

Appendix D

Western Riverside County Multiple
Species Habitat Conservation Plan
(MSHCP) Biological Resources
Compliance Analysis
(March 2024)

INFORMATION SUMMARY



- A. Report Date: March 12th, 2024
- B. Report Title: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Biological Resources Compliance Analysis for the 66-Acre Green Valley Specific Plan Project Site, City of Perris, Western Riverside County, California.
- C. APN#: 327-220-011, 327-220-012, 327-220-004 (offsite right-of-way).
- D. Project Location: USGS 7.5' Series Romoland and Perris Quadrangles, Riverside County, Township 5 South, Range 3 West, Section 9, Extending East of Green Valley Parkway, South of Watson Road and West of Case Road, as shown in Attachment A, *Regional Location Map* and Attachment B, *Project Site Map*.
- E. Applicant: Richland Real Estate Fund, LLC
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- G. Date of Surveys: October 7th, 2022, March 7th, April 7th, 11th, 21st, 28th, and May 1st, 11th, 19th, 21st, June 1st, 11th, and 21st, 2023.
- H. Summary: The 57.88-acre property including 8.12-acre offsite assessment area (right-of-way), 66 acres total are located within the MSHCP Mead Valley Area Plan. The Project Site is not located within or adjacent to an MSHCP Criteria Area, Cell Group, or Linkage Area. Therefore, no Habitat Evaluation and Acquisition Negotiation Strategy (HANS), Consistency Analysis or Joint Project Review (JPR) are required.
- The Project Site does not occur within a predetermined Survey Area for criteria area or narrow endemic plant species. (RCA GIS Data Downloads 2023). No additional surveys are required.

The Project Site does not occur within a predetermined Survey Area for amphibians (RCA GIS Data Downloads 2023). No additional surveys are required.

The Project Site does not occur within a predetermined Survey Area for mammals (RCA GIS Data Downloads 2023). No additional surveys are required.

The Project Site occurs completely within a predetermined Survey Area for the burrowing owl (*Athene cunicularia*) as shown in Attachment C, *MSHCP Relationship Map*. Suitable burrowing owl burrows larger than 4 inches in diameter and foraging habitat were documented within and adjacent to the Project Site. Focused MSHCP burrowing owl surveys were conducted during the spring of 2023 to determine the presence/absence and status of the species within and adjacent to the Project Site. No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 survey effort (Cadre Environmental 2023a). An MSHCP preconstruction survey will also be required within 30-days prior to start of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP.

A total of sixty-six (66) seasonal depressions and/or seasonally inundated road ruts representing potential habitat for fairy shrimp were delineated by WSP on the Project Site (WSP USA Environment & Infrastructure, Inc. 2023b). The features were surveyed for sensitive fairy shrimp during the summer of 2023 (dry season) and winter/spring of 2022-2023 (wet season). The common versatile fairy shrimp (*Branchinecta lindahl*) was documented within the Project Site. No federally listed species including the vernal pool fairy shrimp (*Branchinecta lynchi*) or Riverside fairy shrimp (*Streptocephalus woottoni*) were detected during the wet or dry season sampling efforts (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c, 2024). The depressions were characterized as non-vernal pool/non-wetland resources by WSP USA Environment & Infrastructure, Inc. (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c). The project is compliant with MSHCP Section 6.1.2.

No suitable habitat (riparian forest or woodlands) for the southwestern willow flycatcher (*Empidonax traillii extimus*) or western yellow-billed cuckoo (*Coccyzus americanus*) was documented within or adjacent to the Project Site. Low quality habitat (riparian scrub) for the least Bell's vireo (*Vireo bellii pusillus*) was documented within the northern and southern detention basins. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023. No breeding or transitory least Bell's vireo

were documented onsite during the focused surveys conducted during the spring of 2023 (Cadre Environmental 2023b). No additional surveys or DBESP are required.

No features regulated by the United States Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Boards (RWQCB) and MSHCP Section 6.1.2. Riparian/Riverine/Vernal Pools are present onsite (WSP USA Environment & Infrastructure, Inc. 2023a, 2023c). Regulatory permits, certifications and MSHCP DBESP are not required.

APPENDIX A – CEQA CHECKLIST SUMMARY

SUBJECT

Western Riverside County Multiple Species Habitat Conservation Plan Biological Resources Compliance Analysis for the 66-Acre Green Valley Specific Plan Project Site, City of Perris, Western Riverside County, California.

This report presents the findings of a biological resources Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) compliance analysis for the 66 acre (57.88 acres onsite, 8.12 acres offsite) Green Valley Specific Plan project site “Project Site” located within the City of Perris, western region of Riverside County, California. Specifically, the Project Site is located within Assessor Parcel Numbers (APNs) 327-220-011, 327-220-012, 327-220-004 and Right of Ways (ROW). The purpose of this study, conducted by Cadre Environmental, is to document the existing biological resources, identify general vegetation types, and assess the potential biological and regulatory requirements associated with the proposed development for purposes of ensuring compliance with the Western Riverside County MSHCP and California Environmental Quality Act (CEQA).

The Project Site is located within United States Geological Survey (USGS) 7.5’ Series Romoland and Perris Quadrangles, Riverside County, Township 5 South, Range 3 West, Section 9. Specifically, the Project Site extends east of Green Valley Parkway, south of Watson Road and west of Case Road, as shown in Attachment A, *Regional Location Map* and Attachment B, *Project Site Map*.

The Project Site is located within the Western Riverside County MSHCP Mead Valley Plan Area and is not located within a Criteria Area, Cell Group or linkage area. The Project Site is located within an MSHCP survey area for burrowing owl (*Athene cunicularia*), as shown in Attachment C, *MSHCP Relationship Map*.

This report incorporates the findings of an extensive literature review, compilation of existing documentation, field reconnaissance and focused surveys conducted throughout the winter of 2022 and summer of 2023. This documentation is consistent with accepted scientific and technical standards, the requirements of the United States Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (CDFW). When appropriate, general biological resources are described in summary form in an effort to provide the reader with adequate background information. However, the report focuses on documenting those resources considered to be significant and/or sensitive as outlined by the CEQA and the Western Riverside County MSHCP.

PROJECT DESCRIPTION

The entire Project Site is proposed for development, however final plans are not yet complete.

METHODS OF STUDY

LITERATURE REVIEW

Existing biological resource conditions within and adjacent to the Project Site were initially investigated through review of pertinent scientific literature. Federal register listings, protocols, and species data provided by the USFWS were reviewed in conjunction with anticipated federally listed species potentially occurring within the Project Site (USFWS Species Occurrence Database 2023). The California Natural Diversity Database (CNDDB 2023a),¹, a CDFW Natural Heritage Division species account database, was also reviewed for all pertinent information regarding the locations of known occurrences of sensitive species in the vicinity of the properties. Combined, the sources reviewed provided an excellent baseline from which to assess the biological resources potentially occurring in the area. Other USFWS and CDFW reports and publications consulted include the following:

- Special Animals (CDFW 2023b);
- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2023c);
- Endangered, Threatened, and Rare Plants of California (CDFW 2023c); and
- Special Vascular Plants and Bryophytes List (CDFW 2023e).
- Threatened and Endangered Species Occurrence Database (USFWS 2023)

As required by the MSHCP, and during the initial property assessment process, Project Site APN's were searched using the Regional Conservation Authority (RCA) Geographic Information System (GIS) Data to determine if the property falls within a "Criteria Area" and if additional surveys for narrow endemic/criteria area plant species or wildlife not adequately covered by the MSHCP may be required as shown in Attachment C, *MSHCP Relationship Map* (RCA GIS Data Downloads 2023).

Data, which contain digital images derived from aerial photography with orthographic projection properties (Google Earth Pro 2023), were used in conjunction with Cadre Environmental's in-house geographic information system (GIS) database as an important base layer to identify vegetation communities, drainage features, and USFWS designated critical habitat boundaries. Vegetation communities were then "ground-truthed" during field observations to obtain characteristic descriptions.

FIELD INVESTIGATION

The Project Site was initially surveyed on October 7th, 2022. The survey included complete coverage of the Project Site, with special attention focused toward sensitive resources or those habitats potentially supporting sensitive flora or fauna that would be essential to efficiently implementing the terms and conditions of the Western Riverside County MSHCP including features potentially subject to MSHCP 6.1.2 jurisdiction. Aerial

¹ California Natural Diversity Data Base, Department of Fish and Wildlife. September 2023. Natural Heritage Program: RareFind, Romoland and Nine (9) Adjacent Quadrangles.

photography of the Project Site and vicinity was utilized to accurately locate and survey the property. General plant communities were preliminarily mapped directly on the aerial photo using visible landmarks in the field, which are depicted in Attachment D, *Vegetation Communities Map*. Representative photographs of the Project Site's natural resources and existing conditions were taken during the field survey as shown in Attachments E to J, *Current Project Site Photographs*.

Plant Community/Habitat Classification and Mapping

Plant communities were preliminarily mapped with the aid of an aerial photograph using the MSHCP uncollapsed vegetation communities' classification system.

General Plant Inventory

Plants observed during the survey efforts were either identified in the field or collected and later identified using taxonomic keys. Plant taxonomy and nomenclatural changes follow Baldwin et al. (2012) or the Jepson Flora Project (2023). Common names used in this report generally follow Roberts et al. (2004) or Baldwin et al. (2012). Scientific names are included only at the first mention of a species; thereafter, common names alone are used.

General Wildlife Inventory

General wildlife surveys were not conducted during the general biological habitat assessment. However, animals identified during the reconnaissance survey by sight, call, tracks, nests, scat, remains, or other signs were recorded in field notes. Wildlife was identified in the field with the aid of binoculars and taxonomic keys (if applicable). Vertebrate taxonomy followed in this report is according to the Center of North American Herpetology (2023) for amphibians and reptiles, the American Ornithologists' Union (1998 and supplemental) for birds, and Bradley et al. (2014) for mammals. Scientific names are used during the first mention of a species; common names only are used in the remainder of the text (if applicable).

MSHCP Fairy Shrimp Wet and Dry Season Surveys

Focused wet season fairy shrimp surveys were conducted by WSP USA Environment & Infrastructure, Inc. during the winter of 2022 and spring of 2023 (Appendix E). As stated by WSP USA Environment & Infrastructure, Inc.:

"The first storm of the season sufficient to create inundated areas occurred on 8 November 2022. On 9 November 2022, WSP senior biologist John F. Green, under the authority of USFWS 10a permit number TE054011-8, mapped inundated areas meeting the Survey Guidelines for the Listed Large Branchiopods (USFWS 2017) criteria for pooling sufficient to support listed fairy shrimp species. Also, after each subsequent rain event, the site was resurveyed to determine if pools had reinundated or if any new pools had filled. Surveys were undertaken one week after rain events in any

pools still inundated. Each ponded area was systematically sampled to account for all areas around the pond and within the entire water column. Dip nets were used to skim the surface, bottom and middle of the ponds. The first survey was conducted by Green on 16 November 2022. The site was continuously surveyed by Green on a weekly basis until the rainy season ended and all pools had dried, with a final visit on 12 May 2023. As needed, Green utilized additional WSP biologists as field assistants including Nathan Moorhatch, Emily Urquidi, Cindy Dunn, and Melanie Bukovac.” WSP USA Environment & Infrastructure, Inc. 2023b)

Focused dry season fairy shrimp surveys were conducted by WSP USA Environment & Infrastructure, Inc. during the summer of 2023 (Appendix F). As stated by WSP USA Environment & Infrastructure, Inc.:

“Dry soils were collected on July 26, 2023 by Mr. John Green of WSP as authorized by USFWS under permit number TE-054011 of Section 10(a)(1)(A) of the federal Endangered Species Act (ESA), 16 U.S.C. 1531 et seq., and its implementing regulations (Appendix A). The collected soils were delivered to HBC for subsequent processing and analysis as described below.

Soil samples obtained from WSP were processed and analyzed by Dr. Brent Helm of HBC as authorized by the USFWS under recovery permit number TE-795930-12 of Section 10(a)(1)(A) of the federal ESA, 16 U.S.C. 1531 et seq., and its implementing regulations. In HBC’s laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The soil retained from the 75-micron diameter pore size sieve was then removed and thinly (≈ 1.0 mm) spread into plastic petri dishes.

*The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm’s large branchiopod cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock et al. 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, Thiery et al. 1995, and Rabet 2010) were used to identify and compare any cysts observed within the soil samples. This processing method (described above) favors the detection of cysts belonging to the genera *Branchinecta*, *Lepidurus*, and *Streptocephalus* since these three genera have species that are federally*

listed. The presence of other aquatic macroinvertebrates encountered was also noted on the laboratory data sheet.

Because there are several species within the genus Branchinecta that could occur or are known to occur within the vicinity of the Project, cysts belonging to the genus Branchinecta observed within the soils, were cultured to determine species as described below.

Petri dishes containing soils with Branchinecta cysts were placed into individual six-quart plastic containers. The soils were saturated with 50o F well water (non-chlorinated) and allowed to dry. This saturation and drying process was repeated three times. The soils were then inundated completely with 50o F well water. The containers holding the inundated soils were inserted into an environmental chamber. The environmental chamber controls were set to mimic the winter light, humidity, and temperature fluctuations of the Project's vicinity. The contents of the containers were monitored daily for fairy shrimp hatchlings (instars).

If no hatchlings were observed after ten (10) days, the containers were removed from the environmental chamber and the soils were allowed to completely dry before reinitiating the hatching process described above. A total of three hatching attempts were performed on each soil sample.

Fairy shrimp hatchlings were feed ground fish food and reared in the environmental chamber until they were mature enough to be identified using dichotomous keys and diagrams from "Fairy Shrimps of California's Puddles, Pools, and Playas" (Eriksen and Belk 1999) and two more recent publications concerning the identification of San Diego fairy shrimp (Branchinecta sandiegonensis) (Simovich et al. 2013, Patel et al. 2018); along with comparisons to Dr. Helm's large branchiopod reference collection. Representative mature listed large branchiopods specimens were obtained from each container and preserved in 95% ethanol as species vouchers." (WSP USA Environment & Infrastructure, Inc 2024)

MSHCP Burrowing Owl Surveys

The Project Site occurs completely within an MSHCP burrowing owl (*Athene cunicularia*) survey area and a habitat assessment was conducted for the species to ensure compliance with MSHCP guidelines for the species (Appendix B).

In accordance with the MSHCP Burrowing Owl Survey Instructions (2006), survey protocol consists of two steps, Step I – Habitat Assessment and Step II – Locating Burrows and Burrowing Owls. Step II is comprised of two parts, Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys.

Each step is briefly outlined below, followed by the methodology and results of each survey conducted within the Project Site. All initial habitat assessment, burrow and focused surveys were conducted by Ruben Ramirez, Cadre Environmental.

Surveys were conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys were not conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. None of the surveys were conducted within five (5) days of measurable precipitation.

In addition to the MSHCP guidelines, field notes were taken daily. These notes recorded the date, location, animal species observed, and general habitat characteristics of each area and habitat examined that day.

Step I – Habitat Assessment

Step 1 of the MSHCP habitat assessment for burrowing owl consists of a walking survey to determine if suitable habitat is present onsite. Cadre Environmental conducted the initial habitat assessment on October 7th, 2022. Upon arrival at the Project Site, and prior to initiating the assessment survey, Cadre Environmental used binoculars to scan all suitable habitats on and adjacent to the property, including perch locations, to ascertain owl presence.

All suitable areas of the Project Site were surveyed on foot by walking slowly and methodically while recording/mapping areas that may represent suitable owl habitat onsite. Primary indicators of suitable burrowing owl habitat in western Riverside County include, but are not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels (*Otospermophilus beecheyi*) or badgers (*Taxidea taxus*), but they often utilize man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles, or openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

According to the MSHCP guidelines, if suitable habitat is present the biologist should also walk the perimeter of the property, which consists of a 150-meter (approximately 500 feet) buffer zone around the Project Site boundary. If permission to access the buffer area cannot be obtained, the biologist shall not trespass, but visually inspect adjacent habitats with binoculars. Results from the habitat assessment indicated that suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented within the property including foraging habitat within the disturbed and non-native grassland vegetation. Accordingly, if suitable habitat is documented onsite, both Step II surveys and the 30-day pre-construction surveys are required in order to comply with the MSHCP guidelines.

Step II – Locating Burrows and Burrowing Owls

Concurrent with the initial habitat assessment, a detailed focused burrow survey was conducted and included documentation of appropriately sized natural burrows or suitable man-made structures that may be utilized by burrowing owl - as part of the MSHCP protocol, which is described below under Part A. Focused Burrow Survey.

Part A: Focused Burrow Survey

A systematic survey for burrows, including burrowing owl sign, was conducted by walking across all suitable habitats mapped within the Project Site. Pedestrian survey transects were spaced to allow 100% visual coverage of the ground surface. The distances between transect centerlines were no more than 20 meters (approximately 66 ft.) apart to the extent possible. Transect routes were also adjusted to account for topography and in general ground surface visibility. All observations of suitable burrows or dens, natural or man-made, or sightings of burrowing owl, were recorded and mapped during the survey.

Part B: Focused Burrowing Owl Surveys

Four (4) focused burrowing owl surveys were conducted during the spring of 2023 on March 7th, April 7th, 28th, and May 19th, 2023 from one hour before sunrise to two hours after sunrise as outlined in Table 1, *Burrowing Owl Survey Schedule*. During visual surveys, all potentially suitable burrow or structure entrances were investigated for signs of owl occupation, such as feathers, tracks, or pellets, and carefully observed to determine if burrowing owls utilize these features, when present. All burrows are monitored at a short distance from the entrance, and at a location that would not interfere with potential owl behavior, when present. In addition to monitoring potential burrow locations, all suitable habitats in the Project Site were walked along travel routes which allowed for visual assessments of all suitable habitats.

Table 1.
Burrowing Owl Survey Schedule

Survey	Dates (Conditions) 2023	Results
1	March 7 th , 44°F to 51°F, winds 2-8 mph, no rain	No burrowing owls detected.
2	April 7 th , 46°F to 60°F, winds 2-4 mph, no rain	No burrowing owls detected.
3	April 28 th , 55°F to 74°F, winds 4-8 mph, no rain	No burrowing owls detected.
4	May 19 th , 55 °F to 63°F, winds 2-4 mph, no rain	No burrowing owls detected.

MSHCP Least Bell's Vireo Surveys

Low quality suitable habitat for the least Bell's vireo was documented within the northern and southern detention basins, as shown in Attachment D, *Vegetation Communities Map*. Following the initial habitat assessment conducted on October 7th, 2022 to determine the

presence/absence of suitable habitat for sensitive riparian bird species within the Project Site, a total of eight (8) protocol least Bell's vireo surveys were conducted within all suitable habitat documented onsite. All surveys followed the recommended USFWS guidelines (USFWS (USFWS 2001). Specifically, guidelines for least Bell's vireo surveys require that at least eight (8) surveys be conducted from April 10th to July 31st (Appendix C)

All riparian habitats were systematically surveyed by Ruben Ramirez on April 11th, 21st, May 1st, 11th, 21st, June 1st, 11th, and 21st, 2023 by walking slowly and methodically along their margins of the riparian habitat. All surveys were conducted under optimal weather conditions and during early morning hours when bird activity is at a peak.

Regional Connectivity/Wildlife Movement Corridor Assessment

The analysis of wildlife movement corridors associated with the Project Site and its immediate vicinity is based on information compiled from literature, analysis of the aerial photograph, and direct observations made in the field during the site visit.

A literature review was conducted that included documents on island biogeography (studies of fragmented and isolated habitat "islands"), reports on wildlife home range sizes and migration patterns, and studies on wildlife dispersal. Wildlife movement studies conducted in southern California were also reviewed. Use of field-verified digital aerial data, in conjunction with the GIS database, allowed proper identification of vegetation communities and drainage features. This information was crucial to assessing the relationship of the property to large open space areas in the immediate vicinity and was also evaluated in terms of connectivity and habitat linkages. Relative to corridor issues, the discussions in this report are intended to focus on wildlife movement associated with the property and the immediate vicinity.

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967, Soule 1987, Harris and Gallagher 1989, Bennett 1990). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed "demes") linked together via a system of corridors is termed a "metapopulation." The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983, Farhig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989). Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as “wildlife corridor”, “travel route”, “habitat linkage”, and “wildlife crossing” to refer to areas in which wildlife moves from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

Travel Route: A landscape feature (such as a ridge line, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relatively direct link between target habitat areas.

Wildlife Corridor: A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as “habitat or landscape linkages”) can provide both transitory and resident habitat for a variety of species.

Wildlife Crossing: A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often “choke points” along a movement corridor.

Jurisdictional Resources

A jurisdictional delineation was conducted by WSP USA Environment & Infrastructure, Inc. in the spring of 2023 to determine the extent of features onsite subject to the United States Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the

Clean Water Act, CDFW jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Wildlife Code, the Santa Ana Regional Water Quality Control Board (RWQCB) 401 certification/Waste Discharge Requirements (WDR's), and MSHCP jurisdiction pursuant to Section 6.1.2 (MSHCP 2004) (Appendix D and G).

EXISTING CONDITIONS

The Project Site is currently dominated by field croplands, non-native grassland, disturbed/developed, seasonal depressions and two (2) existing detention basins as illustrated in Attachment D, *Vegetation Communities Map*, Attachments E to J, *Current Project Site Photographs*, and outlined in Table 2, *Project Site Vegetation Community Acreages & Impacts*.

Table 2
Project Site Vegetation Community Acreages & Impacts

Vegetation Community	Project Site (acres)	Offsite (acres)	Impacts (acres)
Field Croplands (recently disked)	43.94	4.23	48.17
Non-native Grassland	6.68	1.35	8.03
Disturbed	2.63	1.47	4.10
Seasonal Depression	2.85	0.00	2.85
Detention Basins	1.74	0.00	1.74
Developed	0.02	1.01	1.03
Agricultural Drainage Ditch	0.02	0.06	0.08
TOTAL	57.88	8.12	66.00

Source: Cadre Environmental 2023.

VEGETATION COMMUNITIES

The entire Project Site was historically used as agricultural lands for the production of common wheat (*Triticum aestivum*). Although the northern region of the Project Site was recently disked, the last indication of active agriculture production onsite was in 2003. Regardless, the northern region of the Project Site was characterized as field croplands while the majority of the southern region was characterized as non-native grassland and disturbed.

Field Croplands

The northern region of the Project Site was characterized as field croplands based on historical agricultural activities and the current disked condition of this region of the property. Species documented in this region include Russian thistle (*Salsola tragus*), stinknet (*Oncosiphon piluliferum*), cheeseweed (*Malva parviflora*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), tumbling pigweed (*Amaranthus albus*), ranchers fireweed (*Amsinckia menziesii*), and non-native grasses.

Non-native Grassland

The southern region of the Project Site does not appear to be annually disked and is currently dominated by non-native grassland species. Dominant species documented within this vegetation community include ripgut grass (*Bromus diandrus*), wild oat (*Avena fatua*), false barley (*Hordeum murinum*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). Less common species include rattail fescue (*Vulpia myuros*) and puncture vine (*Tribulus terrestris*).

Disturbed

Disturbed habitats include dirt roads as well as regions of the property generally devoid of vegetation.

Seasonal Depression

A total of sixty-six (66) seasonal depressions and/or seasonally inundated road ruts representing potential habitat for fairy shrimp were delineated by WSP on the Project Site (WSP USA Environment & Infrastructure, Inc. 2023b). The features were surveyed for sensitive fairy shrimp during the summer of 2023 (dry season) and winter/spring of 2022-2023 (wet season). With the exception of the two (2) seasonal depressions characterized below, the remaining features were either devoid of vegetation or dominated by non-native ruderal species, as described in the field croplands discussion above.

The two (2) seasonal depression located in the northern region of the Project Site were characterized as having both native and non-native species, as shown in Attachment D, *Vegetation Communities Map*. Species documented within the two (2) depressions include alkali plagiobothrys (*Plagiobothrys leptocladus*), slender goldfields (*Lasthenia gracilis*), hyssop loosestrife (*Lythrum hyssopifolia*), purslane speedweed (*Veronica peregrina* subsp. *xalapensis*), toad rush (*Juncus bufonius*), canary grass (*Phalaris canariensis*), salt grass (*Distichlis spicata*), alkali mallow (*Malvella leprosa*), salt heliotrope (*Heliotropium curassavicum*), cocklebur (*Xanthium strumarium*), common knotweed (*Polygonum arenastrum*) and curly dock (*Rumex crispus*).

Detention Basins

Two (2) detention basins are located onsite and both are dominated by riparian scrub species including Goodling's willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and Mediterranean tamarisk (*Tamarisk ramosissima*).

Developed

Developed regions of the Project Site include the offsite impact area which extends east into Case Road.

Agricultural Drainage Ditch

A heavily disturbed agricultural drainage ditch is located in the northeast region of the Project Site immediately south of Watson Road. The ditch is dominated by ruderal species including non-native grasses as described in the non-native grassland description. Other species documented within the ditch include annual sunflower (*Helianthus annuus*), and horseweed (*Erigeron canadensis*).

SOILS

The Soil Survey of Western Riverside Area has classified the Project Site as Exeter sandy loam, 0 to 2 percent slopes (EnA), Greenfield sandy loam, 0 to 2 percent slopes (GyA), and Madera fine sandy loam, 0 to 2 percent slopes (MaA), as illustrated in Attachment K, *Soils Association Map*.

WILDLIFE POPULATIONS

General wildlife species documented on site include but are not limited to red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), western meadowlark (*Sturnella neglecta*), western bluebird (*Sialia mexicana*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), American crow (*Corvus brachyrhynchos*), white crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), yellow rumped warbler (*Setophaga coronata*), warbling vireo (*Vireo gilvus*), red-winged black bird (*Agelaius phoeniceus*), European starling (*Sturnus vulgaris*), lesser goldfinch (*Spinus psaltria*), house finch (*Haemorhous mexicanus*), desert cottontail rabbit (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*).

REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT

The Project Site is not located within or adjacent to an MSHCP designated core, extension of existing core, non-contiguous habitat block, constrained linkage, or linkage area.

