

**RESTORATION, ENHACEMENT, & MONITORING PLAN –  
OTAY MESA VERNAL POOL HABITAT RESTORATION PROJECT I**

**AUGUST 2017**



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**Otay Mesa Vernal Pool Habitat Restoration Project I Location**

Assessor's Parcel Number: 6450405000  
UTM: 498416.97 / 3603751.01 / 11S  
Latitude / Longitude: 32.571192 / -117.016865

**Project Size**

5 acres

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## 1.0 INTRODUCTION

This *Restoration, Enhancement, and Monitoring Plan for the Otay Mesa Vernal Pool Habitat Restoration Project I* (Restoration Plan) describes a habitat restoration project on a preserve property in southern San Diego County to restore and enhance five acres of vernal pools and watersheds (Project I). The Project I is the first of three planned projects on the preserve and would be implemented over three to six years depending on the amount and effects of annual rainfall on vernal pool ponding, restoration seeding and planting, and successful fundraising.

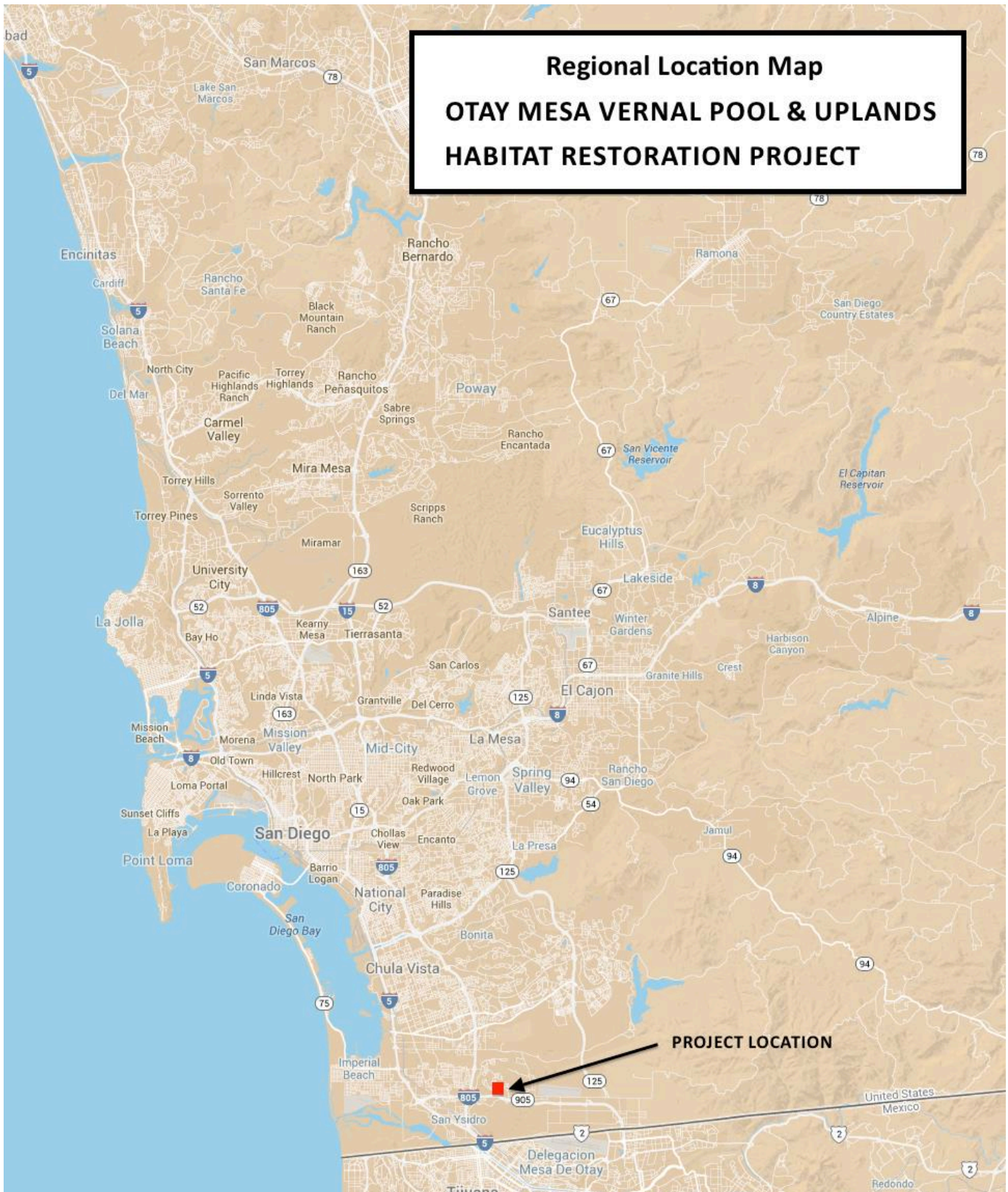
The Otay Mesa Vernal Pool Habitat Restoration Project I is located in western Otay Mesa, a suburban and industrial community of the City of San Diego near the international border with Mexico (Figure 1). The Project I is located on the on the 17.24-acre “Clayton property” vernal pool preserve (Clayton property; Figure 2), a property purchased by the City of San Diego Park and Recreation Department (City) with financial assistance from the California Wildlife Conservation Board. The Clayton property is now managed under the *San Diego Multiple Species Conservation Plan* (MSCP; City of San Diego 1997) and pending *City of San Diego Vernal Pool Habitat Conservation Plan* (vernal pool HCP). The Project I is the first of three vernal pool restoration and enhancement projects planned by TCLC on 15-acres of the Clayton property located west of Ocean View Hills Parkway (Figure 3).

The Clayton property has been heavily damaged by past off-road vehicle activity (Figure 4) yet still provides an exceptional opportunity for restoration of vernal pool landscapes in the City of San Diego. Overall intact natural terrain and clay soils on the property are ideal for enhancement and restoration of vernal pools and restoration of endangered and sensitive vernal pool animals and plants and uplands maritime succulent scrub vegetation. The value of the Project I on the Clayton property will be extended with planned contiguous vernal pool and uplands habitat restoration on the adjacent St. Jerome’s property. And the Project I will compliment several completed vernal pool and uplands habitat restoration projects around nearby Dennery Canyon (Figure 5).

The Clayton property is important for vernal pool resources located on the property but is also an integral element of an extensive tapestry of protected habitat land in South County San Diego. The property and nearby Dennery Canyon and the Otay River Valley altogether form a “biological core area” under the MSCP and support many sensitive habitats (e.g. maritime succulent scrub, native grasslands, non-native grasslands, riparian scrub, vernal pools) and many MSCP covered species. Following years of concerted efforts to acquire sensitive properties, much of this area is now protected by several resource agencies: The City owns and manages the Clayton property, Dennery Canyon is owned and protected by the City, California Department of

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**Figure 1. Regional Location Map**



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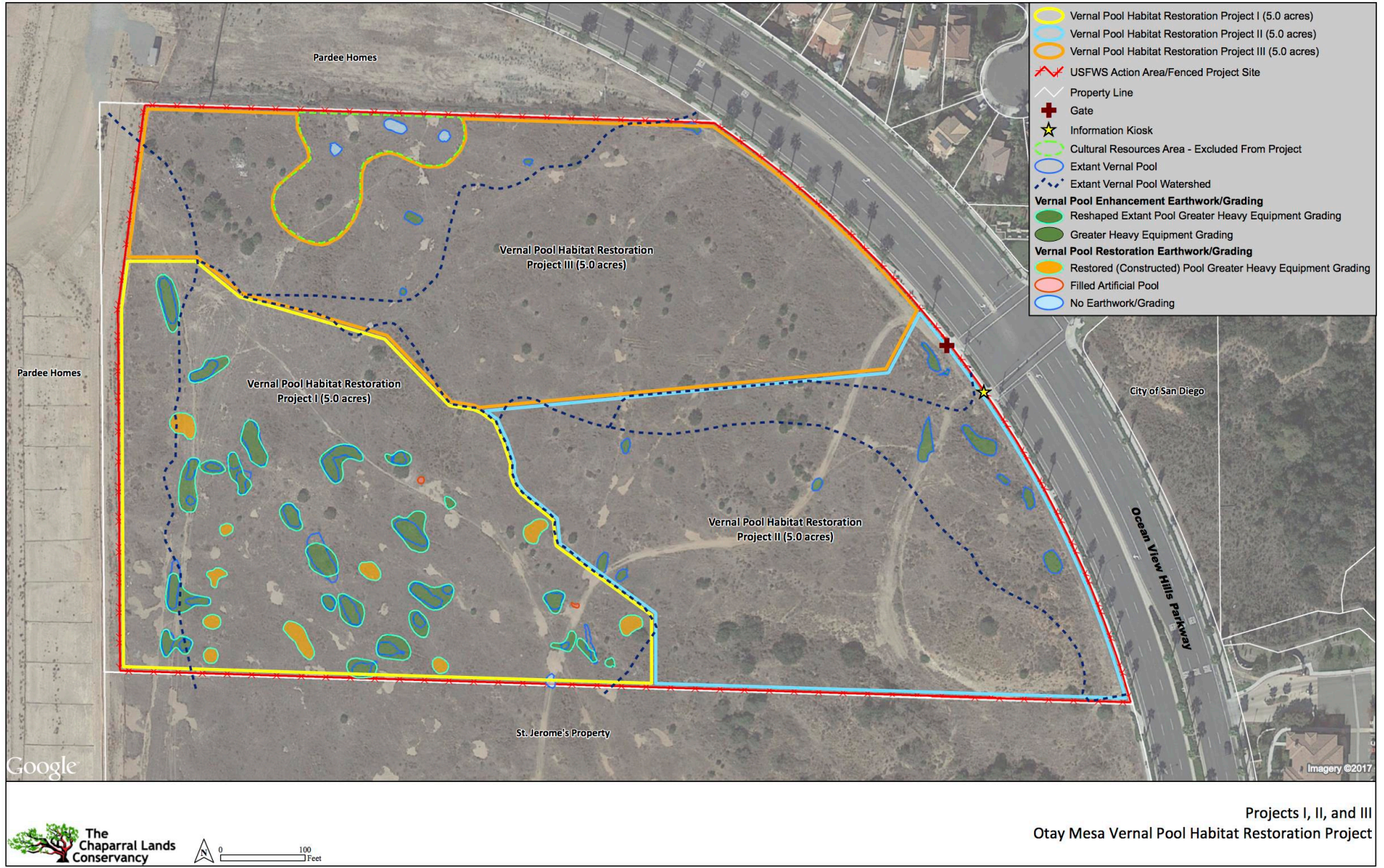
Figure 2. Existing Conditions



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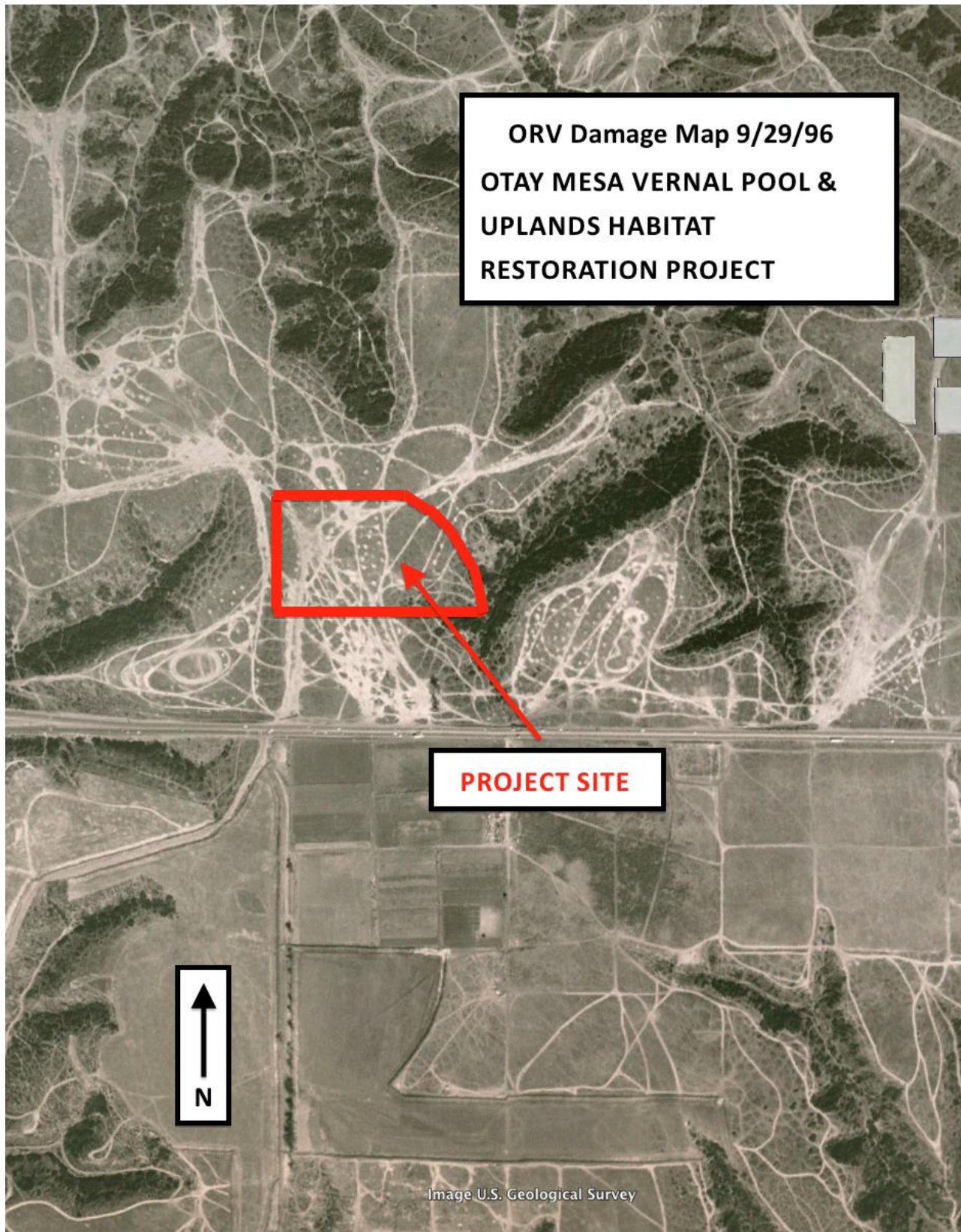
Figure 3. Otay Mesa Vernal Pool Habitat Restoration Project Phases I, II, & III



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**Figure 4. Off-Road Vehicle Damage**





**PROJECT SITE**  
32.571192,  
-117.016865

**Existing Vernal Pool Restoration Sites**

**Proposed Denberry Canyon Habitat Restoration Project**

**Existing Vernal Pool Restoration Sites**

**Project Site Map**  
**OTAY MESA VERNAL POOL & UPLANDS**  
**HABITAT RESTORATION PROJECT**

Transportation, and County of San Diego (County), and the Otay Valley Regional Park is jointly managed by the City, County, and City of Chula Vista.

TCLC will implement the Project I in coordination with and subject to permission by the property owner, the City of San Diego. The City will review and approve proposed enhancement and restoration activities and continue to provide long-term stewardship of the site in accordance with the *City of San Diego MSCP Subarea Plan*.

The Project I is not a mitigation project nor does it represent binding mitigation obligations on the TCLC or City of San Diego. Rather, the Project I is proactive, voluntary, and entirely contingent on successful fundraising by the TCLC in cooperation with the City. It is the intent of TCLC to carry out proposed enhancement and restoration activities to achieve project goals and will endeavor to secure additional funding and/or carry out additional work in the event project goals are not achieved. However, in the event that goals are not met, no remedial action will be required after the project implementation period. Neither TCLC as the project manager nor the City as the property owner are bound to fund and/or implement any enhancement and restoration activities beyond the project implementation period for any phases of the project. Nor are TCLC or the City bound to fund and/or implement any increased maintenance that may result from the Project. In the event that the project will be conducted in phases due to funding limitations, TCLC will not initiate any phase without funding to complete the phase and City review and approval to ensure that the proposed phase will still accomplish proportional project goals.

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## **2.0 OTAY MESA VERNAL POOL HABITAT RESTORATION PROJECT I**

### **2.1 PURPOSE AND NEED**

Acquisition of the Clayton property vernal pool preserve in 2012 was an important first step in recovering damaged vernal pool resources and City of San Diego managers have since worked diligently to remove trash and invasive plant weeds. Yet there is still an unfulfilled need to improve the condition of seriously damaged vernal pool and maritime succulent scrub habitats on the property and to meet City goals for vernal pool habitat conservation.

TCLC's Otay Mesa Vernal Pool Habitat Restoration Project I would address this need by restoring and enhancing vernal pools and immediate watersheds on the Clayton property in areas that have been heavily damaged by past off-road vehicle activity, grazing, and other disturbance (figures 6 and 7). Original natural vernal pools persist at the site and currently support the endangered San Diego fairy shrimp and San Diego button-celery (Figure 2). But past disturbance has significantly harmed pool hydrology with erosion and tire trenching, introduced exotic invasive weeds to pools and uplands, and nearly eliminated native upland vegetation (Figure 4). The Project I would restore and enhance vernal pools and maritime succulent scrub in immediate vernal pool watersheds to a more natural and higher functioning condition.

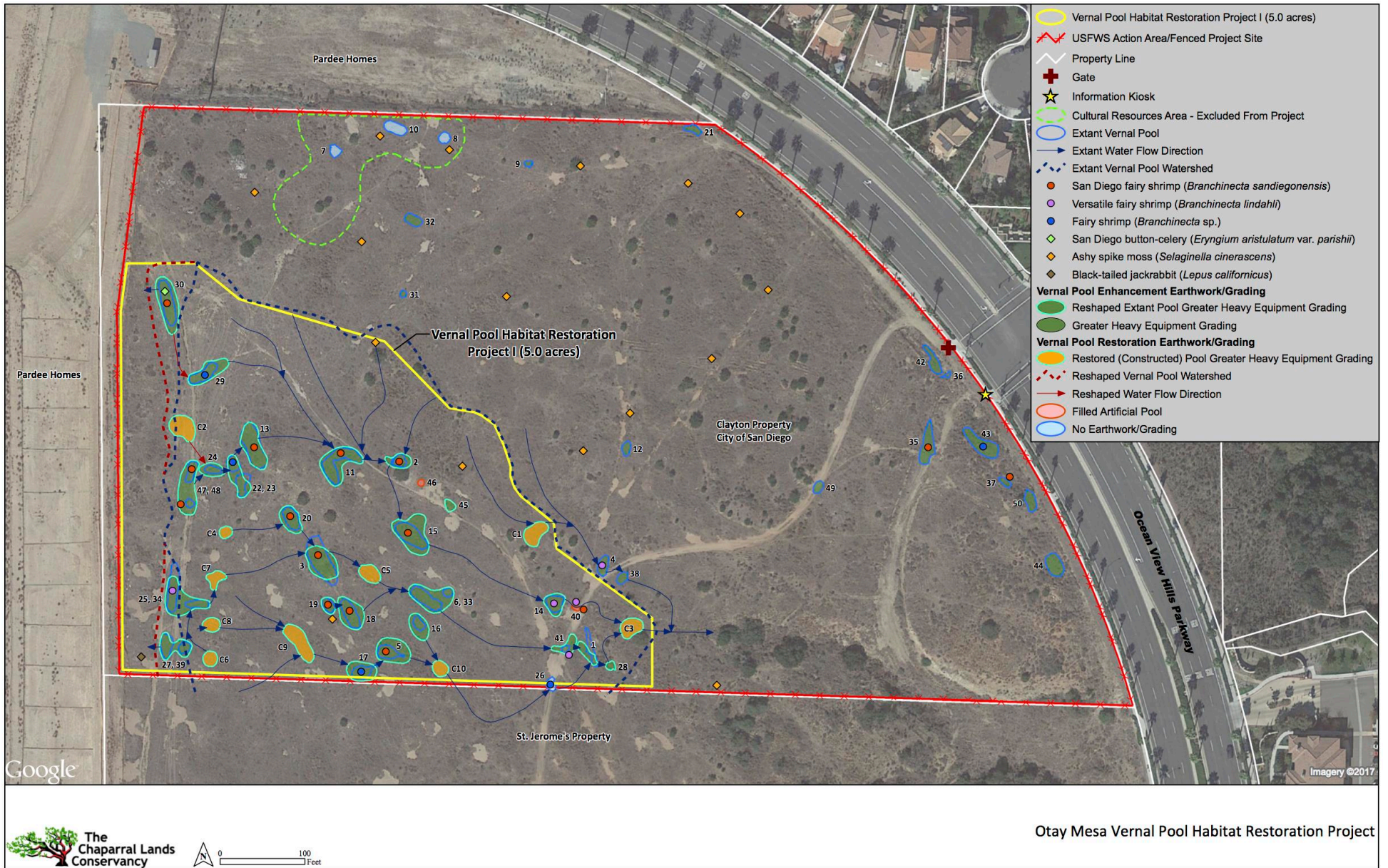
### **2.2 PROJECT DESCRIPTION**

The Otay Mesa Vernal Pool Habitat Restoration Project I would restore and enhance a vernal pool area on the Clayton property that has been severely damaged by past ORV use (figures 6 and 7) and invasion of weeds. The Project I would include direct supplementation of existing populations of endangered and sensitive vernal pool species San Diego fairy shrimp, San Diego button-celery, and vernal barley as well as direct introduction of several other endangered or sensitive animal and plant species not currently present onsite: Riverside fairy shrimp, Little mousetail, Orcutt's grass, Otay Mesa mint, spreading navarretia, and toothed calico-flower. Most vernal pools on the Clayton property are severely damaged and appear to be original natural pools that have been expanded or deepened by use of vehicles in wet soils. Other pools on the property appear to be artificial pools also created by vehicles. Under the Project I, damaged pools would be subject to intensive reshaping and topography repair (e.g. removing erosion fill, restoring natural pool perimeters, reducing pool edge gradients, and removing tire trenching). Some damaged pools are relatively large, may pond for relatively longer periods, and appear to be suitable for introduction of Riverside fairy shrimp and Orcutt's grass, two particularly endangered species that favor longer-ponding pools.

