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Legend

- Project Boundary
- Oil Consolidated Site
- Project Impacts**
- Permanent
- Temporary
- USACE Jurisdiction****
- Waters of the U.S.
- Wetlands

*Drainage boundary not to scale.
**Note: USACE data provided by Glenn Lukos Associates.

USACE Jurisdictional Impacts

Newport Banning Ranch

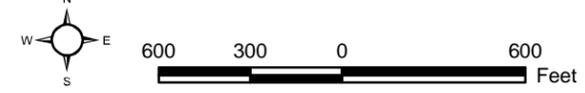
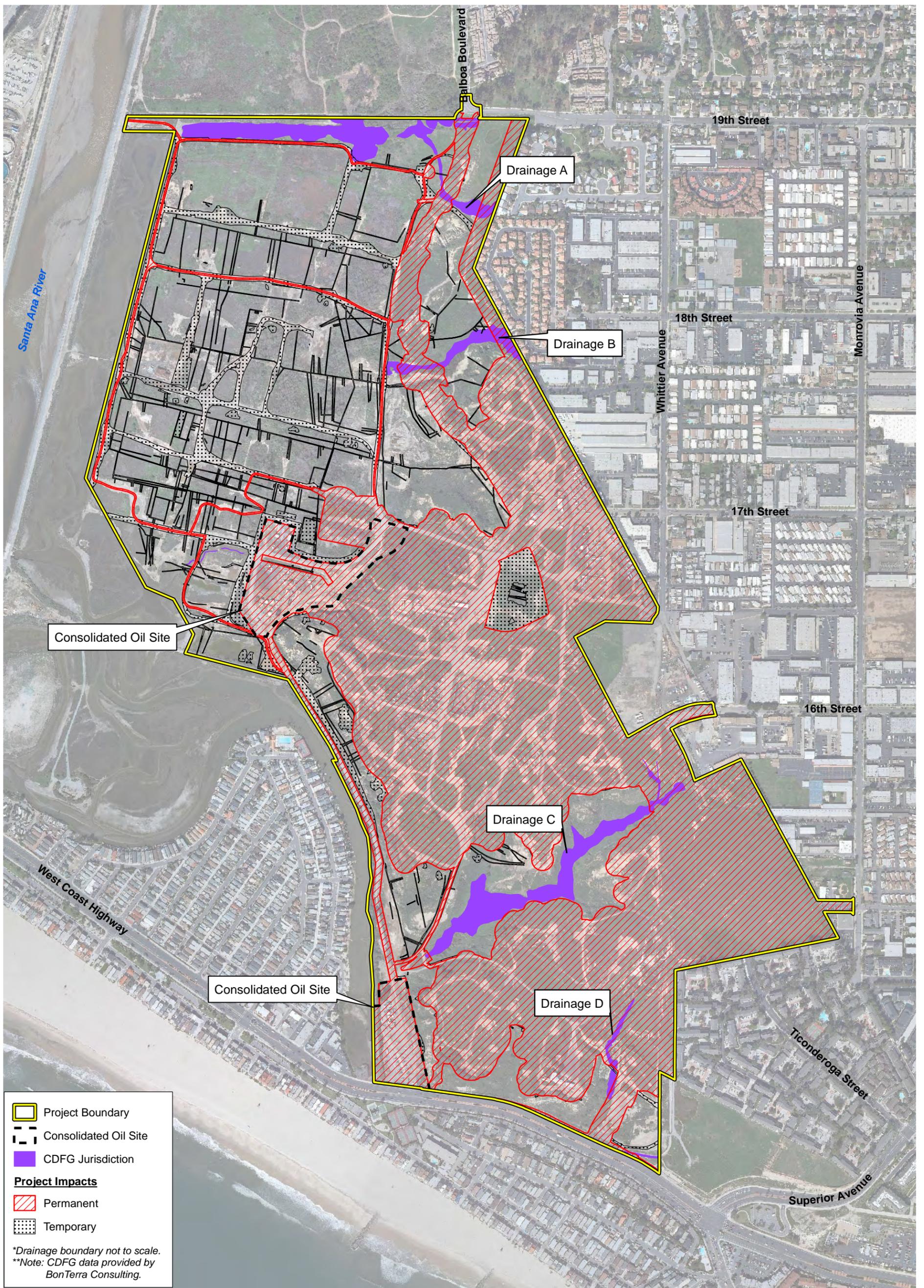


Exhibit 12a





- Project Boundary
- Consolidated Oil Site
- CDFG Jurisdiction
- Project Impacts**
- Permanent
- Temporary

*Drainage boundary not to scale.
 **Note: CDFG data provided by BonTerra Consulting.

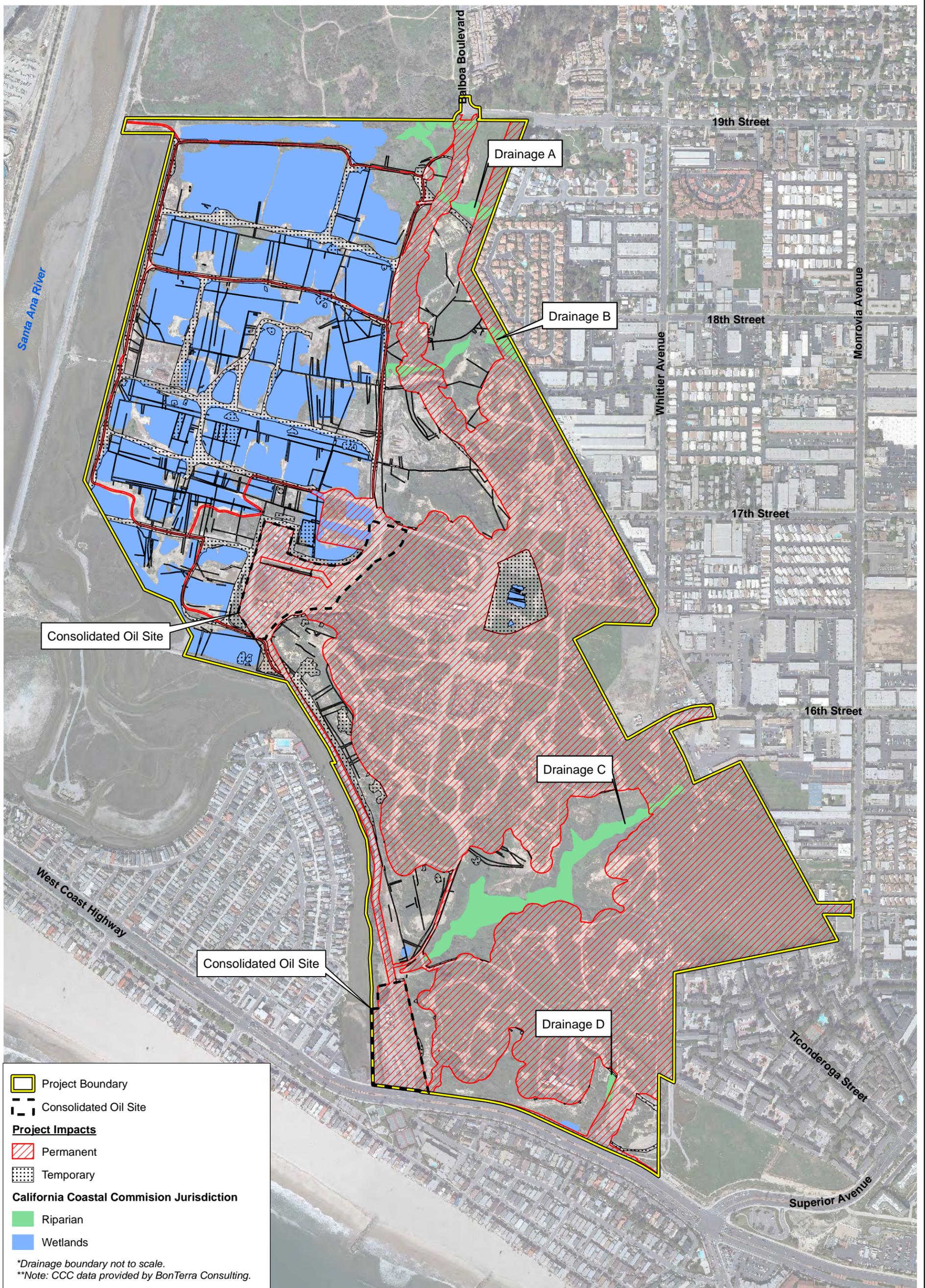
CDFG Jurisdictional Impacts

Newport Banning Ranch



Exhibit 12b





- Project Boundary
- Consolidated Oil Site
- Project Impacts**
- Permanent
- Temporary
- California Coastal Commission Jurisdiction**
- Riparian
- Wetlands

*Drainage boundary not to scale.
 **Note: CCC data provided by BonTerra Consulting.

CCC Jurisdictional Impacts

Newport Banning Ranch

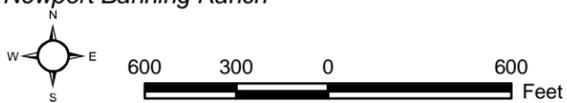


Exhibit 12c



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Impact Summary: *Less Than Significant With Mitigation.* Grading and oilfield remediation activities could impact areas under the jurisdiction of the USACE, CDFG, and California Coastal Commission. This impact would be less than significant with implementation of MMs 3 through 5.

4.3.3 Threshold 4

Would the project interfere substantially with the movement of any native or migratory fish or wildlife species; inhibits established native resident or migratory fish or wildlife corridors; or impedes the use of native wildlife nursery sites?

The Project site is adjacent or proximate to the Talbert Marsh, the Santa Ana River, the USACE salt marsh restoration site, and Talbert Park, as well as extensive urbanization in the Project vicinity. Wildlife movement opportunities between the Project site and the above-mentioned large areas of open space in the region are already constrained by extensive urbanization in the Project vicinity, security fencing around the Project site, and ongoing use of the Project site as an operating oilfield. As discussed above, the proposed Project would permanently reduce the size of this coastal open space, which is currently an operating oilfield, by approximately 205.83 acres. The impact to native and non-native habitat types and the conversion of the oilfield would reduce the habitat available for a suite of species moving along the Santa Ana River and using the upland portions of the Project site as a migration stopover point. This impact would be considered significant. However, following oilfield remediation activities within the upland and lowland, large contiguous areas would be revegetated and remain contiguous with the USACE salt marsh restoration site, the Santa Ana River, and the Talbert Marsh. The revegetation following oilfield remediation activities would result in a higher-quality habitat resulting from invasive species removal; removal of human activity and disturbance related to oilfield operations; and availability of larger blocks of contiguous native habitat in the open space area. Therefore, with implementation of MMs 1 through 5, this impact would be reduced to a less than significant level.

Impact Summary: *Less Than Significant With Mitigation.* The impact to native and non-native habitat types and the conversion of the oilfield would reduce wildlife movement opportunities. This impact would be reduced to a level considered less than significant with implementation of MMs 1 through 5.

4.3.4 Threshold 5

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? Would the project conflict with any applicable plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The EIR for the Proposed project address the Project's consistency with applicable goals and policies of SCAG, the City's General Plan and Coastal Land Use Plan, and the California Coastal Act.

The Project site occurs within the Santa Ana River Mouth Existing Use Area of the Central/Coastal Subregion NCCP/HCP. Existing Use Areas are comprised of areas with important populations of Identified Species, but which are geographically removed from the Reserve System. The NCCP/HCP does not authorize Incidental Take within the Existing Use

Areas; such activities must be submitted to the USFWS for review and approval, consistent with existing federal law. The Project would not conflict with the provisions of an adopted NCCP/HCP because it does not impact areas identified as part of the Central/Coastal Subregion Reserve System, nor does it utilize the Take allocations associated with projects in the Subregion that are outside the Existing Use Areas. In addition, the Project would comply with the NCCP/HCP requirement to obtain separate USFWS and CDFG authorization.

Impact Summary: *No Impact.* The Project is considered consistent with the applicable goals and policies identified in the analysis and the Project would not conflict with the Central/Coastal Subregion NCCP/HCP.

4.4 MITIGATION PROGRAM

4.4.1 Mitigation Measures

This section focuses on the development of mitigation measures for proposed Project impacts that were found to be significant or potentially significant. Strategies to mitigate each impact to a less than significant level are identified and described in the following section. Table 9 provides a summary of the mitigation areas for the Project.

**TABLE 9
HABITAT MITIGATION SUMMARY**

Vegetation Type	Existing (Acres)	Total Impacts (Acres)	Area Not Affected (Acres)	Preservation (Acres)	Restoration (Acres)	Total Preservation and Restoration (Acres)	Preservation/Restoration to Impact Ratio ^a
Coastal Sage Scrub and Disturbed Coastal Sage Scrub	58.27	23.11	35.16	35.16	47.75	82.91	Approx. 3.5:1
Grassland and Ruderal	120.40	100.13	20.27	20.27	50.07	70.34	Approx. 0.7:1
Grassland Depression Features (includes Features VP1, VP2, AD3, E, G, I, and J)	0.50	0.24	0.26	0.26	3.32	3.58	Approx. 15:1
Marsh	31.45	2.45	29.00	7.25	2.65	9.90	Approx. 4:1
Riparian and Disturbed Riparian	60.58	12.93	47.65	23.03	15.77	38.80	Approx. 3:1
Total	271.20	138.86	132.34	85.97	119.56	205.53	

^a The preservation/restoration to impact ratio (last column in table) is not a required mitigation ratio. Rather it identifies the ratio that could be achieved.
Source: BonTerra Consulting 2011.

Direct Impacts

MM 1 *Coastal Sage Scrub Habitat Preservation and Restoration.* Permanent impacts on coastal sage scrub vegetation (including disturbed southern coastal bluff scrub) (12.32 acres) shall be mitigated at a 3:1 ratio (36.96 acres) on the Project site or offsite (nearby) through the restoration of southern coastal bluff scrub and California sagebrush scrub. Permanent impacts on disturbed coastal

sage scrub vegetation (excluding disturbed southern coastal bluff scrub) (8.21 acres) shall be mitigated at a 1:1 ratio (8.21 acres) elsewhere on the Project site or offsite. In addition, temporary impacts (2.58 acres) to coastal sage scrub and disturbed coastal sage scrub vegetation types shall be mitigated by revegetation with locally occurring native coastal sage scrub species following remediation at a 1:1 ratio. The required restoration is summarized in Table 10. In addition to restoration, the Project shall preserve 35.16 acres of coastal sage scrub on site. Coastal sage scrub restoration and preservation on site would total 82.91 acres.

**TABLE 10
REQUIRED COASTAL SAGE SCRUB RESTORATION**

	Impact (Acres)	Ratio Required	Restoration Required (Acres)
Permanent Impact			
Coastal Sage Scrub (including disturbed southern coastal bluff scrub)	12.32	3:1	36.96
Disturbed Coastal Sage Scrub (excluding disturbed southern coastal bluff scrub)	8.21	1:1	8.21
Temporary Impact			
Coastal Sage Scrub (including disturbed southern coastal bluff scrub)	1.92	1:1	1.92
Disturbed Coastal Sage Scrub (excluding disturbed southern coastal bluff scrub)	0.66	1:1	0.66
Total	23.11		47.75

The Applicant shall be required to plan, implement, monitor, and maintain a coastal sage scrub revegetation program for the Project consistent with the most current technical standards/knowledge regarding coastal sage scrub restoration. Prior to issuance of the first permit that would allow for site disturbance (e.g., grading permit), a detailed restoration program shall be prepared by a qualified Biologist and approved by the City of Newport Beach (City) and the resource agencies (i.e., the U.S. Fish and Wildlife Service [USFWS] and the California Coastal Commission). The program shall include, at a minimum, the items listed below.

- 1. Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the landowner, specialists, and maintenance personnel that would supervise and implement the plan shall be specified.
- 2. Site selection.** The mitigation site shall be determined in coordination with the City and the resource agencies. The site shall either be located on the Project site in a dedicated open space area or land shall be purchased/obtained immediately off site. Selected sites shall not result in the removal of a biologically valuable resource (i.e., native grassland).
- 3. Site preparation and planting implementation.** Site preparation shall include (a) protection of existing native species; (b) trash and weed removal;

(c) native species salvage and reuse (i.e., duff); (d) soil treatments (i.e., imprinting, decompacting); (e) temporary irrigation installation; (f) erosion-control measures (i.e., rice or willow wattles); (g) seed mix application; and (h) container species planting. Locally occurring native plants and seeds shall be used and shall include species present on site, in adjacent areas, and uncommon species known to occur on site such as California box-thorn and woolly seablite.

4. **Schedule.** A schedule shall be developed that includes planting to occur in late fall and early winter (i.e., between October 1 and January 30).
5. **Maintenance plan/guidelines.** The maintenance plan shall include (a) weed control; (b) herbivory control; (c) trash removal; (d) irrigation system maintenance; (e) maintenance training; and (f) replacement planting. The maintenance plan shall also include biological monitoring during maintenance activities if they occur during the gnatcatcher breeding season (February 15 to July 15).
6. **Monitoring plan.** The coastal sage scrub monitoring plan shall include (a) qualitative monitoring (i.e., photographs and general observations); (b) quantitative monitoring (i.e., randomly placed transects, wildlife monitoring); (c) performance criteria as approved by the resource agencies; (d) monthly reports for the first year and reports every other month thereafter; and (e) annual reports for five years, which shall be submitted to the resource agencies. The site shall be monitored and maintained for five years to ensure successful sage scrub habitat establishment within the restored and created areas.
7. **Long-term preservation.** Long-term preservation of the site shall also be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development.

The Applicant shall begin coastal sage scrub restoration activities (e.g., soil prep, seeding) no later than one year after issuance of the first permit that allows for ground disturbance (e.g., grading permit). The Applicant shall be fully responsible for implementing the coastal sage scrub revegetation program until the restoration areas have met the success criteria outlined in the program. The City and the resource agencies (i.e., the USFWS and the California Coastal Commission) shall have final authority over mitigation area sign-off).

The Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) program does not authorize Incidental Take resulting from the conversion of habitat occupied by coastal California gnatcatchers in Existing Use Areas. Therefore, the Applicant has elected to seek a Take Authorization through Section 7 of the FESA. Prior to issuance of the first permit that would allow for site disturbance (e.g., grading permit), the Applicant shall provide, a Biological Opinion issued from the U.S. Fish and Wildlife Service (USFWS) to the City that authorizes the removal of coastal sage scrub (i.e., coastal California gnatcatcher habitat). It is anticipated that the USFWS Biological Opinion will contain conservation recommendations to avoid or reduce the Project impact. Although any additional conservation measures identified by the USFWS shall be enforced, at a minimum, the Construction Minimization Measures listed below also shall be followed.

1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of coastal sage scrub habitat to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.
2. A USFWS-approved Biological Monitor shall be on site during any clearing of coastal sage scrub. The Applicant shall advise the USFWS at least 7 calendar days—but preferably 14 calendar days—prior to the clearing of coastal sage scrub. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the Monitoring Biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.
3. Following the completion of initial clearing activities, all areas of coastal sage scrub habitat to be avoided by construction equipment and personnel shall be marked with temporary fencing or other clearly visible, appropriate markers. No construction access, parking, or equipment storage shall be permitted within such marked areas.

The combined restoration and preservation of 82.91 acres of coastal sage scrub would result in a net increase in habitat by 24.64 acres.

MM 2

Grassland Habitat Preservation and Restoration. Permanent impacts on non-native grassland and ruderal vegetation (100.13 acres) shall be mitigated at a 0.7:1 ratio through onsite or offsite restoration and preservation. These permanent impacts to non-native grassland and ruderal vegetation shall be mitigated by the restoration of 48.63 acres (0.5:1) of grassland and alkali meadow within both the upland and lowland portions of the Project site as summarized in Table 11 and may include native grassland areas within Fuel Modification Zone C. Temporary impacts (2.87 acres) shall be mitigated by native grassland or alkali meadow revegetation following remediation at a 0.5:1 ratio (1.44 acres). An additional 20.27 acres of grassland habitat shall be preserved on site. The grassland restoration and preservation would total 70.34 acres.

**TABLE 11
REQUIRED GRASSLAND RESTORATION**

	Impact (Acres)	Ratio Required	Restoration Required (Acres)
Permanent Impact			
Non-Native Grassland and Ruderal	97.26	0.5:1	48.63
Temporary Impact			
Non-Native Grassland and Ruderal	2.87	0.5:1	1.44
Total	100.13		50.07

The Applicant shall begin grassland restoration activities (e.g., soil prep, seeding) no later than one year after issuance of the first grading permit. The Applicant shall be required to plan, implement, monitor, and maintain a native grassland preservation/restoration program for the Project. A grassland preservation/

restoration program shall be (1) developed by a qualified Biologist; (2) submitted for review and approval to the City of Newport Beach (City) prior to the first permit that would allow for site disturbance (e.g., grading permit); and (3) shall be implemented by a qualified Biologist. The grassland mitigation plan shall also provide mitigation for the loss of raptor foraging and burrowing owl habitat; therefore, site selection measures shall include considerations that influence the site's suitability for burrowing owl and other raptor species. Restoration shall consist of seeding with appropriate needlegrass species and, if appropriate, incorporating seeds collected from special status plant species (southern tarplant) that may be impacted by the Project. A detailed restoration program shall contain the following items:

1. **Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the Applicant, specialists, and maintenance personnel that would supervise and implement the plan shall be specified.
2. **Site selection.** The mitigation site shall be determined in coordination with the City and a qualified Biologist knowledgeable about native grassland restoration, raptors, and the burrowing owl. The site shall either be located on the Project site in a dedicated open space area, or suitable adjacent off-site open space shall be purchased/obtained. The mitigation shall occur entirely in one to two locations to provide the maximum habitat value for the raptors, burrowing owls, and other wildlife species that require contiguous blocks of open habitat types. The site(s) shall consist of level or gently sloping terrain, soil types, and microhabitat conditions suitable for occupation by raptors and burrowing owl, as determined by a qualified Biologist.
3. **Site preparation and planting implementation.** Site preparation shall include (a) protection of existing native species; (b) trash and weed removal; (c) native species salvage and reuse (i.e., duff); (d) soil treatments (i.e., imprinting, decompacting); (e) temporary irrigation installation; (f) erosion-control measures (i.e., rice or willow wattles); (g) seed mix application; and (h) container species installation. If mammal burrows are limited on the mitigation site(s), the qualified Biologist shall recommend creation of artificial burrows suitable for occupation by the burrowing owl. The burrows shall be constructed using standard specifications established for the owl. Depending on the topography of the site(s) and the availability of natural perches, the qualified Biologist shall make recommendations regarding whether additional perching sites (e.g., large rocks) shall be placed on the mitigation site(s).
4. **Schedule.** A schedule shall be developed that includes planting to occur in late fall and early winter (i.e., between October 1 and January 30).
5. **Maintenance plan/guidelines.** The maintenance plan shall include (a) weed control; (b) herbivory control; (c) trash removal; (d) irrigation system maintenance; (e) maintenance training; and (f) replacement planting. The maintenance plan shall also include biological monitoring during maintenance activities if they occur during the burrowing owl/raptor breeding season (February 1 to August 31).
6. **Monitoring plan.** The monitoring plan shall include (a) qualitative monitoring (i.e., photographs and general observations); (b) quantitative monitoring

(i.e., randomly placed transects); (c) performance criteria, as approved by the resource agencies; (d) monthly reports for the first year and reports every other month thereafter; and (e) annual reports for five years, which shall be submitted to the resource agencies. The grassland mitigation site shall be monitored and maintained for five years to ensure successful establishment of native grassland habitat within the restored and created areas. The performance criteria shall take into consideration the habitat requirements for burrowing owl, particularly that they occur in grasslands with openings or lower vegetation coverage; thus, the performance criteria shall include a requirement for openings or a lower percent cover for portions of the mitigation site.

7. **Long-term preservation.** Long-term preservation of the site shall also be outlined in the conceptual grassland mitigation plan to ensure the mitigation site is not impacted by future development.

The Project would result in the restoration of 50.07 acres of native grassland and alkali meadow and preservation of 20.27 acres of non-native grassland areas, for a total of 70.34 acres. Because the value of habitat to be replaced (native grassland and alkali meadow) is higher than those habitat values impacted by the Project, a less than 1:1 mitigation ratio is deemed adequate to compensate for the loss of non-native grassland areas.

MM 3

Grassland Depression Feature and Fairy Shrimp Habitat Preservation and Restoration. Grassland Depression Feature Habitat Preservation and Restoration.

The proposed Project is designed to protect the two areas previously described as vernal pools that are occupied by San Diego fairy shrimp. The proposed Project would permanently impact 0.07 acre of ephemeral pool and 0.06 acre of vernal pool habitat in order to remediate the soil and remove the pipelines in these areas. Once the remediation and pipeline removal are completed, the vernal pool areas would be restored and protected. Because oilfield pipelines are located on top of the soil surface in the pooled areas, their removal would be conducted with the minimum possible soil disturbance and would occur outside the rainy season to reduce direct impacts to this species. However, pipe removal activities would disrupt the soils within the vernal pools in which the San Diego fairy shrimp has been observed and which potentially contain fairy shrimp cysts. Therefore, these pipe removal activities would be considered a potentially significant temporary impact. This impact would be mitigated through preservation and restoration of a 3.58-acre conservation area. This includes enlarging and protecting the pools watershed.