Although the Project Site is bordered along the western boundary by undeveloped agricultural lands, the southern and eastern boundaries are located adjacent to high traffic roads, State Route 215, and commercial development, which restrict potential movement of wildlife between the Project Site and open space habitats located east of State Route 215. The northern Project Site boundary is located adjacent to the Perris Valley Regional Water Relocation Facility which is surrounded by a security fence. No drainages, refugia or natural movement routes are located within or adjacent to the Project Site. The Project Site does not represent a regional wildlife movement corridor.

SENSITIVE BIOLOGICAL RESOURCES

OVERVIEW OF CLASSIFICATIONS

The following discussion describes the plant and wildlife species present, or potentially present, within the property boundaries, that have been afforded special recognition by federal, state, or local resource conservation agencies and organizations, principally due to the species' declining or limited population sizes, usually resulting from habitat loss. Also discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife. Protected sensitive species are classified by either state or federal resource management agencies, or both, as threatened or endangered under provisions of the state and federal Endangered Species Acts. Vulnerable or "at-risk" species that are proposed for listing as threatened or endangered are categorized administratively as "candidates" by the USFWS. The CDFW uses various terminology and classifications to describe vulnerable species. There are additional sensitive species classifications applicable in California. These are described below.

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. The CDFW, the USFWS, and special groups like the California Native Plant Society (CNPS) maintain watch lists of such resources. For the purpose of this assessment, sources used to determine the sensitive status of biological resources are:

Plants: USFWS (2023), CNDDDB (CDFW 2023a), CDFW (2023b), CNPS (2023), and Skinner and Pavlik (1994),

Wildlife: California Wildlife Habitat Relationships (2008), USFWS (2023), CNDDDB (CDFW 2023a), and CDFW (2023b).

Habitats: CNDDDB (CDFW 2023a).

Federal Protection and Classifications

The Federal Endangered Species Act of 1973 (FESA) defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." Threatened species are defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, it is unlawful to "take" any listed species. "Take" is defined as follows in Section 3(18) of the FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of a "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with the

USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants. Recently, the USFWS instituted changes in the listing status of former candidate species. Former C1 (candidate) species are now simply referred to as candidate species and represent the only candidates for listing. Former C2 species (for which the USFWS had insufficient evidence to warrant listing at this time) and C3 species (either extinct, no longer a valid taxon, or more abundant than was formerly believed) are no longer considered as candidate species. Therefore, these species are no longer maintained in list form by the USFWS, nor are they formally protected. However, some USFWS field offices have issued memoranda stating that former C2 species are henceforth to be considered Federal Species of Concern. This term is employed in this document, but carries no official protections. All references to federally protected species in this report (whether listed, proposed for listing, or a candidate) include the most current published status or candidate category to which each species has been assigned by the USFWS. For purposes of this assessment, the following acronyms are used for federal status species:

FE	Federal Endangered
FT	Federal Threatened
FPE	Federal Proposed Endangered
FPT	Federal Proposed Threatened
FC	Federal Candidate for Listing

The designation of critical habitat can also have a significant impact on the development of land designated as “*critical habitat*.” The FESA prohibits federal agencies from taking any action that will “*adversely modify or destroy*” critical habitat (16 U.S.C. § 1536(a)(2)). This provision of the FESA applies to the issuance of permits by federal agencies. Before approving an action affecting critical habitat, the federal agency is required to consult with the USFWS who then issues a biological opinion evaluating whether the action will “*adversely modify*” critical habitat. Thus, the designation of critical habitat effectively gives the USFWS extensive regulatory control over the development of land designated as critical habitat.

The federal Migratory Bird Treaty Act (MBTA) makes it unlawful to “*take*” any migratory bird or part, nest, or egg of such bird listed in wildlife protection treaties between the United States and Great Britain, the Republic of Mexico, Japan, and the Union of Soviet States. For purposes of the MBTA, “*take*” is defined as to pursue, hunt, capture, kill, or possess or attempt to do the same.

The Bald Eagle and Golden Eagle Protection Act explicitly protects the bald eagle and golden eagle and imposes its own prohibition on any taking of these species. As defined in this act, take means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb. Current USFWS policy is not to refer the incidental take of bald eagles for prosecution under the Bald Eagle and Golden Eagle Protection Act (16 U.S.C. 668-668d).

State of California Protection and Classifications

The California Endangered Species Act (CESA) defines an endangered species as “...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.” The State defines a threatened species as “...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species.” Candidate species are defined as “...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.” Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission.

Article 3, sections 2080 through 2085 of the CESA addresses the taking of threatened or endangered species by stating “no person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided...” Under the CESA, “take” is defined as “...hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Exceptions authorized by the state to allow “take” require “...permits or memorandums of understanding...” and can be authorized for “...endangered species, threatened species, or candidate species for scientific, educational, or management purposes.” Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

Additionally, some sensitive mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, sections 4700 and 3511, respectively. California Species of Special Concern (“special” animals and plants) listings include special status species, including all state and federal protected and candidate taxa, Bureau of Land Management and U.S. Forest Service sensitive species, species considered to be declining or rare by the CNPS or National Audubon Society, and a selection of species that are considered to be under population stress but are not formally proposed for listing. This list is primarily a working document for the CDFW CNDDDB project. Informally listed taxa are not protected per se, but warrant consideration in the preparation of biotic assessments. For some species, the CNDDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites. For the purposes of this assessment, the following acronyms are used for state status species:

SE	State Endangered
ST	State Threatened
SCE	State Candidate Endangered
SCT	State Candidate Threatened
SFP	State Fully Protected
SP	State Protected
SR	State Rare
CSC	California Species of Special Concern
WL	California Watch List

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” In addition, under California Fish and Game Code Section 3503.5, “it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto”. Passerines and non-passerine land birds are further protected under California Fish and Game Code 3513. As such, CDFW typically recommends surveys for nesting birds that could potentially be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by CDFW.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in the state. This organization has compiled an inventory comprised of the information focusing upon geographic distribution and qualitative characterization of rare, threatened, or endangered vascular plant species of California (Tibor 2001). The list serves as the candidate list for listing as threatened and endangered by the CDFW. The CNPS has developed five categories of rarity (California Rare Plant Rank [CRPR]):

CRPR 1A	Presumed extinct in California
CRPR 1B	Rare, threatened, or endangered in California and elsewhere
CRPR 2A	Plants presumed extirpated in California but common elsewhere
CRPR 2B	Plants rare, threatened, or endangered in California but more common elsewhere
CRPR 3	Plants about which we need more information – a review list

CRPR 4	Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat
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As stated by the CNPS:

Threat Rank is an extension added onto the California Rare Plant Rank and designates the level of endangerment by a 1 to 3 ranking with 1 being the most endangered and 3 being the least endangered. A Threat Rank is present for all California Rare Plant Rank 1B, 2, 4, and the majority of California Rare Plant Rank 3. California Rare Plant Rank 4 plants are seldom assigned a Threat Rank of 0.1, as they generally have large enough populations to not have significant threats to their continued existence in California; however, certain conditions exist to make the plant a species of concern and hence be assigned a California Rare Plant Rank. In addition, all California Rare Plant Rank 1A (presumed extinct in California), and some California Rare Plant Rank 3 (need more information) plants, which lack threat information, do not have a Threat Rank extension (CNPS 2012).

0.1	Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
0.2	Fairly threatened in California (20-80 percent occurrences threatened/moderate degree and immediacy of threat)
0.3	Not very threatened in California (<20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

POTENTIALLY SENSITIVE SPECIES/RESOURCES

Determinations of MSHCP sensitive species that could potentially occur on the Project Site are based on one or both of the following: (1) a record reported in the CNDDDB or CNPS inventory and; (2) the Project Site is within the known distribution of a species and contains suitable habitat or species documented onsite.

City of Perris Urban Forestry Establishment and Care Ordinance (19.71).

No trees regulated by the City of Perris Urban Forestry Establishment and Care Ordinance (19.71) were documented onsite. No mitigation required or proposed.

Sensitive Plant Species

The Project Site does not occur within a predetermined Survey Area for MSHCP criteria area or narrow endemic plant species. (RCA GIS Data Downloads 2023). No surveys are required.

Sensitive Wildlife Species

Amphibians and Mammals

The Project Site does not occur within a predetermined Survey Area for amphibians or mammals (RCA GIS Data Downloads 2023). No surveys are required.

The Project Site falls within the Stephens' kangaroo rat (*Dipodomys stephensi*, SKR) Fee Area outlined in the Riverside County SKR Habitat Conservation Plan (HCP).

Burrowing Owl

The Project Site occurs completely within a predetermined Survey Area for the burrowing owl as shown in Attachment C, *MSHCP Relationship Map*. Suitable burrowing owl burrows larger than 4 inches in diameter and foraging habitat were documented within and adjacent to the Project Site. Focused MSHCP burrowing owl surveys were conducted during the spring of 2023 to determine the presence/absence and status of the species within and adjacent to the Project Site. No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 survey effort as shown in Table 1, *Burrowing Owl Survey Schedule* (Cadre Environmental 2023a).

An MSHCP preconstruction survey will also be required within 30-days prior to start of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP.

Riparian Birds

No suitable habitat (riparian forest or woodlands) for the southwestern willow flycatcher (*Empidonax traillii extimus*) or western yellow-billed cuckoo (*Coccyzus americanus*) was documented within or adjacent to the Project Site. Low quality habitat (riparian scrub) for the least Bell's vireo (*Vireo bellii pusillus*) was documented within the northern and southern detention basins. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023. No breeding or transitory least Bell's vireo were documented onsite during the focused surveys conducted during the spring of 2023 (Cadre Environmental 2023b). No additional surveys or Determination of Biological Equivalent or Superior Preservation (DBESP) are required.

Nesting Bird & Raptor Habitat

The vegetation communities documented onsite represent potential nesting habitat for common and MSHCP covered sensitive bird and raptor species. Potential direct and/or indirect impacts to regulated nesting birds and raptors will require compliance with the MBTA and CDFG Codes Section 3503, 3503.5, and 3513.

MSHCP Section 6.1.2 Riparian, Riverine, Vernal Pool Resources

Vernal Pool Resources

A total of sixty-six (66) seasonal depressions and/or seasonally inundated road ruts representing potential habitat for fairy shrimp were delineated by WSP on the Project Site (WSP USA Environment & Infrastructure, Inc. 2023b). The features were surveyed for sensitive fairy shrimp during the summer of 2023 (dry season) and winter/spring of 2022-2023 (wet season). The common versatile fairy shrimp (*Branchinecta lindahli*) was documented within the Project Site. No federally listed species including the vernal pool fairy shrimp (*Branchinecta lynchi*) or Riverside Fairy shrimp (*Streptocephalus woottoni*) were detected during the wet or dry season sampling efforts (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c, 20024). The depressions were characterized as non-vernal pool/non-wetland resources by WSP USA Environment & Infrastructure, Inc., Appendix G (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c). As stated by WSP:

“No pools meeting the vegetative parameters of a vernal pool were identified onsite during WSP’s 2022 - 2023 survey. At a minimum, however, low-lying areas and other human-modified depressions (such as road ruts) are present, providing suitable habitat for fairy shrimp and necessitating this study. Two constructed basins are also present onsite, one in the northwest and one in the southeast. Because they appear to be permanently inundated, they were not considered fairy shrimp habitat. Water in active drainages and graveled, maintained public roads was also not considered fairy shrimp habitat. Nevertheless, these features were checked during each survey visit as a precaution. No fairy shrimp were ever detected in them, therefore, these non-habitat water features are not labeled on the map figures.” (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c).

“The literature review, including a historical aerial analysis, and on-site field assessment of the Project Site yielded no evidence of vernal pools. A jurisdictional wetland delineation was conducted during the wet season on February 10, 2023, with an additional follow-up assessment carried out in July 2023. While certain areas were identified as low-lying depressions modified by human activity, including two basin features, no obligate hydrophytes or facultative wetland plant species typically prevalent during the wetter phase of the growing season were observed. Consequently, it is determined that vernal pool resources are not present in the project area.” (WSP USA Environment & Infrastructure, Inc. 2023c)

Riparian/Riverine Resources

No Section 6.1.2 riparian scrub, forest, woodland habitat is located within or adjacent to the Project Site, as shown in Attachment D, *Vegetation Communities Map*, and Attachments E to J, *Current Project Site Photographs*. No resources meeting the

definition of Section 6.1.2 riparian or riverine are located within the Project Site, Appendix G (WSP USA Environment & Infrastructure, Inc. 2023c). As stated by WSP:

*“The Project Site is located within a historically agricultural zone, containing remnants of irrigation basins utilized for such purposes. Three features within the project area were assessed for potential classification as MSHCP riparian/riverine resources. These include a basin feature along Watson Road, a basin north of Ethanac Road, and a road side drainage ditch. The functions and values of all features were evaluated regarding their potential classification as MSHCP riparian/riverine resources. However, none of these resources exhibits key attributes associated with such features. For instance, there is no hydrologic connectivity to downstream resources, including connections to riparian/riverine resources or MSHCP Conserved Lands, which encompass reservoirs, other large waterbodies, or lands designated for conservation. Moreover, the features, do not provide sediment retention, transport, nutrient processing, flood storage, flood flow modification, or containment of contaminants (i.e., chemical factors). While a few immature individual Godding’s black willow (*Salix gooddingii*) were observed in the basin near Ethanac Road, the predominant species in both basin features is salt cedar (*Tamarix ramosissima*). Furthermore, the vegetation within the basin features and the road side ditch is sparse, isolated, and consequently does not constitute viable habitat for species typically associated with riparian habitat. The drainage ditch was surveyed during an active rain event that recorded over 0.5 of rain. Evidence of flows targeted during the survey included clearly defined bed and bank features, debris rack, sedimentation deposits, water staining, hydrophytic vegetation, hydric soils, and/or presence of flowing water. There was no evidence of flow within the roadside ditch or the presence of riparian/riverine habitat. As such, it is concluded that the artificially created irrigation basins and roadside drainage feature do not meet the criteria described in Section 6.1.2 of the MSHCP for riparian/riverine resources.” (WSP USA Environment & Infrastructure, Inc. 2023c)*

No DBESP is required.

Regulatory Resources

No features regulated by the USACE, CDFW, RWQCB and MSHCP Section 6.1.2. Riparian/Riverine/Vernal Pools are present onsite (WSP USA Environment & Infrastructure, Inc. 2023a, 2023c). Regulatory permits, certifications and MSHCP DBESP are not required, Appendix D. No mitigation required or proposed.

SUMMARY OF COMPLIANCE WITH MSHCP POLICIES

The purpose of this report is to document the existing biological resources, assess the potential biological and regulatory constraints, impacts and mitigation requirements associated with the proposed development to ensure compliance with the MSHCP. The

following sections summarize the Project Site's relationship to MSHCP criteria areas and MSHCP compliance guidelines.

CRITERIA AREAS

The 57.88-acre property including 8.12-acre offsite assessment area (right-of-way), 66-acres total is located within the MSHCP Mead Valley Area Plan. The Project Site is not located within or adjacent to an MSHCP Criteria Area, Cell Group, or Linkage Area.

No HANS, Consistency Analysis or JPR are required.

CRITERIA AREA SPECIES SURVEY AREA

The Project Site does not occur within a predetermined Survey Area for MSHCP criteria area plant species; therefore, no surveys are required (RCA GIS Data Downloads 2023).

The project is compliant with MSHCP Section 6.3.2.

NARROW ENDEMIC PLANT SPECIES SURVEY AREA

The Project Site does not occur within a predetermined Survey Area for MSHCP narrow endemic plant species; therefore, no surveys are required (RCA GIS Data Downloads 2023).

The project is compliant with MSHCP Section 6.1.3

AMPHIBIAN SPECIES SURVEY AREA

The Project Site is not within the Amphibian Species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2023).

The project is compliant with MSHCP Section 6.3.2.

MAMMAL SPECIES SURVEY AREA

The Project Site is not within the Mammal Species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2023).

The project is compliant with MSHCP Section 6.3.2.

BURROWING OWL SURVEY AREA

The Project Site occurs completely within a predetermined Survey Area for the burrowing owl as shown in Attachment C, *MSHCP Relationship Map*. Suitable burrowing owl burrows larger than 4 inches in diameter and foraging habitat were documented within and adjacent to the Project Site. Focused MSHCP burrowing owl surveys were

conducted during the spring of 2023 to determine the presence/absence and status of the species within and adjacent to the Project Site. No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 survey effort as shown in Table 1, *Burrowing Owl Survey Schedule* (Cadre Environmental 2023a).

Following submittal, review and approval of the burrowing owl preconstruction survey report by the City of Perris and compliance with all species-specific conservation goals, if detected, the project will be compliant with MSHCP Section 6.3.2.

MSHCP SECTION 6.1.2 RIPARIAN/RIVERINE AREAS AND VERNAL POOLS

Riparian Birds

No suitable habitat (riparian forest or woodlands) for the southwestern willow flycatcher or western yellow-billed cuckoo was documented within or adjacent to the Project Site. Low quality habitat (riparian scrub) for the least Bell's vireo was documented within the northern and southern detention basins. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023. No breeding or transitory least Bell's vireo were documented onsite during the focused surveys conducted during the spring of 2023 (Cadre Environmental 2023b).

The project is compliant with MSHCP Section 6.1.2 and an MSHCP DBESP is not required.

Vernal Pool Resources

A total of sixty-six (66) seasonal depressions and/or seasonally inundated road ruts representing potential habitat for fairy shrimp were delineated by WSP on the Project Site (WSP USA Environment & Infrastructure, Inc. 2023b). The features were surveyed for sensitive fairy shrimp during the summer of 2023 (dry season) and winter/spring of 2022-2023 (wet season). The common versatile fairy shrimp (*Branchinecta lindahli*) was documented within the Project Site. No federally listed species including the vernal pool fairy shrimp (*Branchinecta lynchi*) or Riverside fairy shrimp (*Streptocephalus woottoni*) were detected during the wet or dry season sampling efforts (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c, 2024). The depressions were characterized as non-vernal pool/non-wetland resources by WSP USA Environment & Infrastructure, Inc. (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c).

The project is compliant with MSHCP Section 6.1.2.

Riparian/Riverine Resources

No Section 6.1.2 riparian scrub, forest, woodland habitat is located within or adjacent to the Project Site, as shown in Attachment D, *Vegetation Communities Map*, and Attachments E to J, *Current Project Site Photographs*. No resources meeting the

definition of Section 6.1.2 riparian or riverine are located within the Project Site (WSP USA Environment & Infrastructure, Inc. 2023c).

The project is compliant with MSHCP Section 6.1.2 and an MSHCP DBESP is not required.

URBAN/WILDLANDS INTERFACE

The MSHCP Urban/Wildlands Interface guidelines presented in Section 6.1.4 are intended to address indirect effects associated with locating commercial, mixed uses and residential developments in proximity to a MSHCP Conservation Area. The Project Site is not located adjacent to an existing or proposed MSHCP Conservation Area.

The project is compliant with MSHCP Section 6.1.4.

FUELS MANAGEMENT

The fuels management guidelines presented in Section 6.4 of the MSHCP are intended to address brush management activities around new development within or adjacent to MSHCP Conservation Areas. The Project Site is not located adjacent to an existing or proposed MSHCP Conservation Area.

The project is compliant with MSHCP Section 6.4.

CONDITIONS OF APPROVAL

The following section summarizes Conditions of Approval (COA) requirements which will need to be implemented to ensure development (use) of the Project Site remains in compliance with CEQA and MSHCP guidelines. The proposed action includes impacts to all 66.00 acres of vegetation within the Project Site and offsite impact area as shown in Attachment L, *Project Site Impact Map* and outlined in Table 2, *Project Site Vegetation Community Acreages & Impacts*.

COA-1 MSHCP Local Development Mitigation Fee

The project applicant shall pay MSHCP Local Development Mitigation fees as established by the RCA and implemented by the City of Perris.

Five categories of the fee are defined and include: Residential, density less than 8.0 dwelling units per acre \$4,236 per dwelling unit; Residential, density between 8.1 and 14.0 dwelling units per acre \$1,766 per dwelling unit; Residential, density greater than 14.1 dwelling units per acre \$781 per dwelling unit; Commercial development \$19,066 per acre; and Industrial development \$19,066 per acre.

COA-2 SKR Mitigation Fee

The Project Site falls within the SKR Fee Area outlined in the Riverside County SKR HCP. The project applicant shall pay the fees pursuant to County Ordinance 663.10 for the SKR HCP Fee Assessment Area as established and implemented by the County of Riverside.

COA- 3 MSHCP 30-Day Burrowing Owl Preconstruction Survey

A pre-construction survey for burrowing owls is required 30-days prior to initial ground-disturbing activities (e.g. vegetation clearing, clearing and grubbing, tree removal, site watering) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the Project Site prior to the initiation of ground-disturbing activities, the project proponent will immediately inform the Wildlife Agencies and the Regional Conservation Authority (RCA), and will need to coordinate further with RCA and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure burrowing owl has not colonized the site since it was last disturbed. If burrow owl is found, the same coordination described above will be necessary.

COA-4 MBTA & CDFG Nesting Bird Code Compliance

The vegetation communities documented onsite represent potential nesting habitat for common and MSHCP covered sensitive bird and raptor species. Potential direct and/or indirect impacts to regulated nesting birds and raptors will require compliance with the MBTA and CDFG Codes Section 3503, 3503.5, and 3513.

Construction outside the nesting season (between September 16th and January 31st) do not require pre-removal nesting bird surveys. If construction is proposed between February 1st and September 15th, a qualified biologist will conduct a preconstruction nesting bird and raptor survey(s) no more than three (3) days prior to initiation of grading to document the presence or absence of nesting birds within or directly adjacent to the Project Site.

The survey(s) will focus on identifying any bird nests that would be directly or indirectly affected by construction activities. If active nests are documented, species-specific measures will be prepared by a qualified biologist and implemented to prevent abandonment of the active nest. At a minimum, grading in the vicinity of a nest will be postponed until the young birds have fledged. The perimeter of the nest setback zone will be fenced or adequately demarcated with stakes and flagging at 20-foot intervals, and construction personnel and activities restricted from the area. A survey report by a qualified biologist verifying that no active nests are present, or that the young have fledged, will be submitted to the City of Perris for review and approval prior to initiation of grading in the nest-setback zone.

The qualified biologist will serve as a construction monitor during those periods when construction activities occur near active nest areas to ensure that no inadvertent impacts

on these nests occur. A final monitoring report of the findings, prepared by a qualified biologist, will be submitted to the City of Perris documenting compliance with the MBTA and CDFG Codes. Any nest permanently vacated for the season would not warrant protection pursuant to the MBTA or CDFG Codes.

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ATTACHMENTS

- A – Regional Location Map
- B – Project Site Map
- C – MSHCP Relationship Map
- D – Vegetation Communities Map
- E – Current Project Site Photographs
- F – Current Project Site Photographs
- G – Current Project Site Photographs
- H – Current Project Site Photographs
- I – Current Project Site Photographs
- J – Current Project Site Photographs
- K – Soils Association Map
- L – Project Site Impact Map

APPENDICES

A – CEQA CHECKLIST SUMMARY

B – Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Focused Burrowing Owl Surveys for the 66-Acre Green Valley Project Site, City of Perris, Western Riverside County, California. (Cadre Environmental 2023a)

C – Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Focused Least Bell's Vireo Surveys for the 66-Acre Green Valley Project Site, City of Perris, Western Riverside County, California. (Cadre Environmental 2023b)

D – Green Valley Project – Delineation of Jurisdictional Waters, City of Perris, Riverside County, California. (WSP USA Environment & Infrastructure, Inc. 2023a)

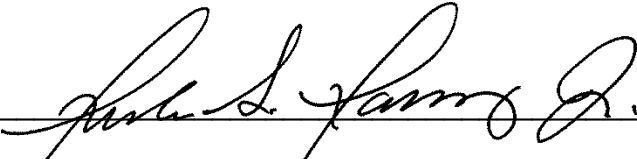
E – Green Valley Project – Draft Results of 2022-2023 Wet Season Fairy Shrimp Focused Surveys, City of Perris, Riverside County, California. (WSP USA Environment & Infrastructure, Inc. 2023b)

F – Green Valley Project – Draft Results of 2022-2023 Wet Season Fairy Shrimp Dry Soil and Cyst Culturing, City of Perris, Riverside County, California. (WSP USA Environment & Infrastructure, Inc. 2024)

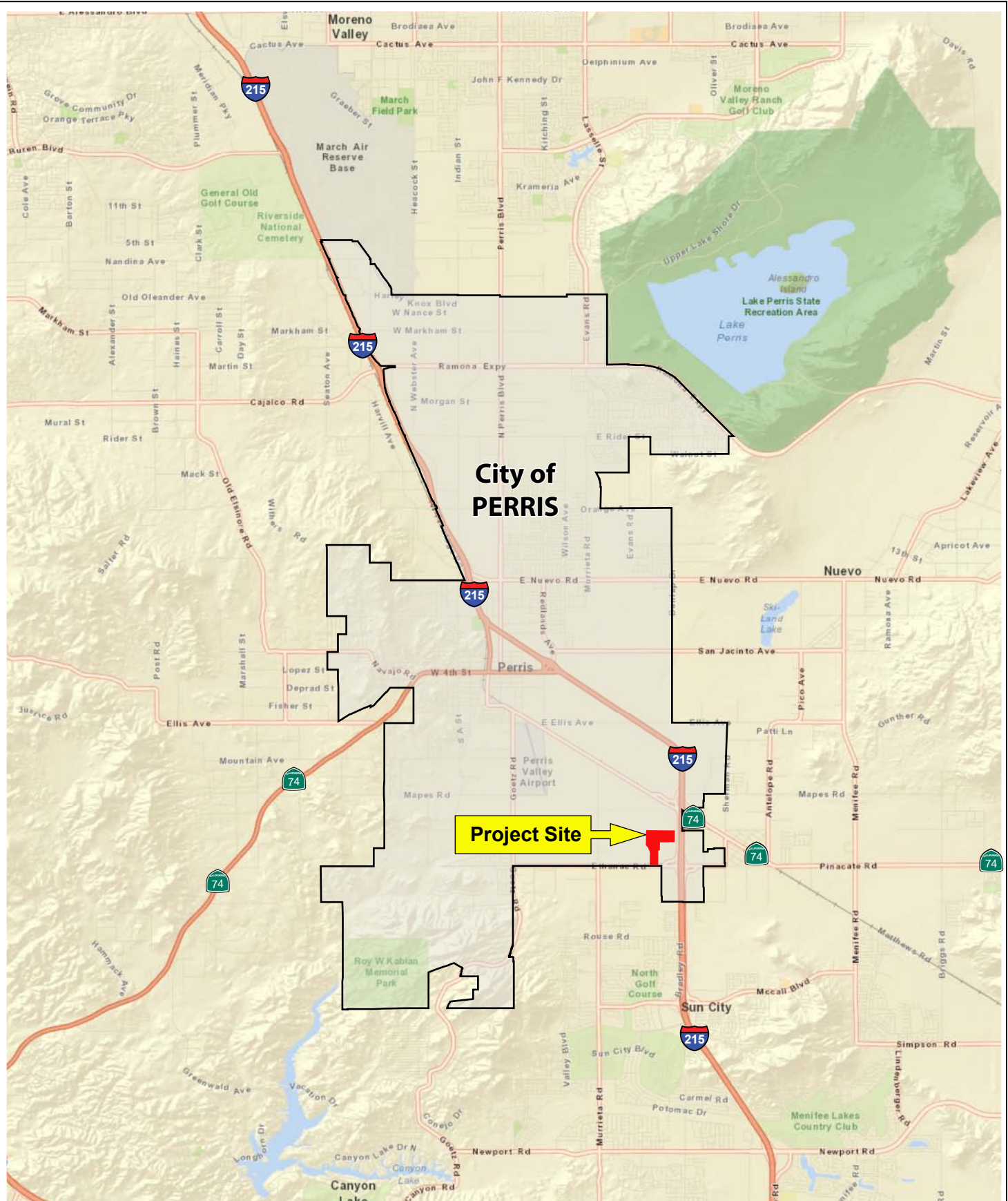
G – Green Valley Project – Green Valley MSHCP Section 6.1.2 Compliance Addendum, City of Perris, Riverside County, California. (WSP USA Environment & Infrastructure, Inc. 2023c).