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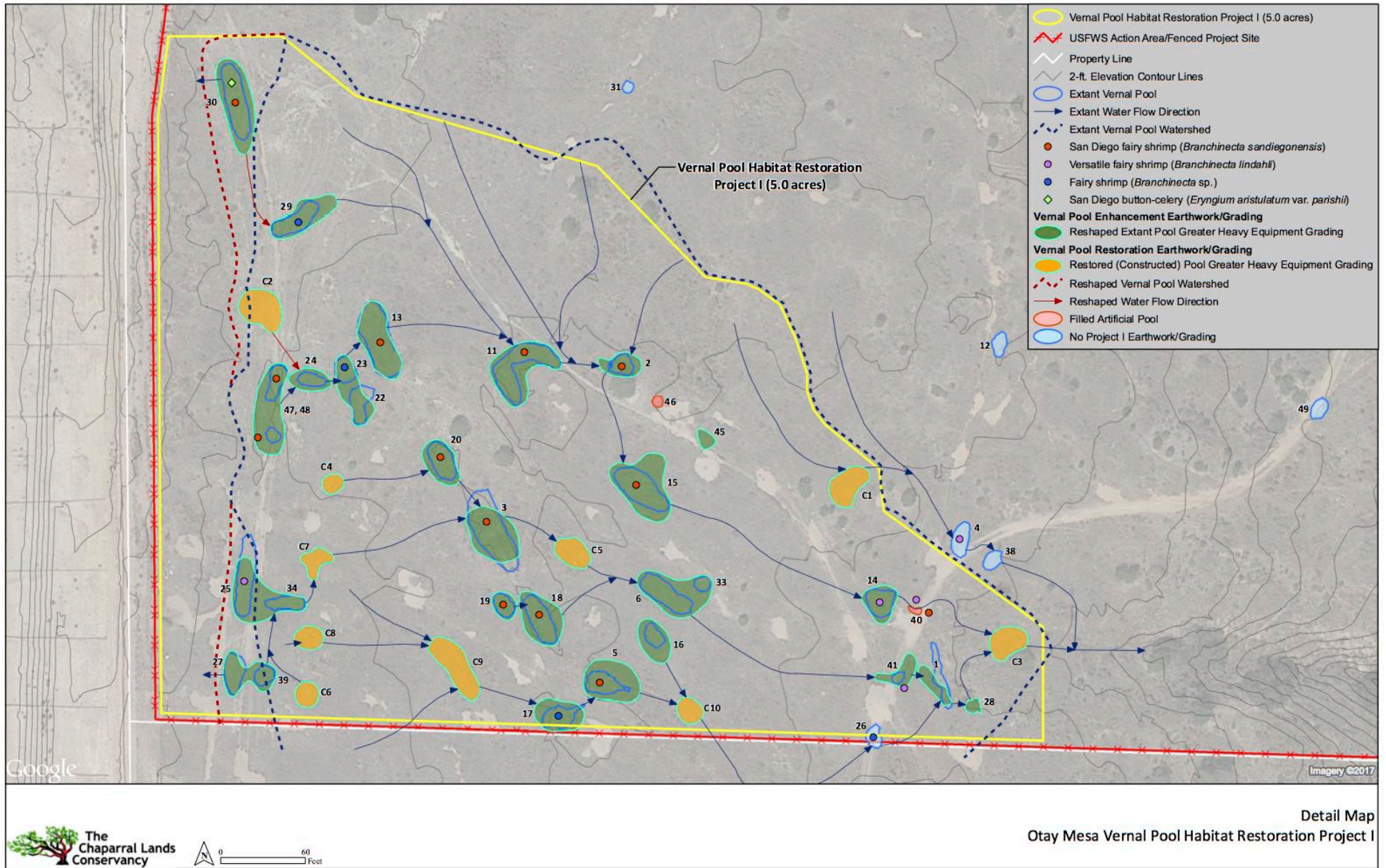
Figure 6. Otoy Mesa Vernal Pool Habitat Restoration Project I



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Figure 7. Otay Mesa Vernal Pool Habitat Restoration Project I Detail



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The following is a summary of Project I activities:

- Restore and enhance vernal pools including topography repair, weeding, plant propagation, planting and seeding, and soil inoculation.
- Restore and enhance degraded maritime succulent scrub uplands vegetation in vernal pool watersheds including topography repair, weeding, plant propagation, and planting and seeding.
- Directly increase populations of nine sensitive vernal pool animals and plants including Riverside fairy shrimp, San Diego fairy shrimp, little mouselike, Orcutt's grass, Otay Mesa mint; San Diego button-celery, spreading navarretia, toothed calico-flower, and vernal barley. Directly increase populations of common vernal pool crustaceans and other invertebrate animals and plants. Directly increase populations of twelve sensitive uplands plants in vernal pool watersheds.
- Indirectly benefit two sensitive vernal pool species (Two-striped garter snake and Western spadefoot toad) and nine sensitive uplands animals with habitat restoration.
- Install perimeter fencing, closure signs, and an educational Project kiosk.
- Organize volunteers to assist with Project I activities.

## 2.3 TERMINOLOGY

- Extant Pools – Thirty-two extant pools<sup>1</sup> are found within the Project I site including original natural pools and artificial pools (figures 2, 6 and 7; Appendix A)<sup>2</sup>. Extant pools are any regularly ponding area that supports obligate vernal pool species.
- Artificial Extant Pools – At least two artificial pools are found on the Project I site (figures 6 and 7; Appendix A). Artificial pools are those that have been created by recent and/or historic anthropogenic activity (e.g. artificial compaction, trenching, or damming from dirt road or ORV use) and where there is no evidence of the presence of an original natural pool prior to disturbance. Artificial pools on the Project I site may have been created by erosion from vehicle use of dirt roads and ORV trails and when vehicles have become mired in saturated soils in natural swales amongst vernal pools. The majority of the Project I site contains soil and topography conditions that supported original natural vernal pools. However, many pools on the Project I site are now so damaged that it is

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1. U.S. Fish and Wildlife Service terminology.

2. Eighteen additional extant pools are found on the Clayton property outside of the Project I site.

difficult to determine whether they are original natural pools or artificial pools (Appendix A).

- Control Pools – Seventeen control pools are located offsite in the J26 vernal pool complex on the “Upham property”, a private preserve in eastern Otay Mesa (Figure 8; Appendix B). The J26 vernal pools have been designated by the U.S. Fish and Wildlife Service (USFWS) as control pools for Otay Mesa vernal pool restoration projects. The control pools exhibit a variety of representative ecological and hydrological vernal pool conditions and, though impacted, are the least disturbed, original natural vernal pools on Otay Mesa.
- Earthwork & Grading Pools – Thirty-one extant pools on the Project I site will undergo grading under the Project I. Twenty-nine extant pools will be graded to enhance vernal pool conditions<sup>3</sup> and two small extant artificial pools will be filled during grading, one of which supports undesirable Versatile fairy shrimp (figures 6 and 7; Appendix A). Grading to enhance vernal pools will entail use of heavy equipment to repair damage to pools from tire trenching, to remove erosion fill, to reduce pool edge gradients (e.g. steep ditches and edges from tire trenching), and to restore natural pool contours and slopes<sup>4</sup>.
- Enhanced Pools – Thirty extant pools will be enhanced<sup>5</sup> under the Project I (figures 6 and 7; Appendix A). Enhancement includes dethatching weed cover, soil disposal from pools supporting Versatile fairy shrimp or hybrids, soil salvage in other pools supporting listed species, grading and earthwork to repair, reshape, and sometimes consolidate extant pools where they are located in very close proximity, seeding and planting, soil inoculation, and maintenance weeding and watering.
- Restored Pools – Ten pools on the Project I site will be restored<sup>6</sup> (constructed) in suitable soils and in a manner complementing the extant vernal pool and swale hydrologic system (figures 6 and 7; Appendix A). Restored pools will typically be located in highly disturbed areas where site disturbances may have eliminated original natural pools. Restoration includes dethatching weed cover, grading construction of pools, seeding and planting, soil inoculation, and maintenance weeding and watering.

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3. One of thirty pools to be enhanced will not be graded (#26) due to its location on or very near the southern property line.

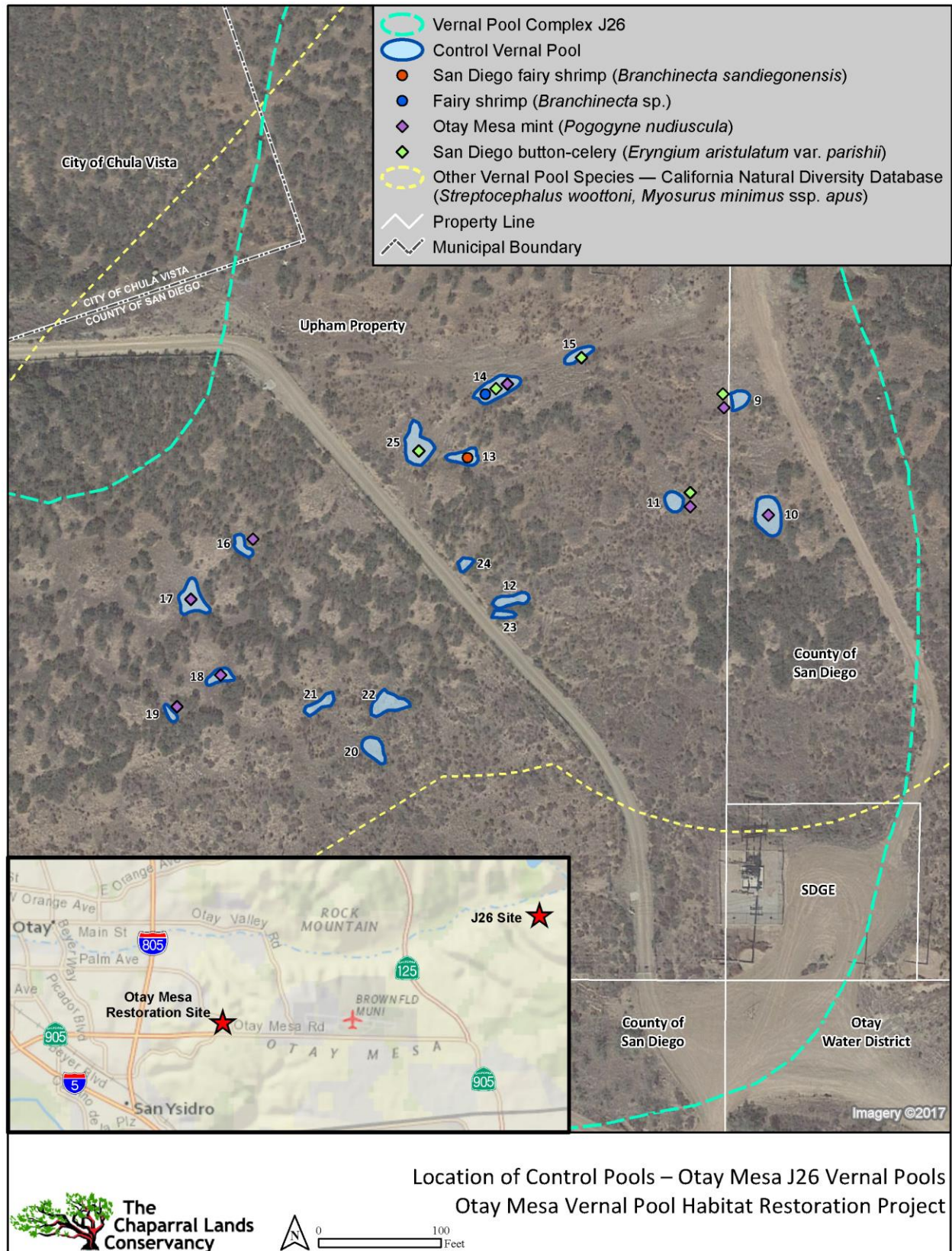
4. Note that only a very small area of each pool subject to earthwork or grading would be subject to incidental fill during grading. All fill would be removed from these pools and used to enhance or restore nearby Mima mounds.

5. USFWS terminology.

6. USFWS terminology.



**Figure 8. Location of Control Pools**



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## 2.4 GOALS OF VERNAL POOL RESTORATION

The goals of the Project I include improving the hydrologic and ecologic function of vernal pool habitat and watersheds, increasing the size and extent of populations of native vernal pool dependent species, reducing the size and extent of populations of non-native species, and protecting vernal pools from new anthropogenic disturbance. Specific Project I objectives are as follows:

- Enhance & Restore Vernal Pools & Watersheds – Enhance hydrologic and ecologic conditions in damaged extant pools and watersheds and restore new pools consistent with conditions in control pools (figures 6 and 7; Appendix A). Enhancement and restoration includes repair of topography in extant pools (e.g. removal of erosion fill, repair and reshaping of pool perimeters, reduction of pool edge gradients, removal of tire trenching); restoration (construction) of new pools where appropriate, removal of weed plants and animals (weeding and solarization); restoration of native flora (seed collection, nursery propagation, container planting, and seeding); and restoration of native fauna (soil inoculation).
- Increase Diversity of Vernal Pool Flora & Fauna – Increase native plant and animal species diversity in enhanced extant pools and restored pools consistent with conditions in control pools and documented or expected historic species composition.
- Increase Populations of Endangered & Sensitive Vernal Pool & Uplands Species – Directly expand extant populations and habitat for San Diego button-celery and San Diego fairy shrimp. Directly establish new refugia populations of Riverside fairy shrimp and six other endangered and sensitive vernal pool plants. Directly establish new refugia populations of twelve endangered and sensitive uplands plants in vernal pool watersheds. Indirectly expand populations of two sensitive vernal pool species (Two-striped garter snake and Western spadefoot toad) and nine endangered and sensitive uplands animals with habitat restoration.
- Prevent Introduction or Spread of Undesirable Flora and Fauna – Attempt to control Versatile fairy shrimp and/or hybrid San Diego fairy shrimp/Versatile fairy shrimp in extant pools where practicable. Prevent spread of Versatile fairy shrimp and/or hybrids to unoccupied pools. Prevent introduction and spread of invasive plants and reduce existing invasive plant populations in vernal pools and watersheds.
- Limit Future Harm – Limit future anthropogenic disturbance with several management measures including fencing, signing, planting, and vegetative camouflage of old dirt roads and paths, and public educational outreach.

## **2.5 PERMITTING**

### **2.5.1 City of San Diego Right-of-Entry Permit**

Permission for the Project I has been obtained from the City of San Diego Park and Recreation Department in the form of an executed Right-of-Entry Permit (ROE).

### **2.5.2 California Environmental Quality Act**

Review of the Project I under the California Environmental Quality Act (CEQA) has been completed by the City of San Diego to support a ROE. The City determined on February 2, 2016 that the Project is categorically exempt from CEQA pursuant to CEQA Guidelines Sections 15304 (Minor Alterations to Land) and 15331 (Historical Resources Restoration/Rehabilitation).” The Project also qualifies for a CEQA Section 15333 exemption for “Small Habitat Restoration Projects”.

### **2.5.3 Endangered Species Permitting**

Six federal and/or state listed endangered vernal pool species and three federal and state listed endangered and threatened upland plant species would be included in the Project I with permission from several agencies. Species include the federal endangered Riverside fairy shrimp, San Diego fairy shrimp, and spreading navarretia, state and federal endangered Orcutt’s grass, Otay Mesa mint, San Diego button-celery, and San Diego thornmint, federal threatened Otay tarplant, and state endangered small-leaved rose. The collection sites for these species would be several conserved properties owned by the California Department of Transportation (Caltrans), City of Chula Vista, City of San Diego, County of San Diego, and U.S. Fish and Wildlife Service (see Section 2.6.2 below). Permission and permits to collect and/or introduce these listed species will be required from the following agencies and property owners: The California Department of Fish and Wildlife (CDFW) as the permitting authority for state listed plants, the City of San Diego Park and Recreation Department as the property owner at the Project I site and collection sites, and Caltrans, the City of Chula Vista, County of San Diego, and U.S. Fish and Wildlife Service as property owners at collection sites. Other anticipated endangered species permitting is described below.

#### **2.5.3.1 Federal Endangered Species Act**

The Project I has been authorized by the USFWS in a Biological Opinion FWS-SDG-16B0360-16F0941 dated April 21, 2017 under Section 7 of the Federal Endangered Species Act (Federal ESA). Activities authorized in the Biological Opinion include: Incidental impacts to San Diego fairy shrimp in Project I extant pools; collection of Riverside and San Diego fairy shrimp soil inoculum and seeds of listed plants; propagation of listed plants for containers and seed bulking;

seeding and planting of listed plants, introduction of Riverside and San Diego fairy shrimp soil inoculum to pools. Impacts to federal listed species' designated critical habitat is also authorized: Riverside fairy shrimp designated critical habitat and San Diego fairy shrimp designated critical habitat.

### **2.5.3.2 California Fish and Game Code**

Authorization for the Project I has been provided by the CDFW in a California Endangered Species Act Scientific, Educational, or Management Permit No. 2081(a)-15-014-RP dated October 31, 2016 under Section 2081(a) of the Fish and Game Code. Activities authorized in the permit include: Collection of seeds of listed plants; propagation of listed plants for containers and seed bulking; and seeding and planting of listed plants.

### **2.5.4 Federal Clean Water Act and California Porter-Cologne Water Quality Control Act**

Authorization for the Project I has been provided by the U.S. Army Corps of Engineers (USACE) in a letter dated May 8, 2017 verifying TCLC's intended use of Nationwide Permit 27 under Section 404 of the Federal Clean Water Act. Authorization for the Project I has also been provided by the San Diego Regional Water Quality Control Board (RWQCB) in a Notice of Applicability, General 401 Water Quality Certification Order for Small Habitat Restoration Projects Order No. SB12006GN for the Otay Mesa Vernal Pool Habitat Restoration Project (File No. R9-2016-0152:825495:ngergans ) under Section 401 of the Federal Clean Water Act and California Porter-Cologne Water Quality Control Act.

The USACE requires permits for any impacts to "Waters of the United States" under Section 404 of the Clean Water Act. The RWQCB administers Section 401 of the Federal Clean Water Act as well as the California Porter-Cologne Water Quality Control Act and requires permits to protect water quality in Waters of the U.S. and Waters of the State.

Project I vernal pools do not appear to meet the definition of Waters of the U.S. based on current regulations and legal precedent. However, the process to prove that a water body is not a Water of the U.S. is technical, time consuming, and expensive. Because of this, some permit applicants elect to use a "Preliminary Jurisdictional Determination" to request that the USACE recognize affected water bodies as Waters of the U.S. (and therefore Waters of the State) to expedite permitting and reduce costs.

TCLC and the City of San Diego Park and Recreation Department prepared a Preliminary Jurisdictional Determination requesting that the USACE and RWQCB accept jurisdiction and consider vernal pools on the Clayton property to be Waters of the U.S. and Waters of the State for the purpose of permitting under the Federal Clean Water Act and Porter- Cologne Water

Quality Control Act. Overall, Project I impacts to vernal pools are beneficial because they are solely intended to improve habitat conditions and are not mitigation for harm to vernal pools elsewhere. As such, the Project I qualifies for a Clean Water Act Section 404 Nationwide Permit 27, “Aquatic Habitat Restoration, Establishment, and Enhancement Activities”. The Project I also qualifies for Clean Water Act Section 401 permitting by the RWQCB in accordance with the *State Water Resources Control Board General 401 Water Quality Certification Order for Small Habitat Restoration Projects*. This in turn would facilitate simultaneous permitting by the RWQCB under the California Porter-Cologne Water Quality Control Act.

#### **2.5.5 National Environmental Policy Act**

Authorization for the Project I has been provided by the U.S. Army Corps of Engineers under the National Environmental Policy Act (NEPA) as part of the USACE Nationwide Permits program. The Project I qualifies for a NEPA Categorical Exclusion because the purpose of the Project is to improve habitat conditions and benefit sensitive species with no significant impacts to resources.

#### **2.5.6 National Historic Preservation Act**

Authorization for the Project I has been provided by the U.S. Army Corps of Engineers under the National Historic Preservation Act (NHPA) as part of the USACE Nationwide Permits program. The Project I qualifies for a NHPA “no historic properties affected” outcome based on the conclusions of a cultural resources survey and report for the Project (Recuerdos Research 2015).

### **2.6 IMPLEMENTATION OF VERNAL POOL RESTORATION**

#### **2.6.1 Summary of Vernal Pool & Uplands Restoration Activities**

The following is a summary of specific, planned Project I restoration activities:

- Remove accumulated trash and weed thatch.
- Enhance extant pool and watershed topography (e.g. removal of erosion fill, repair and reshaping of pool perimeters, reduction of pool edge gradients, removal of tire trenching) to improve hydrologic function and provide improved terrain conducive to colonization by vernal pool and uplands plant species.
- Expand extant pools and construct new pools as appropriate to provide additional vernal pool habitat.
- Collect vernal pool and uplands plant seed.
- Propagate vernal pool and uplands container plants and bulk seed.
- Fill or solarize pools containing Versatile fairy shrimp.

- Seed vernal pool and uplands plants and install container plants.
- Collect and introduce vernal pool soil inoculum containing vernal pool animals and plants.
- Install Burrowing owl burrows.
- Control invasive plants in vernal pools and uplands.
- Install fencing around perimeter of the Clayton property to prevent ORV, trash dumping, and other unauthorized access.
- Install closure signs around perimeter of the Clayton property.
- Organize volunteers to assist with habitat restoration activities.

### **2.6.2 Endangered and Sensitive Species Introduction and Supplementation**

The Project I includes the direct introduction or supplementation of nine endangered and sensitive vernal pool animal and plant species and direct introduction of twelve endangered and sensitive upland plant species (tables 1 and 2).

Only three endangered or sensitive vernal pool species currently appear to be present on the Clayton property: San Diego fairy shrimp (*Branchinecta sandiegonensis*); San Diego button-celery (*Eryngium aristulatum* var. *parishii*), and vernal barley (*Hordeum intercedens*). These and six other listed endangered or sensitive vernal pool species that are not currently known from the Project I site would benefit from expansion of existing populations or establishment of new populations in light of past losses of nearby vernal pool habitat and species populations: Riverside fairy shrimp (*Streptocephalus woottoni*), Little mouseltail (*Myosurus minimus*), Orcutt's grass (*Orcuttia californica*), Otay Mesa mint (*Pogogyne nudiuscula*), spreading navarretia (*Navarretia fossalis*), and toothed calico-flower (*Downingia cuspidata*) (Table 1). All of these species have been documented or are expected to have been present either on the Project I site or within the same larger vernal pool complex.

Suitable habitat and soils are also present on the Project I site to support twelve endangered and sensitive upland plant species that are present elsewhere on Otay Mesa and that would benefit from direct incorporation into Project I restoration of upland vegetation (Table 2). Planting and seeding these sensitive upland plants as part of the Project I will improve the likelihood of success of upland vegetation planting and seeding due to their adaption to local conditions, will improve vernal pool watershed ecological and hydrological conditions, and will benefit the sensitive upland plants by increasing population numbers and the number of extant locations. Two other sensitive vernal pool species and nine other endangered, threatened, or sensitive species are expected to indirectly benefit from upland habitat restoration (Table 3).

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**Table 1. Vernal Pool Endangered & Sensitive Species**

SPECIES	CURRENT STATUS ON-SITE	HISTORIC STATUS ON- SITE	PROPOSED COLLECTION SITES <sup>7</sup>	COLLECTION SITE NUMBER <sup>8</sup>	DONOR SITE JUSTIFICATION & OTHER NOTES
<b>ANIMALS</b> <i>Branchinecta sandiegonensis</i> San Diego fairy shrimp Federal Endangered	Present  Designated Critical Habitat	Present	Clayton Vernal Pool Preserve  St. Jeromes (Private, .1 mile)  Dennery Canyon (Caltrans, .4 mile)	1  2  3	San Diego fairy shrimp soil inoculum will be collected both on- and off-site. Otay Mesa J2 and J31 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
<i>Streptocephalus woottoni</i> Riverside fairy shrimp Federal Endangered	Absent  Designated Critical Habitat	Unknown but Expected	St. Jeromes (Private, .05 mile)  Cal Terraces (City of San Diego, .7 mile)	4  5	Otay Mesa J2 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
<b>PLANTS</b> <i>Downingia cuspidata</i> Toothed calico-flower	Absent	Unknown but Expected	Otay Lakes Cornerstone Lands (City of San Diego, 7 miles)  Rancho Jamul Ecological Reserve (CA Department of Fish & Wildlife, 10.5 miles)	6  7	Otay Lakes K and Proctor Valley R complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.

(table continues)

7. Proposed collection sites would be utilized only with property owner permission. Distances are approximate to the center of recorded occurrences.

8. See Figure 9 maps. Two off-site possible collection sites are shown for each species to provide alternatives for collection. Seed or soil inoculum for each species will be collected from one site only unless otherwise noted or directed.

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SPECIES	CURRENT STATUS ON-SITE	HISTORIC STATUS ON-SITE	PROPOSED COLLECTION SITES	COLLECTION SITE NUMBER	DONOR SITE JUSTIFICATION & OTHER NOTES
<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego button-celery Federal Endangered State Endangered	Present	Present <sup>9</sup>	Clayton Vernal Pool Preserve  Cal Terraces (City of San Diego, .3 mile and .7 mile)	8 9 10	San Diego button-celery seed will be collected both on- and off-site. Otay Mesa J2 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
<i>Hordeum intercedens</i> Vernal barley	Present	Unknown but Expected	Clayton Vernal Pool Preserve  San Diego Bay National Wildlife Refuge (USFWS, 5 miles)  Johnson Canyon (USFWS, 5.6 miles)	11 12 13	Vernal barley seed will be collected both on- and off-site. San Diego Bay wetlands and Otay Mesa J30 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
<i>Myosurus minimus</i> Little mousetail	Absent	Unknown but Expected	Cal Terraces (City of San Diego, .7 mile)  Anderprise (Caltrans, .9 mile)	14 15	Otay Mesa J2 and J14 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
<i>Navarretia fossalis</i> Spreading navarretia Federal Endangered	Absent	Present <sup>10</sup>	Cal Terraces (City of San Diego, .3 and .6 mile)	16 17	Otay Mesa J2 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
<i>Orcuttia californica</i> Orcutt's grass Federal Endangered California Endangered	Absent	Unknown but Expected	Cal Terraces (City of San Diego, .5 and .7 mile)	18 19	Otay Mesa J2 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.

