

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Location	<p>Seeding of Wetland Herbaceous Plants Seeding of Wetland Herbaceous Plants in high marsh habitat includes fleshy jaumea (<i>Jaumea carnosa</i>), saltgrass (<i>Distichlis spicata</i>), and alkali heath (<i>Frankenia salina</i>). Sea Lavender (<i>Limonium californicum</i>) occurs in San Dieguito Lagoon and may also be considered a good candidate for seeding and planting. Wetland herbaceous seed species shall be placed within the same areas as pickleweed fragments. Within these areas, the wetland herbaceous seed species shall also be placed within the same elevation ranges indicated for pickleweed: 3.5'-4.5'.</p>	Construction Specifications Section 308-4.14, 308-4.14.5 Coastal Commission Feb 3, 2006 letter.
	Planting rationale	<p>The plants listed above require the salinity and moisture levels found in high marsh habitat. The work shall not be started until all earthwork in the area required seeding has been completed and before tidal action has been restored to the planting area. Seeding shall not be done during periods of rain, severe drought, frozen grounds, or other conditions that preclude satisfactory results. All seeding is to be done in moderately dry to moist soil and at a time when wind does not exceed a velocity of ten miles an hour.</p>	Construction Specifications Section 308-4.14.4
	Spatial arrangement	<p>The seed shall be uniformly and evenly distributed by drill seeding over the designated areas at a density that shall achieve a minimum of ten pure live seeds per square foot, as solely determined by the Wetland consultant. Do not exceed six inches between drill rows and use row markers with drill seeder. Perform seeding in two directions, 90 degrees in direction from each other, each direction at half the rate specified. Plant seed to an average depth of 0.25 inch but not deeper than 0.50 inch.</p>	Construction Specifications Section 308-4.14.8
	Origin of Propagules	<p>The Contractor shall purchase or collect seeds or plants for propagation that are collected from wild lands within 50 miles of the San Dieguito site. Sources of seed shall be documented and submitted for approval by the Wetland Consultant. Seed shall not contain in excess of one percent of weed seed. Weeds are defined as any plant species not listed in the plant specifications.</p>	Construction Specifications Sections 212.1.3.7, 212.1.3.8, 212-1.4.10

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Soil Salinity	Contractor to provide soil testing results to Edison prior to initiating planting.	Construction Specifications Submittals required from Contractor (Appendix D)
	Irrigation	The Contractor shall irrigate newly placed pickleweed fragments in the high marsh from the time that fragments are placed until after the first significant rainfall of the rainy season. Irrigation water shall be applied at a rate of 25,000 gallons-per-acre by water truck. The maximum time interval between irrigation applications shall be five days.	Construction Specifications Section 308-4.13.11
	Overall Schedule	<p>Planting of pickleweed fragments and/or nursery grown species shall occur after the wetland topsoil is in place and the final grades are completed. The Contractor will provide a construction schedule for approval by Edison.</p> <p>The Condition A performance standard requires that cover be similar to reference wetlands. Cover of mid-marsh vegetation is expected to be suitably established for comparison to reference wetlands within 3 to 4 years after the completion of construction and the re-introduction of tidal exchange.</p>	<p>Construction specifications Submittal required from Contractor (Appendix D)</p> <p>SONGS Coastal Development Permit (Condition A)</p>

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Location	<p>Planting of Herbaceous Wetland Plants Wetland herbaceous plant species shall be placed within the same areas as pickleweed fragments. Within these areas, the wetland herbaceous plant species shall also be placed within the elevation ranges indicated on the drawings for pickleweed. The Contractor shall stake the following finished grade elevations: 3.5' and 4.5' NGVD. Stakes shall be placed at a minimum interval of fifty feet. Colored flagging attached to the stakes will indicate the upper and lower boundaries for planting herbaceous wetland plants.</p> <p>The Contractor will verify that the species listed above are available and in the quantities that are specified. The Contractor may recommend substitutions and modifications to the herbaceous wetland plant program and must provide a list of the plant species to be planted.</p>	<p>Construction Specifications Section 308-4.15, 308-4.15.4</p> <p>CDP Condition 5b and g</p> <p>Construction Specifications 308-4.1.5.2</p>
	Planting rationale	The plants listed above require the salinity and moisture levels found in High marsh habitat.	
	Spatial arrangement	Plots shall be 20' wide and be spaced evenly throughout the planting areas. Within the planting plots, herbaceous wetland plants shall be planted at spacing of 3'. Containers holding plants shall be at least as large as indicated in the specifications.	<p>Construction Specifications Section 308-4.15.4</p> <p>Grading Plan for San Dieguito wetlands (Revegetation plan figure, pg 65).</p>
	Origin of Propagules	The Contractor shall purchase or collect seeds or plants for propagation that are collected from coastal populations between Palos Verdes peninsula and the Mexican Border. Sources of seed shall be documented and submitted for approval by the Edison. Seed shall not contain in excess of one percent of weed seed. Weeds are defined as any plant species not listed in the plant specifications.	<p>Construction Specifications Sections 212.1.3.7, 212.1.3.8, 212-1.4.10</p> <p>CDP Condition 5a.</p>

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Soil Salinities	At least forty-five days prior to planing herbaceous wetland plants, the Contractor shall test the topsoil within each wetland module for salinity. Soil samples shall be collected in accordance with the recommendations established by the soil laboratory. If soil salinity levels are above the maximum allowable levels (50 ppt) or in the Contractors opinion are not suitable, the Contractor shall delay transplanting until after the next rainy season or until the soil salinity levels drop below the maximum allowable level.	Construction Specifications Section 308-4.15.3
	Overall Schedule	Herbaceous wetland plants shall not be planted until after grading is completed and after tidal action is restored for a period of one year. Tidal influence shall be considered restored when the inlet at the ocean is opened and all other channel inlets are opened that separate the wetland module from the ocean via the San Dieguito River.	Construction Specifications Section 308-4.15.3
Follow-up Maintenance	Irrigation	The Contractor shall irrigate newly placed container plants and seeded areas in the high marsh from the time that fragments are placed until after the first significant rainfall of the rainy season or the areas are sufficiently inundated by tidal action to provide for sufficient soil moisture. Irrigation water shall be applied at a rate of 25,000 gallons-per-acre by water truck. The maximum time interval between irrigation applications shall be five days.	Construction Specifications Section 308-4.13.11
	Weeds	No weeding is required for this area as there are no known weedy nuisance species that are present in this habitat zone. Container planting and seeding will be completed after tidal action is restored and the salinity of the tidal water should inhibit weed establishment. However, should weeds become established in a density that inhibits the growth of container or seeded plants, quarterly weeding in focused areas will be undertaken during the first year.	

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Monitoring	<p>Interim monitoring will be conducted for the containerized plants to determine percent survival after six months. Approximately 10% of the containerized plants will be assessed. Areas where fragments and seeding has occurred will be monitored as percent cover during the time of maximum expected growth(July or August). Cover will be estimated within a 0.25 sq m. quadrats placed along transects throughout the seeded areas. Cover estimates will include species that have been planted (fragments, containerized plants, seeding) as well as natural recruitment.</p> <p>For the long-term monitoring conducted by independent scientists hired by the Commission, the proportions of total vegetation cover and open space in the restored and reference wetlands will be estimated using low-level multi-spectral aerial photography acquired during low spring tides. Because the ability to classify ground cover type based on spectral data varies with weather conditions, ground truthing will be conducted during each aerial survey. To ground truth the photographs, transect lines will be established at selected stations in the restored and reference wetlands that contain a mixture of open space and native vegetation. Cover of open space and vegetation will be estimated within replicate 30x30 cm quadrats to match the resolution of pixels in the aerial photographs. Aerial photographs will be taken once per year in late spring to early summer, which is the period of maximum growth of marsh plants. This period also coincides with maximum flowering of some exotic annual species and will maximize the ability to distinguish between native and nonnative vegetation.</p>	<p>N/A</p> <p>Monitoring Plan: the SONGS Wetland Mitigation Program Section 2.2.4</p>
Achievement of planting program goals	Remedial Actions	Edison, as part of an overall adaptive management program, will evaluate the pickleweed salvage and the wetland herbaceous planting program to determine if additional planting is required to meet the Condition A of the CDP. Edison may alter the density and number of species that are planted or seeded if the data	

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Goal Assessment	The primary means to judge success of natural recruitment will be based on the restoration meeting the performance criteria outlined in the SONGS Permit Condition A: <u>The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The percent cover of algae shall be similar to the percent cover found in reference sites.</u>	
Mitigation Wetland M-45			
Goals of Planting Program		The purpose of the planting program for the Mitigation Wetland M-45 is to comply with the requirements for mitigation to seasonal wetlands impacted by the grading associated with the restoration project. The goal of planting program is to re-establish pickleweed that has been removed from impacted areas and to create vegetated seasonal wetland in accordance with the HMMP submitted to the Corps of Engineers as modified by the Coastal Development Permit Condition 5f.	Final Restoration Plan Section 4.3.1 Habitat Mitigation and Monitoring Plan submitted to the Corps of Engineers (2005). CDP Condition 5f
Planting Program rationale	Locations of Planting	Pickleweed fragments will be placed in the M-45 high marsh habitat. Within specified areas, pickleweed fragments shall be placed within the elevation ranges indicated on the drawings. The elevation range refers to finished grade. Stakes shall be placed at a minimum interval of fifty (50) feet. Elevation benchmarks shall be provided for use in performing these elevation layouts. Alkali weed (<i>Cressa truxillensis</i>) will be planted in wetland M-45, in the same elevation ranges of the pickleweed fragments.	Construction Specifications Sections 308-4.13.9, 304-4.14, 308-4.14.5
	Planting rationale	<i>Salicornia</i> species are the primary candidates for salvage and transplanting as these species were impacted by the grading. The salvaging and placing of pickleweed fragments should help revegetate the area. In addition, <i>Cressa truxillensis</i> salinity and moisture requirements are compatible with conditions in the M-45 wetland as this species is present within the adjacent seasonal wetland reference wetland used for the grading template.	HMMP (Corps of Engineers, 2005)

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Spatial arrangement	<p>The pickleweed fragments shall be distributed over the placement areas by hand. The contractor shall roto-till or disc fragments to a depth of two to four inches. <i>Cressa truxilensis</i> seed shall be uniformly and evenly distributed by drill seeding over the designated areas at a density that shall achieve a minimum of ten pure live seeds per square foot, as solely determined by the Wetland consultant. Do not exceed six inches between drill rows and use row markers with drill seeder. Perform seeding in two directions, 90 degrees in direction from each other, each direction at half the rate specified. Plant seed to an average depth of 0.25 inch but not deeper than 0.50 inch.</p> <p>The Contractor may provide alternative specifications and planting methods based on their experience and knowledge for approval by Edison.</p>	Construction Specifications Section 308-4.13.10, 308-4.14.8
	Origin of Propagules	<p>Prior to construction, the Contractor shall stake areas within the limit of grading that are designated for salvage pickleweed fragments.</p> <p>For <i>Cressa truxilensis</i>, the Contractor shall purchase or collect seeds or plants for propagation that are collected from coastal sites between Palos Verdes peninsula and the Mexican Border. It is preferred that seed or plant material be collected from the project site. Sources of seed shall be documented and submitted for approval by the Wetland Consultant. Seed shall not contain in excess of one percent of weed seed. Weeds are defined as any plant species not listed in the plant specifications.</p>	Construction Specifications Section 308-4.13.4, 308-4.13.6, 308-4.13.7, 212.1.3.7, 212.1.3.8, 212.1.4.10 CDP Condition 5a, c, and f
	Soil Salinities	Wetland topsoil amendments have been specified for this M-45 and the Contractor shall provide soil salinity testing results to Edison prior to planting.	Construction Specifications Section 308-2.5.

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Overall Schedule within years	The Contractor will provide a construction schedule to Edison and will be responsible for assuring that the mitigation area is graded to the elevations specified. Planting will be conducted after approval of the grading by Edison. Pickleweed fragments shall be collected and placed between November 1 st and February 1 st . If another period of time is selected for the transplanting, the Contractor shall prepare a plan to assure that the areas that are transplanted are regularly watered and provide such plan to the Wetland consultant.	Construction Specifications Section 308-4.13.3
Follow-up Maintenance	Irrigation	The Contractor shall irrigate the newly placed pickleweed fragments and seeded areas from the time that fragments are placed until after the first significant rainfall of the rainy season. Irrigation water shall be applied at a rate of 25,000 gallons-per-acre by water truck. The maximum time interval between irrigation applications shall be five days.	Construction Specifications Section 308-4.13.11
	Weeds	Weeding is not anticipated; however, should the performance standards not be met by impairment of habitat by exotic or nuisance species, weeding would be conducted as a remedial measure. The Coastal Commission requires that no more than 5% cover by non-native species be met. Weeding would be done during the first year on a quarterly basis in areas that are being impaired by nuisance species.	HMMP (Corps of Engineers 2005) Coastal Commission (2006)

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Monitoring	The vegetation community will be sampled once annually for 5 years or until final success criteria are achieved using permanently established transects. The number of transects and sample quadrats will be sufficient to detect biologically significant differences with 90% power and alpha of 0.1. (Details on the number of transects and sample number are provided below this table). Vegetation establishment will also be monitored qualitatively by photographing the mitigation and reference wetlands annually from permanent photo-documentation stations at one or more locations in the mitigation wetland and in the reference wetland. The existing seasonal marsh area adjacent to the south will be used as a reference wetland (referred to as "S-2" on Figure 3.4-1 in the EIR). Hydrology of the mitigation wetland will be monitored during the rainy season to ensure that it is functioning hydrologically as a seasonal wetland. Descriptive data concerning plant health, survival of transplants, presence of non-wetland plant species within wetland areas, and cover by exotics will also be recorded. Edison will be responsible for the monitoring in accordance with the conditions set forth in the HMMP by the Corps of Engineers.	HMMP (Corps of Engineers 2005) Coastal Commission (2006)
Achievement of planting program goals	Remedial actions	Replanting as necessary to meet the mitigation performance standards set forth in the Corps of Engineers HMMP (2005)	HMMP (Corps of Engineers 2005).
	Goal assessment	Cover similar to the seasonal wetland reference marsh adjacent to —45, providing the cover of weeds is no more than 5%. The reference seasonal marsh is located immediately to the south of M-45 and is referred to as "S-2" on Figure 3.4-1 in the EIR. Elevation and plant community composition data collected at this wetland area were used to determine appropriate elevations and species composition in the adjacent mitigation area.	HMMP (Corps of Engineers 2005)

ELEMENT OF PLANTING PROGRAM	DESCRIPTION		SOURCE
Berms and Upland Disposal Areas			
Goals of Planting Program		<p>The purpose of the planting program for the berms and upland disposal areas is to utilize native vegetation to provide erosion control for the berms and upland disposal sites utilizing native grasses and coastal sage scrub species. The measures proposed are based on the City of San Diego's Erosion Control Guidelines contained in the City's Landscape Technical Manual (City of San Diego 1989), as well as from the Best Management Practices Manual (BMP 1993).</p> <p>The restoration of upland habitat is addressed in the draft Park Master Plan for this area, and would be undertaken by the JPA or other entity when funds are identified to facilitate its implementation.</p>	<p>Final Restoration Plan Sections 4.3.1, 4.2.8</p> <p>San Dieguito EIR/EIS Sec. 2.3.1.2.3</p> <p>CDP Condition 5b</p>
Planting Program rationale	Locations of Planting	Planting of a mixture of native grasses and coastal sage scrub species will occur along the upper slopes of the berms. In upland disposal areas, the re-vegetation effort would consist primarily of applying specified native plant hydroseed mixes on prepared slopes	San Dieguito EIR/EIS Sections 2.3.1.2.2, 2.3.1.7.3
	Planting rationale	<p>Hydroseeding on the berms and upland disposal areas will limit erosion on slopes less steep than 3:1. Native plant mixes for hydroseeding in the disposal areas have been selected based on compatibility with native vegetation growing on adjacent lands and to encourage native vegetation on these areas for wildlife cover.</p> <p>County of San Diego and City of Del Mar erosion control practices only require containerized plants on slopes steeper than 3:1. The project design was modified to eliminate any slopes steeper than 3:1 so that hydroseeding could be used.</p>	San Dieguito EIR Sections 2.3.1.2.2
	Spatial arrangement	All exposed areas will be hydroseeded as necessary to provide erosion control.	Erosion Control Plan

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
	Origin of Propagules	The Contractor shall purchase or collect seeds or plants for propagation that are collected from coastal lands between Palos Verdes and the Mexican border. Sources of seed shall be documented and submitted for approval by the Wetland Consultant. Seed shall not contain in excess of one percent of weed seed. Weeds are defined as any plant species not listed in the plant specifications.	Construction Specifications Sections 212.1.3.7, 212.1.3.8, 212-1.4.10
	Soil Conditions	Parameters that could affect plant species choice within a given area include soil pH, salinity, nutrient composition, organic matter composition, soil texture and percent sand. Appropriate amendments would be added as required to ameliorate unfavorable soil conditions. The Contractor will utilize upland topsoils by stockpiling suitable topsoils from the disposal sites and will provide testing of the upland topsoils as specified	San Dieguito EIR 2.3.1.7.3 Construction Specifications 308-2.4.2
	Overall Schedule	Hydroseeding will occur to provide for erosion control and may be conducted throughout the construction period. However, a final hydroseeding will be conducted at the completion of the final accepted grades for the disposal areas and the berms.	
Follow-up Maintenance	Irrigation	For protection of slopes and channels, berms shall be irrigated lightly by water truck for 90 days or until 70% cover is achieved prior to the on-set of the rainy season.	Grading Plan for San Dieguito wetlands (Erosion Control Plan figure, pg 51).
	Weeds	Mulching with straw mulch or oak wood/leaf fibers may be required in some areas where slopes are less than 6:1. Straw mulch would be uniformly spread at the rate of two tons per acre. Shredded wood products, if used, would be uniformly spread to a minimum depth of two inches. JPA will oversee a volunteer weed management program.	San Dieguito EIR 2.3.1.7.3
	Monitoring	Visual monitoring of berms and disposal areas for erosion prevention purposes is to be conducted monthly for the first quarter after initial hydroseeding or until germination, then quarterly through Year 1, and annually thereafter. Stabilization: All planted slopes and other vegetated areas shall be inspected prior to October 1 of each year and after major rainfall events (more than ½ inch) and shall be repaired and replanted as needed. Eroded slopes will be monitored and repaired by the contractor.	Grading Plan for San Dieguito wetlands (Erosion Control Plan figure, pg 51).

ELEMENT OF PLANTING PROGRAM		DESCRIPTION	SOURCE
Achievement of planting program goals	Remedial actions	Revegetation will be completed as needed to control erosion. Areas will be inspected as needed to meet erosion control requirements; mulch or jute matting will be used to address emergency needs. Areas will be re-hydroseeded if germination is not occurring as needed.	
	Goal assessment	All soil disturbing activities are complete when either of the two following criteria are met: a uniform vegetative cover with 70% coverage has been established, equivalent stabilization measures have been employed, or these measures include the use of such BMP's as blankets, reinforced channel liners, soil cement, fiber matrices, geotextiles, or other erosion resistant treatments. Where background native vegetation covers less than 100% of the surface, such as arid areas, the percent coverage criteria is adjusted as follows: If native vegetation covers 50% of the ground surface, 70% of 50% would require 35% total uniform coverage.	Grading Plan for San Dieguito wetlands (Erosion Control Plan figure, pg 51).

Tentative Planting Schedule

The planting program for San Dieguito Lagoon is subject to the overall construction schedule. A final schedule will be developed by the contractors once the permits have been issued for the project. In addition, once the project is initiated, permit conditions, biological restrictions, and weather constraints may also result in alterations of the project schedule. The planting program is the last element of the construction, after the soil amendments have been added, the final grade established, and once tidal inundation is possible to sustain the vegetation. Optimal planting is during the winter and spring when temperatures are cooler and winter rains can contribute to soil moisture. It may also be desirable to allow for a period of inundation to occur to allow for soil moisture to increase and any initial sedimentation or erosion to occur. Throughout the contract, the contractor is required to prepare a number of submittals and demonstrations that the techniques and procedures specified are appropriate and effective in meeting the planting specifications. These submittals will be used to re-evaluate the planting program and may affect the overall schedule. Changes in the planting program will be evaluated through discussions with SCE and the contractor with the objective of meeting the contract and permit requirements.

The tentative construction schedule assumes that clearing and grubbing is to begin in November 2006. Earth moving activities are anticipated to last approximately one year. During the earthwork phase, the planting contractor will begin to cure and store collected seed, propagate container stock, and prepare the necessary submittals for review. It is the goal of the planting contractor to have all of the necessary container stock, seed, and soil amendments prepared and on hand when each restoration module is ready for planting.

The areas being prepared for planting will be completed with topsoil placement beginning in January 2008. Planting of coastal salt marsh species within these areas would be delayed until the following winter/spring season and would not be implemented before November 2008. This delay would allow for planting to occur during the optimum time period for coastal salt marsh plant species and also allow for nearly a year of tidal flushing activity prior to planting. Planting schedules will be carefully planned around the tidal cycle such that work will not be conducted when the designated planting area is submerged. Given these constraints, planting of all modules should not take more than two to three months. Under the tentative schedule provided, it is anticipated that all plantings will be completed by the end of spring 2009.

Weed Management Plan

The JPA will oversee a volunteer weed management program; groups which have expressed interest in participating include the Friends of the San Dieguito River. To address monitoring and weeding of upland disposal area and berms, SCE contract biologists will train and supervise JPA-provided volunteers. The volunteers will monitor these areas monthly during the first year after planting, and remove weeds as needed under SCE/JPA supervision. Monitoring and weeding will reduce to quarterly thereafter, and will be continued until intended vegetation is well-established, as designated by the SCE contract biologist. The SCE biologist will also have the authority to extend monthly the monitoring/weeding period, or end it sooner, if

conditions warrant.

Target plant species in uplands will include herbs, perennial grasses, shrubs, and trees listed by the California Invasive Plant Council as either High or Moderate (Cal-IPC 2006). Non-native annual grasses will be removed along with other species, if possible; however, annual grasses will not be target species for removal efforts.

High and transitional marsh areas will also be monitored monthly to annually, according to the above schedule, by SCE contract biologists. Target species in these areas will include the same upland weeds targeted for upland sites, including various species of iceplant (*Carpobrotus* spp.; *Mesembryanthemum* spp.). Control activities will be undertaken as needed.

Upland weeds are not expected to become a problem in frequently inundated areas, such as low and middle marsh habitats. However, non-native marsh species, such as Algerian sealavender (*Limonium ramosissimum*) and invasive and exotic species of cordgrass (*Spartina* spp.) have potential to become established in these areas. Inspections for invasive and exotic marsh species will be conducted by SCE contract biologists during the annual monitoring. If found, control measures appropriate to the habitat and the specific target plant will be undertaken.