Certification

"I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief"

Author:  Date: March 12th, 2024

Fieldwork Performed By:  Date: March 12th, 2024



APNs 327-220-011, 327-220-012, 327-220-077, and Right of Ways

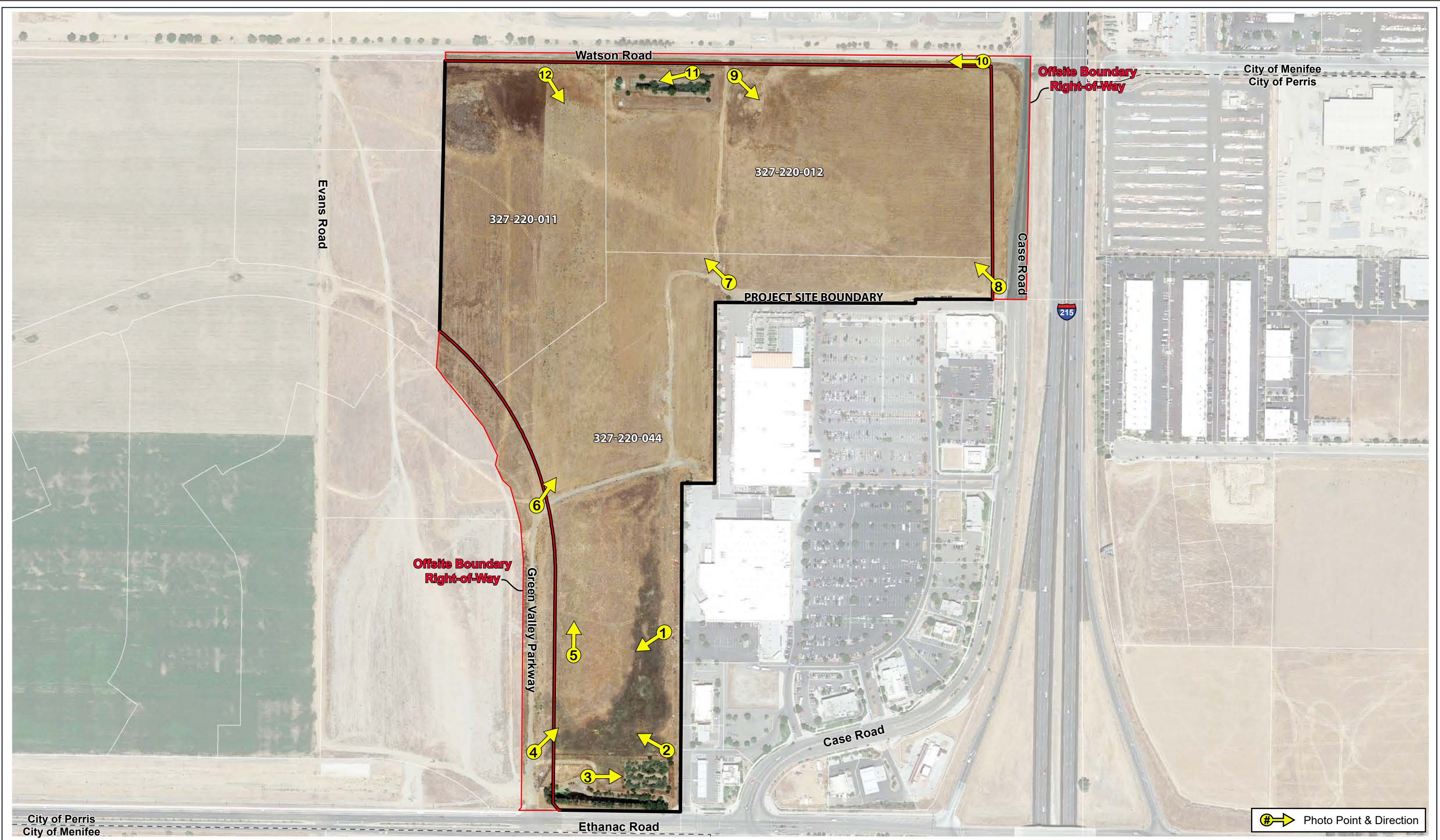
Attachment A - Regional Location Map

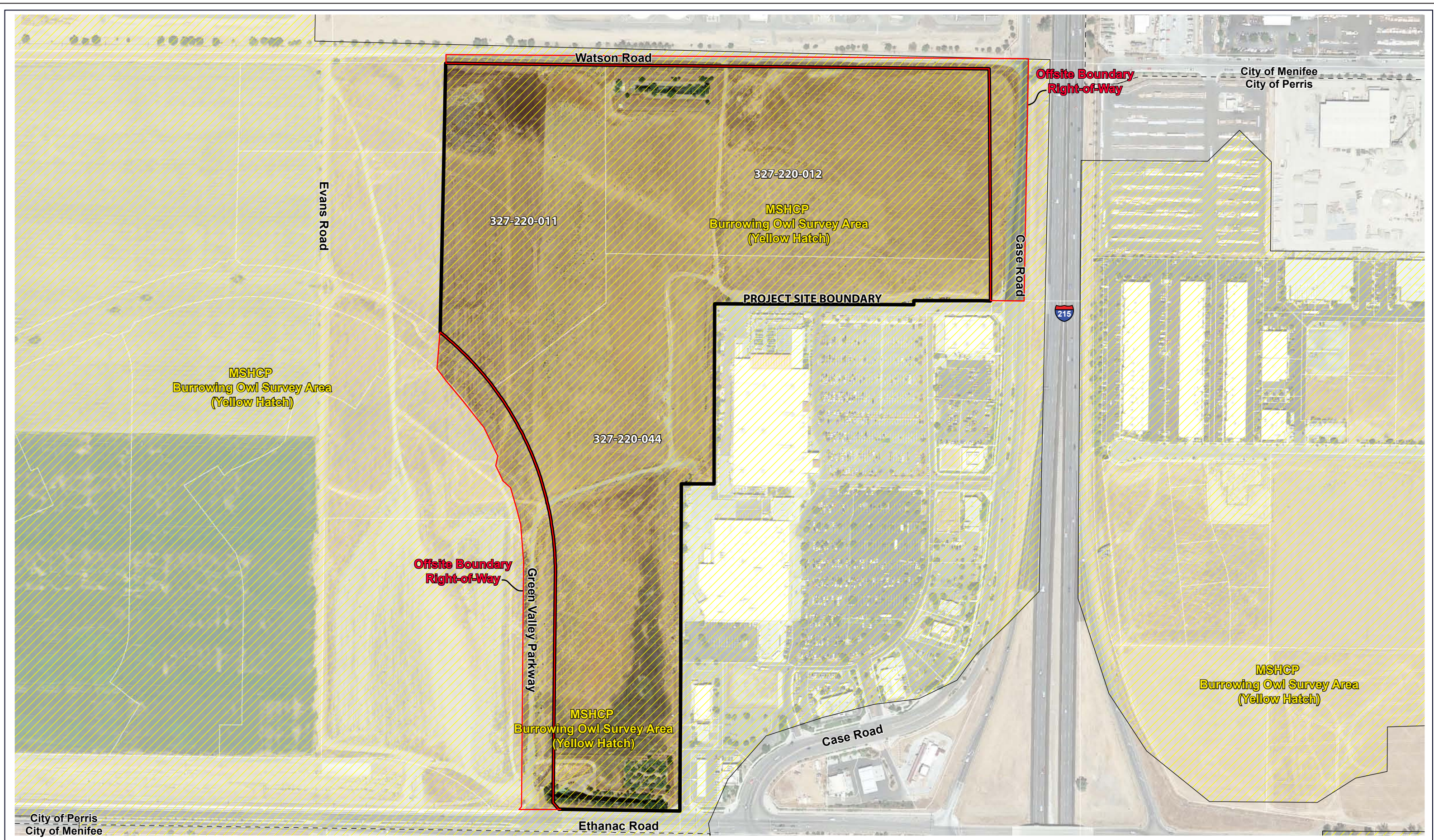
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Green Valley Project Site, City of Perris*

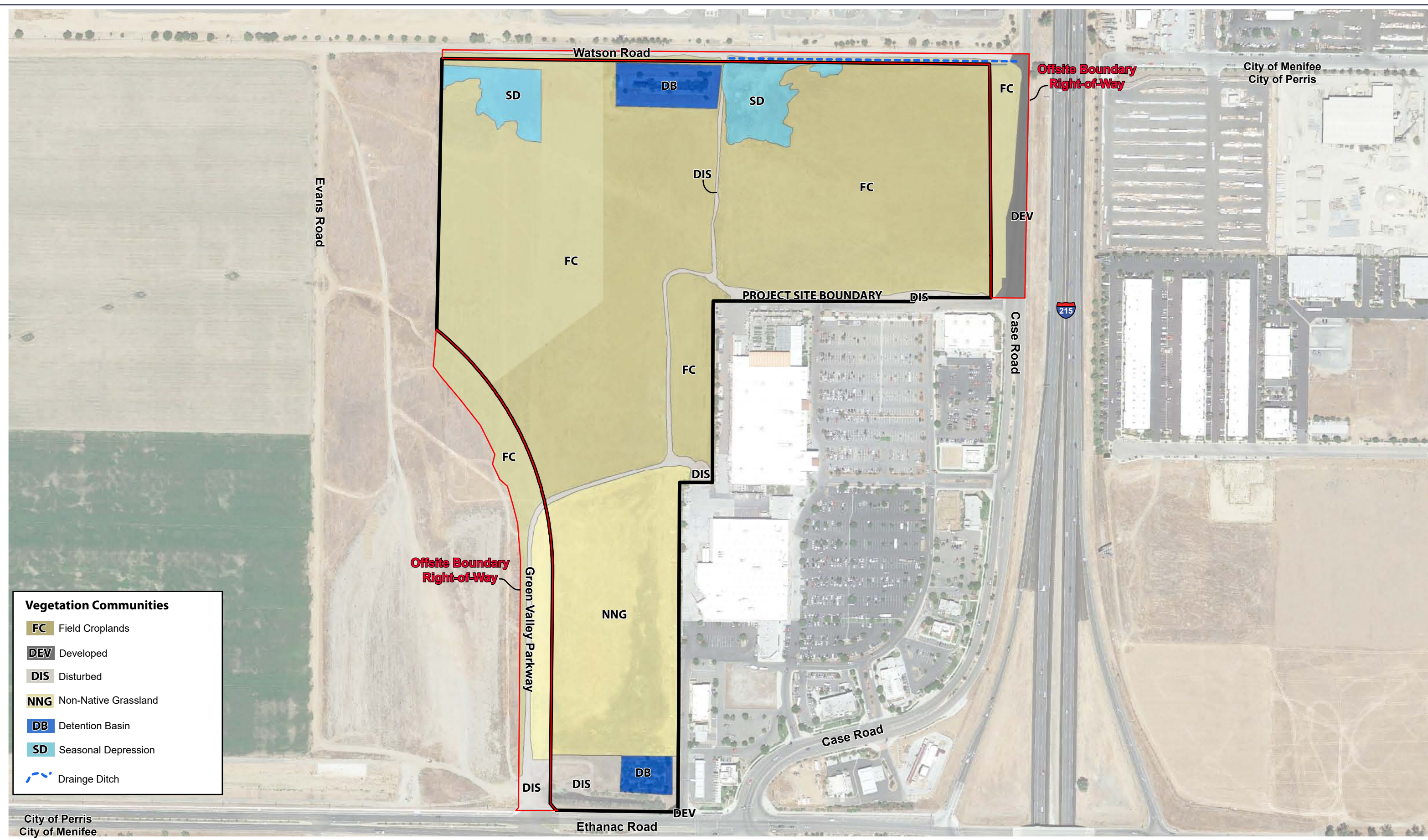
CADRE
Environmental



not to scale









PHOTOGRAPH 1



PHOTOGRAPH 2



PHOTOGRAPH 3



PHOTOGRAPH 4



PHOTOGRAPH 5



PHOTOGRAPH 6



PHOTOGRAPH 7



PHOTOGRAPH 8



PHOTOGRAPH 9



PHOTOGRAPH 10

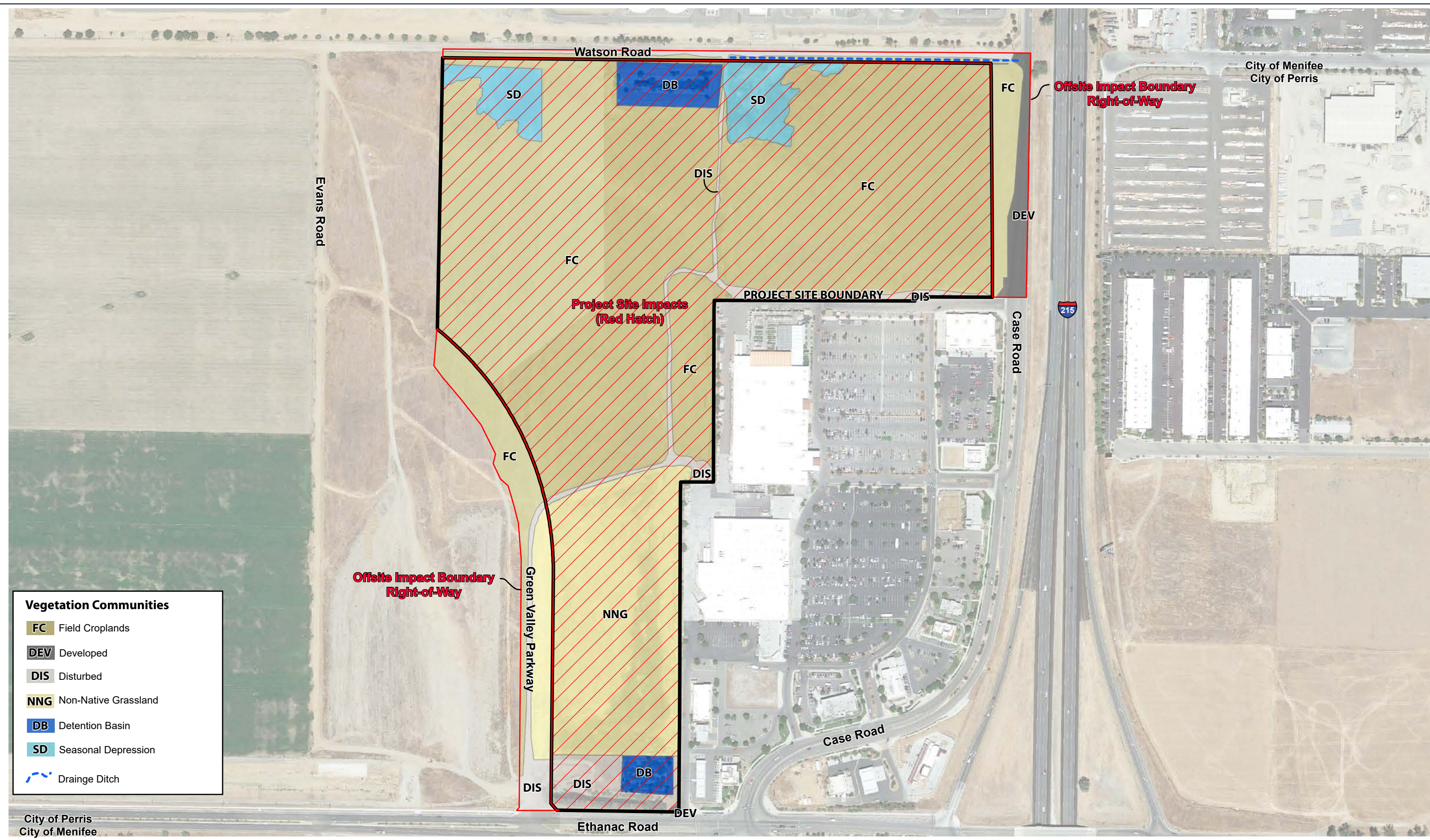


PHOTOGRAPH 11



PHOTOGRAPH 12





Vegetation Communities

- FC** Field Croplands
- DEV** Developed
- DIS** Disturbed
- NNG** Non-Native Grassland
- DB** Detention Basin
- SD** Seasonal Depression
- Drainage Ditch

City of Perris
City of Menifee

APPENDIX A CEQA CHECKLIST SUMMARY

The following appendix includes an analysis of the direct impacts, indirect impacts, and cumulative effects of the proposed action on sensitive biological resources. This analysis characterizes the project related activities that are anticipated to adversely impact the species, and when feasible, quantifies such impacts. Direct effects are defined as actions that may cause an immediate effect on the species or its habitat, including the effects of interrelated actions and interdependent actions. Indirect effects are caused by or result from the proposed actions, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the proposed action.

Cumulative impacts refer to incremental, individual environmental effects of two or more projects when considered together. These impacts taken individually may be minor but may be collectively significant. Cumulative effects include future tribal, local, or private actions that are reasonably certain to occur in the proposal vicinity considered in this report. A cumulative impact to biological resources may occur if a project has the potential to collectively degrade the quality of the environment, substantially reduce the habitat of wildlife species or cause a population to drop below self-sustaining levels, thereby threatening to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal species.

THRESHOLD OF SIGNIFICANCE

The environmental impacts relative to biological resources are assessed using impact significance criteria which mirror the policy statement contained in CEQA at Section 21001 (c). This section reflects that the legislature has established it to be the policy of the state to:

“Prevent the elimination of fish and wildlife species due to man’s activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities...”

Also, the determination of impacts has been made according to the federal definition of “take”. The federal FESA prohibits the “taking” of a member of an endangered or threatened wildlife species or removing, damaging, or destroying a listed plant species by any person (including private individuals and private or government entities). The FESA defines “take” as “to harass, harm, pursue, hunt, shoot, would, kill, trap, capture or collect” an endangered or threatened species, or to attempt to engage in these activities.

The following definitions apply to the significance criteria for biological resources:

- “*Endangered*” means that the species is listed as endangered under state or federal law.
- “*Threatened*” means that the species is listed as threatened under state or federal law.

- “*Rare*” means that the species exists in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens.
- “*Region*” refers to the area within southern California that is within the range of the individual species.
- “*Sensitive habitat*” refers to habitat for plants and animals (1) which plays a special role in perpetuating species utilizing the habitat on the property, and (2) without which there would be substantial danger that the population of that species would drop below self-perpetuating levels.
- “*Substantial effect*” means significance loss or harm of a magnitude which, based on current scientific data and knowledge, (1) would cause a species or a native plant or animal community to drop below self-perpetuating levels on a statewide or regional basis or (2) would cause a species to become threatened or endangered.

Impacts to biological resources may result in a significant adverse impact if one or more of the following conditions would result from implementation of the proposed project.

- Have a substantial adverse effect, either directly or through habitat modification, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or Title 50, Code of Federal Regulations (Sections 17.11 or 17.12). **No Impact.**

The Project Site does not occur within a predetermined Survey Area for MSHCP criteria area and narrow endemic plant species listed as federally and/or state listed threatened or endangered; therefore, no surveys are required for these target species (RCA GIS Data Downloads 2023). The project is compliant with MSHCP Section 6.3.2 and 6.1.3. No federal or state listed plant species not covered by the MSHCP are expected to occur onsite as outlined in Table 1. *Sensitive Plant Species with Potential to Occur Onsite*. No Impact.

Table 1.
Sensitive Plant Species with Potential to Occur Onsite.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
San Jacinto Valley crownscale (<i>Atriplex coronata</i> var. <i>notatior</i>) FE CRPR List 1B.1 MSHCP CAPSA CA Endemic	The San Jacinto Valley crownscale occurs primarily in floodplains that support alkali scrub, alkali playas, vernal pools, and occasionally alkali grasslands.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
Parish's brittlescale (<i>Atriplex parishii</i>) CRPR List 1B.1 MSHCP CAPSA	Parish's brittlescale is a small prostrate to decumbent annual, white scaly, and is often much less than eight inches in length. It blooms May to October. This species occurs on alkali or saline flats, alkali meadows, and in or along the margins of vernal pools or playa depressions.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Davidson's saltscale (<i>Atriplex serenana</i> var. <i>davidsonii</i>) CRPR List 1B.2 MSHCP CAPSA	Davidson's saltscale is a decumbent to ascending annual that is sparsely scaly. It blooms April to October. It grows on coastal bluffs and alkaline alluvial terraces, and on alkali or saline flats in interior areas such as western Riverside County.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Thread-leaved brodiaea (<i>Brodiaea filifolia</i>) FT/SE CRPR List 1B.1 MSHCP CAPSA CA Endemic	Thread-leaved brodiaea is a geophyte, which produces leaves and flower stalks that sprout from corms (underground bulb-like storage stems). Thread-leaved brodiaea blooms March to June. Thread-leaved brodiaea typically occurs on gentle hillsides, valleys, and floodplains in semi-alkaline flats of riparian areas, vernal pools, mesic southern needlegrass grassland, mixed native-annual grassland, and alkali grassland plant communities in association with clay, clay loam, or alkaline silty-clay soils.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Smooth Tarplant (<i>Centromadia pungens</i> ssp. <i>laevis</i>) CRPR 1B.1 MSHCP CAPSA	Smooth tarplant is an annual member of the sunflower family (Asteraceae) that occurs in vernal pools, alkali playas and scrub, alkali grasslands, riparian areas, along watercourses and disturbed sites. It blooms April to September.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
Round-leaved filaree (<i>Erodium macrophyllum</i>) CRPR List 2.1 MSHCP CAPSA CA Endemic	Habitats include open areas in cismontane woodland and valley and foothill grasslands, which are often associated with heavy clay soils below 3,600 feet elevation.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Coulter's goldfields (<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>) CRPR List 1B.1 MSHCP CAPSA	Coulter's goldfields is associated with low-lying alkali and saline habitats along the coast and inland valleys. The majority of the populations are associated with coastal salt marsh. In Riverside County, Coulter's goldfields primarily grow in highly alkaline, silty clays associated with the Traver-Domino-Willows soils, and usually in the wet areas in the alkali vernal plain community.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Little mousetail (<i>Myosurus minimus</i> ssp. <i>apus</i>) CRPR List 3.1 MSHCP CAPSA	Little mousetail is widespread in California. It occurs in alkaline vernal pools, and vernal alkali plains and grasslands, and blooms March to June.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Mud nama (<i>Nama stenocarpum</i>) CRPR List 2.2 MSHCP CAPSA	Mud nama grows on muddy embankments of marshes and swamps, lake margins, riverbank, meadow, playa, and vernal pools. In western Riverside County, it is known only from the north shore of Mystic Lake (Roberts et al. 2004).	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Munz's onion (<i>Allium munzii</i>) FE/ST CRPR List 1B.1 MSHCP NEPSA CA Endemic	Restricted to mesic clay soils in western Riverside County, California. It blooms from March to May. This species is found in southern needlegrass grassland, annual grassland, open coastal sage scrub, or occasionally, in cismontane juniper woodlands.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
San Diego ambrosia (<i>Ambrosia pumila</i>) FE CRPR List 1B.1 MSHCP NEPSA	San Diego ambrosia is known from Baja California, Mexico, and San Diego and Riverside counties in the United States. It blooms May to September. San Diego ambrosia occurs primarily on upper terraces of rivers and drainages as well as in open grasslands, openings in coastal sage scrub, and occasionally in areas adjacent to vernal pools.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Multi-stemmed dudleya (<i>Dudleya multicaulis</i>) CRPR List 1B.2 MSHCP NEPSA	Many-stemmed dudleya is a succulent perennial in the stonecrop family. It blooms April to July. This species is known from several southern California counties, and typically occurs in dry, stony places on heavy soils in scrub and grassland habitats below 2,000 feet elevation. Many-stemmed dudleya is most often associated with clay soils in barren, rocky places, or thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Spreading navarretia (<i>Navarretia fossalis</i>) FT/SE CRPR List 1B.1 MSHCP NEPSA	Spreading navarretia is a member of the phlox family, and is found in vernal pools, chenopod scrub, edge of marshes, and playas on saline-alkali soils. It occasionally grows in ditches and depressions associated with degraded habitat or old stock ponds (Consortium 2012). Spreading navarretia is a small prostrate to occasionally erect annual. Spreading navarretia blooms April to June.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
California Orcutt grass (<i>Orcuttia californica</i>) FE/SE CRPR List 1B.1 MSHCP NEPSA	California Orcutt grass is a small, unique grass that occurs primarily in vernal pool habitats. In southern California, it is known from Orange (recently reported occurrence), Los Angeles, Riverside, Ventura, and San Diego Counties, and continues south into Baja California, Mexico. California Orcutt grass blooms April to August. In Riverside County, this species is found in southern basaltic claypan vernal pools at the Santa Rosa Plateau, and alkaline vernal pools such as Skunk Hollow, at Upper Salt Creek near Hemet, Menifee and elsewhere.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Wright's trichocoronis (<i>Trichocoronis wrightii</i> var. <i>wrightii</i>) CRPR List 2.1 MSHCP NEPSA	The historic known range of Wright's trichocoronis includes the Great Valley of central California, western Riverside County, and south Texas and adjacent northeast Mexico. This plant grows in meadows and seeps, marshes, riparian scrub, and vernal pools. Wright's trichocoronis blooms May to September.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Vernal barley (<i>Hordeum intercedens</i>) MSHCP Covered CRPR 3.2	Annual herb generally blooming from March to June within coastal dunes, coastal scrub, grassland and vernal pools (CNPS 2023)	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Robinson's pepper-grass (<i>Lepidium virginicum</i> var. <i>robinsonii</i>) CRPR 1B.1	Occurs in chaparral and coastal scrub.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
Chaparral sand-verbena (<i>Abronia villosa</i> var. <i>aurita</i>) CRPR 1B.1	Sandy soils in sage-scrub, chaparral.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Parry's spineflower (<i>Chorizanthe parryi</i> var. <i>parryi</i>) CRPR 3.2 MSHCP Covered	Sandy or rocky soils in open habitats of chaparral and coastal sage scrub.	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
Long-spined spine flower (<i>Chorizanthe polygonoides</i> var. <i>longispina</i>) CRPR 1B MSHCP Covered	Annual herb generally blooming from April to July within chaparral, coastal scrub, meadows and seeps, grassland and vernal pools in association with clay substrates (CNPS 2023).	<u>No Potential</u> - Not expected onsite based on a lack of suitable habitat and lack of observations during twelve (12) site surveys conducted from March 7 th to June 21 st , 2023.
California Native Plant Society (CNPS): California Rare Plant Rank (CRPR) CRPR 1A – plants presumed extinct in California CRPR 1B – plants rare, threatened, or endangered in California, but more common elsewhere CRPR 2A – plants presumed extirpated in California but common elsewhere CRPR 2B – plants rare, threatened, or endangered in California but more common elsewhere CRPR 3 – plants about which we need more information, a review list CRPR 4 – plants of limited distribution, a watch list .1 – Seriously endangered in California .2 – Fairly endangered in California .3 – Not very endangered in California Federal (USFWS) Protection and Classification FE – Federally Endangered FT – Federally Threatened FC – Federal Candidate for Listing State (CDFW) Protection and Classification SE – State Endangered ST – State Threatened		

Source: Cadre Environmental 2023.