During Project grading, a small area of the surrounding upland portion of the watershed would be impacted, but the Project proposes to replace this portion of the watershed so that the protected pools and 1.49 acre of contributing watershed would be permanently protected within a 1.85-acre vernal pool conservation area. Remediation, restoration and permanent protection of the two pools and protection of its watershed would ensure that Project impacts to these two pools are less than significant. In addition, the Project has identified an additional 1.73 acres of upland area, adjacent to the 1.85-acre area, which would be available for future vernal pool creation, restoration, and/or enhancement. If this additional area is restored, a total vernal pool conservation area of 3.58 acres would be provided by the Project (Table 12).

**TABLE 12
REQUIRED VERNAL POOL PRESERVATION/RESTORATION**

Feature	Temp. Impact	Perm. Impact	Total Impact	VP1, VP2, and Upland Watershed Perservation	Upland Area Vernal Pool Enhancement Area	Total Preservation/Enhancement Areas
VP1	0.06	0.00	0.06			
VP2	0.00	0.00	0.00			
Feature AD3	0.00	0.007	0.007			
Total for VP1, VP2, and AD3	0.06	0.007	0.067	1.85		
Features E and G (oilfield sumps)	0	0.053	0.053			
Features I and J (grasslands)	0	0.12	0.12			
Total for E, G, I, and J		0.173	0.173		1.73	
Total San Diego Fairy Shrimp Habitat Impacts			0.24			3.58

Expansion of the watershed by 1.73 acres would increase hydrological input by creating hydrological conditions for additional pools, which would promote more and higher quality habitat created as mitigation for Features E, G, I, and J, which support the San Diego fairy shrimp.

Restoration of the pool areas, by removing mule fat and non-native species, would restore the pools to characteristic vernal pool habitat, as vernal pools do not typically support woody vegetation such as mule fat. The restoration program would also provide increased wildlife habitat function for migratory birds that use the pools as a migration stopover, and the increased watershed area would be planted with native alkali meadow or native upland grasses favorable for raptor foraging and would be “counted” toward the approximately 50 acres of grassland habitat.

Impacts to San Diego fairy shrimp detected in Features E and G, which are to be remediated as part of the oilfield clean up and remediation, shall be mitigated by testing the soils, and if the soils are not contaminated to the degree requiring environmental remediation, they shall be removed and relocated to the vernal pool conservation area at a ratio of 1:1. Soils shall also be removed and relocated within features I and J.¹² All mitigation shall occur within the 1.73 acres that have been set aside along with the 1.85-acre conservation area to provide a 3.58-acre vernal pool conservation area.

The Applicant shall be required to plan, implement, monitor, and maintain a vernal pool preservation/restoration program for the Project. A vernal pool program shall be developed by a qualified Biologist and shall be submitted for review and approval to the City of Newport Beach (City) and the resource agencies (i.e., the U.S. Fish and Wildlife Service [USFWS] and the California Coastal Commission) prior to the first action and/or permit which would allow for site disturbance (e.g., issuance of a grading permit). The Applicant shall begin

¹² The final ratio would be determined in consultation with USFWS and would be based on the character of the features known to be occupied. Features such as E and G, which are oilfield sumps would require a lower mitigation ratio than less disturbed pools I and J.

the vernal pool restoration activities (e.g., soil preparation) no later than one year after issuance of the first grading permit. Restoration shall consist of seeding/planting with appropriate vernal pool species and, if appropriate, incorporate seeds collected from special status plant species that may be impacted by the Project. A detailed restoration program shall contain the following items:

1. **Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the landowner, specialists, and maintenance personnel that would supervise and implement the plan shall be specified.
2. **Site selection.** The mitigation site shall be determined in coordination with the City and the resource agencies. The site shall be located on the Project site in a dedicated open space area. The mitigation areas shall not result in the removal of a biologically valuable resource (e.g., native grassland).
3. **Site preparation and planting implementation.** Site preparation shall include (a) protection of existing native species; (b) trash and weed removal; (c) native species salvage and reuse (i.e., duff); (d) soil treatments (i.e., imprinting, decompacting); (e) temporary irrigation installation; (f) erosion-control measures (i.e., rice or willow wattles); (g) seed mix application; and (h) container species installation.
4. **Schedule.** Planting shall occur by a qualified Biologist who is monitoring on site rainfall to minimize impacts to existing fairy shrimp.
5. **Maintenance plan/guidelines.** The maintenance plan shall include (a) weed control; (b) herbivory control; (c) trash removal; (d) irrigation system maintenance; (e) maintenance training; and (f) replacement planting.
6. **Monitoring plan.** The monitoring plan shall include (a) qualitative monitoring (i.e., photographs and general observations); (b) quantitative monitoring (i.e., randomly placed transects); (c) performance criteria, as approved by the resource agencies; (d) monthly reports for the first year and reports every other month thereafter; and (e) annual reports for five years, which shall be submitted to the resource agencies.
7. **Long-term preservation.** Long-term preservation of the site shall also be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development.

The Applicant shall be fully responsible for the implementation of the vernal pool revegetation program until the restoration areas have met the success criteria outlined in the program. The City and the resource agencies (i.e., the USFWS and the California Coastal Commission) shall have final authority over mitigation area sign-off. The site shall be monitored and maintained for five years to ensure successful establishment of vernal pool habitat within the restored and created areas.

The preservation of the vernal pool habitat and the expansion of the watershed habitat will result in a net increase in habitat occupied by the San Diego fairy shrimp on the site that would also exhibit higher levels of function for the fairy shrimp.

MM 4

Marsh Habitat Preservation and Restoration. The Project would impact 2.45 acres (0.10 permanent/2.35 temporary) of marshes. Permanent impacts to marshes shall be restored at a replacement ratio of 3:1, totaling 0.30 acre (Table 13). Temporary impacts associated with oilfield remediation shall be mitigated at a 1:1 ratio¹³ (totaling 2.35 acres). In addition, 7.25 acres shall be preserved on site, for a total of 9.90 acres of restoration and preservation.

**TABLE 13
REQUIRED MARSH/MEADOW/OPEN WATER
HABITAT RESTORATION**

	Impact (Acres)	Ratio Required	Restoration Required (Acres)
Permanent Impact			
Marsh/Meadow/Open Water	0.10	3:1	0.30
Temporary Impact			
Marsh/Meadow/Open Water	2.35	1:1	2.35
Total	2.45		2.65

The Applicant shall be required to plan, implement, monitor, and maintain a marsh/meadow preservation/restoration program for the Project. A marsh/meadow preservation/restoration program shall be developed by a qualified Biologist, and submitted for review and approval to the City of Newport Beach (City) and the resource agencies (i.e., the U.S. Fish and Wildlife Service [USFWS], the California Department of Fish and Game [CDFG], and the California Coastal Commission) prior to the first action and/or permit that would allow for site disturbance (e.g., grading permit). The Applicant shall begin marsh habitat restoration activities (e.g., soil prep, seeding) no later than one year after issuance of the first permit allowing ground disturbance (e.g., grading permit). The marsh/meadow preservation/restoration program shall also mitigate for the potential loss of light-footed clapper rail, western snowy plover, and Belding's savannah sparrow habitat; therefore, site selection measures shall include considerations that influence the site's suitability for these species. Restoration shall consist of seeding with appropriate marsh/meadow species and, if appropriate, incorporation of seeds collected from special status plant species that may be impacted by the Project. A detailed restoration program shall contain the items listed below.

1. **Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the landowner, specialists, and maintenance personnel that would supervise and implement the plan shall be specified.
2. **Site selection.** The mitigation site shall be determined in coordination with the City and the resource agencies. The site shall either be located on the Project site in a dedicated open space area, or suitable adjacent off-site open space shall be obtained/purchased. Selected sites shall not result in the removal of a biologically valuable resource (e.g., native grassland).

¹³ It is important to note that all temporary impacts are for purposes of oilfield remediation and habitat restoration and, as such, are an allowable use in wetland areas under Section 30233 of the California Coastal Act, which includes habitat restoration as an allowable activity in wetlands.

3. **Site preparation and planting implementation.** The site preparation shall include (a) protection of existing native species; (b) trash and weed removal; (c) native species salvage and reuse (i.e., duff); (d) soil treatments (i.e., imprinting, decompacting); (e) temporary irrigation installation; (f) erosion-control measures (i.e., rice or willow wattles); (g) seed mix application; and (h) container species installation. Locally occurring, native plants and seeds shall be used and shall include species present on site and in adjacent areas, and shall also include uncommon species known to occur on site such as southwestern spiny rush.
4. **Schedule.** A schedule shall be developed that includes planting to occur in late fall and early winter (i.e., between October 1 and January 30).
5. **Maintenance plan/guidelines.** The maintenance plan shall include (a) weed control; (b) herbivory control; (c) trash removal; (d) irrigation system maintenance; (e) maintenance training; and (f) replacement planting. The maintenance plan shall also include biological monitoring during maintenance activities if they occur during the light-footed clapper rail, western snowy plover, and Belding's savannah sparrow breeding season (March 1 to September 15).
6. **Monitoring plan.** The monitoring plan shall include (a) qualitative monitoring (i.e., photographs and general observations); (b) quantitative monitoring (i.e., randomly placed transects); (c) performance criteria, as approved by the resource agencies; (d) monthly reports for the first year and reports every other month thereafter; and (e) annual reports for five years, which shall be submitted to the resource agencies.
7. **Long-term preservation.** Long-term site preservation shall also be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development.

The Applicant shall be fully responsible for the implementation of the marsh and mudflat restoration program until the restoration areas have met the success criteria outlined in the program. The City and the resource agencies (i.e., the USFWS and the California Coastal Commission) shall have final authority over mitigation area sign-off.

The site shall be monitored and maintained for five years to ensure successful restoration of marsh and mudflat habitat within the restored and created areas. The performance criteria shall take into consideration the habitat requirements for light-footed clapper rail, western snowy plover, and Belding's savannah sparrow. For example, the light-footed clapper rail requires areas with tidal influence and prefers using cordgrass to build their nests; the western snowy plover nests on bare ground in areas of little to no vegetation coverage; and the Belding's savannah sparrow uses the upper portions of the marsh dominated by pickleweed. Thus, performance criteria shall be tailored to fit different portions of the mitigation site intended for each species.

The limits of grading shall be clearly marked, and temporary fencing or other appropriate markers shall be placed around any sensitive habitat adjacent to work areas prior to the commencement of any ground-disturbing activity or native vegetation removal. No construction access, parking, or storage of equipment or materials shall be permitted within the marked areas.

MM 5***Jurisdictional Resources/Riparian Habitat Preservation and Restoration.***

The Applicant is in the process of obtaining permits/agreements/certifications from the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), the Regional Water Quality Control Board (RWQCB), and the California Coastal Commission that are required for direct or indirect impacts on areas within these agencies' jurisdictions. The Applicant shall be obligated to implement/comply with the mitigation measures required by the resource agencies regarding impacts on their respective jurisdictions. Jurisdictional areas shall be restored on the Project site or immediately off site at a minimum replacement ratio of 3:1 for permanent impacts and 1:1 for temporary impacts to ensure no net loss of habitat.¹⁴ The jurisdictions of the USACE, CDFG, and California Coastal Commission are not additive areas, as many of the riparian areas on the Project site may be within the jurisdiction of several of these agencies. Therefore, the permits and associated jurisdictional replacement requirements would identify which mitigation areas apply to the corresponding jurisdictions.

Permanent impacts on willow scrub and willow riparian forest (1.42 acres) shall be mitigated at a 3:1 ratio (4.26 acres) on the Project site through restoration of willow habitat. Permanent impacts on all other riparian vegetation types and all temporary impacts to riparian vegetation types (11.51 acres) shall be mitigated at a 1:1 ratio (11.51 acres) on the Project site. In total, as compensation for permanent and temporary impacts to 12.93 acres of riparian habitat, the Project would create 15.77 acres of riparian habitat. In addition, the Project shall preserve 23.03 acres of riparian habitats, for a total of 38.80 acres of restoration and preservation. Details of the restoration required is summarized below in Table 14.

¹⁴ It is important to note that all temporary impacts are for purposes of oilfield remediation and habitat restoration and, as such, are an allowable use in wetland areas under Section 30233 of the California Coastal Act, which includes habitat restoration as an allowable activity in wetlands.

**TABLE 14
REQUIRED RIPARIAN RESTORATION**

	Impact (Acres)	Ratio Required	Restoration Required (Acres)
Permanent Impact			
Willow Scrub/Willow Riparian Forest	1.42	3:1	4.26
Disturbed Willow Scrub/Disturbed Willow Riparian Forest	0.03	1:1	0.03
Mule Fat Scrub	0.47	1:1	0.47
Disturbed Mule Fat Scrub ^a	4.95	1:1	4.95
Temporary Impact			
Willow Scrub/Willow Riparian Forest	0.59	1:1	0.59
Disturbed Willow Scrub/Disturbed Willow Riparian Forest	0.70	1:1	0.70
Mule Fat Scrub	0.20	1:1	0.20
Disturbed Mule Fat Scrub ^a	4.57	1:1	4.57
Total	12.93		15.77
^a Includes disturbed mule fat scrub, disturbed mule fat scrub/ruderal, and disturbed mule fat scrub/goldenbush scrub.			

Prior to the first permit that would allow for site disturbance, a detailed restoration program shall be prepared for approval by the City of Newport Beach (City) and the resource agencies (i.e., the USACE, the CDFG, the RWQCB, and the California Coastal Commission). The program shall include, at a minimum, the following items:

1. **Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the landowner, specialists, and maintenance personnel that would supervise and implement the plan shall be specified.
2. **Site selection.** The mitigation site shall be determined in coordination with the City and the resource agencies (i.e., the USFWS, the CDFG, the RWQCB, and the California Coastal Commission). The site shall either be located on the Project site in a dedicated open space area, or suitable adjacent off-site open space shall be obtained/purchased. Selected sites shall not result in the removal of a biologically valuable resource (e.g., native grassland).
3. **Site preparation and planting implementation.** Site preparation shall include (a) protection of existing native species; (b) trash and weed removal; (c) native species salvage and reuse (i.e., duff); (d) soil treatments (i.e., imprinting, decompacting); (e) temporary irrigation installation; (f) erosion-control measures (i.e., rice or willow wattles); (g) seed mix application; and (h) container species installation.
4. **Schedule.** A schedule shall be developed that includes planting to occur in late fall and early winter (i.e., between October 1 and January 30).
5. **Maintenance plan/guidelines.** The maintenance plan shall include (a) weed control; (b) herbivory control; (c) trash removal; (d) irrigation system

maintenance; (e) maintenance training; and (f) replacement planting. The maintenance plan shall also include biological monitoring during maintenance activities if they occur during the least Bell's vireo breeding season (March 15 to September 15).

6. **Monitoring plan.** The riparian vegetation/jurisdictional resources monitoring plan shall include (a) qualitative monitoring (i.e., photographs and general observations); (b) quantitative monitoring (i.e., randomly placed transects); (c) performance criteria, as approved by the resource agencies; (d) monthly reports for the first year and reports every other month thereafter; and (e) annual reports for five years, which shall be submitted to the resource agencies.
7. **Long-term preservation.** Long-term preservation of the site shall also be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development.

The limits of grading shall be clearly marked, and temporary fencing or other appropriate markers shall be placed around any sensitive habitat adjacent to work areas prior to the commencement of any ground-disturbing activity or native vegetation removal. No construction access, parking, or storage of equipment or materials shall be permitted within marked areas.

The Applicant shall begin riparian habitat restoration activities (e.g., soil prep, seeding) no later than one year after issuance of the first grading permit. The Applicant shall be fully responsible for the implementation of the riparian revegetation program until the restoration areas have met the success criteria outlined in the program. The City and the resource agencies (i.e., the USFWS and the California Coastal Commission) shall have final authority over mitigation area sign-off.

The site shall be monitored and maintained for five years to ensure successful establishment of riparian habitat within the restored and created areas, and the performance criteria shall take least Bell's vireo habitat requirements into consideration. For example, the presence of a shrubby understory is important for this species; thus, performance criteria shall include a requirement for structural complexity.

The Applicant is seeking a Take Authorization through Section 7 of the Federal Endangered Species Act for impacts to habitat for the least Bell's vireo. Prior to issuance of the first action and/or permit that would allow for site disturbance (e.g., grading permit), the Applicant shall provide to the City of Newport Beach a Biological Opinion issued from the U.S. Fish and Wildlife Service (USFWS) authorizing the removal of jurisdictional resources (i.e., potential least Bell's vireo habitat). It is anticipated that the USFWS Biological Opinion would contain conservation recommendations to avoid or reduce the Project's impact. Although additional conservation measures identified by the USFWS shall be enforced, at a minimum, the Construction Minimization Measures listed below shall be followed.

1. Activities involving the removal of riparian habitat shall be prohibited during the least Bell's vireo breeding season (March 15 to September 15) unless otherwise directed by the USFWS and the CDFG.

2. Vegetation-clearing activities shall be monitored by a qualified Biologist. The Biological Monitor shall ensure that only the amount of riparian habitat approved during the consultation process shall be removed. The Biological Monitor shall delineate (by the use of orange snow fencing or lath and ropes/flagging) all areas adjacent to the impact area that contain habitat suitable for least Bell's vireo occupation.
3. The use of any large construction equipment during site grading shall be prohibited within 500 feet of an active least Bell's vireo nest during the breeding season of this species (March 15 to September 15), unless otherwise directed by the USFWS and the CDFG. Construction may be allowed within 500 feet of an active nest if appropriate noise measures are implemented, as approved by the resource agencies.
4. Appropriate noise-abatement measures (e.g., sound walls) shall be implemented to ensure that noise levels are less than 60 A-weighted decibels (dBA) at specified monitoring locations near active nest(s), as determined by the Biological Monitor. This shall be verified by weekly noise monitoring conducted by a qualified Acoustical Engineer during the breeding season (March 15 to September 15) or as otherwise determined by a qualified Biological Monitor based on vireo nesting activity.
5. If construction occurs during the breeding season, a summary of construction monitoring activities and noise monitoring results shall be provided to the USFWS and the CDFG following completion of construction.

MM 6

Migratory Bird Treaty Act. No vegetation removal shall occur between February 15 and September 15 unless a qualified Biologist, approved by the City of Newport Beach (City), surveys the Project's impact area prior to disturbance to confirm the absence of active nests. If an active nest is discovered, disturbance within a particular buffer shall be prohibited until nesting is complete; the buffer distance shall be determined by the Biologist in consultation with applicable resource agencies and in consideration of species sensitivity and existing nest site conditions. Limits of avoidance shall be demarcated with flagging or fencing. The Biologist shall record the results of the recommended protective measures described above and shall submit a memo summarizing any nest avoidance measures to the City to document compliance with applicable State and federal laws pertaining to the protection of native birds.

MM 7

Special Status Plant Species. The Applicant shall be required to plan, implement, monitor, and maintain a southern tarplant restoration program for the Project consistent with the most current technical standards/knowledge regarding southern tarplant restoration. Prior to the first action and/or permit that would allow for site disturbance (e.g., a grading permit), a qualified Biologist shall prepare a detailed southern tarplant restoration program that would focus on (1) avoiding impacts to the southern tarplant to the extent possible through Project planning; (2) minimizing impacts; (3) rectifying impacts through the repair, rehabilitation, or restoration of the impacted environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the Project; and (5) compensating for impacts by replacing or providing substitute resources or environments. The program shall be reviewed and approved by the City of Newport Beach (City) prior to site disturbance.

Impacts on southern tarplant shall be mitigated by seed collection and re-establishment. The seeds shall be collected and then placed into a suitable mitigation area in the undeveloped or restored portion of the Project site or at an approved adjacent off-site location. The southern tarplant restoration program shall have the requirements listed below.

1. Seed ripeness shall be monitored every two weeks by a qualified Biologist and/or a qualified Seed Collector at the existing southern tarplant locations to determine when the seeds are ready for collection. A qualified Seed Collector shall collect all the seeds from the plants to be impacted when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or institution with appropriate storage facilities.
2. The mitigation site shall be located in dedicated open space on the Project site or at an adjacent off-site mitigation site. The mitigation site shall be prepared for seeding as described in a conceptual restoration plan.
3. The topsoil shall be collected from areas with limited amounts of weeds from the impacted population and re-spread in the selected location, as approved by the qualified Biologist. Approximately 60 to 80 percent of the collected seeds shall be spread in the fall following soil preparation and seed preparation. The remainder of the seeds shall be kept in storage for subsequent seeding, if necessary.
4. The qualified Biologist shall have the full authority to suspend any operation at the site which is, in the qualified Biologist's opinion, not consistent with the restoration program. Any disputes regarding consistency with the restoration program shall be resolved by the Applicant, the qualified Biologist, and the City.

MM 8

Light-footed Clapper Rail, Western Snowy Plover, Belding's Savannah Sparrow. Due to temporary impacts to marsh habitat in the lowland by oilfield remediation activities, a focused survey shall be conducted for light-footed clapper rail, western snowy plover, and Belding's savannah sparrow in the spring prior to the proposed impact to determine if these species nest on or immediately adjacent to the Project site. If any of these species are observed, the Applicant shall obtain approvals from the resource agencies (i.e., the U.S. Fish and Wildlife Service [USFWS], the California Department of Fish and Game [CDFG], and the California Coastal Commission) prior to the initiation of grading or any activity that involves the removal/disturbance of marsh habitat, including clearing, grubbing, mowing, disking, trenching, grading, or any other construction-related activity on the Project site. If any of these species would be impacted, mitigation for impacts on these species shall include replacement of marsh habitat as described in MM 4. In addition, the measures listed below shall be implemented.

1. Marsh vegetation shall be removed after September 15 and before March 1.
2. If marsh vegetation is proposed for removal prior to September 15, a series of pre-construction surveys shall be conducted to ensure that no light-footed clapper rail, western snowy plover, or Belding's savannah sparrows are in the area of impact. If any of these species are observed within 100 feet of the impact areas, the resource agencies shall be contacted to determine if additional consultation and/or minimization measures are required.

3. A Biological Monitor familiar with light-footed clapper rail, western snowy plover, and Belding's savannah sparrow shall be present during all activities involving marsh vegetation removal to ensure that impacts to marsh habitats do not extend beyond the limits of grading and to minimize the likelihood of inadvertent impacts to marsh habitat. In addition, the Biological Monitor shall monitor construction activities in or adjacent to marsh habitat during the light-footed clapper rail, western snowy plover, and Belding's savannah sparrow breeding season (March 1 to September 15).
4. The limits of disturbance during oilfield cleanup shall be clearly marked, and temporary fencing or other appropriate markers shall be placed around any sensitive habitat adjacent to work areas prior to the commencement of any ground-disturbing activity or native vegetation removal. No construction access, parking, or storage of equipment or materials shall be permitted within the marked areas.

MM 9 ***California Gnatcatcher.*** Prior to initiation of grading or any activity that involves the removal/disturbance of coastal sage scrub habitat, including clearing, grubbing, mowing, disking, trenching, grading or any other construction-related activity on the Project site, the Applicant shall obtain a Biological Opinion from the U.S. Fish and Wildlife Service to authorize incidental take. Mitigation for impacts on the California gnatcatcher shall include restoration and preservation of 82.91 acres of coastal sage scrub habitat and implementation of the Construction Minimization Measures listed in MM 1.

MM 10 ***Coastal Cactus Wren.*** Impacts on southern cactus scrub, southern cactus scrub/Encelia scrub, disturbed southern cactus scrub, and disturbed southern cactus scrub/Encelia scrub shall be avoided to the maximum extent practicable. If it is determined by the City of Newport Beach (City) during the final grading plan check that impacts on cactus habitat cannot be avoided, the coastal sage scrub mitigation plan shall incorporate cactus into the planting palette at no less than a 1:1 ratio for impacted cactus areas. The Applicant shall submit the coastal sage scrub mitigation plan to the City to verify that an appropriate amount of cactus has been incorporated into the plan. Mitigation for impacts on the coastal cactus wren shall include replacement of coastal sage scrub habitat and implementation of the Construction Minimization Measures described in MM 1.

MM 11 ***Least Bell's Vireo.*** Prior to initiation of grading or any activity that involves the removal/disturbance of riparian habitat, including clearing, grubbing, mowing, disking, trenching, grading or any other construction-related activity on the Project site, the Applicant shall obtain approvals from the resource agencies (i.e., the U.S. Fish and Wildlife Service [USFWS], the California Department of Fish and Game [CDFG], and the California Coastal Commission). Mitigation for impacts on the least Bell's vireo shall include (1) replacement of riparian and upland scrub and riparian forest habitat and the Construction Minimization Measures described in MM 5; (2) protection of nests and nesting birds as described in MM 6; and (3) any additional provisions imposed by the permitting agencies.

MM 12 ***Burrowing Owl.*** Impacts on known burrowing owl burrows and surrounding non-native grasslands shall be avoided to the maximum extent practicable, as determined by a qualified Biologist in coordination with the City of Newport Beach (City). If impacts on grassland habitat occupied by burrowing owl cannot be

avoided, mitigation for impacts on the burrowing owl shall include restoration of native grassland habitat, as described in MM 2.

Within 30 days prior to any ground-disturbing activity to suitable burrowing owl habitat, a focused pre-construction survey shall be conducted to determine the presence or absence of the burrowing owl on the Project site. If the species is not observed, no further mitigation shall be necessary. Results of the survey shall be provided to the California Department of Fish and Game (CDFG).