Adaptive Management

The planting program is designed to supplement natural recolonization within the wetland restoration area and to provide erosion control in the upland area surrounding the wetlands. In addition, the planting program includes transplanting of cordgrass (*Spartina foliosa*), a species that occurs only in small amounts in San Dieguito Lagoon. It is thought that this species would not readily colonize the wetland without an active management program.

The four performance measures related to wetland vegetation are contained in the Condition A of the SONGS permit:

- the restored wetland shall have a *Spartina* canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over three feet tall
- the proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The percent cover of algae shall be similar to the percent cover found in reference sites.
- Certain plant species, as specified by the work program, shall have demonstrated reproduction (i.e. seed set) at least once in three years.

- the important functions of the wetland shall not be impaired by exotic species

Adaptive management will be directed towards achieving these success criteria within the wetland areas. Because vegetation establishment is a gradual process that is expected to occur over several years, the success criteria will not be met within the initial establishment period. Therefore, the trend towards meeting the performance criteria will need to be monitored and any potential problems affecting the trend can then be addressed. The Coastal Commission has hired independent monitors and a monitoring program has been developed to determine if the success criteria are met. It is expected that annual reports prepared by the independent monitors will discuss areas of deficiency that should be considered. Therefore, the adaptive management program described here is focused solely on those issues that would relate to immediate problems that may affect ultimately meeting the performance criteria. Not all potential problems are considered as it is not possible to know all the issues that may affect vegetation establishment and spread; however, based on experience elsewhere several areas will be closely assessed and are summarized in the Adaptive Management Table.

ADAPTIVE MANAGEMENT MEASURES			
Potential Problem	Issues to consider	Monitoring	Potential Response
Elevations not appropriate for plant species expected in this zone.	Contractor error in grading. Erosion or sedimentation may alter elevations such that the species expected do not become established, e.g. site below elevations suitable for plants or above tidal action	Contractor will be monitored to assure that initial grade is as planned. Subsequent topographic observations and tidal inundation being conducted by independent monitor.	May allow site to adjust to natural ebb and flow of tide; if erosion or sedimentation substantial such that it would affect more than 10% alteration of habitat types, grading adjustments will be necessary

ADAPTIVE MANAGEMENT MEASURES			
Potential Problem	Issues to consider	Monitoring	Potential Response
Expected soil characteristics change after tidal action is introduced	<p>Soil amendments may not be sufficient or are changed by tidal inundation.</p> <p>Soil salinity increases in higher elevations</p>	<p>Contractor to provide documentation at completion of amendments that specifications are met.</p> <p>If plant growth inhibited, soil sampling program will be initiated at locations of poor establishment.</p>	<p>Tidal flushing may eventually allow for balance to be achieved such that natural recolonization occurs.</p> <p>If soil salinities become too high, irrigation of those areas where salinity is too high would occur.</p>
Planted species do not survive	<p>Species not viable after planting due to poor plant material or planting procedures</p> <p>Soil conditions not suitable when planting occurs</p> <p>High wind, low humidity conditions (i.e. 'Santa Ana winds') occur after the first seasonal rain causing excessive dessication to plant material.</p>	<p>Contractor to demonstrate planting procedures prior to full scale planting and provide species for inspection prior to transplanting on site. Planting procedures to be documented by contractor</p> <p>Soil sampling to be conducted prior to planting to demonstrate that soil salinities and other properties are within suitable range. If plants die after planting, soil testing will be done to determine if soil conditions have changed.</p> <p>Monitoring of weather forecasts during 6 months after first rainy season.</p>	<p>May hold some plant material in reserve for replanting using different techniques or at different times of the year. Since planting will be done in phases, can use experience gained in later phases.</p> <p>Irrigation may be used to bring down salinities; if that is not successful, may need to develop pilot testing methods to determine additional soil amendments to maintain soil moisture and reduce salinity build-up.</p> <p>If Santa Ana conditions occur, irrigation shall be applied to alleviate potential dessication.</p>

ADAPTIVE MANAGEMENT MEASURES			
Potential Problem	Issues to consider	Monitoring	Potential Response
Natural recruitment is not occurring as expected	<p>Limited seed source available to the site</p> <p>Recruitment taking longer than expected due to climatic conditions</p> <p>Soil conditions or tidal inundation not suitable for seedling germination and growth.</p> <p>Once established, growth rates (and spread) are not as expected.</p>	<p>Independent monitors will be conducting vegetation cover studies and transect studies to assess whether cover is increasing. This will provide information on cover due to natural recruitment and by planted species.</p> <p>Compare establishment timing to aerial photographic monitoring of vegetative cover done at Batiquitos Lagoon and Bolsa Chica. If slower than those sites, action may be warranted.</p>	<p>If substantial natural recruitment is not occurring within 2 to 3 years, action may be taken to increase planting effort using additional propagules from areas with previously transplanted species. Prior to planting certain areas, soil sampling will be undertaken to determine if soil parameters are outside suitable range.</p>
Cordgrass not surviving and/or reaching required height	<p>Elevations not suitable where species is planted</p> <p>Tidal inundation is not occurring</p> <p>Soil conditions are not suitable for growth</p>	<p>Elevations to be checked by contractor following grading; topographic changes to be monitored by independent monitor</p> <p>Tidal exchange to be monitored by independent monitor. If tidal restrictions occurring that affect cordgrass growth or spread.</p> <p>The most likely problem would be a nitrogen deficiency—therefore, soil nitrogen would be monitored.</p>	<p>If more than 10% habitat change; may need to regrade new areas.</p> <p>Inlet management will occur to correct problem.</p> <p>Potential fertilizer addition or other soil amendment procedure</p>
Algal mats too limited or too extensive	Assumed that open space (mudflat) will represent that areas colonized by micro-algal mats.	Monitoring of mudflat areas by independent monitors using aerial photography.	Adjust cover by vascular plants as described above.

ADAPTIVE MANAGEMENT MEASURES			
Potential Problem	Issues to consider	Monitoring	Potential Response
Invasion by exotic species in wetland areas	Invasive species that could affect ecological function in the wetland are becoming prevalent.	Monitoring for selected targeted species to be conducted by independent monitors as well as by Edison contractor during construction	Undertaken weeding program appropriate to the species of concern. Reduce irrigation if invasives encouraged by freshwater
Erosion of upland areas affecting wetland or integrity of berms	Hydroseeding not complete Grading promotes water flow to one location where erosion is increased	Regular inspection of the disposal areas during and after construction for areas of erosion	Repairs made as needed and reseeded with erosion control mix. Repairs of best management features such as water bars and erosion control features.

Appendix A

California Coastal Commission Planting Plan Guidance for Special Condition #5

February 3, 2006



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February 3, 2006

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Mr. Chris Knopp
Project Design Consultants
701 B Street, Suite 800
San Diego, CA 92101

Re: **Planting Plan Guidance for Special Condition #5**

Dear David and Chris:

As staff has discussed with you, we have determined that the planting program section of the revised November 2005 Final Restoration Plan submitted in compliance with Coastal Development Permit #6-04-88 Special Condition #1 is insufficient to meet the requirements of Special Condition #5. Further, our review of the final plans approved by the Cities of Del Mar and San Diego submitted in compliance with Special Condition #3, #4, and #5 indicates that with regard to the planting program, the final plans also do not provide adequate information for compliance with Special Condition #5.

Provided that the changes already discussed are made to the Final Restoration Plan, we will not require further revisions in the FRP for the planting plan. Additionally, it is not our intent to require planting program changes on the city-approved plans. (Please note, however, that our review of the final city-approved plans is not yet complete and there may be other issues that must be addressed.) Instead, we will accept a stand-alone planting plan, and we offer the following guidance for its preparation.

**Guidance for Developing a Planting Plan
for the San Dieguito Lagoon Wetland Restoration Project**

There are two basic purposes for the planting plan. The first is to provide enough detail to guide implementation of the plan and to enable adaptive management that will increase the likelihood of the planting being a success. As such, the planting program should include goals, methods of implementation, planting palette, planting quantities, and measures of assessing performance. The second is

to provide criteria and a monitoring approach that will enable an evaluation of whether the planting goals have been met. The permit applicant is responsible for the success of the restoration, and the planting is being undertaken to insure that the vegetation performance standard of the SONGS permit (CDP #6-81-330) is met. Although monitoring the success of the planting program is not the same as monitoring vegetative performance of the SONGS permit requirements, a successful planting program will help to insure that the restoration is functioning as expected and that the SONGS permit requirements will be met.

The planting plan should include the following elements:

- A statement of qualifications for the individual(s) who serve as the planting program manager. The planting manager should be a qualified restoration biologist.
- A clear statement of planting program goals (e.g., targets for coverage or plant densities and the expected time to achieve these results).
- Planting program and rationale:
 - Provide the locations of planting (e.g., low, mid and high marsh and transitional or seasonal salt marsh habitats, and upland habitats, e.g., upland slopes of berms and disposal sites) and elevation ranges within habitats designated for planting.
 - Provide a list of species being planted at specific locations and the rationale for why particular species are planted in specific places. The species proposed for planting should be planted at elevations where they successfully occur now in the lagoon. There may also be other considerations related to microhabitat conditions such as soil drainage and salinity. The species list presented in the planting and grading plans is generally acceptable, but we suggest two changes. First, *Limonium californicum* (sea lavender) occurs in San Dieguito Lagoon and is a good candidate for seeding and planting. We recommend its inclusion in the planting program. Second, *Batis maritima* (saltwort) is currently found only in the lower intertidal in the Fish and Game Basin. We suggest reducing the contribution of *Batis* in the planting program since the availability of this plant for propagation will be limited.
 - Provide information on the spatial arrangement of plantings within habitats that includes plant spacing, planting depths, seed application rates, and the rationale for the spatial arrangement of plantings and ratios of seed applied for each species.

- Provide the rationale for planting fragments or seedlings (in pots) versus seeding for various species, including coastal sage scrub.
- Provide information on the origin of propagules (seeds and fragments). As noted in the planting program in the Final Restoration Plan, it is important to specify that seeds and fragments will be collected from San Dieguito Lagoon where possible, and from the nearest wetlands if materials are not available at San Dieguito.
- Provide methods for container (i.e., potted) plants. The plan should specify methods for the conditioning of nursery grown plants to insure appropriate root structure for out-planted potted plants and tolerance of field salinities.
- Provide information on acceptable soil salinities for seed germination and the survival and growth of seedlings and nursery grown plants in the field and plans for dealing with unacceptable salinities.
- The overall schedule and timing of planting within years should be specified.
- Follow-up maintenance of plantings:
 - Provide information on whether irrigation by fresh or seawater of the planted area is anticipated, how it will be implemented, and at what frequency.
 - Provide a plan to control weeds in the planted area.
 - Provide information on monitoring of the planting area to ensure seeding and nursery grown plant establishment. In general, monitoring should be monthly until plants are established and quarterly thereafter.
- Achievement of planting program goals:
 - Provide information on how the planting program goals will be assessed, interim performance goals, and schedule.
 - Provide information on any remedial actions (adaptive maintenance) that might have to be taken (e.g., re-planting or re-seeding) and the triggers for such actions.

Dr. David Kay and Mr. Chris Knopp

February 3, 2006

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The restrictions and specifications of Special Condition #5a-5g need to be reflected in the planting plan as well. If you have any questions regarding this guidance or what is needed in the planting plan, please contact Mark Page, Steve Schroeter or John Dixon directly.

We understand that there is already considerable detail on how the contractors intend to do the work; we simply need to have the planting program formalized in writing before we can sign off on compliance with Special Condition #5. Thank you for taking care of this important step to complete the project documents required for permit issuance.

Sincerely,



Susan M. Hansch

Chief Deputy Director

cc: Samir Tanious
Susan Carter
Gordon Lutes
Bruce McIntyre
Sherilyn Sarb
Lesley Ewing
John Dixon
Steve Schroeter
Mark Page
Dan Reed
Jody Loeffler

Appendix B

Special Provisions/Plantig Specifications



Appendix B

SPECIAL PROVISIONS – Planting Specifications

NOTE: The following sections are an excerpt of the Special Provisions for the San Dieguito Wetlands Restoration Project

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PART II

SPECIAL PROVISIONS - CONSTRUCTION MATERIALS

PART II SHALL CONFORM TO PART II OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENT AMENDMENTS, EXCEPT FOR THE FOLLOWING CHANGES AND/OR ADDITIONS:

SECTION 212 – LANDSCAPE AND IRRIGATION MATERIALS

212-1.3 Seed

ADD:

212-1.3.1 Rare Plant Seed

The Contractor shall furnish seed for several rare plants. All of these species have been found on-site previously. The Contractor shall furnish seed for red sand verbena (*Abronia maritima*). Red sand verbena is a perennial herb and is currently growing in one location on-site.

The Contractor may also be required to furnish seed for southern tarplant (*Centromadia parryi* ssp. *australis*) and Coulter's goldfields (*Lasthenia glabrata* ssp. *Coulter*). During the earlier implementation phase of project, the Wetland Consultant will perform a site survey to determine the presence or absence of these species. If these species are found, then the Contractor shall furnish seed for these species.

212-1.3.2 Plant Species Identification

Plant species identification shall be in accordance with The Jepson Manual: *Higher Plants of California*, James C. Hickman, editor, University of California Press, Berkeley.

212-1.3.3 Seed Rates and Estimated Quantities

The drawings indicate the seeding rates for each species. The drawings also contain estimates of the required seed quantities. Seed quantities are provided as a convenience to the Contractor and do not supercede the quantities calculated directly from the drawings.

212-1.3.4 On-site Source for Rare Plant Seed

The Contractor shall collect seeds from the locations indicated on the plans. These are locations where the plants were found during prior plant surveys.

212-1.3.5 Off-site Source for Rare Plant Seed

The Contractor may propose alternative sources for seed if the on-site source is unavailable. Purchased seeds shall be collected from wild lands within 50 miles of the San Dieguito site. Alternative sources of seed shall be approved by the Wetland Consultant.

212-1.3.6 Criteria for Accepting Seed

Seed shall be supplied on the basis of Pure Live Seed (PLS).

1. The seed shall be from crops that are one (1) year old or less.
2. All seed shall be cleaned/threshed/screened to remove the fruiting bracts, scales, floral parts, awns, perigynia, and other non-seed debris to the maximum practicable extent.
3. Unless otherwise specified, seed shall not contain in excess of one percent (1%) of weed seed. Weeds are defined as any plant species not listed in the plant specifications.
4. Analysis sampling and testing of the seed and seed tag labeling requirements shall be in accordance with the Rules and Regulations of Testing Seeds adopted by the Association of Official Seed Analysis (1984).
5. Seed bags shall be labeled and labels shall indicate certified net weight, date of germination tests, supplier's name, and certified guarantee of analysis including the composition, purity, and germination percentages, and percent weed seed. At the time of delivery the germination test shall be less than nine months old.
6. The seed shall be supplied as single species. Seed bags shall be delivered to the site unopened.
7. The Contractor shall be solely responsible for the storage of seed according to the best seed storage practices. Seed shall be kept dry and unopened until needed for use.

ADD:

212-1.3.7 Wetland Herbaceous Seed

The Contractor shall furnish seed for wetland plants. The Contractor shall furnish seed for fleshy jaumea (*Jaumea carnosa*), saltgrass (*Distichlis spicata*), and alkali heath (*Frankenia salina*).

1. Off-site Source for Wetland Seed

The Contractor purchase or collect seeds collected from wild lands within 50 miles of the San Dieguito site. Sources of seed shall be documented and submitted for approval by the Wetland Consultant.

212-1.3.8 Criteria for Accepting Wetland Herbaceous Seed

1. Seed shall be supplied on the basis of Pure Live Seed (PLS).
2. The seed shall be from crops that are one (1) year old or less.
3. All seed shall be cleaned/threshed/screened to remove the fruiting bracts, scales, floral parts, awns, perigynia, and other non-seed debris to the maximum practicable extent.
4. Unless otherwise specified, seed shall not contain in excess of one percent (1%) of weed seed. Weeds are defined as any plant species not listed in the plant specifications.
5. Analysis sampling and testing of the seed and seed tag-labeling requirements shall be in accordance with the Rules and Regulations of Testing Seeds adopted by the Association of Official Seed Analysis (1984).
6. Seed bags shall be labeled and labels shall indicate certified net weight, date of germination tests, supplier's name, and certified guarantee of analysis including the composition, purity, and germination percentages, and percent weed seed. At the time of delivery the germination test shall be less than nine months old.
7. The seed shall be supplied as single species. Seed bags shall be delivered to the site unopened.
8. The Contractor shall be solely responsible for the storage of seed according to the best seed storage practices. Seed shall be kept dry and unopened until needed for use.

212-1.4 Plants

212-1.4.1 General

ADD:

Plant species identification shall be in accordance with The Jepson Manual: *Higher Plants of California*, James C. Hickman, editor, University of California Press, Berkeley.

The Contractor shall determine the required number of plants based on the area to be planted, the elevation range for planting, the size and distribution of the planting plots, and the plant spacing.

ADD:

212-1.4.7 Live Pickleweed Fragments

Pickleweed shall be *Salicornia virginica*. A live pickleweed fragment shall be defined as a plant fragment that has a minimum length of four (4) inches and a maximum length of seven (7) inches. In addition, the fragments shall have at least five (5) intact contiguous vegetative segments.

212-1.4.8 Cordgrass

Cordgrass shall be *Spartina foliosa*. No other species of cordgrass can be used for this project. The Contractor is prohibited from collecting or planting *Spartina alterniflora* or its hybrid.

1. Bare-root Plants - Cordgrass

The contractor shall collect and transplant bare root plants. Bare root plants shall have a minimum rhizome length of three (3) inches. The rhizome shall contain an intact root system and at least one live culm and one live bud.

2. Plant Quantities - Cordgrass

The Contractor shall calculate plant quantities based on the area to be planted, the on-center spacing, and the plot-size and plot-spacing. The Contractor shall use triangular spacing when calculating plant quantities. The drawings contain estimates of the plant quantities required for this section. Plant quantities are provided as a convenience to the Contractor and do not supercede quantities calculated directly from the drawings.

3. Collection Sites - Cordgrass

Plants shall be collected from the Batiquitos Lagoon or the Tijuana Estuary or other geographic locations *no further north than the City of Oceanside, CA*. Prior to commencement of work, the Contractor will consult with the California Department of Fish and Game and US Fish and Wildlife to gain approval for collection from one of these collection sites or demonstrate that such approval is not necessary. The Contractor will be given the specific locations and limitations as to where plants can be collected.

4. Plant Fertilizer - Cordgrass

Osmocote, or accepted equal. Depending on the planting season, fertilizer shall have the following ratio of nitrogen, phosphorous, and potassium, and the following formulation: 1) summer, 19-6-12, three/four-month release; 2) spring, 8-6-12, twelve/fourteen-month release; 3) fall, 18-5-11, fourteen-month release.

5. Planting Staples – Cordgrass

Plant staples shall be 7” 9-gauge erosion control staples.

212-1.4.9 Red Sand Verbena

Red sand verbena shall be *Abronia maritima*. Red sand verbena plants exist on site in the locations indicated in the drawings. Plants shall be salvaged as whole red sand verbena plants including the taproot.

1. Species, Size, and Spacing – Red Sand Verbena

Species and spacing are specified in the plant legends on the drawings. The Contractor shall field collect whole red sand verbena plants with the taproot intact.

2. Plant Quantities – Red Sand Verbena

The drawings contain estimates of the plant quantities required for this section. Plant quantities are provided as a convenience to the Contractor and do not supercede the quantities calculated directly from the drawings.

3. Collection Site - Red Sand Verbena

The drawings indicate the location within the project site for collecting red sand verbena.

ADD:

212-1.4.10 Wetland Herbaceous Plants

Wetland plant species shall be turtleweed (*Batis maritima*), shoregrass (*Monanthochloe littoralis*), and pickleweed (*Salicornia subterminalis*).

1. Off-site Source for Wetland Herbaceous Plants

The Contractor purchase or collect seeds or plants for propagation that are collected from wild lands within 50 miles of the San Dieguito site. Sources of seed shall be documented and submitted for approval by the Wetland Consultant.

2. Planting Locations for Wetland Herbaceous Plants

The Contractor shall plant Wetland Herbaceous Plants in the areas indicated on the drawings as Pickleweed – 1, Pickleweed – 2, Pickleweed – 3, Pickleweed – 4, Pickleweed – 5, and Pickleweed – 6. Wetland herbaceous plants shall be planted in 20' by 20' plots evenly spaced throughout the planting areas.

3. Species, Size, Spacing, and Quantity – Wetland Herbaceous Plants

The species, size, and spacing are as indicated in the drawings.

SPECIAL PROVISIONS

PART III - CONSTRUCTION METHODS

PART III SHALL CONFORM TO PART III OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENT AMENDMENTS, EXCEPT FOR THE FOLLOWING CHANGES AND/OR ADDITIONS:

SECTION 308 – LANDSCAPE AND IRRIGATION INSTALLATION

308-2 EARTHWORK AND TOPSOIL PLACEMENT

ADD:

308-2.6 Furnish and Install Seed Bank Topsoil

This section applies to topsoil salvage from areas where the following species are growing: southern tarplant (*Centromadia parryi* ssp. *australis*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), and pickleweed (*Salicornia virginica*). Southern tarplant (*Centromadia parryi* ssp. *australis*) and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) are rare plants.

308-2.6.1 Related Sections

1. Submittal 212-1.8 Procedures: Section 2-5.3
2. Excavate, Stockpile & Place Upland Topsoil: Section 308-2.4
3. Seedbank Topsoil Section

308-2.6.2 Procedure for Submittals

In accordance with Part I, Section 2-5.3, Submittals.

308-2.6.3 Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the drawings and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

308-2.6.4 Salvage and Placement Plan – Seed Bank Topsoil

Thirty days prior to the commencement of work, the contractor shall submit a salvage and placement plan for topsoil with rare plant seed.

The Contractor shall prepare a memorandum that provides specific information as to how the Contractor plans to implement the salvage and placement of topsoil with seed bank. The plan shall contain a schedule showing the staging of each wetland module, the location of soil stockpiles, estimated storage times, and an indication of the hauling routes that will be utilized. The plan shall identify any scheduling or staging conflicts and recommend solutions. The plan shall also describe the equipment to be utilized to excavate, transport and place the topsoil. The Contractor shall make every effort to handle topsoil in an efficient manner and maximize success.

308-2.6.5 Layout of Salvage Areas for Seed Bank Topsoil

Prior to construction, the contractor shall stake areas within the limit of grading that are suitable for salvaging seed bank topsoil of specified plant species. Allowable areas for salvage are indicated on the drawings.

The Contractor shall stake the boundary of the salvage areas. Stakes shall be located at 50' intervals and clearly marked with colored flagging. The selected color for flagging shall be consistent throughout the project and different from typical grade stakes.