The Project Site does not occur within a predetermined Survey Area for MSHCP amphibian or mammal species listed as federally and/or state listed threatened or endangered; therefore, no surveys are required (RCA GIS Data Downloads 2023). The project is compliant with MSHCP Section 6.3.2. No federal or state listed wildlife species are expected to occur onsite as outlined in Table 2. *Sensitive Wildlife Species with Potential to Occur Onsite*. No Impact.

The Project Site falls within the Stephens' kangaroo rat (SKR) Fee Area outlined in the Riverside County SKR HCP. The project applicant shall pay the fees pursuant to County

Ordinance 663.10 for the SKR HCP Fee Assessment Area as established and implemented by the County of Riverside (**COA-2 SKR Mitigation Fee**).

No suitable habitat (riparian forest or woodlands) for the southwestern willow flycatcher (*Empidonax traillii extimus*) or western yellow-billed cuckoo (*Coccyzus americanus*) was documented within or adjacent to the Project Site. Low quality habitat (riparian scrub) for the least Bell's vireo (*Vireo bellii pusillus*) was documented within the northern and southern detention basins. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023. No breeding or transitory least Bell's vireo were documented onsite during the focused surveys conducted during the spring of 2023 (Cadre Environmental 2023b). No additional surveys or DBESP are required.

A total of sixty-six (66) seasonal depressions and/or seasonally inundated road ruts representing potential habitat for fairy shrimp were delineated by WSP on the Project Site (WSP USA Environment & Infrastructure, Inc. 2023b). The features were surveyed for sensitive fairy shrimp during the summer of 2023 (dry season) and winter/spring of 2022-2023 (wet season). The common versatile fairy shrimp (*Branchinecta lindahli*) was documented within the Project Site. No federally listed species including the vernal pool fairy shrimp (*Branchinecta lynchi*) or Riverside fairy shrimp (*Streptocephalus woottoni*) were detected during the wet and dry season sampling efforts (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c). The depressions were characterized as non-vernal pool/non-wetland resources by WSP USA Environment & Infrastructure, Inc. (WSP USA Environment & Infrastructure, Inc. 2023b, 2023c). The project is compliant with MSHCP Section 6.1.2.

Table 2.
Sensitive Wildlife Species with Potential to Occur Onsite.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
INVERTEBRATES		
Crotch's bumble bee (<i>Bombus crotchii</i>) CE	Range extends from southern to northern California within a variety of habitats including grassland, scrub, chaparral and desert habitats. Food plants include but are not limited to the following genera: Antirrhinum, Phacelia, Clarkia, Cordylanthus, Dendromecon, Eschscholzia, Eriogonum, Hypericum, Lantana, Lupinus, Salvia, Asclepias, Cirsium, Monardella, Keckiella, Acmispon, Euthamia,	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.

Species Name <i>(Scientific Name)</i> Status	Habitat Description	Comments
	Ehrendorferia, Vicia, and/or Trichostema.	
Vernal pool fairy shrimp <i>(Branchinecta lynchi)</i> <i>FT</i> <i>MSHCP Covered Species</i>	Vernal pool fairy shrimp is restricted to seasonal vernal pools (Eng, Belk, and Eriksen 1990; USFWS 1994). The vernal pool fairy shrimp prefers cool-water pools that have low to moderate dissolved solids, are unpredictable, and often short lived (Eriksen and Belk 1999, MSHCP 2004).	<u>No Potential</u> – Not detected during focused wet season sampling surveys.
Riverside fairy shrimp <i>(Streptocephalus woottoni)</i> <i>FE</i> <i>MSHCP Covered Species</i>	<i>S. woottoni</i> is restricted to deep seasonal vernal pools/ephemeral ponds, and stock ponds and other human modified depressions (Eng, Belk, and Eriksen 1990, USFWS 1993, USFWS 2001). Riverside fairy shrimp prefer warm-water pools that have low to moderate dissolved solids, are less predictable, and remained filled for extended periods of time (Eriksen and Belk 1999, MSHCP 2004).	<u>No Potential</u> – Not detected during focused wet season sampling surveys
Quino checkerspot butterfly <i>(Euphydryas editha quino)</i> <i>FE</i> <i>MSHCP Covered Species</i>	Quino checkerspot butterfly (QCB) is restricted to low elevation meadow habitats or clearings usually characterized by clay or cryptogamic deposits, inhabited by host plants including <i>Plantago erecta</i> , <i>Plantago patagonica</i> , <i>Castilleja exserta</i> , and <i>Cordylanthus rigidus</i> . Adult QCB often occur on open or sparsely vegetated rounded hilltops, ridgelines, and occasionally rocky outcrops. (MSHCP 2004)	<u>No potential</u> to occur onsite based on a lack of suitable habitat and soils. The Project Site is dominated by disturbed vegetation and annually disked.

Species Name (Scientific Name) Status	Habitat Description	Comments
AMPHIBIANS		
Western spadefoot <i>(Spea hammondi)</i> SSC MSHCP Covered Species	The western spadefoot population is patchily but widely distributed throughout the Riverside Lowlands and San Jacinto Foothills Bioregions. Primary habitat for this species includes suitable breeding habitat below 1500 meters (<i>i.e.</i> , vernal pools or other standing water that is free of exotic species) with secondary habitats including adjacent chaparral, sage scrub, grassland, and alluvial scrub habitats. (MSHCP 2004)	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.
REPTILES		
Orange-throated whiptail <i>(Aspidoscelis hyperythra)</i> CWL MSHCP Covered Species	The orange-throated whiptail occurs primarily in a wide variety of habitats but is more closely tied to coastal sage scrub and chaparral habitats with less than 90 percent vegetative cover.	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.
Coastal western whiptail <i>(Aspidoscelis tigris stejnegeri)</i> SSC MSHCP Covered Species	The coastal western whiptail occurs in a wide variety of habitats including coastal sage scrub, desert scrub, Riversidean alluvial fan scrub, woodlands, grasslands, playas, and respective ecotones between these habitats (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.
Red-diamond rattlesnake <i>(Crotalus ruber)</i> SSC MSHCP Covered Species	The red-diamond rattlesnake is often found in areas with dense vegetation especially chaparral and sage scrub up to 1,520 meters in elevation (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.
Western pond turtle <i>(Emys marmorata)</i> SSC	The western pond turtle inhabits slow moving permanent or intermittent streams, small ponds,	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
MSHCP Covered Species	small lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and sewage treatment lagoons (Rathbun <i>et al.</i> , 1992; Holland, 1994). Pools are the preferred habitat within streams (Bury, 1972, MSHCP 2004).	vegetation and annually disked.
Coast horned lizard (<i>Phrynosoma blainvillii</i>) SSC MSHCP Covered Species	The horned lizard occurs primarily in scrub, chaparral, and grassland habitats. The species is common in most areas of the Plan Area except where adjacent to urban situations (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.
BIRDS		
Cooper's hawk (<i>Accipiter cooperii</i>) SSC MSHCP Covered Species	Cooper's hawk is most commonly found within or adjacent to riparian/oak forest and woodland habitats. This uncommon resident of California increases in numbers during winter migration.	<u>Potential</u> to occur (forage) onsite based on the presence of mature trees located in existing detention basins.
Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>) CWL MSHCP Covered Species	Southern California rufous-crowned sparrow is a non-migratory bird species that primarily occurs within sage scrub and grassland habitats and to a lesser extent chaparral sub-associations (Unitt 2004). This species generally breeds on the ground within grassland and scrub communities in the western and central regions of California.	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.
Bell's sage sparrow (<i>Amphispiza belli</i>) CWL MSHCP Covered Species	Bell's sage sparrow is an uncommon to fairly common but localized resident breeder in dry chaparral and coastal sage scrub along the coastal lowlands, inland	<u>No potential</u> to occur onsite based on a lack of suitable habitat. The Project Site is dominated by disturbed vegetation and annually disked.

Species Name <i>(Scientific Name)</i> Status	Habitat Description	Comments
	valleys, and in the lower foothills of local mountains (MSHCP 2004).	
Burrowing owls <i>(Athene cunicularia)</i> SSC MSHCP Covered Species	The burrowing owl uses predominantly open land, including grassland, agriculture (e.g., dry-land farming and grazing areas), playa, and sparse coastal sage scrub and desert scrub habitats (Garrett and Dunn 1981). Some breeding burrowing owls are year-round residents and additional individuals from the north may winter throughout the MSHCP Area Plan (MSHCP 2004).	<u>Not detected onsite during focused surveys conducted in 2023.</u>
Mountain plover (wintering) <i>(Charadrius montanus)</i> FPT/SSC MSHCP Covered Species	The mountain plover is narrowly distributed at relatively few locations within the Plan Area in suitable habitat. The mountain plover uses playas and vernal pool, grassland, and some agriculture habitats during the winter in the Plan Area. Although playa and vernal pool habitat is well identified for the Plan Area, it encompasses a relatively small portion. The remaining habitats, grassland and agriculture land, are well distributed within the Plan Area but the mountain plover uses only a small portion of what is available. (MSHCP 2004)	<u>No Potential</u> - Based on a lack of suitable undisturbed foraging habitat.
California horned lark <i>(Eremophila alpestris actia)</i> SSC MSHCP Covered Species	The California horned lark is a common to abundant resident in a variety of open habitats, usually where trees and large shrubs are absent (Zeiner, <i>et al.</i> 1990). (MSHCP 2004)	<u>Potential</u> Suitable foraging habitat documented onsite within the disturbed habitats.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
White-tailed kite (<i>Elanus leucurus</i>) SFP MSHCP Covered Species	The white-tailed kite is found in riparian, oak woodlands adjacent to large open spaces including grasslands, wetlands, savannahs and agricultural fields. This non-migratory bird species occurs throughout the lower elevations of California and commonly nests in coast live oaks (Unitt 2004).	<u>Potential</u> Suitable foraging habitat documented onsite within the disturbed habitats.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) FE/SE MSHCP Covered Species	The southwestern willow flycatcher is narrowly distributed at few locations within the Plan Area. Although the preferred habitat, riparian woodland and select other forests, is well distributed within all bioregions and spread over the entire Plan Area, few current locations for the willow flycatcher have been documented (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
Loggerhead shrike (<i>Lanius ludovicianus</i>) SSC MSHCP Covered Species	Loggerhead shrike prefer open ground for foraging and thick trees and shrubs including sage scrub, chaparral, and desert scrub habitats for nesting.	<u>Potential</u> - Suitable foraging habitat documented onsite within the disturbed habitat. Low likelihood to occur onsite based on limited distribution within plan area.
White-faced ibis (<i>Plegadis chihi</i>) SSC MSHCP Covered Species	The white-faced ibis is virtually restricted to emergent vegetation and islands along the margins of open water areas for nesting. However, the species may use a wide variety of Habitats, including flooded agriculture lands and grasslands in a very nomadic and unpredictable manner for foraging (Garrett and Dunn 1988).	<u>No Potential</u> – Based on a lack of suitable foraging and breeding habitat.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
Coastal California gnatcatcher (<i>Polioptila californica californica</i>) FT/SSC MSHCP Covered Species	The coastal California gnatcatcher is a non-migratory bird species that primarily occurs within sage scrub habitats in coastal southern California dominated by California sagebrush (<i>Artemisia californica</i>), and California buckwheat (<i>Eriogonum fasciculatum</i>).	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
Least Bell's vireo (<i>Vireo bellii pusillus</i>) FE/SE MSHCP Covered Species	Least Bell's vireo resides in riparian habitats with a well-defined understory including southern willow scrub, mule fat, and riparian forest/woodland habitats.	<u>Not detected during focused 2023 surveys.</u>
MAMMALS		
Northwestern San Diego pocket mouse (<i>Chaetodipus fallax fallax</i>) SSC MSHCP Covered Species	The northwestern San Diego pocket mouse occurs throughout the Plan Area in coastal sage scrub sage scrub/grassland ecotones, chaparral, and desert scrubs at all elevations up to 6,000 feet (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
San Diego black-tailed jackrabbit (<i>Lepus californicus bennettii</i>) SSC	The San Diego black-tailed jackrabbit in open habitats, primarily including grasslands, sage scrub, alluvial fan sage scrub, and Great Basin sage scrub.	<u>No potential</u> to occur onsite based on a lack of suitable habitat. Not detected onsite during the 2023 focused burrowing owl surveys.
San Diego desert woodrat (<i>Neotoma lepida intermedia</i>) SSC MSHCP Covered Species	The San Diego desert woodrat is found throughout the Plan Area in sage scrub and chaparral wherever there are rock outcrops, boulders, cactus patches and dense undergrowth. (MSHCP 2004)	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
Southern grasshopper house (<i>Onychomys torridus ramona</i>) SSC	Common in arid desert habitats of the Mojave Desert and southern Central Valley of California. Alkali desert	<u>No potential</u> to occur onsite based on a lack of suitable habitat.

Species Name <i>(Scientific Name)</i> Status	Habitat Description	Comments
	scrub and desert scrub habitats are preferred, with somewhat lower densities expected in other desert habitats, including succulent shrub, wash, and riparian areas. Also occurs in coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush habitats. Uncommon in valley foothill and montane riparian, and in a variety of other habitats. (CDFW 1999)	
Stephens' kangaroo rat <i>(Dipodomys stephensi)</i> <i>FE/ST</i> <i>MSHCP Covered Species</i>	The Stephens' kangaroo rat is found almost exclusively in open grasslands or sparse shrublands with cover of less than 50 percent during the summer (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
Western mastiff bat <i>(Eumops perotis californicus)</i> SSC	Western mastiff bats are found in a variety of biotic environments from low desert scrub to chaparral, oak woodland and ponderosa pine.	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
Yellow bat <i>(Lasiurus xanthinus)</i> SSC	Although formerly associated only with the desert palm oasis in California (Bond, 1970), yellow bats appear to be expanding their range to the coast and northward, possibly as a result of the planting of ornamental palms.	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
Bobcat <i>(Lynx rufus)</i> <i>MSHCP Covered Species</i>	The bobcat requires large expanses of relatively undisturbed brushy and rocky habitats near springs or other perennial water sources.	<u>No potential</u> to occur onsite based on a lack of suitable habitat. Not detected onsite during the 2023 surveys.
Pocketed free-tailed bat <i>(Nyctinomops femorosaccus)</i> SSC	Usually associated with rugged canyons, high cliffs, and rock outcroppings. Roosts in	<u>No potential</u> to occur onsite based on a lack of suitable habitat.

Species Name (<i>Scientific Name</i>) Status	Habitat Description	Comments
<i>MSHCP Covered Species</i>	rock crevices and caves during the day; may also roost in buildings or under roof tiles (Ziener et al. 1988-1990).	
Los Angeles pocket mouse (<i>Perognathus longimembris brevinasus</i>) SSC <i>MSHCP Covered Species</i>	The Los Angeles pocket mouse appears to be limited to sparsely vegetated habitat areas in patches of fine sandy soils associated with washes or of aeolian (windblown) origin, such as dunes (MSHCP 2004).	<u>No potential</u> to occur onsite based on a lack of suitable habitat.
American badger (<i>Taxidea taxus</i>) SSC	The American badger prefers friable soils in open grassland and scrub habitat in southern California.	<u>No potential</u> to occur onsite based on a lack of suitable habitat. No individuals or adequacy sized burrows detected onsite during the 2023 surveys.
Federal (USFWS) Protection and Classification FE – Federally Endangered FT – Federally Threatened FC – Federal Candidate for Listing State (CDFW) Protection and Classification SE – State Endangered ST – State Threatened SSC – State Species of Special Concern CWL – California Watch List SPF – State Fully Protected CE – Candidate Endangered		

Sources: Cadre Environmental 2023.

- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines. **Less than significant.**

Potential foraging and/or breeding habitat for four (4) MSHCP covered species was detected onsite including Cooper's hawk, California horned lark, white-tailed kite, and loggerhead shrike, as outlined in Table 2, *Sensitive Wildlife Species with Potential to Occur Onsite*. Permanent impacts to 60.00 acre of vegetation communities representing suitable habitat for MSHCP covered wildlife species will be reduced to a less than significant level with the implementation of (**COA-1 MSHCP Local Development Mitigation Fee**).

MSHCP non-covered sensitive floral or faunal species were not detected or expected to occur within or adjacent to the project as summarized in Table 1, *Sensitive Plant Species*

with Potential to Occur Onsite, and Table 2, *Sensitive Wildlife Species with Potential to Occur Onsite*. No Impact.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS. **No Impact.**

No features regulated by the USACE, CDFW, RWQCB and MSHCP Section 6.1.2. Riparian/Riverine/Vernal Pools are present onsite (WSP USA Environment & Infrastructure, Inc. 2023a, 2023c). Regulatory permits, certifications and MSHCP DBESP are not required. No Impact.

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. **No Impact.**

No features regulated by the USACE, CDFW, RWQCB and MSHCP Section 6.1.2. Riparian/Riverine/Vernal Pools are present onsite (WSP USA Environment & Infrastructure, Inc. 2023a, 2023c). Regulatory permits, certifications and MSHCP DBESP are not required. No Impact.

- Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident migratory wildlife corridors, or impede the use of native nursery sites. **Less than significant.**

The Project Site is not located within or adjacent to an MSHCP designated core, extension of existing core, non-contiguous habitat block, constrained linkage, or linkage area. Although the Project Site is bordered along the western boundary by undeveloped agricultural lands, the southern and eastern boundaries are located adjacent to high traffic roads, State Route 215, and commercial development, which restrict potential movement of wildlife between the Project Site and open space habitats located east of State Route 215. The northern Project Site boundary is located adjacent to the Perris Valley Regional Water Relocation Facility which is surrounded by a security fence. No drainages, refugia or natural movement routes are located within or adjacent to the Project Site. The Project Site does not represent a regional wildlife movement corridor. No Impact.

The vegetation communities documented onsite represent potential nesting habitat for common and MSHCP covered sensitive bird and raptor species. Potential direct and/or indirect impacts to regulated nesting birds and raptors will require compliance with the MBTA and CDFG Codes Section 3503, 3503.5, and 3513. Loss of an active nest would be considered a potentially significant impact. Impacts to potential nesting habitat would be reduced to a less than significant level with the implementation of **COA-4 MBTA & CDFG Nesting Bird Code Compliance.**

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. **No Impact.**

No trees regulated by the City of Perris Urban Forestry Establishment and Care Ordinance (19.71) were documented onsite. No mitigation required or proposed. No Impact.

- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state conservation plan. **Less than significant.**

A total of 66.00-acres of vegetation communities will be directly and permanently impacted as a result of project implementation, as outlined in Table 2, Project Site Vegetation Community Acreages & Impacts and illustrated on Attachment L, *Vegetation Communities Impact Map*. No vegetation communities listed by CDFW as sensitive were documented within or adjacent to the Project Site. No native or undisturbed vegetation will be impacted as a result of project implementation. Permanent impacts to 60.00-acre of vegetation communities within the western Riverside County MSHCP would be reduced to a less than significant level with the implementation of (**COA-1 MSHCP Local Development Mitigation Fee**).

CUMULATIVE IMPACTS

The permanent impacts of the project would not result in cumulative impacts (State CEQA Section 15310) to environmental resources within the region of the Project Site. Cumulative impacts refer to incremental effects of an individual project when assessed with the effects of past, current, and proposed projects. The Project Site is located completely within the City of Perris, an MSHCP permittee and is not located within or adjacent to a designated conservation area. As stated in the County of Riverside Transportation and Land Management Agency:

"Implementation of the MSHCP and Covered Projects will not result in a cumulative adverse effect, either directly or through habitat modifications, on any of the Covered Species, including the 31 species that are currently listed as threatened or endangered and the one species that is currently proposed for listing. Implementation of the MSHCP will benefit the Covered Species by preserving their habitat in order to address their life cycle needs. Thus, based on the features of the Plan itself, impacts to Covered Species are mitigated below a level of significance." (County of Riverside Transportation and Land Management Agency 2003)

Although the project would result in the permanent loss of 66.00-acres of field croplands, non-native grassland, existing detention basins and agricultural drainage ditch habitats, as referenced above, the MSHCP was developed to address the comprehensive regional planning effort and anticipated growth in the City of Perris.

As stated in the County of Riverside Transportation and Land Management Agency:

"However, implementation of the MSHCP will result in cumulatively significant impacts on the Non-Covered Species because the issuance of incidental take permits will remove an impediment to development outside of the MSHCP Conservation Area. Non-Covered Species would receive little or no protection outside the reserves under existing ordinances and

regulations” (County of Riverside Transportation and Land Management Agency 2003)

Non-covered sensitive floral or faunal species were not detected or expected to occur within or adjacent to the project and therefore the development of the Project Site would not result or contribute to a cumulative impact to non-covered species. No Impact.

As stated in the County of Riverside Transportation and Land Management Agency:

“The Plan will not cause adverse cumulative effects related to the reduction of sensitive vegetation communities within the Plan Area; rather, the Plan is designed to preserve sufficient acreage of the sensitive vegetation communities present in western Riverside County. Similarly, the Plan will not cause adverse cumulative effects related to interference with the movement of any native resident or migratory fish or wildlife species or obstruction of genetic flow for the identified Planning Species. Part of the purpose and goals of the MSHCP is to use regional planning efforts to assemble a reserve that will preserve contiguous blocks of habitat in large enough areas to ensure that the reserve will allow movement of species and flow of genetic information.

The MSHCP will not cause adverse cumulative impacts by conflicting with the provisions of any adopted Habitat Conservation Plan, Natural Communities Conservation Plan or other approved local, regional, or State habitat conservation plan either within or outside of the Plan area. Rather, the MSHCP has been written specifically to complement existing HCPs, such as the Stephens’ kangaroo rat long-term HCP.” (County of Riverside Transportation and Land Management Agency 2003)

The proposed project has been designed and conservation measures will be implemented to remain in compliance with all MSHCP conservation goals and guidelines and therefore will not result in an adverse cumulative impact. No Impact.

APPENDIX B

**Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)
Focused Burrowing Owl Surveys for the 66-Acre Green Valley Project Site, City of
Perris, Western Riverside County, California. (Cadre Environmental 2023a)**



INFORMATION SUMMARY

- A. Report Date: August 26th, 2023
- B. Report Title: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Focused Burrowing Owl Surveys for the 66-Acre Green Valley Project Site, City of Perris, Western Riverside County, California.
- C. APN#s: 327-220-011, 327-220-012, 327-220-004 (offsite right-of-way).
- D. Project Location: USGS 7.5' Series Romoland and Perris Quadrangles, Riverside County, Township 5 South, Range 3 West, Section 9, Extending East of Green Valley Parkway, South of Watson Road and West of Case Road, as shown in Attachment A, *Regional Location Map* and Attachment B, *Project Site Map*.
- E. Applicant: Richland Real Estate Fund, LLC
3161 Michelson Drive, Suite 425
Irvine, CA 92612
Contact: Derek Barbour (714) 932-0650
dbarbour@richlandcommunities.com
- F. MOU Principal: Cadre Environmental
701 Palomar Airport Road, Suite 300,
Carlsbad, CA 92011
Contact: Ruben S. Ramirez, Jr. (949) 300-0212
r.ramirez@cadreenvironmental.com
- G. Date of Surveys: March 7th, April 7th, 28th, and May 19th, 2023.
- H. Summary: The 57.88-acre property including 8.12-acre offsite assessment area (right-of-way), 66-acres total is located within the Western Riverside County MSHCP Mead Valley Plan Area and is not located within a Criteria Area, Cell Group or linkage area.