(table continues)

9. (Bauder 1986; City of San Diego 2004)

10. (Bauder 1986)

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SPECIES	CURRENT STATUS ON-SITE	HISTORIC STATUS ON- SITE	PROPOSED COLLECTION SITES	COLLECTION SITE NUMBER	DONOR SITE JUSTIFICATION & OTHER NOTES
<i>Pogogyne nudiuscula</i> Otay Mesa mint Federal Endangered California Endangered	Absent	Unknown but Expected	Cal Terraces (City of San Diego, .3 and .7 mile)	20 21	Otay Mesa J2 complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.

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**Table 2. Uplands Endangered, Threatened, & Sensitive Plant Species**

SPECIES	CURRENT STATUS ONSITE	STATUS OTAY MESA	PROPOSED COLLECTION SITES <sup>11</sup>	COLLECTION SITE NUMBER <sup>12</sup>	DONOR SITE JUSTIFICATION & OTHER NOTES
<i>Acanthomintha ilicifolia</i> San Diego thornmint Federal Endangered State Endangered	Absent	Present	Cal Terraces (City of San Diego, .7 mile)	22	Closest recorded occurrences on conserved lands and on same Olivenhain and Stockpen soils as Project site. Prior to seeding, suitable soils shall be documented onsite by qualified experts and approved by the City and wildlife agencies.
			Dennerly Ranch (City of San Diego, .9 mile)	23	
<i>Bloomeria clevelandii</i> San Diego golden star	Absent	Present	Otay Valley Regional Park (City of Chula Vista and County of San Diego, 4.5 and 5.6 miles)	24	Closest recorded occurrences on conserved lands.
				25	
<i>Brodiaea orcuttii</i> Orcutt's brodiaea	Absent	Present	Otay Valley Regional Park (County of San Diego, 4.5 miles)	26	Closest recorded occurrences on conserved lands.
			Otay Lakes Cornerstone Lands (City of San Diego, 6.8 miles)	27	
<i>Deinandra conjugens</i> Otay tarplant Federal Threatened State Endangered	Absent	Present	Cal Terraces (City of San Diego, .6 mile and .7 mile)	28	Closest recorded occurrences on conserved lands and on same Olivenhain soils as Project site.
				29	

(table continues)

11. All proposed collection sites are located on Otay Mesa and would be utilized only with property owner permission. Distances are approximate to the center of recorded occurrences.

12. See Figure 9 maps. Two off-site possible collection sites are shown for all species (except *Selaginella cinerascens* which is common on the Clayton Vernal Pool Preserve) to provide alternatives for collection. Seed for each species will be collected from one site only unless otherwise noted or directed.



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SPECIES	CURRENT STATUS ONSITE	STATUS OTAY MESA	PROPOSED COLLECTION SITES	COLLECTION SITE NUMBER	DONOR SITE JUSTIFICATION & OTHER NOTES
<i>Dicranostegia orcuttiana</i> Orcutt's birds-beak	Absent	Present	Cal Terraces (City of San Diego, .6 mile)	30	Closest recorded occurrences on conserved lands and on same Stockpen soils as Project site. Prior to seeding, suitable soils shall be documented onsite by qualified experts and approved by the City and wildlife agencies.
			Otay Valley Regional Park (City of Chula Vista, 2.25 miles)	31	
<i>Dudleya variegata</i> Variegated dudleya	Absent	Present	Cal Terraces (City of San Diego, .3 mile)	32	Closest recorded occurrences on conserved lands.
			Hidden Trails (City of San Diego, .4 mile)	33	
<i>Euphorbia misera</i> Cliff spurge	Absent	Present	Cal Terraces (City of San Diego, .3 mile)	34	Closest recorded occurrences on conserved lands.
			Robinhood Ridge (City of San Diego, .7 mile)	35	
<i>Ferocactus viridescens</i> Coast barrel cactus	Absent	Present	Denner Canyon (Caltrans, .4 mile)	36	Closest recorded occurrences on conserved lands.
			Robinhood Ridge (City of San Diego, .7 mile)	37	
<i>Microseris douglasii</i> ssp. <i>platycarpa</i> Douglas' silverpuffs	Present	Present	Clayton Vernal Pool Preserve	38	Closest recorded occurrences on conserved lands.
			Otay Lakes Cornerstone Lands	39	
			(City of San Diego, 7 miles)	40	
<i>Rosa minutifolia</i> Small-leaved rose State Endangered	Absent	Present	Denner Ranch (City of San Diego, .4 mile)	41	Closest recorded occurrences on conserved lands.
			Cal Terraces (City of San Diego, .5 mile)	42	

(table continues)

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SPECIES	CURRENT STATUS ONSITE	STATUS OTAY MESA	PROPOSED COLLECTION SITES	COLLECTION SITE NUMBER	DONOR SITE JUSTIFICATION & OTHER NOTES
<i>Salvia munzii</i> Munz's sage	Absent	Present	Johnson Canyon (USFWS, 5.6 miles)	43	Closest recorded occurrences on conserved lands.
			Oneal Canyon Preserve (Private, 6.75 miles)	44	
<i>Selaginella cinerascens</i> Ashy spike-moss	Present	Present	Clayton Vernal Pool Preserve	45	Ashy spike-moss will be collected on-site only.

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**Table 3. Indirect Beneficiary Endangered, Threatened, & Sensitive Animal Species<sup>13</sup>**

SPECIES	OFFICIAL STATUS	CURRENT PROJECT SITE PRESENCE / ABSENCE	NOTES
<b>AMPHIBIANS &amp; REPTILES</b>			
<i>Spea hammondi</i> Western spadefoot toad	CA Species of Special Concern	Absent	--
<i>Thamnophis hammondi</i> Two-striped Garter Snake	CA Species of Special Concern	Absent	--
<b>BIRDS</b>			
<i>Aimophila ruficeps</i> ssp. <i>canescens</i> Southern California rufous-crowned sparrow	CA Species of Special Concern	Absent	--
<i>Amphispiza belli</i> ssp. <i>Belli</i> Bell's sage sparrow	CA Species of Special Concern	Absent	--
<i>Athene cunicularia</i> ssp. <i>hypugaea</i> Burrowing owl	CA Species of Special Concern	Absent	Ten artificial burrows to be included in upland restoration.
<i>Circus cyaneus</i> Northern harrier	CA Species of Special Concern	Present	--
<i>Poliophtila californica</i> ssp. <i>california</i> California gnatcatcher	Federal Threatened; CA Species of Special Concern	Absent	--
<b>INVERTEBRATES</b>			
<i>Euphydryas editha</i> ssp. <i>quino</i> Quino checkerspot butterfly	Federal Endangered	Absent	Host and nectar plant seed mix to be included in upland vegetation restoration.
<i>Hermelycaena hermes</i> Hermes copper butterfly	Federal Candidate	Absent	Patches of species' host plant spiny redberry to be included in upland vegetation restoration.

(table continues)

13. Species are reported from Otay Mesa and are expected to occupy or otherwise regularly utilize the Project I site.

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SPECIES	OFFICIAL STATUS	CURRENT PROJECT SITE PRESENCE / ABSENCE	NOTES
<b>REPTILES</b>			
<i>Aspidoscelis hyperythra beldingi</i> Belding's Orange-throated whiptail lizard	CA Species of Special Concern	Absent	--
<i>Phrynosoma coronatum</i> Coast horned lizard	CA Species of Special Concern	Absent	--

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Genetic conditions of Project I plants and animals would be maintained through use of plant seed and fairy shrimp soil inoculum from the closest possible donor sites and by collecting from just one donor population for each species unless otherwise directed. Vernal pools proposed for collection of fairy shrimp soil inoculum and plant seed are very similar to receiving pools at the Project I site based on pool hydrologic conditions, ecology, and soil types. Vernal pool hydrology at the Project I site appears well suited to support expanded existing populations and/or new populations of all nine endangered and sensitive vernal pool species as well as more common vernal pools animals and plants.

#### **2.6.2.1 Endangered Fairy Shrimp Introduction and Supplementation**

One concern arising from the planned direct introduction of soil inoculum containing Riverside fairy shrimp, San Diego fairy shrimp, and other invertebrate fauna and plant seed is the unintended mixing, competition and/or hybridization of San Diego fairy shrimp with the weedy Versatile fairy shrimp (*Branchinecta lindahli*) and the spread of Versatile fairy shrimp into unoccupied pools.

The original presence or absence of Versatile fairy shrimp west of the Pacific Crest in southern California is unknown. But the species' seeming preference for highly disturbed vernal pools and ability to hybridize with the endangered San Diego fairy shrimp suggest a more recent anthropogenic introduction of the species to cismontane vernal pools. Versatile fairy shrimp are commonly found in both original natural and artificial pools that have been heavily disturbed by anthropogenic activities so this species is a concern given the extent of past disturbance at the Project I site. At other vernal pool restoration sites, Versatile fairy shrimp have independently colonized newly constructed pools, possibly from cysts in soils that were previously introduced from ORV use or other anthropogenic activities.

Versatile fairy shrimp have been documented in five extant pools on the Clayton property, four of which are on the Project I site and it is possible that additional pools are occupied by the species given the degraded condition of most extant pools. All of the pools occupied by Versatile fairy shrimp are artificial extant pools or damaged extant pools of unknown origin and the species has not been documented in extant pools that are clearly original natural vernal pools. Versatile fairy shrimp and hybrids may also be present in offsite vernal pools from which fairy shrimp soil inoculum will be collected.

The endangered Riverside fairy shrimp and San Diego fairy shrimp would benefit from expanded populations (San Diego fairy shrimp) and new refugia populations (Riverside fairy shrimp). As such, a goal and challenge for the Project I is to establish these species and to expand the diversity of other vernal pool flora and fauna through introduction of soil inoculum in



suitable unoccupied pools without creating new Versatile fairy shrimp or Versatile/San Diego fairy shrimp hybrid populations.

Measures will be taken to reduce the likelihood of the spread of Versatile fairy shrimp to unoccupied pools during implementation of the Project I. One Project I pool occupied by the species is artificial and will be filled to restore a mimia mound. Top soil in other Project I pools containing Versatile fairy shrimp will be removed and disposed into enhanced or restored (constructed) mimia mounds during grading. Soil inoculum will be collected from donor pools and introduced to Project I site pools only after monitoring during at least one wet season with adequate rainfall and ponding in each donor pool shows the presence of only Riverside or San Diego fairy shrimp. Other measures include cleaning of shoes and equipment following any visit or work at other vernal pool sites prior to any visit or work at the Project I site. Grading equipment and tools would be used to repair topography in Project I site pools occupied by Versatile fairy shrimp only following completion of work at unoccupied pools. And construction equipment and workers will not move through pools occupied by Versatile shrimp to access unoccupied pools.

### **2.6.3 Project Preparation and General Conservation Measures**

The following are general project preparation and conservation measures to be implemented as part of the Project I. Additional conservation measures for specific project activities are provided in subsequent sections.

- Prior to initiating enhancement and restoration activities, the limits of project impacts will be marked (including construction staging areas and access routes) and best management practices (BMPs) installed to prevent additional impacts and the spread of silt into the vernal pools. No enhancement and restoration activities, materials, or equipment will be permitted outside the marked project footprint.
- A final construction plan will be submitted to the USFWS and City at least 7 days prior to initiating project construction including photographs of the marked limits of impact, BMPs, and all areas to be impacted or avoided. If work occurs beyond the marked limits of impact, all work will cease until the problem has been remedied to the satisfaction of the USFWS. Temporary construction marking will be removed upon project completion.
- No invasive nonnative plant species will be planted, seeded, or otherwise introduced to the project site.
- Equipment staging, access, and refueling areas will be located outside of any vernal pool watersheds and away from sensitive habitat and natural drainages outside the Project I footprint.

- Employees will strictly limit their activities, vehicles, equipment, and restoration materials to the flagged Project I footprint.
- The Project I site will be kept as clean of debris as possible. All food related trash items will be enclosed in sealed containers and regularly removed from the site.
- Impacts to vernal pools from fugitive dust during restoration grading will be avoided and minimized through watering and other appropriate measures.
- Pets of Project personnel will not be allowed on the Project I site.
- Personnel and contractors will thoroughly clean shoes and equipment after conducting work in vernal pools containing Versatile fairy shrimp and prior to entering other vernal pool sites for collection of seed and soil inoculum and for monitoring. Cleaning will be conducted using a scrub brush and a solution of bleach and water. Project site vernal pools containing Versatile fairy shrimp will be mapped and flagged upon discovery of the species. Project I site earthwork and grading, weeding, and monitoring work in vernal pools containing Versatile fairy shrimp will be consolidated and will follow work in other vernal pools to reduce the likelihood of the spread of Versatile fairy shrimp from occupied to unoccupied vernal pools.
- Employees and contractors will thoroughly clean shoes and clothing of all seeds and plant material prior to entering the Project I site or other sites.

A Project biologist approved by the USFWS will oversee Project I implementation to ensure compliance with all conservation measures. The biologist must be knowledgeable about fairy shrimp and vernal pool biology/ecology. TCLC will submit the biologist's name, address, telephone number, and work schedule on the Project I to the USFWS and City at least thirty days prior to initiating active restoration. The biologist will perform or otherwise ensure that the following measures are conducted during Project implementation:

- Oversee installation of and inspect the Project I perimeter marking and BMPs a minimum of once per week and daily during all rain events to ensure that any breaks in the erosion control measures are repaired immediately.
- Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust.
- Train all Project I personnel and contractors on the biological resources associated with the project and ensure that training is implemented by personnel and contractors. At a minimum, training will include: 1) The purpose for resource protection; 2) a description of listed vernal pool species and habitat; 3) the conservation measures in the biological opinion that should be implemented during project construction to avoid and/or minimize

impacts to listed species; including strictly limiting activities, vehicles, equipment, and construction materials to the marked project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by perimeter marking); 4) environmentally responsible construction practices; 5) the protocol to resolve conflicts that may arise at any time during project implementation; 6) the general provisions of the Federal Endangered Species Act, the need to adhere to the provisions of the Federal ESA, and the penalties associated with violating the Federal ESA.

- Halt work, if necessary, for any Project I activities that are not in compliance with the conservation measures committed to as part of the project and specified in the biological opinion and conditions of the Corps permit. The biologist will report any non-compliance issues to the USFWS within 24 hours of their occurrence and confer with the USFWS to ensure the proper implementation of species and habitat protection measures;
- Submit annual reports to all permitting agencies and the City by January 31 of each year. The reports will assess both the attainment of yearly success criteria and progress toward the final success criteria.
- Submit a final report to the permitting agencies and the City within 60 days of project completion that includes: as-built construction drawings showing restored and enhanced pools, photographs of the restored pools and enhanced pools and uplands, and other relevant information documenting that authorized impacts were not exceeded and that general compliance with the project as described in this biological opinion, including the conservation measures, was achieved.

#### **2.6.3.1 Seed and Propagule Collection**

To facilitate nursery propagation, vernal pool and uplands plant seed and propagules would be collected during the appropriate season. Seed for common plants will be collected or purchased from sources within ten miles of the Project I site. Seed for endangered, threatened, and sensitive plant species not present at the Project I site would be obtained from the closest possible donor sites identified in tables 1 and 2 and Figure 9a - d.

Seed and propagule collection would be performed by collectors with documented experience and agency authorization when seeds are ripe and prior to seed shedding. No more than 5% of an annual seed crop would be collected. Seed would be collected manually or by using hand-vacuums. All collected seed would be transported to a nursery or other appropriate facility for seed bulking and propagation for use at the Project site. Table 4 lists the vernal pool planting and seeding pallet. Table 5 lists the uplands planting and seeding pallet.

**Figure 9a. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Key**

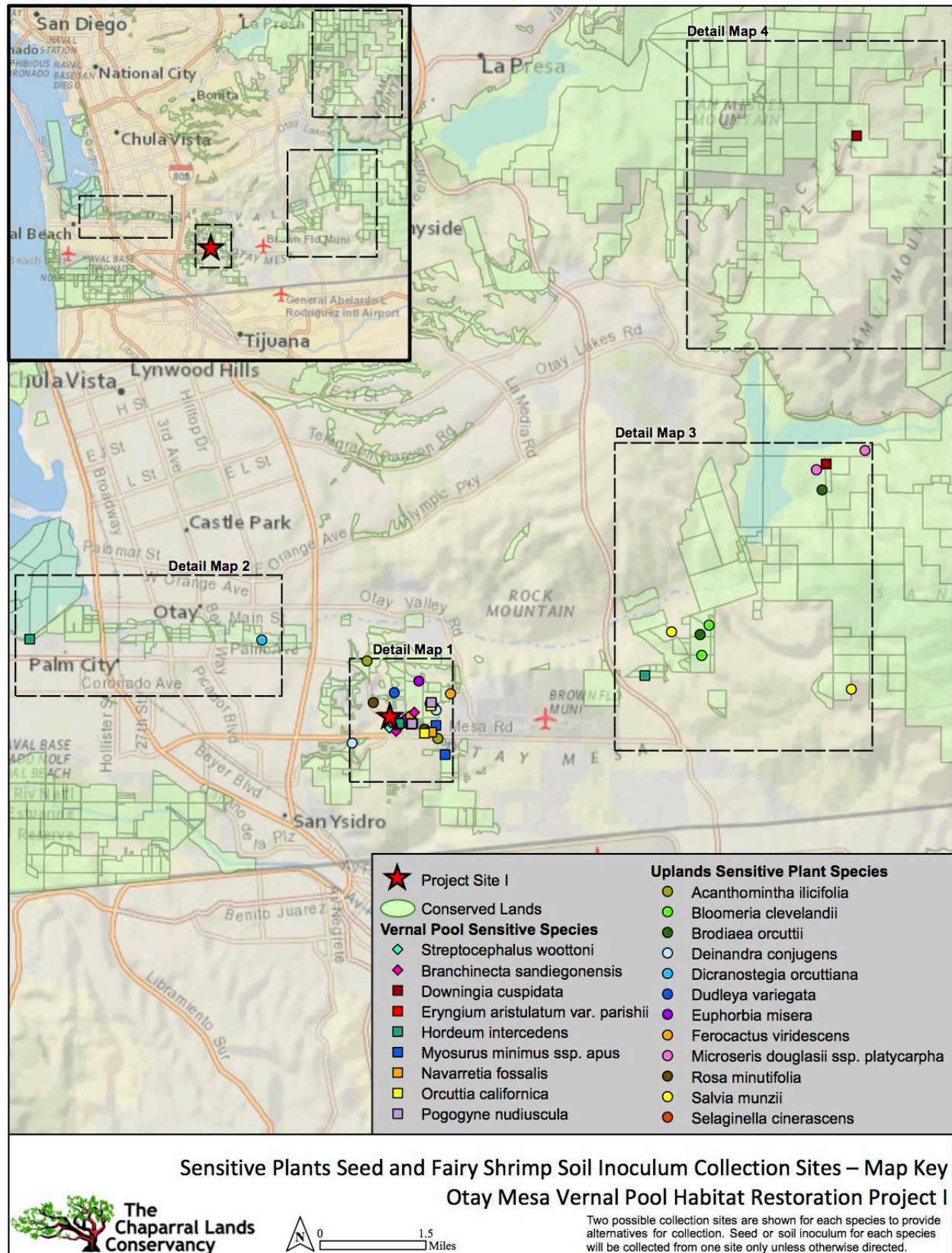




Figure 9b. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 1

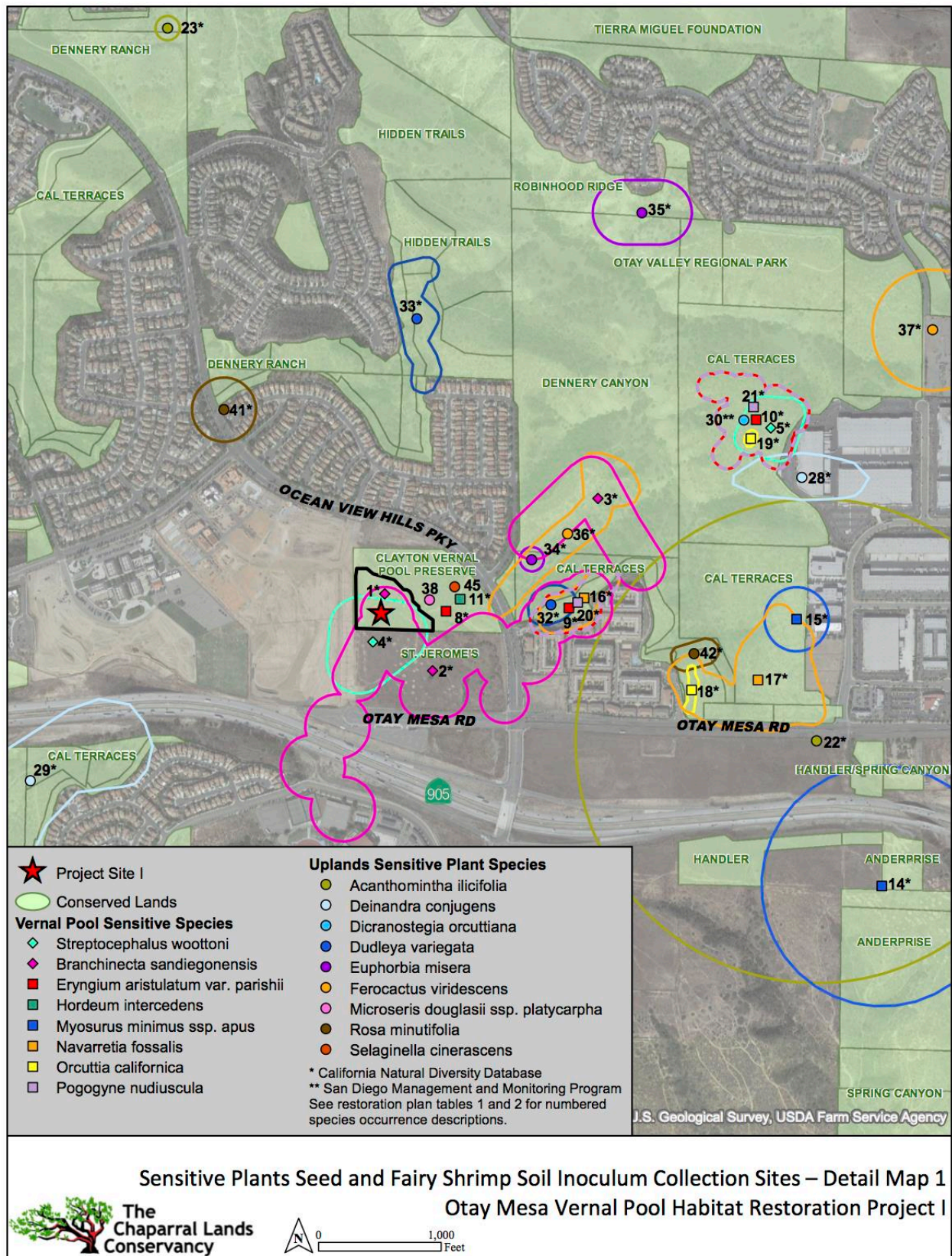
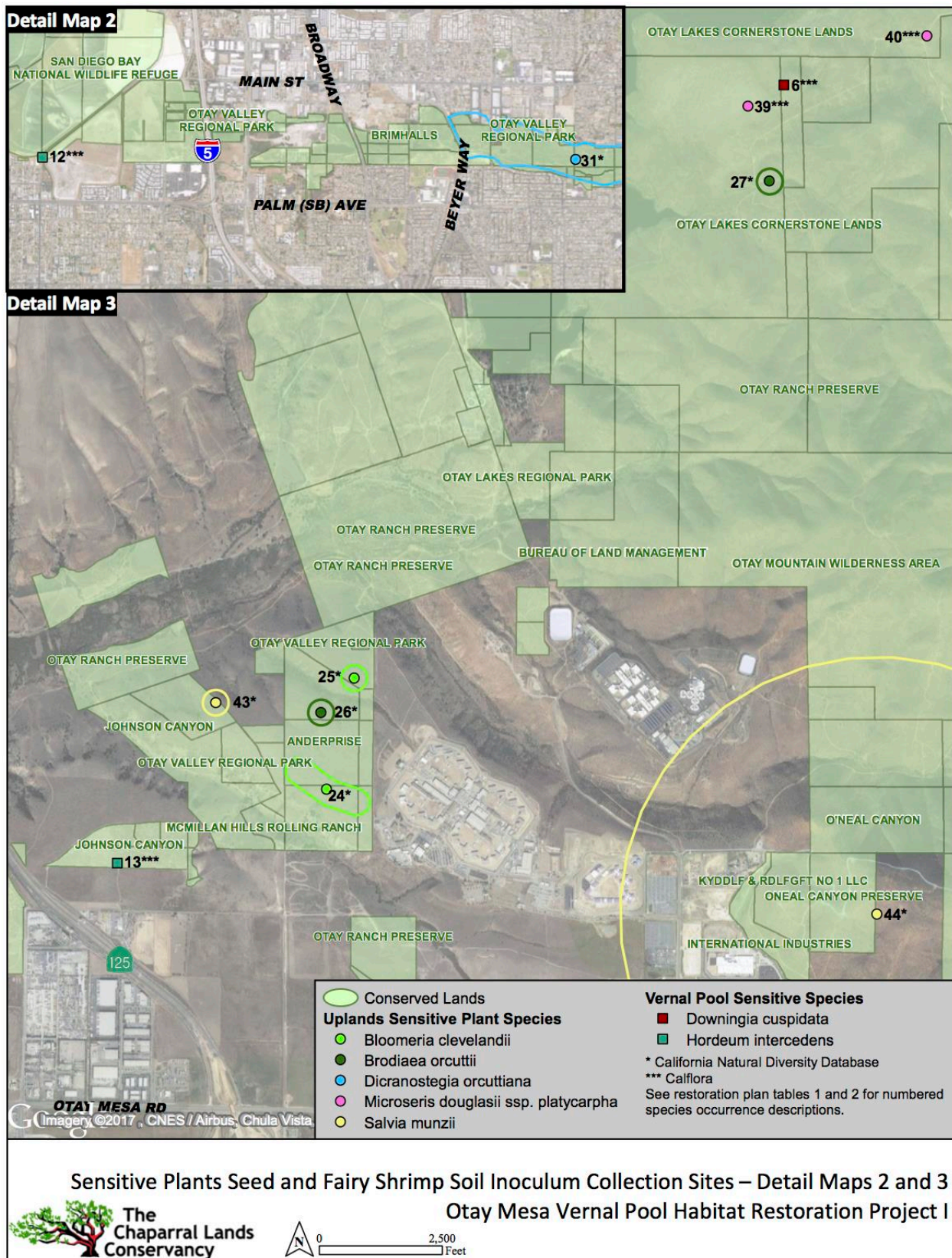