The Wetland Consultant must review and approve the layout for salvage of seed bank topsoil with the specified species prior to salvage. The Wetland Consultant may adjust the boundary of the salvage area in order to exclude areas that do not contain the specified species, expand the area to include additional plants, or exclude areas that contain unwanted upland or non-native plant species.

308-2.6.6 Preparation of the Salvage Area

Before collecting seed bank topsoil, the Contractor shall clear and grub all woody shrubs and trees including roots from the collection areas. The Contractor shall roto-till the salvage area unless otherwise directed by the Wetland Consultant. The areas shall be tilled to a depth equal to that of the depth of collection.

308-2.6.7 Excavation – Seed Bank Topsoil

Topsoil shall be excavated from the areas within the limit of grading designated on the drawings. Excavation outside those areas depicted on the drawings and/or approved by the Wetland Consultant shall not be allowed. Excavation shall be conducted in a manner that prevents undesirable materials from entering into the excavated areas. Seed bank topsoil shall be excavated to a depth indicated on drawings. The tolerance for depth is \pm one (1) inch.

308-2.6.8 Hauling – Seed Bank Topsoil

The Contractor shall transport soil with seed via haul roads that are indicated on the drawings and in accordance with the project specifications for transporting soil materials on-site.

308-2.6.9 Stockpiling – Seed Bank Topsoil

If the Contractor needs to store seed bank topsoil onsite, then he or she shall store this material in one of the designated staging areas. Management of the stockpile areas is defined in the project specifications Section 300-2.7. The Contractor shall store seed bank topsoil such that each species is kept separate, except where species are growing together naturally. Seed bank topsoil shall be stored separately from all other types of soil.

308-2.6.10 Layout of Placement Areas for Seed Bank Topsoil

The drawings specify where to place topsoil with seed bank. Within these areas, seed bank topsoil shall be placed within the elevation ranges specified on the drawings. The elevation range refers to finished grade.

308-2.6.11 Stake Finished Grade Elevations

The contractor shall stake the finished elevations for placement of seed bank topsoil. Stakes shall be placed at a minimum interval of fifty (50) feet. The contractor shall use 1"x1" wood stakes. The Contractor shall layout the placement of seed bank topsoil in one entire wetland module at a time. When requested by the Wetland Consultant, the contractor shall demonstrate that the placement areas are located within the specified elevation range.

In a manner that is consistent throughout the project, the Contractor shall attached colored flagging to the stakes. The flagging should indicate the upper and lower boundaries for placing seed bank topsoil and distinguish these areas from the Cordgrass planting areas.

308-2.6.12 Placement of Seed Bank Topsoil

The seed bank topsoil shall be placed at a depth indicated on drawings. The seed bank topsoil shall not be compacted.

308-2.6.13 Access Restriction

After seed bank topsoil is placed, the Contractor shall restrict access of vehicles and earth-moving equipment from the area. In order to restrict access to the placement areas, the Contractor shall install orange construction fence along the upland edge of the placement areas where they are adjacent to haul roads. The Contractor shall post the area as restricted access and indicate that it is a sensitive habitat area. The fence shall be

placed a minimum of ten (10) feet from the upper elevation limit of these areas. Signs indicating restricted access shall be located along the outside of the fence and be placed at a minimum interval of 150 yds. The fence shall be removed when the Contractor has completed all construction activities one thousand (1,000) feet of the wetland module. The signs shall be removed at the completion of the project. The Contractor shall repair any and all damage to these areas from construction-related activities. These repairs shall be made at no additional expense to the Owner.

308-2.6.14 Cleanup

Upon completion of work within each wetland module, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-2.7.15 Measurement

The quantity of accepted and approved seed bank topsoil will be measured on a cubic yard basis per actual volume of seed bank topsoil placed as specified. Cubic yard basis will be measured by surveying cross sections of the stockpiled areas and computing by the method of average end areas with factors for conversion to in-place volumes. The factors for conversion to in-place volumes shall be determined by the Engineer and shall be agreed to by the Contractor prior to beginning topsoil stripping. The contractor, prior to ground disturbance, shall verify the initial ground contours. Cost for this topographic verification shall be incidental to this item.

308-2.7.15 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item “seed bank topsoil”. Payment will be payment in full for all testing, site preparation, stripping, hauling, stockpiling, placing and equipment, materials labor and incidentals necessary to complete work as specified herein.

308-4 PLANTING

ADD:

308-4.10 Collection and Seeding of Rare Plants

This section applies to the following species: southern tarplant (*Centromadia parryi* ssp. *australis*), Coulter’s goldfields (*Lasthenia glabrata* ssp. *coulteri*) and red sand verbena (*Abronia maritima*). These are rare plants. They have been previously identified on site; however, the number and quantity of plants vary from year to year. The amount of seed

that will be generated by these plants will be very small. This section includes (but is not necessarily limited to):

1. Site preparation.
2. Field collection of seed.
3. Furnishing and installing seed.
4. Maintaining seeded areas until acceptance by the Wetland Consultant.

308-4.10.1 Related Sections

1. Submittals, Section 2-5.3
2. Red Sand Verbena, Section 212-1.4.9
3. Rare Plant Seed, Section 212-1.3.1

308-4.10.2 Submittals

Procedure in accordance with Part I, Section 2-5.3, Submittals.

1. Seed Inventory List

Within 30 days of the award of the Contract, the Contractor shall submit a complete list of the plant material that will be used for this section. The list shall include the plant species, genetic origin, quantity, and scheduled delivery date. Any deviation from the plant specifications shall be clearly identified to the Wetland Consultant. Upon rejection of any plant material, new plant material shall be selected until all of the plant material is in compliance with the specifications as determined solely by the Wetland Consultant.

2. Collection, Seeding, and Transplanting of Red Sand Verbena

The Contractor shall submit a plan for collection and seeding of red sand verbena.

308-4.10.3 Quality Assurance

1. Statement of Qualification for Field Collection

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification from the Native Plant Nursery that will collect and grow the species listed above. The statement of qualifications shall contain a history of business and past record of collecting the species

listed above or other similar species: 1) project name; 2) quantity collected; 3) description of procedures used; and 4) client reference.

2. Collection and Seeding of Red Sand Verbena Seed

The Contractor shall prepare a plan to collect red sand verbena seed from designated areas and to plant seeds in designated new planting areas. If alternative sources of red sand verbena seeds are necessary, the Contractor shall include a detailed description of the sources including location of the parent plant material. The Wetland Consultant must approve the plan prior to commencing work.

3. Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

308-4.10.4 Seed Collection Window

The recommended time to collect southern tarplant seed is between February 1st to June 15th and September 1st to November 15th.

The recommended time of collection for Coulter's goldfields seed is between February 1st and June 15th.

The recommended time of collection for red sand verbena is from February 1st to June 15th and September 1st to November 15th. Flowering is most prevalent shortly after a rainfall.

The Contractor shall confirm that the plants are present and provide verification to the Wetland Consultant. If present, the Contractor shall collect seeds prior to conducting construction activities in the locations specified on the drawings. The Contractor shall monitor the specified donor plants to determine when the seed is mature. The Contractor shall collect seed three (3) times during the ripening time to ensure adequate collection of viable seed. The seed collections shall be stored separately. Each seed collection shall be tested to determine the germination rate. The Contractor shall use seed from the collection with the highest germination rate.

308-4.10.5 Seed Collection

The Contractor shall collect seeds prior to conducting construction activities in the locations specified on the drawings. The Contractor shall monitor the specified donor plants to determine when the seed is mature. The Contractor shall collect seed three (3) times during the ripening time to ensure adequate collection of viable seed. The seed collections shall be stored separately. Each seed collection shall be tested to determine the

germination rate. The Contractor shall use seed from the collection with the highest germination rate.

308-4.10.6 Seeding Window

The seeding window for southern tarplant is between February 1st and June 15th and September 1st to November 15th.

The seeding window for Coulter's goldfields is between February 1st and September 30th.

The seeding window for Red Sand Verbena is between February 1st and April 1st of the year following seed collection.

The work shall not be started until all earthwork in the area requiring seeding has been completed. Seeding shall not be done during periods of rain, severe drought, frozen grounds, or other conditions that preclude satisfactory results. All seeding is to be done in moderately dry to moist (not flooded) soil and at a time when wind does not exceed a velocity of ten (10) miles an hour, or as directed by the Wetland Consultant. The Contractor shall notify the Wetland Consultant at least forty-eight (48) hours in advance of the time he/she intends to begin sowing seed and shall not proceed with such work until permission to do so has been obtained. When delays in operations carry the work beyond the dates specified in the schedule or when weather conditions are such that satisfactory results are not likely to be obtained, the Wetland Consultant shall stop the work. The work shall be resumed with the approval of the Wetland Consultant when the desired results are likely to be obtained or when approved corrective measures and procedures are adopted. In addition, the Contractor shall seed within the following time windows.

If hydro-seeding for erosion control is specified in the same areas of seeding of rare plants, the rare plant seed shall be applied first.

308-4.10.7 Layout of Seeding Area

The Contractor shall locate seeding areas as specified on the drawings and confirm them with the Wetland Consultant prior to installation.

308-4.10.8 Site Evaluation

The Contractor must examine the area and conditions under which work is to be performed. The area must be properly prepared before seeding begins. The Wetland Consultant is to be notified in writing of conditions detrimental to the proper and timely completion of work. The Contractor shall identify those areas that are detrimental for seeding and consult with the Wetland Consultant to determine corrective actions. Seeding work is

not to proceed until either the condition is corrected or a waiver is granted from the Wetland Consultant.

308-4.10.9 Preparation of Planting Area for Coulter's Goldfields and Southern Tarplant

Areas to be seeded shall be maintained at approved grades. All mechanical equipment for soil preparation or seeding shall be approved and shall pass parallel to the contours unless otherwise directed by the Wetland Consultant. The site preparation option utilized shall be as shown on the plans. If no site preparation option is shown on the plans, the Contractor shall till, smooth, and firm seedbed as described below. When indicated on the plans, no-till broadcast seeding shall occur over established turf and vegetation without additional site preparation. For all areas, if grading has just been completed and the soil is loose and friable, not eroded or crusted, the tilling step may be omitted if approved by the Wetland Consultant.

Areas to be tilled shall be tilled to a minimum depth of four (4) inches by disking or plowing and smoothed by harrowing or dragging. The Contractor shall be responsible for performing all work necessary to achieve and maintain an acceptable seedbed prior to seeding as directed by the Wetland Consultant at no additional cost to the Client.

308-4.10.10 Preparation of Planting Area for Red Sand Verbena

Non-native iceplant shall be cleared and roots grubbed completely in the designated planting areas one year before distributing seeds of red sand verbena and again just before distribution. The Contractor shall not harm existing red sand verbena plants in the planting area.

308-4.10.11 Pre-watering

Seeding shall occur on moist soils. If required for good establishment as determined by the Wetland Consultant, the area shall be watered prior to the seeding operation at the rate of 25,000 gallons of water per acre, with costs for this watering incidental to the item.

308-4.10.12 Seeding Method

The seed shall then be uniformly and evenly broadcast over the designated areas at a density that shall achieve a minimum of twenty (20) pure live seeds per square foot, as solely determined by the Wetland Consultant. Broadcasting may be done by hand-casting, hand-held spreader, or another type of equipment or method, as approved by the Wetland Consultant.

308-4.10.13 Incorporation of Seed into Soil

Following the seeding, the seed shall be incorporated into the soil to a minimum depth of one-quarter (1/4) inch and a maximum depth of one-half (1/2) inch. The incorporation may occur by hand-raking or the use of a chain harrow or tine harrow, subject to approval by the Wetland Consultant. When indicated on the plans, the areas shall be only or subsequently hand rolled using an unfilled lightweight, surface-corrugated water ballast roller.

308-4.10.14 Restrict Access

After each area is seeded, the Contractor shall restrict access of vehicles and earth-moving equipment from the area. In order to restrict access to the seeded area, the Contractor shall install orange construction fence along the entire perimeter of the seed area, post the area as restricted access, and indicate that area is a sensitive habitat area. The Contractor shall repair any and all damage to these areas from construction-related activities. These repairs shall be made at no additional expense of the Owner.

308-4.10.15 Repair of Damaged Area

All areas outside of specified limits where the vegetation growth has been injuriously disturbed or destroyed by the Contractor, as solely determined by the Wetland Consultant, shall be restored and seeded in accordance with these specifications by the Contractor at his/her own expense.

308-4.10.16 Cleanup

Upon completion of work, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.10.17 Measurement

The quantity of accepted and approved rare plant seed will be measured by the pounds of pure live seed accepted for various bid items.

308-4.10.18 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item "rare plant seed." Payment will be payment in full for furnishing all seeds, labor, materials, tools, equipment, delivery costs, and incidentals necessary to complete work as specified herein.

ADD:

308-4.11 Salvage and Planting of Cordgrass

The Contractor shall furnish and install cordgrass (*Spartina foliosa*) plants within the designated wetland mitigation area.

308-4.11.1 Related Sections

1. Submittals, Section 2-5.3
2. Cordgrass, Section 212-1.4.8
3. Furnish and Install Wetland Topsoil, Section 308-2.5

308-4.11.2 Submittals

Procedure in accordance with Part I, Section 2-5.3, Submittals.

1. Statement of Qualification

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification that the firm has had previous experience in the transplanting and/or propagation of salt marsh vegetation, including *S. foliosa*. The statement of qualifications shall contain a history of business and past record of transplanting or growing of *Spartina*, including 1) project name; 2) quantity transplanted or grown; 3) description procedures used; and 4) client reference.

2. Soil Salinity Test Results

The Contractor shall submit the results of soil salinity tests for each wetland module. The test results shall contain a copy of summary, analysis, and recommendations from the soil laboratory that analyzed the samples. The test results shall be submitted at least thirty days prior to planting each wetland module.

3. Donor Site Authorization

The Contractor shall provide the location of the donor plants for the planting. The Contractor shall also provide evidence that all necessary authorizations have been received to collect plants from the proposed site or, if no such authorization is required, evidence that no authorization or permits are required.

308-4.11.3 Quality Assurance

1. Soil Salinity Test

A soil salinity test shall be completed by a certified soil testing laboratory. The maximum allowable salinity level within the topsoil layer within the designated planting areas is 50 PPT.

At least forty-five (45) days prior to transplanting *Spartina foliosa*, the Contractor shall test the topsoil within each wetland module for salinity. Soil samples shall be collected in accordance with the recommendations established by the soil laboratory. For each wetland module, representative soil samples shall be collected and analyzed based on one sample per 10 plots to be planted. Plots chosen for salinity sampling shall be evenly distributed throughout the planting area.

If soil salinity levels are above the maximum allowable level, the Contractor shall delay transplanting until after the next rainy season or until the soil salinity levels drop below the maximum allowable level. The Contractor shall perform additional soil testing as required until soil salinity levels drop below the acceptable level.

2. Time Constraints

S. foliosa shall not be planted until after grading is completed and at least one year after tidal action is restored to each wetland module. Tidal influence shall be considered restored when the inlet at the ocean is opened and all other channel inlets are opened that separate the wetland module from the ocean via the San Dieguito River.

Plant material shall be collected from the donor site between February 1st and March 15th. Plant material shall be transplanted to the site within three (3) days of collection.

3. Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

4. Work in Tidal Waters

Special care shall be taken when working within the tidal zones of the San Dieguito Lagoon Wetland Restoration Project. Work shall be conducted during low tide such that no work will be done in direct contact with bay water.

Contractor shall not discharge any fill into open water areas. In the event that the Contractor discharges any unplanned fill into open water areas, the Contractor shall report the event immediately to the Owner's

Representative. Adequate erosion control measures shall be constructed and maintained to prevent the discharge of earthen materials to waters of the United States from planting areas.

5. 90-Day Guarantee

The Contractor shall guarantee the survival of all of the plants for 90 days after transplantation. At the end of the guarantee period, the Contractor shall replace, at no additional cost to the client, plant material that is determined by the Wetland Consultant to be either dead or in poor health. The guarantee period shall be 90 days after completion of the planting and approval of the installation by the Wetland Consultant. Subsequent replacement plant material shall be subject to an identical guarantee.

308-4.11.4 Collection of Cordgrass

The Contractor shall obtain the necessary permits, if required, to collect *Spartina foliosa* from the Department of Fish and Game and/or U.S. Fish and Wildlife Service. The Contractor shall follow any and all restrictions imposed by either the owner or manager of the donor area or the permits. Under no circumstance shall the Contractor harvest more than 10% of the intact stems and rhizomes from an identified stand of donor cordgrass or more than 10% from each 1-meter square area within each stand.

308-4.11.5 Transport and Store Bare-root Plants

Transport and store bare-root plants: Bare-root plants shall be stored in plastic bags or plastic buckets filled with two inches of saline water. The plants shall under no circumstances dry out. Plant material shall be transported to the transplanting site in covered vans and kept cool and moist during transport and storage on site.

308-4.11.6 Layout Planting Area

The Contractor shall plant *S. foliosa* in the areas that are indicated on the drawings.

S. foliosa shall be planted within the top one-half (2.0' to 2.5' NGVD) of its target elevation range (1.5' to 2.5' NGVD). These elevations refer to finished grade.

The Contractor shall stake the following finished grade elevations: 2.0' and 2.5' NGVD. Stakes shall be placed at a minimum interval of 50'. The Contractor shall use 1x1 wood stakes.

In a manner that is consistent throughout the project, the Contractor shall attached colored flagging to the stakes. The flagging should indicate the

upper and lower planting boundaries and distinguish these areas from the pickleweed planting areas.

The Wetland Consultant shall review and approve this layout for each wetland module. The Contractor must obtain approval for the layout prior to salvaging or planting plants. At the request of the Wetland Consultant, the Contractor shall demonstrate that stakes are at the appropriate elevation. The Contractor shall maintain the stakes and flagging until the Wetland Consultant approves the plantings and the guarantee period for this item has ended.

1. Size and Distribution of Planting Plots for Cordgrass Area-1

Plots shall be 50' wide and cover the elevation range of the planting area as specified above. The spacing between plots shall be 50' on center.

2. Size and Distribution of Planting Plots for Cordgrass Area 2

Plots shall be 200' wide and cover the entire elevation range of the planting area. On average the elevation range of the planting area is approximately 50' deep. The spacing between plots shall be 200'.

3. Plant Spacing

Within the planting plots, plants shall be planted at spacing indicated on the drawings. The distance between plants shall be measured using triangular spacing.

308-4.11.7 Fertilizer

Each plant should receive 30 grams (1 oz.) of Osmocote, or accepted equal. Depending on the planting season, fertilizer shall have the following ratio of nitrogen, phosphorous, and potassium, and formulation: 1) summer, 19-6-12, three/four-month release; 2) spring, 8-6-12, twelve/fourteen-month release; 3) fall, 18-5-11, fourteen-month release.

308-4.11.8 Plant Bare Root Plants

Each individual plant shall be planted so that the top of the rhizome is at a minimum depth of one (1) inch and a maximum depth of two (2) inches below the soil surface. The entire stock and root system shall be placed below the soil surface. Individual plants or clumps of up to 5 individuals may be planted in one planting hole. Prior to placement of the plant in the planting hole, the specified fertilizer shall be placed in the bottom of the hole.

308-4.11.9 Access Restriction

After all of the *Spartina foliosa* is planted within a planting area, the Contractor shall restrict access of vehicles and earth-moving equipment from the module. The Contractor shall repair any and all damage to these areas from construction-related activities. These repairs shall be made at no additional expense of the Owner.

308-4.11.10 Cleanup

Upon completion of work, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.11.11 Measurement

Plants shall be measured by the number of each plant accepted for the various bid items.

308-4.11.12 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item “cordgrass plants”. Payment will be payment in full for furnishing all plants, seeds, labor, materials, tools, equipment, delivery costs, and incidentals necessary to complete work as specified herein.

ADD:

308-4.12 Salvage and Transplant Red Sand Verbena Plants

The Contractor shall salvage and transplant whole red sand verbena plants including the taproot.

1. Layout salvage sites.
2. Salvage red sand verbena plants including the taproot.
3. Prepare the planting area.
4. Transplant red sand verbena plants.

308-4.12.1 Related Sections

1. Submittals, Section 2-5.3
2. Red Sand Verbena, Section 212-1.4.9
3. Collection and Seeding of Rare Plants, Section 308-4.10

308-4.12.2 Submittals

Procedure in accordance with Part I Section 2-5.3, Submittals.

1. Statement of Qualification for Field Collection

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification from the Native Plant Nursery that will collect and transplant the species listed above. The statement of qualifications shall contain a history of business and past record of growing the species listed above or related species: 1) project name; 2) quantity grown; 3) description of horticultural procedures used; and 4) client reference.

2. Collection and Transplanting of Red Sand Verbena Plan

The Contractor shall submit a plan for collection and transplanting of red sand verbena.

308-4.12.3 Quality Assurance

1. Acceptance Criterion for Materials and Workmanship

Acceptance Criterion for Materials and Workmanship: The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

2. Plant Establishment Guarantee

The Contractor shall guarantee the survival of all of the plants for this section for the duration of the guarantee period. The guarantee period shall be 90 days after completion of the planting and approval of the installation by the Wetland Consultant. At the end of the guarantee period, the Contractor shall replace, at no additional cost to the client, plant material that is determined by the Wetland Consultant to be either dead or in poor health. Subsequent replacement plant material shall be subject to an identical guarantee.

308-4.12.4 Location of Collection Site – Red Sand Verbena

The location of the collection site is indicated on the drawings.

308-4.12.5 General Salvage Method – Red Sand Verbena

The contractor shall excavate and transplant whole plants. Whole *Abronia maritima* plants shall be salvaged with their associated soil and taproot left intact to the maximum extent feasible. The Contractor shall salvage the plants including the surrounding soil to a depth of no less than thirty-six

(36) inches. Salvaged *Abronia maritima* plants shall be placed directly in the new planting area immediately after salvage.

308-4.12.6 Transplanting Window – Red Sand Verbena

Plants shall be transplanted at the site between January 15th and March 31st.

308-4.12.7 Layout of Planting – Red Sand Verbena

The contractor shall locate areas for placement as specified on the drawings. The Wetland Consultant must approve the layout of the planting area prior to transplanting plants.

308-4.12.8 Preparation of Planting Area – Red Sand Verbena

Non-native iceplant shall be cleared and roots grubbed completely in the designated planting areas. Ice plant must be removed at least one year before planting seeds of red sand verbena and again before planting.

308-4.12.9 General Planting Method – Red Sand Verbena

In order to place the plants at the appropriate depth in the soil, the soil surface shall be opened with the hand tools or appropriate earth-moving equipment. The depth of the hole shall allow for easy plant placement at the specified depth while limiting the formation of air pockets beneath the planting hole. The plant(s) shall then be placed at the appropriate depth with the root system oriented downward. While the plant is in this position, the soil profile or section shall be fully and firmly closed by hand or with an appropriate hand tool. If a soil depression is formed above or immediately adjacent to the planting location, enough soil shall be sloughed from the surrounding area and firmly tamped into the depression to leave the planting area at the same elevation as the surrounding soil.