The MSHCP has determined that all of the sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). However, additional surveys may be required for narrow endemic plants, criteria area species, and specific wildlife species, if suitable habitat is documented onsite and/or if the property is located within a predetermined "Survey Area" (MSHCP 2004).

The project site occurs completely within a predetermined Survey Area for the burrowing owl (*Athene cunicularia*). Suitable burrowing owl burrows potentially utilized for refugia and/or nesting, and foraging habitat were documented throughout the project site. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023.

No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the project site during the 2023 survey efforts. At a minimum, an MSHCP 30-day preconstruction survey will be required immediately prior to the initiation of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP.

SUBJECT

Western Riverside County Multiple Species Habitat Conservation Plan Focused Burrowing Owl Surveys for the 66-Acre Green Valley Project Site, City of Perris, Western Riverside County, California

This report presents the findings of focused Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) burrowing owl (*Athene cunicularia*) surveys conducted for the 57.88-acre (8.12-acre offsite right-of-way), 66-acre total Green Valley project site ("Project Site") located within the City of Perris, western Riverside County, California (RCIP 2004), as shown in Attachment A, *Regional Location Map*.

The Project Site is located within United States Geological Survey (USGS) 7.5' Series Romoland and Perris Quadrangles, Riverside County, Township 5 South, Range 3 West, Section 9. Specifically, the Project Site extends east of Green Valley Parkway, south of Watson Road and west of Case Road, as shown in Attachment A, *Regional Location Map* and Attachment B, *Project Site Map*.

The Project Site is located within the Western Riverside County MSHCP Mead Valley Plan Area and is not located within a Criteria Area, Cell Group or linkage area. The Project Site is located within an MSHCP survey area for burrowing owl (*Athene cunicularia*), as shown in Attachment C, *MSHCP Relationship Map*.

METHODS OF STUDY

APPROACH

Prior to initiating the focused survey efforts, a review of all available and relevant data on the biological characteristics, sensitive habitats, and species potentially present on or adjacent to the Project Site was conducted. Additionally, aerial photography, and USGS topographic map data were examined. After reviewing the available information, Cadre Environmental conducted a physical site assessment and initiated focused surveys.

Plant Community/Habitat Classification and Mapping

Plant communities were preliminarily mapped with the aid of an aerial photograph using the MSHCP uncollapsed vegetation communities classification system during the initial focused survey conducted during the spring of 2023. When a vegetation community could not be accurately characterized using this classification system, an updated community classification code was developed to more accurately represent onsite habitat types. Vegetation communities and Project Site photographs are shown in Attachment D, *Vegetation Communities Map*, and Attachment E to J, *Current Project Site Photographs*.

General Wildlife Inventory

All animals identified during the focused surveys by sight, call, tracks, scat, or other characteristic sign were recorded onto a 1:200 scale orthorectified color aerial photograph or documented using a global positioning system (GPS). In addition to species actually detected, expected use of the site by other wildlife was derived from the analysis of habitats on the site, combined with known habitat preferences of regionally occurring wildlife species.

Vertebrate taxonomy followed in this report is according to the Center for North American Herpetology (2023 for amphibians and reptiles), the American Ornithologists' Union (1988 and supplemental) for birds, and Baker et al. (2003) for mammals. Both common and scientific names are used during the first mention of a species; common names only are used in the remainder of the text.

Burrowing Owl Surveys

In accordance with the MSHCP Burrowing Owl Survey Instructions (2006), survey protocol consists of two steps, Step I – Habitat Assessment and Step II – Locating Burrows and Burrowing Owls. Step II is comprised of two parts, Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys.

Each step is briefly outlined below, followed by the methodology and results of each survey conducted within the Project Site. All initial habitat assessment, burrow and focused surveys were conducted by Ruben Ramirez, Cadre Environmental.

Surveys were conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys were not conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. None of the surveys were conducted within five (5) days of measurable precipitation.

In addition to the MSHCP guidelines, field notes were taken daily. These notes recorded the date, location, animal species observed, and general habitat characteristics of each area and habitat examined that day.

Step I – Habitat Assessment

Step 1 of the MSHCP habitat assessment for burrowing owl consists of a walking survey to determine if suitable habitat is present onsite. Cadre Environmental conducted the initial habitat assessment on October 7th, 2022 (Cadre Environmental 2022). Upon arrival at the Project Site, and prior to initiating the assessment survey, Cadre Environmental used binoculars to scan all suitable habitats on and adjacent to the property, including perch locations, to ascertain owl presence.

All suitable areas of the Project Site were surveyed on foot by walking slowly and methodically while recording/mapping areas that may represent suitable owl habitat onsite. Primary indicators of suitable burrowing owl habitat in western Riverside County include, but are not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels (*Otospermophilus beecheyi*) or badgers (*Taxidea taxus*), but they often utilize man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles, or openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

According to the MSHCP guidelines, if suitable habitat is present the biologist should also walk the perimeter of the property, which consists of a 150-meter (approximately 500 feet) buffer zone around the Project Site boundary. If permission to access the buffer area cannot be obtained, the biologist shall not trespass, but visually inspect adjacent habitats with binoculars. Results from the habitat assessment indicated that suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented within the property including foraging habitat within the disturbed and non-native grassland vegetation. Accordingly, if suitable habitat is documented onsite, both Step II surveys and the 30-day pre-construction surveys are required in order to comply with the MSHCP guidelines.

Step II – Locating Burrows and Burrowing Owls

Concurrent with the initial habitat assessment, a detailed focused burrow survey was conducted and included documentation of appropriately sized natural burrows or suitable man-made structures that may be utilized by burrowing owl - as part of the MSHCP protocol, which is described below under Part A. Focused Burrow Survey.

Part A: Focused Burrow Survey

A systematic survey for burrows, including burrowing owl sign, was conducted by walking across all suitable habitats mapped within the Project Site. Pedestrian survey transects were spaced to allow 100% visual coverage of the ground surface. The distances between transect centerlines were no more than 20 meters (approximately 66 ft.) apart to the extent possible. Transect routes were also adjusted to account for topography and in general ground surface visibility. All observations of suitable burrows or dens, natural or man-made, or sightings of burrowing owl, were recorded and mapped during the survey.

Part B: Focused Burrowing Owl Surveys

Four (4) focused burrowing owl surveys were conducted during the spring of 2023 on March 7th, April 7th, 28th, and May 19th, 2023 from one hour before sunrise to two hours

after sunrise as outlined in Table 1, *Burrowing Owl Survey Schedule*. During visual surveys, all potentially suitable burrow or structure entrances were investigated for signs of owl occupation, such as feathers, tracks, or pellets, and carefully observed to determine if burrowing owls utilize these features, when present. All burrows are monitored at a short distance from the entrance, and at a location that would not interfere with potential owl behavior, when present. In addition to monitoring potential burrow locations, all suitable habitats in the Project Site were walked along travel routes which allowed for visual assessments of all suitable habitats, as shown in Attachment K, Potential Burrowing Owl Burrow Photographs, and Attachment L, *Burrowing Owl Survey Area Map*.

Table 1.
Burrowing Owl Survey Schedule

Survey	Dates (Conditions) 2023	Results
1	March 7 th , 44°F to 51°F, winds 2-8 mph, no rain	No burrowing owls detected.
2	April 7 th , 46°F to 60°F, winds 2-4 mph, no rain	No burrowing owls detected.
3	April 28 th , 55°F to 74°F, winds 4-8 mph, no rain	No burrowing owls detected.
4	May 19 th , 55 °F to 63°F, winds 2-4 mph, no rain	No burrowing owls detected.

EXISTING CONDITIONS

The Project Site is currently dominated by field croplands, non-native grassland, disturbed/developed, seasonal depressions and two (2) existing detention basins as illustrated in Attachment D, *Vegetation Communities Map*, Attachments E to J, *Current Project Site Photographs*, and outlined in Table 2, *Project Site Vegetation Community Acreages*.

Table 2
Project Site Vegetation Community Acreages

Vegetation Community	Project Site (acres)
Field Croplands (recently disked)	48.17
Non-native Grassland	8.03
Disturbed	4.10
Seasonal Depression	2.85
Detention Basins	1.74
Developed	1.03
Agricultural Drainage Ditch	0.08
TOTAL	66.00

Source: Cadre Environmental 2023.

VEGETATION COMMUNITIES

The entire Project Site was historically used as agricultural lands for the production of common wheat (*Triticum aestivum*). Although the northern region of the Project Site was recently disked, the last indication of active agriculture production onsite was in 2003. Regardless, the northern region of the Project Site was characterized as field croplands while the majority of the southern region was characterized as non-native grassland and disturbed.

Field Croplands

The northern region of the Project Site was characterized as field croplands based on historical agricultural activities and the current disked condition of this region of the property. Species documented in this region include Russian thistle (*Salsola tragus*), stinknet (*Oncosiphon piluliferum*), cheeseweed (*Malva parviflora*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), tumbling pigweed (*Amaranthus albus*), ranchers fireweed (*Amsinckia menziesii*), and non-native grasses.

Non-native Grassland

The southern region of the Project Site does not appear to be annually disked and is currently dominated by non-native grassland species. Dominant species documented within this vegetation community include ripgut grass (*Bromus diandrus*), wild oat (*Avena fatua*), false barley (*Hordeum murinum*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). Less common species include rattail fescue (*Vulpia myuros*) and puncture vine (*Tribulus terrestris*).

Disturbed

Disturbed habitats include dirt roads as well as regions of the property generally devoid of vegetation.

Seasonal Depression

Two (2) seasonal depression are located in the northern region of the Project Site, as shown in Attachment D, *Vegetation Communities Map*. Species documented within the depressions include alkali plagiobothrys (*Plagiobothrys leptocladus*), slender goldfields (*Lasthenia gracilis*), hyssop loosestrife (*Lythrum hyssopifolia*), purslane speedweed (*Veronica peregrina* subsp. *xalapensis*), toad rush (*Juncus bufonius*), canary grass (*Phalaris canariensis*), salt grass (*Distichlis spicata*), alkali mallow (*Malvella leprosa*), salt heliotrope (*Heliotropium curassavicum*), cocklebur (*Xanthium strumarium*), common knotweed (*Polygonum arenastrum*) and curly dock (*Rumex crispus*).

Detention Basins

Two (2) detention basins are located onsite and both are dominated by riparian scrub species including Goodling's willow (*Salix gooddingii*) and Mediterranean tamarisk (*Tamarisk ramosissima*).

Developed

Developed regions of the Project Site include the offsite impact area which extends east into Case Road.

Agricultural Drainage Ditch

A heavily disturbed agricultural drainage ditch is located in the northeast region of the Project Site immediately south of Watson Road. The ditch is dominated by ruderal species including non-native grasses as described in the non-native grassland description. Other species documented within the ditch include annual sunflower (*Helianthus annuus*), and horseweed (*Erigeron canadensis*).

RESULTS

Burrowing Owl

No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 survey effort. At a minimum, an MSHCP 30-day preconstruction survey will be required immediately prior to the initiation of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP.

General Faunal Species Observations

General wildlife species documented on site include but are not limited to red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), western meadowlark (*Sturnella neglecta*), western bluebird (*Sialia mexicana*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), American crow (*Corvus brachyrhynchos*), white crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), yellow rumped warbler (*Setophaga coronata*), warbling vireo (*Vireo gilvus*), red-winged black bird (*Agelaius phoeniceus*), European starling (*Sturnus vulgaris*), lesser goldfinch (*Spinus psaltria*), house finch (*Haemorhous mexicanus*), desert cottontail rabbit (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*).

LITERATURE CITED AND SELECTED REFERENCES

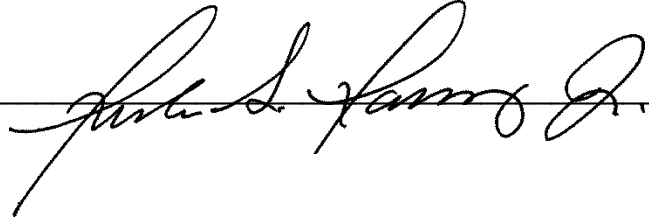
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- California Department of Fish and Wildlife (CDFW). 2023c. State and Federally Listed Endangered and Threatened Animals of California. Natural Heritage Division, Natural Diversity Data Base.
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- County of Riverside. 2006. Burrowing Owl Survey Instructions – Western Riverside Multiple Species Habitat Conservation Plan Area.
- Riverside County Integrated Project (RCIP) Multiple Species Habitat Conservation Plan (MSHCP), March 2004.
- United States Fish and Wildlife Service. 2023. Threatened and Endangered Species. Pacific Southwest Region. Carlsbad Office. Available online at http://www.fws.gov/carlsbad/SpeciesStatusList/CFWO_Species_Status_List%20.htm Accessed August 2023.

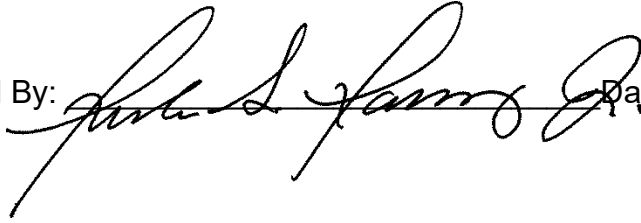
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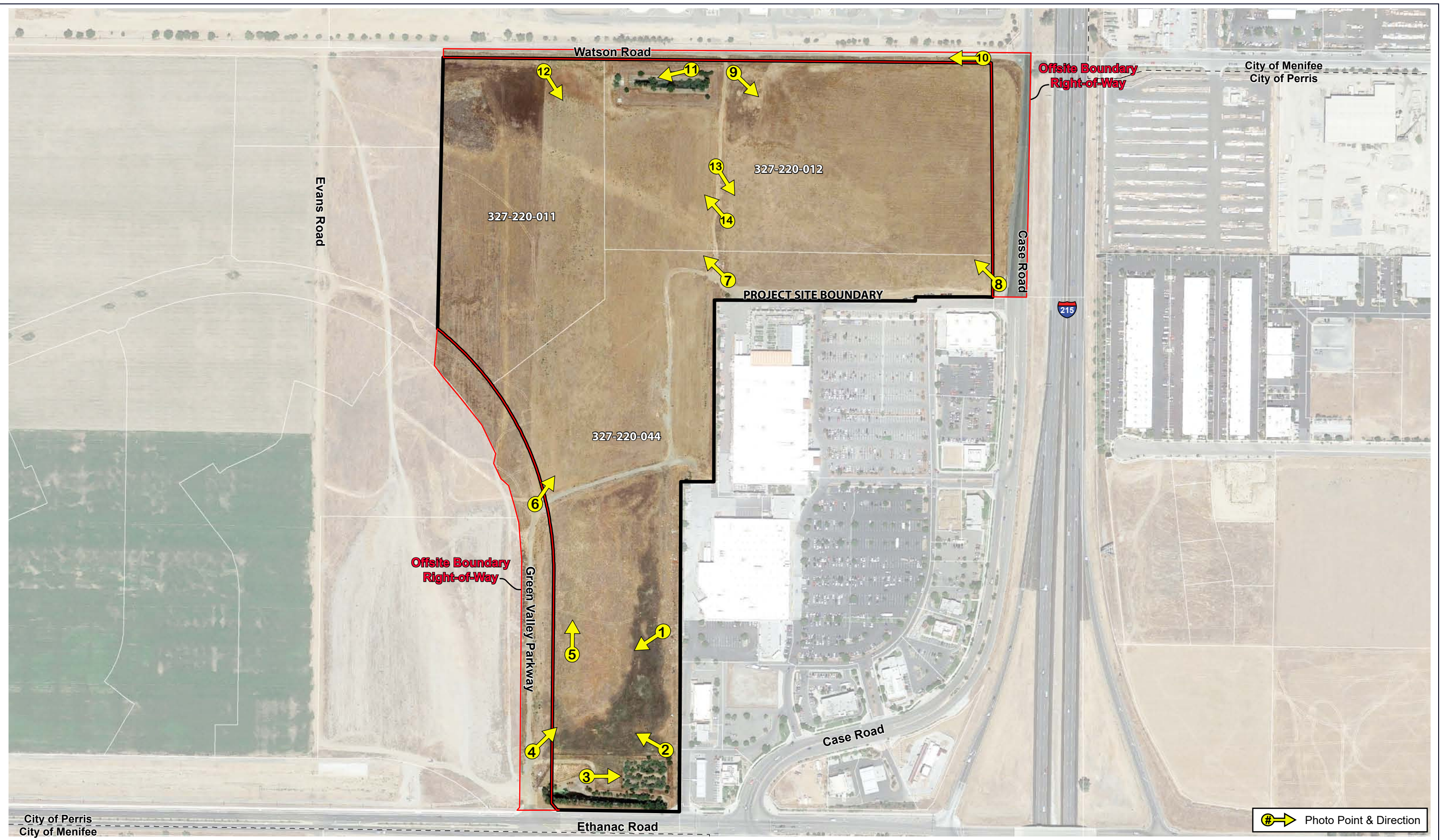
Attachment A – Regional Location Map
Attachment B – Project Site Map
Attachment C – MSHCP Relationship Map
Attachment D – Vegetation Communities Map
Attachment E - Current Project Site Photographs
Attachment F - Current Project Site Photographs
Attachment G - Current Project Site Photographs
Attachment H - Current Project Site Photographs
Attachment I - Current Project Site Photographs
Attachment J - Current Project Site Photographs
Attachment K – Potential Burrowing Owl Burrow Photographs
Attachment L - Burrowing Owl Survey Area Map

Certification

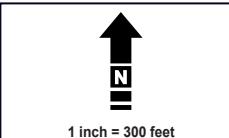
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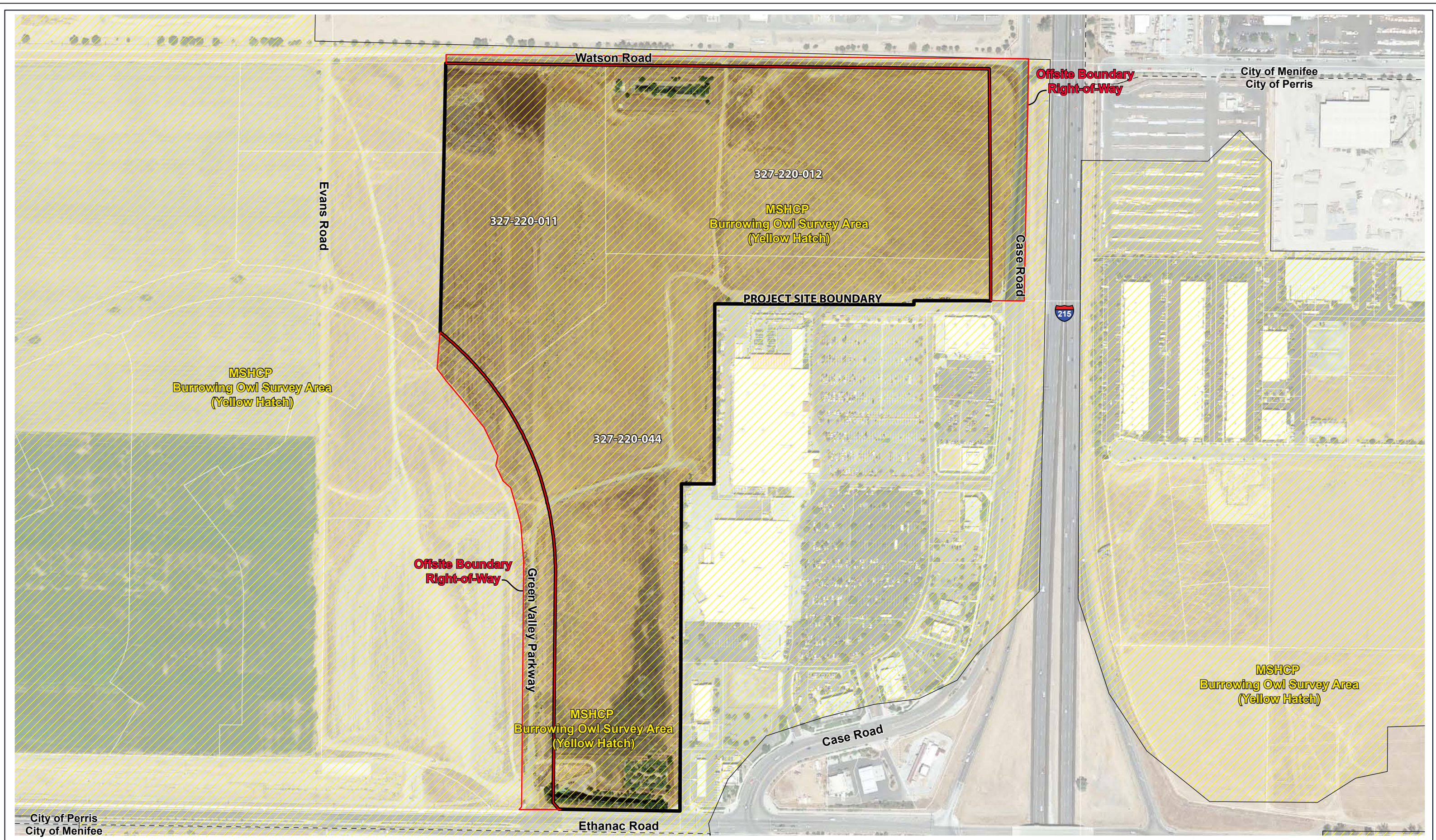
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Fieldwork Performed By:  Date: August 26th, 2023



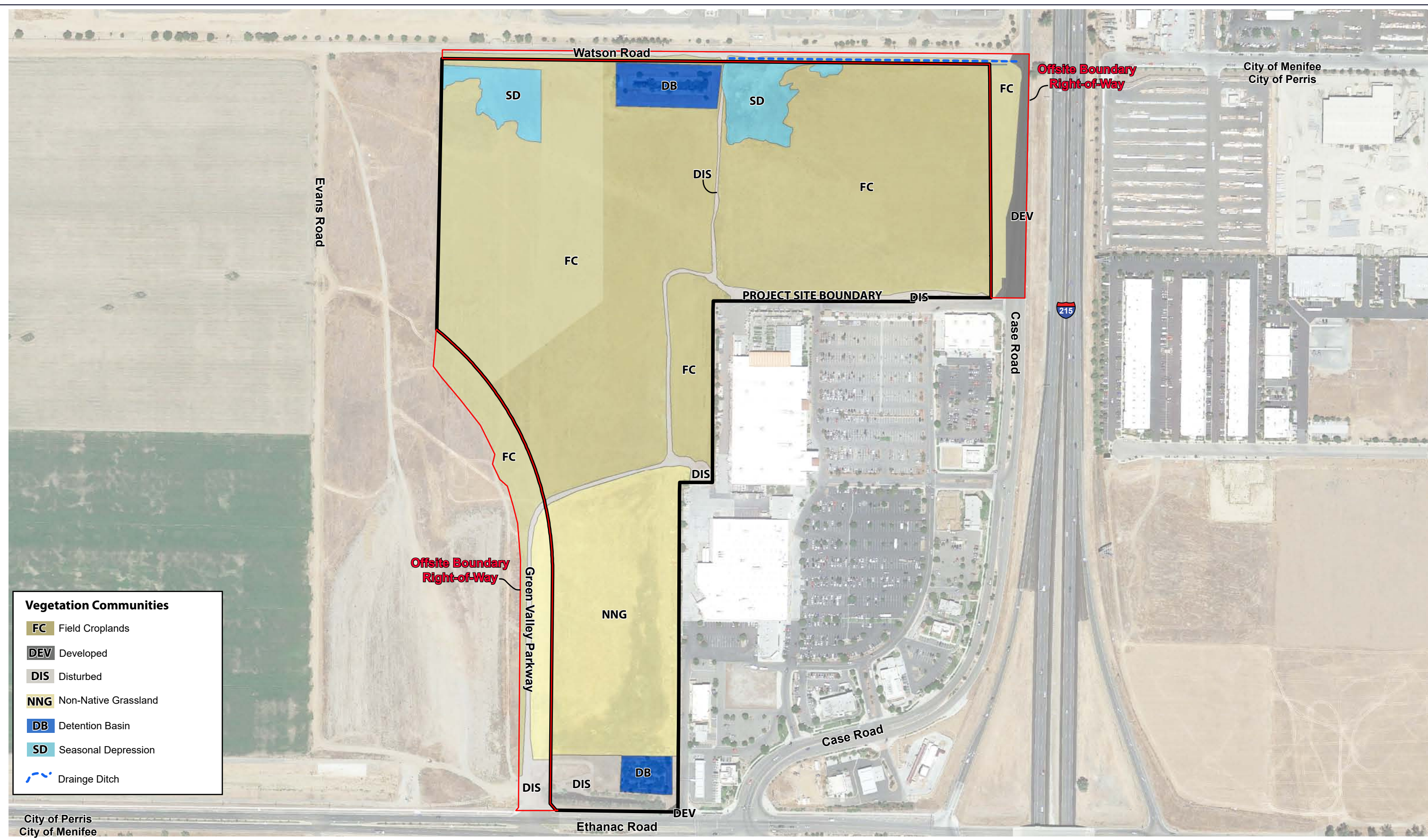
Attachment B - Project Site Map
 MSHCP Focused Burrowing Owl Surveys
 Green Valley Project Site, City of Perris





Attachment C - MSHCP Relationship Map
 MSHCP Focused Burrowing Owl Surveys
 Green Valley Project Site, City of Perris





Vegetation Communities

- FC** Field Croplands
- DEV** Developed
- DIS** Disturbed
- NNG** Non-Native Grassland
- DB** Detention Basin
- SD** Seasonal Depression
- Drainage Ditch