If an active burrow is observed during the non-nesting season, a qualified Biologist shall monitor the nest site; when the owl is away from the nest, the Biologist shall exclude the owl from the burrow and then remove the burrow so the owl cannot return.

If an active burrowing owl burrow is observed during the nesting season, the active site shall be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the *California Fish and Game Code*. Peak nesting activity for burrowing owl normally occurs from April to July. To protect the active burrow, the following restrictions to construction activities shall be required until the burrow is no longer active (as determined by a qualified Biologist): (1) clearing limits shall be established within a 300-foot buffer around any active burrow, unless otherwise determined by a qualified Biologist and (2) access and surveying shall be prohibited within 200 feet of any active burrow, unless otherwise determined by a qualified Biologist. Any encroachment into the buffer area around the active burrow shall only be allowed if the Biologist determines that the proposed activity shall not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest burrow.

MM 13

Raptor Nesting. To the maximum extent practicable, habitats that provide potential nest sites for raptors shall be removed from July 1 through January 31. If Project construction activities are initiated during the raptor nesting season (February 1 to June 30), a qualified Biologist shall conduct a nesting raptor survey. Seven days prior to the onset of construction activities, a qualified Biologist shall survey within the limits of the Project disturbance area for the presence of any active raptor nests (common or special status). Any nest found during survey efforts shall be mapped on the construction plans. If no active nests are found, no further mitigation would be required, and survey results shall be provided to the California Department of Fish and Game (CDFG).

If nesting activity is present, the active site shall be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the *California Fish and Game Code*. To protect any nest site, the following restrictions on construction are required between February 1 and June 30 (or until nests are no longer active, as determined by a qualified Biologist): (1) clearing limits shall be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying shall be prohibited within 200 feet of any occupied nest. Any encroachment into the 300- and/or 200-foot buffer area(s) around the known nest shall only be allowed if a qualified Biologist determines that the proposed activity shall not disturb the nest occupants. During the non-nesting season, proposed work activities can occur only if a qualified Biologist has determined that fledglings have left the nest.

Indirect Impacts

Please refer to the EIR Hydrology and Water Quality Section for the discussion of mitigation measures for Water Quality.

MM 14 ***Invasive Exotic Plant Species.*** A qualified Biologist shall monitor any oilfield remediation activities that involve disturbance of native habitat but that would not include removal of the habitat in its entirety. During vegetation removal for remediation activities, the Biological Monitor shall direct the construction crew to remove invasive plant species, including but not limited to pampas grass and giant reed. The Biologist shall also direct the crew on any additional measures that may be needed to eradicate these species, such as removal of roots, painting cut stems with Round-up or other approved herbicide, or follow-up applications of herbicide.

The Applicant shall submit Landscape Plans to the City of Newport Beach (City) for review and approval by a qualified Biologist. The review shall ensure that no invasive, exotic plant species are used in landscaping adjacent to any open space and that suitable substitutes are provided. When the process is complete, the qualified Biologist shall submit a memo approving the Landscape Plans to the City.

MM 15 ***Human Activity.*** Prior to issuance of a grading permit, the Applicant shall submit a fencing plan to the City of Newport Beach (City) for review to demonstrate that access to the open space within the lowland shall be limited to designated access points that link to existing trails. To best protect habitat from human activity, fence rails shall be placed along the boardwalk trails. Signs shall be posted along the fence indicating that habitat within the lowland is sensitive because it supports Endangered species. The signage shall also provide information on biological resources within the lowland (e.g., coastal sage scrub, marsh, riparian habitats, and special status species). In addition, signage shall require that dogs be leashed in parks, along trails, and in any areas adjacent to open space.

MM 16 ***Urban Wildlands Interface.*** To educate residents of the responsibilities associated with living at the wildland interface, the Applicant shall develop a wildland interface brochure. The brochure shall be included as part of the purchase/rental/lease agreements for the Project residents. The brochure shall address relevant issues, including the role of natural predators in the wildlands (e.g., coyotes' predation of pets) and how to minimize impacts of humans and domestic pets on native communities and their inhabitants (e.g., outdoor cats' predation of native birds, lizards, and small mammals). The brochure shall also address invasive species that shall be avoided in landscaping consistent with MM 14.

4.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The Project site currently consists of native habitats that are fragmented by roads, heavily invaded by non-native plant species, and coated with dust from traffic on dirt roads. In addition, there is a moderate ongoing level of human activity associated with the oilfield activities. Following oilfield remediation and implementation of the mitigation measures, restored native habitat in the open space of the lowland is expected to be of high quality because habitat would consist of larger patches of contiguous habitat dominated by native plant species and would be without the constant layer of dust from traffic on dirt roads that currently occurs on the Project site. Limiting human activity to trails is also expected to increase the habitat quality of the native habitats in the lowland. Therefore, implementation of the Mitigation Program would mitigate biological impacts to a level considered less than significant.

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APPENDIX A
PLANT AND WILDLIFE
COMPENDIA



PLANT COMPENDIUM

Species
GYMNOSPERMS
<i>PINACEAE</i> - PINE FAMILY
<i>Pinus</i> sp. pine
FLOWERING PLANTS
CLASS DICOTYLEDONES (DICOTS)
<i>ADOXACEAE</i> - MUSKROOT FAMILY
<i>Sambucus nigra</i> ssp. <i>caerulea</i> blue elderberry
<i>AIZOACEAE</i> - FIG-MARIGOLD FAMILY
<i>Carpobrotus edulis</i> * hottentot fig
<i>Mesembryanthemum crystallinum</i> * crystalline iceplant
<i>Mesembryanthemum nodiflorum</i> * slender-leaved iceplant
<i>Sesuvium verrucosum</i> western sea-purslane
<i>Tetragonia tetragonioides</i> * New Zealand spinach
<i>AMARANTHACEAE</i> - AMARANTH FAMILY
<i>Amaranthus albus</i> * tumbleweed
<i>ANACARDIACEAE</i> - SUMAC FAMILY
<i>Schinus molle</i> * pepper tree
<i>Schinus terebinthifolius</i> * Brazilian pepper tree
<i>APIACEAE (UMBELLIFERAE)</i> - CARROT FAMILY
<i>Apium graveolens</i> * common celery
<i>Conium maculatum</i> * poison hemlock
<i>Daucus pusillus</i> rattlesnake weed
<i>Foeniculum vulgare</i> * sweet fennel
<i>APOCYNACEAE</i> - DOGBANE FAMILY
<i>Nerium oleander</i> * common oleander
<i>TERACEA (COMPOSITAE)</i> - SUNFLOWER FAMILY
<i>Amblyopappus pusillus</i> coast weed
<i>Ambrosia psilostachya</i> western ragweed
<i>Artemisia californica</i> California sagebrush
<i>Artemisia douglasiana</i> mugwort

**PLANT COMPENDIUM
(Continued)**

Species
<i>Artemisia dracunculus</i> tarragon
<i>Baccharis pilularis</i> coyote brush
<i>Baccharis salicifolia</i> ssp. <i>salicifolia</i> mule fat
<i>Carduus pycnocephalus</i> var. <i>pycnocephalus</i> * Italian thistle
<i>Centaurea melitensis</i> * tocalote/Maltese star thistle
<i>Centromadia australis</i> ssp. <i>parryi</i> southern tarplant
<i>Matricaria discoidea</i> * pineapple weed
<i>Glebionis coronaria</i> * garland daisy
<i>Erigeron canadensis</i> common horseweed
<i>Cotula coronopifolia</i> * brass-buttons
<i>Encelia californica</i> bush sunflower
<i>Encelia farinosa</i> brittlebush
<i>Ericameria palmeri</i> var. <i>pachylepis</i> grassland goldenbush
<i>Ericameria pinifolia</i> pine-bush
<i>Euthamia occidentalis</i> western goldenrod
<i>Logfia gallica</i> * daggerleaf cottonrose
<i>Gazania linearis</i> * gazania
<i>Pseudognaphalium biolettii</i> bicolored everlasting/Bioletti's cudweed
<i>Pseudognaphalium luteoalbum</i> * weedy cudweed
<i>Grindelia camporum</i> white-stem gum-plant
<i>Gutierrezia californica</i> California matchweed
<i>Hedypnois cretica</i> * Crete weed
<i>Helianthus annuus</i> western sunflower
<i>Deinandra fasciculata</i> fascicled tarweed
<i>Heterotheca grandiflora</i> telegraph weed
<i>Heterotheca sessiliflora</i> sessileflower goldenaster

**PLANT COMPENDIUM
(Continued)**

Species
<i>Hypochaeris glabra</i> * smooth cat's ear
<i>Isocoma menziesii</i> goldenbush
<i>Jaumea carnosa</i> fleshy jaumea
<i>Lactuca serriola</i> * prickly lettuce
<i>Lasthenia californica</i> California goldfields
<i>Corethrogyne filaginifolia</i> California-aster
<i>Osmadenia tenella</i> osmadenia
<i>Helminthotheca echioides</i> * bristly ox-tongue
<i>Pluchea sericea</i> arrowweed
<i>Psilocarphus brevissimus</i> woolly marbles
<i>Pulicaria paludosa</i> * Spanish sunflower
<i>Silybum marianum</i> * milk thistle
<i>Sonchus oleraceus</i> * common sow thistle
<i>Stephanomeria virgata</i> ssp. <i>virgata</i> tall wreath plant
<i>Xanthium strumarium</i> cocklebur
BATACEAE - SALTWORT FAMILY
<i>Batis maritima</i> saltwort
BORAGINACEAE - BORAGE FAMILY
<i>Amsinckia menziesii</i> rigid fiddleneck
<i>Eucrypta chrysanthemifolia</i> common eucrypta
<i>Heliotropium curassavicum</i> var. <i>oculatum</i> salt heliotrope/alkali heliotrope
BRASSICACEAE (CRUCIFERAE) - MUSTARD FAMILY
<i>Brassica nigra</i> * black mustard
<i>Hirschfeldia incana</i> * shortpod mustard
<i>Lepidium nitidum</i> peppergrass/shining peppergrass
<i>Raphanus sativus</i> * radish
<i>Sisymbrium irio</i> * London rocket

**PLANT COMPENDIUM
(Continued)**

Species
<i>CACTACEAE</i> - CACTUS FAMILY
<i>Opuntia littoralis</i> coastal prickly pear
<i>Cylindropuntia prolifera</i> proliferous prickly pear/coastal cholla
<i>CLEOMACEAE</i> - SPIDERFLOWER FAMILY
<i>Isomeris arborea</i> bladderpod
<i>CARYOPHYLLACEAE</i> - PINK FAMILY
<i>Silene gallica</i> * small-flower catchfly
<i>Spergularia marina</i> salt-marsh sand spurrey
<i>CHENOPODIACEAE</i> - GOOSEFOOT FAMILY
<i>Atriplex lentiformis</i> big saltbush
<i>Atriplex semibaccata</i> * Australian saltbush
<i>Bassia hyssopifolia</i> five-hook bassia
<i>Chenopodium album</i> * lamb's quarters
<i>Salicornia pacifica</i> common woody pickleweed
<i>Salsola tragus</i> * Russian thistle
<i>Suaeda esteroa</i> estuary seablite
<i>Suaeda taxifolia</i> woolly seablite
<i>CONVOLVULACEAE</i> - MORNING-GLORY FAMILY
<i>Calystegia macrostegia</i> morning-glory
<i>Convolvulus simulans</i> small-flowered morning-glory
<i>Cressa truxillensis</i> alkali weed
<i>CRASSULACEAE</i> - STONECROP FAMILY
<i>Dudleya lanceolata</i> lance-leaved dudleya / lanceleaf/ coastal dudleya / coastal live-forever
<i>Dudleya pulverulenta</i> chalk dudleya/chalky live-forever
<i>CUCURBITACEAE</i> - GOURD FAMILY
<i>Marah macrocarpus</i> chilicothe
<i>EUPHORBIACEAE</i> - SPURGE FAMILY
<i>Chamaesyce albomarginata</i> rattlesnake weed
<i>Croton setigerus</i> doveweed/turkey mullein

**PLANT COMPENDIUM
(Continued)**

Species
<i>Ricinus communis</i> * castor bean
<i>FABACEAE (LEGUMINOSAE) - LEGUME FAMILY</i>
<i>Acacia</i> sp.* acacia
<i>Acmispon glaber</i> deerweed
<i>Lupinus bicolor</i> miniature lupine
<i>Lupinus succulentus</i> arroyo lupine
<i>Medicago polymorpha</i> * California burclover
<i>Mellilotus alba</i> * white sweetclover
<i>Mellilotus indica</i> * sourclover
<i>FRANKENIACEAE - FRANKENIA FAMILY</i>
<i>Frankenia salina</i> alkali heath
<i>GERANIACEAE - GERANIUM FAMILY</i>
<i>Erodium botrys</i> * long-beaked filaree
<i>Erodium cicutarium</i> * red-stemmed filaree
<i>LAMIACEAE (LABIATAE) - MINT FAMILY</i>
<i>Marrubium vulgare</i> * common horehound
<i>Salvia mellifera</i> black sage
<i>LYTHRACEAE - LOOSESTRIFE FAMILY</i>
<i>Lythrum hyssopifolia</i> * grass poly
<i>MALVACEAE - MALLOW FAMILY</i>
<i>Malvella leprosa</i> alkali mallow
<i>SCROPHULARIACEAE- FIGWORT FAMILY</i>
<i>Myoporum laetum</i> * myoporum
<i>MONTIACEAE - MONTIA FAMILY</i>
<i>Calandrinia ciliata</i> red maids
<i>MYRSINACEAE - MYRSINE FAMILY</i>
<i>Anagallis arvensis</i> * scarlet pimpernel
<i>MYRTACEAE - MYRTLE FAMILY</i>
<i>Eucalyptus</i> sp.* gum

**PLANT COMPENDIUM
(Continued)**

Species
NYCTAGINACEAE - FOUR-O'CLOCK FAMILY
<i>Bougainvillea</i> sp. Bougainvillea
<i>Mirabilis laevis</i> var. <i>crassifolia</i> wishbone bush/California wishbone bush
OLEACEAE - OLIVE FAMILY
<i>Fraxinus dipetala</i> California ash
<i>Olea europaea</i> * olive
ONAGRACEAE - EVENING PRIMROSE FAMILY
<i>Epilobium ciliatum</i> willow-herb
<i>Oenothera elata</i> ssp. <i>hirsutissima</i> great marsh evening primrose
OXALIDACEAE - WOOD-SORREL FAMILY
<i>Oxalis pes-caprae</i> * Bermuda buttercup/sour grass
PLANTAGINACEAE - PLANTAIN FAMILY
<i>Plantago erecta</i> dwarf plantain/California plantain
<i>Veronica anagallis-aquatica</i> * great water speedwell
PLUMBAGINACEAE - LEADWORT FAMILY
<i>Plumbago auricalata</i> * cape plumbago
POLYGONACEAE - BUCKWHEAT FAMILY
<i>Eriogonum fasciculatum</i> California buckwheat
<i>Lastarriaea coriacea</i> leatherm-spineflower
<i>Pterostegia drymarioides</i> woodland threadstem
<i>Rumex crispus</i> * curly dock
ROSACEAE - ROSE FAMILY
<i>Rubus ursinus</i> California blackberry
SALICACEAE - WILLOW FAMILY
<i>Salix exigua</i> narrow-leaved willow
<i>Salix gooddingii</i> Goodding's black willow
<i>Salix laevigata</i> red willow
<i>Salix lasiolepis</i> arroyo willow

**PLANT COMPENDIUM
(Continued)**

Species
SOLANACEAE - NIGHTSHADE FAMILY
<i>Lycium californicum</i> California box thorn
<i>Nicotiana glauca</i> * tree tobacco
<i>Solanum xanti</i> chaparral nightshade
TAMARICACEAE - TAMARISK FAMILY
<i>Tamarix ramosissima</i> * Mediterranean tamarisk
THEMIDACEAE - [x] FAMILY
<i>Bloomeria crocea</i> common goldenstar
<i>Dichelostemma capitatum</i> blue dicks
URTICACEAE - NETTLE FAMILY
<i>Urtica dioica</i> ssp. <i>holosericea</i> hoary nettle
CLASS MONOCOTYLEDONES (MONOCOTS)
ARECACEAE (PALMAE) - PALM FAMILY
<i>Washingtonia robusta</i> * Mexican fan palm
CYPERACEAE - SEDGE FAMILY
<i>Bolboschoenus maritimus</i> alkali bulrush
<i>Eleocharis macrostachya</i> perennial spike rush
<i>Scirpus</i> sp. sedge
<i>Schoenoplectus californicus</i> southern bulrush
<i>Bolboschoenus maritimus</i> alkali bulrush
JUNCACEAE - RUSH FAMILY
<i>Juncus acutus</i> ssp. <i>leopoldii</i> southwestern spiny rush
POACEAE [GRAMINEAE] - GRASS FAMILY
<i>Arundo donax</i> * giant reed
<i>Avena barbata</i> * slender wild oat
<i>Avena fatua</i> * wild oat
<i>Bromus diandrus</i> * ripgut grass
<i>Bromus hordeaceus</i> * soft chess
<i>Bromus madritensis</i> ssp. <i>rubens</i> * foxtail chess

**PLANT COMPENDIUM
(Continued)**

Species
<i>Cortaderia selloana</i> * pampas grass
<i>Cynodon dactylon</i> * bermuda grass
<i>Distichlis spicata</i> salt grass
<i>Hordeum murinum</i> var. <i>leporinum</i> * hare barley
<i>Lamarckia aurea</i> * goldentop
<i>Monanthochloe littoralis</i> * shoregrass
<i>Stipa lepida</i> foothill needlegrass
<i>Stipa pulchra</i> purple needlegrass
<i>Pennisetum setaceum</i> * crimson fountain grass
<i>Polypogon monspeliensis</i> * annual beard grass
<i>Spartina foliosa</i> California cord grass
<i>Festuca myuros</i> * foxtail fescue
TYPHACEAE - CATTAIL FAMILY
<i>Typha</i> sp. cattail
*non-native species

WILDLIFE COMPENDIUM

Species
Amphibians
<i>Pseudacris hypochondriaca</i> Baja California treefrog
Reptiles
PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS
<i>Sceloporus occidentalis</i> western fence lizard
<i>Uta stansburiana</i> side-blotched lizard
COLUBRIDAE - COLUBRID SNAKES
<i>Pituophis catenifer</i> gopher snake
Birds
ANATIDAE - WATERFOWL
<i>Anas platyrhynchos</i> mallard
ARDEIDAE - HERONS, BITTERNs, & ALLIES
<i>Ardea herodias</i> great blue heron
<i>Ardea alba</i> great egret
<i>Nycticorax nycticorax</i> black-crowned night-heron
CATHARTIDAE - NEW WORLD VULTURES
<i>Cathartes aura</i> turkey vulture
PANDIONIDAE - OSPREYS
<i>Pandion haliaetus</i> osprey
ACCIPITRIDAE - HAWKS, KITES, EAGLES, & ALLIES
<i>Elanus leucurus</i> white-tailed kite
<i>Circus cyaneus</i> northern harrier
<i>Accipiter striatus</i> sharp-shinned hawk
<i>Accipiter cooperii</i> Cooper's hawk
<i>Buteo lineatus</i> red-shouldered hawk
<i>Buteo jamaicensis</i> red-tailed hawk
FALCONIDAE - FALCONS
<i>Falco sparverius</i> American kestrel
CHARADRIIDAE - PLOVERS
<i>Charadrius vociferus</i> killdeer

**WILDLIFE COMPENDIUM
(Continued)**

Species
SCOLOPACIDAE - SANDPIPERS & PHALAROPES
<i>Numenius phaeopus</i> whimbrel
LARIDAE - GULLS & TERNS
<i>Larus occidentalis</i> western gull
<i>Larus californicus</i> California gull
COLUMBIDAE - PIGEONS & DOVES
<i>Columba livia</i> * rock pigeon
<i>Zenaida macroura</i> mourning dove
STRIGIDAE - TRUE OWLS
<i>Bubo virginianus</i> great horned owl
<i>Athene cunicularia</i> burrowing owl
APODIDAE - SWIFTS
<i>Aeronautes saxatalis</i> white-throated swift
TROCHILIDAE - HUMMINGBIRDS
<i>Archilochus alexandri</i> black-chinned hummingbird
<i>Calypte anna</i> Anna's hummingbird
<i>Selasphorus rufus</i> rufous hummingbird
<i>Selasphorus sasin</i> Allen's hummingbird
PICIDAE - WOODPECKERS
<i>Picoides nuttallii</i> Nuttall's woodpecker
<i>Picoides pubescens</i> downy woodpecker
TYRANNIDAE - TYRANT FLYCATCHERS
<i>Contopus sordidulus</i> western wood-pewee
<i>Empidonax difficilis</i> Pacific-slope flycatcher
<i>Sayornis nigricans</i> black phoebe
<i>Myiarchus cinerascens</i> ash-throated flycatcher
<i>Tyrannus verticalis</i> western kingbird
VIREONIDAE - VIREOS
<i>Vireo bellii pusillus</i> least Bell's vireo

**WILDLIFE COMPENDIUM
(Continued)**

Species
<i>Vireo cassinii</i> Cassin's vireo
<i>Vireo huttoni</i> Hutton's vireo
<i>Vireo gilvus</i> warbling vireo
CORVIDAE - JAYS & CROWS
<i>Aphelocoma californica</i> western scrub-jay
<i>Corvus brachyrhynchos</i> American crow
<i>Corvus corax</i> common raven
HIRUNDINIDAE - SWALLOWS
<i>Tachycineta bicolor</i> tree swallow
<i>Tachycineta thalassina</i> violet-green swallow
<i>Stelgidopteryx serripennis</i> northern rough-winged swallow
<i>Petrochelidon pyrrhonota</i> cliff swallow
<i>Hirundo rustica</i> barn swallow
AEGITHALIDAE - BUSHTITS
<i>Psaltriparus minimus</i> bushtit
TROGLODYTIDAE - WRENS
<i>Campylorhynchus brunneicapillus</i> cactus wren
<i>Troglodytes aedon</i> house wren
POLIOPTILIDAE – GNATCATCHERS & GNATWRENS
<i>Polioptila californica</i> California gnatcatcher
REGULIDAE - KINGLETS
<i>Regulus calendula</i> ruby-crowned kinglet
TURDIDAE - THRUSHES & ROBINS
<i>Catharus ustulatus</i> Swainson's thrush
MIMIDAE - THRASHERS
<i>Mimus polyglottos</i> northern mockingbird
STURNIDAE - STARLINGS
<i>Sturnus vulgaris</i> * European starling
MOTACILLIDAE - PIPITS
<i>Anthus rubescens</i> American pipit

**WILDLIFE COMPENDIUM
(Continued)**

Species
PARULIDAE - WARBLERS
<i>Oreothlypis celata</i> orange-crowned warbler
<i>Oreothlypis ruficapilla</i> Nashville warbler
<i>Dendroica petechia</i> yellow warbler
<i>Dendroica coronata</i> yellow-rumped warbler
<i>Dendroica nigrescens</i> black-throated gray warbler
<i>Dendroica townsendi</i> Townsend's warbler
<i>Geothlypis trichas</i> common yellowthroat
<i>Wilsonia citrinia</i> Hooded warbler
<i>Wilsonia pusilla</i> Wilson's warbler
<i>Icteria virens</i> yellow-breasted chat
<i>Piranga ludoviciana</i> western tanager
EMBERIZIDAE - SPARROWS & JUNCOS
<i>Pipilo maculatus</i> spotted towhee
<i>Melospiza crissalis</i> California towhee
<i>Passerculus sandwichensis</i> savannah sparrow
<i>Melospiza melodia</i> song sparrow
<i>Melospiza lincolni</i> Lincoln's sparrow
<i>Zonotrichia leucophrys</i> white-crowned sparrow
<i>Zonotrichia atricapilla</i> golden-crowned sparrow
CARDINALIDAE - CARDINALS & ALLIES
<i>Pheucticus melanocephalus</i> black-headed grosbeak
<i>Piranga ludoviciana</i> western tanager
<i>Passerina caerulea</i> blue grosbeak
<i>Passerina amoena</i> lazuli bunting
<i>Passerina cyanea</i> indigo bunting

**WILDLIFE COMPENDIUM
(Continued)**

Species
ICTERIDAE - BLACKBIRDS
<i>Sturnella neglecta</i> western meadowlark
<i>Molothrus ater</i> brown-headed cowbird
<i>Icterus cucullatus</i> hooded oriole
<i>Icterus bullockii</i> Bullock's oriole
FRINGILLIDAE - FINCHES
<i>Carpodacus mexicanus</i> house finch
<i>Spinus psaltria</i> lesser goldfinch
<i>Spinus tristis</i> American goldfinch
ESTRILDIDAE - MANNIKINS
<i>Lonchura punctulata</i> * nutmeg mannikin
Mammals
DIDELPHIDAE - NEW WORLD OPOSSUMS
<i>Didelphis virginiana</i> * Virginia opossum
LEPORIDAE - HARES & RABBITS
<i>Sylvilagus audubonii</i> desert cottontail
SCIURIDAE - SQUIRRELS
<i>Spermophilus beecheyi</i> California ground squirrel
GEOMYIDAE - POCKET GOPHERS
<i>Thomomys bottae</i> Botta's pocket gopher
MURIDAE - MICE, RATS, AND VOLES
<i>Neotoma fuscipes</i> dusky-footed woodrat
<i>Rattus rattus</i> black rat *
CANIDAE - WOLVES & FOXES
<i>Canis latrans</i> coyote
PROCYONIDAE - RACCOONS
<i>Procyon lotor</i> common raccoon
MUSTELIDAE - WEASELS, SKUNKS & OTTERS
<i>Mephitis mephitis</i> striped skunk
* introduced species

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APPENDIX B
SITE PHOTOGRAPHS





Southern cactus scrub/Encelia scrub on the mesa.