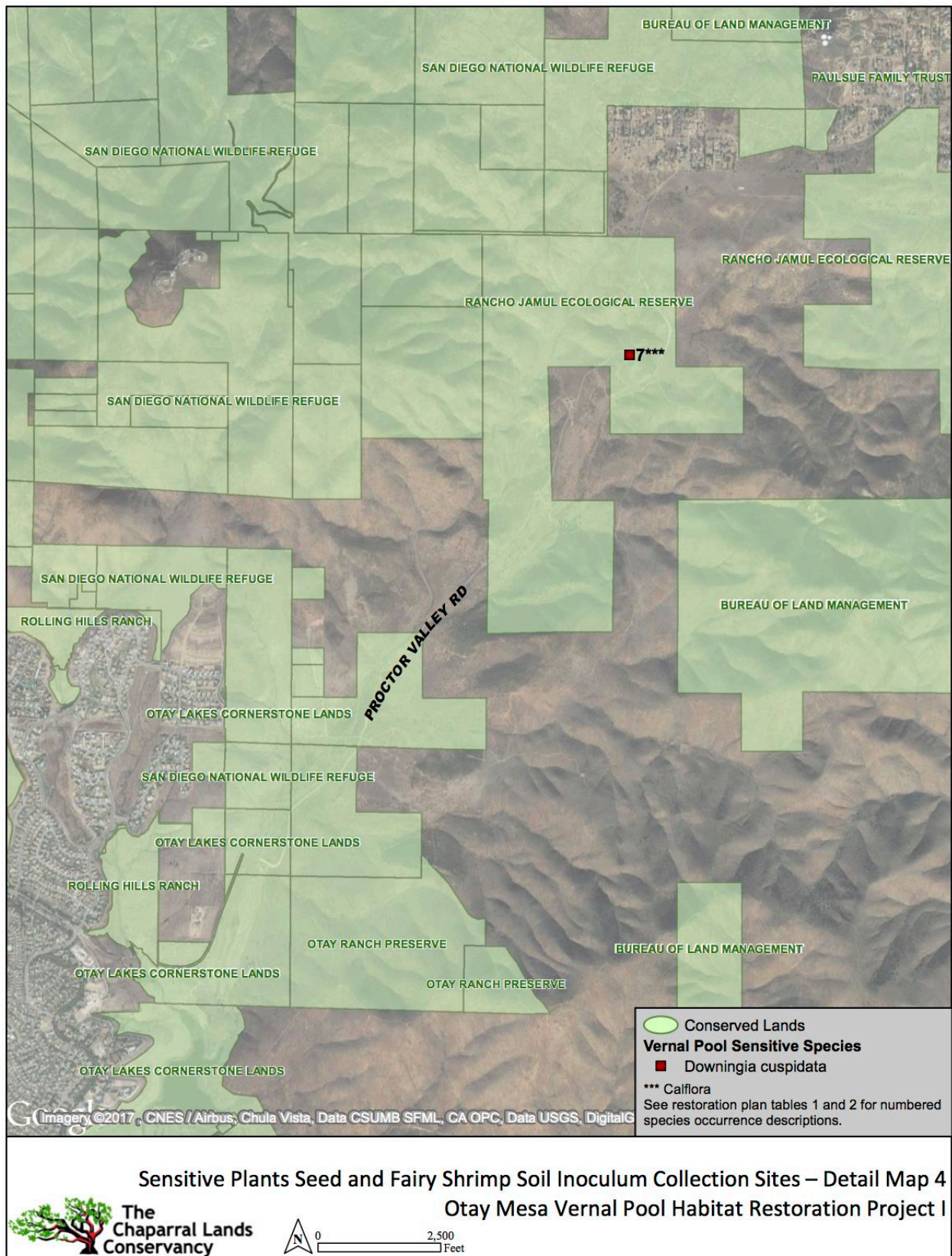


Figure 9c. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Maps 2, 3





**Figure 9d. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 4**



**Table 4. Vernal Pool Planting & Seeding Palette**

Species List	
<i>Callitriche marginata</i> – long-stalk water starwort	<i>Juncus bufonius</i> – toad rush
<i>Centunculus minimus</i> – chaffweed	<i>Lilaea scilloides</i> – flowering quillwort
<i>Crassula aquatica</i> – pygmy crassula	<i>Marsilea vestita</i> – hairy waterclove
<i>Deschampsia danthonioides</i> – annual hairgrass	<i>Myosurus minimus</i> – little mousetail
<i>Downingia cuspidata</i> – toothed calico-flower	<i>Navarretia fossalis</i> – spreading navarretia
<i>Elatine brachysperma</i> – short-seed waterwort	<i>Orcuttia californica</i> – Orcutt's grass
<i>Elatine californica</i> – California waterwort	<i>Phalaris lemmonii</i> – Lemmon's canarygrass
<i>Eleocharis macrostachya</i> – pale spikerush	<i>Pilularia americana</i> – American pillwort
<i>Epilobium pygmaeum</i> – smooth boisduvalia	<i>Plagiobothrys acanthocarpus</i> – adobe popcornflower
<i>Eryngium aristulatum</i> ssp. <i>parishii</i> – San Diego button-celery	<i>Plantago elongata</i> – vernal pool plantain
<i>Isoetes howellii</i> – Howell's quillwort	<i>Pogogyne nudiuscula</i> – Otay Mesa mint
<i>Isoetes orcuttii</i> – Orcutt's quillwort	<i>Psilocarphus brevissimus</i> – woolly marbles

**Table 5. Uplands Planting & Seeding Palette**

Species List	Habitat Type	Container Size/Seed
<i>Acanthomintha illicifolia</i> – San Diego thornmint	Maritime succulent scrub	Seed
<i>Acmispon glaber</i> – deer weed	Maritime succulent scrub	1 Gallon; Seed
<i>Allium haematochiton</i> – red-skin onion	Maritime succulent scrub	Seed
<i>Ambrosia chenopodifolia</i> – San Diego bursage	Maritime succulent scrub	1 Gallon
<i>Artemisia californica</i> – California sagebrush	Maritime succulent scrub	1 Gallon; Seed
<i>Bahiopsis laciniata</i> – San Diego sunflower	Maritime succulent scrub	Rose pot; Seed
<i>Bloomeria clevelandii</i> – San Diego goldenstar	Maritime succulent scrub	Seed
<i>Bothriochloa barbinodis</i> – plumed beardgrass	Maritime succulent scrub	1 Gallon; Seed
<i>Brodiaea jojonensis</i> – mesa brodiaea	Maritime succulent scrub	Seed
<i>Brodiaea orcuttii</i> – Orcutt's brodiaea	Maritime succulent scrub	Rose Pot; Seed
<i>Castilleja exerta</i> – purple owl's clover	Maritime succulent scrub	Seed
<i>Chlorogalum parviflorum</i> – small-flowered soap plant	Maritime succulent scrub	Rose Pot; Seed
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> – Orcutt's birds-beak	Maritime succulent scrub	Seed
<i>Crassula connata</i> – pygmy weed	Maritime succulent scrub	Seed
<i>Cylindropuntia prolifera</i> – coastal cholla	Maritime succulent scrub	1 Gallon
<i>Deinandra conjugens</i> – Otay tarplant	Maritime succulent scrub	Seed
<i>Dichelostemma capitatum</i> – blue dicks	Maritime succulent scrub	Rose Pot; Seed
<i>Dichondra occidentalis</i> – western dichondra	Maritime succulent scrub	Rose Pot

(table continues)

Species List	Habitat Type	Container Size/Seed
<i>Dodecatheon clevelandii</i> – padre’s shooting star	Maritime succulent scrub	Seed
<i>Dudleya pulverulenta</i> – chalk dudleya	Maritime succulent scrub	Rose Pot
<i>Dudleya variegata</i> – variegated dudleya	Maritime succulent scrub	Rose Pot
<i>Encelia californica</i> – bush sunflower	Maritime succulent scrub	Seed
<i>Eriodictyon crassifolium</i> – thick-leaved yerba santa	Maritime succulent scrub	Rose Pot
<i>Eriogonum fasciculatum</i> ssp. <i>fasciculatum</i> – California buckwheat	Maritime succulent scrub	1 Gallon
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i> – golden yarrow	Maritime succulent scrub	Seed
<i>Euphorbia misera</i> – Cliff spurge	Maritime succulent scrub	1 Gallon
<i>Ferocactus viridescens</i> – San Diego barrel cactus	Maritime succulent scrub	Rose Pot
<i>Gnaphalium californicum</i> – California everlasting	Maritime succulent scrub	Seed
<i>Grindelia camporum</i> – gum plant	Maritime succulent scrub	Rose Pot; Seed
<i>Hesperoyucca whipplei</i> – chaparral yucca	Maritime succulent scrub	Rose Pot
<i>Isomeris arborea</i> – bladderpod	Maritime succulent scrub	1 Gallon
<i>Lasthenia californica</i> – California goldfields	Maritime succulent scrub	Seed
<i>Linanthus dianthiflorus</i> – ground pink	Maritime succulent scrub	Seed
<i>Lotus hamatus</i> – grab lotus	Maritime succulent scrub	Seed
<i>Lupinus bicolor</i> – bicolored lupin	Maritime succulent scrub	Seed
<i>Mirabilis laevis</i> var. <i>crassifolia</i> – California four o’clock	Maritime succulent scrub	1 Gallon
<i>Muilla maritima</i> – common muilla	Maritime succulent scrub	Seed
<i>Nasella pulchra</i> – purple needlegrass	Maritime succulent scrub	1 Gallon
<i>Navarretia hamata</i> ssp. <i>leptantha</i> – pincushion plant	Maritime succulent scrub	Seed
<i>Ophioglossum californicum</i> – adder's tongue	Maritime succulent scrub	Seed
<i>Opuntia littoralis</i> – coastal prickly pear	Maritime succulent scrub	1 Gallon
<i>Plantago elongata</i> – prairie plantain	Maritime succulent scrub	Seed
<i>Plantago erecta</i> – dot-seed plantain	Maritime succulent scrub	Seed
<i>Pterostegia drymarioides</i> – Granny's hairnet	Maritime succulent scrub	Seed
<i>Rhamnus crocea</i> – Spiny redberry	Maritime succulent scrub	1 Gallon
<i>Rhus integrifolia</i> – lemonade berry	Maritime succulent scrub	1 Gallon
<i>Rose minutifolia</i> – Small-leaved rose	Maritime succulent scrub	1 Gallon
<i>Salvia apiana</i> – white sage	Maritime succulent scrub	1 Gallon
<i>Salvia columbariae</i> – chia	Maritime succulent scrub	Seed
<i>Salvia munzii</i> – Munz's sage	Maritime succulent scrub	1 Gallon
<i>Sambucus mexicana</i> – elderberry	Maritime succulent scrub	1 Gallon
<i>Selaginella cinerascens</i> – ashy spike-moss	Maritime succulent scrub	Seed
<i>Simmondsia chinensis</i> – jojoba	Maritime succulent scrub	1 Gallon
<i>Sisyrinchium bellum</i> – blue eyed grass	Maritime succulent scrub	Rose Pot
<i>Zeltnera venustum</i> – conchalagua	Maritime succulent scrub	Seed

In order to limit the potential to spread of Versatile fairy shrimp, seed would only be collected directly from vernal pool plants. Seed will not be collected from soil with the exception of seed present in fairy shrimp soil inoculum collected from pools supporting only Riverside or San Diego fairy shrimp.

### **2.6.3.2 Vernal Pool Soil Collection**

Two types of vernal pool soil collection will take place as part of the Project I. First, for extant pools to be enhanced that support San Diego fairy shrimp or San Diego button-celery, the top two inches of soil will be removed prior to the start of grading in order to salvage shrimp cysts. Second, to inoculate unoccupied Project I pools with Riverside fairy and/or San Diego fairy shrimp and other endangered, sensitive, or common invertebrate animals and plants, soil inoculum will be collected both on- and offsite from donor vernal pools that have been documented to support only Riverside or San Diego fairy shrimp and as approved by the USFWS.

Salvaged soil and donor pool soil inoculum will be collected when dry to avoid damaging or destroying fairy shrimp cysts. Salvaged soil will be temporarily stored onsite, kept separate for each vernal pool, and immediately replaced into graded pools. Salvaged soil will be spread out and raked into the bottoms of the restored and enhanced pools.

Collection of vernal pool soil inoculum will be limited to no more than 10 percent of the basin area of any donor pool. The collection of inoculum should be conducted in a manner that does not alter the appearance or functionality of the donor pool. Vernal pool soil inoculum will be collected from donor pools when dry to avoid damaging or destroying fairy shrimp cysts and endangered plant seeds. Whenever possible during collection of soil inoculum, a trowel will be used to pry up intact chunks of soil rather than loosening the soil by raking and shoveling which can damage the cysts and seeds. Soil inoculum will be kept separate for each donor pool, will be stored individually in labeled boxes that are adequately ventilated and kept out of direct sunlight to prevent the occurrence of fungus or excessive heating of the soil, and stored off site at an appropriate facility for vernal pool inoculum. Soil inoculum will be spread out and raked into the bottoms of the restored and enhanced pools.

Upon approval by the USFWS, soil inoculum from offsite donor vernal pools as close as possible to the Project I site and documented as free of Versatile fairy shrimp may be used to supplement inoculum collected at the Project I site. Soil inoculum will not be installed until habitat enhancement and restoration grading is complete and approved by the USFWS. TCLC will notify the Service in writing within 30 days of collecting the San Diego fairy shrimp cysts and Riverside fairy shrimp cysts from donor sites.

### **2.6.3.3 Fencing and Closure Signs**

Permanent protective wire fencing will be installed around the perimeter of the Clayton property to deter vehicle, pedestrian, pet, and other unauthorized access into restoration areas (Figure 6). Fencing will include the minimum number of gates needed to allow access for project implementation and maintenance and monitoring. Project signage will be posted around the perimeter of the Clayton property and maintained at conspicuous locations. A fencing plan will be approved by the City prior to implementation.

### **2.6.3.4 Refuse Removal**

Any refuse on the Project I site will be removed and properly disposed. The Project I site is relatively clean but past dumped construction or landscaping materials and other refuse may be located during Project I work.

### **2.6.3.5 Mowing and Dethatching**

To address infestations of exotic invasive weeds, the Project I will include dethatching and mowing to remove weed thatch and seeds. Nonnative plants would be mowed with a line trimmer to a height of no more than 3 to 4 inches. Dethatching involves raking up dead thatch that has built up in areas dominated by weeds, as well as in and around areas that still support viable habitat. Dethatching not only removes nonnative organic material from the site but also much of the seed, especially if dethatching takes place before seeds are set.

Mowing and dethatching will occur prior to seed shedding and before seeds are ripe to reduce the existing exotic seed bank. Seed heads and plant debris will be removed from the Project I site immediately for proper disposal. Particular care will be taken during mowing and dethatching to protect any microbiotic soil crusts.

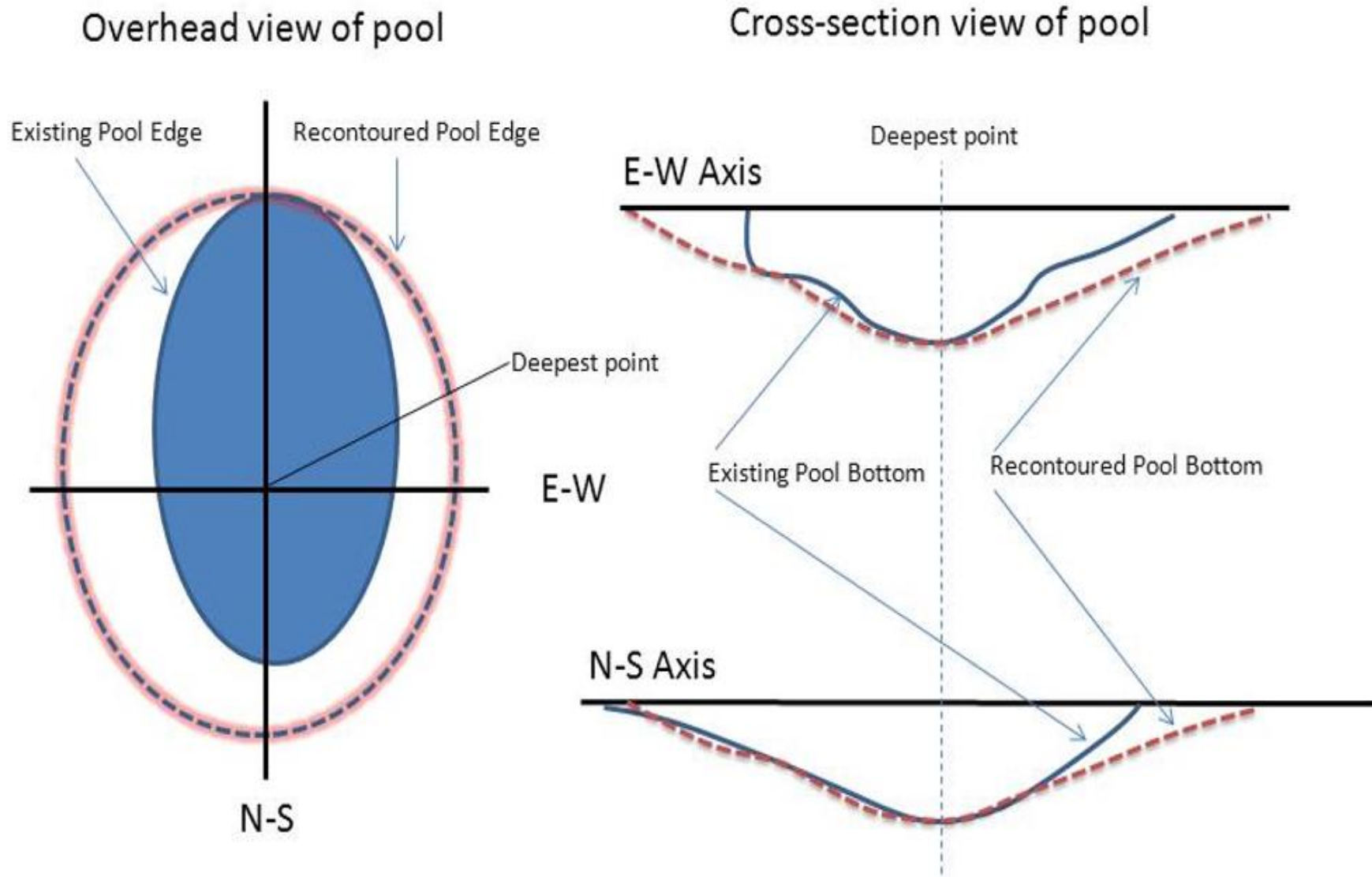
## **2.6.4 Grading & Earthwork**

The Project I will include grading using a backhoe, bulldozer, skid steer, and/or skip loader (heavy equipment) and hand tools to restore and enhance vernal pools and watershed topography (figures 6, 7, and 10; Appendix A) and install Burrowing owl burrows including the following methods:

- Prior to grading to enhance extant vernal pools, removal of topsoil from pools not supporting San Diego fairy shrimp or San Diego button-celery for disposal into enhanced or restored Mima mounds and salvage of topsoil from other pools supporting the listed species for replacement in the same pool following grading.



Figure 10. Conceptual Diagram of Earthwork to Repair Damaged Vernal Pools



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- Enhancement of damaged extant pools including reshaping and, in some instances, expansion of pools to repair natural pool contours and slopes with removal of erosion fill, repair of pool perimeters, and reduction of pool gradients (e.g. steep ditches and edges from tire trenching) using heavy equipment and hand tools.
- Restoration (construction) of new pools in suitable degraded areas using heavy equipment and hand tools.
- Enhancement of damaged extant Mima mounds and restoration (construction) of new mounds with material excavated from restored and enhanced vernal pools using heavy equipment and hand tools. Construction and installation of Burrowing owl burrows during enhancement and restoration of Mima mounds (Figure 11).
- Localized grading or minor earthwork in damaged uplands to repair tire trenching and erosion gullies using heavy equipment and hand tools.

Grading will be conducted to enhance twenty-nine extant pools and to restore ten new pools on the Project I site. Grading will also be conducted to fill two small extant artificial pools including one that supports undesirable Versatile fairy shrimp. (Figures 6 and 7; Appendix A).