PHOTOGRAPH 1



PHOTOGRAPH 2



PHOTOGRAPH 3



PHOTOGRAPH 4



PHOTOGRAPH 5



PHOTOGRAPH 6



PHOTOGRAPH 7



PHOTOGRAPH 8



PHOTOGRAPH 9



PHOTOGRAPH 10



PHOTOGRAPH 11



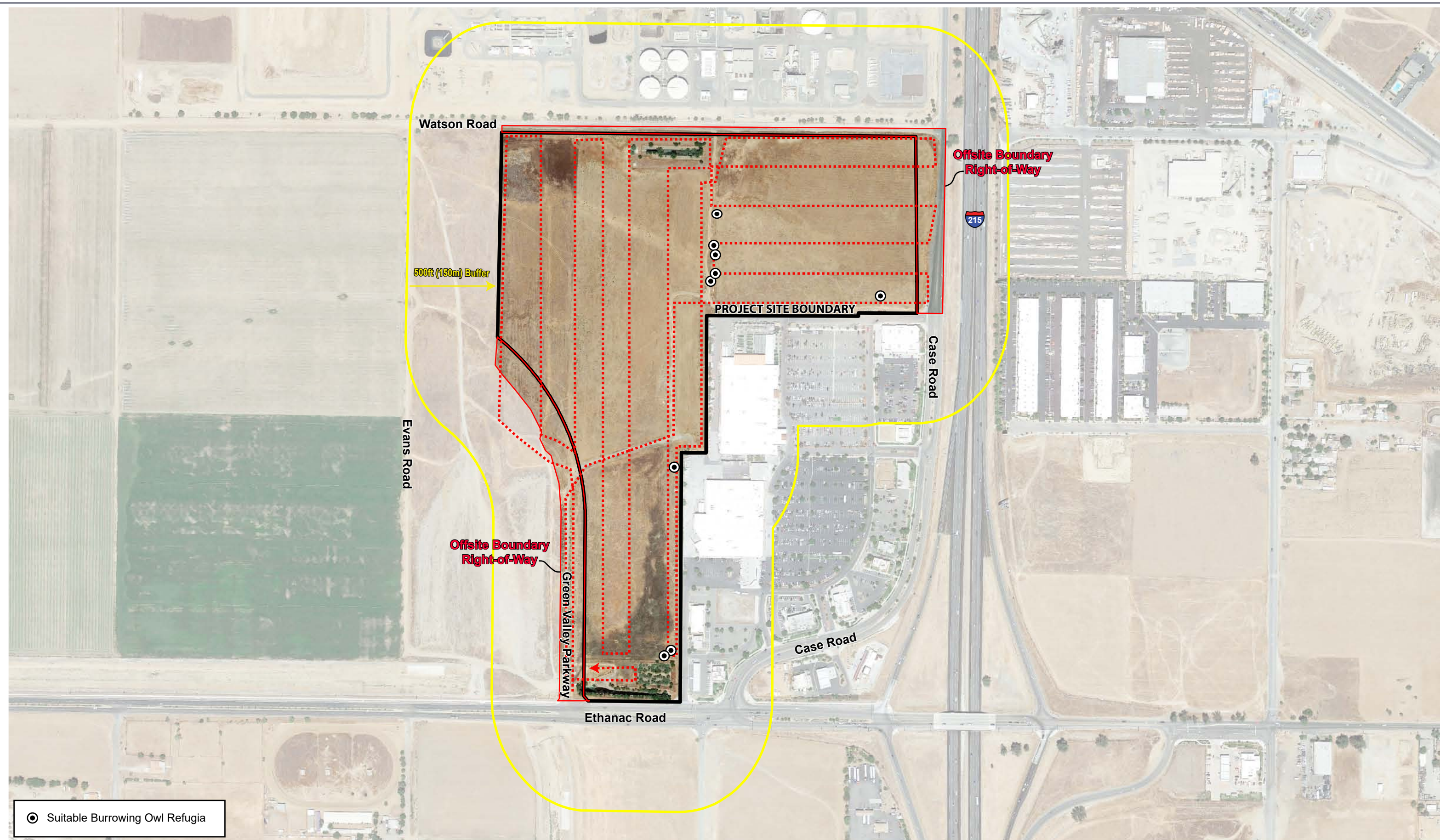
PHOTOGRAPH 12



PHOTOGRAPH 13

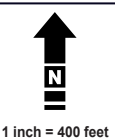


PHOTOGRAPH 14



Attachment L - Burrowing Owl Survey Area Map
 MSHCP Focused Burrowing Owl Surveys
 Green Valley Project Site, City of Perris

..... Survey Transects



APPENDIX C

**Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)
Focused Least Bell's Vireo Surveys for the 66-Acre Green Valley Project Site, City
of Perris, Western Riverside County, California. (Cadre Environmental 2023b)**



INFORMATION SUMMARY

- A. Report Date: August 26th, 2023
- B. Report Title: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Focused Least Bell's Vireo Surveys for the 66-Acre Green Valley Project Site, City of Perris, Western Riverside County, California.
- C. APN#s: 327-220-011, 327-220-012, 327-220-004 (offsite right-of-way).
- D. Project Location: USGS 7.5' Series Romoland and Perris Quadrangles, Riverside County, Township 5 South, Range 3 West, Section 9, Extending East of Green Valley Parkway, South of Watson Road and West of Case Road, as shown in Attachment A, *Regional Location Map* and Attachment B, *Project Site Map*.
- E. Applicant: Richland Real Estate Fund, LLC
3161 Michelson Drive, Suite 425
Irvine, CA 92612
Contact: Derek Barbour (714) 932-0650
dbarbour@richlandcommunities.com
- F. MOU Principal: Cadre Environmental
701 Palomar Airport Road, Suite 300,
Carlsbad, CA. 92011
Contact: Ruben S. Ramirez, Jr. (949) 300-0212
r.ramirez@cadreenvironmental.com
- G. Date of Surveys: April 11th, 21st, May 1st, 11th, 21st, June 1st, 11th, and 21st, 2023
- H. Summary: The 57.88-acre property including 8.12-acre offsite assessment area (right-of-way), 66-acres total is located within the Western Riverside County MSHCP Mead Valley Plan Area and is not located within a Criteria Area, Cell Group or linkage area.

The MSHCP has determined that all of the sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). However, additional surveys may be required for narrow endemic plants, criteria area species, and specific wildlife species, if suitable habitat is documented onsite and/or if the property is located within a predetermined "Survey Area" (MSHCP 2004).

Low quality habitat (riparian vegetation) for the least Bell's vireo (*Vireo bellii pusillus*) was documented within the northern and southern detention basins. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023.

No breeding or transitory least Bell's vireo were documented onsite during the focused surveys conducted during the spring of 2023.

SUBJECT

Western Riverside County Multiple Species Habitat Conservation Plan Focused Least Bell's Vireo Surveys for the 66-Acre Green Valley Project Site, City of Perris, Western Riverside County, California

This report presents the findings of focused Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) least Bell's Vireo (*Vireo bellii pusillus*) surveys conducted for the 57.88-acre (8.12-acre offsite right-of-way), 66-acre total Green Valley project site ("Project Site") located within the City of Perris, western Riverside County, California (RCIP 2004), as shown in Attachment A, *Regional Location Map*. The purpose of these studies is to document the presence/absence and distribution of target species for use in determining potential impacts associated with the proposed development within the MSHCP.

The Project Site is located within United States Geological Survey (USGS) 7.5' Series Romoland and Perris Quadrangles, Riverside County, Township 5 South, Range 3 West, Section 9. Specifically, the Project Site extends east of Green Valley Parkway, south of Watson Road and west of Case Road, as shown in Attachment A, *Regional Location Map* and Attachment B, *Project Site Map*.

The Project Site is located within the Western Riverside County MSHCP Mead Valley Plan Area and is not located within a Criteria Area, Cell Group or linkage area.

METHODS OF STUDY

APPROACH

Prior to initiating the focused survey efforts, a review of all available and relevant data on the biological characteristics, sensitive habitats, and species potentially present on or adjacent to the Project Site was conducted. Additionally, aerial photography, and USGS topographic map data were examined. After reviewing the available information, Cadre Environmental conducted a physical site assessment and initiated focused surveys.

Plant Community/Habitat Classification and Mapping

Plant communities were preliminarily mapped with the aid of an aerial photograph using the MSHCP uncollapsed vegetation communities classification system during the initial focused survey conducted during the spring of 2023. When a vegetation community could not be accurately characterized using this classification system, an updated community classification code was developed to more accurately represent onsite habitat types. Vegetation communities and Project Site photographs are shown in Attachment B, *Vegetation Communities Map*, and Attachments D to I, *Current Project Site Photographs*.

General Wildlife Inventory

All animals identified during the focused surveys by sight, call, tracks, scat, or other characteristic sign were recorded onto a 1:200 scale orthorectified color aerial photograph or documented using a global positioning system (GPS). In addition to species actually detected, expected use of the site by other wildlife was derived from the analysis of habitats on the site, combined with known habitat preferences of regionally occurring wildlife species.

Vertebrate taxonomy followed in this report is according to the Center for North American Herpetology (2023 for amphibians and reptiles), the American Ornithologists' Union (1988 and supplemental) for birds, and Baker et al. (2003) for mammals. Both common and scientific names are used during the first mention of a species; common names only are used in the remainder of the text.

Least Bell's Vireo Surveys

Low quality suitable habitat for the least Bell's vireo was documented within the northern and southern detention basins, as shown in Attachment B, *Vegetation Communities Map*. Following the initial habitat assessment conducted on October 7th, 2022 to determine the presence/absence of suitable habitat for sensitive riparian bird species within the Project Site, a total of eight (8) protocol least Bell's vireo surveys were conducted within all suitable habitat documented onsite. All surveys followed the recommended USFWS guidelines (USFWS (USFWS 2001). Specifically, guidelines for least Bell's vireo surveys require that at least eight (8) surveys be conducted from April 10th to July 31st.

All riparian habitats were systematically surveyed by Ruben Ramirez on April 11th, 21st, May 1st, 11th, 21st, June 1st, 11th, and 21st, 2023 by walking slowly and methodically along their margins of the riparian habitat. All surveys were conducted under optimal weather conditions and during early morning hours when bird activity is at a peak.

EXISTING CONDITIONS

The Project Site is currently dominated by field croplands, non-native grassland, disturbed/developed, seasonal depressions and two (2) existing detention basins as illustrated in Attachment D, *Vegetation Communities Map*, Attachments D to I, *Current Project Site Photographs*, and outlined in Table 1, *Project Site Vegetation Community Acreages*.

Table 1
Project Site Vegetation Community Acreages

Vegetation Community	Project Site (acres)
Field Croplands (recently disked)	48.17
Non-native Grassland	8.03
Disturbed	4.10
Seasonal Depression	2.85
Detention Basins	1.74
Developed	1.03
Agricultural Drainage Ditch	0.08
TOTAL	66.00

Source: Cadre Environmental 2023.

VEGETATION COMMUNITIES

The entire Project Site was historically used as agricultural lands for the production of common wheat (*Triticum aestivum*). Although the northern region of the Project Site was recently disked, the last indication of active agriculture production onsite was in 2003. Regardless, the northern region of the Project Site was characterized as field croplands while the majority of the southern region was characterized as non-native grassland and disturbed.

Field Croplands

The northern region of the Project Site was characterized as field croplands based on historical agricultural activities and the current disked condition of this region of the property. Species documented in this region include Russian thistle (*Salsola tragus*), stinknet (*Oncosiphon piluliferum*), cheeseweed (*Malva parviflora*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), tumbling pigweed (*Amaranthus albus*), ranchers fireweed (*Amsinckia menziesii*), and non-native grasses.

Non-native Grassland

The southern region of the Project Site does not appear to be annually disked and is currently dominated by non-native grassland species. Dominant species documented within this vegetation community include ripgut grass (*Bromus diandrus*), wild oat (*Avena fatua*), false barley (*Hordeum murinum*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). Less common species include rattail fescue (*Vulpia myuros*) and puncture vine (*Tribulus terrestris*).

Disturbed

Disturbed habitats include dirt roads as well as regions of the property generally devoid of vegetation.

Seasonal Depression

Two (2) seasonal depression are located in the northern region of the Project Site, as shown in Attachment D, *Vegetation Communities Map*. Species documented within the depressions include alkali plagiobothrys (*Plagiobothrys leptocladus*), slender goldfields (*Lasthenia gracilis*), hyssop loosestrife (*Lythrum hyssopifolia*), purslane speedweed (*Veronica peregrina* subsp. *xalapensis*), toad rush (*Juncus bufonius*), canary grass (*Phalaris canariensis*), salt grass (*Distichlis spicata*), alkali mallow (*Malvella leprosa*), salt heliotrope (*Heliotropium curassavicum*), cocklebur (*Xanthium strumarium*), common knotweed (*Polygonum arenastrum*) and curly dock (*Rumex crispus*).

Detention Basins

Two (2) detention basins are located onsite and both are dominated by riparian scrub species including Goodling's willow (*Salix gooddingii*) and Mediterranean tamarisk (*Tamarisk ramosissima*).

Developed

Developed regions of the Project Site include the offsite impact area which extends east into Case Road.

Agricultural Drainage Ditch

A heavily disturbed agricultural drainage ditch is located in the northeast region of the Project Site immediately south of Watson Road. The ditch is dominated by ruderal species including non-native grasses as described in the non-native grassland description. Other species documented within the ditch include annual sunflower (*Helianthus annuus*), and horseweed (*Erigeron canadensis*).

RESULTS

Least Bell's Vireo

No breeding or transitory least Bell's vireo were documented onsite during the focused surveys conducted during the spring of 2023.

General Faunal Species Observations

General wildlife species documented on site include but are not limited to red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), western meadowlark (*Sturnella neglecta*), western bluebird (*Sialia mexicana*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), American crow (*Corvus brachyrhynchos*), white crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), yellow rumped warbler (*Setophaga coronata*), warbling vireo (*Vireo gilvus*), red-winged black bird (*Agelaius phoeniceus*), European starling (*Sturnus vulgaris*), lesser goldfinch (*Spinus psaltria*), house finch (*Haemorhous mexicanus*), desert cottontail rabbit (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*).

LITERATURE CITED AND SELECTED REFERENCES

California Department of Fish and Wildlife (CDFW). 2023a. Special Animals. Natural Heritage Division, Natural Diversity Data Base.

California Department of Fish and Wildlife (CDFW), Natural Diversity Data Base (CNDDDB). 2023b. Sensitive Element Record Search for the Romoland and Perris Quadrangles. California Department of Fish and Wildlife. Sacramento, California. Accessed August 2023.

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United States Fish and Wildlife Service. 2023. Threatened and Endangered Species. Pacific Southwest Region. Carlsbad Office. Available online at http://www.fws.gov/carlsbad/SpeciesStatusList/CFWO_Species_Status_List%20.htm Accessed August 2023.

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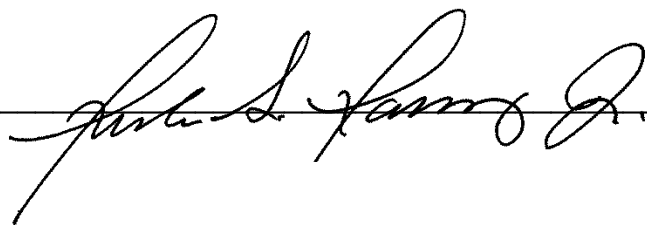
ATTACHMENTS

Attachment A - Regional Location Map
Attachment B - Project Site Map
Attachment C - Vegetation Communities Map
Attachment D - Current Project Site Photographs
Attachment E - Current Project Site Photographs
Attachment F - Current Project Site Photographs
Attachment G - Current Project Site Photographs
Attachment H - Current Project Site Photographs
Attachment I - Current Project Site Photographs

Certification

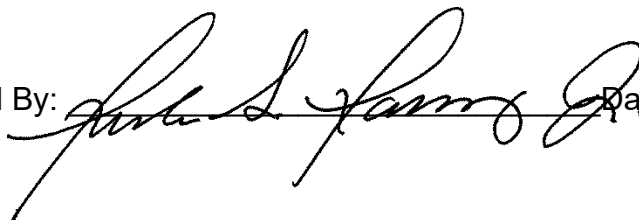
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Author: _____

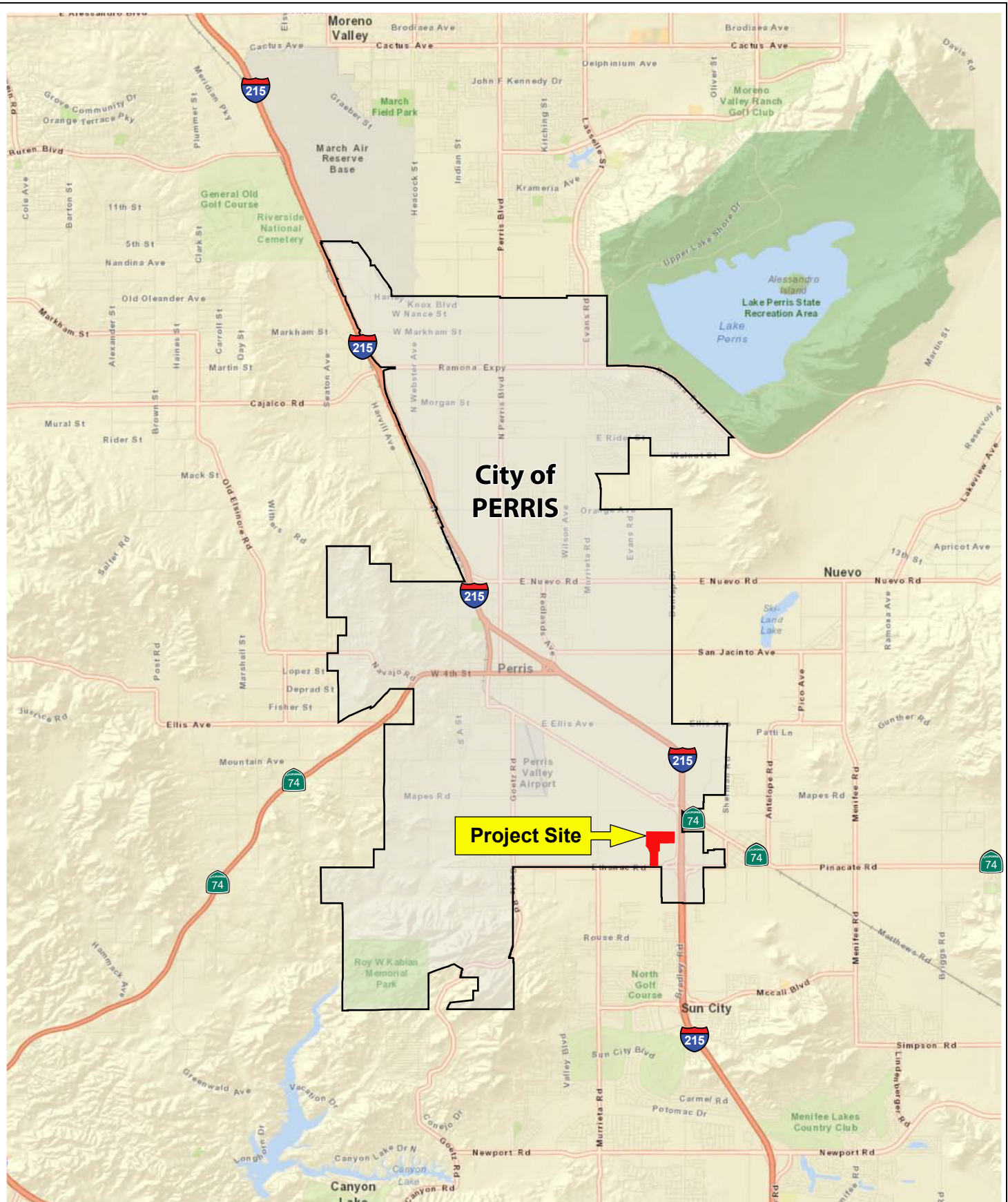


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Fieldwork Performed By: _____



Date: August 26th, 2023



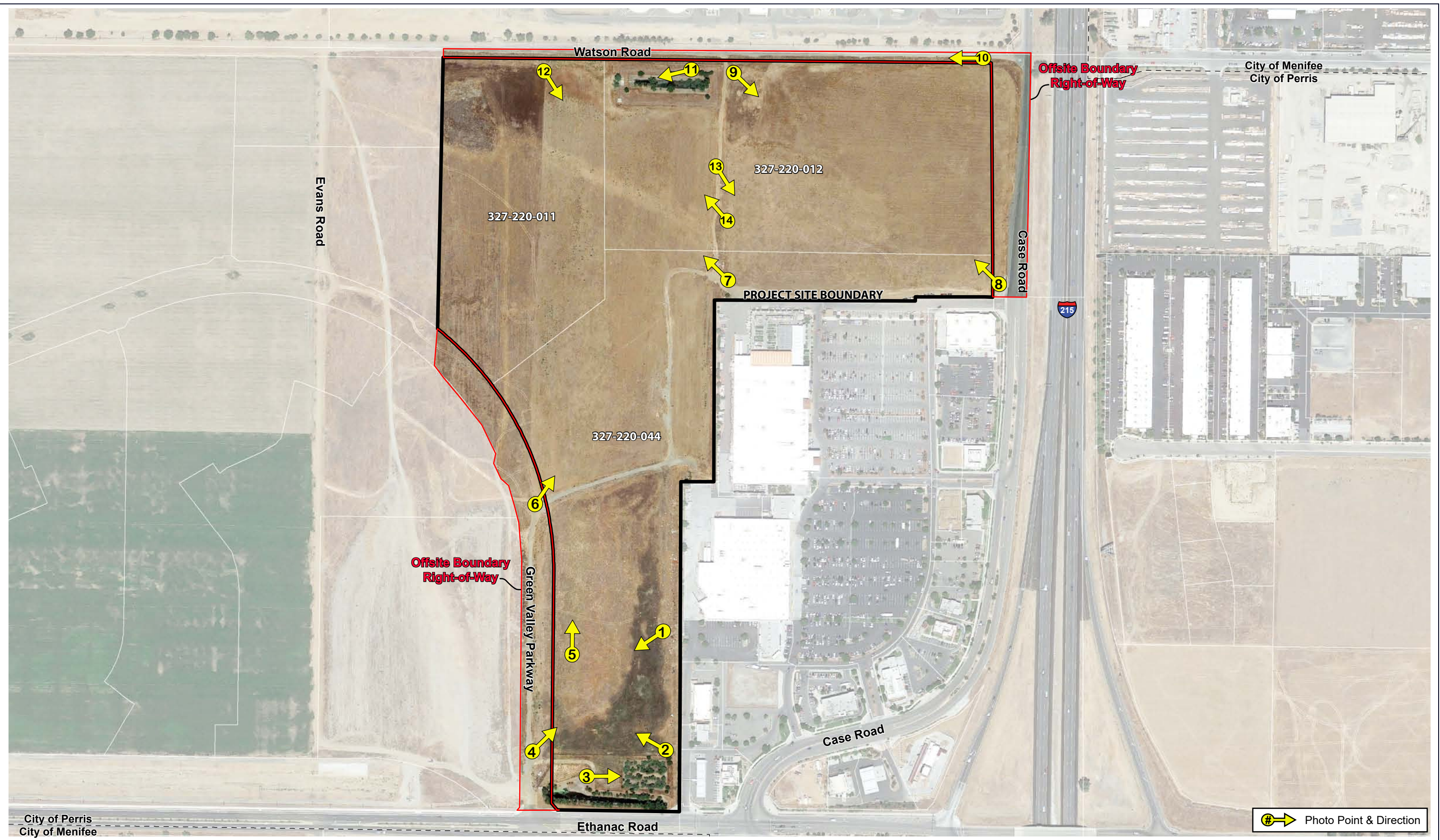
APNs 327-220-011, 327-220-012, 327-220-077, and Right of Ways

Attachment A - Regional Location Map

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*

CADRE
Environmental



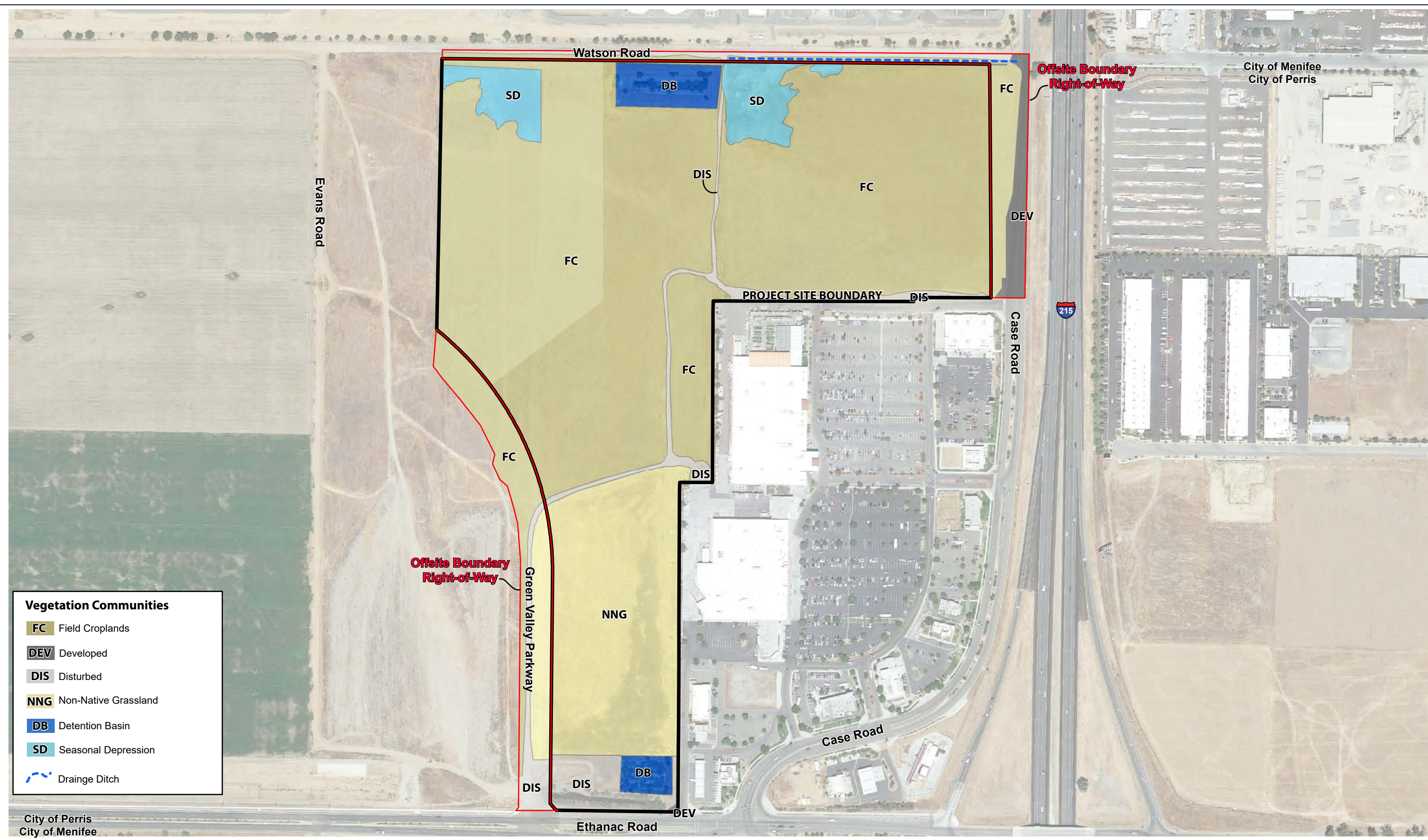


Attachment B - Project Site Map

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*



1 inch = 300 feet



Vegetation Communities

- FC** Field Croplands
- DEV** Developed
- DIS** Disturbed
- NNG** Non-Native Grassland
- DB** Detention Basin
- SD** Seasonal Depression
- Drainage Ditch



PHOTOGRAPH 1



PHOTOGRAPH 2

Attachment D - Current Project Site Photographs

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*



PHOTOGRAPH 3



PHOTOGRAPH 4

Attachment E - Current Project Site Photographs

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*



PHOTOGRAPH 5



PHOTOGRAPH 6

Attachment F - Current Project Site Photographs

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*



PHOTOGRAPH 7



PHOTOGRAPH 8

Attachment G - Current Project Site Photographs

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*



PHOTOGRAPH 9



PHOTOGRAPH 10

Attachment H - Current Project Site Photographs

*MSHCP Focused Least Bell's Vireo Surveys
Green Valley Project Site, City of Perris*



PHOTOGRAPH 11



PHOTOGRAPH 12

APPENDIX D

**Green Valley Project – Delineation of Jurisdictional Waters, City of Perris,
Riverside County, California. (WSP USA Environment & Infrastructure, Inc. 2023a)**

Green Valley Project
DELINEATION OF JURISDICTIONAL WATERS



City of Perris
Riverside County, California

Submitted to:
Richland Communities
3161 Michelson Drive, Suite 425
Irvine, CA 92615
Derek Barbour
714.932.0650
Project No. 322520122

Prepared By:
Dale Hameister, Senior Biologist
WSP USA Environment & Infrastructure Inc.
1845 Chicago Avenue, Suite D
Riverside, CA 92507
951-369-8060

March 2023

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APPENDIX D – regulatory Framework

ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
ft.	Feet
GIS	Geographic Information System
HUC	Hydrologic Cataloging Unit
IP	Individual Permit
M	Meters
NEPA	National Environmental Policy Act
NL	not listed
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	obligate
OHWM	ordinary high-water mark
PM	post mile
Rapanos	Rapanos v. U.S. and Carabell v. U.S.
RPW	relatively permanent waterway
RWQCB	Regional Water Quality Control Board
SWANCC	Solid Waste Agency of Northern Cook County v. USACE
TNW	traditionally navigable waterway
UPL	upland
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WSC	Waters of the State of California
WUS	Waters of the United States

1.0 INTRODUCTION

WSP USA Environment & Infrastructure Inc. (WSP) was contracted by Richland Communities to conduct a jurisdictional delineation and prepare a report for the Green Valley (project) in Perris, Riverside County, California. This report presents regulatory framework, methods, and results of a delineation of jurisdictional waters, wetlands, and associated riparian habitat potentially impacted by the project.