Non-native grassland with patches of salt grass on the mesa near the southern end of the Project site.

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Site Photographs

Newport Banning Ranch

Appendix B

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Overview of lowlands on the Project site. Photograph facing west from the northeastern corner of the Project site.



Disturbed mule fat scrub (foreground) and willow riparian forest (background) near the center of the Project site in the lowlands.

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Site Photographs

Newport Banning Ranch

Appendix B

Bonterra
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Disturbed mule fat scrub in Drainage A near the northern end of the Project site.



Alkali marsh vegetation at the northern end of the lowlands.

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Site Photographs

Newport Banning Ranch

Appendix B

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Disturbed area (foreground) and disturbed southern coastal bluff scrub (background) near the center of the Project site.

APPENDIX C
SPECIAL STATUS PLANT SPECIES
SURVEY REPORT



September 23, 2009

Ms. Sharon Wood
Assistant City Manager
City of Newport Beach
3300 Newport Boulevard
Newport Beach, California 92663

VIA EMAIL
swood@city.newport-beach.ca.us

Subject: Results of Special Status Plant Surveys for the Newport Banning Ranch Project Site, Orange County, California

Dear Ms. Wood:

This Letter Report presents the results of special status plant surveys at the Newport Banning Ranch Project site (hereafter referred to as the "Project site") in the City of Newport Beach and the City's Sphere of Influence in Orange County, California (Exhibit 1). The purpose of the surveys was to determine the presence or absence of special status plants on the Project site.

Introduction

The Project site is located north of West Coast Highway, east of the Santa Ana River, south of 19th Street and Talbert Regional Park, and west of existing residential and commercial uses west of Whittier Avenue. The Project site is located on the U.S. Geological Survey's (USGS's) Newport Beach 7.5-minute quadrangle, at Township 6S, Range 10W, Sections 20, 21, and 29 (Exhibit 2). Topography on the Project site varies, with relatively flat areas, bluffs, and drainages; however, the northwestern and western portion of the Project site is lower in elevation than the central portion of the Project site. Elevations on the Project site range from approximately sea level to 100 feet above mean sea level (msl).

The Project site has been used as an active oil field for over 60 years, and ongoing oil operations along with remnant oil wells and pipelines occur throughout the Project site. A variety of vegetation types occur on the Project site. Coastal bluff scrub occurs on the south-facing slopes in the southeastern portion of the Project site. Coastal sage scrub occurs along the upper portions of drainages in the eastern portion of the Project site and on the west-facing slopes in the eastern portion of the Project site. Non-native grassland with elements of native grassland (salt grass [*Distichlis spicata*] and needlegrass [*Nassella* sp.]) occurs in the eastern portion of the Project site. Willow riparian forest/scrub, mule fat scrub, and alkali marsh occur in the western portion of the Project site. Portions of the vegetation types are considered disturbed because they are heavily invaded by ruderal or invasive exotic species, especially pampas grass (*Cortaderia selloana*). A network of roads in the lower portion of the Project site divides habitat into patches; often ruderal, ornamental, and invasive exotic species are present along the roads. Ornamental vegetation occurs in patches throughout the Project site, including patches interspersed with native vegetation types. Ruderal vegetation also occurs throughout the site, typically along roads or near developed areas, but also interspersed with native vegetation types.



Survey Methodology

Prior to the field survey, a literature review was conducted to identify special status plants or vegetation types known from the Project site and vicinity. This included a review of the USGS Newport Beach, Seal Beach, Tustin, and Laguna Beach 7.5-minute quadrangles in the California Department of Fish and Game's (CDFG's) California Natural Diversity Database (CNDDDB) (CDFG 2009) and the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (2009).

Prior to the 2009 survey, BonTerra Consulting Senior Botanist Sandra Leatherman visited a known population of southern tarplant (*Centromadia [Hemizonia] parryi* ssp. *australis*). Ms. Leatherman observed the species blooming at known locations within a week of the survey dates. Reference populations for special status plant species with the highest potential to occur on the site were checked within one week of the surveys by qualified Botanists.

Ms. Leatherman led the team of BonTerra Consulting Biologists, which included Botanist Jeff Crain, Botanist Andrea Edwards, and Ecologists Allison Rudalevige and Jennifer Pareti. The team conducted special status plant surveys on March 29 and 31; April 7, 9, 27, and 28; May 21 and 22; June 30; July 9 and 21; and August 4 and 13, 2009, using meandering transects throughout all suitable habitat on the Project site.

All plant species observed were recorded in field notes. Hand-held global positioning system (GPS) units were used to record locations of special status plants observed on the Project site. Plant species were identified in the field or collected for subsequent identification. Plants were identified using keys in Hickman (1993), Munz (1974), Abrams (1923, 1944, 1951), and Abrams and Ferris (1960). Taxonomy follows Hickman (1993) and current scientific data (e.g., scientific journals) for scientific and common names.

Survey Results

Table 1 lists the special status plants known to occur within the vicinity of the Project site. The results column indicates whether there is suitable habitat on the Project site for the species and whether the species was observed during these surveys. Southern tarplant, southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), California box-thorn (*Lycium californicum*), and woolly seablite (*Suaeda taxifolia*) were observed during the surveys. Exhibit 3 shows the southern tarplant locations. The southwestern spiny rush, California box-thorn, and woolly seablite locations are not shown on the maps because of their status; they are CNPS List 4 species, which are relatively common throughout California. Special status species observed on the Project site are discussed further below. A list of all plants observed during the survey can be found in Appendix A.

**TABLE 1
 SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR
 IN THE PROJECT VICINITY**

Species	Status			Results
	USFWS	CDFG	CNPS	
<i>Abronia villosa</i> var. <i>aurita</i> chaparral sand-verbena	-	-	1B.1	Limited sandy soils but no dune habitat; not observed during focused surveys.
<i>Aphanisma blitoides</i> aphanisma	-	-	1B.2	Limited, disturbed suitable habitat; not observed during focused surveys.
<i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i> Ventura marsh milk-vetch	FE	SE	1B.1	Suitable coastal marsh habitat; not observed during focused surveys.
<i>Atriplex coulteri</i> Coulter's saltbush	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Atriplex pacifica</i> South Coast saltscale	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Atriplex parishii</i> Parish's brittlescale	-	-	1B.1	Suitable habitat; not observed during focused surveys.
<i>Atriplex serenana</i> var. <i> davidsonii</i> Davidson's saltscale	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Calandrinia maritima</i> seaside calandrinia	-	-	4.2	Suitable habitat; not observed during focused surveys.
<i>Calochortus catalinae</i> Catalina mariposa lily	-	-	4.2	Suitable habitat; not observed during focused surveys.
<i>Calochortus weedii</i> var. <i>intermedius</i> intermediate mariposa lily	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Calystegia sepium</i> ssp. <i>binghamiae</i> Santa Barbara morning-glory	-	-	1A	Suitable habitat; not observed during focused surveys.
<i>Centromadia [Hemizonia] parryi</i> ssp. <i>australis</i> southern tarplant	-	-	1B.1	Observed during focused surveys.
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> Orcutt's pincushion	-	-	1B.1	No suitable habitat; not observed during focused surveys.
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	FC	SE	1B.1	No suitable habitat; not observed during focused surveys.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> summer holly	-	-	1B.2	No suitable habitat; not observed during focused surveys.
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i> salt marsh bird's-beak	FE	SE	1B.2	Limited suitable habitat; not observed during focused surveys.
<i>Dichondra occidentalis</i> western dichondra	-	-	4.2	Suitable habitat; not observed during focused surveys.
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> Blochman's dudleya	-	-	1B.1	Limited suitable habitat; not observed during focused surveys.
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i> Santa Monica dudleya	FT	-	1B.2	No suitable habitat; not observed during focused surveys.
<i>Dudleya multicaulis</i> many-stemmed dudleya	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Dudleya stolonifera</i> Laguna Beach dudleya	FT	ST	1B.1	No suitable habitat; not observed during focused surveys.
<i>Euphorbia misera</i> cliff spurge	-	-	2.2	Suitable habitat; not observed during focused surveys.

TABLE 1 (Continued)
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR
IN THE PROJECT VICINITY

Species	Status			Results
	USFWS	CDFG	CNPS	
<i>Harpagonella palmeri</i> Palmer's grapplinghook	-	-	4.2	Suitable habitat; not observed during focused surveys.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i> Los Angeles sunflower	-	-	1A	Limited suitable habitat; not observed during focused surveys.
<i>Hordeum intercedens</i> vernal barley	-	-	3.2	Suitable habitat is mowed; not observed during focused surveys.
<i>Horkelia cuneata</i> ssp. <i>puberula</i> mesa horkelia	-	-	1B.1	No suitable habitat; not observed during focused surveys.
<i>Isocoma menziesii</i> var. <i>decumbens</i> decumbent goldenbush	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Juncus acutus</i> ssp. <i>leopoldii</i> southwestern spiny rush	-	-	4.2	Observed during focused surveys.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's goldfields	-	-	1B.1	Suitable habitat; not observed during focused surveys.
<i>Lepidium virginicum</i> var. <i>robinsonii</i> Robinson's pepper-grass	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Lycium brevipes</i> var. <i>hassei</i> Santa Catalina Island desert-thorn	-	-	1B.1	Outside known range; not observed during focused surveys.
<i>Lycium californicum</i> California box-thorn	-	-	4.2	Observed during focused surveys.
<i>Nama stenocarpum</i> mud nama	-	-	2.2	Suitable habitat; not observed during focused surveys.
<i>Nasturtium gambelii</i> Gambel's water cress	FE	ST	1B.1	Limited suitable habitat; not observed during focused surveys.
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	-	-	1B.1	Suitable habitat; not observed during focused surveys.
<i>Nemacaulis denudata</i> var. <i>denudata</i> coast woolly-heads	-	-	1B.2	No suitable habitat; not observed during focused surveys.
<i>Pentachaeta aurea</i> ssp. <i>allenii</i> Allen's pentachaeta	-	-	1B.1	Suitable habitat; not observed during focused surveys.
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i> Gairdner's yampah	-	-	4.2	Suitable habitat; not observed during focused surveys.
<i>Quercus dumosa</i> Nuttall's scrub oak	-	-	1B.1	Limited suitable habitat; not observed during focused surveys.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	-	-	1B.2	No suitable habitat; not observed during focused surveys.
<i>Senecio aphanactis</i> chaparral ragwort	-	-	2.2	Suitable habitat; not observed during focused surveys.
<i>Suaeda esteroa</i> estuary seablite	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Suaeda taxifolia</i> woolly seablite	-	-	4.2	Observed during focused surveys.
<i>Symphyotrichum defoliatum</i> San Bernardino aster	-	-	1B.2	Suitable habitat; not observed during focused surveys.
<i>Verbesina dissita</i> big-leaved crownbeard	FT	ST	1B.1	No suitable habitat; not observed during focused surveys.

**TABLE 1 (Continued)
 SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR
 IN THE PROJECT VICINITY**

Species	Status			Results
	USFWS	CDFG	CNPS	
LEGEND:				
Federal (USFWS)		State (CDFG)		
FE	Endangered	SE	Endangered	
FT	Threatened	ST	Threatened	
FC	Federal Candidate			
California Native Plant Society (CNPS) List Categories				
List 1A	Plants Presumed Extinct in California			
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere			
List 2	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere			
List 3	Plants About Which We Need More Information – A Review List			
List 4	Plants of Limited Distribution – A Watch List			
California Native Plant Society (CNPS) Threat Code Extensions				
None	Plants lacking any threat information			
.1	Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)			
.2	Fairly Endangered in California (20–80% of occurrences threatened)			

Southern Tarplant (*Centromadia [Hemizonia] parryi ssp. australis*)

Southern tarplant is a CNPS List 1B.1 species. It typically blooms between May and November (CNPS 2009). This annual herb occurs in saline, seasonally moist grasslands (Hickman 1993). It historically occurred from Santa Barbara County south to Baja California, Mexico. Many historical occurrences and occurrences in Orange County have been extirpated (CNPS 2009). This species has been previously reported from the Project site (Jepson Flora Project 2009).

A total of 24,747 individuals were observed during the 2009 focused surveys: 52 percent vegetative, 46 percent flowering, and 2 percent fruiting (Table 2). Generally, the southern tarplant occurred in alkali marsh or ruderal vegetation types, often along or within roads. Tarplant locations were typically in flat areas or within depressions. Commonly associated species included alkali heath (*Frankenia salina*), five-hook bassia (*Bassia hyssopifolia*), common woody pickleweed (*Salicornia virginica*), crystalline iceplant (*Mesembryanthemum crystallinum*), mule fat (*Baccharis salicifolia*), and goldenbush (*Isocoma menziesii*).

**TABLE 2
 SOUTHERN TARPLANT OBSERVED ON THE PROJECT SITE**

Location Number	Total Number of Plants Observed	Associated Species
1	120	alkali heliotrope, shortpod mustard, mule fat, five-hook bassia, and tocalote
2	157	mule fat, five-hook bassia, Spanish sunflower, and goldenbush
3	72	salt grass, alkali heath, goldenbush, and alkali heliotrope
5	18	alkali heath, mule fat, pickleweed, five-hook bassia, and goldenbush
6	48	goldenbush, five-hook bassia, alkali heath, and pickleweed
7	350	goldenbush, alkali heath, pickleweed, and five-hook bassia
8	22	goldenbush
9	470	alkali heath, pickleweed, mule fat, alkali heliotrope, and goldenbush
10	710	goldenbush
11	150	mule fat, goldenbush, and pampas grass

TABLE 2 (Continued)
SOUTHERN TARPLANT OBSERVED ON THE PROJECT SITE

Location Number	Total Number of Plants Observed	Associated Species
12	9	mule fat, tocalote, five-hook bassia, and goldenbush
13	19	black willow, alkali heliotrope, mule fat, coyote brush, and goldenbush
14	700	mule fat, alkali heliotrope, and five-hook bassia
15	105	alkali heath, mule fat, and five-hook bassia
16	3	alkali heath and five-hook bassia
17	102	mule fat, alkali heath, five-hook bassia, arrowweed, and great marsh evening primrose
18	250	western goldenrod, five-hook bassia, and alkali heath
19	170	alkali heath, western goldenrod, five-hook bassia, and golden aster
20	1000	mule fat, five-hook bassia, alkali heath, and myoporum
21	26	western goldenrod, myoporum, telegraph weed, and five-hook bassia
22	112	alkali heath and golden aster
23	66	mule fat, alkali heath, five-hook bassia, golden aster, and crystalline iceplant
24	31	alkali heath
25	1300	western goldenrod, alkali heath, mule fat, coyote brush, and black willow
26	35	alkali heath
27	85	Mediterranean schismus, alkali heliotrope, five-hook bassia, and goldenbush
28	5000	alkali heath, mule fat, tree tobacco, pampas grass, and myoporum
29	130	pampas grass, mule fat, and crystalline iceplant
30	125	alkali heath, pickleweed, and mule fat
31	23	pickleweed and pampas grass
32	130	pickleweed, alkali heath, and mule fat
33	14	pickleweed, alkali heath, and mule fat
34	790	mule fat, pampas grass, and alkali heliotrope
35	120	pampas grass, alkali heath, mule fat, and goldenbush
36	90	alkali heath, mule fat, pampas grass, and pickleweed
37	3	mule fat and five-hook bassia
38	1000	mule fat, pickleweed, and alkali heath
39	28	five-hook bassia, mule fat, and pickleweed
40	150	goldenbush, crystalline iceplant, five-hook bassia, and mule fat
41	375	goldenbush, five-hook bassia, crystalline iceplant, and mule fat
42	33	crystalline iceplant, alkali heath, goldenbush, and mule fat
43	4300	mule fat, pickleweed, alkali heath, pampas grass, and coyote brush
44	70	myoporum, goldenbush, and crystalline iceplant
45	160	alkali heath, mule fat, goldenbush, pickleweed, and pampas grass
46	390	mule fat, goldenbush, alkali heath, and five-hook bassia
47	420	alkali heath, five-hook bassia, pickleweed, and mule fat
48	17	tree tobacco, five-hook bassia, mule fat, alkali heath, and everlasting
49	3	salt grass and goldenbush
50	19	goldenbush and pampas grass
51	2800	mule fat
52	8	alkali heliotrope, telegraph weed, and mule fat

TABLE 2 (Continued)
SOUTHERN TARPLANT OBSERVED ON THE PROJECT SITE

Location Number	Total Number of Plants Observed	Associated Species
53	25	alkali heliotrope, five-hook bassia, and mule fat
54	500	goldenbush, mule fat, and five-hook bassia
55	50	myoporum, bush sunflower, deerweed, goldenbush, and California buckwheat
56	9	pickleweed, salt grass, California buckwheat, deerweed, and myoporum
57	22	myoporum, California buckwheat, and bush sunflower
58	110	pampas grass, goldenbush, pickleweed, and salt grass
59	900	goldenbush, crystalline iceplant, alkali heath, five-hook bassia, and mule fat
60	400	pampas grass, goldenbush, pickleweed, and salt grass
61	225	goldenbush, pickleweed, pampas grass, and crystalline iceplant
62	56	goldenbush and mule fat
63	120	five-hook bassia, mule fat, goldenbush, and crystalline iceplant
64	2	alkai heliotrope and salt grass
Total	24,747	
<p>Scientific Names for Associates Species <i>Baccharis pilularis</i> - coyote brush <i>Baccharis salicifolia</i> - mule fat <i>Bassia hyssopifolia</i> - five-hook bassia <i>Centaurea melitensis</i>- tocalote <i>Cortaderia seloana</i> - pampas grass <i>Distichlis spicata</i>- salt grass <i>Encelia californica</i> - bush sunflower <i>Eriogonum fasciculatum</i> - California buckwheat <i>Euthamia occidentalis</i>- western goldenrod <i>Frankenia salina</i>- alkali heath <i>Gnaphalium</i> sp.- everlasting <i>Heliotropium curassavicum</i> - alkali heliotrope <i>Heterotheca grandiflora</i>- telegraph weed <i>Heterotheca sessiliflora</i> - golden aster <i>Hirschfeldia incana</i> - shortpod mustard <i>Isocoma menziesii</i> - goldenbush <i>Lotus scoparius</i> - deerweed <i>Mesembryanthemum crystallinum</i> - crystalline iceplant <i>Myoporum laetum</i> - myoporum <i>Nicotiana glauca</i>- tree tobacco <i>Oenothera elata</i> ssp. <i>hirsutissima</i> - great marsh evening primrose <i>Pluchea sericea</i> - arrowweed <i>Pulicaria paludosa</i> - Spanish sunflower <i>Salicornia virginica</i> - pickleweed <i>Salix gooddingii</i> - black willow <i>Schismus barbatus</i> - Mediterranean schismus</p>		

Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

Southwestern spiny rush is a CNPS List 4.2 species. It typically blooms between May and June (CNPS 2009). This perennial occurs in moist saline places like salt marshes and alkaline seeps (Hickman 1993). In California, it occurs along the central and southern coast, in the Sonoran Desert, and on the southern Channel Islands (Hickman 1993). This subspecies also occurs in Arizona; Baja California, Mexico; South America; and South Africa (Hickman 1993). In the vicinity of the Project site, this species has been reported from Upper Newport Bay (Jepson Flora Project 2009). This subspecies was detected in the southeastern portion of the Project site during 2009 focused surveys.

California box-thorn (*Lycium californicum*)

California box-thorn is a CNPS List 4.2 species. It typically blooms between March and August, though uncommonly from December (CNPS 2009). This perennial shrub occurs on coastal bluffs in coastal sage scrub (Hickman 1993). It is found along the southern coast and on the Channel Islands south to Baja California, Mexico (Hickman 1993). This species is known to occur on the Project site (GLA 2009). This species was detected during 2009 focused surveys of the Project site on the cliffs in coastal bluff scrub and encelia scrub located on the southern and western edge.

Woolly Seablite (*Suaeda taxifolia*)

Woolly seablite is a CNPS List 4.2 species. It typically blooms between January and December (CNPS 2009). This evergreen shrub occurs on coastal bluffs and margins of salt marshes (Jepson Flora Project 2009). It is found along the south coast and the Channel Islands from San Louis Obispo County south to Baja California, Mexico (CNPS 2009; Jepson Flora Project 2009). This species was detected in the salt marsh and disturbed salt marsh on the Project site during 2009 focused surveys of the Project site.

A California Natural Diversity Database form will be submitted to report the southern tarplant location (Appendix B). A form will not be submitted for the other special status species observed because the CNDDDB does not track CNPS List 4 species.

BonTerra Consulting appreciates the opportunity to assist with this survey. Please contact Sandy Leatherman at (714) 444-9199 if you have questions or comments regarding the survey results.

Sincerely,

BONTERRA CONSULTING


Ann M. Johnston
Principal, Biological Services


for Sandra J. Leatherman
Senior Project Manager/Senior Botanist

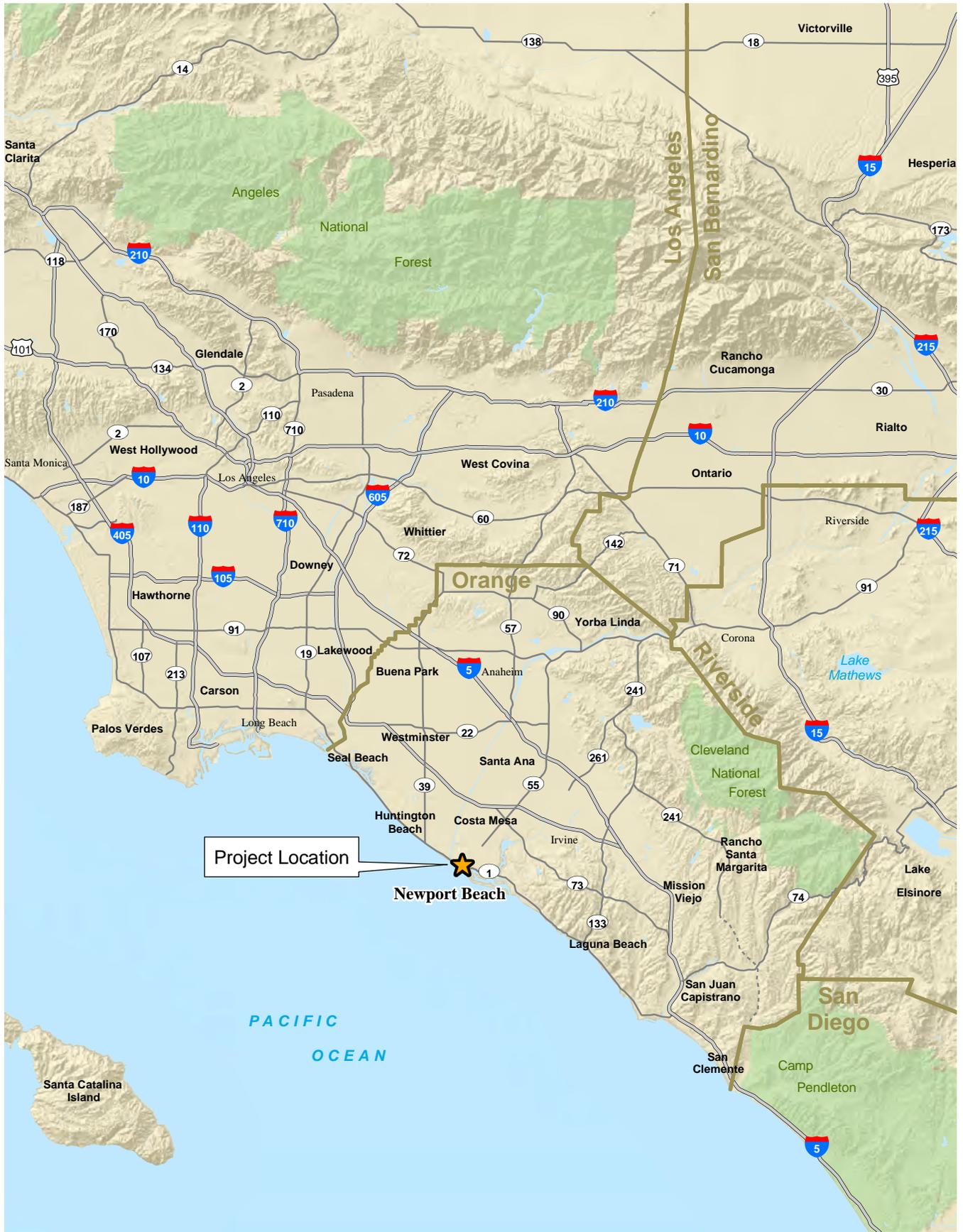
Attachments: Exhibits 1, 2, 3, and 4
Appendix A – Plant Compendium
Appendix B – CNDDDB Forms

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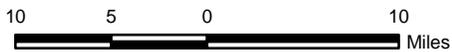