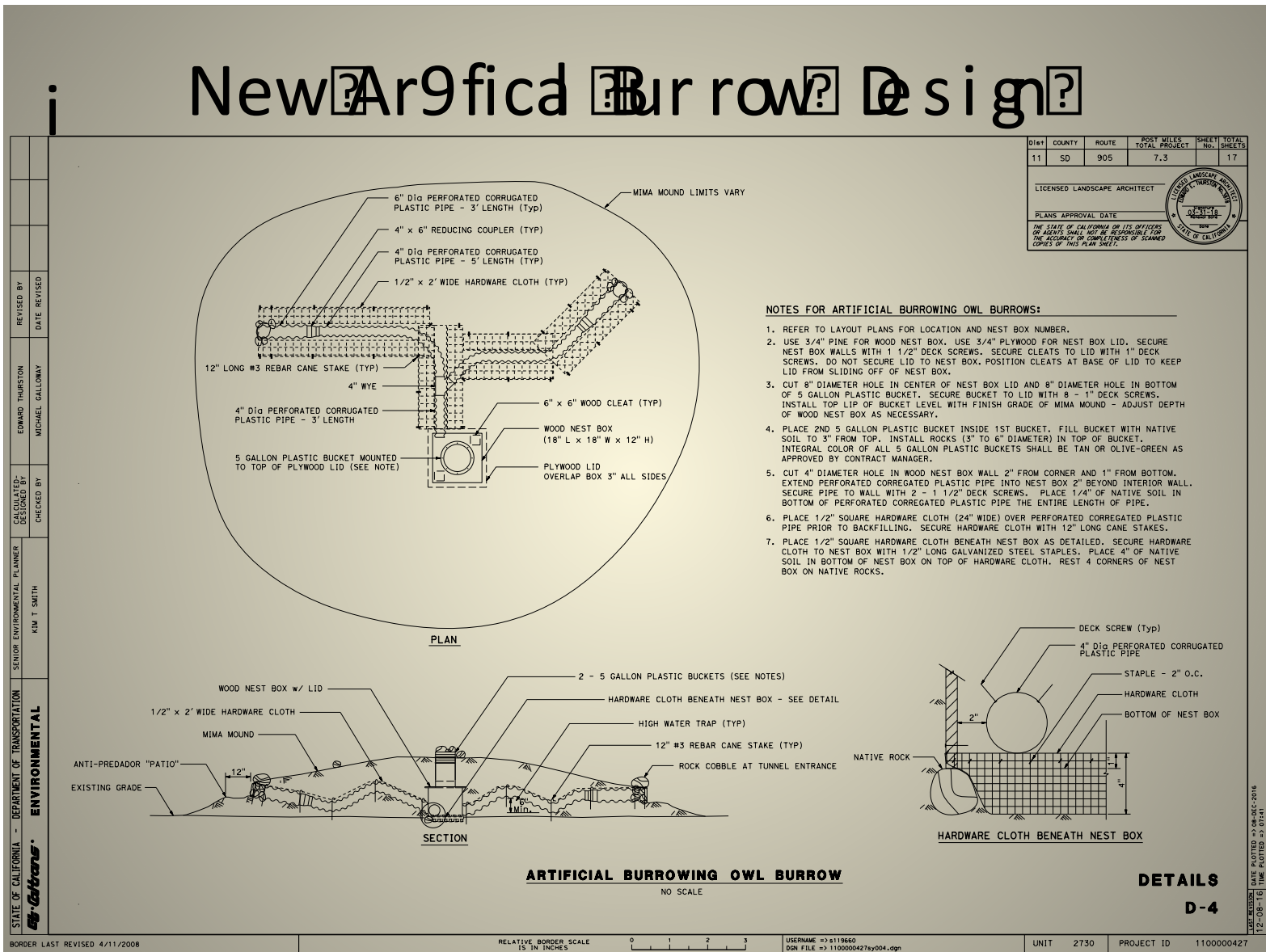
Grading will be carried out with heavy equipment small enough to access and maneuver in and around vernal pools and finishing work may include hand tools (e.g. pickaxes, shovels, and rakes). Grading will only occur in the delineated Project I area. Restored and enhanced pools will be slightly over-graded (2.5 - 5 centimeters / 1 - 2 inches) and excavated areas backfilled with a thin layer of topsoil to promote plant propagation. Restored (constructed) Mima mounds would be similar in size and shape to any extant natural Mima mounds. Graded material will not be placed in areas of original topography with native vegetation. Final grading will be carried out according to direction from the project biologist.

Earthmoving will be balanced so that export of soil from the Project I site is not required, except for refuse materials such as asphalt, concrete, and other debris unearthed during grading and properly disposed of off-site. Cobbles and other rock that are excavated during topographic reconstruction will be reapplied to graded vernal pool basins as directed by the project biologist. To minimize impacts to vernal pool soil surfaces during monitoring, cobbles will be oriented within the restored and enhanced pools to serve as stepping stones.

Finish grading will be measured at the top surface of surface materials and will be at the final water-compacted and settled surface grades (within plus/minus 2.5 centimeters / 1 inch at spot elevations). Established site drainage will be maintained during all phases of topographic enhancement and restoration. Final grades will be approved by the project biologist prior to any seeding and planting of container plant.

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Figure 11. Artificial Burrowing Owl Burrow Design



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#### **2.6.4.1 Grading & Earthwork Conditions**

Prior to grading, the project biologist will delineate areas of cut and fill using powdered chalk. A complete set of preconstruction photographs will also be taken at this time. The grading operator will be familiarized with the site and issues involved during a preconstruction site visit with the project biologist. Areas will be graded before soils become saturated during the wet season or have dried sufficiently to prevent soil damage from grading equipment.

The project biologist approved by the USFWS will be on site during grading to ensure compliance with all conservation measures. The project biologist will inspect the graded areas following initial grading and verify that basin depths and mound heights are acceptable. The project biologist will check the pool depths, saddle heights, mound heights, and flow patterns using survey equipment (e.g. laser level or laser transit). Modifications may be required during grading depending on site conditions.

Grading activities will be timed to avoid wet weather and soil conditions to minimize potential impacts (e.g. siltation) to extant vernal pools unless the area to be graded is at an elevation below extant pools:

- Grading will occur only when the soil is dry to the touch both at the surface and one inch below. A visual check for color differences (i.e., darker soil indicating moisture) in the soil between the surface and one inch below indicates the soil is dry.
- After a rain of greater than 0.2 inch, grading will occur only after the soil surface has dried sufficiently as described above, and no sooner than two days (48 hours) after the rain event ends.
- Grading will commence only when no rain is forecast during the anticipated grading period.
- To prevent erosion and siltation from storm water runoff, BMPs (e.g. silt fences, straw wattles, jute cloth) will be implemented as needed during and after grading.
- If rain occurs during grading, work will stop and resume only after soils are dry, as described above.
- Grading will be conducted in a manner to prevent erosion from entering extant vernal pools.

All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will occur in designated areas outside of Waters of the United States, vernal pool watersheds, and the MHPA. These designated areas will be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff

from entering Waters of the United States, vernal pool watersheds and the MHPA. Fueling of equipment will take place within existing paved areas greater than 100 feet from Waters of the United States and outside of the MHPA. Contractor equipment will be checked for leaks prior to operation and repaired as necessary.

#### **2.6.5 Solarizing**

Solarizing may be used in an attempt to eliminate Versatile fairy shrimp and Versatile/San Diego fairy shrimp hybrids from occupied pools to provide habitat for San Diego fairy shrimp and to reduce the likelihood of the spread of Versatile fairy shrimp to unoccupied pools. Solarizing may also be used to control concentrated exotic plant populations to improve conditions for native plants. Solarizing is unproven as a technique to kill fairy shrimp but has been used with success to control plant weeds.

Solarizing involves applying sheets of plastic over pools and fixed in place with sandbags erosion control wattles, pins, or rocks. The plastic sheets are installed following rainfall or artificial watering adequate to thoroughly wet the soil. The hotter the weather, the more effective the solarizing, so solarizing is most effectively applied in summer or early autumn months with an artificial water supply such as a portable water tank. For weed control, solarizing is most effective on seedlings and is best applied when new weed seedlings have sprouted after the first rains of the season and while temperatures are still warm. For the most effective weed control, several periods of solarizing may be necessary to control as much of the weed seed bank as possible. To apply more than one period of solarizing, plastic is removed after the initial application, weeds are again allowed to sprout, and plastic is reapplied when soils are wet.

Solarizing will also kill native plants but this is not anticipated to be a concern for the Project I because solarizing would only be applied to seriously damaged extant pools where there are no existing endangered or sensitive species populations and common plants and animals would be replaced with seed and soil inoculum. Pools would not be seeded or planted with native plants or inoculated with vernal pool soil until solarizing is complete.

#### **2.6.6 Plant Propagation**

Vernal pool and upland vegetation plant seed will be collected and propagated for container plants and to bulk seed. Seed bulking will be conducted for endangered, threatened, and sensitive vernal pool and uplands plants to generate as much seed as possible for use on the Project I site and to return seed to donor sites. Depending on the species, some vernal pool plants may be grown for planting as containers with the intent that plants are grown large enough for planting while minimizing the size of the container that will be installed. Minimizing container size helps

to limit the impacts during installation and helps reduce the cost of nursery propagation and planting.

### **2.6.7 Container Planting and Seeding**

Seed will be spread and container plants installed in vernal pools and uplands on the Project I site. For endangered, threatened, or sensitive species not present on the ORV Site B, plant seed would be obtained from donor sites identified in Tables 1 and 2. Seeds from endangered, sensitive, and threatened plants will not be introduced to any enhanced or restored pool until the pool has shown one complete, post-grading wet season of functioning pool hydrology. Enhanced or restored pools where plants are to be seeded or planted will be matched with donor site pools with similar pool depth and ponding duration to determine the species composition appropriate for any given enhanced or restored pool. No vernal pool or uplands plant seed will be introduced until the fall or early winter when rainfall is predicted. Seeding should occur prior to predicted rainfall to reduce seed loss to wildlife and promote improved germination rates and development of seedlings.

The project biologist will confirm that container plants are delivered to the site in a healthy and vigorous condition before being installed. The project biologist will inspect all container plants and reject plants that are dead, root-bound, stunted, pest-infested, diseased, or unacceptable for other reasons. Any planting stock to be brought onto the Project I site will be inspected by the biologist to ensure it is free of pest species that could invade natural areas, including but not limited to, Argentine ants (*Iridomyrmex humil*), fire ants (*Solenopsis invicta*), and other insect pests. The biologist will also oversee plant layout before installation. All planting will be installed in a way that mimics natural plant distribution and not in rows. Animal repellent measures such as pepper spray, exclusion cages, and other appropriate measures will be used to reduce herbivore damage to upland container plantings. All dead container plants will be replaced unless survival goals have been achieved.

Container plants and seed will not be installed until habitat enhancement and restoration grading is complete and approved by the USFWS.

Please see tables 4 and 5 for vernal pool and uplands planting and seeding palettes.

### **2.6.8 Soil Inoculation**

Immediately following grading, salvaged soil from extant pools supporting San Diego fairy shrimp and San Diego button-celery will be placed back in the same pool from which it was salvaged. Fairy shrimp soil inoculum from on- or offsite donor pools will not be introduced to any restored or enhanced pool until they have demonstrated retention of water for the appropriate amount of time to support fairy shrimp (fourteen days of continuous ponding for pools to be



inoculated with San Diego fairy shrimp soil, thirty days of continuous ponding for pools to be inoculated with Riverside fairy shrimp soil). If versatile fairy shrimp are detected in enhanced or restored pools, inoculum will not be introduced until measures approved by the USFWS are implemented to attempt to remove the versatile fairy shrimp.

For either salvaged soil from extant pools or for fairy shrimp soil inoculum from offsite donor pools, soil will be spread into the bottoms of restored or enhanced pools as appropriate. Soils will be placed in dry pools only, preferably before the first rains of the wet season. Soil will not be placed into basins that are already ponding as the shock of instant cyst inundation may reduce the success of the cyst hatch. Soil inoculum will be placed in a manner that preserves, to the maximum extent possible, the orientation of the fairy shrimp cysts within the surface layer of soil (i.e. soil inoculum will be shallowly distributed within the pond so that cysts have the potential to be brought into solution upon inundation).

### **2.6.9 Restoration Maintenance Activities**

The following sections describe Project I maintenance activities.

#### **2.6.9.1 Weed Control**

Weed control methods described below would be applied as deemed appropriate by the Project biologist. Inside the perimeters of vernal pools, all weeding would be performed exclusively by hand with no herbicide, mowing, or line trimming. Herbicides will be applied with sprayers beyond three feet from the edge of pools, and by hand up to the edge of restored or enhanced pools. Mowing and line trimming may be used anywhere outside of enhanced or restored pools. Hand weeding may be used anywhere within the Project I site. However, hand weeding generally will not be used in uplands except as appropriate for a particular species or location where herbicide, mowing, or line trimming are not practicable. Please see Table 6 for targeted weed species.

In general, herbicide application and hand weeding will be used from initial weed germination until weeds are flowering and setting seed. If these methods are effective in removing all of the weeds before flowering and seed set, then weed mowing/trimming techniques will not be necessary. Otherwise, mowing/trimming methods will follow herbicide application and hand weeding.

It is critical to minimize the level of exotics prior to the emergence of native plant species. Removing plant competitors at this stage allows for the persistence of higher levels of available soil moisture and nutrients later into the growing season. Reducing the height of invasive plant competitors will increase the quality and quantity of solar radiation and increase visibility for pollinators. Because of this, weed control is most effective in the earlier stages of plant

**Table 6. Targeted Weed Species**

Scientific Name	Common Name
<b>GRASSES</b>	
<i>Avena barbata</i>	Slender Wild Oat
<i>Brachypodium distachyon</i>	Purple false brome
<i>Bromus diandrus</i>	Ripgut Brome
<i>Bromus hordeaceus</i>	Soft Chess
<i>Bromus madritensis ssp. rubens</i>	Red brome
<i>Gastridium phleoides</i>	Nit grass
<i>Lamarkia aurea</i>	Goldentop grass
<i>Poa annua</i>	Annual Blue-Grass
<i>Polypogon monspeliensis</i>	Annual Beard-Grass
<i>Schismus barbatus</i>	Mediterranean Schismus
<i>Vulpia bromoides</i>	Six-Weeks Fescue
<i>Vulpia myuros</i>	Rat-tail fescue
<b>FORBS</b>	
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Brassica nigra</i>	Black mustard
<i>Brassica tournefortii</i>	Asian mustard
<i>Centaurea melitensis</i>	Tocalote
<i>Cotula coronopifolia</i>	African Brass-Buttons
<i>Dittrichia graveolens</i>	Stinkwort
<i>Erodium botrys</i>	Long-Beak Filaree/Storksbill
<i>Erodium brachycarpum</i>	Short-Beak Filaree/Storksbill
<i>Erodium cicutarium</i>	Red-Stem Filaree/Storksbill
<i>Erodium moschatum</i>	White-Stem Filaree/Storksbill
<i>Hirschfeldia incana</i>	Short-Pod Mustard
<i>Hypochaeris glabra</i>	Smooth Cat's Ear
<i>Logfia gallica</i>	Narrow-Leaf Filago
<i>Lythrum hyssopifolia</i>	Grass Poly
<i>Medicago polymorpha</i>	California burclover
<i>Sonchus asper</i>	Prickly Sow-Thistle
<i>Spergularia bocconi</i>	Boccone's Sand-Spurry
<i>Spergularia villosa</i>	Villose Sand-Spurry
<i>Silene gallica</i>	Common Catchfly

germination and establishment. In addition, it is easier to avoid native species when weeding early in the season, as native and nonnative species have more spatial separation early in the growing season.

All weeding personnel will be educated to distinguish between native and nonnative species so that local native plants are not inadvertently killed. Weed control will typically begin in mid-autumn and will usually continue until late spring, or until weeds have been effectively removed from the Project I site. Depending on the timing of seasonal precipitation, weed control could start earlier or extend into summer months.

#### **2.6.9.1.1      *Herbicides***

Application of herbicides can be the single most effective method available for weed control in native habitats and will be an important element of Project I weed control. Misuse of herbicides can cause substantial damage to native plant species, habitats, and wildlife, especially in aquatic environments. Avoidance of standing water during herbicide application is particularly important as water can transfer herbicide (in a reduced concentration) to collateral species, including both plants and animals with some aquatic invertebrate species particularly sensitive to some herbicides. When used properly and under the direction of a qualified project biologist, herbicide use can be the factor that determines success or failure of weed control.

Roundup Pro® and Fusilade® herbicides will be applied during Project I weeding maintenance visits by a licensed applicator under the supervision of the project biologist. Herbicide will only be applied when wind speed is less than 5 miles per hour, and spray nozzles will be of a design to maximize the size of droplets to reduce the potential for drift of herbicide to non-target plants. A 10-foot buffer will be maintained around concentrations of any sensitive plant species.

Application of herbicide will not occur if rain is projected within 24 hours of the scheduled application. When vernal pools are ponding or close to saturation, only hand herbicide application (i.e., saturated glove technique) will be used in and around the edges of pools. When vernal pools are not ponding or close to saturation, herbicide may be sprayed but applicators must stay at least 3 feet from the edge of the pools.

#### **2.6.9.1.2      *Line Trimming***

Line trimming is an effective tool to prevent non-native plant weeds like annual grasses from flowering and producing seeds and will be another important element of Project I weed control. When combined with other weeding methods, line trimming can help to successfully control weeds, allowing native plants to persist or to become established. Line trimming will be used only outside of the perimeter of enhanced or restored pools. Care will be taken to employ a “high” mow (i.e. no line trimming shorter than six inches) to prevent impacting desirable native species.

From year to year, the appropriate timing for line trimming will vary with the timing of rainfall. In general, regular line trimming treatments should begin in late winter and early spring, when

nonnative species have grown tall enough for these methods to be effective but the majority of individuals have not yet begun to flower. The key is to perform line trimming just as individuals begin to flower, but before the seeds begin to form. In a typical year, nonnative grasses will be ready for line trimming in January and February. In general, by the end of March or April, grass seeds have developed and line trimming becomes ineffective. In years with late rainfall, this timing can be pushed back as much as two months if rains arrive in March or April. The timing of line trimming will be determined by the project biologist and depend on the species being controlled and the rainfall received that year.

Line trimming does not pose a significant threat to invertebrate wildlife so long as trimming is applied above ground level. Line trimming can be a risk to some species if those species are foraging in the vegetation to be mowed. To minimize the risk to wildlife, line trimming will be kept at least six inches from the ground and care will be taken to avoid wildlife dens or nests.

#### **2.6.9.1.3      *Hand Weeding***

Hand weeding is very inefficient and labor intensive and will be used under limited circumstances for Project I weed control. Hand weeding will be conducted in vernal pool basins to avoid herbicide impacts, and outside of pools in circumstances where it is too difficult or harmful to use other methods (e.g. sensitive plants could be impacted) or where the area to be managed is relatively small.

Although hand weeding does not have the same risks of herbicide or line trimming, it does still have some risks. Because hand weeding is slow and time consuming, the weeded area is likely to be disturbed to a greater extent by trampling, which can be very difficult to control. In addition, pulling weeds from the ground can cause a substantial amount of soil disturbance in and around the area of weeding, especially when the soils are moist or saturated following rain. This disturbance can often be substantial enough to counter the effects of the initial weeding and, in some cases, can facilitate invasion of nonnative plants into new areas.

#### **2.6.9.2      Supplemental Watering**

In the event that natural rainfall is inadequate in any particular wet season to maintain vernal pool and uplands seedlings and container plants, supplemental watering of plants in enhanced and restored pools and watersheds may be conducted. Supplemental watering will be utilized only as-needed to prevent plant mortality in any particular wet season when rainfall is sufficient to germinate plants but is insufficient to maintain plants through flowering and seed set. Inadequate rainfall following germination of plants can result in a substantial or complete loss of established or supplemented seed banks and planted container plants. Such preventable losses are

particularly unacceptable when they include endangered, threatened, or sensitive vernal pool and uplands species or with a limited restoration project duration and budget.

Any supplemental watering will be conducted in a manner that prevents ponding in the pools. Supplemental watering will not be used to germinate vernal pool plants, rather it will be used only as necessary to maintain any vernal pool plants that germinated naturally but are at risk of dying before flowering and seed set. Any water to be used will be documented to be free of contaminants that could affect the water quality of the pools and harm San Diego and Riverside fairy shrimp.

Supplemental watering may be required multiple times in any particular wet season to ensure survival of plants. If at any point natural rainfall becomes sufficient, then supplemental watering will be suspended. The project biologist will be responsible for determining the timing and extent of supplemental watering.

### **2.6.9.3 Erosion Control**

Erosion from Project I activities will be prevented. The Project I contractor will install erosion control BMPs such as weed-free straw wattles, jute cloth, and/or silt fencing and street entry rock to prevent erosion and sediment flow anywhere on the Project I site but particularly into vernal pools or exiting the site. Erosion controls will be installed immediately following grading and will be maintained for the duration of the Project I as needed.

## **2.7 PROJECT I SCHEDULE**

The Project I will be implemented over approximately five years<sup>14</sup> depending on the amount and effects of annual rainfall on vernal pool ponding, plant propagation, seeding and planting, and fundraising (Table 7). Some scheduled activities have a wide range of dates because the actual timing will be based on the effects of seasonal rainfall, temperatures, or are activities that will be conducted as needed over extended periods of the Project I. Monitoring will be conducted prior to and concurrent with Project I implementation to identify baseline conditions, to inform project implementation decisions, and to track implementation of Project I goals (see Section 2.8 for monitoring schedule).

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14. Project I “years” are Water Years as defined by the National Oceanic and Atmospheric Administration: October 1 – September 30.

**Table 7. Project I Schedule**

<b>TASK</b>	<b>START</b>	<b>END</b>
<b>WATER YEAR 1 (2017 – 2018)</b>		
Property Line Survey & Project I Perimeter Marking	October	October
Refuse Clean-Up & Disposal	November	December
Weed Dethatching	November	December
Fence and Sign Installation	November	December
Vernal Pool Soil Salvage	November	December
Earthwork / Grading (vernal pools, uplands, & Burrowing owl burrows)	November	December
BMP Installation	November	December
Seed Purchase	December	December
Nursery Propagation (vernal pool & uplands seed bulking and containers)	December	Continued
Seeding (Uplands)	December	January
BMP Maintenance	December	Continued
Supplemental Watering	January	Continued
Weed Control	January	Continued
Seed Collection	May	September
Annual Report	September	September
<b>WATER YEARS 2 - 4 (2018 – 2021)</b>		
Nursery Propagation (vernal pool & uplands seed bulking and containers)	Continued	Continued
Fence and Sign Maintenance & Replacement	Continued	Continued
Weed Control	Continued	Continued
BMP Maintenance	Continued	Continued
Seed Purchase	October	October
Vernal Pool Soil Collection & Inoculation	October	October
Seeding and Planting (vernal pools & uplands)	October	January
Supplemental Watering	December	September
Seed Collection	May	September
Annual Report	September	September
<b>WATER YEAR 5 (2021 – 2022)</b>		
Nursery Propagation (vernal pool & uplands seed bulking and containers)	Continued	January
Fence and Sign Maintenance & Replacement	Continued	September
Weed Control	Continued	September
BMP Maintenance	Continued	September
Vernal Pool Soil Collection & Inoculation	October	October
Seeding and Planting (vernal pools & uplands)	October	January
Supplemental Watering	December	September
BMP Removal	September	September
Final Report	September	September

### **2.7.1 Schedule for Maintenance**

Project I maintenance activities will be conducted as shown in Table 7 or as otherwise needed. The timing and level of maintenance will be subject to modification by the Project I biologist and contractor as necessary to achieve project goals.

Remedial planting and seeding will occur in the fall or early winter so that plants and seed are exposed to the maximum seasonal rainfall. Supplemental watering will be conducted anytime plants exhibit signs of water stress during the growing season and as otherwise deemed necessary by the Project I biologist or contractor.

Weed control will be initiated as soon as rainfall is adequate to germinate weed species. Weed control will begin within two to four weeks after weed species have germinated and can be identified and will continue until weed populations have been controlled. Other maintenance activities like trash removal, BMP maintenance, and fence and sign maintenance and replacement will be conducted throughout the year as necessary. TCLC and contractors will assume these typical stewardship responsibilities within the Project I site for the duration of the project. The City of San Diego Park and Recreation Department will resume stewardship activities after the Project I implementation period consistent with its responsibilities under the MSCP.

## **2.8 MONITORING**

Monitoring will be conducted to identify baseline conditions, to inform project implementation decisions, and to track implementation of Project I goals for vernal pool and uplands ecosystems as a whole and for specific elements (Table 8). Quantitative monitoring will take place in Project I pools and uplands, other Clayton property pools, and in control pools and control uplands and will include five quantitative monitoring elements: Vernal pool hydrology; fairy shrimp; vernal pool fauna; vernal pool flora; and uplands flora.

Qualitative monitoring will also be conducted on the Project I site, the remainder of the Clayton property, and vernal pool and uplands control sites during site visits for quantitative monitoring and will include recording any ponding areas not previously mapped as vernal pools, any observed animal species, and any notable site management issues (e.g. recent ORV activity, cut fence, vandalism, trespass, trash dumping). Any site management issues should be reported as soon as possible to TCLC.