308-4.12.10 Watering Requirements

Newly transplanted red sand verbena shall be watered regularly to prevent plant material from wilting. Irrigation water shall be applied at a rate of 5 gallons of fresh water per plant. The maximum time interval between irrigation applications shall be three days. Irrigation shall be applied for thirty (30) days after transplanting.

308-4.12.11 Cleanup

Upon completion of work, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.12.12 Measurement

Plants shall be measured by the number of each plant accepted for the various bid items.

308-4.12.13 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item “red sand verbena plants”. Payment will be payment in full for furnishing all plants, seeds, labor, materials, tools, equipment, delivery costs, and incidentals necessary to complete work as specified herein.

ADD:

308-4.13 Salvage and Place Pickleweed Fragments

Section includes (but is not necessarily limited to):

1. Prepare salvage, stockpile and placement plan;
2. Demonstrate feasibility of selected method;
3. Layout areas in field for salvaging pickleweed fragments;
4. Layout areas in field for placing pickleweed fragments;
5. Salvage and store pickleweed fragments; and
6. Place pickleweed fragments.

308-4.13.1 Related Sections

1. Submittals, Section 2-5.3
2. Pickleweed Fragments, Section 212-1.4.7
3. Furnish and Install Wetland Topsoil, Section 308-2.5
4. Furnish and Install Seed Bank Topsoil, Section 308-2.7

308-4.13.2 Submittals

Procedure in accordance with Part I, Section 2-5.3, Submittals.

1. Statement of Qualification

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification for the collection, storage, and placement of pickleweed fragments. The statement of qualifications shall contain a history of business and past record of transplanting pickleweed fragments or

other similar species, including 1) project name; 2) area or quantity transplanted; 3) description of transplant procedures used; and 4) client references.

2. Pickleweed Salvage & Placement Plan

The contractor shall submit a Pickleweed Salvage and Placement Plan which includes the proposed phasing for the collection, storage, and placement of pickleweed fragments.

308-4.13.3 Quality Assurance

1. Demonstration Feasibility of Collection, Stockpile, and Placement Method

The Contractor shall demonstrate that they can successfully salvage, stockpile, and place pickleweed fragments. The Contractor shall demonstrate salvage, storage, and placement in accordance with these specifications. Contractor shall demonstrate salvaging, storing, and placing a minimum of 50 cu. yds. of pickleweed fragments. Storage time for the demonstration shall be the maximum allowable time. The demonstration will be used to establish the required volume of pickleweed fragments per unit area of placement.

Success shall be determined by measuring the density of live pickleweed fragments in the placement area. The density of pickleweed fragments in the placement area shall be a minimum of five live pickleweed fragments per square foot. The definition of a live pickleweed fragment is provided in the installation section of this specification. The success of the demonstration shall be determined solely by the Wetland Consultant.

2. Planting Window

Pickleweed fragments shall be collected and placed between November 1st and February 1st. If another period of time is selected for the transplanting, the Contractor shall prepare a plan to assure that the areas that are transplanted are regularly watered and provide such plan to the Wetland Consultant.

3. Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

308-4.13.4 Layout of Salvage Areas for Pickleweed Fragments

Prior to collection, the contractor shall locate areas as designated on the construction drawings for pickleweed fragments. Prior to construction, the contractor shall stake areas within the limit of grading that are designated for salvage pickleweed fragments. Allowable areas for salvage are indicated on the drawings.

The Contractor shall stake the boundary of the salvage areas. Stakes shall be located at 50' intervals and clearly marked with a colored flagging. The selected color for flagging shall be consistent throughout the project and different from typical grade stakes. The Contractor shall layout an entire wetland module at a time.

The Wetland Consultant must review and approve the layout for salvage of pickleweed fragments prior to salvage. The Wetland Consultant may adjust the boundary of the salvage area in order to exclude areas that do not contain pickleweed, expand the area to include additional pickleweed, or exclude areas that contain unwanted upland or non-native plant species.

308-4.13.5 Preparation of Salvage Areas

Before collecting pickleweed fragments, the Contractor shall clear and grub all woody shrubs and trees including roots from the collection areas.

Prior to salvage of pickleweed fragments, the Contractor shall surround areas of pickleweed salvage with construction fence and restrict access.

308-4.13.6 Salvage Pickleweed Fragments

The Contractor shall cut pickleweed fragments by hand or by using a hand-held weed cutter or other similar device. The resulting fragments shall meet the specified size requirements. The contractor may cut or chop pickleweed fragments after collection to achieve the specified pickleweed fragment size.

308-4.13.7 Store Pickleweed Fragments

Live pickleweed fragments shall be stockpiled, wetted with brackish water and covered with a tarp. Plants shall be stored for no longer than fourteen (14) days prior to installation but preferably less than seven (7) days. Irrigation or maintenance of pickleweed fragments shall be undertaken as needed. Additional storage time may be allowed if the contractor can demonstrate success, subject to the approval of the Wetland Consultant.

308-4.13.8 Place Wetland Topsoil and Seed Bank Topsoil

Prior to placement of the pickleweed fragments, wetland topsoil and seed bank topsoil that contains pickleweed seed shall be placed in accordance with specifications Sections 308-2.5 and 308-2.7.

308-4.13.9 Layout of Placement Areas for Pickleweed Fragments

The drawings specify where to place pickleweed fragments. Within these areas, pickleweed fragments shall be placed within the elevation ranges indicated on the drawings. The elevation range refers to finished grade.

The contractor shall stake the following finished grade elevations: 3.5' and 4.5' NGVD. Stakes shall be placed at a minimum interval of fifty (50) feet. The contractor shall use 1x1 wood stakes. Elevation benchmarks shall be provided for use in performing these elevation layouts. The Contractor shall layout an entire wetland module at a time.

In a manner that is consistent throughout the project, the Contractor shall attached colored flagging to the stakes. The flagging should indicate the upper and lower boundaries for placing topsoil with pickleweed fragments and distinguish these areas from the wetland topsoil placement areas and the *Spartina foliosa* planting areas.

The Wetland Consultant shall review and approve this layout for each wetland module. The Contractor must obtain approval for the layout prior to placing pickleweed fragments. At the request of the Wetland Consultant, the Contractor shall demonstrate that stakes are at the appropriate elevation. The Contractor shall maintain the stakes and flagging until the Wetland Consultant approves the placement of pickleweed fragments for each wetland module.

308-4.13.10 Placement and Incorporation of Pickleweed Fragments

The pickleweed fragments shall be distributed over the placement areas by hand. The contractor shall roto-till or disc fragments to a depth of two (2) to four (4) inches.

308-4.13.11 Supplemental Irrigation

The Contractor shall irrigate the newly placed pickleweed fragments from the time that fragments are placed until after the first significant rainfall of the rainy season. Irrigation water shall be applied at a rate of 25,000 gallons-per-acre. The maximum time interval between irrigation applications shall be five (5) days.

308-4.13.12 Access Restriction

After pickleweed fragments are placed within a wetland module, the Contractor shall restrict access of vehicles and earth-moving equipment from the module. In order to restrict access to the placement areas, the Contractor shall install orange construction fence along the upland edge of the placement areas and post the area as restricted access and indicate that it is a sensitive habitat area. The fence shall be placed a minimum of ten (10)

feet from the upper elevation limit of these areas. The fence shall be removed when the Contractor has completed all construction activities one thousand (1,000) feet of the wetland module. The Contractor shall repair any and all damage to these areas from construction-related activities. These repairs shall be made at no additional expense of the Owner.

308-4.13.13 Cleanup

Upon completion of work within each wetland module, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.13.14 Alternative Methods

The Contractor may use alternative methods with the approval of the Wetland Consultant.

308-4.13.15 Measurement

Pickleweed fragment procurement shall be measured by the number of acres where pickleweed plants are salvaged, as indicated on the drawings.

308-4.13.16 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item “pickleweed fragments.” Payment will be payment in full for furnishing all plants, labor, materials, tools, equipment, delivery costs, and incidentals necessary to complete work as specified herein.

ADD:

308-4.14 Seeding of Wetland Herbaceous Plants

This section applies to the following species: fleshy jaumea (*Jaumea carnosa*), saltgrass (*Distichlis spicata*) and alkali heath (*Frankenia salina*) and cressa (*Cressa truxilensis*). This section includes (but is not necessarily limited to):

1. Site preparation.
2. Collection of seed.
3. Furnishing and installing seed.
4. Maintaining seeded areas until acceptance by the Wetland Consultant.

308-4.14.1 Related Sections

1. Submittals, Section 2-5.3
2. Wetland Plant Seed, Section 212-1.3.7
3. Herbaceous Wetland Plants, Section 212-1.3.8

308-4.14.2 Submittals

Procedure in accordance with Part I Section 2-5.3, Submittals.

308-4.14.3 Quality Assurance

1. Seed Inventory List – Within 30 days of the award of the Contract, the Contractor shall verify that all of the plant material is available from nursery suppliers by submitting seed order forms that include all of the plants that are required for the project. The seed order forms shall include contact information for the plant supplier, botanical name of each species, origin, quantity, and scheduled delivery date. Any substitutions or deviation from the planting plans shall be clearly identified to the Wetland Consultant. Upon rejection of any plant substitutions, new plant material shall be procured until all of the plant material is in compliance with the specifications as determined solely by the Wetland Consultant. The plant orders shall be completed within 60 days of the award of the Contract.
2. Acceptance Criterion for Materials and Workmanship – The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

308-4.14.4 Seeding Window

The work shall not be started until all earthwork in the area requiring seeding has been completed and before tidal action has been restored to the planting area. Seeding shall not be done during periods of rain, severe drought, frozen grounds, or other conditions that preclude satisfactory results. All seeding is to be done in moderately dry to moist (not flooded) soil and at a time when wind does not exceed a velocity of ten (10) miles an hour, or as directed by the Wetland Consultant. The Contractor shall notify the Wetland Consultant at least forty-eight (48) hours in advance of the time he/she intends to begin sowing seed and shall not proceed with such work until permission to do so has been obtained. When delays in operations carry the work beyond the dates specified in the schedule or when weather conditions are such that satisfactory results are not likely to be obtained, the Wetland Consultant shall stop the work. The work shall be resumed with the approval of the Wetland Consultant when the desired

results are likely to be obtained or when approved corrective measures and procedures are adopted. In addition, the Contractor shall seed within the following time window: November 15 to February 1.

308-4.14.5 Layout of Seeding Area

The drawings specify where to place pickleweed fragments as Pickleweed – 1, Pickleweed – 2, Pickleweed – 3, Pickleweed – 4, Pickleweed – 5, and Pickleweed – 6. Within these areas, the wetland herbaceous seed species shall also be placed within the elevation ranges indicated on the drawings for pickleweed. The elevation range refers to finished grade. The Contractor shall locate seeding areas as specified on the drawings and confirm them with the Wetland Consultant prior to installation.

308-4.14.6 Site Evaluation

The Contractor must examine the area and conditions under which work is to be performed. The area must be properly prepared before seeding begins. The Wetland Consultant is to be notified in writing of conditions detrimental to the proper and timely completion of work. The Contractor shall identify those areas that are detrimental for seeding and consult with the Wetland Consultant to determine corrective actions. Seeding work is not to proceed until either the condition is corrected or a waiver is granted from the Wetland Consultant.

308-4.14.7 Preparation of Planting Area for Wetland Herbaceous Seed

Areas to be seeded shall be maintained at approved grades. All mechanical equipment for soil preparation or seeding shall be approved and shall pass parallel to the contours unless otherwise directed by the Wetland Consultant. The site preparation option utilized shall be as shown on the plans. If no site preparation option is shown on the plans, the Contractor shall till, smooth, and firm seedbed as described below. For all areas, if grading has just been completed and the soil is loose and friable, not eroded or crusted, the tilling step may be omitted if approved by the Wetland Consultant.

Areas to be tilled shall be tilled to a minimum depth of four (4) inches be disking or plowing and smoothed by harrowing or dragging. The Contractor shall be responsible for performing all work necessary to achieve and maintain an acceptable seedbed prior to seeding as directed by the Wetland Consultant at no additional cost to the Client.

308-4.14.8 Seeding Method

The seed shall be uniformly and evenly distributed by drill seeding over the designated areas at a density that shall achieve a minimum of ten (10) pure live seeds per square foot, as solely determined by the Wetland

Consultant. Drill seeding shall be done with a rangeland type drill equipped with double coulter furrow openers and depth bands followed by packer wheels. Use a drill capable of evenly seeding the herbaceous wetland seed mix over the entire site. Do not exceed 6 inches between drill rows. Use row markers with drill seeder. Perform seeding in two directions, 90 degrees in direction from each other, each direction at half the rate specified. The Contractor may use another type of equipment or method, as approved by the Wetland Consultant.

308-4.14.9 Incorporation of Seed into Soil

Plant seed to an average depth of 0.25 inch but not deeper than 0.50 inch.

308-4.14.10 Restrict Access

After each area is seeded, the Contractor shall restrict access of vehicles and earth-moving equipment from the area. The Contractor shall repair any and all damage to these areas from construction related activities. These repairs shall be made at no additional expense of the Owner.

308-4.14.11 Repair of Damaged Area

All areas outside of specified limits where the vegetation growth has been injuriously disturbed or destroyed by the Contractor, as solely determined by the Wetland Consultant, shall be restored and seeded in accordance with these specifications by the Contractor at his/her own expense.

308-4.14.12 Clean Up

Upon completion of work, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.14.13 Measurement

The quantity of accepted and approved wetland herbaceous seed will be measured by the pounds of Pure Live Seed accepted for various bid items.

308-4.14.14 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item "rare plant seed." Payment will be payment in full for furnishing all seeds, labor, materials, tools, equipment, delivery costs, and incidentals necessary to complete work as specified herein.

ADD:

308-4.15 Planting of Herbaceous Wetland Plants

The Contractor shall furnish and install turtleweed (*Batis maritima*), shoregrass (*Monanthochloe littoralis*), and pickleweed (*Salicornia subterminalis*) plants within the designated wetland mitigation area. This section includes (but is not necessarily limited to):

1. Soil Salinity test
2. Time Constraints
3. Layout of Planting Areas
4. Acceptance Criteria for Containerized Plants

308-4.15.1 Related Sections

1. Submittals, Section 2-5.3.
2. Herbaceous Wetland Plants, Section 212-1.4.10
3. Furnish and Install Wetland Topsoil: Section 308-2.5

308-4.15.2 Submittals

Procedure in accordance with Part I Section 2-5.3, Submittals.

1. Statement of Qualification

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification that the firm has had previous experience in the transplanting and/or propagation of salt marsh vegetation, including *Batis maritima*, *Monanthochloe littoralis* and *Salicornia subterminalis*. The statement of qualifications shall contain a history of business and past record of transplanting or growing of salt marsh vegetation 1) project name; 2) quantity transplanted or grown; 3) description procedures used; and 4) client reference.

2. Soil Salinity Test Results

The Contractor shall submit the results of soil salinity tests for each wetland module. The test results shall contain a copy of summary, analysis, and recommendations from the soil laboratory that analyzed the samples. The test results shall be submitted at least thirty days prior to planting each wetland module.

308-4.15.3 Quality Assurance

1. Soil Salinity Test

A soil salinity test shall be completed by a certified soil testing laboratory. The maximum allowable salinity level within the topsoil layer within the designated planting areas is 50 PPT.

At least forty-five (45) days prior to planting herbaceous wetland plants, the Contractor shall test the topsoil within each wetland module for salinity. Soil samples shall be collected in accordance with the recommendations established by the soil laboratory. For each wetland module, representative soil samples shall be collected and analyzed. Soil samples taken for planting of *spartina foliosa* may be used to satisfy the soil tests requirement for herbaceous wetland plants.

If soil salinity levels are above the maximum allowable level, the Contractor shall delay transplanting until after the next rainy season or until the soil salinity levels drop below the maximum allowable level. The Contractor shall perform additional soil test as required until soil salinity levels drop below the acceptable level.

2. Time Constraints

Herbaceous wetland plants shall not be planted until after grading is completed and at least one year after tidal action is restored to each wetland module. Tidal influence shall be considered restored when the inlet at the ocean is opened and all other channel inlets are opened that separate the wetland module from the ocean via the San Dieguito River.

3. Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

4. Work in Tidal Waters

Special care shall be taken when working within the tidal zones of the San Dieguito Lagoon Wetland Restoration Project. Work shall be conducted during low tide such that no work will be done in direct contact with bay water.

Contractor shall not discharge any fill into open water areas. In the event that the Contractor discharges any unplanned fill into open water areas, the Contractor shall report the event immediately to the Owners Representative. Adequate erosion control measures shall be constructed and maintained to prevent the discharge of earthen materials to waters of the United States from planting areas.

5. 90-Day Guarantee

The Contractor shall guarantee the survival of all of the plants for 90 days after transplantation. At the end of the guarantee period, the Contractor shall replace, at no additional cost to the client, plant material that is determined by the Wetland Consultant to be either dead or in poor health. The guarantee period shall be 90 days after completion of the planting and approval of the installation by the Wetland Consultant. Subsequent replacement plant material shall be subject to an identical guarantee.

308-4.15.4 Layout of Planting Area

The drawings specify where to place pickleweed fragments. The Contractor shall also plant turtleweed (*Batis maritima*), shoregrass (*Monanthochloe littoralis*), and pickleweed (*Salicornia subterminalis*) plants in the areas that are indicated on the drawings as Pickleweed – 1, Pickleweed – 2, Pickleweed – 3, Pickleweed – 4, Pickleweed – 5, and Pickleweed – 6. Within these areas, these species shall be placed within the elevation ranges indicated on the drawings for pickleweed. The elevation range refers to finished grade.

The contractor shall stake the following finished grade elevations: 3.5' and 4.5' NGVD. Stakes shall be placed at a minimum interval of fifty (50) feet. The contractor shall use 1x1 wood stakes. Elevation benchmarks shall be provided for use in performing these elevation layouts. The Contractor shall layout an entire wetland module at a time.

In a manner that is consistent throughout the project, the Contractor shall attached colored flagging to the stakes. The flagging should indicate the upper and lower boundaries for planting herbaceous wetland plants and distinguish these areas from the wetland topsoil placement areas and the *Spartina foliosa* planting areas.

The Wetland Consultant shall review and approve this layout for each wetland module. The Contractor must obtain approval for the layout prior to planting herbaceous wetland plants. At the request of the Wetland Consultant, the Contractor shall demonstrate that stakes are at the appropriate elevation. The Contractor shall maintain the stakes and flagging until the Wetland Consultant approves the planting for each wetland module.

1. Size and Distribution of Planting Plots for Herbaceous Wetland Plants

Plots shall be 20' wide and be spaced evenly throughout the planting areas.

2. Plant Spacing

Within the planting plots, plants shall be planted at spacing as indicated in the drawings. The distance between plants shall be measured using triangular spacing.

308-4.15.5 Criteria for Accepting Containerized Herbaceous Plants:

1. The container size shall be at least as large as indicated in the specifications or shown in the plant tables/lists. Plants shall not be rejected if supplied in containers larger than specified.
2. Upon removal of the plants from the containers, the soil/root masses shall be the size of the specified container size. If the soil/root masses are substantially smaller than the specified container size and loose soil exists on the bottom of the containers, the plants shall be rejected since they have not been grown sufficiently long in the containers to root into the soil contained therein.
3. Should spiraling primary woody roots exist on the outside of the soil/root mass upon the removal of the plants from the containers, the Contractor shall be instructed to either cut these roots or separate and spread them out from the soil/root mass prior to planting.
4. If growing, the plants shall appear healthy with no leaf spots, leaf damage, leaf discoloration, chlorosis, leaf wilting or curling, or evidence of insects on the leaves.
5. If dormant, woody plants shall have an abundance of well-developed terminal buds on the leaders and branches, and have a cambium, which is light green to yellowish green in color.
6. The soil and root mass of containerized plant material shall be saturated upon delivery to the job site. Plants that are dry or lightweight shall be rejected. If not planted immediately after delivery to the job site, the plants shall be stored in a area that is not exposed to direct sun or wind and shall be maintained moist, through periodic watering, until time of planting.

308-4.15.6 Access Restriction

After all of the herbaceous wetland plants are planted within a planting area, the Contractor shall restrict access of vehicles and earth-moving equipment from the module. The Contractor shall be repair any and all damage to these areas from construction related activities. These repairs shall be made at no additional expense of the Owner.

308-4.15.7 Clean Up

Upon completion of work, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.15.8 Measurement

Plants shall be measured by the number of each plant accepted for the various bid items.

308-4.15.9 Payment

The accepted quantity will be paid for at the contracted unit price per unit of measurement for the item “herbaceous wetland plants”. Payment will be payment in full for furnishing all plants, seeds, labor, materials, tools, equipment, delivery costs, and incidentals necessary to complete work as specified herein.

Appendix C

Habitat Mitigation and Monitoring Plan for Section 404/401 Permits



**HABITAT MITIGATION AND MONITORING PLAN
FOR SECTION 404/401 PERMITS**

**SAN DIEGUITO LAGOON
DEL MAR, SAN DIEGO COUNTY, CALIFORNIA**

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Submitted May 2005

Revised March 2006 to comply with California Coastal Commission Condition #5

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1.0 INTRODUCTION

This document presents plans for the construction, maintenance, and monitoring of a wetland mitigation site to compensate for temporary impacts to wetlands during construction and for the conversion of wetland to upland berms and trails associated with the San Dieguito Lagoon Wetland Restoration Project (“SDLWRP”).

1.1 Background

Southern California Edison (SCE) is the majority owner and operator of the San Onofre Nuclear Generating Station (SONGS). The California Coastal Commission (CCC) issued a Coastal Development Permit (No. 6-81-330-3, as amended; formerly permit No. 183-73) for the construction of SONGS Units 2 & 3 with the condition that SCE fund the independent evaluation of the impacts of SONGS on the marine environment. The Coastal Development Permit (Permit) further requires that SCE mitigate any significant adverse impacts. The CCC determined that SONGS adversely impacted bightwide fish stocks and required SCE to mitigate those losses. As partial satisfaction of the mitigation requirements, SCE was required to create or substantially restore at least 150 acres of wetlands in Southern California.

After considering the results of a site-selection study that included an evaluation of eight potential sites throughout Southern California, the CCC concluded that a 495-acre site in and adjacent to the San Dieguito Lagoon in Del Mar (Figure 1) offered the best opportunity for achieving the full objectives set forth in the Permit. A public working group consisting of resource agency representatives, non-governmental organizations, and interested members of the public worked together to develop a Preliminary Restoration Plan, which was approved by the CCC in November 1997. Following CCC approval, the restoration project entered the environmental review process pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

The San Dieguito River Park Joint Powers Authority (JPA) took the role of state lead agency under CEQA and the U.S. Fish and Wildlife Service (FWS) took the role of federal lead agency under NEPA. The JPA incorporated the SDLWRP into their overall Open Space Park Project (Park Project) for the San Dieguito River Valley area. A joint EIR/EIS (JPA and USFWS 2000) was prepared for the entire SDLWRP component of the Park Project, which is described below.