1.1 Purpose

The purpose of the delineation is to determine the extent of state and federal jurisdiction within the project area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

1.2 Project Description

The Project comprises an approximate 44-acres property within the existing Green Valley Specific Plan within Planning Areas 40, 41, and 44. The entire project area is proposed for development, however final plans are not yet complete.

1.3 Project Location

The project is entirely within the city of Perris, Riverside County, California (see Appendix A - Figure 1). The project site is located at Latitude 33.746530 and Longitude -117.195596 within Section 9, Township 5 South, and Range 3 West. The project is located north of Ethanac Road, south of Watson Road, east of Green Valley Parkway, and west of the Case Road, as depicted on the *Romoland*, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map.

Elevations range from approximately 1,421 feet (433 meters) to 1,426 feet (434 meters). The land within the study area is generally flat and has historically been used for agriculture.

2.0 METHODS

Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- Aerial photographs (2021) of the survey area at a scale of 1:1800 to determine the potential locations of jurisdictional waters or wetlands;
- USGS topographic map (Figure 2-Appendix A) to determine the presence of any “blue line” drainages or other mapped water features;
- USDA soil mapping data (Figure 3-Appendix A); and
- USFWS National Wetlands Inventory map to identify areas mapped as wetland features (Figure 4-Appendix A).

Field surveys of the project area were conducted by WSP Senior Biologist Dale Hameister on 10 February 2023. All accessible portions of the survey area were walked to determine if the flows associated with the project site meet the minimum criteria to be considered jurisdictional by the USACE, RWQCB, and CDFW. Visual observations of vegetation types and changes in hydrology and soil, as well as culvert locations were used to locate areas for evaluation. Weather conditions during delineation fieldwork was conducive for surveying with clear skies, winds ranging from 0 to 5 miles per hour, and a temperatures of 48-56° Fahrenheit.

USACE regulated Waters of the United States (WUS), including wetlands, and RWQCB Waters of the State of California (WSC) were delineated according to the methods outlined in *A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a). The extent of WUS was determined based on indicators of an OHWM. The OHWM width was measured at points wherever clear changes in width occurred.

Potential Federally regulated wetlands were identified based on the *Wetlands Delineation Manual* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008b). Additional data was recorded to determine if an area fulfilled the wetland criteria parameters. Three criteria must be fulfilled to classify an area as a wetland under the jurisdiction of the USACE: 1) a predominance of hydrophytic vegetation, 2) the presence of hydric soils, and 3) the presence of wetland hydrology.

RWQCB jurisdictional areas identified as WSC were determined by the edge of the OHWM, like associated with USACE limits. CDFW jurisdiction is delineated by measuring the elevations of land that confine a stream to a definite course when its waters rise to their highest level and to the extent of associated riparian vegetation. This edge is identified as the clearly defined bed and bank feature and extends further to include any adjacent riparian habitat that clearly receives water resources associated with the drainage feature.

To determine jurisdictional boundaries, the surveyor walked the length of the drainage within the project area and recorded the centerline with a Trimble GeoXH global positioning system. The width of the drainage was determined by the OHWM and bankfull width measurements at locations where transitions were apparent. Other data recorded included bank height and

morphology, substrate type, and all vegetation within the streambed and riparian vegetation adjacent to the streambed. Areas that lacked evidence of hydrophytic vegetation, lacked evidence of wetland hydrology, and had no recent disturbance, did not require a soil pit since the other wetland indicators were not present. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional waters and prepare graphical representations of that data.

3.0 ENVIRONMENTAL SETTING

3.1 Existing Conditions

The proposed project area consists of disturbed former agricultural area within the city of Perris, CA. The survey area consists of the entire development area.

3.2 Hydrology

Climate data from Riverside, California station (COOP 047470) describes the average annual total precipitation over recent years for the area as 10.21 inches (Western Regional Climate Center 2020).

The project area lies within the Santa Ana River Watershed (Hydrologic Unit Code [HUC] 18070006) and within the Lower San Jacinto sub-watershed. Water flow in the project area is largely determined by episodic stormwater sheet flow that generally occur during the rainy season, primarily November through April. (see Appendix A – Figure 3).

3.3 Vegetation

The dominant vegetation community within the vegetated survey area is *non-native grassland*. The entire project site is dominated by non-native grasses and herbaceous species except for the two on-site basins. Tamarisk thickets were observed within the southern basin, which is dominated by salt cedar (*Tamarix ramosissima*) (FAC) with a few African sumac trees (*Searsia lancea*) and arroyo willows (*Salix lasiolepis*) (FACW). The northern basin contains several African sumac trees on the north bank, and several salt cedar and arroyo willows within the water at the bottom of the basin.

3.4 Soils

Soil data in the survey area is mapped as Exeter sandy loam, Greenfield sandy loam, and Madera fine sandy loam. The Exeter series consists of moderately deep to a duripan, moderately well drained soils that formed in alluvium mainly from granitic sources. Exeter soils are on alluvial fans and stream terraces and have slopes of 0 to 9 percent. The Greenfield series consists of deep, well drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Greenfield soils are on alluvial fans and terraces and have slopes of 0 to 30 percent. The Madera series consists of moderately deep to hardpan, well or moderately well drained soils that formed in old alluvium derived from granitic rock sources. Madera soils are on undulating low terraces with slopes of 0 to 9 percent. A soil pit was dug at the edge of each of the basins. The southern basin contained saturated soils from the recent rains and consisted mostly of gravel fill and fine sandy material. There were no wetland soil indicators. The northern basin soils contain fine clay and loam and had some oxidation as well as a muck layer on the surface which are wetland soil indicators.

3.5 National Wetlands Inventory

The United States Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetlands Inventory (NWI) to show wetlands and deep-water habitat. This geospatial information is used by Federal, State, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

The NWI Mapper (USFWS, 2022) was accessed on-line to review mapped wetlands or riverine areas within the project study areas. The NWI mapper shows no previously identified drainages or wetlands within the survey area (see Appendix A - Figure 4).

4.0 RESULTS

Based on the field visit, two agricultural basins were observed within the project area as shown in Figure 6 (Appendix A). The southern basin appeared to be filled via a culvert draining the parking lot of the shopping center to the east. The northern drainage collects storm waters from the road to the north of the project. A review of historic aerial photo show that both basins dry up during the summer. No drainages with a defined OHWM were observed within the project area. At the time of the survey there were some areas of dried cracked soil indicating there were small, pooled area from recent rains, but they had dried up. There were no potentially jurisdictional features leading to the pools. There was also a roadside ditch observed along the northeast edge of the project. The ditch did not have any OHWM sign and would also not be considered jurisdictional due to being an agricultural roadside ditch, which are not considered jurisdictional.

The Jurisdictional Delineation Map (Appendix A – Figure 6) identifies the two basins on-site. The northern basin contains approximately 0.25 acres of standing water, and the southern basin contains approximately 0.08 acres of standing water. The basins are not associated with any drainages that contain bed and bank or had evidence of an OHWM and are therefore not likely to be considered jurisdictional under USACE or CSFW. The basins are less than 1 acre in size and have been used in the past for agricultural water detention and the detention, retention, infiltration, or treatment of stormwater runoff which are both exempt usages under the RWQCB and the 401(a)(1) of the CWA.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction. Based on our delineation there are no jurisdictional features located withing the project area.

5.0 IMPACTS TO JURISDICTIONAL AREAS

The basins and roadside ditch on-site are not considered to be jurisdictional under USACE, CDFW, and RWQCB regulations and therefore the project will not impact jurisdictional areas. Regulatory Framework can be found in Appendix D.

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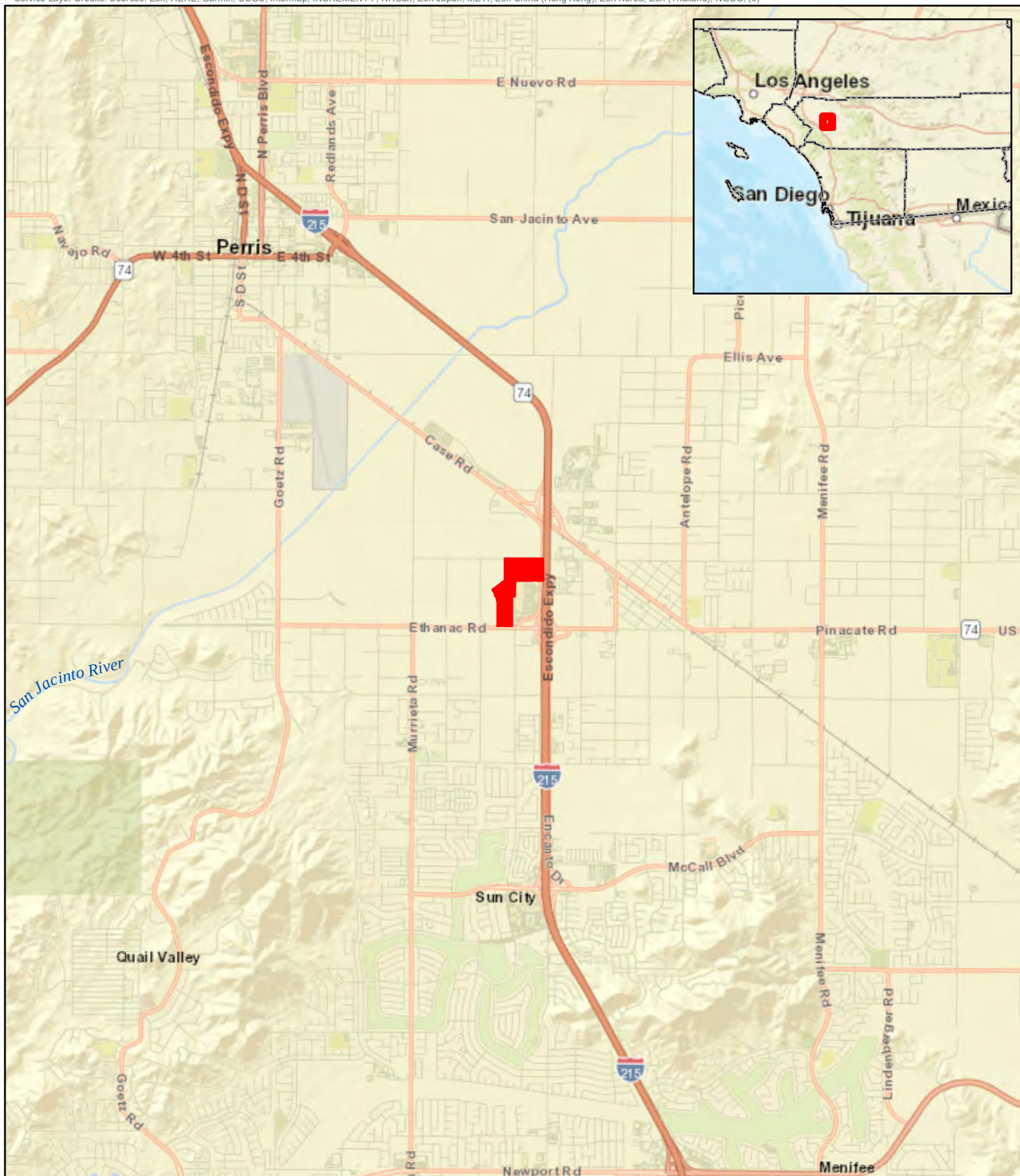
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APPENDIX A – JURISDICTIONAL MAPS



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 Project Location

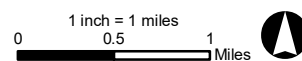
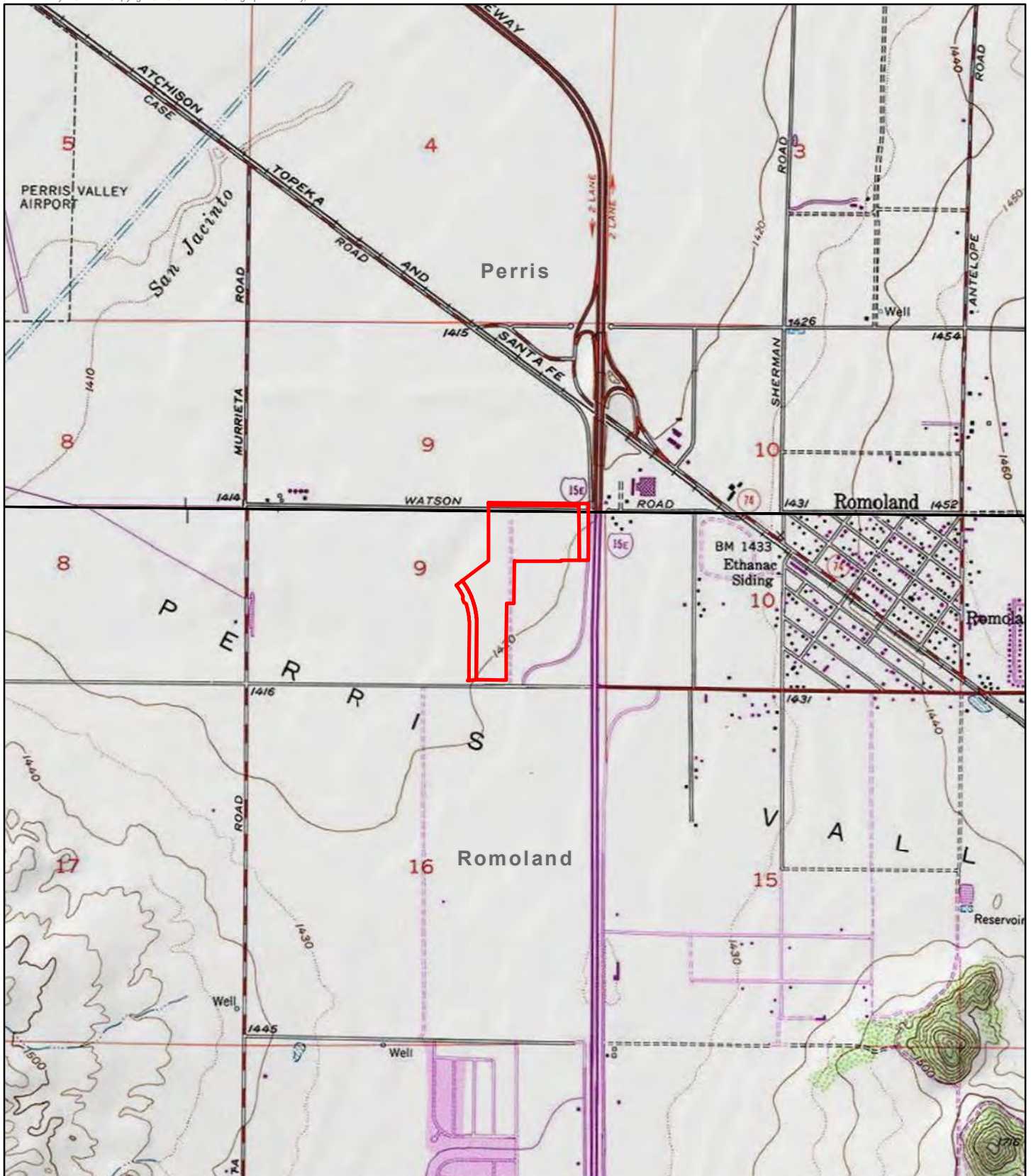


FIGURE 1

Project Location
Green Valley Project
Riverside County, CA



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 Project Boundary

FIGURE 2

USGS 7.5' Quads: Perris, Romoland
Green Valley Project
Riverside County, CA



-  Project Location
 Stream (NHD)
 Watershed (HU10 and HU12)
 Waterbody (NHD)

FIGURE 3

Hydrology/Watershed
Green Valley Project
Riverside County, CA



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 Wetlands
 Project Area

1 inch = 2,000 feet
0 1,000 2,000 Feet 

FIGURE 4
NWI
Green Valley Project
Riverside County, CA



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- EnA - Exeter sandy loam, 0 to 2 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- MaA - Madera fine sandy loam, 0 to 2 percent slopes
- Project Location

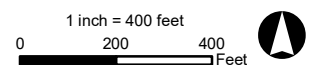


FIGURE 5

Soils
Green Valley Project
Riverside County, California



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- Project Area
- Green Valley Basins

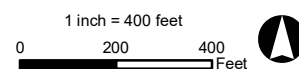


FIGURE 6
Jurisdictional Delineation
Green Valley Project
Riverside County, CA

APPENDIX B – SITE PHOTOGRAPHS



Photo 1: Looking east showing the southern drainage basin.

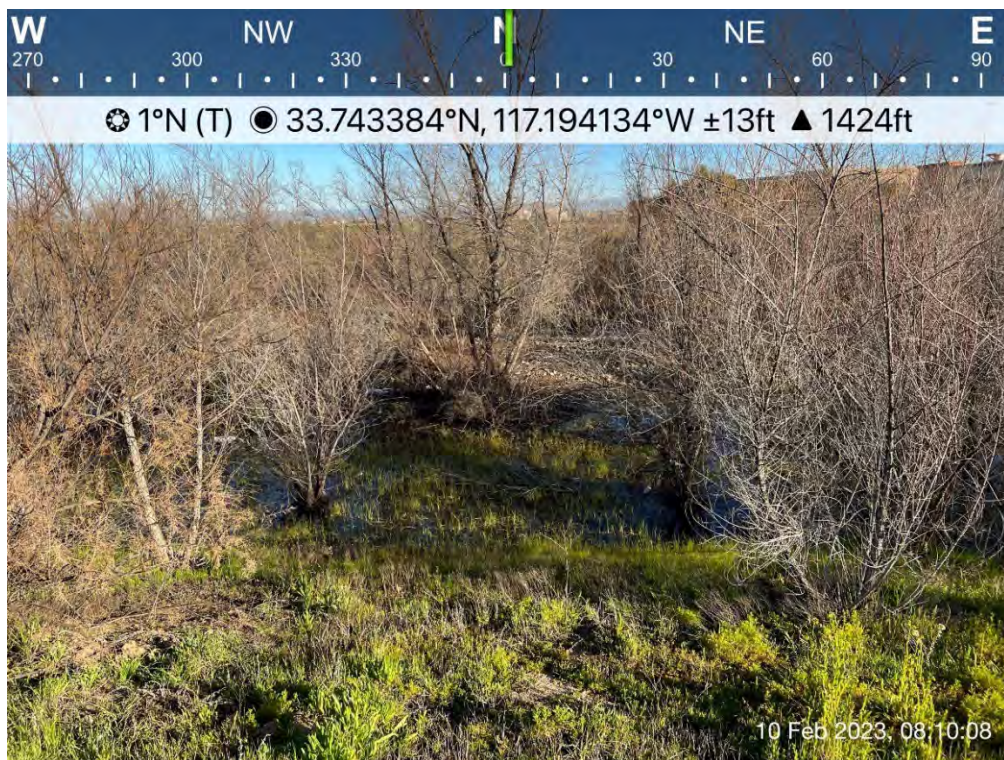


Photo 2: Looking north showing the southern drainage basin.

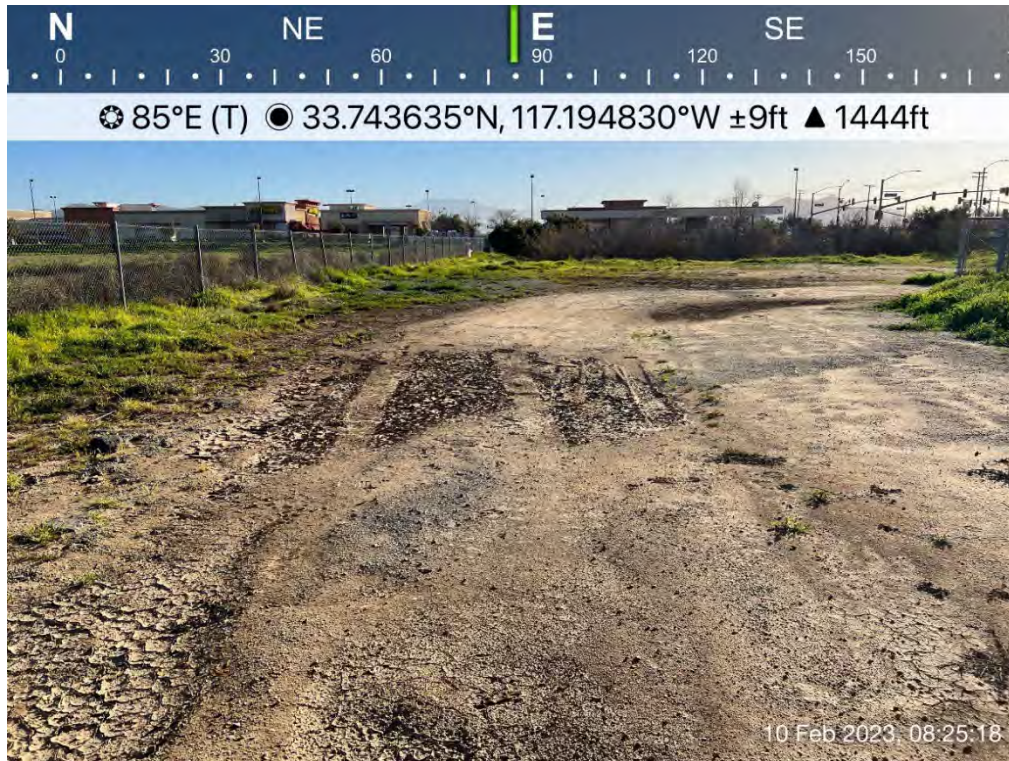


Photo 3: Looking east showing the southern drainage basin has no outlet flows. The cracked soils in the foreground are an example of the pooled water areas.

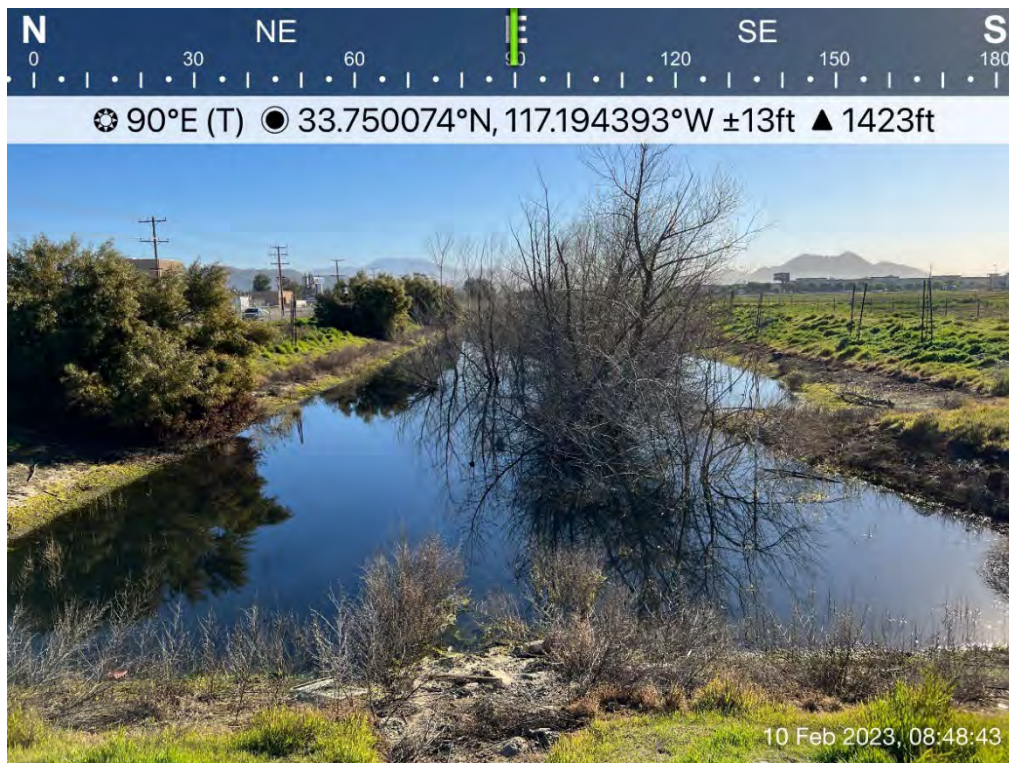


Photo 4: The northern basin looking east from the west side.