Monitoring for vernal pool hydrology and fairy shrimp will be conducted during the entire aquatic phase of each pool beginning within 24-hours of any storm producing a minimum of 1.3 cm (0.5 in) in rainfall measured at the closest available weather station (24-hour monitoring) and thereafter at two-week intervals (two-week monitoring) for both hydrology and fairy shrimp



**Table 8. Project I Monitoring Summary & Schedule**

	<b>Water Year 2016-2017 (Baseline Monitoring)</b>	<b>Water Year 2017-2018</b>	<b>Water Year 2018-2019</b>	<b><i>Conditional Additional Water Year 2019-2020<sup>15</sup></i></b>	<b><i>Conditional Additional Water Year 2020-2021</i></b>	<b><i>Conditional Additional Water Year 2021-2022</i></b>
<b>Hydrology</b> (24-hr and two-week monitoring Nov - May after 1.3 cm (0.5 in) rainfall)	All Clayton pools  All control pools	All Clayton pools  All control pools	All Clayton pools  All control pools	All Clayton pools  All control pools	All Clayton pools  All control pools	All Clayton pools  All control pools
<b>Fairy Shrimp</b> (Two-week monitoring Nov - May after 1.3 cm (0.5 in) rainfall)	All Clayton pools  All control pools	All Project I pools <sup>16</sup>  <i>Any other Clayton pool where results are unknown</i>  <i>Any control pool where results are unknown</i>	All Project I pools  <i>Any other Clayton pool where results are unknown</i>  <i>Any control pool where results are unknown</i>	<i>Any Project I pool where results are unknown or where goals were not achieved in previous water years</i>  <i>Any other Clayton pool where results are unknown</i>  <i>Any control pool where results are unknown</i>	<i>Any Project I pool where results are unknown or where goals were not achieved in previous water years</i>  <i>Any other Clayton pool where results are unknown</i>  <i>Any control pool where results are unknown</i>	<i>Any Project I pool where results are unknown or where goals were not achieved in previous water years</i>  <i>Any other Clayton pool where results are unknown</i>  <i>Any control pool where results are unknown</i>

(table continues)

15. Monitoring in water years 2019 – 2022 is contingent on available funding.

16. See figures 3, 6, and 7.

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	<b>Water Year 2016-2017 (Baseline Monitoring)</b>	<b>Water Year 2017-2018</b>	<b>Water Year 2018-2019</b>	<b>Conditional Additional Water Year 2019-2020</b>	<b>Conditional Additional Water Year 2020-2021</b>	<b>Conditional Additional Water Year 2021-2022</b>
<b>Vernal Pool Fauna<sup>17</sup></b> (Early-, mid-, and late- aquatic phase Nov - May after 1.3 cm (0.5 in) rainfall)	8 Project I pools 2 Project II pools <sup>18</sup> 2 Project III pools All control pools	<i>Any of the 8 Project I pools, 4 other Clayton pools, or control pool where ponding was inadequate to conduct monitoring as described for water year 2016- 2017 or aquatic phases</i>	12 Project I pools including the 8 Project I pools from previous water years plus 4 restored pools  <i>Any of the 4 other Clayton pools or control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases</i>	<i>Any of 12 Project I pools where ponding was inadequate to conduct monitoring or goals were not achieved in water year 2018-2019</i>  <i>Any of the 4 other Clayton pools or control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases</i>	<i>Any of 12 Project I pools where ponding was inadequate to conduct monitoring or goals were not achieved since water year 2018-2019</i>  <i>Any of the 4 other Clayton pools or control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases</i>	<i>Any of 12 Project I pools where ponding was inadequate to conduct monitoring or goals were not achieved since water year 2018-2019</i>  <i>Any of the 4 other Clayton pools or control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases</i>
<b>Vernal Pool Flora – Aquatic Phase</b> (Two-week monitoring Nov - May after 1.3 cm (0.5 in) rainfall)	All Clayton pools All control pools	All Project I pools  <i>Any other Clayton pool or control pool where ponding was inadequate to conduct monitoring in water year 2016-2017</i>	All Project I pools  <i>Any other Clayton pool or control pool where ponding was inadequate to conduct monitoring in all previous water years</i>	<i>Any Project I pool where flora goals were not achieved in all previous water years</i>  <i>Any other Clayton pool or control pool where ponding was inadequate to conduct monitoring in all previous water years</i>	<i>Any Project I pool where flora goals were not achieved in all previous water years</i>  <i>Any other Clayton pool or control pool where ponding was inadequate to conduct monitoring in all previous water years</i>	<i>Any Project I pool where flora goals were not achieved in all previous water years</i>  <i>Any other Clayton pool or control pool where ponding was inadequate to conduct monitoring in all previous water years</i>

(table continues)

17. Includes all vernal pool invertebrates other than fairy shrimp and amphibians.

18. See Figure 3.

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	<b>Water Year 2016-2017 (Baseline Monitoring)</b>	<b>Water Year 2017-2018</b>	<b>Water Year 2018-2019</b>	<b>Conditional Additional Water Year 2019-2020</b>	<b>Conditional Additional Water Year 2020-2021</b>	<b>Conditional Additional Water Year 2021-2022</b>
<b>Vernal Pool Flora – Dry Phase</b> April or May at discretion of biologist	All Clayton pools  All control pools	<i>All Clayton pools &amp; control pools if  <math>\leq 14\text{cm}</math> rain in            water year 2016-            2017</i>	All Project I pools  <i>All other Clayton            pools &amp; control            pools if <math>\leq 14\text{cm}</math>            rain in each            previous water            year</i>	<i>All Project I pools if <math>\leq</math>            14cm rain in water            year 2018-2019</i>  <i>Any Project I pool            where flora goals were            not achieved in water            year 2018-2019</i>  <i>All other Clayton &amp;            control pools if <math>\leq</math>            14cm rain in each            previous water year</i>	<i>All Project I pools if <math>\leq</math>            14cm rain in each            previous water year            since 2018-2019</i>  <i>Any Project I pool            where flora goals were            not achieved since            water year 2018-2019</i>  <i>All other Clayton &amp;            control pools if <math>\leq</math>            14cm rain in each            previous water year</i>	<i>All Project I pools if <math>\leq</math>            14cm rain in each            previous water year            since 2018-2019</i>  <i>Any Project I pool            where flora goals            were not achieved            since water year 2018-            2019</i>  <i>All other Clayton &amp;            control pools if <math>\leq</math>            14cm rain in each            previous water year</i>
<b>Uplands Flora</b> April or May at discretion of biologist	All Project I transects  All control transects	<i>All Project I            transects &amp; all            control transects if  <math>\leq 14\text{cm}</math> rain in            water year 2016-            2017</i>	All Project I transects  <i>All control            transects if <math>\leq</math>            14cm rain in each            previous water            years</i>	<i>All Project I transects            &amp; all control transects            if <math>\leq 14\text{cm}</math> rain in            water year 2018-2019</i>  <i>Any Project I transect            where goals were not            achieved in water            year 2018-2019</i>	<i>All Project I transects            &amp; all control transects            if <math>\leq 14\text{cm}</math> rain in each            previous water year            since 2018-2019</i>  <i>Any Project I transect            where goals were not            achieved since water            year 2018-2019</i>	<i>All Project I transects            &amp; all control transects            if <math>\leq 14\text{cm}</math> rain in each            previous water year            since 2018-2019</i>  <i>Any Project I transect            where goals were not            achieved since water            year 2018-2019</i>

(table continues)

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	<b>Water Year 2016-2017 (Baseline Monitoring)</b>	<b>Water Year 2017-2018</b>	<b>Water Year 2018-2019</b>	<b><i>Conditional Additional Water Year 2019-2020</i></b>	<b><i>Conditional Additional Water Year 2020-2021</i></b>	<b><i>Conditional Additional Water Year 2021-2022</i></b>
<b>Photograph Monitoring</b>	<p>All Clayton pools and all control pools once per water year through period of greatest ponding</p> <p>All Project I perimeter and interior photograph points</p> <p>All Project I and control upland vegetation transect photograph points at time of transect surveys</p>	<p>All Clayton pools and all control pools once per water year through period of greatest ponding</p> <p>All Project I perimeter and interior photograph points</p> <p>All Project I and control upland vegetation transect photograph points at time of transect surveys</p>	<p>All Clayton pools and all control pools once per water year through period of greatest ponding</p> <p>All Project I perimeter and interior photograph points</p> <p>All Project I and control upland vegetation transect photograph points at time of transect surveys</p>	<p>All Clayton pools and all control pools once per water year through period of greatest ponding</p> <p>All Project I perimeter and interior photograph points</p> <p>All Project I and control upland vegetation transect photograph points at time of transect surveys</p>	<p>All Clayton pools and all control pools once per water year through period of greatest ponding</p> <p>All Project I perimeter and interior photograph points</p> <p>All Project I and control upland vegetation transect photograph points at time of transect surveys</p>	<p>All Clayton pools and all control pools once per water year through period of greatest ponding</p> <p>All Project I perimeter and interior photograph points</p> <p>All Project I and control upland vegetation transect photograph points at time of transect surveys</p>



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from November through May. Monitoring for other vernal pool aquatic invertebrates and amphibians will be conducted at the early-, mid-, and late-aquatic phase of select pools. Limited monitoring for particular aquatic phase vernal pool flora such as sensitive plants and floating and emergent hydrophytes will take place concurrent with hydrology and fairy shrimp monitoring. Thorough monitoring for all dry phase vernal pool flora and monitoring for uplands flora will be conducted in April or May depending on seasonal rainfall and at the discretion of the monitoring biologist.

Control pools to be used for monitoring are located approximately five miles east of the Clayton property in the J26 vernal pool complex on the “Upham property”, a private preserve in eastern Otay Mesa (Figure 8). The J26 vernal pools have been designated by the U.S. Fish and Wildlife Service as control pools for monitoring of Otay Mesa restoration projects. These pools exhibit a variety of representative ecological and hydrological vernal pool conditions and are the last and least disturbed original natural vernal pools on Otay Mesa.

The control site for uplands vegetation monitoring is located approximately one mile southeast of the Clayton property on a small mesa on the western edge of Spring Canyon. The site exhibits representative natural ecological conditions of maritime succulent scrub vegetation and the site is one of the last relatively undisturbed, original mesa-top ecosystems anywhere in Otay Mesa.

The results of monitoring will be presented in annual reports and a final report to track implementation of project goals and inform project implementation decisions on the introduction of endangered fairy shrimp, sensitive vernal pool plants, and sensitive upland plants.

### **2.8.1 Vernal Pool Hydrology Monitoring**

Vernal pool hydrology monitoring is intended to identify the range of hydrologic conditions in Project I site pools, other Clayton property pools, and control pools to inform goals for the project, to inform project implementation decisions on inoculation of Riverside fairy shrimp and San Diego fairy shrimp (endangered fairy shrimp) and seeding of sensitive plants, and to track implementation of project goals.

Vernal pool hydrology monitoring will be conducted as follows and as scheduled in Table 8:

- Precipitation will be measured and recorded from rain gauges at the Clayton property and control pools site within 24-hours after any storm (or series of storms) producing 1.3 cm (0.5 in) at the closest available weather station between the months of November and May.
- Vernal pool water depths will be measured at the deepest point in each Project I site pool, each other Clayton property pool, and each control pool within 24-hours after any storm

(or continuous series of storms) producing 1.3 cm (0.5 in) at the closest available weather station between the months of November and May and during each subsequent two-week monitoring visit. Two-week monitoring visits will be conducted until all pools are dry and will be reinitiated following any storm that triggers 24-hour monitoring.

### **2.8.2 Fairy Shrimp Monitoring**

Fairy shrimp monitoring is intended to identify the presence or absence of endangered fairy shrimp, Versatile fairy shrimp, and Versatile/San Diego fairy shrimp hybrids in Project I site pools, other Clayton property pools, and control pools. Monitoring to identify amphibian species will be conducted concurrent with monitoring for fairy shrimp.

Fairy shrimp monitoring is intended to inform project goals for endangered fairy shrimp, to inform project implementation decisions on inoculation of endangered fairy shrimp or control of the weedy Versatile fairy shrimp, and to track implementation of project goals. Fairy shrimp monitoring will be conducted in Project I site pools, other Clayton property pools, and control pools during each 24-hour and two-week monitoring visit as scheduled in Table 8. Monitored pools will be sampled to identify fairy shrimp and sampling will follow USFWS protocol fairy shrimp survey methods (USFWS 1996)<sup>19</sup>. Estimated numbers of active shrimp will be recorded. Fairy shrimp monitoring will be conducted by a certified biologist holding a valid Section 10(a) permit. All amphibian species will also be recorded during fairy shrimp monitoring.

### **2.8.3 Vernal Pool Fauna Monitoring**

Vernal pool fauna monitoring is intended to supplement fairy shrimp monitoring to identify the composition of other invertebrate fauna in select Project I site pools and control pools, to inform invertebrate fauna composition goals for the project, and to track implementation of project goals. Vernal pool fauna monitoring can be time consuming and costly; therefore, the purpose of vernal pool fauna monitoring is to identify the overall composition of invertebrate fauna other than fairy shrimp in Project I site pools and control pools rather than in each pool.

Vernal pool fauna monitoring will be conducted in select Project I site pools, select other Clayton property pools, and all control pools. Monitoring for vernal pool invertebrates will follow the method and schedule in the *Macroinvertebrate Bioassessment Method to Assess California Vernal Pools* (macroinvertebrate method) (Rogers, in review) as modified for

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19. Project I fairy shrimp monitoring will follow the *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* (USFWS 1996) rather than the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2015).

infrequent- and shorter-ponding pools at the Clayton property and control pool sites. Monitoring for vernal pool fauna will be conducted as follows and as scheduled in tables 8 and 9:

- An inventory of vernal pool fauna will be recorded by collecting fauna samples at three times each scheduled monitoring year (Table 8) during the vernal pool aquatic phase (early, mid, and late aquatic phase; Table 9). In the event that a particular monitored pool dries prior to mid or late aquatic phase monitoring or does not pond in subsequent monitoring years, monitoring may be conducted in different pools to achieve monitoring in the same number of pools and phases as described for vernal pool fauna monitoring in Table 8.
- Samples will be collected using a fine mesh sweep net with a mesh size between 1 – 2 mm. Each sample will be collected from the water column by pulling the net through 1.5 horizontal meters of the pool. If the pool depth at the time of collection is only half the net aperture height, then two 1.5m sweeps are taken.
- All sampled vernal pool fauna will be identified and reported including both invertebrates and amphibians. Identification of sampled invertebrate fauna will follow taxonomic standards for aquatic macroinvertebrates set by the Southwest Association of Freshwater Invertebrate Taxonomists (SAFIT) Standard Taxonomic Effort list (Richards and Rogers 2006). Amphibian species should be recorded and returned alive to the pool to the extent possible.
- Collection of vernal pool fauna samples will be conducted by a certified biologist holding a valid Section 10(a) permit.

**Table 9. Aquatic Phase Vernal Pool Fauna Monitoring Schedule**

<b>Sampling Description</b>	<b>Fauna Sampling Schedule</b>
Early Aquatic Phase Sampling	Two weeks following first continuous ponding.
Mid-Aquatic Phase Sampling	One month after first continuous ponding if floating hydrophytes are present and have begun to colonize pool margins. If hydrophyte conditions are not present, then delay sampling in two-week increments until such conditions are present. Sampling may be conducted even if pool has dried and re-filled as later season and/or warmer conditions may trigger different species.
Late Aquatic Phase Sampling	Six weeks after first continuous ponding if floating hydrophytes are present, have thoroughly colonized pool margins, and pool is drying. If hydrophyte and drying conditions are not present, then delay sampling in two-week increments until such conditions are present. Sampling may be conducted even if pool has dried and re-filled as later season and/or warmer conditions may trigger different species.

#### **2.8.4 Vernal Pool Flora Monitoring**

Vernal pool flora monitoring is intended to identify the composition of vernal pool flora in Project I site pools, other Clayton property pools, and control pools to inform vernal pool flora composition goals for the project, and to track implementation of project goals.

Vernal pool flora monitoring will be conducted as follows and as scheduled in Table 8:

- Monitoring will be conducted as scheduled during both the aquatic and dry phases of each Project I site pool, each other Clayton property pool, and each control pool.
- Limited vernal pool flora monitoring will be conducted during the vernal pool aquatic phase to identify any sensitive vernal pool plants and floating or emergent hydrophytes. Aquatic phase vernal pool flora monitoring will be conducted concurrent with monitoring for hydrology and fairy shrimp.
- Thorough dry phase vernal pool flora monitoring will be conducted once each scheduled monitoring year in the months of April or May with specific timing at the discretion of the monitoring biologist. Dry phase vernal pool flora monitoring will include an inventory of all vernal pool plants and estimates of vernal pool vegetation cover (general native plant cover, general non-native plant cover, cover of each vernal pool sensitive plant, and cover of any high or moderate Cal-IPC invasive plant).

#### **2.8.5 Uplands Flora Monitoring**

Uplands flora monitoring is intended to identify the composition of uplands flora at the Project I site and uplands vegetation control site (Figure 11) to inform upland flora composition goals for the Project and to track implementation of Project goals.

Uplands flora monitoring will be conducted at the Project I site and at the uplands vegetation control site and will use point-intercept transects (CNPS, 1995) to measure native species richness and cover and nonnative cover. Uplands flora monitoring will be conducted as follows in scheduled monitoring years (Table 8).

- Eight uplands vegetation monitoring transect locations will be selected with four transects at the Project I site and four transects at the uplands vegetation control site in the City of San Diego's Spring Canyon preserve (Figure 11);
- Transects will be 25 meters in length and 5-meters in width (2.5 meters on either side of the point-intercept transect) and used to collect species richness data. All species observed in this 5-meter belt and not recorded as a point-intercept will be recorded for inclusion in the species inventory to identify species richness;



**Figure 12. Location of Uplands Vegetation Control Site**



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- Photographs will be taken during uplands flora monitoring of each transect on the Project I site and uplands vegetation control site. Photograph points will be located at each end of each transect and oriented to view the length of the transect for a total of sixteen photograph points.
- Average species richness, native cover, nonnative cover, and SDI will be calculated with 90 percent confidence intervals for sites. Site averages will be tracked over the project implementation period to determine whether upland restoration goals have been achieved.
- Uplands flora monitoring will be conducted once each scheduled monitoring year in the months of April or May with timing at the discretion of the monitoring biologist.

### **2.8.6 Photograph Monitoring**

Photograph monitoring is intended to provide comparative visual evidence of baseline conditions and the progress of enhancement and restoration of vernal pools and uplands. Photograph monitoring will be conducted as follows in scheduled monitoring years (Table 8):

- Photographs will be taken of each Clayton property pool and each control pool during two-week monitoring visits during the period of greatest pool ponding in each year. Exact photograph points at each pool are not possible given the variation in position of the sun at the time of monitoring visits. Photographs of relatively full pools where ponding is visible should typically be taken from the south side of each pool with sun behind the photographer and with no shadow cast into the photo. For pools where ponding is mostly hidden by vegetation, photographs should be taken from the north side of the pool to capture sunlight reflecting off ponded water but at an angle to minimize glare.
- Photographs will be taken from twelve established photograph points around the perimeter of the Project I site once per year in April or May at the discretion of the monitoring biologist. Each perimeter photograph should be directed into the Project I site at an angle perpendicular to the Project I site perimeter at that location.
- Photographs will be taken from three established photograph points in the central interior of the Project I site once per year in April or May at the discretion of the monitoring biologist. One photograph will be taken facing compass point (north, south, east, and west) at each interior photograph point for a total of twelve interior photographs per year.
- Photographs will be taken of each upland vegetation transect on the Project I site and uplands vegetation control site during uplands flora monitoring. Photograph points will be located at each end of each transect and oriented to view the length of the transect for a total of sixteen photograph points.

- Photograph points will be marked using t-posts or re-bar and GPS coordinates recorded. T-posts in the Clayton property perimeter wire fence and marking the Project I area may also be marked and used as photograph points. Except for fence posts, any photograph point markers will be removed upon completion of the project.

### **2.8.7 Qualitative Monitoring**

Qualitative monitoring will be conducted on the Project I site, the remainder of the Clayton property, and vernal pool and uplands control sites during site visits for quantitative monitoring and will include recording any ponding areas not previously mapped as vernal pools, any other observed sensitive animal species, any other observed sensitive plant species, and any notable site management issues (e.g. recent ORV activity, cut fence, vandalism, trespass, trash dumping). Any site management issues should be reported as soon as possible to TCLC.

## **2.9 RESTORATION GOALS AND REMEDIAL MEASURES**

Project I goals and remedial measures for enhancement and restoration of vernal pools and uplands vegetation are shown in tables 10 and 11. The Project I will have achieved its goals if these are met by the end of the project in water years 2018-2019, 2019-2020, 2020-2021, or 2021-2022.

Upon completion of the Project I, conditions in enhanced and restored pools should be similar in hydrologic function and species composition to those in control pools with data collected from enhanced and restored pools falling within the range of data obtained from control pools. Specific goals for Project I vernal pool enhancement and restoration are included in Table 10. Vernal pools vary considerably from one year to another and between years in each of these parameters so the standards for determining whether Project I goals have been achieved are dependent on the range exhibited by control pools during a given year. In enhanced and restored pools, achieving a reasonable stability of conditions under a wide variety of hydrological years is more important than meeting preset values. Upon completion of monitoring in each water year, enhanced and restored pools that do not demonstrate the range of conditions in the control pools will be subject to remedial measures identified in Table 10.

All evidence should be considered when determining whether Project I goals have been achieved for any particular vernal pool. For example, goals for vernal pool hydrology and flora are both included in Table 10 restoration goals. However, if a particular pool is meeting flora goals but not hydrology goals, enhancement and restoration activities likely still improved overall pool function. If flora goals are met, an enhanced or restored pool exhibiting hydrology outside the range of the control pools would still be providing hydrology within the range required for vernal

**Table 10. Vernal Pool Goals and Remedial Measures**

<b>Monitoring Elements</b>	<b>Monitoring Element Parameters</b>	<b>Enhancement &amp; Restoration Goals</b>	<b>Remedial Measures</b>
<b>Hydrology</b>	Duration of Aquatic Phase	Range of values in control pools	Pool reshaping
<b>Fairy Shrimp</b>	Presence of Riverside fairy shrimp, San Diego Fairy Shrimp, Versatile Fairy Shrimp, or Versatile/San Diego Fairy Shrimp Hybrids	<p>Riverside fairy shrimp present in <math>\geq 25\%</math> inoculated Project I pools ponding continuously for <math>\geq</math> eight weeks</p> <p>San Diego fairy shrimp present in Project I pools occupied by the species (and not occupied by Versatile fairy shrimp or Versatile/San Diego fairy shrimp hybrids) prior to Project I implementation</p> <p>San Diego fairy shrimp present in <math>\geq 25\%</math> of inoculated Project I pools that pond within the range of control pools occupied by the species</p> <p>Versatile fairy shrimp and/or Versatile/San Diego fairy shrimp hybrids absent from Project I pools</p>	<p>Disposal of topsoil from pools supporting Versatile/San Diego fairy shrimp hybrids</p> <p>Solarizing</p> <p>Additional soil inoculation</p> <p>Pool reshaping</p>
	Site Average Density for Riverside fairy shrimp and San Diego Fairy Shrimp	90% CI <sup>20</sup> around average density overlaps 90% CI in control pools	
<b>Fauna</b>	Fauna Composition	Number of crustacean species per Project I pool $\geq 75\%$ of crustacean species in control pools	<p>Additional soil inoculation</p> <p>Pool reshaping</p>
	Site Average Density for Fauna	90% CI around average density overlaps 90% CI in control pools	

(table continues)

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20. Confidence Interval.