1.2 Project Description

1.2.1 Overview

This plan addresses mitigation for permanent impacts to wetlands as a result of two separate but related projects. The first is the river berm construction component of the SDLWRP, which is the responsibility of SCE and will be mitigated by construction of a seasonal wetland. The second project involves the construction of the Coastal Segment of the Coast to Crest Trail (Coastal Trail) along the San Dieguito River and the construction of berms in water treatment ponds, which are both the responsibility of JPA as part of the Park Project. The locations of specific restoration areas, the habitat types that are being created and restored, and the locations of the Coast to Crest Trail and the water treatment ponds relative to the overall project is

illustrated in Figure 2. Figure 3 provides details on the Coast to Crest trail. Each of these projects is discussed below.

1.2.2 SDLWRP

SCE is responsible for the proposed SDLWRP, which is illustrated in Figure 2. Restoration of the San Dieguito Lagoon would involve re-establishing a significant portion of the site west and east of Interstate 5 (I-5) to tidal wetlands consisting of subtidal, intertidal mudflat, coastal salt marsh, and transitional wetland habitats created through excavation and grading of existing high elevation areas. Approximately 107 acres of upland would be used for disposal of soil excavated to create the tidal wetlands. The upland disposal sites would be converted to upland habitat. Excavated soil suitable for beach disposal would be placed on the local beaches. Some of the excavated soil would be used to create nesting sites for the California Least Tern and Western Snowy Plover, and an existing nesting site would be rehabilitated through removal of weeds and soil raking.

The major components of the SDLWRP include:

- Initial and long-term periodic excavation of the tidal inlet to maintain marine water exchange between the ocean and the restored wetlands;
- Excavation and grading to create approximately 135 acres of wetland habitat, including subtidal, intertidal, transitional, and seasonal salt marsh habitats east and west of I-5;
- Construction of three berms adjacent to the San Dieguito River to confine existing flood flows, protect restored habitat areas from extreme flood damage, and maintain the transport of river sediment to the ocean;
- Bank protection on the south side of the river upstream of Jimmy Durante Bridge and on the southern slope of portions of the river berm located east of I-5 and north of the river;
- Culverts through the two main river berms to help balance water levels in the tidal lagoons and river channel during flood flows;
- A weir along the eastern edge of a river berm to eliminate any backwater effect on the upstream river channel;
- A pedestrian trail along the south side of the inlet channel or alternative accessway that would provide access around the mouth of the lagoon during tidal exchange; and
- Creation of four nesting sites and rehabilitation of an existing nesting site to provide habitat for the California Least Tern and Western Snowy Plover.

Construction would begin by mobilizing equipment and designating the construction access routes and staging areas. Salvaging wetland vegetation for storage and propagation offsite would follow these activities. Subsequent to salvage of wetland vegetation and the clearing of non-native vegetation, excavation would commence in various areas including the tidal inlet. It is anticipated that bulldozers, scrapers and backhoes would excavate material to be hauled by trucks to designated disposal sites; some excavated material would be used on-site to construct the bases of nesting islands and berms. The previously cleared areas would then be revegetated in accordance with SDLWRP planting specifications as described in the Final Restoration Plan (August 2005).

In addition, slope protection would be placed along the inlet channel at the confluence with the San Dieguito River. Utility poles east of I-5 would be relocated by SDG&E to an alignment

along Via de la Valle. Sand for nesting sites would be spread over the sites using bulldozers forming a cap of at least 12 inches.

It is anticipated that SDLWRP construction would occur over a three-year period beginning the month of July 2005. Construction would generally start at sunrise and end at sunset, Monday through Saturday.

The total estimated construction cost is approximately \$40.6 million. This estimate includes the implementation of the tidal wetland, nesting site, disposal site, transitional wetland, and seasonal salt marsh components. The cost estimate includes contingencies, permitting/design, and construction management. In addition, an allowance for potential river infrastructure components has been included in the estimate.

Of the approximate 386 acres where restoration efforts would occur, roughly 61 acres would exist within the City of Del Mar and 325 acres would exist within the City of San Diego. Approximately half of the berm in Area I would be located in the City of Del Mar while the other half would be located in the City of San Diego. Both of the remaining proposed berms would be located within the City of San Diego.

Beach Access Improvements

As a part of the SDLWRP, SCE would implement an improved connection between the down coast beach areas and the bridge at Camino Del Mar (Figure 2). Increases in water depth and velocity in the river inlet would potentially affect recreational use of the beach at and near the river inlet. Crossing of the river channel would frequently become more difficult compared to existing conditions. Beach access and use would still be available in areas north and south of the river inlet and crossing of the inlet would be possible, although more inconvenient, by using the bridge at Camino Del Mar.

The improved beach access would specifically consist of improving an existing pedestrian pathway along the south side of the river. This pathway would access the beach over the existing riprap. Such a pathway would provide access from the south side of the river to Camino Del Mar, where beach goers could then use the existing pathway on the Camino Del Mar Bridge to cross the river.

1.2.3 Coastal Trail and Wetland Stormwater Treatment Ponds

JPA will be responsible for the creation of a pedestrian trail and stormwater treatment ponds as part of the Park Project.

Coastal Trail

The coastal part of the San Dieguito River Park Coast to Crest Trail is illustrated in Figure 3 and would be located between Jimmy Durante Boulevard and the horse park, west of El Camino Real, a distance of 2.7 miles. This Coastal Trail should help the overall SDLWRP by managing and directing public access, which is currently unregulated, away from the created and restored wetlands, to the outer perimeter of the project area. Trail segments would generally consist of polymer binder-hardened or stabilized cement with native soil or decomposed granite shoulders. An exception to this basic description is Segment 1, which is proposed as a boardwalk. Each Coastal Trail segment is illustrated in Figure 3.

All portions of the Coastal Trail would be situated within the City of San Diego, with the exception of Segment 1 and part of Segment 2. Approximately half (the first 540 feet) of Segment 2 would be situated in the City of Del Mar. The parking lot, associated with Segment 2, would be located entirely within the City of Del Mar.

Wetland Stormwater Treatment Ponds

A series of stormwater treatment ponds are proposed for the area immediately south of the Albertson's shopping center in module TP41. Module TP41 currently receives urban run-off funneled into the area via a culvert under the Albertson's shopping center. This is a collection point for a 313.3-acre watershed in the residential community north of Via de la Valle.

The project would:

- Create a series of five connected ponds designed to trap sediment and allow for easy removal of new invasive plant species;
- Remove existing invasive species;
- Protect in place most of the native trees;
- Create a berm for the trail and side slopes for ponds;
- Install water quality control devices including a trash rack, sediment trap, and oily wastewater separator;
- Install weirs, culverts and other piping necessary to make the ponds work from a hydrologic perspective;
- Install a hard surface trail on the berms; install interpretive signage; and replant the full area with wetland and riparian species; and
- Maintain pond depth and vegetation in the two northern ponds on a rotating three-year cycle.

1.2.4 Villages Mitigation Bank

Tidal wetlands will be created in module W16 of the SDLWRP, which will serve as a mitigation bank (Figure 2). Wetland acreage created in this area in excess of acreage of existing wetland will be available to third parties to purchase for mitigation credits. SCE will be responsible for managing the Villages Mitigation Bank. For a detailed description of wetland creation, mitigation, and monitoring in the Villages Mitigation Bank, please refer to the Wetland Construction and Monitoring Plan (SCE 2004).

1.3 Responsible Parties

The sites of the projects discussed above are owned by SCE, the JPA, and the State of California. The Applicant, SCE, will be responsible for the engineering and construction of the W45 mitigation area (seasonal wetland), as well as for maintenance of the site during the monitoring period, and for ensuring that the success criteria established in Section 5.1 are attained. SCE may be contacted at the address and phone number below:

Southern California Edison—San Dieguito Restoration Project
 Attn: Samir Tanious
 2775 Via de la Valle
 Suite 208
 Del Mar, CA 92014
 626 302-9725/858 259-2073

A qualified engineer and landscape architect retained by SCE will oversee the mitigation efforts. Representatives from the Regional Water Quality Control Board, Santa Ana (RWQCB), Department of Fish and Game (DFG), and U.S. Army Corps of Engineers (Corps) will be provided access to the project site by appointment with SCE during mitigation construction and monitoring periods.

1.4 Existing Site Conditions

The entire SDLWRP site, which includes the mitigation site W45, totals approximately 495 acres and is located on either side of I-5 in Del Mar, San Diego County, California (Figures 1 and 2). The site is bounded on the north by Border Avenue, on the west by Camino Del Mar Avenue, on the south by San Dieguito Drive, and on the east by Del Mar Race Track. The SDLWRP site is included on the Del Mar Quadrangle (USGS 7.5 minute series) and is located at approximately 32° 58' N and 117° 15' W.

For a description of the entire SDLWRP site, including its land use history, hydrology, soils, and vegetation, see the Final EIR / EIS (JPA and USFWS 2000). The EIR is available online at: www.sce.com/powerandenvironment/powergeneration/marinemitigation/environmentalimpactreports.htm

1.5 Summary of Project Impacts

1.5.1 Acreage of permanently impacted jurisdictional areas

Table 1 lists permanent impacts of the SDLWRP and associated projects to Corps wetlands and to Corps Waters of the U.S., as determined by a Corps delineation (WRA 2004; verified by the Corps on October 5, October 15, and November 4, 2004).

Table 1. Permanent wetland impacts related to SDLWRP and associated projects (May 11, 2005)

Project Element	Impacts to Waters: Corps Jurisdiction	Impacts to Wetlands: Corps Jurisdiction
Coast to Crest Trail	0	0.01
River Berms	0.01	0.81
River Berm Slope Protection	0	0.14
Wetland Treatment Basin	0	0.60
Permanent Maintenance Road	0	0.13
Wetland Creation for Villages Mitigation Bank *	0	0.40
Nesting Sites **	0	2.12

* Mitigation for Villages Mitigation Bank will be compensated for by SCE as part of the mitigation bank project
 ** Mitigation for nesting sites, if required, will be the responsibility of the 22nd District Agricultural Association

Permanent impacts to existing wetlands within the SDLWRP area would result from construction of river berms and slope protection placed along portions of river berms, trails, berms in wetland stormwater treatment basins and nesting sites. Temporary impacts to existing wetlands and waters would result from the creation of wetlands for SCE SONGS mitigation and excavation to create wetland slopes during SONGS wetland creation, W45 mitigation, from inlet dredging and construction of haul roads and staging areas. Temporary impacts for SDLWRP components will be compensated for by the overall restoration plan. Temporary and permanent wetland impacts resulting from wetland creation in the Villages Mitigation Bank will be compensated for by wetland creation within the Villages Mitigation Bank (see Villages Wetland Construction and Monitoring Plan, SCE 2004a, for details).

1.5.2 Functions and values of impacted jurisdictional areas

The following is a brief description of the impacted jurisdictional areas (refer to Figure 2 for location of modules):

- The wetlands impacted temporarily by wetland creation for SONGS mitigation are those in modules W1, W2a, W2b, W3, W4, W5, and W10. Seasonal, saline wetland habitat dominated by pickleweed (*Salicornia* spp.) is found in W1, W2a, W2b, W3, and W4. Along the San Dieguito River in modules W5 and W10 there is a narrow band of coastal salt marsh habitat dominated by pickleweed (*Salicornia virginica*), jaumea (*Jaumea carnosa*), and salt grass (*Distichlis spicata*).
- The wetlands impacted permanently during excavation of wetland slopes in W4 and W45 are seasonal wetlands dominated by pickleweed. Some permanent impact will also occur to seasonal ponds in W45 during excavation of wetland slopes.
- The wetlands impacted by wetland creation in the Villages Mitigation Bank are described in the Villages Wetland Construction and Monitoring Plan (SCE 2004).
- The ‘waters’ impacted temporarily by inlet dredging are portions of the San Dieguito River in modules W1 and W17.
- The wetland impacted permanently by river berm construction and slope protection in module B7 is seasonal, saline wetland habitat dominated by pickleweed (*Salicornia* spp.), while that in B8a is coastal salt marsh habitat dominated by pickleweed and jaumea (*Jaumea carnosa*).
- The wetlands impacted permanently by nesting site construction in modules NS11 and NS12 are seasonal, saline wetlands dominated by pickleweed (*Salicornia* spp.).
- The wetlands impacted permanently and temporarily by creation of the Coast to Crest Trail outside of module TP41 are coastal salt marsh habitats along the San Dieguito River dominated by pickleweed (*Salicornia virginica*), jaumea (*Jaumea carnosa*), and salt grass (*Distichlis spicata*). The ‘waters’ impacted permanently and temporarily by creation of the trail is a drainage ditch.

- The wetlands impacted temporarily by construction of the wetland stormwater treatment basins and the Coast to Crest Trail within module TP41 are seasonal saline and freshwater wetlands characterized by pickleweeds (*Salicornia* spp.), sparscale (*Atriplex triangularis*), alkali heath (*Frankenia salina*), annual salt marsh aster (*Aster subulatus* var. *ligulatus*), southwestern spiny rush (*Juncus acutus*), annual rabbitsfoot grass (*Polypogon monspeliensis*), curly dock, (*Rumex crispus*), and rough cocklebur (*Xanthium strumarium*).

All previously described wetlands provide limited water retention and floodflow alteration, groundwater recharge, and removal of sediments, nutrients, and contaminants. These wetlands may provide some habitat for wildlife and currently support some common native plant species. The functions and values of these wetlands will be increased by conversion to tidal marsh, which will be dominated by native species. The W17 portion of the river will have increased circulation and storage capacity following dredging.

2.0 MITIGATION GOALS

This section discusses mitigation measures for permanent impacts to existing wetlands onsite, resulting from the construction of river berms, trails, and berms at the site of the wetland treatment basins (Table 2). A mitigation area (W45) has been identified onsite to compensate for temporary impacts associated with the SONGS mitigation and permanent impacts associated with river berms, river berm slope protection and the permanent maintenance roads (Figure 2). Permanent impacts associated with the trail will be mitigated onsite adjacent to I-5. Permanent impacts to the treatment pond will be mitigated offsite. All permanent impacts to Corps wetlands and waters will be mitigated at a 2:1 (acres created: acres impacted) ratio.

Table 2. Mitigated impacts for permanent loss of wetland area (May 11, 2005)

Project Element	Responsible Party	Mitigation Area	Corps Wetland Acreage (2:1)	CCC Waters Acreage (2:1)
Coast to Crest Trail	SCE	Along I-5	0.02	0
River Berms	SCE	W45	1.62	0.02
River Berm Slope Protection	SCE	W45	0.28	0
Wetland Treatment Basins	SCE	Offsite	1.20	0
Permanent Maintenance Road	SCE	W45	0.26	0
Wetland Creation for SONGS Mitigation	SCE	W45	0.72	0

Mitigation goals related to W45 will be discussed in this section. For a description of mitigation goals related to the SDLWRP, including functions and values and types of habitat to be constructed, please refer to the Final Restoration Plan (SCE 2005).

Temporary wetland impacts within the Project Area resulting from the SDLWRP will be compensated for by the overall restoration project. Wetland impacts resulting from wetland creation in the Villages Mitigation Bank will be compensated for by wetland creation within the Villages Mitigation Bank (see Villages Wetland Construction and Monitoring Plan, SCE 2004a, for details).

2.1 Goals of Proposed Mitigation

The goal of the overall SDLWRP project is ‘to restore a significant portion of the site east and west of I-5 to tidal wetlands consisting of subtidal, intertidal mudflat, coastal salt marsh, and transitional wetland habitats created through excavation and grading of existing high elevation areas’ (SCE 2004b). The goal of the mitigation program described in this plan is to result in “no net loss” of habitat functions and values currently associated with the SDLWRP site. A mitigation area (W45) will be integrated into the SDLWRP. The inclusion of the W45 mitigation area in the larger SDLWRP results in a larger network of restored wetland habitat. W45 is a seasonal wetland that will be created to offset wetland impacts associated with the construction of river berms, permanent maintenance road, and to mitigate for temporary impacts associated with wetland restoration and creation. Creation of the W45 mitigation wetland will enlarge an existing network of seasonal wetlands located adjacent to the site.

2.2 Existing Functions and Values of the Mitigation Area

W45 is a mostly bare area consisting of disturbed land used as an access road and truck turnaround as well as some plowed agricultural fields that were fallow in Summer 2004. Due to its location in the surrounding landscape and to long-term compaction by machinery and trucks, a portion of the area ponds seasonal water, but conditions have not been suitable to establish wetland vegetation. Sparse vegetation includes ruderal species such as alkali weed (*Cressa truxillensis*), ragweed (*Ambrosia psilostachya*), and Bermuda grass (*Cynodon dactylon*). Adjacent to the W45 site are active and fallow agricultural fields and seasonal wetlands. Some permanent and temporary impacts will occur to existing wetlands and waters within and adjacent to the W45 area; this impacts will be mitigated by construction of W45.

Functions and values of the site are currently low, as the site does not serve as native plant or wildlife habitat or provide functions such as water retention or removal of sediments or nutrients. A small portion of W45 currently functions as agricultural land.

2.3 Types of Habitat to be Constructed

Seasonal alkaline wetland will be created in W45 (Figure 2). The created wetland will be contiguous with existing seasonal wetland, which supports a diversity of plant and bird species. Increasing the size of seasonal wetland habitat in this area will be beneficial to plants and wildlife and will result in a greater area where water can pond.

3.0 IMPLEMENTATION PLAN

The following discussion describes the implementation procedures and techniques for the construction of mitigation areas that are required to offset permanent impacts related to the SDLWRP and associated projects. A qualified biologist will be retained by Southern California Edison to monitor the mitigation efforts in accordance with this mitigation plan. The biologist may make minor modifications to the implementation of the mitigation plan based on field conditions and unforeseen circumstances.

3.1 Construction Schedule

The SDLWRP will occur in three phases over a two-year period. Phase I and Phase II construction will occur during Year 1 (from September 1 to August 31). Phase III construction will occur during Year 2. Under the assumption that the mitigation area will be constructed as part of the SDLWRP, construction of W45 will occur in Phase II in order to utilize pickleweed salvaged during Year 1.

3.2 Site Preparation and Construction Methods

Applicable excerpts from the Standard Specifications for the SDLWRP, which provide details on construction and planting methods, are provided in Appendix A. The conceptual wetland grading plan is shown in Figure 4; a representative cross section is included as Figure 5.

The W45 mitigation site will be grubbed, scraped, and graded to form wetland topography. The existing upland topsoil will not be salvaged since it would probably not support the desired wetland plants and does not contain a seed bank of wetland species. New wetland topsoil will be brought in and used to form the wetland surface. Grading and grubbing will be done with standard construction grading equipment used by the other construction efforts of the SCLWRP. Excavated material will be hauled by trucks to a nearby on-site disposal area. Existing dirt roads will be used to access the site. BMPs such as silt fencing will be employed during construction to keep silt and sediments out of nearby wetlands.

The wetland will be excavated to create an approximately 3.5-acre central depression that will provide open water habitat in the winter and vegetated seasonal wetland habitat in the summer. The remainder of the wetland (about 4.7 acres) will have side slopes designed to distribute water over a large area and provide a gradient of hydrologic conditions for wetland plants. The entire mitigation wetland will be ponded during the winter, but will dry up seasonally along the slope gradient. Wetland slopes will be revegetated with native wetland plants as described below. The total mitigation acreage to be created will be at least 8.65 acres.

Following construction of the mitigation wetland, the equipment will be demobilized and the construction staging areas and access areas will be uncompacted, revegetated, and restored where they were disturbed by construction.

3.3 Planting Plan

Establishment of wetland vegetation in the mitigation area will involve a combination of natural recruitment and planting/seeding. Target plant species for W45 consist of native, alkaline-adapted plants occurring in nearby existing seasonal wetlands and as found in impacted wetlands. Topsoil containing native seed and/or plant material, particularly pickleweed, will be salvaged during construction activities in the SDLWRP will be used to encourage establishment of wetland vegetation. In addition, topsoil which may contain seed of two special status plant species, Southern tarplant (*Centromadia parryi* ssp. *australis*) and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) will also be salvaged and re-deposited in W45. Limited seeding of tarplant may also occur if construction timing allows collection of plant material containing mature seed. Species that are expected to recruit naturally due to the proximity of

existing wetlands include pickleweed, sparscale (*Atriplex triangularis*), alkali heath (*Frankenia salina*), annual salt marsh aster (*Aster subulatus* var. *ligulatus*), southwestern spiny rush (*Juncus acutus*), saltgrass (*Distichlis spicata*), and seaside heliotrope (*Heliotropium curassavicum*).

Planting will take place in the fall to take advantage of winter rains. No irrigation will be necessary, as vegetation will be supported by precipitation and surface run-off in the newly constructed wetland. As a contingency measure should a dry year occur during wetland construction, the Contractor would irrigate newly placed pickleweed fragments from the time that fragments are placed until after the first significant rainfall of the rainy season. Irrigation water would be applied at a rate of 25,000 gallons per acre. The maximum time interval between irrigation applications would be five days. Even in a dry year, irrigation would not be necessary for placement of wetland topsoil or seed.

As-built conditions will be verified by the project engineer upon completion of wetland construction, and will be submitted to the Corps within 45 days.

4.0 MAINTENANCE

4.1 Short-term Maintenance Activities (First Five Years)

The seasonal wetland will be inspected regularly for species on the California Invasive Plant Council (Cal-IPC, formerly Cal-EPPC) list of invasive plants. If found, responsible parties will cooperate with federal and state authorities concerning appropriate eradication efforts.

Transplanted plants will be inspected regularly. If plant survival and/or vegetation cover is not meeting vegetation success criteria, additional planting will occur. However, time for natural recruitment and recolonization to occur should be allowed before initiating remedial plantings.

During the initial establishment period, erosion control measures will need to be instituted. These measures are incorporated as part of the overall restoration plan; however, inspections and repairs may be necessary and should be completed as soon as problems occur.

4.2 Long-term Maintenance Activities

It is expected that as the mitigation site matures, it will become more resistant to invasion by non-natives. However, regular inspection of the site by SCE personnel will likely discover plants that fall under the Cal-IPC listings. Control of invasive plants is species-specific and dependent upon the level of invasiveness. SCE and any subsequent responsible parties will cooperate with federal and state authorities concerning appropriate eradication efforts. Periodic trash removal may also be necessary, and responsible parties will coordinate trash removal efforts as appropriate.