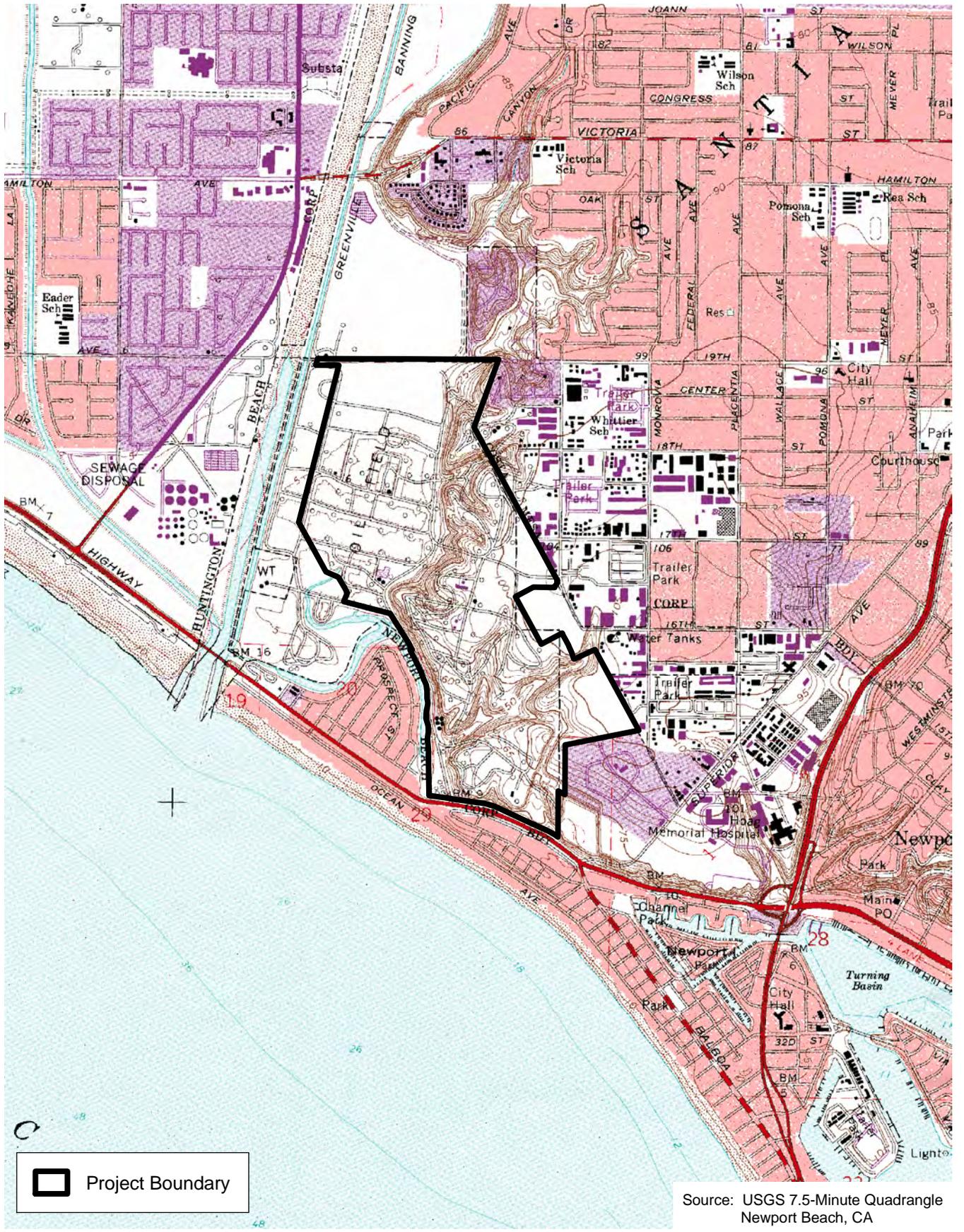
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Regional Location

Exhibit 1

Newport Banning Ranch





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Local Vicinity
Newport Banning Ranch

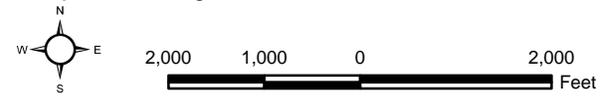
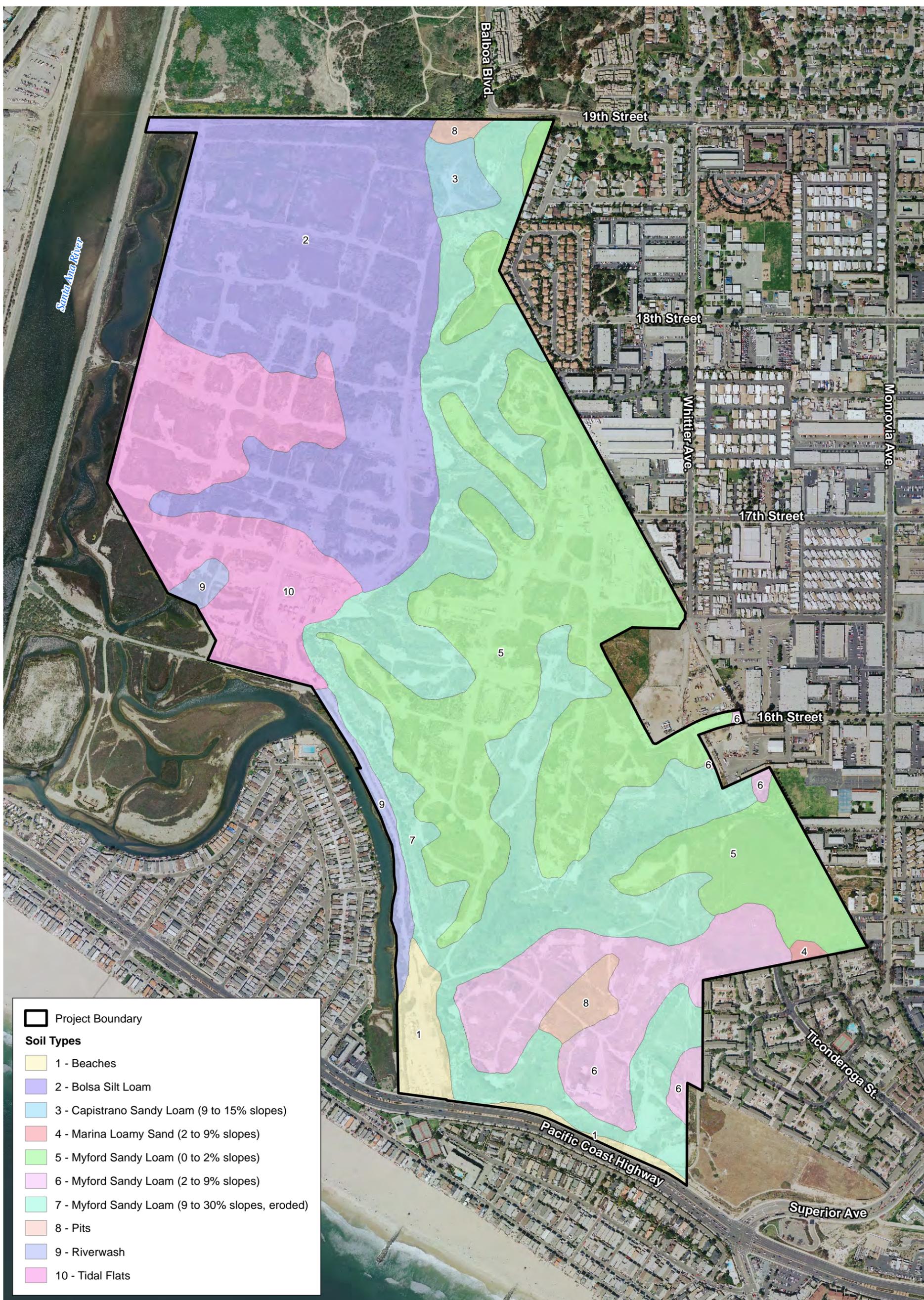


Exhibit 2





Project Boundary

Soil Types

- 1 - Beaches
- 2 - Bolsa Silt Loam
- 3 - Capistrano Sandy Loam (9 to 15% slopes)
- 4 - Marina Loamy Sand (2 to 9% slopes)
- 5 - Myford Sandy Loam (0 to 2% slopes)
- 6 - Myford Sandy Loam (2 to 9% slopes)
- 7 - Myford Sandy Loam (9 to 30% slopes, eroded)
- 8 - Pits
- 9 - Riverwash
- 10 - Tidal Flats

Soil Types

Newport Banning Ranch

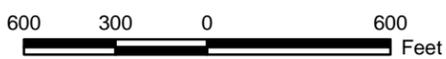
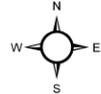
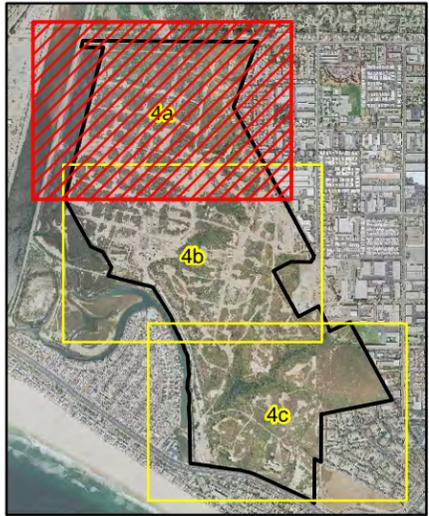
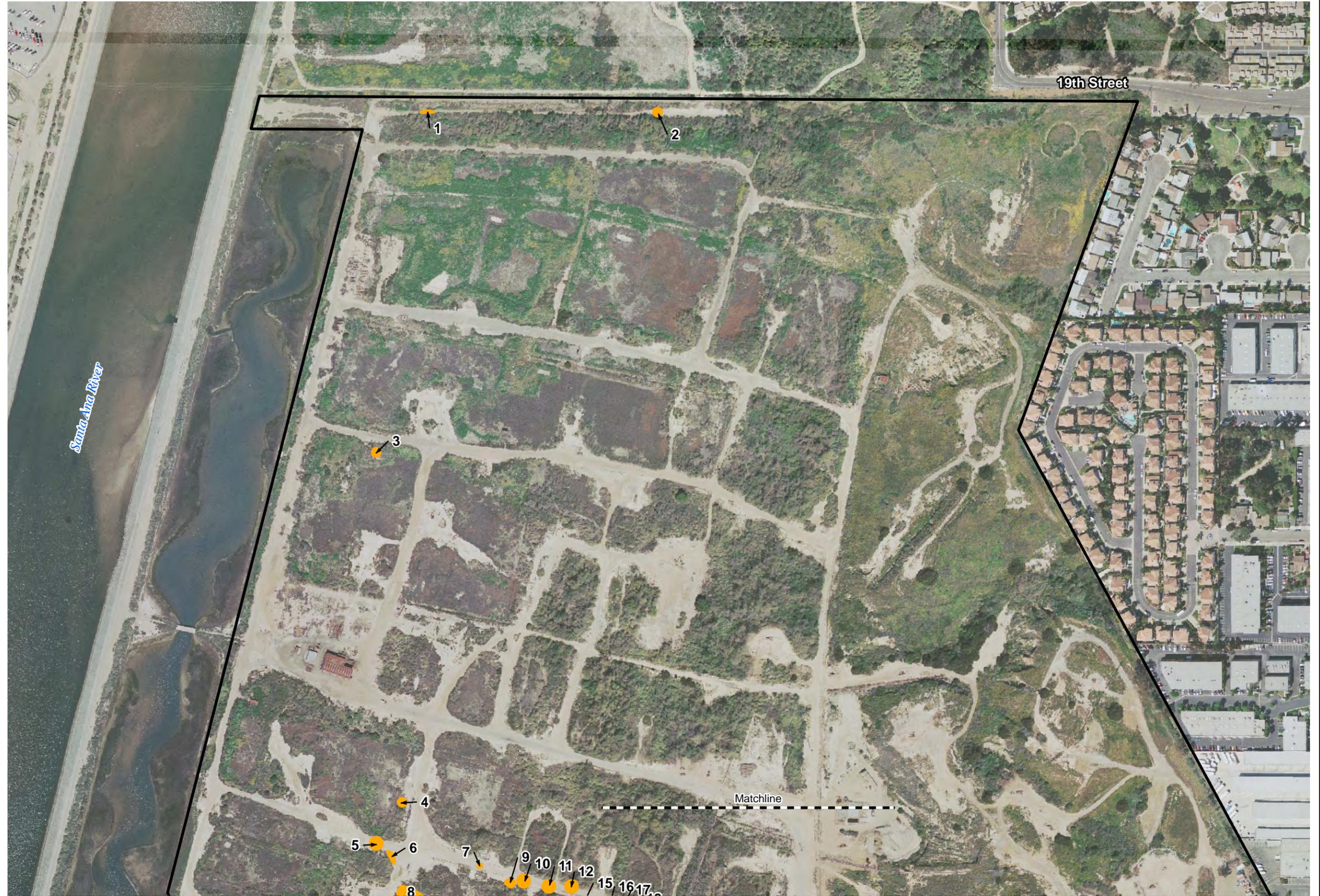


Exhibit 3





-  Project Boundary
-  Southern Tarplant Locations



Southern Tarplant Locations

Newport Banning Ranch

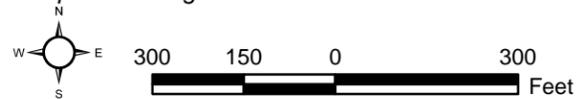
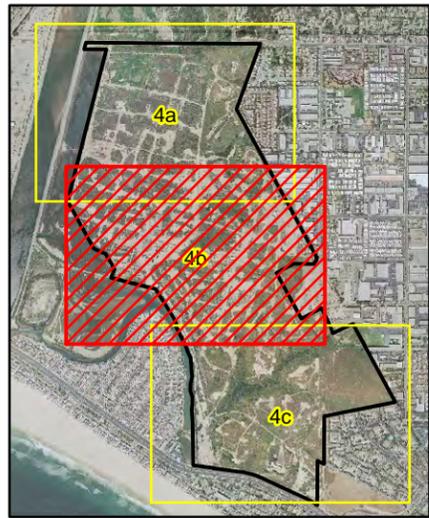


Exhibit 4a

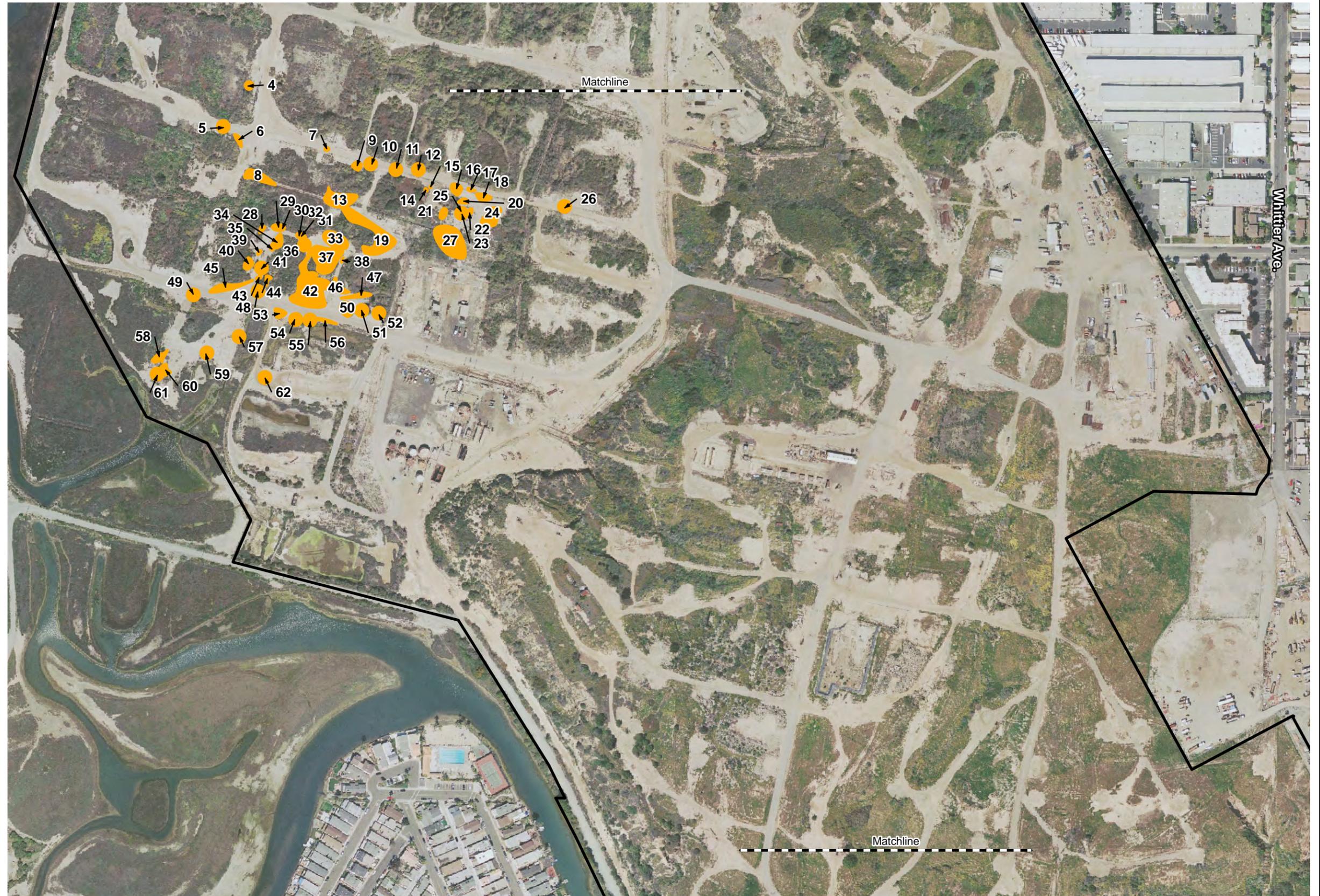
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-  Project Boundary
-  Southern Tarplant Locations



Southern Tarplant Locations

Newport Banning Ranch

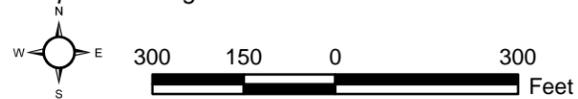


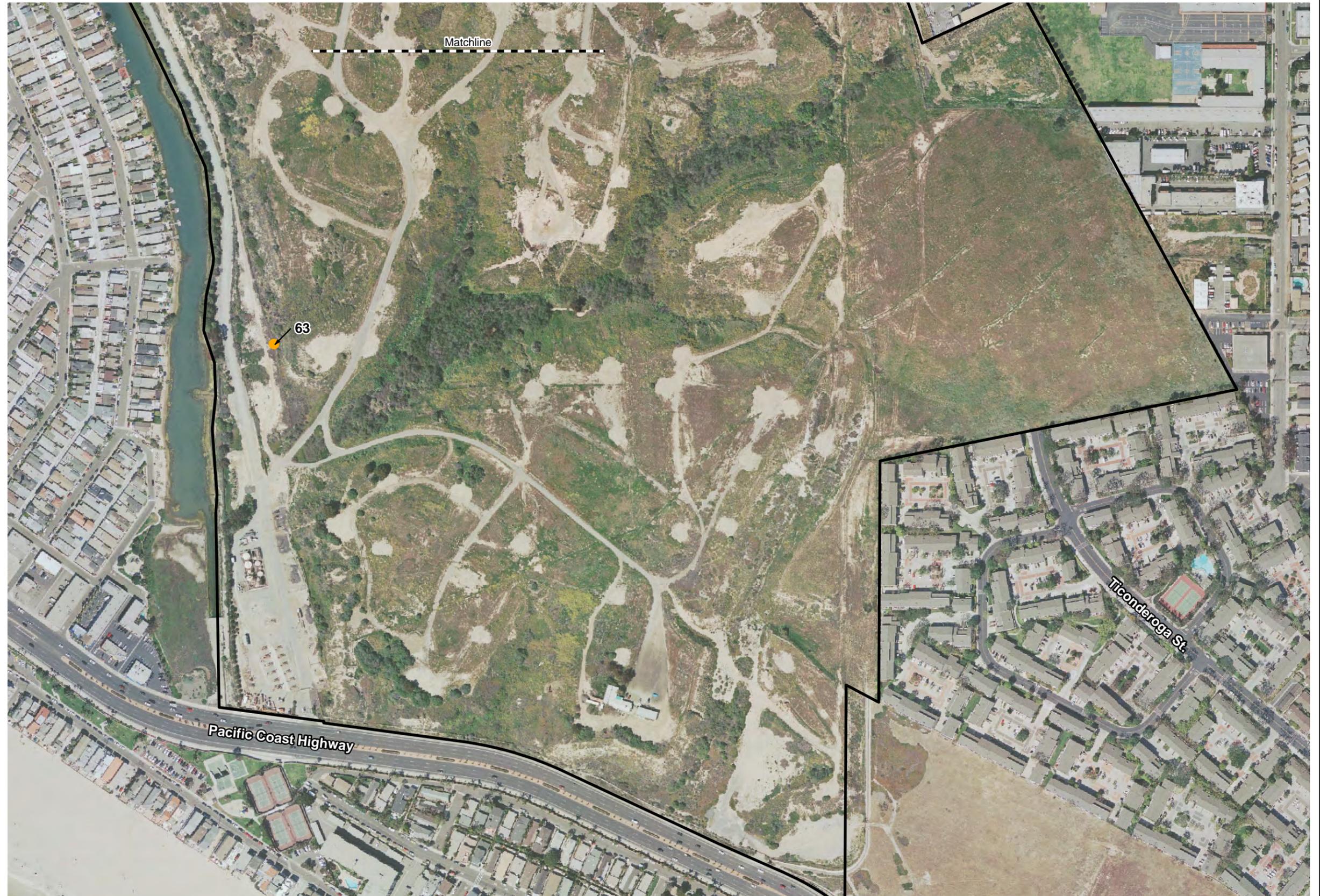
Exhibit 4b

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-  Project Boundary
-  Southern Tarplant Locations



Southern Tarplant Locations

Newport Banning Ranch

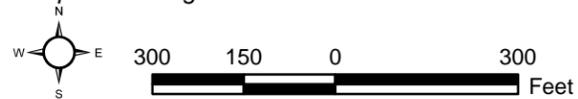


Exhibit 4c

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APPENDIX A
PLANT COMPENDIUM

PLANT COMPENDIUM

Species
GYMNOSPERMS
<i>PINACEAE</i> - PINE FAMILY
<i>Pinus</i> sp. pine
FLOWERING PLANTS
CLASS DICOTYLEDONES (DICOTS)
<i>AIZOACEAE</i> - FIG-MARIGOLD FAMILY
<i>Carpobrotus edulis</i> * hottentot fig
<i>Mesembryanthemum crystallinum</i> * crystalline iceplant
<i>Mesembryanthemum nodiflorum</i> * slender-leaved iceplant
<i>Sesuvium verrucosum</i> western sea-purslane
<i>Tetragonia tetragonioides</i> * New Zealand spinach
<i>AMARANTHACEAE</i> - AMARANTH FAMILY
<i>Amaranthus albus</i> * tumbleweed
<i>ANACARDIACEAE</i> - SUMAC FAMILY
<i>Schinus molle</i> * Peruvian pepper tree
<i>Schinus terebinthifolius</i> * Brazilian pepper tree
<i>APIACEAE (UMBELLIFERAE)</i> - CARROT FAMILY
<i>Apium graveolens</i> * common celery
<i>Conium maculatum</i> * poison hemlock
<i>Daucus pusillus</i> rattlesnake weed
<i>Foeniculum vulgare</i> * sweet fennel
<i>APOCYNACEAE</i> - DOGBANE FAMILY
<i>Nerium oleander</i> * oleander
<i>ASTERACEAE (COMPOSITAE)</i> - SUNFLOWER FAMILY
<i>Amblyopappus pusillus</i> coast weed
<i>Ambrosia psilostachya</i> western ragweed
<i>Artemisia californica</i> California sagebrush
<i>Artemisia douglasiana</i> mugwort
<i>Artemisia dracunculoides</i> tarragon
<i>Baccharis pilularis</i> coyote brush

**PLANT COMPENDIUM
(Continued)**

Species
<i>Baccharis salicifolia</i> mule fat
<i>Carduus pycnocephalus</i> * Italian thistle
<i>Centaurea melitensis</i> * tocalote
<i>Centromadia [Hemizonia] parryi</i> ssp. <i>australis</i> southern tarplant
<i>Chamomilla suaveolens</i> * common pineapple weed
<i>Chrysanthemum coronarium</i> * garland daisy
<i>Conyza canadensis</i> common horseweed
<i>Cotula coronopifolia</i> * African brass buttons
<i>Encelia californica</i> bush sunflower
<i>Encelia farinosa</i> brittlebush
<i>Ericameria palmeri</i> var. <i>pachylepis</i> grassland goldenbush
<i>Ericameria pinifolia</i> pine-bush
<i>Euthamia occidentalis</i> western goldenrod
<i>Filago gallica</i> * narrow-leaved filago
<i>Gazania linearis</i> * gazania
<i>Gnaphalium bicolor</i> bicolored everlasting/Bioletti's cudweed
<i>Gnaphalium luteo-album</i> * weedy cudweed
<i>Grindelia camporum</i> var. <i>bracteosum</i> white-stem gum-plant
<i>Gutierrezia californica</i> California matchweed
<i>Hedypnois cretica</i> * Crete hedypnois
<i>Helianthus annuus</i> western sunflower
<i>Hemizonia fasciculata</i> fascicled tarweed
<i>Heterotheca grandiflora</i> telegraph weed
<i>Heterotheca sessiliflora</i> golden aster
<i>Hypochaeris glabra</i> * smooth cat's ear