Monitoring Elements	Monitoring Element Parameters	Enhancement & Restoration Goals	Remedial Measures
Flora	Flora composition	Range of values in control pools	Supplemental Seeding Supplemental watering of pools Pool reshaping
	Common native plants cover per pool	Common native plant cover per Project I pool $\geq$ 50% of range of values in control pools	
	Presence of endangered or sensitive vernal pool plants: <i>Downingia cuspidata</i> , <i>Eryngium aristulatum</i> ssp. <i>parishii</i> , <i>Hordeum intercedens</i> , <i>Myosurus minimus</i> , <i>Navarretia fossalis</i> , <i>Orcuttia californica</i> , and/or <i>Pogogyne nudiuscula</i>	<i>Downingia cuspidata</i> , <i>Eryngium aristulatum</i> ssp. <i>parishii</i> , <i>Hordeum intercedens</i> , <i>Myosurus minimus</i> , <i>Navarretia fossalis</i> , <i>Orcuttia californica</i> , and/or <i>Pogogyne nudiuscula</i> present in $\geq$ 25% of seeded Project I pools ponding within range of control pools occupied by the species	
	Site Averages for Flora Elements	90% CI averages of each flora element overlaps 90% CI in control pools	
	Non-Native Cover	< 5% cover for any weed species per Project I pool	Increase in weed control and/or alternative treatments

**Table 11. Uplands Flora Goals & Remedial Measures**

Uplands Element Parameters	Enhancement & Restoration Goals	Remedial Measures
Native Species Cover	90% CI around average native cover overlaps 90% CI of control 80% survival of container plantings	Seeding or container planting of absent and/or underrepresented species Supplemental watering Supplemental pest control
Native Species Richness	90% CI around average native species richness overlaps 90% CI of control	
Nonnative Cover	<10% cover <5% cover for weed species categorized as High or Moderate in the Cal-IPC Invasive Plant Inventory	Increase in weed control and/or alternative treatments

pool plant species. Additionally, site averages will be used to track implementation of Project I goals relative to the control pools.

Restored uplands vegetation should be similar in species composition and ecosystem function to the uplands vegetation control site to achieve Project I goals by the end of the project and monitoring period. The 90 percent CI around the average of native species cover and richness will be compared to the 90 percent CI around the averages of the control site. If the intervals overlap, they are statistically equivalent and the uplands restoration area would approximate the control sites and restoration goals would be achieved. The specific parameters for uplands vegetation and remedial measures are described in Table 11.

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### **3.0 REPORTING**

Project reports will describe project implementation activities, document results from quantitative and qualitative monitoring, provide photographic documentation from established photograph points, provide assessments of the Project I implementation relative to project goals, and document any problems and remedial measures necessary to achieve project goals. Monitoring reports will be provided to the City and to each permitting agency.

#### **3.1 ANNUAL REPORTS**

Annual reports will be prepared by September following each year of Project I implementation and will describe project implementation activities, provide the results of monitoring, describe progress towards project goals, and recommend any remedial measures.

#### **3.2 FINAL REPORT**

A final report will be prepared by September of the final year of Project I implementation and include as-built restoration map(s) illustrating the completed project and photographs of habitat areas before, during, and after implementation. The final report will also describe project implementation activities, provide the results of monitoring, describe whether project goals were achieved, and provide any other information documenting whether authorized impacts were exceeded and whether compliance with all conservation measures was achieved.



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## 4.0 REFERENCES

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## **APPENDIX A**

### **Existing & Planned Conditions – Restored & Enhanced Vernal Pools**

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
Extant Pools											Enhanced Extant Pools								
EP 1	Project I	Damaged Extant Natural Pool	247	0.006	6.00	25-38	<i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Plantago elongata</i> ; <i>Psilocarphus brevissimus</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Rumex crispus</i> ; <i>Salsola tragus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	276	0.006	7	Range of Control Pools	< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 2	Project I	Damaged Extant Natural Pool	183	0.004	25.00	61-75	<i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Triglochin scilloides</i>	<i>Avena fatua</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Festuca perennis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i> ; <i>Sonchus oleraceus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	388	0.009	14	Range of Control Pools	< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	
EP 3	Project I	Damaged Extant Natural Pool	1105	0.025	37.00	61-75	<i>Deinandra fasciculata</i> ; <i>Elatine brachysperma</i> ; <i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Atriplex semibaccata</i> ; <i>Avena barbata</i> ; <i>Brassica nigra</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i> ; <i>Tamarisk ramosissima</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	1096	0.025	27	Range of Control Pools	< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	

(table continues)

1. Ponding duration is from surveys by Rocks Biological Consulting in 2016 / 2017. Maximum continuous ponding duration is provided as a range of number of days. Site visits occurred every one to two weeks therefore the exact number of days a pool was ponding is unknown. It is difficult to predict the exact date a pool dried due to the effect that temperature changes and rain events between surveys can have on ponding. The lower number in the range of ponding duration is calculated using the dates of the surveys in which the pool was observed holding water. If a pool was holding water on consecutive surveys, it was assumed that it held water everyday between visits. The higher number in the range of ponding duration is calculated using the number of days between the last survey day a pool was holding water and the survey during which pool was recorded dry. For example, if a pool was recorded holding water on 1/11/17 and 1/13/17 but was recorded dry on 1/25/17 the ponding duration would be 13-24 days. If the pool experienced multiple ponding events, the longest continuous ponding duration is provided.

2. DoCu = *Downingia cuspidata*; ErAr = *Eryngium aristulatum* ssp. *Parishii*; HoIn = *Hordeum intercedens*; MiDo = *Microseris douglasii* ssp. *platycarpa*; MyMi = *Myosurus minimus*; NaFo = *Navarretia fossalis*; OrCa = *Orcuttia californica*; PoNu = *Pogogyne nudiuscula*. Project goal is presence of vernal pool sensitive plant species in ≥ 25% of Project I pools that pond within range of control pools.

3. Fairy shrimp results are from the City of San Diego Vernal Pool Inventory (2003) and monitoring results from Rocks Biological Consulting in 2015 / 2016 AND 2016 / 2017. BrLi = *Branchinecta lindahli*; BrSa = *Branchinecta sandiegonensis*; BrUnk = Unknown *Branchinecta* species where *Branchinecta* were immature at time of observation or collection; StWo = *Streptocephalus woottoni*. Project I goal for *Branchinecta sandiegonensis* is species presence in ≥ 25% of inoculated Project I pools that pond within range of control pools occupied by the species. Project goal for *Streptocephalus woottoni* is species presence in inoculated Project I pools ponding continuously for ≥ eight weeks.

4. Planned depths are approximate, based on a graded vernal pool slope ratio of 18":1" applied at the shortest pool diameter, and rounded to nearest centimeter. Final depths will be established during grading and other earthwork.

5. Project goals are native plant cover in Project I pools ≥ 50% range of control pools and relative native plant cover 90% CI averages in Project I pools overlap 90% CI in control pools.

6. To reduce plant weed infestations and in just those pools or with *Branchinecta lindahli* or no listed species, the top two inches of vernal pool topsoil would be removed and buried onsite in enhanced or restored mima mounds.

7. Solarizing will only be conducted if fairy shrimp are found and identified as *Branchinecta lindahli*.

8. Shrimp soil inoculation will only be conducted if solarizing successfully eliminates any *Branchinecta lindahli*.

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS									
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	
EP 4	Future Project II	Damaged Pool (Origin Unknown)	239	0.005	18.42	78-92	<i>Cordylanthus rigidus</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Avena fatua</i> ; <i>Bromus hordeaceus</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	BrLi	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	To be determined (TBD)			Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 5	Project I	Damaged Extant Natural Pool	319	0.007	18.00	47-60	<i>Juncus bufonius</i>	<i>Avena barbata</i> ; <i>Avena fatua</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i> ; <i>Salsola tragus</i> ; <i>Sonchus oleraceus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	978	0.022	24	Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	
EP 6	Project I	Damaged Extant Natural Pool	518	0.012	18.00	25-38	<i>Juncus bufonius</i>	<i>Avena barbata</i> ; <i>Avena fatua</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i>	-	-	Pool combined with Extant Pool 33; Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	1189	0.027	20	Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 7	Excluded from Projects	Damaged Extant Natural Pool	142	0.003	17.00	13-26	<i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i> ; <i>Sisyrinchium bellum</i>	<i>Avena fatua</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola sp.</i>	-	-	Cultural Resource Area – Excluded from Projects									
EP 8	Excluded from Projects	Damaged Extant Natural Pool	144	0.003	6.00	13-26	<i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Logfia arizonica</i> ; <i>Selaginella cinerascens</i> ; <i>Sisyrinchium bellum</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedypnois cretica</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Salsola sp.</i> ; <i>Sonchus asper</i>	-	-	Cultural Resource Area – Excluded from Projects									
EP 9	Future Project III	Damaged Extant Natural Pool	60	0.001	6.50	25-38	<i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Lepidium nitidum</i> ; <i>Logfia arizonica</i> ; <i>Selaginella cinerascens</i>	<i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Logfia gallica</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD			Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 10	Excluded from Projects	Damaged Extant Natural Pool	304	0.007	9.00	25-38	<i>Acmispon strigosus</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Elatine brachysperma</i> ; <i>Juncus bufonius</i> ; <i>Selaginella cinerascens</i> ; <i>Sisyrinchium bellum</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	-	Cultural Resource Area – Excluded from Projects								
EP 11	Project I	Damaged Extant Natural Pool	829	0.019	29.21	73-87	<i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Salsola tragus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	1269	0.029	19	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	
EP 12	Future Project II	Damaged Extant Natural Pool	136	0.003	14.00	25-38	<i>Acmispon glaber</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Juncus bufonius</i> ; <i>Logfia arizonica</i> ; <i>Selaginella cinerascens</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hypochaeris glabra</i> ; <i>Lactuca serriola</i> ; <i>Lamarkia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Mesembryanthemum nodiflorum</i> ; <i>Salsola tragus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD			Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 13	Project I	Damaged Extant Natural Pool	946	0.022	30.48	73-87	<i>Callitriche marginata</i> ; <i>Crassula connata</i> ; <i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Pilularia americana</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Avena fatua</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Glebionis coronaria</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	1035	0.024	17	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	
EP 14	Project I	Damaged Pool (Origin Unknown)	317	0.007	21.00	78-92	<i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Erodium sp.</i> ; <i>Festuca perennis</i> ; <i>Hedypnois cretica</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	BrLi	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	479	0.011	19	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	

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Pool Number	Project Number	EXISTING CONDITIONS								PLANNED CONDITIONS									
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 15	Project I	Damaged Extant Natural Pool	675	0.015	26.00	73-87	<i>Callitriche marginata</i> ; <i>Elatine brachysperma</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	1379	0.032	27	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo
EP 16	Project I	Damaged Extant Natural Pool	162	0.004	20.00	25-38	<i>Juncus bufonius</i>	<i>Atriplex semibaccata</i> ; <i>Avena barbata</i> ; <i>Bromus rubens</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i> ; <i>Sonchus oleraceus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	542	0.012	17	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 17	Project I	Damaged Extant Natural Pool	296	0.007	20.50	30-43	<i>Crassula solieri</i> ; <i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i>	<i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	BrUnk	Weed dethatching; Soil salvage; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	663	0.015	19	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 18	Project I	Damaged Extant Natural Pool	452	0.010	27.00	78-92	<i>Elatine brachysperma</i> ; <i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	867	0.020	24	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo
EP 19	Project I	Damaged Extant Natural Pool	180	0.004	17.78	25-38	<i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i> ; <i>Salsola tragus</i> ; <i>Spergularia bocconi</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	266	0.006	14	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo
EP 20	Project I	Damaged Extant Natural Pool	360	0.008	16.50	25-38	<i>Acmispon micranthus</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i> ; <i>Selaginella cinerascens</i> ; <i>Triglochin scilloides</i>	<i>Atriplex semibaccata</i> ; <i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	604	0.014	19	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 21	Future Project III	Damaged Extant Natural Pool	150	0.003	6.00	13-24	<i>Acmispon glaber</i> ; <i>Crassula connata</i> ; <i>Isocoma menziesii</i> ; <i>Selaginella cinerascens</i>	<i>Avena barbata</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedynois cretica</i> ; <i>Hypochaeris glabra</i> ; <i>Lamarkia aurea</i> ; <i>Salsola tragus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD			Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 22	Project I	Damaged Extant Natural Pool	310	0.007	6.35	25-38	<i>Juncus bufonius</i>	<i>Avena barbata</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i>	-	-	Pool combined with Extant Pool 23; Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	708	0.016	12	Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 23	Project I	Damaged Extant Natural Pool	217	0.005	10.50	25-38	<i>Baccharis sarothroides</i> ; <i>Deinandra fasciculata</i>	<i>Avena barbata</i> ; <i>Bromus rubens</i> ; <i>Festuca perennis</i> ; <i>Hedynois cretica</i> ; <i>Erodium botrys</i> ; <i>Hirschfeldia incana</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i> ; <i>Spergularia sp.</i> ; <i>Centaurea melitensis</i>	-	BrUnk	Combined with EP 22	See EP 22							
EP 24	Project I	Damaged Pool (Origin Unknown)	147	0.003	8.26	25-38	<i>Baccharis sarothroides</i> ; <i>Deinandra fasciculata</i>	<i>Avena fatua</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Centaurea melitensis</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Melilotus indicus</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	379	0.009	14	Range of Control Pools		< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 25	Project I	Damaged Pool (Origin Unknown)	587	0.013	17.15	64-77	<i>Baccharis sarothroides</i> ; <i>Crassula aquatica</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Plantago elongata</i> ; <i>Triglochin scilloides</i>	<i>Atriplex semibaccata</i> ; <i>Avena barbata</i> ; <i>Bromus hordeaceus</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedynpnois cretica</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Melilotus indicus</i> ; <i>Sonchus asper</i>	<i>Microseris</i> <sup>2</sup> <i>douglasii</i> <sup>2</sup> ssp. <sup>2</sup> <i>platycarpa</i>	BrLi	Pool combined with Extant Pool 34; Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	1247	0.029	20	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 26	Project I	Damaged Extant Natural Pool	135	0.003	11.43	40-53	<i>Baccharis sarothroides</i> ; <i>Crassula aquatica</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Plantago elongata</i> ; <i>Psilocarphus brevissimus</i> ; <i>Sisyrinchium bellum</i>	<i>Avena fatua</i> ; <i>Bromus hordeaceus</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedynpnois cretica</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Polygonum aviculare</i> ; <i>Spergularia</i> sp.	-	BrUnk	Weed dethatching; Seeding; Solarizing <sup>7</sup> ; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	135	0.003	11.43	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 27	Project I	Damaged Extant Natural Pool	326	0.007	13.00	25-38	<i>Baccharis sarothroides</i> ; <i>Crassula connata</i> ; <i>Juncus bufonius</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Trifolium</i> sp.; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Polygonum aviculare</i> ; <i>Salsola tragus</i> ; <i>Spergularia bocconi</i>	-	-	Pool combined with Extant Pool 39; Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	712	0.016	8	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 28	Project I	Damaged Pool (Origin Unknown)	93	0.002	7.00	25-38	<i>Baccharis sarothroides</i> ; <i>Deinandra fasciculata</i> ; <i>Plantago elongata</i> ; <i>Psilocarphus brevissimus</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Foeniculum vulgare</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Salsola</i> sp.	-	-	Weed dethatching; Soil disposa <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	93	0.002	8	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp
EP 29	Project I	Damaged Pool (Origin Unknown)	405	0.009	13.97	25-38	<i>Baccharis sarothroides</i> ; <i>Deinandra fasciculata</i> ; <i>Plagiobothrys acanthocarpus</i>	<i>Avena fatua</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium</i> sp.; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lysimachia arvensis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Mesembryanthemum nodiflorum</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i>	-	BrUnk	Weed dethatching; Soil salvage; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	775	0.018	14	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 30	Project I	Damaged Extant Natural Pool	658	0.015	22.23	78-92	<i>Acmispon glaber</i> ; <i>Deinandra fasciculata</i> ; <i>Elatine brachysperma</i> ; <i>Eryngium aristulatum</i> ssp. <i>parishii</i> ; <i>Juncus bufonius</i> ; <i>Logfia arizonica</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Stipa cernua</i> ; <i>Triglochin scilloides</i>	<i>Atriplex semibaccata</i> ; <i>Avena barbata</i> ; <i>Avena fatua</i> ; <i>Bromus rubens</i> ; <i>Centaurea melitensis</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Melilotus indicus</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i>	<i>Eryngium aristulatum</i> var. <i>parishii</i> <sup>9</sup>	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	1228	0.028	19	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo
EP 31	Future Project III	Damaged Extant Natural Pool	51	0.001	12.50	25-38	<i>Baccharis sarothroides</i> ; <i>Crassula connata</i> ; <i>Crassula solieri</i>	<i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedynois cretica</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Salsola tragus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD		Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 32	Future Project III	Damaged Extant Natural Pool	214	0.005	15.00	25-38	<i>Deinandra fasciculata</i> ; <i>Sisyrinchium bellum</i>	<i>Avena barbata</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i> ; <i>Spergularia bocconi</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD		Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 33	Project I	Damaged Extant Natural Pool	100	0.002	12.50	25-38	<i>Crassula solieri</i> ; <i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Plantago elongata</i> ; <i>Psilocarphus brevissimus</i>	<i>Avena barbata</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i>	-	-	Combined with EP 6	See EP 6							

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9. *Eryngium aristulatum* var. *parishii* was last observed in 2017.

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 34	Project I	Damaged Extant Natural Pool	229	0.005	11.43	25-38	<i>Baccharis sarothroides</i> ; <i>Juncus bufonius</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i>	<i>Avena barbata</i> ; <i>Avena fatua</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedypnois cretica</i> ; <i>Hordeum murinum</i> ; <i>Hypochaeris glabra</i> ; <i>Lamarkia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i>	-	-	Combined with EP 25	See EP 25							
EP 35	Future Project II	Damaged Extant Natural Pool	558	0.013	22.00	78-92	<i>Crassula aquatica</i> ; <i>Deinandra fasciculata</i> ; <i>Elatine brachysperma</i> ; <i>Eleocharis macrostachya</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Brassica nigra</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Centaurea melitensis</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lamarkia aurea</i> ; <i>Logfia gallica</i> ; <i>Lysimachia arvensis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Melilotus indicus</i> ; <i>Mesembryanthemum nodiflorum</i> ; <i>Polypogon monspeliensis</i> ; <i>Sonchus asper</i> ; <i>Salsola tragus</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding			Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	
EP 36	Future Project II	Damaged Extant Natural Pool	37	0.001	6.00	47-60	-	<i>Avena fatua</i> ; <i>Brachypodium distachyon</i> ; <i>Bromus rubens</i> ; <i>Festuca perennis</i> ; <i>Medicago polymorpha</i> ; <i>Oxalis pes-caprae</i> ; <i>Rumex crispus</i> ; <i>Salsola tragus</i> ; <i>Sonchus oleraceus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding			Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
EP 37	Future Project II	Damaged Extant Natural Pool	102	0.002	9.00	93-104	<i>Artemisia californica</i> ; <i>Cordylanthus rigidus</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Eriogonum fasciculatum</i> ; <i>Juncus bufonius</i> ; <i>Selaginella cinerascens</i>	<i>Avena fatua</i> ; <i>Brassica nigra</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Centaurea melitensis</i> ; <i>Erodium botrys</i> ; <i>Euphorbia peplus</i> ; <i>Festuca myuros</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i> ; <i>Silene gallica</i>	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding			Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 38	Future Project II	Damaged Extant Natural Pool	136	0.003	7.62	25-38	<i>Acmispon micranthus</i> ; <i>Cordylanthus rigidus</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Plantago elongata</i> ; <i>Sisyrinchium bellum</i> ; <i>Trifolium sp.</i>	<i>Avena fatua</i> ; <i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedypnois cretica</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Medicago polymorpha</i> ; <i>Salsola tragus</i> ; <i>Spergularia sp.</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD		Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo		
EP 39	Project I	Damaged Extant Natural Pool	152	0.003	9.00	30-43	<i>Deinandra fasciculata</i> ; <i>Hordeum intercedens</i> ; <i>Juncus bufonius</i> ; <i>Matricaria discoidea</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Plantago elongata</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Atriplex semibaccata</i> ; <i>Avena fatua</i> ; <i>Bromus diandrus</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Polygonum aviculare</i> ; <i>Spergularia bocconi</i>	-	-	Combined with EP 27			See EP 27					
EP 40	Project I	Damaged Artificial Extant Pool	33	0.001	11.00	74-87	<i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i> ; <i>Plantago elongata</i>	<i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedypnois cretica</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Mesembryanthemum nodiflorum</i> ; <i>Spergularia bocconi</i>	<i>Hordeum</i> <sup>10</sup> <i>intercedens</i> ; <sup>10</sup> <i>Microseris</i> <sup>10</sup> <i>douglasii</i> ssp. <sup>10</sup> <i>platycarpa</i>	BrLi; BrSa	Greater heavy equipment grading to fill pool and restore Mima mound								
EP 41	Project I	Damaged Pool (Origin Unknown)	56	0.001	9.00	40-53	<i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Matricaria discoidea</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Plantago elongata</i>	<i>Bromus hordeaceus</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Spergularia bocconi</i>	-	BrLi	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	335	0.008	10	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 42	Future Project II	Damaged Pool (Origin Unknown)	298	0.007	15.00	47-60	<i>Acmispon glaber</i> ; <i>Baccharis sarothroides</i>	<i>Avena fatua</i> ; <i>Brachypodium distachyon</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Hypochaeris glabra</i> ; <i>Lamarckia aurea</i> ; <i>Lysimachia arvensis</i> ; <i>Medicago polymorpha</i> ; <i>Mesembryanthemum nodiflorum</i> ; <i>Rumex crispus</i> ; <i>Sonchus oleraceus</i> ; <i>Salsola tragus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD			Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 43	Future Project II	Damaged Pool (Origin Unknown)	671	0.015	20.50	82-93	<i>Cordylanthus rigidus</i> ; <i>Juncus bufonius</i> ; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Brassica nigra</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Lysimachia arvensis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i> ; <i>Salsola tragus</i> ; <i>Silene gallica</i> ; <i>Sonchus oleraceus</i>	-	BrUnk	Weed dethatching; Soil salvage; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD			Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 44	Future Project II	Damaged Extant Natural Pool	424	0.010	11.50	25-38	<i>Baccharis sarothroides</i> ; <i>Crassula aquatica</i> ; <i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i>	<i>Avena barbata</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD			Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
EP 45	Project I	Damaged Pool (Origin Unknown)	133	0.003	1.5	25-38	<i>Acmispon micranthus</i> ; <i>Baccharis sarothroides</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i>	<i>Avena barbata</i> ; <i>Bromus diandrus</i> ; <i>Bromus rubens</i> ; <i>Festuca perennis</i> ; <i>Hedyscymus hretica</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Oxalis pes-caprae</i> ; <i>Salsola tragus</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	133	0.003	6	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS									
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	
EP 46	Project I	Damaged Artificial Extant Pool	47	0.001	2.5	13-26	-	<i>Atriplex semibaccata</i> ; <i>Avena barbata</i> ; <i>Avena fatua</i> ; <i>Bromus diandrus</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Oxalis pes-caprae</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i>	-	-	Greater heavy equipment grading to fill pool and restore Mima mound									
EP 47	Project I	Damaged Pool (Origin Unknown)	229	0.005	8	47-60	<i>Baccharis pilularis</i> ; <i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i> ; <i>Psilocarphus brevissimus</i>	<i>Avena barbata</i> ; <i>Bromus tubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i> ; <i>Sonchus oleraceus</i>	-	BrSa	Pool combined with Extant Pool 48; Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	618	0.014	22	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa; StWo		
EP 48	Project I	Damaged Pool (Origin Unknown)	80	0.002	21	61-75	-	<i>Avena barbata</i> ; <i>Brassica nigra</i> ; <i>Bromus tubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hordeum murinum</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Salsola tragus</i> ; <i>Sonchus asper</i>	-	BrSa	Combined with EP 47	See EP 47								
EP 49	Project I	Damaged Pool (Origin Unknown)	133	0.003	11.5	47-60	<i>Deinandra fasciculata</i> ; <i>Isocoma menziesii</i>	<i>Avena barbata</i> ; <i>Bromus tubens</i> ; <i>Erodium botrys</i> ; <i>Festuca perennis</i> ; <i>Hedypnois retica</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Salsola tragus</i> ; <i>Spergularia bocconi</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding	TBD		Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo			