5.0 MONITORING PLAN

5.1 Success Criteria

The mitigation efforts will be considered successful when the final success criteria are met. The following final success criteria for W45 should be achieved within five years following completion of construction:

- The mitigation wetland shall not undergo major topographic degradation (such as excessive erosion or sedimentation).
- The mitigation wetland will be seasonally inundated at a depth, duration, and frequency sufficient to support the planned seasonal wetland habitat type. The wetland will be inundated or saturated within the top 12 inches of the soil surface for a minimum period of 18 days.
- The percent cover of wetland vegetation in the mitigation wetland shall be within the range of 60 to 80 percent.
- Important functions of the wetland shall not be impaired by exotic species.

5.2 Target Jurisdictional Acreage to be Created/Enhanced

Approximately 8.65 acres of seasonal wetland habitat will be created in W45. This target acreage meets or exceeds the total mitigation acres required.

5.3 Monitoring Methods

To determine if the mitigation site is functioning as expected, annual monitoring would occur within the mitigation area for at least five years or until final success criteria are achieved. Monitoring of vegetation, hydrology, and soil will be conducted by a qualified wetland biologist with experience in mitigation monitoring.

The vegetation community will be monitored once annually along permanently established transects. Transects will extend from the northern boundary of the wetland to the southern boundary, perpendicular to the long axis of the wetland. Transect placement along the baseline should be random, and enough transects should be utilized to be representative of conditions in the entire wetland. Transects will also be established in an adjacent portion of the existing seasonal wetland, which will serve as a reference wetland.

Along the established transects in the mitigation and reference wetlands, percent cover by individual vascular plant species, algae, and unvegetated bare ground will be determined by cover class (six cover class system: <1, 1 to 5, 6 to 25, 26 to 50, 51 to 75, and 76 to 100%) in 0.25-m² quadrats. Quadrats will be placed at set intervals along each transect, for a total of approximately 30 quadrats in the mitigation wetland and 15 quadrats in the reference wetland. Total vascular wetland plant cover, total algal cover, and total bare ground will be calculated by averaging data from all quadrats within each wetland and will be expressed as a mean percent cover.

Vegetation establishment will also be monitored qualitatively by photographing the mitigation and reference wetlands annually from permanent photo-documentation stations at one or more locations in the mitigation wetland and in the reference wetland. Descriptive data concerning

plant health, survival of transplants, presence of non-wetland plant species within wetland areas, and cover by exotics will also be recorded.

Each year of the monitoring period, hydrology of the mitigation wetland will be monitored during the rainy season to ensure that it is functioning hydrologically as a seasonal wetland. Based on methodologies outlined in the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual, the wetland will be monitored periodically to ensure that soils are either inundated or saturated within the root zone (1.0 feet from the soil surface) for at least 18 continuous days. Photographs will be taken to document hydrologic conditions within the mitigation wetland and in the reference wetland.

5.4 Annual Reports

Monitoring will be required to document habitat development and determine if mitigation success criteria have been met. Annual reports that discuss monitoring methodology and present data and results will be submitted to SCE, JPA, RWQCB, DFG, CCC, and the Corps. Additional informal reports may also be prepared for interim monitoring of the wetland treatment basins. Reports will assess the progress in meeting success criteria, and identify any problems with flooding, erosion, sedimentation, vandalism, and/or other general causes of poor plant survival or wetland degradation. If necessary, recommendations to improve success in achieving success criteria will be made. Within 45 days of receiving the report, a review of the project by the resource agencies will occur and remedial measures will be recommended, if necessary. After five years, a final report describing the success of the mitigation in meeting the success criteria, and an evaluation of the success of any necessary corrective measures undertaken, will be prepared and submitted to these same agencies. Reports will be prepared by a qualified wetland biologist with experience in mitigation monitoring. Annual reports will be prepared and submitted to interested agencies by January 31 of each monitoring year.

6.0 COMPLETION OF MITIGATION

Mitigation activities will be considered complete when the final success criteria established in Section 5.1 are met.

6.1 Notification of Completion

SCE and JPA shall notify the CCC, RWQCB, DFG, and ACOE in writing upon attainment of the success criteria (See Section 5.1).

6.2 Agency Confirmation

Following receipt of the Notification of Completion, the CCC, RWQCB, DFG, and ACOE may arrange to visit the site in order to confirm the completion of the mitigation effort.

7.0 CONTINGENCY MEASURES

Should the mitigation wetland fail to meet final performance criteria, contingency measures may be required, such as re-design of the wetland or supplemental planting. Should such actions be required, SCE will be responsible for funding and implementation.

8.0 REFERENCES

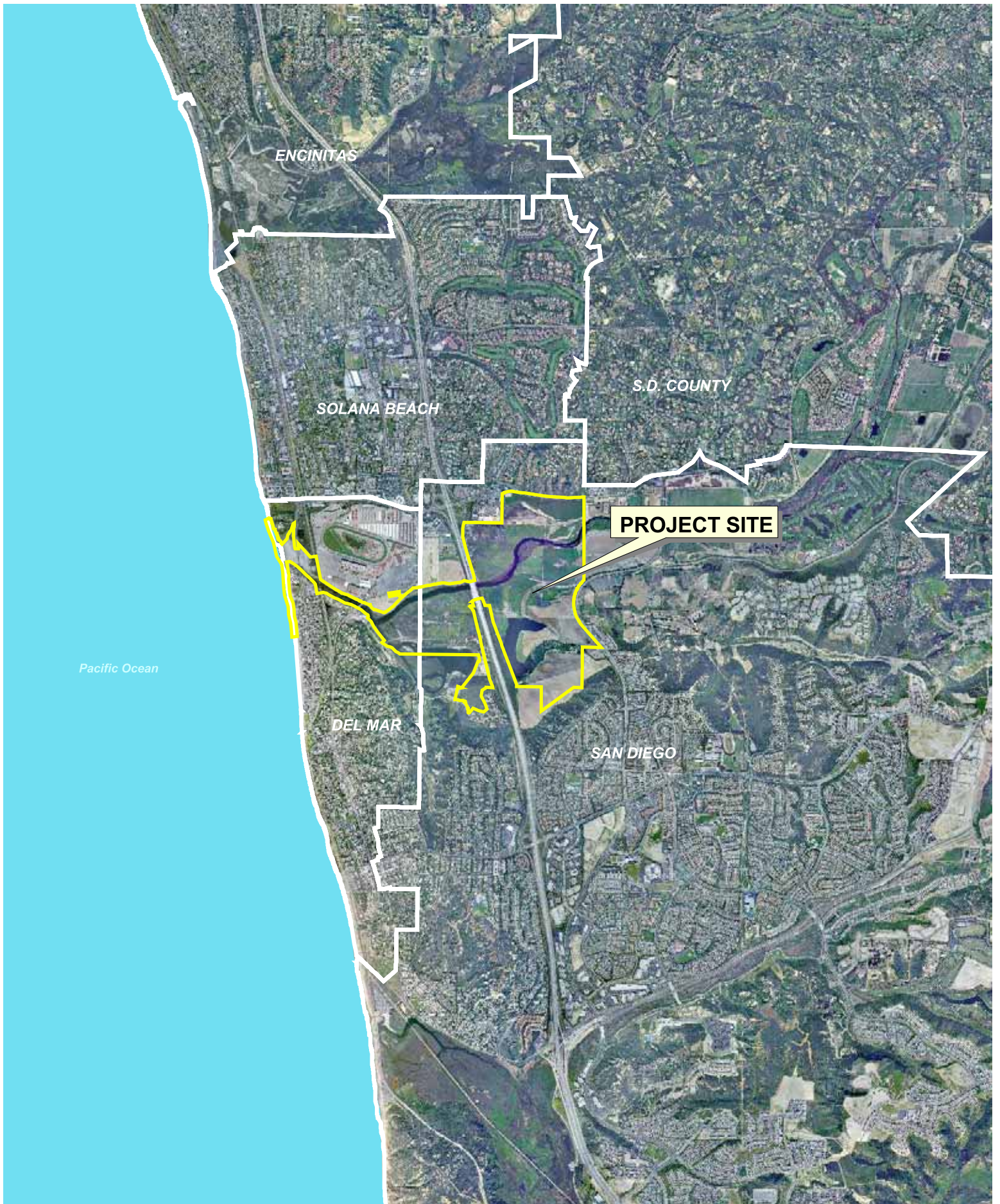
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Joint Powers Authority (JPA) and U.S. Fish and Wildlife Service (USFWS). September 5, 2000. San Dieguito Wetland Restoration Project, Final Environmental Impact Report / Environmental Impact Statement.

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Southern California Edison Company (SCE). 2004b. San Dieguito Wetlands Restoration Project Final Restoration Plan. Submitted to the California Coastal Commission. October 2001, revised October 2005.

Wetlands Research Associates (WRA). 2004. Delineation of Potential Jurisdictional Wetlands, Section 404 and Section 10 of the Clean Water Act, San Dieguito Lagoon Restoration Area. Submitted to the U.S. Army Corps of Engineers. April 2004. Prepared for Southern California Edison.



Project Vicinity Map

Figure 1

GIS exhibits may be composed from various sources with different levels of accuracy.
 For details on accuracy of this exhibit please refer to Meta Data provided.
 File Name:n:\APP-sd\lagóon_figures.apr
 Date: 6/9/04
 Aerial flown March 2003



PROJECT DESIGN CONSULTANTS
 Planning Environmental Engineering Survey/GPS
 701 B Street, Suite 800, San Diego, CA 92101
 619-235-5471 FAX 619-234-0340

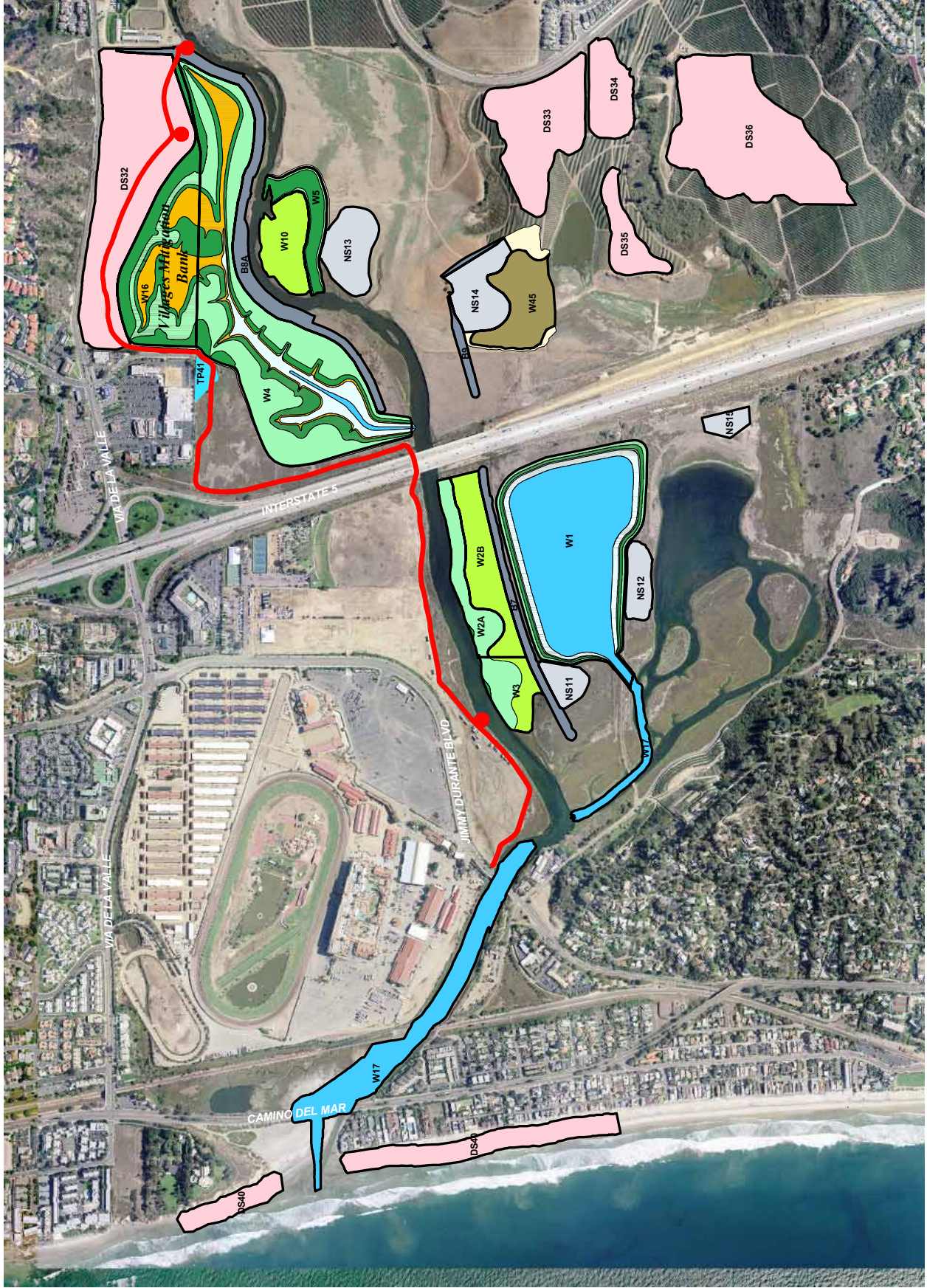
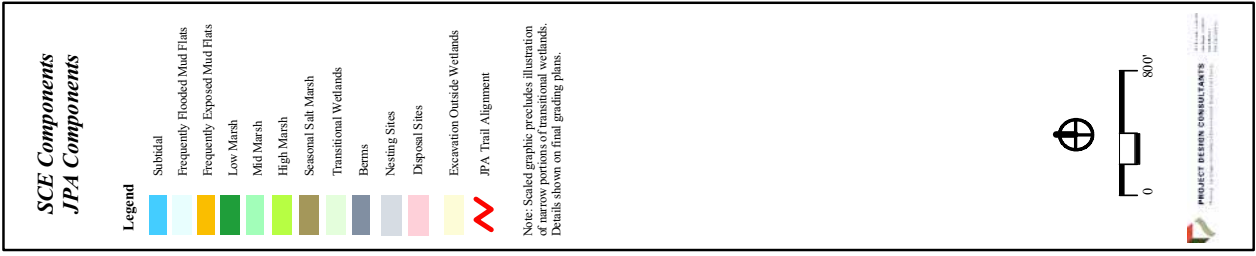
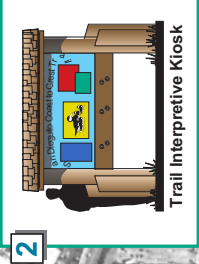
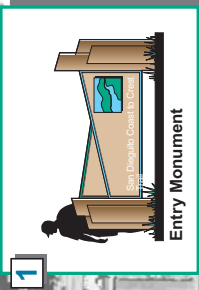


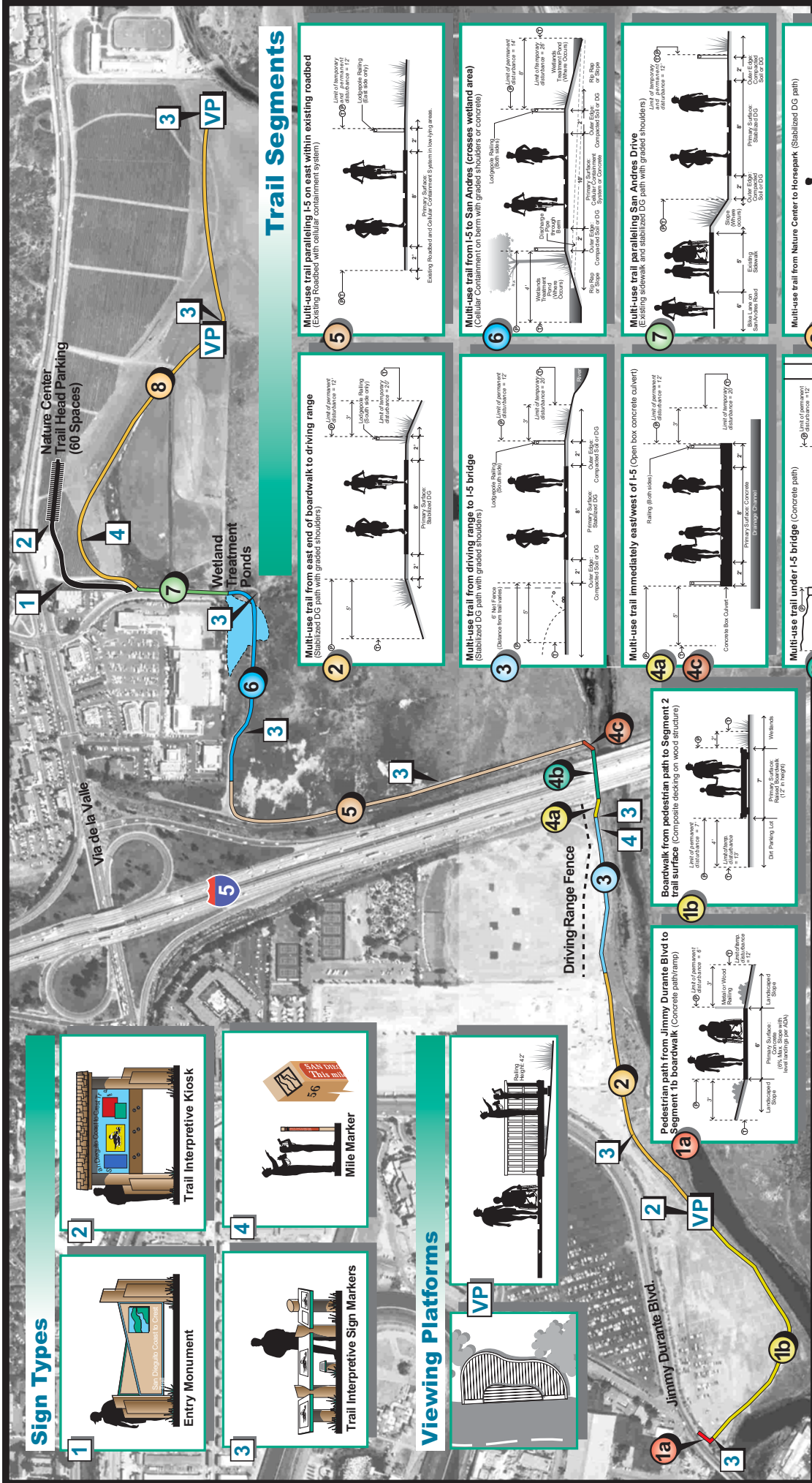
Figure 2

GIS satellite map & components of SCE wetlands are shown with different levels of accuracy. For details on accuracy of this satellite please refer to Map Data provided.

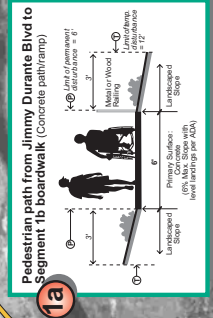
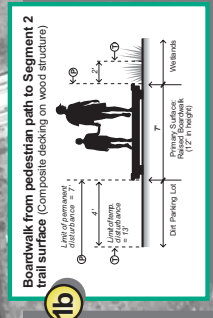
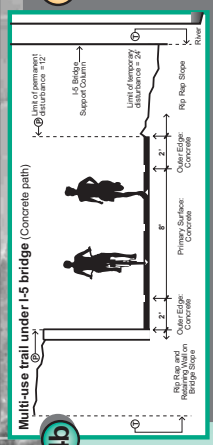
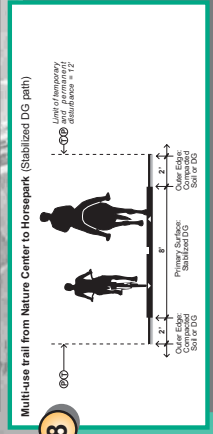
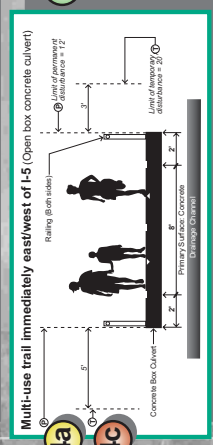
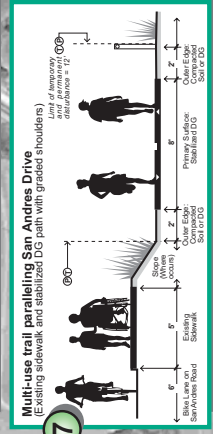
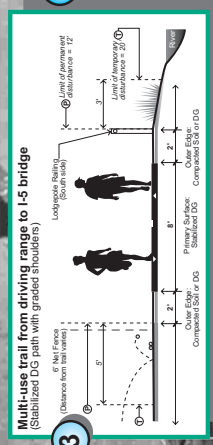
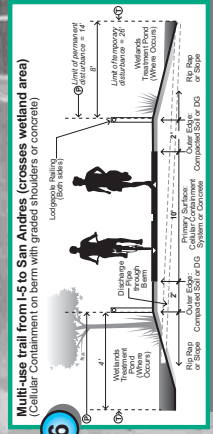
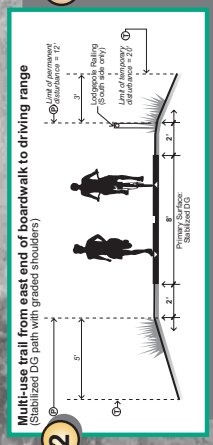
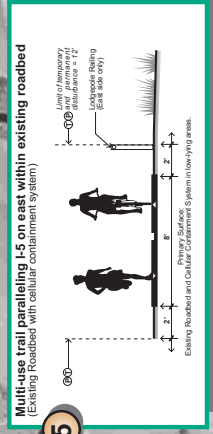
Sign Types