**PLANT COMPENDIUM
(Continued)**

Species
<i>Isocoma menziesii</i> goldenbush
<i>Jaumea carnos</i> fleshy jaumea
<i>Lactuca serriola</i> * prickly lettuce
<i>Lasthenia californica</i> California goldfields
<i>Lessingia filaginifolia</i> California aster
<i>Osmadenia tenella</i> osmadenia
<i>Picris echioides</i> * bristly ox tongue
<i>Pluchea sericea</i> arrowweed
<i>Psilocarphus brevissimus</i> woolly marbles
<i>Pulicaria paludosa</i> * Spanish sunflower
<i>Silybum marianum</i> * milk thistle
<i>Sonchus oleraceus</i> * common sow-thistle
<i>Stephanomeria virgata</i> ssp. <i>virgata</i> tall wreath plant
<i>Xanthium strumarium</i> cocklebur
BATACEAE - SALTWORT FAMILY
<i>Batis maritima</i> saltwort
BORAGINACEAE - BORAGE FAMILY
<i>Amsinckia menziesii</i> rancher's fiddleneck
<i>Heliotropium curassavicum</i> salt heliotrope/alkali heliotrope
BRASSICACEAE (CRUCIFERAE) - MUSTARD FAMILY
<i>Brassica nigra</i> * black mustard
<i>Hirschfeldia incana</i> * shortpod mustard
<i>Lepidium nitidum</i> peppergrass/shining peppergrass
<i>Raphanus sativus</i> * wild radish
<i>Sisymbrium irio</i> * London rocket
CACTACEAE - CACTUS FAMILY
<i>Opuntia littoralis</i> coastal prickly pear

**PLANT COMPENDIUM
(Continued)**

Species
<i>Opuntia prolifera</i> proliferous prickly pear/coastal cholla
CAPPARACEAE - CAPER FAMILY
<i>Isomeris arborea</i> bladderpod
CARYOPHYLLACEAE - PINK FAMILY
<i>Silene gallica</i> * windmill pink/common catchfly
<i>Spergularia marina</i> salt-marsh sand spurrey
CHENOPODIACEAE - GOOSEFOOT FAMILY
<i>Atriplex lentiformis</i> big saltbush
<i>Atriplex semibaccata</i> * Australian saltbush
<i>Bassia hyssopifolia</i> five-hook bassia
<i>Chenopodium album</i> * lamb's quarters
<i>Salicornia virginica</i> pickleweed
<i>Salsola tragus</i> * Russian thistle
<i>Suaeda esteroa</i> estuary seablite
<i>Suaeda taxifolia</i> woolly seablite
CONVOLVULACEAE - MORNING-GLORY FAMILY
<i>Calystegia macrostegia</i> morning-glory
<i>Convolvulus simulans</i> small-flowered morning-glory
<i>Cressa truxillensis</i> alkali weed
CRASSULACEAE - STONECROP FAMILY
<i>Dudleya lanceolata</i> lance-leaved dudleya/coastal live-forever
<i>Dudleya pulverulenta</i> chalk dudleya/chalky live-forever
CUCURBITACEAE - GOURD FAMILY
<i>Marah macrocarpus</i> wild cucumber/man-root
EUPHORBIACEAE - SPURGE FAMILY
<i>Chamaesyce albomarginata</i> rattlesnake weed
<i>Eremocarpus setigerus</i> doveweed/turkey mullein
<i>Ricinus communis</i> * castor bean

**PLANT COMPENDIUM
(Continued)**

Species
<i>FABACEAE (LEGUMINOSAE) - LEGUME FAMILY</i>
<i>Acacia</i> sp.* acacia
<i>Lotus scoparius</i> deerweed/California broom
<i>Lupinus bicolor</i> miniature lupine
<i>Lupinus succulentus</i> arroyo lupine
<i>Medicago polymorpha</i> * California burclover
<i>Melilotus alba</i> * white sweet-clover
<i>Melilotus indica</i> * sourclover
<i>FRANKENIACEAE - ALKALI HEATH FAMILY</i>
<i>Frankenia salina</i> alkali heath
<i>GERANIACEAE - GERANIUM FAMILY</i>
<i>Erodium botrys</i> * long-beaked filaree
<i>Erodium cicutarium</i> * red-stemmed filaree
<i>HYDROPHYLLACEAE - WATERLEAF FAMILY</i>
<i>Eucrypta chrysanthemifolia</i> common eucrypta
<i>LAMIACEAE (LABIATAE) - MINT FAMILY</i>
<i>Marrubium vulgare</i> * common horehound
<i>Salvia mellifera</i> black sage
<i>LYTHRACEAE - LOOSESTRIFE FAMILY</i>
<i>Lythrum hyssopifolium</i> * grass poly
<i>MALVACEAE - MALLOW FAMILY</i>
<i>Malvella leprosa</i> alkali mallow
<i>MYOPORACEAE - MYOPORUM FAMILY</i>
<i>Myoporum laetum</i> * myoporum
<i>MYRTACEAE - MYRTLE FAMILY</i>
<i>Eucalyptus</i> sp.* gum
<i>NYCTAGINACEAE - FOUR-O'CLOCK FAMILY</i>
<i>Bougainvillea</i> sp. Bougainvillea
<i>Mirabilis californica</i> wishbone bush/California wishbone bush

**PLANT COMPENDIUM
(Continued)**

Species
<i>OLEACEAE</i> - OLIVE FAMILY
<i>Fraxinus</i> sp. California ash
<i>Olea europaea</i> * olive
<i>ONAGRACEAE</i> - EVENING PRIMROSE FAMILY
<i>Epilobium ciliatum</i> willow-herb
<i>Oenothera elata</i> ssp. <i>hirsutissima</i> great marsh evening primrose
<i>OXALIDACEAE</i> - WOOD-SORREL FAMILY
<i>Oxalis pes-caprae</i> * Bermuda buttercup/sour grass
<i>PLANTAGINACEAE</i> - PLANTAIN FAMILY
<i>Plantago erecta</i> dwarf plantain/California plantain
<i>PLUMBAGINACEAE</i> - LEADWORT FAMILY
<i>Plumbago auricalata</i> * cape plumbago
<i>POLYGONACEAE</i> - BUCKWHEAT FAMILY
<i>Eriogonum fasciculatum</i> California buckwheat
<i>Lastarriaea coriacea</i> lastarriaea
<i>Pterostegia drymarioides</i> pterostegia/notch leaf
<i>Rumex crispus</i> * curly dock
<i>PORTULACACEAE</i> - PURSLANE FAMILY
<i>Calandrinia ciliata</i> red maids
<i>PRIMULACEAE</i> - PRIMROSE FAMILY
<i>Anagallis arvensis</i> * scarlet pimpernel
<i>ROSACEAE</i> - ROSE FAMILY
<i>Rubus ursinus</i> California blackberry
<i>SALICACEAE</i> - WILLOW FAMILY
<i>Salix exigua</i> narrow-leaved willow
<i>Salix gooddingii</i> black willow
<i>Salix laevigata</i> red willow
<i>Salix lasiolepis</i> arroyo willow
<i>Veronica anagallis-aquatica</i> * great water speedwell

**PLANT COMPENDIUM
(Continued)**

Species
SOLANACEAE - NIGHTSHADE FAMILY
<i>Lycium californicum</i> California box thorn
<i>Nicotiana glauca</i> * tree tobacco
<i>Solanum xanti</i> chaparral nightshade
TAMARICACEAE - TAMARISK FAMILY
<i>Tamarix ramosissima</i> * Mediterranean tamarisk
URTICACEAE - NETTLE FAMILY
<i>Urtica dioica</i> ssp. <i>holosericea</i> hoary nettle
CLASS MONOCOTYLEDONES (MONOCOTS)
ARECACEAE (PALMAE) - PALM FAMILY
<i>Washingtonia robusta</i> * Mexican fan palm
CYPERACEAE - SEDGE FAMILY
<i>Scirpus</i> sp. sedge
<i>Scirpus californicus</i> California bulrush
<i>Scirpus maritimus</i> alkali bulrush
JUNCACEAE - RUSH FAMILY
<i>Juncus acutus</i> ssp. <i>leopoldii</i> southwestern spiny rush
<i>Bloomeria crocea</i> common goldenstar
<i>Dichelostemma capitatum</i> blue dicks
POACEAE [GRAMINEAE] - GRASS FAMILY
<i>Arundo donax</i> * giant reed
<i>Avena barbata</i> * slender wild oat
<i>Avena fatua</i> * wild oat
<i>Bromus diandrus</i> * ripgut grass
<i>Bromus madritensis</i> ssp. <i>rubens</i> * foxtail chess
<i>Cortaderia selloana</i> * pampas grass
<i>Cynodon dactylon</i> * bermuda grass
<i>Distichlis spicata</i> salt grass
<i>Hordeum murinum</i> var. <i>leporinum</i> * foxtail barley

**PLANT COMPENDIUM
(Continued)**

Species
<i>Lamarckia aurea</i> * goldentop grass
<i>Monanthochloe littoralis</i> * shoregrass
<i>Nassella lepida</i> foothill needlegrass
<i>Nassella pulchra</i> purple needlegrass
<i>Pennisetum setaceum</i> * African fountain grass
<i>Polypogon monspeliensis</i> * annual beard grass
<i>Spartina foliosa</i> California cord grass
<i>Vulpia myuros</i> * foxtail fescue
*non-native species

APPENDIX B
CNDDB FORMS

For Office Use Only

Source Code _____ Quad Code _____
 Elm Code _____ Occ. No. _____
 EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 07/21/2009

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: Centromadia parryi ssp. australis

Common Name: Southern Tarplant

Species Found? Yes No If not, why? _____
 Total No. Individuals 24,747 Subsequent Visit? yes no
Is this an existing NDDB occurrence? no unk. Yes, Occ. # _____
 Collection? If yes: TBD Rancho Santa Ana
Number Museum / Herbarium

Reporter: Sandy Leatherman
Address: 151 Kalmus, Suite E-200
Costa Mesa, CA 92626
E-mail Address: sleatherman@bonterrconsulting.com
Phone: (714) 444-9199

Plant Information

Phenology: 52 % vegetative 46 % flowering 2 % fruiting

Animal Information

adults # juveniles # larvae # egg masses # unknown
 breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)
 Please see attached details for the Phenology, UTM coordinates, and associated species.

County: Orange Landowner / Mgr.: Private
 Quad Name: Newport Beach Elevation: 0-100 feet
 T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
 T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S GPS Make & Model Garmin Vista and eTrex
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy _____ meters/feet
 Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)
 Coordinates: See attached Table

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):
Alkali marsh or ruderal vegetation types, often along or within roads. Tarplant locations were typically in flat areas or within depressions.
 Please see attached table for associated species.

Other rare taxa seen at THIS site on THIS date: Lycium californicum, Juncus acutus ssp. leopoldii, and Suaeda taxifolia
 (separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor
 Immediate AND surrounding land use: Oil field
 Visible disturbances: Ongoing oil field activities
 Threats: Proposed residential development
 Comments:

Determination: (check one or more, and fill in blanks)

Keyed (cite reference): _____
 Compared with specimen housed at: _____
 Compared with photo / drawing in: _____
 By another person (name): _____
 Other: Known from previous surveys

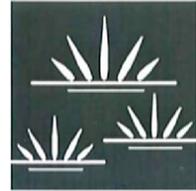
Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Diagnostic feature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

May we obtain duplicates at our expense? yes no

APPENDIX D
GLA FAIRY SHRIMP





May 26, 2009

Sandra Marquez
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

SUBJECT: Report of a Wet-Season Survey for Listed Branchiopods Conducted for a Seasonal Pool at the 403-acre Newport Banning Ranch Property, City of Newport Beach and Unincorporated Orange County, Orange County, California

Dear Ms. Marquez:

Glenn Lukos Associates, Inc. (GLA) conducted wet-season surveys for listed branchiopods (fairy shrimp) within a single seasonal pool located at Newport Banning Ranch property, located in the City of Newport Beach and Unincorporated Orange County, Orange County, California. GLA biologist Erin Bomkamp (TE-123409-0) conducted the surveys. The versatile fairy shrimp (*Branchinecta lindahli*) was detected in the pool, however no listed fairy shrimp were detected. Versatile fairy shrimp were detected in the same pool by GLA in 2008. Protocol fairy shrimp surveys were previously conducted at the site in 2000. At that time, the San Diego fairy shrimp (*Branchinecta sandiegonensis*) was indentified in two other seasonal pools. These pools were not surveyed again as part of this survey.

I. SITE LOCATION AND DESCRIPTION

The Newport Banning Ranch property covers approximately 403 acres and is located in unincorporated Orange County and the City of Newport Beach [Exhibit 1 - Regional Map]. The Site is located north of Pacific Coast Highway (PCH), east of the Santa Ana River, south of 19th Street (extended), and west of existing residential and commercial areas. The Site is situated within unsectioned areas of Township 6 South, and Range 10 West of the USGS Newport Beach 7.5' Topographic quadrangle map [Exhibit 2 – Vicinity Map]. Universal Transmercator Coordinates (UTM) approximate corresponding to the location of the sampled pool are 412214 mE and 3722187 mN.

The Site has been utilized as an operating oil field for over 50 years and ongoing oil extraction operations along with remnant oil wells and pipelines occur throughout the site. The site includes flat lowlands throughout the western portion of the property, south and west facing

slopes located east of the lowlands, a southwest facing bluff overlooking the Newport Shores residential area, a large mesa encompassing the eastern portion of the site, and two arroyos that bisect the mesa. The sampled pool is located in a disturbed area on top of the overall mesa portion of the site, and consists partially of tire ruts.

II. METHODOLOGY

GLA biologist David Moskovitz provided a written notification to commence wet season surveys to the U.S. Fish and Wildlife Service (USFWS), Carlsbad Field Office on November 26, 2008. Surveys for vernal pool branchiopods were conducted to comply with the USFWS' *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*.¹ A GLA biologist familiar with the USFWS guidelines and familiar with the requirements for fairy shrimp monitored the site to determine when the feature ponded adequately for sampling. Sampling visits were conducted on December 23, and December 28, 2008, January 2, February 18, February 26, and March 3, 2009. The site visits on December 23 and February 18 occurred within 14 days of rainfall event(s) resulting in long-term inundation of the feature, with subsequent site visits occurring within 14 days after previous visit. Photographs were taken of the pool on the December 23, 2008, January 2, 2009, and January 26, 2009 sampling visits. The information was recorded on vernal pool data sheets [Appendix A]. Surveys for the presence of aquatic wildlife was performed with the aid of an invertebrate dip net. Representative portions of pool bottom, edges, and vertical water column were adequately sampled. Samples were collected using the dip net and specimens were stored in containers with water collected from the pool where the specimen was found. Specimens were placed in an ethyl alcohol solution for preservation within four hours of collection. Specimens were inspected using a dissecting microscope and the key found in Eriksen and Belk (1999).²

III. DESCRIPTION OF THE SEASONAL POOL

The sampled pool consists of a shallow depression that covers 0.087-acre (Exhibit 3). The maximum depth of the majority of the depression is approximately four to five inches; however, the deepest part of the pool consists of a rut that is approximately 40.6 cm (16 inches) deep at maximum ponding. At the maximum extent of ponding during the 2008-2009 rainy season, the ponded area measured 46 meters (151 feet) by 13 meters (43 feet). The depression supports a

¹ USFWS. 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*.

² Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Inc. Eureka, California.

Sandra Marquez
U.S. Fish and Wildlife Service
May 26, 2009
Page 3

mixture of native and non-native plants including hyssop loosestrife (*Lythrum hyssopifolium*), rabbitsfoot grass (*Polypogon monspeliensis*), woolly marbles (*Psilocarphus brevissimus*), brass buttons (*Cotula coronopifolia*), and fascicled tarplant (*Deinandra fasciculata*). Site photographs are attached as Exhibit 4.

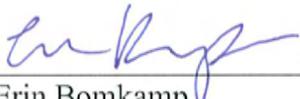
IV. RESULTS OF WET SEASON SURVEY

The versatile fairy shrimp was detected in the seasonal pool during two of the five sampling visits. Four individuals were collected from the pool, all of which were later identified as the versatile fairy shrimp. The density of fairy shrimp in the pool was estimated in the tens.

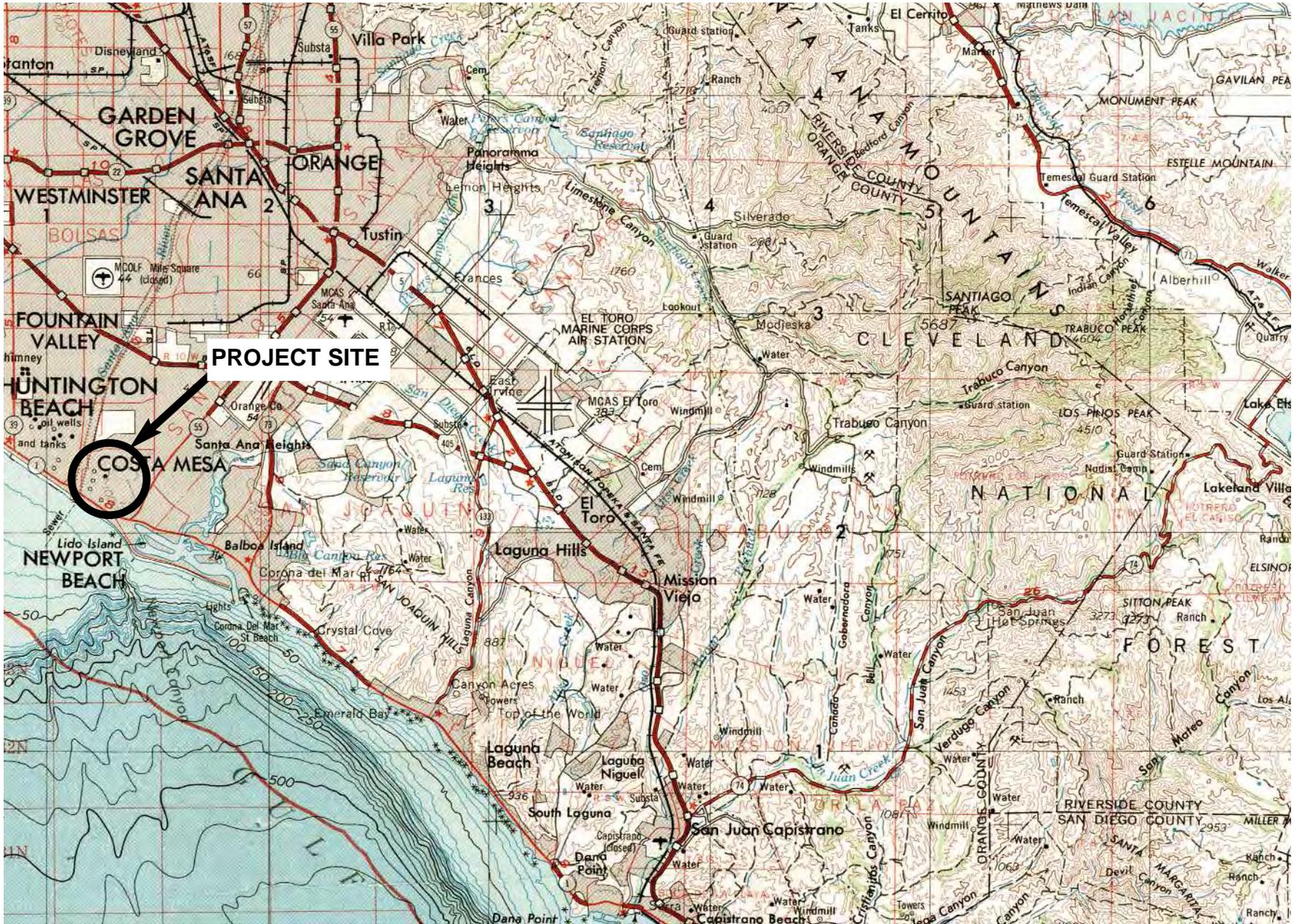
If you have any questions regarding this report, please call me at (949) 837-0404, ext. 17.

I certify that the information in this survey report and attached exhibits fully and accurately represents our work.

GLENN LUKOS ASSOCIATES, INC.

	TE-123409-0	May 28, 2009
Erin Bomkamp	Permit #	Date
Biologist		

Adapted from USGS Santa Ana
Quadrangle



NEWPORT BANNING RANCH

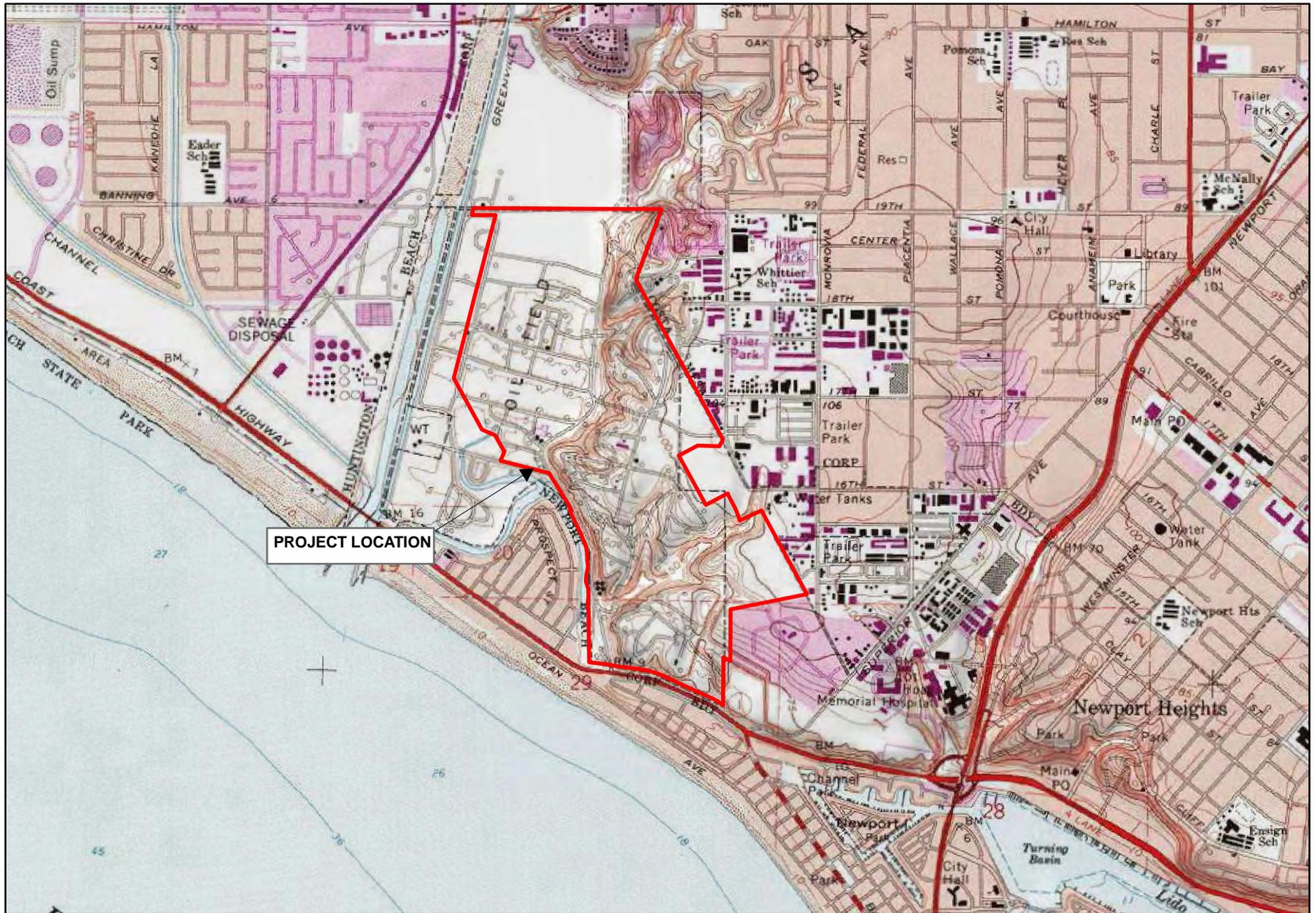
Regional Map

GLENN LUKOS ASSOCIATES

EXHIBIT 1



Adapted from USGS Newport Beach quadrangle



PROJECT LOCATION



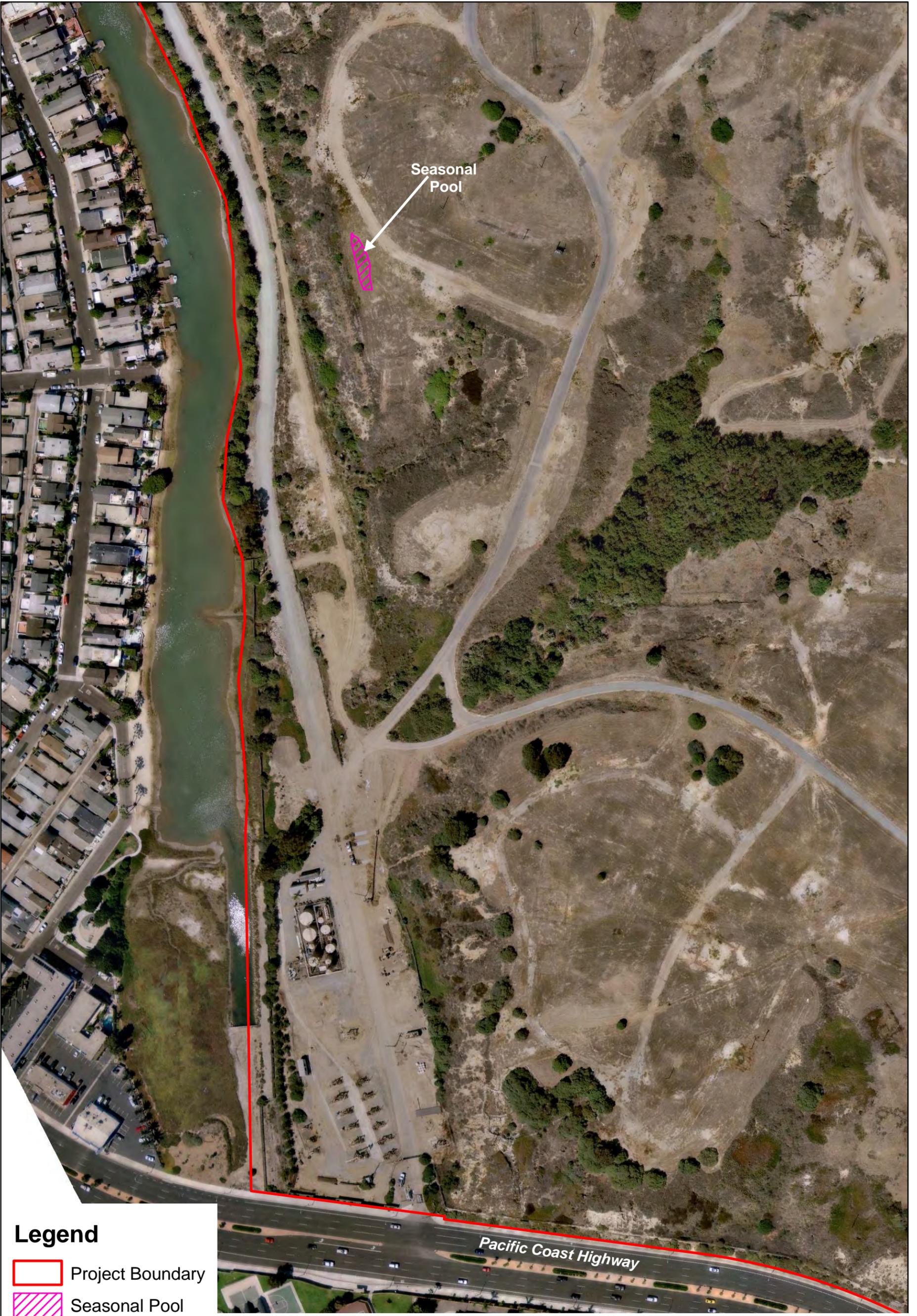
NEWPORT BANNING RANCH

Vicinity Map

GLENN LUKOS ASSOCIATES



Exhibit 2

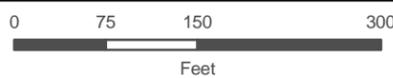


Legend

-  Project Boundary
-  Seasonal Pool

Exhibit 3

Seasonal Pool Map



GLENN LUKOS ASSOCIATES



FUSCOE
with circle thinking

FORMA

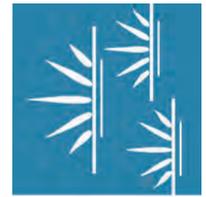
May 28, 2009



PHOTOGRAPH 1: South-facing view of seasonal pool on December 23, 2008.