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
EP 50	Project I	Damaged Pool (Origin Unknown)	257	0.006	28	88-99	<i>Baccharis salicifolia</i> ; <i>Deinandra fasciculata</i> ; <i>Eleocharis macrostachya</i> ; <i>uncus bufonius</i> ; <i>Silocarphus brevissimus</i> ; <i>Silene gallica</i>	<i>Avena barbata</i> ; <i>Brassica nigra</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus tubens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Melilotus indicus</i> ; <i>Rumex crispus</i> ; <i>Salsola tragus</i> ; <i>Spergularia bocconi</i>	-	-	Weed dethatching; Soil disposal <sup>6</sup> ; Greater heavy equipment grading; Solarizing <sup>7</sup> ; Seeding; Shrimp soil inoculation <sup>8</sup> ; Hand-weeding		TBD	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
											Restored (Constructed) Pools								
C1		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	553	0.013	14	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
C2		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	693	0.016	20	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
C3		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	484	0.011	17	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
C4		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	178	0.004	12	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
C5		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	418	0.010	17	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
C6		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	251	0.006	14	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	
C7		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	297	0.007	17	Range of Control Pools	< 5% cover	DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo	

(table continues)

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm) <sup>4</sup>	Maximum Continuous Ponding (Days) <sup>1</sup>	Native Plant Cover <sup>5</sup>	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>2</sup>	Fairy Shrimp <sup>3</sup>
C8		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	286	0.007	14	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
C9		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	797	0.018	14	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo
C10		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	275	0.006	19	Range of Control Pools	< 5% cover		DoCu; ErAr; Holn; MiDo; MyMi; NaFo; OrCa; and/or PoNu	BrSa and/or StWo

Subtotal All Extant Pools (50 Pools)	14582	0.335
Subtotal All Extant Pools Excluding Cultural Resource Pools (47 Pools)	13992	0.321
Subtotal Extant Pools Phase I (32 Pools)	10526	0.242
	Area (Square Feet)	Area (Acres)

Subtotal All Enhanced Pools (45 Pools)	13912	0.319
Subtotal Enhanced Pools Phase I (30 Pools)	17394	0.399
Subtotal Filled Pools Phase I (2 Pools)	80	0.002
Subtotal Restored Pools Phase I (10 Pools)	4232	0.097
	Area (Square Feet)	Area (Acres)

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## **APPENDIX B**

### **Existing Conditions – Otay Mesa J26 Control Pools**



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Pool Number	Existing Conditions Otay Mesa J26 Control Pools								
	Description	Area (Square Feet) <sup>1</sup>	Area (Acres)	Maximum Depth (cm) <sup>2</sup>	Maximum Continuous Ponding (Days) <sup>3</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>4</sup>	Fairy Shrimp <sup>5</sup>
9	Extant Natural Pool	288.4	0.007	10	25-38	<i>Bloomeria clevelandii</i> ; <i>Brodiaea terrestris</i> ssp. <i>kernensis</i> ; <i>Calandrinia menziesii</i> ; <i>Castilleja densiflora</i> ; <i>Crassula aquatica</i> ; <i>Deinandra fasciculata</i> ; <i>Deschampsia danthonioides</i> ; <i>Eleocharis macrostachya</i> ; <i>Eriogonum fasciculatum</i> ssp. <i>fasciculatum</i> ; <i>Eryngium aristulatum</i> ssp. <i>parishii</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Phalaris lemmonii</i> ; <i>Pilularia americana</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Pogogyne nudiuscula</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i> ; <i>Zeltnera venusta</i>	<i>Bromus hordeaceus</i> ; <i>Centaurea melitensis</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i>	<i>Eryngium aristulatum</i> var. <i>parishii</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Pogogyne nudiuscula</i>	-
10	Extant Natural Pool	690.5	0.016	29	88-99	<i>Plagiobothrys acanthocarpus</i> ; <i>Castilleja densiflora</i> ; <i>Crassula aquatica</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Elatine brachysperma</i> ; <i>Eleocharis macrostachya</i> ; <i>Gnaphalium palustre</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Pilularia americana</i> ; <i>Psilocarphus brevissimus</i> ; <i>Trifolium depauperatum</i> ; <i>Trifolium</i> sp.; <i>Triglochin scilloides</i>	<i>Avena barbata</i> ; <i>Bromus rubens</i> ; <i>Cerastium glomeratum</i> ; <i>Cotula coronopifolia</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Gastridium phleoides</i> ; <i>Hypochaeris glabra</i> ; <i>Lythrum hyssopifolia</i> ; <i>Polypogon monspeliensis</i> ; <i>Silene gallica</i>	<i>Pogogyne nudiuscula</i>	-
11	Extant Natural Pool	291.8	0.007	8.5	25-38	<i>Bloomeria clevelandii</i> ; <i>Brodiaea terrestris</i> ssp. <i>kernensis</i> ; <i>Castilleja densiflora</i> ; <i>Chlorogalum</i> sp.; <i>Crassula aquatica</i> ; <i>Crassula connata</i> ; <i>Croton setiger</i> ; <i>Deinandra fasciculata</i> ; <i>Eryngium aristulatum</i> ssp. <i>parishii</i> ; <i>Isocoma menziesii</i> ; <i>Juncus bufonius</i> ; <i>Lasthenia gracilis</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Opuntia littoralis</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Pogogyne nudiuscula</i> ; <i>Psilocarphus brevissimus</i> ; <i>Zeltnera venusta</i>	<i>Avena barbata</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Bromus</i> sp.; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Hypochaeris glabra</i> ; <i>Lamarckia aurea</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Rumex crispus</i> ; <i>Unknown grass</i>	<i>Eryngium aristulatum</i> ssp. <i>parishii</i> ; <i>Pogogyne nudiuscula</i>	-
12	Extant Natural Pool	271.1	0.006	17.5	25-38	<i>Adenostoma fasciculatum</i> ; <i>Bloomeria clevelandii</i> ; <i>Callitriche marginata</i> ; <i>Chlorogalum parviflorum</i> ; <i>Crassula aquatica</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Selaginella cinerascens</i>	<i>Avena barbata</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus</i> sp.; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i>	-	-
13	Extant Natural Pool	293.9	0.007	21.5	59-72	<i>Bloomeria clevelandii</i> ; <i>Brodiaea terrestris</i> ssp. <i>kernensis</i> ; <i>Chlorogalum parviflorum</i> ; <i>Croton setiger</i> ; <i>Crassula aquatica</i> ; <i>Deinandra fasciculata</i> ; <i>Elatine brachysperma</i> ; <i>Eleocharis macrostachya</i> ; <i>Isocoma menziesii</i> ; <i>Juncus bufonius</i> ; <i>Lasthenia gracilis</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Phalaris</i> sp.; <i>Pilularia americana</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Psilocarphus brevissimus</i> ; <i>Triglochin scilloides</i>	<i>Bromus hordeaceus</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Sonchus oleraceus</i>	-	BrSa
14	Extant Natural Pool	870.6	0.020	15	30-43	<i>Baccharis salicifolia</i> ; <i>Castilleja densiflora</i> ; <i>Crassula aquatica</i> ; <i>Croton setiger</i> ; <i>Deinandra fasciculata</i> ; <i>Deschampsia danthonioides</i> ; <i>Eleocharis macrostachya</i> ; <i>Eryngium aristulatum</i> ssp. <i>parishii</i> ; <i>Juncus bufonius</i> ; <i>Lysimachia minima</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Pogogyne nudiuscula</i> ; <i>Psilocarphus brevissimus</i>	<i>Bromus</i> sp.; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Silene gallica</i> ; <i>Polypogon monspeliensis</i>	<i>Eryngium aristulatum</i> var. <i>parishii</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Pogogyne nudiuscula</i>	BrUnk

(table continues)

1. Area for pools 9 - 20 is from ESA Consulting monitoring results for 2012 - 2015. Area for pools 21 - 25 is from City of San Diego 2014 pool location data.

2. Greatest depths are from ESA Consulting and Rocks Biological Consulting monitoring results for 2012 - 2017.

3. Ponding duration is from surveys by Rocks Biological Consulting in 2016 / 2017. Maximum continuous ponding duration is provided as a range of number of days. Site visits occurred every one to two weeks therefore the exact number of days a pool was ponding is unknown. It is difficult to predict the exact date a pool dried due to the effect that temperature changes and rain events between surveys can have on ponding. The lower number in the range of ponding duration is calculated using the dates of the surveys in which the pool was observed holding water. If a pool was holding water on consecutive surveys, it was assumed that it held water everyday between visits. The higher number in the range of ponding duration is calculated using the number of days between the last survey day a pool was holding water and the survey during which pool was recorded dry. For example, if a pool was recorded holding water on 1/1/17 and 1/13/17 but was recorded dry on 1/25/17 the ponding duration would be 13-24 days. If the pool experienced multiple ponding events, the longest continuous ponding duration is provided.

4. *Myosurus minimus* is recorded from the J 26 complex in the California Natural Diversity Database but was not reported by ESA Consulting or Rocks Biological Consulting in 2012 - 2017.

5. BrSa = *Branchinecta sandiegonensis*; BrUnk = Unknown *Branchinecta* species where *Branchinecta* were immature at time of observation or collection. *Streptocephalus woottoni* is recorded from the J 26 complex in the California Natural Diversity Database but was not reported by ESA Consulting or Rocks Biological Consulting in 2012 - 2017.

Pool Number	Existing Conditions Otay Mesa J26 Control Pools								
	Description	Area (Square Feet) <sup>1</sup>	Area (Acres)	Maximum Depth (cm) <sup>2</sup>	Maximum Continuous Ponding (Days) <sup>3</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>4</sup>	Fairy Shrimp <sup>5</sup>
15	Extant Natural Pool	1340.5	0.031	7.5	25-38	<i>Baccharis sarothroides</i> ; <i>Castilleja densiflora</i> ; <i>Crassula aquatica</i> ; <i>Croton setiger</i> ; <i>Deinandra fasciculata</i> ; <i>Eryngium aristulatum</i> ssp. <i>parishii</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Plantago erecta</i> ; <i>Psilocarphus brevissimus</i> ; <i>Stipa cernua</i> ; <i>Zeltnera venusta</i>	<i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Polypogon monspeliensis</i> ; <i>Unknown grass</i>	<i>Eryngium aristulatum</i> var <i>parishii</i>	-
16	Extant Natural Pool	394.2	0.009	5.0	25-38	<i>Dichelostemma capitatum</i> ; <i>Pterostegia drymarioides</i> ; <i>Zeltnera venusta</i> ; <i>Bloomeria clevelandii</i> ; <i>Brodiaea terrestris</i> ssp. <i>kemensis</i> ; <i>Chlorogalum parviflorum</i> ; <i>Crassula aquatica</i> ; <i>Crassula connata</i> ; <i>Cryptantha</i> sp.; <i>Cylindropuntia prolifera</i> ; <i>Deinandra fasciculata</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Plantago erecta</i> ; <i>Pogogyne nudiuscula</i> ; <i>Psilocarphus brevissimus</i> ; <i>Selaginella cinerascens</i> ; <i>Stipa cernua</i> ; <i>Stylocline gnaphaloides</i> ; <i>Trifolium depauperatum</i>	<i>Bromus hordeaceus</i> ; <i>Centaurea melitensis</i> ; <i>Polopogon</i> sp.; <i>Bromus rubens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Gastridium phleoides</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i>	<i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Pogogyne nudiuscula</i>	-
17	Extant Natural Pool	468.3	0.011	5	25-38	<i>Calochortus</i> sp.; <i>Bloomeria clevelandii</i> ; <i>Brodiaea terrestris</i> ssp. <i>kemensis</i> ; <i>Castilleja densiflora</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Hordeum intercedens</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Logfia arizonica</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Plagiobothrys acanthocarpus</i> ; <i>Pogogyne nudiuscula</i> ; <i>Psilocarphus brevissimus</i> ; <i>Stipa pulchra</i> ; <i>Zeltnera venusta</i>	<i>Brassica nigra</i> ; <i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Centaurea melitensis</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Gastridium phleoides</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lysimachia arvensis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Silene gallica</i> ; <i>Polypogon monspeliensis</i>	<i>Pogogyne nudiuscula</i>	-
18	Extant Natural Pool	580.6	0.013	10.0	25-38	<i>Acmispon micranthus</i> ; <i>Bloomeria clevelandii</i> ; <i>Brodiaea terrestris</i> ssp. <i>kemensis</i> ; <i>Castilleja densiflora</i> ; <i>Crassula aquatica</i> ; <i>Crassula connata</i> ; <i>Deinandra fasciculata</i> ; <i>Dichelostemma capitatum</i> ; <i>Juncus bufonius</i> ; <i>Lasthenia gracilis</i> ; <i>Lepidium nitidum</i> ; <i>Microseris douglasii</i> ssp. <i>platycarpa</i> ; <i>Phalaris</i> sp.; <i>Pogogyne nudiuscula</i> ; <i>Psilocarphus brevissimus</i> ; <i>Stylocline gnaphaloides</i> ; <i>Zeltnera venusta</i> ; <i>Daucus pusillus</i> ; <i>Navarretia hamata</i> ssp. <i>Hamata</i>	<i>Bromus hordeaceus</i> ; <i>Bromus rubens</i> ; <i>Cerastium</i> sp.; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lysimachia arvensis</i> ; <i>Lythrum hyssopifolia</i> ; <i>Silene gallica</i> ; <i>Centaurea melitensis</i> ; <i>Polypogon monspeliensis</i>	<i>Pogogyne nudiuscula</i>	-
19	Extant Natural Pool	201.7	0.005	6.5	13-26	<i>Acmispon micranthus</i> ; <i>Psilocarphus tenellus</i> ; <i>Stipa lepida</i> ; <i>Bloomeria clevelandii</i> ; <i>Brodiaea</i> sp.; <i>Chlorogalum parviflorum</i> ; <i>Crassula connata</i> ; <i>Daucus pusillus</i> ; <i>Deinandra fasciculata</i> ; <i>Dichelostemma capitatum</i> ; <i>Juncus bufonius</i> ; <i>Lepidium nitidum</i> ; <i>Lysimachia minima</i> ; <i>Pogogyne nudiuscula</i> ; <i>Stipa cernua</i> ; <i>Trifolium depauperatum</i> ; <i>Triglochin scilloides</i>	<i>Centaurea melitensis</i> ; <i>Bromus rubens</i> ; <i>Cerastium glomeratum</i> ; <i>Erodium botrys</i> ; <i>Erodium moschatum</i> ; <i>Festuca myuros</i> ; <i>Gastridium phleoides</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Silene gallica</i> ; <i>Sonchus oleraceus</i>	<i>Pogogyne nudiuscula</i>	-
20	Extant Natural Pool	327.6	0.008	17.0	30-43	<i>Acmispon glaber</i> ; <i>Acmispon micranthus</i> ; <i>Brodiaea</i> sp.; <i>Castilleja densiflora</i> ; <i>Deinandra fasciculata</i> ; <i>Dichelostemma capitatum</i> ; <i>Juncus bufonius</i> ; <i>Phalaris lemmonii</i> ; <i>Sisyrinchium bellum</i> ; <i>Stipa cernua</i> ; <i>Stipa pulchra</i> ; <i>Trifolium depauperatum</i> ; <i>Zeltnera venusta</i>	<i>Bromus diandrus</i> ; <i>Bromus hordeaceus</i> ; <i>Centaurea melitensis</i> ; <i>Dittrichia graveolens</i> ; <i>Erodium botrys</i> ; <i>Festuca myuros</i> ; <i>Festuca perennis</i> ; <i>Hypochaeris glabra</i> ; <i>Logfia gallica</i> ; <i>Lythrum hyssopifolia</i> ; <i>Medicago polymorpha</i> ; <i>Melilotus indicus</i> ; <i>Phalaris minor</i> ; <i>Sonchus oleraceus</i>	-	-

(table continues)

Pool Number	Existing Conditions Otay Mesa J26 Control Pools								
	Description	Area (Square Feet) <sup>1</sup>	Area (Acres)	Maximum Depth (cm) <sup>2</sup>	Maximum Continuous Ponding (Days) <sup>3</sup>	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants <sup>4</sup>	Fairy Shrimp <sup>5</sup>
21	Extant Natural Pool	191	0.004	6.5	25-38	<i>Acmispon</i> <del>trigosus</del> ; <i>Baccharis</i> <del>arathroides</del> ; <i>Bloomeria</i> <del>clevelandii</del> ; <i>Brodiaea</i> <del>ssp.</del> ; <i>Castilleja</i> <del>densiflora</del> ; <i>Chlorogalum</i> <del>ssp.</del> ; <i>Crassula</i> <del>connata</del> ; <i>Deinandra</i> <del>fasciculata</del> ; <i>Dichelostemma</i> <del>capitatum</del> ; <i>Uncus</i> <del>bufonius</del> ; <i>Lasthenia</i> <del>racilis</del> ; <i>Lepidium</i> <del>nitidum</del> ; <i>Lysimachia</i> <del>minima</del> ; <i>Plagiobothrys</i> <del>acanthocarpus</del> ; <i>Psilocarphus</i> <del>brevissimus</del> ; <i>Psilocarphus</i> <del>tenellus</del> ; <i>Stipa</i> <del>pulchra</del> ; <i>Triglochin</i> <del>cilloides</del> ; <i>Zeltnera</i> <del>venusta</del>	<i>Bromus</i> <del>hordeaceus</del> ; <i>Erodium</i> <del>botrys</del> ; <i>Gastidium</i> <del>phleoides</del> ; <i>Hypochaeris</i> <del>glabra</del> ; <i>Logfia</i> <del>gallica</del> ; <i>Lythrum</i> <del>hyssopifolia</del>	-	-
22	Extant Natural Pool	377	0.009	8	25-38	<i>Acmispon</i> <del>glaber</del> ; <i>Artemisia</i> <del>californica</del> ; <i>Baccharis</i> <del>arathroides</del> ; <i>Bloomeria</i> <del>clevelandii</del> ; <i>Castilleja</i> <del>densiflora</del> ; <i>Chlorogalum</i> <del>ssp.</del> ; <i>Crassula</i> <del>connata</del> ; <i>Deinandra</i> <del>fasciculata</del> ; <i>Dichelostemma</i> <del>capitatum</del> ; <i>Ferocactus</i> <del>viridescens</del> ; <i>Uncus</i> <del>bufonius</del> ; <i>Leemna</i> <del>ssp.</del> ; <i>Lysimachia</i> <del>minima</del> ; <i>Osmadenia</i> <del>tenella</del> ; <i>Phalaris</i> <del>ssp.</del> ; <i>Psilocarphus</i> <del>tenellus</del> ; <i>Stipa</i> <del>pulchra</del> ; <i>Trifolium</i> <del>ssp.</del> ; <i>Zeltnera</i> <del>venusta</del>	<i>Avena</i> <del>barbata</del> ; <i>Bromus</i> <del>hordeaceus</del> ; <i>Bromus</i> <del>tubens</del> ; <i>Erodium</i> <del>botrys</del> ; <i>Festuca</i> <del>myuros</del> ; <i>Gastidium</i> <del>phleoides</del> ; <i>Hypochaeris</i> <del>glabra</del> ; <i>Medicago</i> <del>polymorpha</del> ; <i>Onchus</i> <del>asper</del>	-	-
23	Extant Natural Pool	92	0.002	12	25-38	<i>Bloomeria</i> <del>clevelandii</del> ; <i>Brodiaea</i> <del>terrestris</del> ssp. <del>kernensis</del> ; <i>Castilleja</i> <del>densiflora</del> ; <i>Chlorogalum</i> <del>parviflorum</del> ; <i>Crassula</i> <del>connata</del> ; <i>Deinandra</i> <del>fasciculata</del> ; <i>Dichelostemma</i> <del>capitatum</del> ; <i>Asocoma</i> <del>menziesii</del> ; <i>Uncus</i> <del>bufonius</del> ; <i>Lasthenia</i> <del>racilis</del> ; <i>Lepidium</i> <del>nitidum</del> ; <i>Lysimachia</i> <del>minima</del> ; <i>Stipa</i> <del>ternua</del>	<i>Avena</i> <del>barbata</del> ; <i>Bromus</i> <del>hordeaceus</del> ; <i>Bromus</i> <del>tubens</del> ; <i>Centaurea</i> <del>melitensis</del> ; <i>Erodium</i> <del>botrys</del> ; <i>Festuca</i> <del>myuros</del> ; <i>Festuca</i> <del>perennis</del> ; <i>Gastidium</i> <del>phleoides</del> ; <i>Hypochaeris</i> <del>glabra</del> ; <i>Logfia</i> <del>gallica</del> ; <i>Lysimachia</i> <del>tervensis</del>	-	-
24	Extant Natural Pool	93	0.002	16.5	25-38	<i>Acmispon</i> <del>micranthus</del> ; <i>Antirrhinum</i> <del>nuttallianum</del> ; <i>Chlorogalum</i> <del>parviflorum</del> ; <i>Crassula</i> <del>aquatica</del> ; <i>Crassula</i> <del>connata</del> ; <i>Deinandra</i> <del>fasciculata</del> ; <i>Dichelostemma</i> <del>capitatum</del> ; <i>Uncus</i> <del>bufonius</del> ; <i>Lepidium</i> <del>nitidum</del> ; <i>Lysimachia</i> <del>minima</del> ; <i>Psilocarphus</i> <del>brevissimus</del> ; <i>Psilocarphus</i> <del>tenellus</del>	<i>Bromus</i> <del>hordeaceus</del> ; <i>Bromus</i> <del>tubens</del> ; <i>Centaurea</i> <del>melitensis</del> ; <i>Erodium</i> <del>botrys</del> ; <i>Festuca</i> <del>myuros</del> ; <i>Gastidium</i> <del>phleoides</del> ; <i>Hedypnois</i> <del>retetica</del> ; <i>Hypochaeris</i> <del>glabra</del> ; <i>Lamarckia</i> <del>lutea</del> ; <i>Logfia</i> <del>gallica</del> ; <i>Lythrum</i> <del>hyssopifolia</del> ; <i>Silene</i> <del>gallica</del>	-	-
25	Extant Natural Pool	540	0.012	14	25-38	<i>Acmispon</i> <del>glaber</del> ; <i>Artemisia</i> <del>californica</del> ; <i>Acmispon</i> <del>micranthus</del> ; <i>Brodiaea</i> <del>terrestris</del> ssp. <del>kernensis</del> ; <i>Calochortus</i> <del>splendens</del> ; <i>Castilleja</i> <del>densiflora</del> ; <i>Chlorogalum</i> <del>ssp.</del> ; <i>Crassula</i> <del>connata</del> ; <i>Deinandra</i> <del>fasciculata</del> ; <i>Dichelostemma</i> <del>capitatum</del> ; <i>Eryngium</i> <del>aristulatum</del> ssp. <del>parishii</del> ; <i>Uncus</i> <del>bufonius</del> ; <i>Lepidium</i> <del>nitidum</del> ; <i>Lysimachia</i> <del>minima</del> ; <i>Phalaris</i> <del>ssp.</del> ; <i>Plagiobothrys</i> <del>acanthocarpus</del> ; <i>Psilocarphus</i> <del>brevissimus</del> ; <i>Stipa</i> <del>ssp.</del>	<i>Bromus</i> <del>hordeaceus</del> ; <i>Centaurea</i> <del>melitensis</del> ; <i>Erodium</i> <del>botrys</del> ; <i>Festuca</i> <del>myuros</del> ; <i>Festuca</i> <del>perennis</del> ; <i>Gastidium</i> <del>phleoides</del> ; <i>Hypochaeris</i> <del>glabra</del> ; <i>Lamarckia</i> <del>lutea</del> ; <i>Logfia</i> <del>gallica</del> ; <i>Lythrum</i> <del>hyssopifolia</del> ; <i>Medicago</i> <del>polymorpha</del> ; <i>Silene</i> <del>gallica</del> ; <i>Onchus</i> <del>oleraceus</del>	<i>Eryngium</i> <del>aristulatum</del> ssp. <del>parishii</del>	-

Total Pool Area	7312	0.168
	Area (Square Feet)	Area (Acres)

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