Viewing Platforms



Trail Segments



San Dieguito River Park Coast to Crest Trail

Figure 3

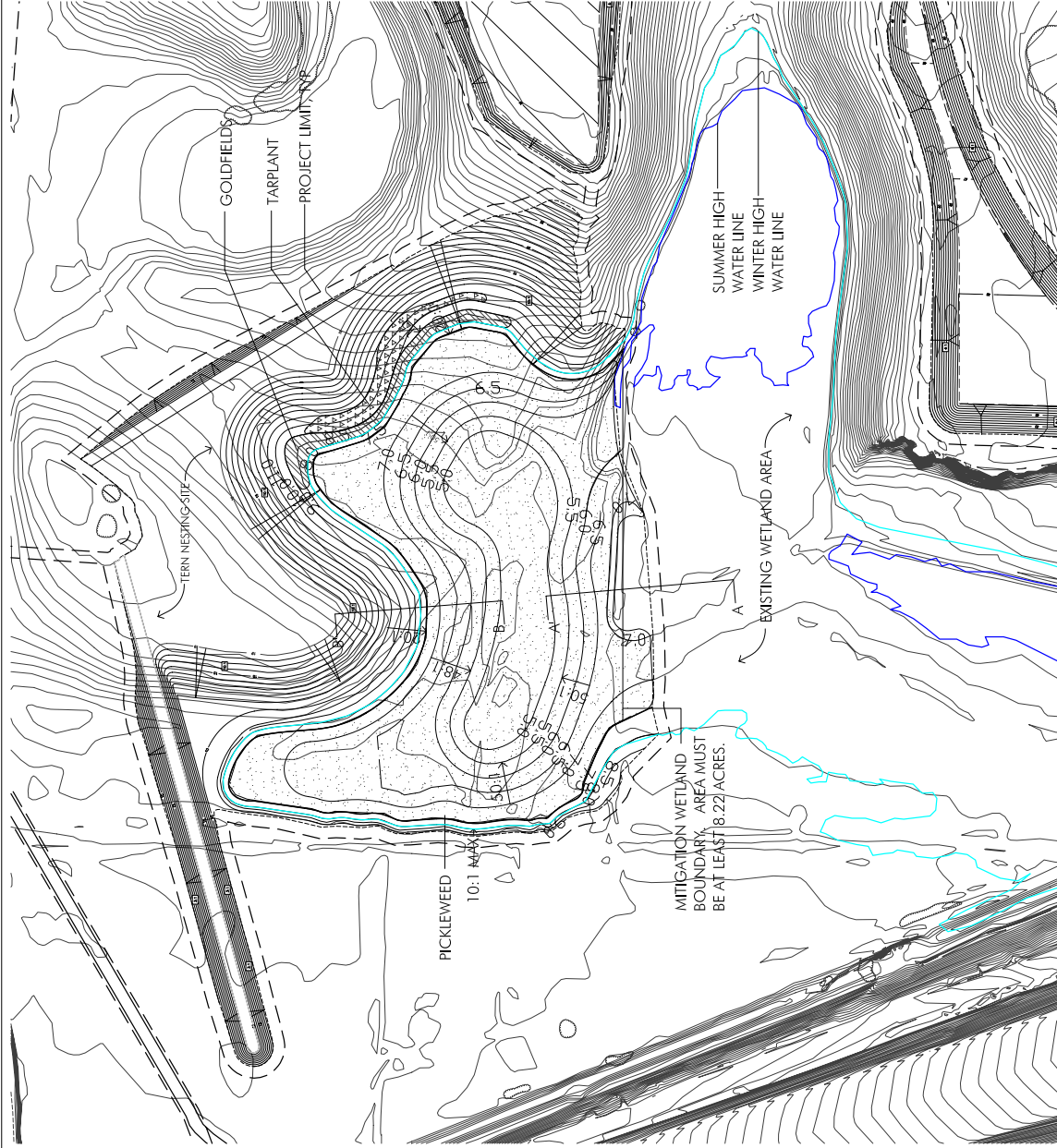


FIGURE 4
 Mitigation Wetland 45
 Schematic Grading Plan
 REVISED MARCH 2006



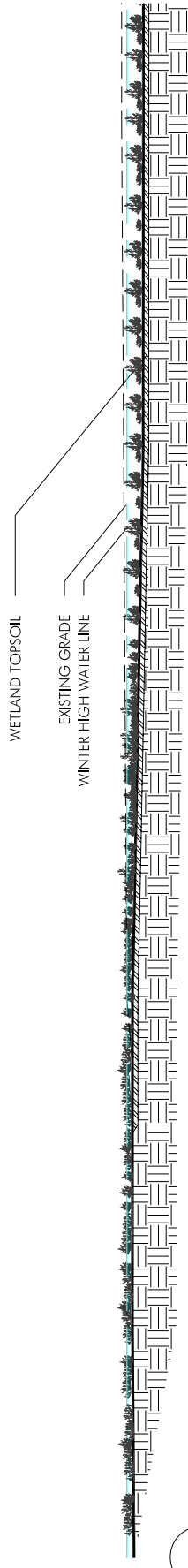
2169-G East Francisco Blvd.
 San Rafael, CA 94901
 (415) 454-8868 Phone
 (415) 454-0129 Fax



MITIGATION WETLAND 8.22 ACRES

EXISTING WETLAND TO REMAIN

PICKLEWEED FRAGMENT AND SEEDBANK PLACEMENT

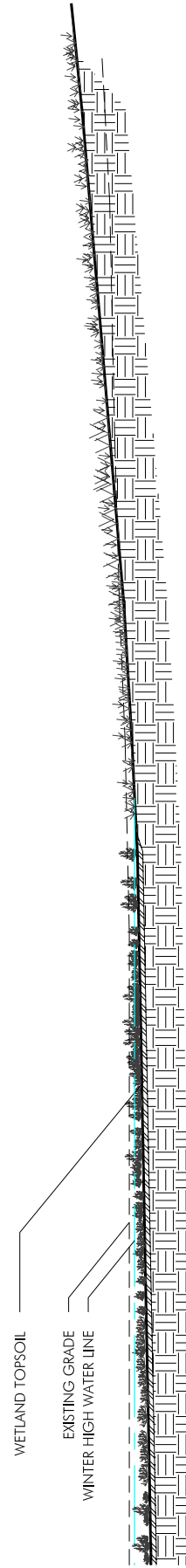


1 SECTION A
MITIGATION WETLAND SCHEMATIC GRADING AND PLANTING

MITIGATION WETLAND 8.22 ACRES

PICKLEWEED FRAGMENT AND SEEDBANK PLACEMENT

NATIVE GRASS SEEDING



2 SECTION B
MITIGATION WETLAND SCHEMATIC GRADING AND PLANTING

FIGURE 5
Mitigation Wetland 45
Schematic Cross Sections
REVISED MARCH 2006



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APPENDIX A.

SPECIFICATIONS FOR MITIGATION WETLAND

**(APPLICABLE SECTIONS FROM THE SDLWRP STANDARD
SPECIFICATIONS)**

PART 2

SPECIAL PROVISIONS - CONSTRUCTION MATERIALS

PART 2 SHALL CONFORM TO PART 2 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENT AMENDMENTS, EXCEPT FOR THE FOLLOWING CHANGES AND/OR ADDITIONS:

SECTION 212 – LANDSCAPE AND IRRIGATION MATERIALS

212-1 LANDSCAPE MATERIALS

212-1.3 Seed

ADD:

212-1.3.1 Rare Plant Seed

The Contractor may also be required to furnish seed for southern tarplant (*Centromadia parryi* ssp. *australis*) and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulter*). During the earlier implementation phase of project, the Wetland Consultant will perform a site survey to determine the presence or absence of these species. If these species are found, then the Contractor shall furnish seed for these species.

212-1.3.2 Plant Species Identification

Plant species identification shall be in accordance with The Jepson Manual - Higher Plants of California, James C. Hickman, editor, University of California Press, Berkeley.

212-1.3.3 Seed Rates and Estimated Quantities

The drawings indicate the seeding rates for each species. The drawings also contain estimates of the required seed quantities. Seed quantities are provided as a convenience to the Contractor and do not supercede the quantities calculated directly from the drawings.

212-1.3.4 On-site Source for Rare Plant Seed

The Contractor shall collect seeds from the locations indicated on the plans. These are locations where the plants were found during prior plant surveys.

212-1.3.5 Off-site Source for Rare Plant Seed

The Contractor may propose alternative sources for seed, if the on-site source is unavailable. Purchased seeds shall be collected from wild lands

within 50 miles of the San Dieguito site. Alternative sources of seed shall be approved by the Wetland Consultant

212-1.3.6 Criteria for Accepting Seed

1. Seed shall be supplied on the basis of Pure Live Seed (PLS).
2. The seed shall be from crops that are one (1) year old or less.
3. All seed shall be cleaned/threshed/screened to remove the fruiting bracts, scales, floral parts, awns, perigynia, and other non-seed debris to the maximum practicable extent.
4. Unless otherwise specified, seed shall not contain in excess of one percent (1%) of weed seed. Weeds are defined as any plant species not listed in the plant specifications.
5. Analysis sampling and testing of the seed and seed tag-labeling requirements shall be in accordance with the Rules and Regulations of Testing Seeds adopted by the Association of Official Seed Analysis (1984).
6. Seed bags shall be labeled and labels shall indicate certified net weight, date of germination tests, supplier's name, and certified guarantee of analysis including the composition, purity, and germination percentages, and percent weed seed. At the time of delivery the germination test shall be less than nine months old.
7. The seed shall be supplied as single species. Seed bags shall be delivered to the site unopened.
8. The Contractor shall be solely responsible for the storage of seed according to the best seed storage practices. Seed shall be kept dry and unopened until needed for use.

212-1.4 Plants

212-1.4.1 General

ADD:

Plant species identification shall be in accordance with The Jepson Manual - Higher Plants of California, James C. Hickman, editor, University of California Press, Berkeley.

The Contractor shall determine the required number of plants based on the area to be planted, the elevation range for planting, the size and distribution of the planting plots, and the plant spacing.

ADD:

212-1.4.7 Live Pickleweed Fragments

Pickleweed shall be *Salicornia virginica*. Live pickleweed fragments shall be defined as a plant fragment that has a minimum length of four (4) inches and maximum length of seven (7) inches. In addition the fragments shall have at least five (5) intact contiguous vegetative segments.

ADD:

212-1.6 Wetland Topsoil

Wetland topsoil is defined as topsoil that is appropriate for placement within newly created high marsh tidal zones and within the Module W45. Typically this type of topsoil has high clay and silt content. The following paragraphs contain the detailed specifications for wetland topsoil.

It is unlikely that there are soils on site that meet the requirements for wetland topsoil. However, there are soils on site that have high enough clay/silt content to be used to formulate a wetland topsoil by adding imported clay or clay topsoil. The Contractor shall formulate wetland topsoil in the most affordable manor possible. In order to meet this objective, the Contractor shall, to the maximum extent possible, use soil from on site to formulate the wetland topsoil.

212-1.6.1 Wetland Topsoil Texture

The wetland topsoil shall have a mixture of sand, silt, and clay components within the ranges that are listed below. Sand, silt, clay, gravel, cobbles and stones are defined in accordance with USDA standard sizes. The objective is to create wetland topsoil with a soil texture similar to the naturally occurring tidal marsh soils in this region.

1. Sand: 5 to 30 percent by weight.
2. Silt: 25 to 60 percent by weight.
3. Clay: 20 to 35 percent by weight.
4. Gravel: less than 1%

5. Cobbles and Stones: None

212-1.6.2 Physical & Chemical Properties

The wetland topsoil shall have the following physical and chemical properties.

1. pH: 5.5 to 7.4
2. Salinity: less than 50 PPT
3. Organic Matter: 1.5 to 3.0 percent by weight.
4. In addition, the wetland topsoil shall no invasive weed seeds, and no toxic contaminants.

212-1.7.3 Components & Amendments

The Contractor shall formulate wetland topsoil by mixing the following soil components: 1) wetland base soil, 2) clay or clay soil. These components are specified in the following subparagraphs.

The contractor shall also provide additional soil amendments to insure that the wetland topsoil can provide a growing medium for wetland plants to thrive. The requirements for additional soil amendments shall be based on the results of the soil fertility tests, and recommendations from the soil test laboratory and the Wetland Consultant. The following are typical soil amendments: 1) organic matter, 2) gypsum. These amendments are also specified in the following subparagraphs.

212-1.7.4 Wetland Base Soil

Wetland base soils are defined as soils that have enough clay and silt to make it practical to formulate a wetland topsoil by augmenting the wetland base soil with an imported clay or clay topsoil.

The Contractor shall, to the maximum extent possible, utilize wetland base soils from on-site. Based on a limited data, we identified potential on-site locations for wetland base soils. It should be noted that soils from these locations may vary in quality and suitability. The Contractor should reference the soil survey data for a description of these soils. The soil survey data is intended only as a guide for identifying potential sources for wetland base soils, and it is the sole responsibility of the Contractor to identify and qualify soils for use in formulating wetland topsoil. The Contractor may utilize wetland base soils from an off-site location only with prior written approval of the Wetland Consultant.

The Contractor shall perform Environmental Safety Tests using the procedures in these specifications to qualify wetland base soils. These test must be performed and approved before materials can be excavated and transport on-site or imported from an off-site location.

212-1.7.5 Physical and Chemical Properties of Wetland Base Soil

The wetland base soil shall have the following physical and chemical properties.

1. pH: 5.5 to 8.3.
2. Salinity: less than 78.1 ECe (50 PPT)
3. In addition, the base soil shall no invasive weed seeds, and no toxic contaminants.

212-1.7.6 Clay or Clay Soils for Wetland Base Soil

The Contractor shall furnish clay or clay soils and mix these components with the wetland base soil in order to create a wetland topsoil that meets the specified soil texture and physical and chemical properties. We anticipate that the Contractor will need to import clay or clay soils from an off-site location.

The Contractor shall perform Environmental Safety Tests using the procedures in this specification to qualify clay or clay soils prior to importing these materials to the site.

212-1.7.7 Physical and Chemical Properties of Clay or Clay Soils

The clay or clay soils shall have the following physical and chemical properties.

4. pH: 5.5 to 8.3.
5. Salinity: less than 78.1 ECe (50 PPT)
6. In addition, the base soil shall no invasive weed seeds, and no toxic contaminants.

212-1.7.8 Gypsum

The Contractor shall furnish and install gypsum in accordance with the recommendations included in the results of the soil fertility tests and approved by the Wetland Consultant. Gypsum shall be agricultural grade gypsum.

212-1.7.9 Organic Matter

The Contractor shall furnish and install organic matter in accordance with the recommendations included in the results of the soil fertility tests and approved by the Wetland Consultant. Organic matter may be decomposed kelp by-product, Biosol, green-waste compost or other material as specified by the soil test laboratory and approved by the Wetland Consultant.

212-1.7.10 Qualification Tests

See section 211-5

212-1.8 Seed Bank Topsoil

Seed bank topsoil shall consist of topsoil salvaged from where the following species are growing: pickleweed (*Salicornia virginica*), southern tarplant (*Centromadia parryi* ssp. *australis*), and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*). These areas are indicated on the drawings.

PART 3

SPECIAL PROVISIONS - CONSTRUCTION METHODS

PART 3 SHALL CONFORM TO PART 3 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENT AMENDMENTS, EXCEPT FOR THE FOLLOWING CHANGES AND/OR ADDITIONS:

SECTION 308 – EARTHWORK

308-2 EARTHWORK AND TOPSOIL PLACEMENT

ADD:

308-2.5 FURNISH AND INSTALL WETLAND TOPSOIL

308-2.5.1 General

This section Includes (but is not necessarily limited to): Procedures for formulating and placing wetland topsoil, including: excavating wetland base soils from on-site; importing wetland base soils, clay, and clay soils; mixing wetland topsoil, laying out placement areas, and placing wetland topsoil.

308-2.5.2 Related Sections

1. Wetland Topsoil, 212-1.7
2. Qualification Tests & Test Procedures, 211-5

308-2.5.3 Excavate Wetland Base Soils from On-site

The Contractor may excavate wetland base soils from the locations that are indicated on the drawings. The Contractor may also excavate wetland base soils from areas within the project limit of grading that do not have environmental restrictions. The Contractor shall perform fertility tests and environmental safety tests on excavated wetland base soils, clay, or clay soils prior to mixing these materials to formulate the wetland topsoil.

308-2.5.4 Import Wetland Base Soils, Clay, Clay Soils

In order to formulate wetland topsoil the Contractor may need to import quantities of wetland base soil, clay, and/or clay soils. If this is needed

the Contractor shall qualify and import the necessary quantities of wetland base soils, clay, or clay soils.

The Contractor shall perform fertility tests and environmental safety tests wetland base soils, clay, or clay soils prior to importing these materials on-site. These tests shall be performed on stockpiled materials. Test results must be reviewed and approved by the Wetland Consultant prior to importing these materials on-site.

308-2.5.5 Transporting Soil Materials

The Contractor shall comply with project specifications for transporting soil materials to the site. Within the site, the Contractor shall utilize haul roads that are indicated on the drawings. The Contractor shall comply with project specifications for transporting soil materials on-site.

308-2.5.6 Stockpile Areas

The Contractor shall store wetland topsoil, wetland base soil, clay, clay soils, and other wetland soil amendments within the designated staging areas. The Contractor shall comply with project specifications for creating and maintaining stockpile areas.

308-2.5.7 Formulate and Qualify Wetland Topsoil

The Contractor shall formulate the wetland topsoil by mixing wetland base soil with clay, clay soils and/or other soil amendments. The contractor shall perform a fertility test on the wetland base soil and determine the quantities of clay, clay soils, and other recommended soil amendments to add to the wetland base soil to formulate the wetland topsoil. The Contractor shall mix the wetland topsoil within a designated stockpile area

The Contractor shall perform fertility tests on the wetland topsoil and submit the results of this test to the Wetland Consultant for review. Wetland topsoil must be approved prior to placement. Wetland topsoil shall be tested when it is stockpiled.

308-2.5.8 Sub-grade Preparation

The elevation of the sub-grade within the placement areas must be lowered to accommodate the placement of wetland topsoil and seed-bank topsoil. The required depths of these topsoil types are indicated on the topsoil placement plans. The finished grades that are specified on the drawings for the placement areas indicate the final grade after topsoil has been placed.

308-2.5.9 Layout of Topsoil Placement Areas

The Contractor shall stake in the field the areas to receive wetland topsoil. The Wetland Consultant shall approve this layout prior to the application of topsoil. At the request of the Wetland Consultant, the contractor shall demonstrate that the placement areas are located within the specified elevation range.

308-2.5.10 Place Wetland Topsoil

Wetland topsoil shall be placed in the areas that are indicated on the drawings. The drawings also indicate the required depth of wetland topsoil. Wetland topsoil shall be placed in six-inch lifts and each lift shall be compacted to 85% relative density and the compaction shall not exceed 85% relative density.

308-2.5.11 Fine Grade Tolerance

The finished grades, after wetland topsoil has been placed, shall be within +/- 0.10 feet of the elevations shown on the plans. Finished grades between contour lines shall be uniform. The Contractor shall demonstrate, at the request of the Wetland Consultant, that the sub-grade and finished grade of the upland areas were graded in accordance with the plans within the tolerance levels and specifications contained herein.

308-2.5.12 Surface Treatment

The surface shall be smooth and free of irregularities such as ridges and ruts that impart a “constructed” or “artificial” appearance.

308-2.5.13 Access Restriction

After the final wetland topsoil is complete, the Contractor shall restrict access of vehicles and earth-moving equipment from entering the wetland module. In order to restrict access, the Contractor shall install orange construction fence along the upland edge of the wetland module, post the area as restricted access, and indicate that the area is a sensitive habitat area. The fence shall be placed a minimum of ten (10) feet from the upper elevation limit of the wetland module. The fence shall be removed when the Contractor has completed all construction activities within five hundred (500) feet of the wetland module. The signs shall be removed at the completion of the project. The Contractor shall be repair any and all damage to these areas that result from construction related activities. These repairs shall be made at no additional expense of the Owner.

308-2.5.14 Cleanup

Upon completion of work within each wetland module, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-2.7 FURNISH AND INSTALL SEED BANK TOPSOIL

This section applies to topsoil salvage from areas where the following species are growing: southern tarplant (*Centromadia parryi* ssp. *australis*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), and pickleweed (*Salicornia virginica*). Southern tarplant (*Centromadia parryi* ssp. *australis*), and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) are rare plants.

308-2.7.1 Related Sections

1. Submittal Procedures: Section 2-5.3.
2. Excavate, Stockpile & Place Upland Topsoil: Section 308-2.4
3. Seedbank Topsoil Section 212-1.8

308-2.7.2 Procedure for Submittals

In accordance with Part I Section 2-5.3, Submittals.

308-2.7.3 Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the drawings and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

308-2.7.4 Salvage and Placement Plan – Seed Bank Topsoil

Thirty days prior to the commencement of work, the contractor shall submit a salvage and placement plan for topsoil with rare plant seed.

The Contractor shall prepare a memorandum that provides specific information as to how the Contractor plans to implement the salvage and placement of topsoil with seed bank. The plan shall contain a schedule showing the staging of each wetland module, the location of soil stockpiles, estimated storage times, and an indication of the hauling routes that will be utilized. The plan shall identify any scheduling or staging conflicts and recommend solutions. The plan shall also describe the equipment to be

utilized to excavate, transport and place the topsoil. The Contractor shall make every effort to handle topsoil in an efficient manner and maximize success.

308-2.7.5 Layout of Salvage Areas for Seed Bank Topsoil

Prior to construction, the contractor shall stake areas within the limit of grading that are suitable for salvaging seed bank topsoil of specified plant species. Allowable areas for salvage are indicated on the drawings.

The Contractor shall stake the boundary of the salvage areas. Stakes shall be located at 50-foot intervals and clearly marked with a colored flagging. The selected color for flagging shall be consistent throughout the project and different from typical grade stakes

The Wetland Consultant must review and approve the layout for salvage of seed bank topsoil with the specified species prior to salvage. The Wetland Consultant may adjust the boundary of the salvage area in order to exclude areas that do not contain the specified species, expand the area to include additional plants, or exclude areas that contain unwanted upland or non-native plant species.

308-2.7.6 Preparation of the Salvage Area

Before collecting seed bank topsoil, the Contractor shall clear and grub all woody shrubs and trees including roots from the collection areas. The Contractor shall roto-till the salvage area unless otherwise directed by the Wetland Consultant. The areas shall be tilled to a depth equal to that of the depth of collection.

308-2.7.7 Excavation - Seed Bank Topsoil

Topsoil shall be excavated from the areas within the limit of grading designated on the drawings. Excavation outside those areas depicted on the drawings and/or approved by the Wetland Consultant shall not be allowed. Excavation shall be conducted in a manner that prevents undesirable materials from entering into the excavated areas. Seed bank topsoil shall be excavated to a depth indicated on drawings. The tolerance for depth is \pm one (1) inch.

308-2.7.8 Hauling – Seed Bank Topsoil

The Contractor shall transport soil with seed via haul roads that are indicated on the drawings and in accordance with the project specifications for transporting soil materials on-site.

308-2.7.9 Stockpiling – Seed Bank Topsoil

If the Contractor needs to store seed bank topsoil onsite, then he or she shall store this material in one of the designated staging areas. Management of the stockpile areas is defined in the project specifications for stockpiles. The Contractor shall store seed bank topsoil in such that each species is kept separate, except where species are growing together naturally. Seed bank topsoil shall be stored separately from all other types of soil.

308-2.7.10 Layout of Placement Areas for Seed Bank Topsoil

The drawings specify where to place topsoil with seed bank. Within these areas, seed bank topsoil shall be placed within the elevation ranges specified on the drawings. The elevation range refers to finished grade.

308-2.7.11 Stake Finished Grade Elevations

The contractor shall stake the finished elevations for placement of seed bank topsoil. Stakes shall be placed at a minimum interval of fifty (50) feet. The contractor shall use 1"x1" wood stakes. The Contractor shall layout the placement of seed bank topsoil in one entire wetland module at a time. When requested by the Wetland Consultant, the contractor shall demonstrate that the placement areas are located within the specified elevation range.

In a manner that is consistent throughout the project, the Contractor shall attached colored flagging to the stakes. The flagging should indicate the upper and lower boundaries for placing seed bank topsoil and distinguish these areas from the Cordgrass planting areas.