PHOTOGRAPH 2: South-facing view of seasonal pool on January 2, 2009 after pool had dried down from its maximum extent. Four mature fairy shrimp individuals were collected and identified as versatile fairy shrimp (*Branchinecta lindahli*).



GLENN LUKOS ASSOCIATES

Exhibit 4

NEWPORT BANNING RANCH

2008-2009 Wet Season Fairy Shrimp Surveys



PHOTOGRAPH 3: North-facing view of seasonal pool on January 26, 2009.
No fairy shrimp were detected on or after this site visit.



PHOTOGRAPH 4: South-facing view of seasonal pool on January 26, 2009.



GLENN LUKOS ASSOCIATES

Exhibit 4

NEWPORT BANNING RANCH
2008-2009 Wet Season Fairy Shrimp Surveys

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 12/23/08 Time: 1030 County: Orange Quad: Newport Beach

Collector(s): E. Bomkamp Permit #: TE-123409-0

Site/Project Name: Newport Banning Ranch Pool #: 1

Township: 6S Range: 10W Section: None lat. ___ long. ___

Temperature: Water: 12.7 oC Air: 12.7 oC

UTM: 412256 mE
3721455 mN

Pool Depth: Surface Area:

at time of sampling: 25 cm at time of sampling: 40 m x 11 m

estimated maximum: 25 cm estimated maximum: 40 m x 11 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed:

tire tracks

garbage

discing/plowing

ungrazed

grazed:

cattle

horses

sheep

other pipelines associated

light

moderate

heavy with oil field

- land use of habitat:

Oil field operations - undeveloped except for pipelines

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l

Conductivity: _____ uMHO

Dissolved NH4: _____ ppt or ppm

Dissolved Oxygen: _____ ppm or mg/l

pH: _____

Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____

Salinity: _____ ppt or ppm

Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *none*

Notostracans: (note reproductive status) *none*

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species

Individuals

Accession/Catalog #

Pool #

N/A

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 12/28/08 Time: 1300 County: Orange Quad: Newport Beach

Collector(s): E. Bomkamp Permit #: TE-123409-0

Site/Project Name: Newport Banning Ranch Pool #: 1

Township: 6S Range: 10W Section: none lat. ___ long. ___

Temperature: Water: 20.5 oC Air: 18.3 oC UTM: 412256 mE
3721455 mN

Pool Depth: Surface Area:

at time of sampling: 20 cm at time of sampling: 36 m x 9 m

estimated maximum: 25 cm estimated maximum: 40 m x 11 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed

tire tracks

garbage

discing/plowing

- ungrazed

grazed:

cattle

horses

sheep

other pipelines associated

light

moderate

heavy with oilfield

- land use of habitat:

Oil field operations - undeveloped except for pipelines

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l

Conductivity: _____ uMHO

Dissolved NH₄: _____ ppt or ppm

Dissolved Oxygen: _____ ppm or mg/l

pH: _____

Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____

Salinity : _____ ppt or ppm

Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Branchinecta lindahli

Anostracans: (note reproductive status)

1 mature male observed but not captured

Notostracans: (note reproductive status)

none

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species

Individuals

Accession/Catalog #

Pool #

N/A

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/2/09 Time: 1000 County: Orange Quad: Newport Beach

Collector(s): E. Bomkamp Permit #: TE-123409-0

Site/Project Name: Newport Banning Ranch Pool #: 1

Township: 6S Range: 10W Section: none lat. ___ long. ___

Temperature: Water: 13.8 oC Air: 12.7 oC

UTM: 412256 mE
3721455 mN

Pool Depth: Surface Area:

at time of sampling: 15 cm at time of sampling: 13 m x 5 m

estimated maximum: 25 cm estimated maximum: 40 m x 11 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed:

tire tracks

garbage

discing/plowing

- ungrazed

grazed:

cattle

horses

sheep

other pipelines associated
heavy with oilfield

light

moderate

- land use of habitat:

Oil field operations - undeveloped except for pipelines

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l

Conductivity: _____ uMHO

Dissolved NH4: _____ ppt or ppm

Dissolved Oxygen: _____ ppm or mg/l

pH: _____

Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____

Salinity: _____ ppt or ppm

Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) Branchinecta lindahli 10's sexually mature ♀ w/ full brood pouches

Notostracans: (note reproductive status) none

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
N/A			

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 2/18/09 Time: 1300 County: Orange Quad: Newport Beach

Collector(s): E. Bomkamp Permit #: TE-123409-0

Site/Project Name: Newport Banning Ranch Pool #: 1

Township: 6S Range: 10W Section: none lat. ___ long. ___

Temperature: Water: 17.7 oC Air: ___ oC

UTM: 412256 mE
3721455 mN

Pool Depth: Surface Area:

at time of sampling: 40.6 cm at time of sampling: 46 m x 13 m

estimated maximum: 40.6 cm estimated maximum: 46 m x 13 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed:

tire tracks

garbage

discing/plowing

ungrazed

grazed:

cattle

horses

sheep

other pipelines associated
heavy with oilfield

light

moderate

- land use of habitat:

oil field operations - undeveloped except for pipelines

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l

Conductivity: ___ uMHO

Dissolved NH4: ___ ppt or ppm

Dissolved Oxygen: ___ ppm or mg/l

pH: ___

Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity : ___ ppt or ppm

Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *none*

Notostracans: (note reproductive status) *none*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)
Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
<i>N/A</i>			

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 2/26/09 Time: 1200 County: Orange Quad: Newport Beach

Collector(s): E. Bomkamp Permit #: TE-123409-0

Site/Project Name: Newport Banning Ranch Pool #: 1

Township: 6S Range: 10W Section: none lat. ___ long. ___

Temperature: Water: 19.9 oC Air: 17.7 oC UTM: 412256 mE
3721455 mN

Pool Depth: Surface Area:

at time of sampling: 17.8 cm at time of sampling: 19.3 m x 7.3 m

estimated maximum: 40.6 cm estimated maximum: 45.7 m x 13.7 m

Habitat Condition: (circle where appropriate)

- undisturbed	<u>disturbed</u>	<u>tire tracks</u>	garbage	<u>discing/plowing</u>	
<u>ungrazed</u>	grazed:	cattle	horses	sheep	other <u>pipelines associated</u>
			light	moderate	heavy <u>w/ oilfield</u>

- land use of habitat:

oilfield operations - undeveloped except for pipelines

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l

Conductivity: _____ uMHO

Dissolved NH4: _____ ppt or ppm

Dissolved Oxygen: _____ ppm or mg/l

pH: _____

Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____

Salinity : _____ ppt or ppm

Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *none*

Notostracans: (note reproductive status) *none*

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species

Individuals

Accession/Catalog #

Pool #

N/A

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 3/3/09 Time: 1300 County: Orange Quad: Newport Beach

Collector(s): E. Bomkamp Permit #: TE-123409-0

Site/Project Name: Newport Banning Ranch Pool #: 1

Township: 6S Range: 10W Section: none lat. ___ long. ___

Temperature: Water: dry °C Air: 18.3 °C UTM: 412256 mE
3721455 mN

Pool Depth: Surface Area: DRY

at time of sampling: ___ cm at time of sampling: ___ m x ___ m

estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed:

tire tracks

garbage

discing/plowing

ungrazed

grazed:

cattle

horses

sheep

other pipelines associated

light

moderate

heavy with oilfield

- land use of habitat:

oil field operations - undeveloped except for pipelines

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l

Conductivity: ___ uMHO

Dissolved NH4: ___ ppt or ppm

Dissolved Oxygen: ___ ppm or mg/l

pH: ___

Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity : ___ ppt or ppm

Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *none*

Notostracans: (note reproductive status) *none*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

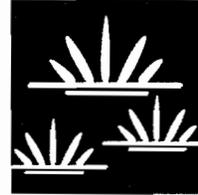
Insects: (adult or larvae)
Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
<i>N/A</i>			

GLENN LUKOS ASSOCIATES

Regulatory Services



July 26, 2011

Erin McCarthy
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

SUBJECT: Report of a Wet-Season Survey for Listed Branchiopods Conducted for Oil Field Features at the 401-acre Newport Banning Ranch Property, City of Newport Beach and Unincorporated Orange County, Orange County, California

Dear Ms. McCarthy:

Glenn Lukos Associates, Inc. (GLA) conducted wet-season surveys for listed branchiopods (fairy shrimp) within 24 depressions, including oil field sumps and remediation areas, in which water collected during the rainy season at the Newport Banning Ranch property ("Project Site"), located in the City of Newport Beach and Unincorporated Orange County, Orange County, California.

GLA biologist David Moskovitz (TE-084606-1) conducted the surveys. The non-listed versatile fairy shrimp (*Branchinecta lindahli*) was detected in 11 of the 24 features surveyed during the 2010/2011 wet season, and listed San Diego fairy shrimp (*Branchinecta sandiegonensis*) was detected in five of the features surveyed during the 2010/2011 wet season. It is important to note that none of the features that support the versatile fairy shrimp are naturally occurring vernal pools or seasonal ponds; rather the features include asphalt parking areas, gravel-covered equipment storage areas, abandoned oil well pads, depressions created by removal of contaminated or remediated soils, and even low points in paved and unpaved roads.

The surveys were initiated in October 22, 2010 and continued through April 2011 with the last significant rain event occurring on March 27, 2011 and the final survey conducted on April 15, 2011. The areas being surveyed by GLA included those depressions which had been previously reported to the U.S. Fish and Wildlife Service (Service) by a member of the public and about which the Service had requested GLA to provide information, with the exception of four depressions which were no longer subject to survey requirements either due to the presence of previously-documented listed species or where the full two-year protocol surveys had been completed with no listed species detected. GLA's survey work also did not include a feature that is located offsite for which permission to enter and survey has not been obtained from the landowner.

I. SITE LOCATION AND DESCRIPTION

The Newport Banning Ranch property covers approximately 401 acres and is located in unincorporated Orange County and the City of Newport Beach. The Site is located north of Pacific Coast Highway (PCH), east of the Santa Ana River, south of 19th Street (extended), and west of existing residential and commercial/industrial areas. The Site is situated within unsectioned areas of Township 6 South, and Range 10 West of the USGS Newport Beach 7.5' Topographic quadrangle map [Exhibit 1 – Vicinity Map]. Coordinates for the site are as follows: 33.634102°, -117.943283°.

The Site has been utilized as an operating oil field for over 50 years and ongoing oil extraction operations along with remnant oil wells and pipelines occur throughout the site. The site includes flat lowlands throughout the western portion of the property, south and west facing slopes located east of the lowlands, a southwest facing bluff overlooking the Newport Shores residential area, a large mesa encompassing the eastern portion of the site, and two arroyos that bisect the mesa. All of the depressed areas are located within the operating oil field, and some are themselves oil field facilities, such as sumps, soil remediation areas, and bermed areas located in oil field facilities, such as roads and parking lots. The location of each sampled feature is depicted on Exhibit 2. Exhibit 3 consists of representative photographs of the sampled areas.

II. METHODOLOGY

GLA initiated surveys on October 22, 2010. Surveys for vernal pool branchiopods were conducted to comply with the USFWS' *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*.¹ A GLA biologist familiar with the USFWS guidelines and familiar with the requirements for fairy shrimp monitored the site to determine when each feature had sufficient water adequate for sampling. Site visits to monitor for ponding were conducted on October 22, 25, 28, November 5, 11, 22 and 24, December 13, 23, and 27, 2010. Sampling visits were conducted on October 28, 2010, January 6, January 20, February 1, February 17, April 1, and April 15, 2011, all of which occurred on 14 day intervals or within 14 days of the preceding rainfall event. Photographs were taken during many of the sampling visits and representative photographs are included in Exhibit 2. The information was recorded on vernal pool data sheets. Surveys for the presence of aquatic wildlife was performed with the aid of an invertebrate dip net. Representative portions of bottoms, edges, and vertical water columns within each feature were adequately sampled. Samples were collected using the dip net and specimens were stored

¹ USFWS. 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*.

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in containers with water collected where the specimen was found. Specimens were placed in an ethyl alcohol solution for preservation within four hours of collection. Specimens were inspected using a dissecting microscope and the key found in Eriksen and Belk (1999).²

It is important to note that the 2010/2011 rainfall season resulted in nearly 200-percent of normal rainfall and that December accounted for 9.19 inches of rainfall or 647-percent of normal. These conditions created unusual flooding across the site and created temporary ponding in many upland areas, including areas subject to active oil field operations. Most of the areas surveyed during the 2010/2011 rainfall season are subject to regular oil field operations or are not associated with areas that exhibit habitat values for the San Diego fairy shrimp and do not pond water in normal or average rainfall years. The 2001/2011 rainfall season at nearly double than normal resulted in conditions that are not “normal” hydrological conditions and do not reflect “wetland” conditions in accordance with accepted wetland delineation procedures set forth on page 95 of the Corps’ 2008 Arid West Supplement Version 2.0.³

III. DESCRIPTION OF THE FEATURES SAMPLED DURING 2010/2011 SEASON

The accounts below provide a description for each feature sampled as a result of the extreme conditions associated with the 2010/2011 rainfall year as well as the results of the surveys. The nomenclature for the features follows GLA’s previous designations as well as new nomenclature for areas that were detected during the 2009/2010 and/or the 2010/2011 Survey Seasons. We have in an appendix also included a chart that cross-references the GLA nomenclature with information provided to the Service by a member of the public so that comparison of the information can be more easily undertaken by the Service.

² Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California’s Puddles, Pools, and Playas*. Mad River Press, Inc. Eureka, California.

³ *Direct hydrologic observations*. Verify that the plant community occurs in an area subject to prolonged inundation or soil saturation during the growing season. This can be done by visiting the site at 2- to 3-day intervals during the portion of the growing season when surface water is most likely to be present or water tables are normally high. Hydrophytic vegetation is considered to be present, and the site is a wetland, if surface water is present and/or the water table is 12 in. (30 cm) or less from the surface for 14 or more consecutive days during the growing season during a period when antecedent precipitation has been normal or drier than normal. If necessary, microtopographic highs and lows should be evaluated separately. The normality of the current year’s rainfall must be considered in interpreting field results, as well as the likelihood that wet conditions will occur on the site at least every other year (for more information, see the section on “Wetlands that Periodically Lack Indicators of Wetland Hydrology” in this chapter).

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Feature A

This feature occurs near the bluff edge and was subject to a complete set of protocol surveys in 2008/2009 and 2009/2010 with only the versatile fairy shrimp present.

Feature B (aka Pool 2010-C)

This feature consists of a shallow depression that covers approximately 0.03-acre. The depression was formed by removal of portions of a temporary stockpile of bio-remediated soils that originated with oil field excavation activities. The maximum depth of this feature is approximately 20 centimeters. The feature is generally unvegetated. Site photographs are attached as Exhibit 2. The versatile fairy shrimp was detected during surveys in 2009/2010 and 2010/2011. The San Diego fairy shrimp was not detected during surveys. Exhibit 2, Photograph 1 depicts the feature.

Feature C

This feature consists of a shallow depression that covers approximately 0.04-acre. The depression formed immediately adjacent to a temporary stockpile of contaminated oil field concrete and soil and is underlain by oil-contaminated soils. Typically this feature measures less than 10 cm with a small area near the southern end that is approximately 50 cm deep. Site photographs are included in Exhibit 2. The versatile fairy shrimp was detected during the 2010/2011 surveys. The San Diego fairy shrimp was not detected during surveys. Exhibit 2, Photograph 2 depicts the feature showing the high level of disturbance.

Feature D (aka Pool 2000-4)

This feature covers approximately 0.02 acre and was created by excavation for oil field maintenance within an area of intensive oil field activities and is underlain by oil-contaminated soils. The versatile fairy shrimp was detected in this depression during protocol surveys conducted in 2000. Fairy shrimp were not detected during the 2010/2011 surveys.

Feature E

This feature covers approximately 0.05 acre and was created as an oil field sump area with the intent purpose of capturing oil spills from the surrounding wells and pipelines. This feature was previously subject to investigation efforts to determine the extent of contamination as part of standard oil field operations [see Appendix A] and is underlain by oil-contaminated soils. This feature, of which a portion is depicted on Exhibit 2, Photograph 3, is currently vegetated with

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mulefat. The San Diego fairy shrimp was detected in this feature in low numbers during the 2010/2011 surveys.

Feature F

This feature covers approximately 0.02 acre and occurs in grassland. The feature was created by construction of a berm located to protect an oil field road. No fairy shrimp were detected during the 2010/2011 surveys. Exhibit 2, Photograph 4 depicts the feature.

Feature G

This feature covers approximately 0.003 acre and was created by excavation within an area of intensive oil field activities. Exhibit 2, Photograph 5 depicts this feature with numerous pipelines. The San Diego fairy shrimp was detected during the 2010/2011 surveys.

Feature H

This feature covers less than 0.005 and is an artificial oil field depression created by excavation. This feature did not exhibit sufficient ponding to support fairy shrimp during the 2010/2011 surveys, and as such, no fairy shrimp were detected during the 2010/2011 surveys. Exhibit 2, Photograph 6 depicts this highly disturbed feature that supports a predominance of upland non-native vegetation.

Feature I

This feature covers approximately 0.03 acre and occurs in grassland. The feature was created by construction of a berm located to protect an oil field road and is depicted in Exhibit 2, Photograph 7. The San Diego fairy shrimp was detected during the 2010/2011 surveys.

Feature J

This feature covers approximately 0.09 acre and occurs in grassland. The feature was created by construction of a berm located to protect an oil field road and is depicted in Exhibit 2, Photograph 8. The San Diego fairy shrimp was detected during the 2010/2011 surveys.

Feature K

This feature covers approximately 0.03 acre and occurs in grassland. The feature was created by excavation for oil operations and is depicted in Exhibit 2, Photograph 9. No fairy shrimp were detected during the 2010/2011 surveys.

Feature L

This feature covers approximately 0.04 acre and occurs in grassland. The feature was created by excavation in a grassland area as part of oil field operations and is depicted in Exhibit 2, Photograph 10. No fairy shrimp were detected during the 2010/2011 surveys.

Feature M

This feature covers approximately 0.02 acre and occurs in the oil field pipe and material storage yard; standpipes from oil field infrastructure occur within the area in which the rainwater collected. The versatile fairy shrimp was detected during surveys in 2010 and 2011. The San Diego fairy shrimp was not detected during surveys.

Feature N

This feature covers approximately 0.06 acre and occurs in the oil field pipe and material storage yard and consists of a gravel-covered area and is depicted in Exhibit 2, Photograph 11. The versatile fairy shrimp was detected during surveys in 2010 and 2011. The San Diego fairy shrimp was not detected during surveys.

Feature O

This feature occurs in the oil field pipe and material storage yard and consists of a gravel-covered area. This feature did not exhibit sufficient ponding to support fairy shrimp (i.e., more than a few days following storm events) during the 2010/2011 surveys, and as such, no fairy shrimp were detected during the 2010/2011 surveys.

Feature P

This feature covers approximately 0.009 acre and occurs in the oil field pipe and material storage yard and consists of a gravel-covered area. The versatile fairy shrimp was detected during surveys in 2010 and 2011. The San Diego fairy shrimp was not detected during surveys. Exhibit 2, Photograph 12 depicts the feature.

Feature Q

This “road” feature is a very shallow roadside depression that collects rainwater and runoff briefly following storm events, which in turn is part of a series of depressions that occupy the paved parking area and paved entrance road as well as adjacent earthen road shoulders near the 17th Street gate entrance to the project site. Because this feature occurs within a roadway it was determined to not exhibit potential for listed fairy shrimp and was not sampled during the 2010/2011 surveys. Exhibit 2, Photograph 15 depicts this feature.

Feature R

This feature is a very shallow roadside depression that collects rain and runoff briefly following storm events, which in turn is part of a series of depressions that occupy the paved parking area and paved entrance road as well as adjacent earthen road shoulders near the 17th Street gate entrance to the project site. The versatile fairy shrimp was detected in this feature during the 2010/2011 surveys season. Exhibit 2, Photographs 13 and 14 depict this feature following a substantial storm event and then eight days later, showing how quickly it dries out.

Feature S

This “road” feature is a very shallow roadside depression that collects rain and runoff briefly following storm events, which in turn is part of a series of depressions that occupy the paved parking area and paved entrance road as well as adjacent earthen road shoulders near the 17th Street gate entrance to the project site. Because this feature occurs within a roadway it was determined to not exhibit potential for listed fairy shrimp and was not sampled during the 2010/2011 surveys. Exhibit 2, Photograph 16 depicts this feature.

Feature T

This “road” feature is a very shallow depression within the asphalt-covered parking area and entry road that collects rain and runoff briefly following storm events. This feature is part of a series of depressions that occupy the paved parking area and paved entrance road as well as adjacent earthen road shoulders near the 17th Street gate entrance to the project site. The versatile fairy shrimp was detected in Feature T during the 2010/2011 survey season. Exhibit 2, Photograph 17 depicts this feature.

Feature U

This “road” feature is a very shallow depression within the asphalt-covered parking area and entry road that collects rain and runoff briefly following storm events. This feature is part of a series of depressions that occupy the paved parking area and paved entrance road as well as adjacent earthen road shoulders near the 17th Street gate entrance to the project site. Because this feature occurs within a roadway and active parking area it was determined to not exhibit potential for listed fairy shrimp and was not sampled during the 2010/2011 surveys. Exhibit 2, Photograph 18 depicts this feature.

Feature V (aka Pool 2010-B)

This feature consists of a shallow depression located in the northeast portion of the site along the property boundary between 18th and 19th Streets (extended). It is located on a plateau area created to service existing oil well and the feature has formed because of the oil field activities. The estimated maximum depth of the majority of the depression is approximately 10 centimeters as depicted in Photograph 19 of Exhibit 2. The versatile fairy shrimp were detected during the 2009/2010 surveys and was not detected during the 2010/2011 surveys.

Feature W

This feature is located in the southeast quadrant of the site within a grassland depression. The feature was created during grading in the 1960s. No fairy shrimp were detected during the 2010/2011 surveys.