308-2.7.12 Placement of Seed Bank Topsoil

The seed bank topsoil shall be placed at a depth indicated on drawings. The seed bank topsoil shall not be compacted.

308-2.7.13 Access Restriction

After seed bank topsoil is placed, the Contractor shall restrict access of vehicles and earth-moving equipment from the area. In order to restrict access to the placement areas, the Contractor shall install orange construction fence along the upland edge of the placement areas where they are adjacent to haul roads. The Contractor shall post the area as restricted access and indicate that it is a sensitive habitat area. The fence shall be placed a minimum of ten (10) feet from the upper elevation limit of these areas. Signs indicating restricted access shall be located along the outside of the fence and be placed at a minimum interval of 150 yds. The fence shall be removed when the Contractor has completed all construction activities one thousand (500) feet of the wetland module. The signs shall be removed at the completion of the project. The Contractor shall be repair any and all damage to these areas from construction related activities. These repairs shall be made at no additional expense of the Owner.

308-2.7.14 Clean Up

Upon completion of work within each wetland module, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4 PLANTING

ADD:

308-4.10 Collection and Seeding of Rare Plants

This section applies to the following species: southern tarplant (*Centromadia parryi* ssp. *australis*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), and red sand verbena (*Abronia maritima*). These are rare plants. They have been previously identified on site; however, the number and quantity of plants vary from year to year. The amount of seed that will be generated by these plants will be very small. This section includes (but is not necessarily limited to):

1. Site preparation.
2. Field collection of seed.
3. Furnishing and installing seed.
4. Maintaining seeded areas until acceptance by the Wetland Consultant.

300-4.10.1 Related Sections

1. Submittals, Section 2-5.3
2. Red Sand Verbena, Section 212-1.4.9
3. Rare Plant Seed, Section 212-1.3.1

300-4.10.2 Submittals

Procedure in accordance with Part I Section 2-5.3, Submittals.

300-4.10.3 Submittals – Seed Inventory List

Within 30 days of the award of the Contract, the Contractor shall submit a complete list of the plant material that will be used for this section. The list shall include the plant species, genetic origin, quantity, and scheduled delivery date. Any deviation from the plant specifications shall be clearly identified to the Wetland Consultant. Upon rejection of any plant material, new plant material shall be selected until all of the plant material is in compliance with the specifications as determined solely by the Wetland Consultant

300-4.10.4 Submittals – Collection, Seeding, and Transplanting of Red Sand Verbena Plan

The Contractor shall prepare a plan to collect red sand verbena seed from designated areas and to plant seeds in designated new planting areas for submittal. If alternative sources of red sand verbena seeds are necessary, the Contractor shall include a detailed description of the sources including location of the parent plant material. The Wetland Consultant must approve the plan prior to commencing work.

300-4.10.5 Quality Assurance – Statement of Qualification for Field Collection

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification from the Native Plant Nursery that will collect and grow the species listed above. The statement of qualifications shall contain a history of business and past record of collecting the species listed above or other similar species: 1) project name; 2) quantity collected 3) description of procedures used; and 4) client reference.

300-4.10.6 Quality Assurance – Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant

300-4.10.7 Seed Collection Window

The recommended time to collect southern tarplant seed is between February 1st to June 15th and September 1st to November 15th.

The recommended time of collection for Coulter's goldfields seed is between February 1st and June 15th.

The recommended time of collection for red sand verbena is from February 1st to June 15th and September 1st to November 15th. Flowering is most prevalent shortly after a rainfall.

The Contractor shall confirm that the plants are present and provide verification to the Wetland Consultant. If present, the Contractor shall collect seeds prior to conducting construction activities in the locations specified on the drawings. The Contractor shall monitor the specified donor plants to determine when the seed is mature. The Contractor shall collect seed three (3) times during the ripening time to ensure adequate collection of viable seed. The seed collections shall be stored separately. Each seed collection shall be tested to determine the germination rate. The Contractor shall use seed from the collection with the highest germination rate.

300-4.10.8 Seed Collection Procedure

The Contractor shall collect seeds prior to conducting construction activities in the locations specified on the drawings. The Contractor shall monitor the specified donor plants to determine when the seed is mature. The Contractor shall collect seed three (3) times during the ripening time to ensure adequate collection of viable seed. The seed collections shall be stored separately. Each seed collection shall be tested to determine the germination rate. The Contractor shall use seed from the collection with the highest germination rate.

300-4.10.9 Seeding Window

It is recommended that the rare plant seed be placed just before or just after the first rainfall of the rainy season. The seeding window for southern tarplant, Coulter's goldfields and red sand verbena is between November 1st and December 15th.

The work shall not be started until all earthwork in the area requiring seeding has been completed. Seeding shall not be done during periods of rain, severe drought, frozen grounds, or other conditions that preclude satisfactory results. All seeding is to be done in moderately dry to moist (not flooded) soil and at a time when wind does not exceed a velocity of ten (10) miles an hour, or as directed by the Wetland Consultant. The Contractor shall notify the Wetland Consultant at least forty-eight (48) hours in advance of the time he/she intends to begin sowing seed and shall not proceed with such work until permission to do so has been obtained. When delays in operations carry the work beyond the dates specified in the schedule or when weather conditions are such that satisfactory results are not likely to be obtained, the Wetland Consultant shall stop the work. The work shall be resumed with the approval of the Wetland Consultant when the desired results are likely to be obtained or when approved corrective measures and procedures are adopted. In addition, the Contractor shall seed within the stated time windows.

If hydro-seeding for erosion control is specified in the same areas and is to be seeded within 8 months of the seeding of rare plants, the rare plant seed shall be applied first or the rare plant seed shall be applied during the seeding window of the next year.

300-4.10.10 Layout of Seeding Area

The Contractor shall locate seeding areas as specified on the drawings and confirm them with the Wetland Consultant prior to installation.

300-4.10.11 Site Evaluation

The Contractor must examine the area and conditions under which work is to be performed. The area must be properly prepared before seeding begins. The Wetland Consultant is to be notified in writing of conditions detrimental to the proper and timely completion of work. The Contractor shall identify those areas that are detrimental for seeding and consult with the Wetland Consultant to determine corrective actions. Seeding work is not to proceed until either the condition is corrected or a waiver is granted from the Wetland Consultant.

300-4.10.12 Preparation of Planting Area for Coulter's Goldfields and Southern Tarplant

Areas to be seeded shall be maintained at approved grades. All mechanical equipment for soil preparation or seeding shall be approved and shall pass parallel to the contours unless otherwise directed by the Wetland Consultant. The site preparation option utilized shall be as shown on the plans. If no site preparation option is shown on the plans, the Contractor shall till, smooth, and firm seedbed as described below. When indicated on the plans, no-till broadcast seeding shall occur over established turf and vegetation without additional site preparation. For all areas, if grading has just been completed and the soil is loose and friable, not eroded or crusted, the tilling step may be omitted if approved by the Wetland Consultant.

Areas to be tilled shall be tilled to a minimum depth of four (4) inches by disking or plowing and smoothed by harrowing or dragging. The Contractor shall be responsible for performing all work necessary to achieve and maintain an acceptable seedbed prior to seeding as directed by the Wetland Consultant at no additional cost to the Client.

300-4.10.13 Preparation of Planting Area for Red Sand Verbena

Non-native iceplant plants shall be cleared and roots grubbed completely in the designated planting areas one year before distributing seeds of red sand verbena and again just before distribution. The Contractor shall not harm existing red sand verbena plants in the planting area.

300-4.10.14 Pre-watering

Seeding shall occur on moist soils. If required for good establishment as determined by the Wetland Consultant, the area shall be watered prior to the seeding operation at the rate of 25,000 gallons of water per acre, with costs for this watering incidental to the item.

300-4.10.15 Seeding Method

The seed shall then be uniformly and evenly broadcast over the designated areas at a density that shall achieve a minimum of twenty (20) pure live seeds per square foot, as solely determined by the Wetland Consultant.

Broadcasting may be done by hand-casting, hand-held spreader, or another type of equipment or method, as approved by the Wetland Consultant.

300-4.10.16 Incorporation of Seed into Soil

Following the seeding, the seed shall be incorporated into the soil to a minimum depth of one-quarter (1/4) inch and a maximum depth of one-half (1/2) inch. The incorporation may occur by hand-raking or the use of a chain harrow or tine harrow, subject to approval by the Wetland Consultant. When indicated on the plans, the areas shall be only or subsequently hand rolled using an unfilled light-weight surface-corrugated water ballast roller.

300-4.10.17 Restrict Access

After each area is seeded, the Contractor shall restrict access of vehicles and earth-moving equipment from the area. In order to restrict access to the seeded area, the Contractor shall install orange construction fence along the entire perimeter of the seed area, post the area as restricted access, and indicate that area is a sensitive habitat area. The Contractor shall be repair any and all damage to these areas from construction related activities. These repairs shall be made at no additional expense of the Owner.

300-4.10.18 Repair of Damaged Area

All areas outside of specified limits where the vegetation growth has been injuriously disturbed or destroyed by the Contractor, as solely determined by the Wetland Consultant, shall be restored and seeded in accordance with these specifications by the Contractor at his/her own expense.

300-4.10.19 Clean Up

Upon completion of work, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

ADD:

308-4.13 Salvage and Place Pickleweed Fragments

Section Includes (but Is Not Necessarily Limited to):

1. Prepare salvage, stockpile and placement plan;
2. Demonstrate feasibility of selected method;
3. Layout areas in field for salvaging pickleweed fragments;
4. Layout areas in field for placing pickleweed fragments;
5. Salvage and store pickleweed fragments;
6. Place pickleweed fragments.

308-4.13.1 Related Sections

1. Submittals, Section 2-5.3
2. Live Pickleweed Fragments 212-1.4.7
3. Furnish and Install Wetland Topsoil 308-2.5
4. Furnish and Install Seed Bank Topsoil 308-2.7

308-4.13.2 Submittals

Procedure in accordance with Part I Section 2-5.3, Submittals.

308-4.13.3 Submittals – Statement of Qualification

The Contractor shall submit, in conjunction with the bid for construction, a statement of qualification for the collection, storage, and placement of pickleweed fragments. The statement of qualifications shall contain a history of business and past record of transplanting pickleweed fragments or other similar species 1) project name; 2) area or quantity transplanted; 3) description of transplant procedures used; and 4) client references.

308-4.13.4 Submittals – Pickleweed Salvage & Placement Plan

The contractor shall submit a Pickleweed Salvage and Placement Plan which includes the proposed phasing for the collection, storage, and placement of pickleweed fragments.

308-4.13.5 Quality Assurance – Demonstration Feasibility of Collection, Stockpile, and Placement Method

The Contractor shall demonstrate that they can successfully salvage, stockpile, and place pickleweed fragments. The Contractor shall demonstrate salvage, storage, and placement in accordance with these specifications. Contractor shall demonstrate salvaging, storing, and placing a minimum of 50 cu. yds. of pickleweed fragments. Storage time for the demonstration shall be the maximum allowable time. The demonstration will be used to establish the required volume of pickleweed fragments per unit area of placement.

Success shall be determined by measuring the density of live pickleweed fragments in the placement area. The density of pickleweed fragments in the placement area shall be a minimum of five live pickleweed fragments per square foot. The definition of a live pickleweed fragment is provided in the installation section of this specification. The success of the demonstration shall be determined solely by the Wetland Consultant.

308-4.13.6 Quality Assurance – Planting Window

Pickleweed fragments shall be collected and placed between November 1 and February 1. If another period of time is selected for the transplanting, the Contractor shall prepare a plan to assure that the areas that are transplanted are regularly watered and provide such plan to the Wetland Consultant.

308-4.13.7 Quality Assurance – Acceptance Criterion for Materials and Workmanship

The Wetland Consultant shall inspect all materials and workmanship for compliance with the plans and specifications. Acceptance of all materials and workmanship is at the discretion of the Wetland Consultant.

308-4.13.8 Layout of Salvage Areas for Pickleweed Fragments

Prior to collection, the contractor shall locate areas as designated on the construction drawings for pickleweed fragments. Prior to construction, the contractor shall stake areas within the limit of grading that are designated for salvage pickleweed fragments. Allowable areas for salvage are indicated on the drawings.

The Contractor shall stake the boundary of the salvage areas. Stakes shall be located at 50' intervals and clearly marked with a colored flagging. The

selected color for flagging shall be consistent throughout the project and different from typical grade stakes. The Contractor shall layout an entire wetland module at a time.

The Wetland Consultant must review and approve the layout for salvage of pickleweed fragments prior to salvage. The Wetland Consultant may adjust the boundary of the salvage area in order to exclude areas that do not contain pickleweed, expand the area to include additional pickleweed, or exclude areas that contain unwanted upland or non-native plant species.

308-4.13.9 Preparation of Salvage Areas

Before collecting pickleweed fragments, the Contractor shall clear and grub all woody shrubs and trees including roots from the collection areas.

Prior to salvage of pickleweed fragments, the Contractor shall surround areas of pickleweed salvage with construction fence and restrict access.

308-4.13.10 Salvage Pickleweed Fragments

The Contractor shall cut pickleweed fragments by hand or by using a hand-held weed cutter or other similar device. The resulting fragments shall meet the specified size requirements. The contractor may cut or chop pickleweed fragments after collection to achieve the specified pickleweed fragment size.

308-4.13.11 Store Pickleweed Fragments

Live pickleweed fragments shall be stockpiled, wetted with brackish water and covered with a tarp. Plants shall be stored for no longer than fourteen (14) days prior to installation but preferably less than seven (7) days. Irrigation or maintenance of pickleweed fragments shall be undertaken as needed. Additional storage time may be allowed if the contractor can demonstrate success, subject to the approval of the Wetland Consultant.

308-4.13.12 Place Wetland Topsoil and Seed Bank Topsoil

Prior to placement of the pickleweed fragments, wetland topsoil and seed bank topsoil that contains pickleweed seed shall be placed in accordance with specifications sections 308-2.5 and 308-2.7.

308-4.13.13 Layout of Placement Areas for Pickleweed Fragments

The drawings specify where to place pickleweed fragments. Within these areas, pickleweed fragments shall be placed within the elevation ranges indicated on the drawings. The elevation range refers to finished grade.

The contractor shall stake the following finished grade elevations: 3.5' and 4.5' NGVD. Stakes shall be placed at a minimum interval of fifty (50) feet. The contractor shall use 1x1 wood stakes. Elevation benchmarks shall be provided for use in performing these elevation layouts. The Contractor shall layout an entire wetland module at a time.

In a manner that is consistent throughout the project, the Contractor shall attached colored flagging to the stakes. The flagging should indicate the upper and lower boundaries for placing topsoil with pickleweed fragments and distinguish these areas from the wetland topsoil placement areas and the *Spartina foliosa* planting areas.

The Wetland Consultant shall review and approve this layout for each wetland module. The Contractor must obtain approval for the layout prior to placing pickleweed fragments. At the request of the Wetland Consultant, the Contractor shall demonstrate that stakes are at the appropriate elevation. The Contractor shall maintain the stakes and flagging until the Wetland Consultant approves the placement of pickleweed fragments for each wetland module.

308-4.13.14 Placement and Incorporation of Pickleweed Fragments

The pickleweed fragments shall be distributed over the placement areas by hand. The contractor shall roto-till or disc fragments to a depth of two (2) to four (4) inches.

308-4.13.15 Supplemental Irrigation

The Contractor shall irrigate the newly placed pickleweed fragments from the time that fragments are placed until after the first significant rainfall of

the rainy season. Irrigation water shall be applied at a rate of 25,000 gallons per acre. The maximum time interval between irrigation applications shall be five (5) days.

308-4.13.16 Access Restriction

After pickleweed fragments are placed within a wetland module, the Contractor shall restrict access of vehicles and earth-moving equipment from the module. In order to restrict access to the placement areas, the Contractor shall install orange construction fence along the upland edge of the placement areas and post the area as restricted access and indicate that it is a sensitive habitat area. The fence shall be placed a minimum of ten (10) feet from the upper elevation limit of these areas. The fence shall be removed when the Contractor has completed all construction activities one thousand (500) feet of the wetland module. The Contractor shall be repair any and all damage to these areas from construction related activities. These repairs shall be made at no additional expense of the Owner.

308-4.13.17 Clean Up

Upon completion of work within each wetland module, the Contractor shall remove all materials, tools, rubbish and debris associated with this work.

308-4.13.18 Alternative Methods

The Contractor may use alternative methods with the approval of the Wetland Consultant.

Appendix D

Submittal Items and Items Requiring Acceptance by Wetland Consultants



Appendix E
RECON Qualifications
Resume, Peter Tomsovic, Planting Program Manager



Peter Tomsovic

Project Manager/Restoration Biologist



Experience Highlights

- ✓ Highly experienced in large-scale habitat restoration planning, implementation, and maintenance
- ✓ Wetland restoration planning management

Experience:

8 years

Education:

B.S., Ecology and Systematic Biology, California Polytechnic State University

Invasive Plant School, University of California Cooperative Extension

Permits/Trainings:

USFWS Permit #TE-797665

Wetland Delineation Certificate, San Francisco State University

CDFG Scientific Collector's Permit #003452

Certified in the Selection, Installation, and Inspection of Construction Site BMPs for NPDES Stormwater Permit Compliance, International Erosion Control Association

Experience Summary

Mr. Tomsovic is responsible for managing and conducting mitigation and restoration planning, implementation, and long-term monitoring. His experience includes plant identification and distribution in natural habitats and in the ecology, cultivation, and growth of California native plants. He develops site maintenance criteria that include exotic plant species control, planting and irrigation, and erosion control. Mr. Tomsovic's experience includes working in a variety of habitats including tidal and seasonal wetlands, riparian woodlands, and upland plant communities in northern and southern California.

Mr. Tomsovic has conducted special status plant/wildlife surveys, soil analysis, tidal surveys, stream, vernal pool, and wetland restoration and design, mitigation planning, wetland permitting topographic surveys, GIS and GPS, water quality sampling and analysis, groundwater well installation and studies, and mitigation/construction monitoring. He has written and implemented several comprehensive restoration plans including a stream restoration in Lakeside, wetland creation in Del Mar, matorral succulent scrub in Ensenada, Mexico, coastal sage scrub habitat in Otay Mesa, and cactus patch salvaging and restoration in Riverside County. All of these large-scale projects involved detailed project management, attention to detail, and close coordination with regulatory agencies and the construction team.

San Dieguito Lagoon Restoration Growth Experiments.

Mr. Tomsovic is conducting plant growth experiments in support of the proposed 150-acre tidal wetland restoration project for the San Dieguito Lagoon to determine if and which soil amendments will need to be applied to promote the growth of native tidal marsh plant species in the new portion of the lagoon. Work involved native soil collection, pickleweed salvage and transplanting, native grass seed collection and planting, and conducting detailed quantitative monitoring throughout the growth experiments.

San Dieguito Lagoon Restoration Planning. This project involved the creation of a 437-acre tidal lagoon with associated habitats including nesting sites for snowy plover. While working at Wetlands Research Associates from 1997 through 2001, Mr. Tomsovic provided input into project design, groundwater well installation and monitoring, topographic surveys of potential mitigation sites, and development of the Final Plan.

**Permits/Trainings:
(continued)**

SPPP Erosion and
Sediment Control
Training, Engineering &
General Contractors
Association/City of San
Diego

SPPP Erosion and
Sediment Control
Training, Engineering &
General Contractors
Association/City of San
Diego

Pacific Highlands Ranch 20-Acre Wetland Creation, San Diego, CA

Mr. Tomsovic provided the conceptual design and mitigation reports for a 20-acre wetland creation project in Del Mar, California. The wetland design included creating a variety of hydrologic regimes and topographic relief that would support a minimum of three acres of USACE jurisdictional wetlands, five acres of sycamore oak woodlands, and twelve acres of southern willow scrub plant communities. Two years following implementation, the project has been very successful and is expected to exceed performance criteria goals when quantitative monitoring is initiated.

Mission Gorge Quarry Wetland Creation and Habitat Restoration Mitigation Plan, San Diego, CA

Mr. Tomsovic developed a single comprehensive guide for the creation, restoration, and enhancement of stream, riparian, and coastal sage scrub habitats within and adjacent to the San Diego River. The design included 0.24-acre stream creation, 1.2-acre wetland creation, and 11.22 acres of riparian enhancement through the removal and control of giant reed. The plan also included the creation of 4.6 acres of upland coastal sage scrub habitat to provide habitat for the California gnatcatcher. An intensive exotic species removal program was detailed to ensure project success throughout the five-year monitoring and maintenance period. The stream and habitat restoration proposed in this plan would protect, restore, and enhance the natural hydrological system and associated wetland habitat that was once present in that portion of the San Diego River.

El Sobrante Landfill Weed Management Plan, Riverside, CA.

Mr. Tomsovic was Project Biologist for the development of a weed management plan for the purpose of describing an adaptive management strategy for controlling existing populations of exotic plants and measures to prevent the establishment of new exotics within a 1,333-acre project site. The goal of the weed management plan was to prevent the degradation and loss of habitat caused by the spread of invasive weeds. The plan described problem areas, priorities for management, weed control methods, and a schedule for implementation of the recommended actions.

Dennery Canyon Preserve Vernal Pool Mitigation Monitoring at Ocean View Hills, San Diego, CA

Mr. Tomsovic assisted in the implementation of this five-year mitigation and monitoring program for 40 acres in Otay Mesa that involves reestablishing a self-sustaining native vernal pool ecosystem in revegetation and enhancement areas, propagation and reestablishment of populations of sensitive and endangered species that are impacted by development activities at appropriate locations, and the removal and control of invasive exotic plant species to the greatest extent possible.

Wetland Delineation for the Chula Vista Bayfront EIR

Mr. Tomsovic conducted a routine wetland delineation on the Chula Vista Bayfront project site, a 546-acre site located on the west side of Interstate 5 in the southern portion of San Diego Bay. The purpose of the wetland delineation was to identify and map the location of jurisdictional waters to provide necessary background information for analysis by the USACE, CDFG, and the City of Chula Vista.

Dune Restoration Maintenance and Monitoring, NAS North Island, CA

Mr. Tomsovic is currently performing habitat maintenance and monitoring for a 2.5-acre coastal dune restoration area on Naval Air Station (NAS) North Island. Work involves qualitative and quantitative monitoring as well as monthly maintenance activities to include the removal of non-native vegetation, basic erosion repairs and litter removal from the site. Follow-up reports of maintenance activities are provided monthly.

San Diego Creek Watershed Feasibility Studies, Orange County, CA

Mr. Tomsovic assisted in the preparation of this report, which described preliminary restoration opportunities throughout the San Diego Creek Watershed in Orange County, working within the framework of the San Diego Creek Special Area Management Plan. This document included field surveys of potential restoration sites, identification of the causes of habitat degradation, and appropriate measures to improve ecosystem functioning, post restoration habitat evaluations, and preliminary cost estimates.