Table 1. Summary of Depression Features

Pool	Size (acres)	Vegetation Type	Origin/Function	Survey Information
VP1	0.30 acre	Disturbed Mulefat	Historic oil production and recreation area, currently crossed by numerous pipelines and infrastructure	San Diego Fairy Shrimp
VP2	0.02 acre	Disturbed – Developed	Shallow depression on active oil production well pad	San Diego Fairy Shrimp
AD3	0.007 acre	Non-native, upland grassland	Artificial depression in active pipeline corridor	San Diego Fairy Shrimp

Pool	Size (acres)	Vegetation Type	Origin/Function	Survey Information
A	0.04 acre	Non-native, upland grassland	Depression with oil field infrastructure at edge of pool	Versatile Fairy Shrimp Only
B	0.03 acre	Disturbed	Temporary stockpile of bio-remediated soils; depression from oil field excavation activities	Versatile Fairy Shrimp Only
C	0.04 acre	Disturbed	Oil field excavation and stockpile area	Versatile Fairy Shrimp Only
D	0.02 acre	Disturbed	Oil field excavation area	Versatile Fairy Shrimp Only
E	0.05 acre	Disturbed Mulefat	Historic oil sump with contaminated soils – remediation necessary	San Diego Fairy Shrimp
F	0.02 acre	Non-native, upland grassland	Bermed area to protect oil field road	None
G	0.003	Non-native grassland	Oil field sump with multiple pipelines	San Diego Fairy Shrimp
H	0.005 acre	Non-native grassland	Shallow depression created by oil field activities	None
I	0.03 acre	Non-native grassland	Bermed area to store construction debris and protect oil field road	San Diego Fairy Shrimp
J	0.09 acre	Non-native grassland	Bermed area to store construction debris and protect oil field road	San Diego Fairy Shrimp
K	0.03 acre	Non-native grassland	Shallow artificial oil field depression	None
L	0.04 acre	Non-native grassland	Shallow artificial oil field depression	None
M	0.02 acre	Disturbed	Oil field pipe and material storage yard; standpipes in ponded area	Versatile Fairy Shrimp Only Surveys ongoing
N	0.06 acre	Disturbed	Oil field storage equipment area largely covered with gravel	Versatile Fairy Shrimp Only
O	NA	Disturbed	Oil field storage equipment area largely covered with gravel failed to pond for sufficient duration for fairy shrimp to emerge	None
P	0.009 acre	Disturbed	Oil field soil remediation area	Versatile Fairy Shrimp Only

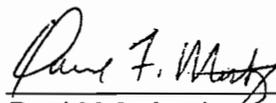
Erin McCarthy
 U.S. Fish and Wildlife Service
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 Page 10

Pool	Size (acres)	Vegetation Type	Origin/Function	Survey Information
Q	NA	Developed	Roadside feature	None
R	NA	Disturbed	Roadside feature	Versatile Fairy Shrimp Only
S	NA	Developed	Roadside feature	None
T	NA	Developed	Paved Roadway	Versatile Fairy Shrimp Only
U	NA	Developed	Paved Roadway	None
V	NA	Disturbed	Existing Well Pad	Versatile Fairy Shrimp Only
W	0.26	Non-native grassland	Relict depression in non-native grassland from Caltrans grading	None

If you have any questions regarding this report, please call me at (949) 837-0404, ext. 42.

I certify that the information in this survey report and attached exhibits fully and accurately represents our work.

GLENN LUKOS ASSOCIATES, INC.


TE-084606-1
7/26/11

 David Moskovitz Permit # Date
 Biologist

Cc: Christine Medak (U.S. Fish and Wildlife Service)

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 10/28/10 Time: 9:46 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE 084606-1

Site/Project Name: Newport Banning Ranch Pool #: N

Township: 6 S Range: 10 W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 15 °C Air: 23 °C

Pool Depth: at time of sampling: ___ cm Surface Area: at time of sampling: ___ m x ___ m
estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing scraped
- ungrazed grazed: cattle horses sheep
other _____ light moderate heavy
- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *1000s*

Anostracans:
(note reproductive status) *many mature females*

Notostracans:
(note reproductive status) *Collected 15 muls B. lindahli*

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 10/28/10 Time: 10:05 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: P

Township: 6S Range: 10W Section: _____ 33.634102 117.943283
lat. long.

Temperature: Water: 19 °C Air: 24 °C

Pool Depth: at time of sampling: _____ cm
estimated maximum: _____ cm
Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy
- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 100's

Anostracans:
 (note reproductive status)

Some females
males smaller

Notostracans:
 (note reproductive status)

Collected 12 male *B. lindahli*

Species Observations (Optional):

Cladocerans: yes no
 Conchostracans: yes no
 Copepods: yes no
 Ostracods yes no
 Fish yes no
 Frogs yes no
 Salamanders yes no
 Waterfowl yes no
 Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
 Zygoptera: yes no
 Hydrophilidae: yes no
 Dytiscidae: yes no
 Corixidae: yes no
 Notonectidae: yes no
 Belostomatidae: yes no
 Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 10/28/10 Time: 10:30 County: Orange Quad: Newport Beach

Collector(s): David Moskovitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: B

Township: 6S Range: 10W Section: --- 33.634102 117.943283
lat. long.

Temperature: Water: 20 °C Air: 27 °C

Pool Depth: at time of sampling: ___ cm estimated maximum: ___ cm
Surface Area: at time of sampling: ___ m x ___ m estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed **disturbed:** tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
- other: light moderate heavy
- land use of habitat: borrow pit

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) ~~1000's~~ 100's

Anostracans:

(note reproductive status)

Collected 3 male *B. lindahl*

Notostracans:

(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify)	_____	

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify)	_____	

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 10/28/10 Time: 11:20 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: R

Township: 6S Range: 10W Section: _____ 33.634102 117.943283
lat. long.

Temperature: Water: 21 °C Air: 27 °C

Pool Depth: at time of sampling: _____ cm Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ cm estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
- other: _____ light moderate heavy
- land use of habitat: roadside depression

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *10s to 100s*

Anostracans:
 (note reproductive status)

mostly immature females

Notostracans:
 (note reproductive status)

Collected 8 male B. lindahli

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify)	_____	

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify)	_____	

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 10:23 County: Orange Quad: Newport Beach

Collector(s): David Moskavitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: J

Township: 65 Range: 10 W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 11 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm Surface Area: at time of sampling: ___ m x ___ m

estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy
- land use of habitat: created by constructed berm

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 1000's

Anostracans:
(note reproductive status)

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)
Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
<i>B. sandiegonensis</i>	11		J

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 10:37 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: L

Township: 6S Range: 10W Section: 33.634102 lat. 117.943283 long.

Temperature: Water: 11 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm estimated maximum: ___ cm
Surface Area: at time of sampling: ___ m x ___ m estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
- other: light moderate heavy
- land use of habitat: excavator in grassland area

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: None
(note reproductive status)

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/16/11 Time: 10:45 County: Orange Quad: Newport Beach

Collector(s): David Moskovitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: I

Township: 6S Range: 10W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 11 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm Surface Area: at time of sampling: ___ m x ___ m

estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing

- ungrazed grazed: cattle horses sheep

other: ___ light moderate heavy

- land use of habitat: Created by construction of berm

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 100s

Anostracans: males + females
(note reproductive status)

Notostracans:
(note reproductive status)

Species Observations (Optional):

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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<u>B. sandiegonensis</u>	<u>8</u>		
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/6/11 Time: 10:51 County: Orange Quad: Newport Beach

Collector(s): David Moskovitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: F

Township: 65 Range: 10W Section: 33.184102 117.943283
lat. long.

Temperature: Water: 12 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm estimated maximum: ___ cm
Surface Area: at time of sampling: ___ m x ___ m estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: ___ light moderate heavy

- land use of habitat: Created by construction of berm

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *None*

Notostracans: (note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 11:10 County: Orange Quad: Newport Beach

Collector(s): David Moskovitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: B

Township: 6S Range: 10W Section: _____ 33.634102 117.943283
lat. long.

Temperature: Water: 13 °C Air: 16 °C

Pool Depth: at time of sampling: _____ cm
estimated maximum: _____ cm
Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy
- land use of habitat: borrow pit

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 10,000's

Anostracans:

(note reproductive status)

Collected 10 male *B. lindahli*

Notostracans:

(note reproductive status)

Species Observations (Optional):

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 11:20 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: E

Township: 6S Range: 10W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 11 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm Surface Area: at time of sampling: ___ m x ___ m
estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: ___ light moderate heavy

- land use of habitat: Oil field sump area.

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) 2 males collected. No other shrimp detected.

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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<i>B. sandiegrensis</i>	2		
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 11:25 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-089606-1

Site/Project Name: Newport Banning Ranch Pool #: C

Township: 6 S Range: 10 W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 12 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm Surface Area: at time of sampling: ___ m x ___ m
estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
- other: light moderate heavy

- land use of habitat: Adjacent to contaminated oil field concrete.

(Optional) Water Chemistry Data pipe runs through depression

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:

(note reproductive status)

None

Notostracans:

(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/16/11 Time: 11:40 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: N

Township: 6S Range: 10W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 14 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm estimated maximum: ___ cm
Surface Area: at time of sampling: ___ m x ___ m estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy

- land use of habitat: Scraped area

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

100s

Anostracans:
(note reproductive status)

Notostracans: *Collected 5 male B. lindahl*
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 11:47 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: M

Township: 6S Range: 10W Section: --- 33.634102 117.943283
lat. long.

Temperature: Water: 14 °C Air: 16 °C

Pool Depth: at time of sampling: ___ cm Surface Area: at time of sampling: ___ m x ___ m

estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing

- ungrazed grazed: cattle horses sheep

other: _____ light moderate heavy

- land use of habitat: Oil field pipe and material storage yard.

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l

pH: _____ Turbidity: (secchi disc depth) ___ cm or: clear to bottom _____

Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *10s to 100s*

Anostracans:

(note reproductive status)

Collected 4 males of B. lindahli

Notostracans:

(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 12:05 County: Orange Quad: Newport Beech

Collector(s): David Moskovitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: P

Township: 6S Range: 10W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 14 °C Air: 19 °C

Pool Depth: at time of sampling: _____ cm Surface Area: _____ m x _____ m
estimated maximum: _____ cm estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy

- land use of habitat: Oil field soil remediation area.

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 100's

Anostracans:

(note reproductive status) 5 male B. lindahli collected

Notostracans:

(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/6/11 Time: 12:10 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: R

Township: 6S Range: 10W Section: _____ lat. 33.634102 long. 117.943283

Temperature: Water: 13 °C Air: 18 °C

Pool Depth: at time of sampling: _____ cm
estimated maximum: _____ cm
Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy
- land use of habitat: roadside feature

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 10's

Anostracans:
(note reproductive status)

Notostracans:
(note reproductive status)

One male B. lindahli collected

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify)	_____	

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify)	_____	

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/6/11 Time: 12:30 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: V

Township: 6S Range: 10W Section: --- 33.634102 117.943283
lat. long.

Temperature: Water: 17 °C Air: 19 °C

Pool Depth: at time of sampling: ___ cm estimated maximum: ___ cm
Surface Area: at time of sampling: ___ m x ___ m estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy

- land use of habitat: existing well pad

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status)

None

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/20/11 Time: 1:30 pm County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: M

Township: 65 Range: 10W Section: --- 33.634102 117.943283
lat. long.

Temperature: Water: 23 °C Air: 22 °C

Pool Depth: at time of sampling: ___ cm estimated maximum: ___ cm
Surface Area: at time of sampling: ___ m x ___ m estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
- other: light moderate heavy

- land use of habitat: Oil field pipe and material storage yard.

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *10s - 100s*

Anostracans:

(note reproductive status)

Collected 2 male B. lindahli

Notostracans:

(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1 / 20 / 11 Time: 1:55 pm County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: K

Township: 65 Range: 10W Section: _____ 33.634102 117.943283
lat. long.

Temperature: Water: 23 °C Air: 22 °C

Pool Depth: at time of sampling: _____ cm
estimated maximum: _____ cm
Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____
light moderate heavy

- land use of habitat: shallow artificial oil field depression.

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/20/11 Time: 2:15 pm County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: D

Township: 6S Range: 10W Section: _____ 33.63402 117.943283
lat. long.

Temperature: Water: 23 °C Air: 22 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: _____ cm
Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed. tire tracks garbage discing/plowing
- ungrazed _____ grazed: cattle horses sheep
other: _____ light moderate heavy

- land use of habitat: oil field excavation area

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO

Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l

pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____

Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 1/20/11 Time: 2:35 pm County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: FE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: C

Township: 6S Range: 10W Section: _____ lat. 33.634102 long. 117.943283

Temperature: Water: 14 °C Air: 23 °C

Pool Depth: at time of sampling: _____ cm Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ cm estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: _____ light moderate heavy
- land use of habitat: Oil field excavation and stockpile area

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *1000's Male/female*

Anostracans:
 (note reproductive status)

Notostracans: *Collected 10 male B. lindahli*
 (note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 2/1/11 Time: 10:55 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: W

Township: 6S Range: 10W Section: 33.634102 117.943283
lat. long.

Temperature: Water: 14 °C Air: 18 °C

Pool Depth: at time of sampling: 25 cm Surface Area: at time of sampling: ___ m x ___ m

estimated maximum: ___ cm estimated maximum: ___ m x ___ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: ___ light moderate heavy

- land use of habitat: Depression in non-native grassland

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status)

Notostracans:
(note reproductive status)

None

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 2 / 1 / 11 Time: 11:40 am County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: ~~1~~ C

Township: 65 Range: 10W Section: _____ 33.634102 lat. 117.943283 long.

Temperature: Water: 12 °C Air: 18 °C

Pool Depth: at time of sampling: 20 cm Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ cm estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other _____ light moderate heavy

- land use of habitat: Oil field excavation and stockpile area.

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: None
(note reproductive status)

Notostracans:
(note reproductive status)

Species Observations (Optional) :

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 4 / 1 / 11 Time: 10:37 County: Orange Quad: Newport Bend

Collector(s): David Moskowitz Permit #: TE-087606-1

Site/Project Name: Newport Banning Ranch Pool #: VP 2

Township: 6S Range: 10W Section: lat. long.

Temperature: Water: 26 °C Air: °C

Pool Depth: at time of sampling: 10 cm Surface Area: at time of sampling: m x m

estimated maximum: cm estimated maximum: m x m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: light moderate heavy

- land use of habitat: Shallow depression on active oil production well pad.

(Optional) Water Chemistry Data

Alkalinity (total): ppm or mg/l Conductivity: uMHO

Dissolved NH₄: ppt or ppm Dissolved Oxygen: ppm or mg/l

pH: Turbidity: (secchi disc depth) cm or: clear to bottom

Salinity: ppt or ppm Total Dissolved Solids (TDS): ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status)

Notostracans:
(note reproductive status)

Species Observations (Optional):

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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B. sandiegoensis

10

VP 2

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 4/1/11 Time: 9:35 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: T

Township: 6S Range: 10W Section: --- lat. --- long. ---

Temperature: Water: 22 °C Air: --- °C

Pool Depth: at time of sampling: --- cm estimated maximum: --- cm
Surface Area: at time of sampling: --- m x --- m estimated maximum: --- m x --- m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
other: --- light moderate heavy

- land use of habitat: paved roadway

(Optional) Water Chemistry Data

Alkalinity (total): --- ppm or mg/l Conductivity: --- uMHO
Dissolved NH₄: --- ppt or ppm Dissolved Oxygen: --- ppm or mg/l
pH: --- Turbidity: (secchi disc depth) --- cm or: clear to bottom ---
Salinity: --- ppt or ppm Total Dissolved Solids (TDS): --- ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *100's*

Anostracans:
(note reproductive status)

Collected 9 male B. lindahli

Notostracans:
(note reproductive status)

Species Observations (Optional):

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)
Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 4/1/14 Time: 10:20 County: Orange Quad: Newport Beach

Collector(s): David Maskowitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: D

Township: 65 Range: 10 W Section: lat. long.

Temperature: Water: 16 °C Air: °C

Pool Depth: at time of sampling: 7 cm Surface Area: at time of sampling: m x m

estimated maximum: cm estimated maximum: m x m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing

- ungrazed grazed: cattle horses sheep

other: light moderate heavy

- land use of habitat: Oil field excavation area

(Optional) Water Chemistry Data

Alkalinity (total): ppm or mg/l Conductivity: uMHO

Dissolved NH₄: ppt or ppm Dissolved Oxygen: ppm or mg/l

pH: Turbidity: (secchi disc depth) cm or: clear to bottom

Salinity: ppt or ppm Total Dissolved Solids (TDS): ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status)

Notostracans:
(note reproductive status)

None

Species Observations (Optional) :

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 4/1/11 Time: 9:58 County: Orange Quad: Newport Beed

Collector(s): David Maskovitz Permit #: TE-084606-1

Site/Project Name: Newport Banning Ranch Pool #: C

Township: 6 S Range: 10 W Section: _____ lat. _____ long. _____

Temperature: Water: 17 °C Air: _____ °C

Pool Depth: at time of sampling: 30 cm estimated maximum: _____ cm
Surface Area: at time of sampling: _____ m x _____ m estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep
- other: _____ light moderate heavy
- land use of habitat: Oil excavation and storage area

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) 100's

Anostracans:

(note reproductive status)

Collected 20 male B. lindelohi

Notostracans:

(note reproductive status)

Species Observations (Optional):

Cladocerans:	yes	no	Insects: (adult or larvae)		
Conchostracans:	yes	no	Anisoptera:	yes	no
Copepods:	yes	no	Zygoptera:	yes	no
Ostracods	yes	no	Hydrophilidae:	yes	no
Fish	yes	no	Dytiscidae:	yes	no
Frogs	yes	no	Corixidae:	yes	no
Salamanders	yes	no	Notonectidae:	yes	no
Waterfowl	yes	no	Belostomatidae:	yes	no
Other (specify) _____			Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 4 / 1 / 11 Time: 12:30 County: Orange Quad: Newport Beach

Collector(s): David Moskowitz Permit #: TE-089606-1

Site/Project Name: Newport Bunniny Ranch Pool #: M

Township: 6S Range: 10W Section: _____ lat. _____ long.

Temperature: Water: 29 °C Air: _____ °C

Pool Depth: at time of sampling: _____ cm Surface Area: at time of sampling: _____ m x _____ m
estimated maximum: _____ cm estimated maximum: _____ m x _____ m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: _____ tire tracks garbage discing/plowing

- ungrazed _____ grazed: cattle horses sheep

other: _____ light moderate heavy

- land use of habitat: Oil field ppr and material storage yard

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO

Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l

pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____

Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) *10's*

Anostracans:

(note reproductive status) *Collected 2 male B. lindahli*

Notostracans:

(note reproductive status)

Species Observations (Optional):

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

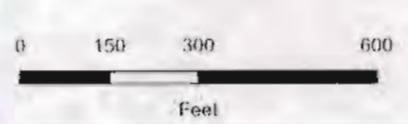
Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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Legend

-  Project Boundary
-  Oil Operations
-  Oil Pipeline
-  Well Locations



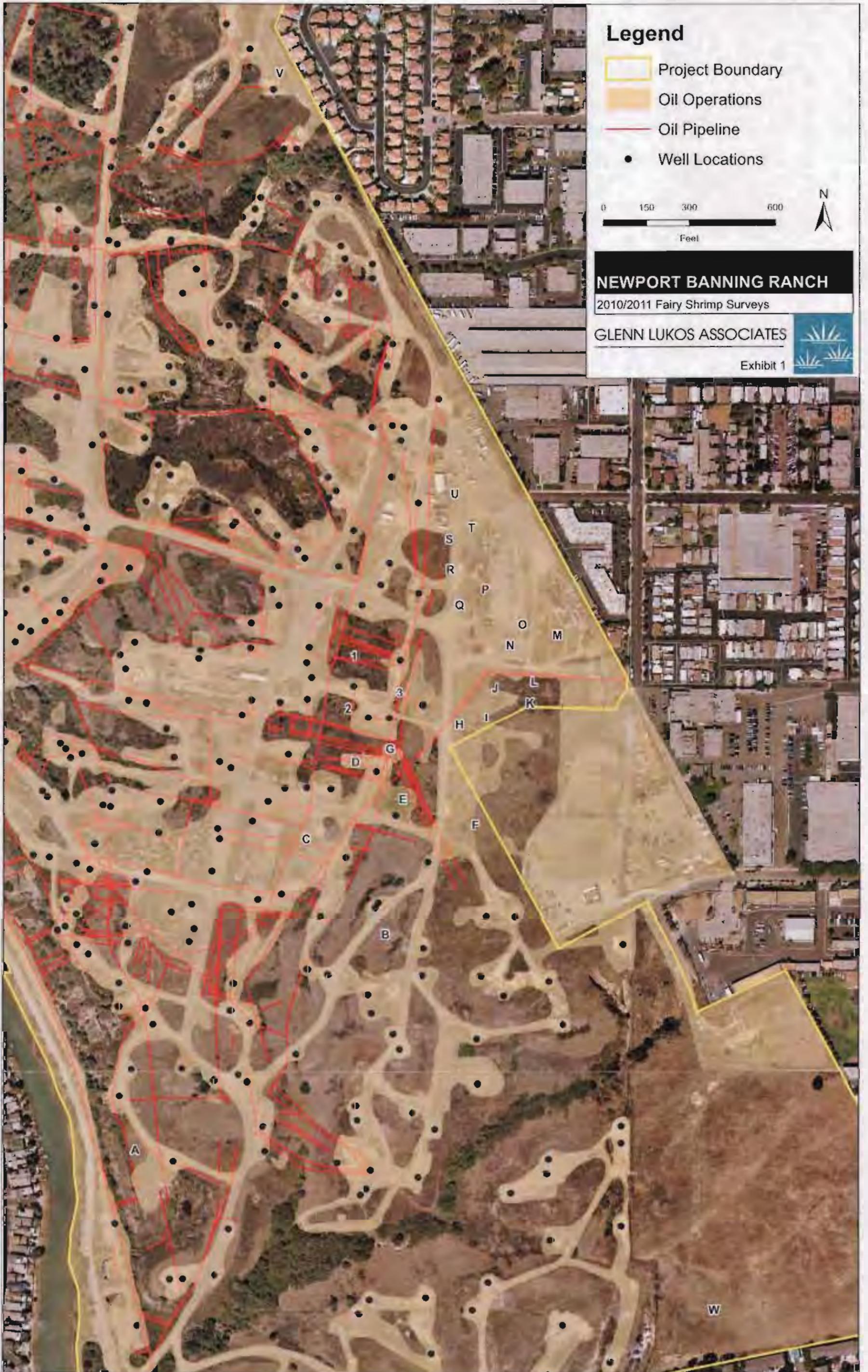
NEWPORT BANNING RANCH

2010/2011 Fairy Shrimp Surveys

GLENN LUKOS ASSOCIATES



Exhibit 1





PHOTOGRAPH 1: View of Feature B looking south. This feature is a soil remediation area and versatile fairy shrimp were detected in 2009/2010 & 2010/2011 surveys.



PHOTOGRAPH 2: View of Feature C looking northeast. This feature is a low point in soil and concrete stockpile area. The versatile fairy shrimp was detected during the 2010/2011 surveys.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 3: Feature E is a partially remediated oil sump with low density of San Diego fairy shrimp.



PHOTOGRAPH 4: Feature F looking southwest. Shallow depression created by berm to protect oil field road. No fairy shrimp were detected in 2011.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 5: View of Feature G looking southeast. Feature G exhibits a low density of San Diego fairy shrimp.



PHOTOGRAPH 6: View of Feature H looking northeast. Feature H is a shallow, recently disturbed area with a predominance of non-native upland vegetation. No fairy shrimp were detected in 2011.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 7: View of Feature I looking west. Feature I exhibits a low density of San Diego fairy shrimp.



PHOTOGRAPH 8: Feature J supports San Diego fairy shrimp. Shallow depression created by oil field berms constructed to protect roads.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 9: View of Feature K looking north. No fairy shrimp were detected in the feature in 2011.



PHOTOGRAPH 10: View of Feature L looking north. No fairy shrimp were detected in the feature in 2011.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 11: View of Feature N looking north. Feature N is a shallow depression within an oil field storage yard. This feature supports the versatile fairy shrimp.



PHOTOGRAPH 12: View of Feature P looking north. This area is immediately adjacent to a soil remediation area (see stockpile in background). The versatile fairy shrimp was detected during 2010/2011 surveys.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 13: Feature R looking south on October 22, 2010 showing shallow roadside feature. The versatile fairy shrimp was detected during 2010/2011 surveys.



PHOTOGRAPH 14: Feature R looking south on November 1, 2010 showing how rapidly the feature dries during normal conditions.



GLENN LUKOS ASSOCIATES

Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 15: View of Feature Q looking north showing shallow ponding within roadside depression.



PHOTOGRAPH 16: View of Feature S looking north showing shallow ponding with roadside depression.



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Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 17: View of Feature T looking north showing shallow ponding in asphalt covered road area. The versatile fairy shrimp was detected in the feature in 2011.



PHOTOGRAPH 18: View of Feature U looking north showing shallow ponding in asphalt parking area.



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Exhibit 3

NEWPORT BANNING RANCH

Site Photographs



PHOTOGRAPH 19: View of Feature V looking south. Feature V occurs on an oil well pad and supports the versatile fairy shrimp.



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Exhibit 3

NEWPORT BANNING RANCH

Site Photographs