Photo 5: Looking west showing the northern bank of the northern basin.

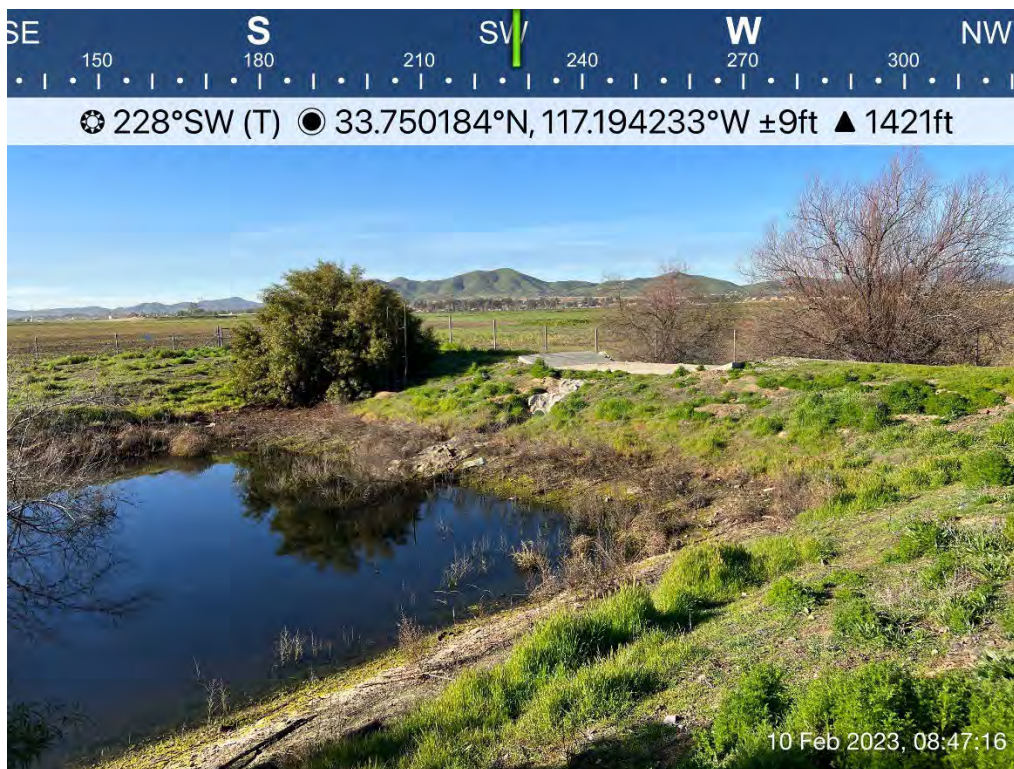


Photo 6: Looking southwest showing the spillway if the basin overflows. No evidence of any regular outflow was observed.



Photo 7: Roadside ditch observed along the northern boundary of the project is not considered to be jurisdictional.

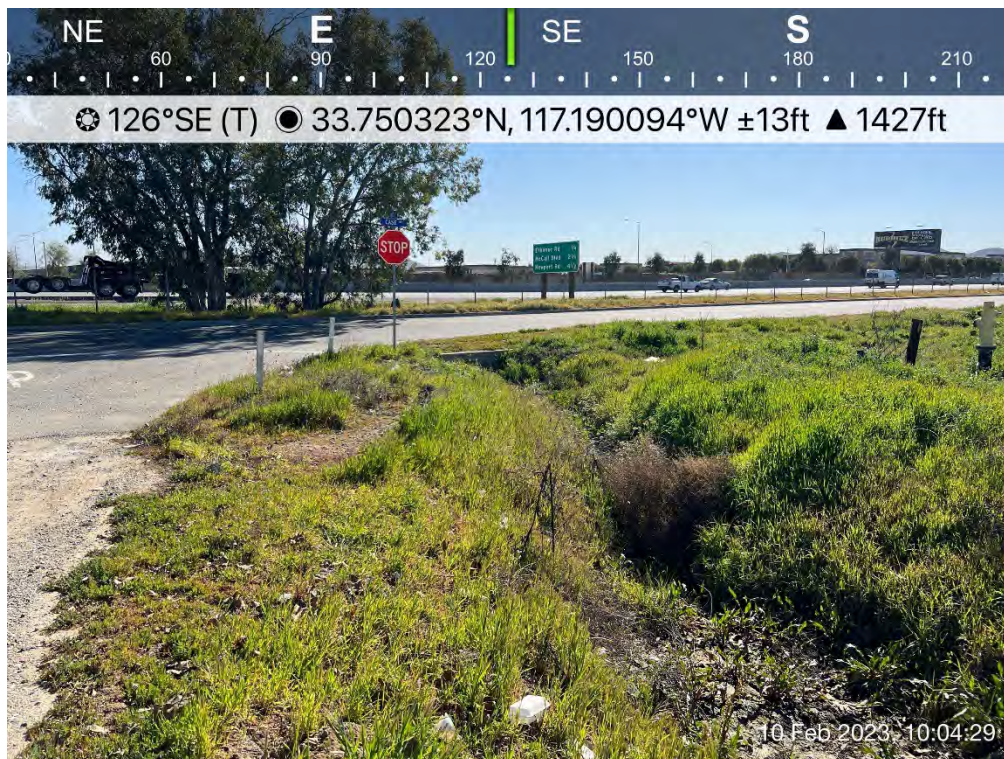


Photo 8: Roadside ditch at the northeast corner of the project area.

APPENDIX C - JURISDICTIONAL FORMS

APPENDIX D – REGULATORY FRAMEWORK

REGULATORY FRAMEWORK

U.S. Army Corps of Engineers

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the CWA.

Waters of the U.S.

The Environmental Protection Agency (EPA) and the Department of the Army (“the agencies”) finalized a rule defining the scope of waters protected under the Clean Water Act on December 30, 2022. In developing this rule, the agencies considered the text of the relevant provisions of the Clean Water Act and the statute as a whole, the scientific record, relevant Supreme Court case law, and the agencies’ experience and technical expertise after more than 45 years of implementing the longstanding pre-2015 regulations defining “waters of the United States.” This final rule advances the objective of the Clean Water Act and ensures critical protections for the nation’s vital water resources, which support public health, environmental protection, agricultural activity, and economic growth across the United States.

To summarize some of the most applicable highlights, the agencies’ new rule defines WOTUS as:

A. Features that do not require a site-specific evaluation to be determined to be WOTUS

1. Traditional navigable waters
2. Interstate waters
3. Territorial seas
4. Wetlands adjacent to the features identified in A.1 through A.3
5. Tributaries that are “relatively permanent, standing or continuously flowing,”
 - i. Including adjacent wetlands that have a continuous surface connection to these tributaries
6. Impoundments of features that are otherwise considered WOTUS

B. Features that are WOTUS if they are found to have a significant nexus to a Traditional navigable Water, interstate water, or territorial sea

1. Non-relatively permanent tributaries, including ephemeral and intermittent waters
2. Wetlands adjacent to but lacking a continuous connection with the features identified in A.5.
3. Wetlands adjacent to the features identified in B.1.

C. Features that are not WOTUS

1. Aquatic resources that were considered non-jurisdictional under the pre-2015 regulations, subject to agency discretion
 - i. Upland ditches that are not relatively permanent waters
 - ii. Artificial lakes or ponds created in dry land for such purposes as irrigation, stock

watering, settling, or rice growing

iii. Water-filled depressions created incidental to mining or construction activities, provided those activities are ongoing at the time of the determination

iv. Areas that would revert to upland in the absence of irrigation

v. Prior Converted Cropland designated by the Secretary of Agriculture, but only until there is a change of land use from agricultural purposes

vi. Waste treatment facilities

vii. Many stormwater facilities constructed in uplands.

The new rule adds substantially to guidance on determining whether a significant nexus exists through “material influence” on connected waters by evaluation of

- distance to a traditional navigable water or relatively permanent water;
- hydrologic factors such as volume and duration of water flow;
- size, density, or number of similarly situated waters;
- landscape position and geomorphology; and
- regional climate and effects on water flow.

Of these five factors, distance and hydrology will receive the greatest weight in the assessing the strength of connectivity and material influence.

Supreme Court Decisions

Solid Waste Agency of Northern Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al. with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over “non-navigable, isolated, intrastate” waters.

Rapanos/Carabell

In the Supreme Court cases of Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the Rapanos decision, the USACE will assert jurisdiction over a traditional navigable waterway (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands

adjacent to non-navigable tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a non-navigable RPW.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration, and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snowpack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

Regional Water Quality Control Board

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit including a Section 404 permit. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WUS but may also include waters not in federal jurisdiction.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State was adopted in April 2020 and put into effect statewide on May 28, 2020 (State Water Resources Control Board, 2020).

The Water Boards define an area as wetland as follows:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The Water Code defines WSC broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." WSC include all WUS but also includes waters not in federal jurisdiction.

The following wetlands are waters of the state:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands that meet any of the following criteria:
 - a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
 - b. Specifically identified in a water quality control plan as a wetland or other water of the state;

- c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
- d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):
 - i. Industrial or municipal wastewater treatment or disposal,
 - ii. Settling of sediment,
 - iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
 - iv. Treatment of surface waters,
 - v. Agricultural crop irrigation or stock watering,
 - vi. Fire suppression,
 - vii. Industrial processing or cooling,
 - viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
 - ix. Log storage,
 - x. Treatment, storage, or distribution of recycled water, or
 - xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
 - xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not WSC.

California Department of Fish and Wildlife

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

“An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (CDFW, 2015).”

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and A Review of Stream Processes and Forms in Dryland Watersheds. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW, 2010). It has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in a channel which water currently flows or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or

biological indicators” (Brady and Vyverberg, 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW's practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

APPENDIX E

**Green Valley Project – Draft Results of 2022-2023 Wet Season Fairy Shrimp
Focused Surveys, City of Perris, Riverside County, California. (WSP USA
Environment & Infrastructure, Inc. 2023b)**

GREEN VALLEY PROJECT

Draft RESULTS OF 2022-2023 WET SEASON FAIRY SHRIMP FOCUSED SURVEYS

CITY OF PERRIS, RIVERSIDE COUNTY, CALIFORNIA



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11 July 2023

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Cover photo: Looking south at Pool 1 on 9 November 2022.

1.0 INTRODUCTION

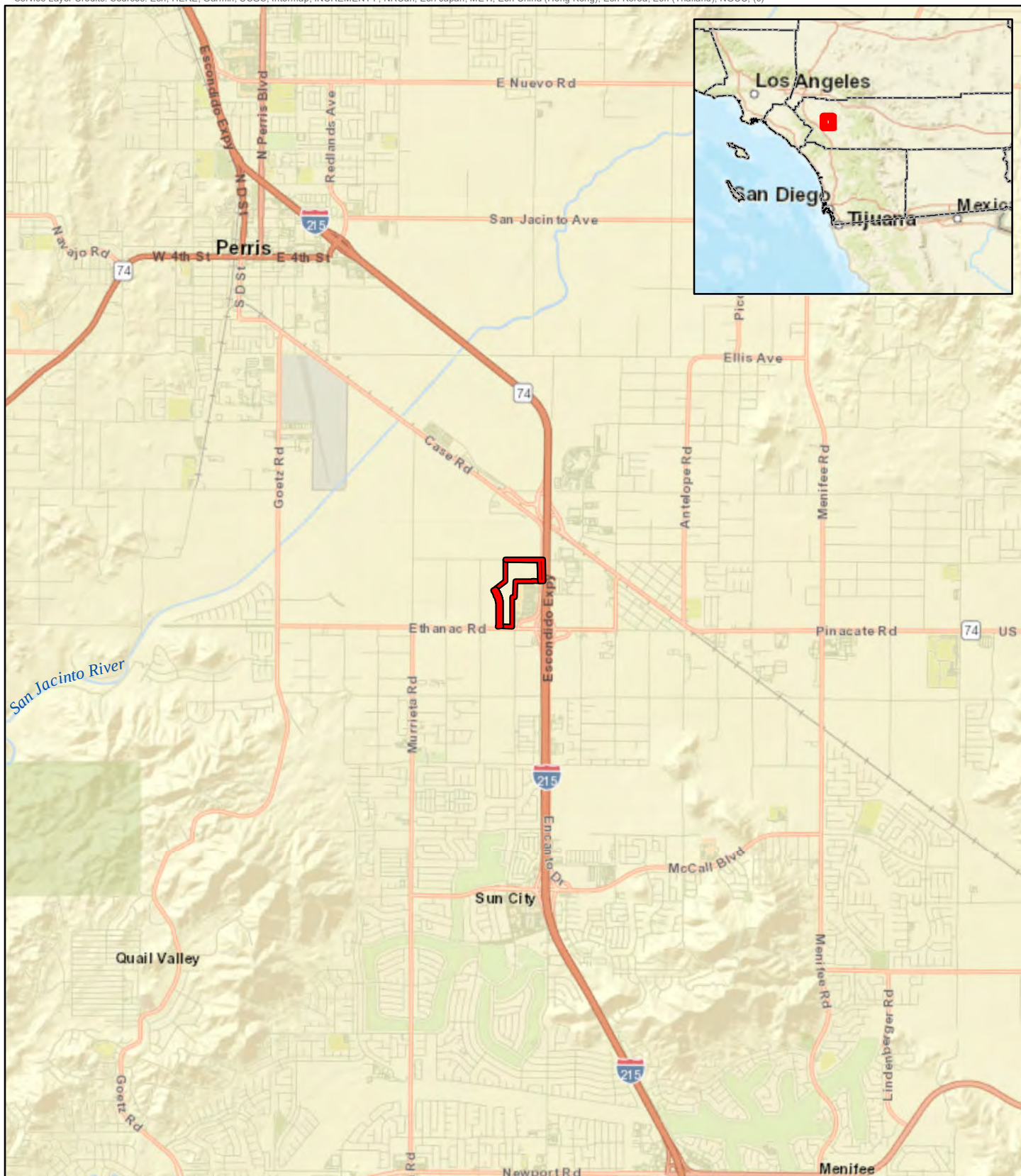
WSP USA Environment & Infrastructure, Inc. (WSP) was contracted by Richland Real Estate Fund, LLC to conduct fairy shrimp surveys on the site of the approximately 45-acre Green Valley Project (project). These surveys are required under the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) since potential fairy shrimp habitat is present on the project site. The project is in the City of Perris, Riverside County, California (Figure 1).

The project site is currently vacant and undeveloped. The site consists of Assessor Parcel Numbers (APNs) 327-220-012 and 327-220-044. It is located north of Ethanac Road, east of Case Road, and south of Watson Road with additional undeveloped lands contiguous to the west. Specifically, the site is in Township 5 South, Range 3 West, Section 9 as mapped on the *Romoland, Calif.* United States Geological Survey (USGS 1979) 7.5 topographic quadrangle (Figure 2). The project area is flat with two existing small basins. Elevation ranges from approximately 1,415 to 1,425 feet above mean sea level (AMSL). Surrounding areas include vacant lots, and commercial and public works developments.

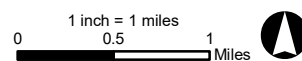
The proposed project consists of approximately 10 acres of retail and commercial uses, including a potential hotel; 7 acres of enclosed mini self-storage; 25 acres of industrial uses, totaling a maximum of 499,999 building square feet in one or two buildings; 3 acres of covered trailer or RV parking; and includes existing drainage and water quality basins.

The MSHCP states that suitable fairy shrimp habitat is “defined as vernal pools, stock ponds, ephemeral ponds, or other human-modified depressions” (WRCRCA 2022). Vernal pools are seasonal wetlands that occur in low-lying areas. They have all three wetlands indicators (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season.

No pools meeting the vegetative parameters of a vernal pool were identified onsite during WSP’s 2022 - 2023 survey. At a minimum, however, low-lying areas and other human-modified depressions (such as road ruts) are present, providing suitable habitat for fairy shrimp and necessitating this study. Two constructed basins are also present onsite, one in the northwest and one in the southeast. Because they appear to be permanently inundated, they were not considered fairy shrimp habitat. Water in active drainages and graveled, maintained public roads was also not considered fairy shrimp habitat. Nevertheless, these features were checked during each survey visit as a precaution. No fairy shrimp were ever detected in them, therefore, these non-habitat water features are not labeled on the map figures.



Path: \\sdg1-fs1\gis\3554_NaturalResources\Riverwoods_FairyShrimp\MXD\ReportFigures\GreenValley_FS\Fig1_ProjectLocation.mxd, aaron.johnson 5/30/2023

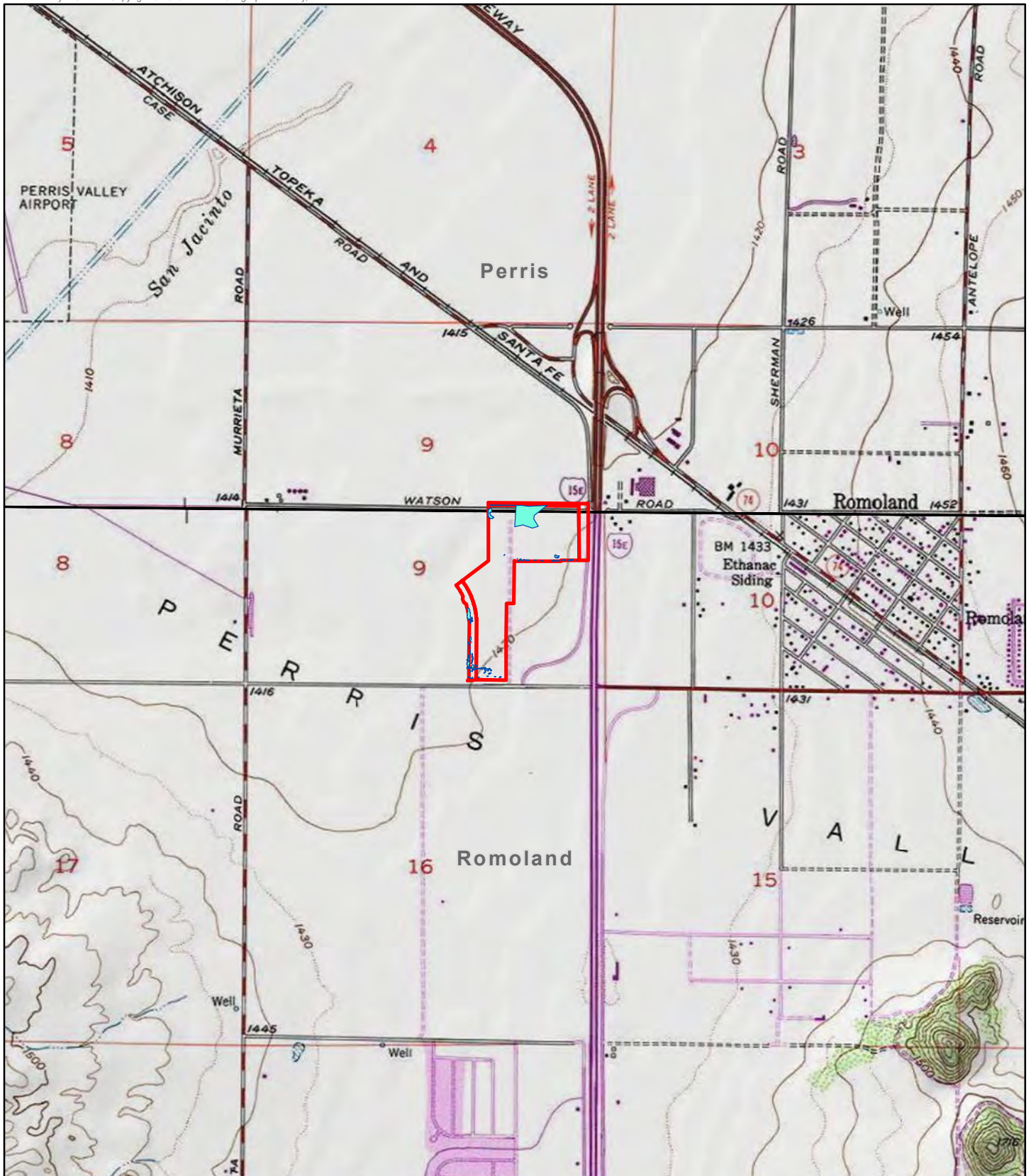


 Project Location

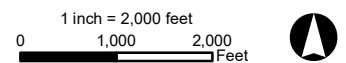
FIGURE 1

Project Location
Green Valley Project
Riverside County, CA

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Path: \\sdg1-fs1\gis\3554_NaturalResources\Riverwoods_FairyShrimp\MXD\ReportFigures\GreenValley_FS\Fig2_USGS.mxd, aaron.johnson 5/30/2023



- Fairy Shrimp Sampling Pools
- Project Boundary

FIGURE 2

USGS 7.5' Quads: Perris, Romoland
Green Valley Project
Riverside County, CA

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2.0 SPECIES DISCUSSION

2.1 Listing Status and Critical Habitat

Several species of fairy shrimp are considered sensitive by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife ("CDFW" 2021) because of their rarity and/or association with sensitive aquatic habitats such as vernal pools. Two federally listed fairy shrimp species are known to occur within Riverside County: vernal pool fairy shrimp (*Branchinecta lynchi*) and Riverside fairy shrimp (*Streptocephalus woottoni*). A third species, Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*), is an unlisted sensitive species that is known to occur only on the Santa Rosa Plateau of Riverside County. See further discussion of these species below.

Vernal pool fairy shrimp is a federally listed as threatened species (USFWS 1994). Critical habitat was designated for this species in the Central Valley of California in 2006 (USFWS 2006). Critical habitat for vernal pool fairy shrimp has not been designated in Riverside County.

Riverside fairy shrimp was listed as federally endangered in 1993 (USFWS 1993). Critical Habitat was designated in 2001 (USFWS 2001). A revised critical habitat was proposed in 2004 (USFWS 2004) and the final designation of critical habitat was announced on 12 April 2005 (USFWS 2005). No fairy shrimp critical habitat occurs on the project or in the vicinity.

Santa Rosa Plateau fairy shrimp is not state or federally listed as threatened or endangered but is ranked S1 "Critically Imperiled" by the CDFW and included on the California Special Animals List with records in the California Natural Diversity Data Base (CDFW 2022b).

2.2 Life History

Fairy shrimp (Class: Crustacea; Order: Anostraca) are conspicuous members of the fauna of ephemeral ponds and vernal pools. California has at least 25 known species of fairy shrimp belonging to six genera (Eriksen and Belk 1999). Fairy shrimp have the ability to produce resting eggs (cysts), which allows them to survive from year to year in ephemeral aquatic habitats, as they can withstand desiccation and freezing. This allows fairy shrimp to avoid many potential aquatic predators that require a year-round water source to survive, such as predatory fish and some frog species. The continued survival of a fairy shrimp population in a particular location requires water to be ponded for a length of time sufficient for the completion of their life cycle. The length of time for fairy shrimp from hatching to sexual maturity and egg-laying is variable depending on environmental conditions and the specific species. In general, a minimum of one to two weeks is required. As such, the presence of fairy shrimp (either free swimming or as cysts in the soil) can be considered an indication of an ephemeral pond or vernal pool that holds water for at least one to two weeks every few years.

Fairy shrimp cysts tend to hatch in pools with relatively cool temperatures, with species-specific differences in responses that are related to temperature regime (USFWS 1998). Avoidance of hatching at higher temperatures (greater than 77° Fahrenheit [F] or 25° Celsius [C]) protects fairy shrimp from the infrequent summer storms that might otherwise be sufficient to stimulate development, but inadequate for the organisms to complete their life cycles. Also, often less than ten percent of the dormant cyst bank hatches with any one hydration (Hathaway and Simovich 1996). This appears to be an ecological bet-hedging strategy, which helps protect the species from hatching the entire cyst bank during years where rainfall and pooling is insufficient to allow the fairy shrimp to reach sexual maturity and breed. In addition, laboratory studies have shown that many fairy shrimp cysts can hatch after 15 years of dormancy when given the proper environmental conditions (Eriksen and Belk 1999).

Vernal Pool Fairy Shrimp has at least three known disjunct populations in western Riverside County but is more widely distributed within California's Central Valley. Typically, this species is found in sandstone puddles surrounded by foothill grassland. Other habitats include small swale, earth slump, or basalt-flow depression basin with a grassy or sometimes muddy bottom within unplowed grassland. It is found in water ranging from 46.1° F to 73.4° F (7.8° to 23° C). Vernal pool fairy Shrimp have been observed between December and early May. This species hatches soon after pools fill with water of temperatures less than or equal to 50° F (10° C), reaching maturity as quickly as 18 days. However, if water temperatures remain at approximately 59° F (15° C), then at least 41 days are required for maturity. This species is known from some of the shortest-lived pools (e.g., six to seven weeks for winter pools or three weeks for spring pools). Although vernal pool fairy shrimp co-occur with several different fairy shrimp species throughout its range, only three of those have the potential to occur in western Riverside County, as listed below. Vernal pool fairy shrimp is known to co-occur with all of them. The primary threats to vernal pool fairy shrimp are urban and agricultural development of its habitat. The nearest known location for vernal pool fairy shrimp is approximately eight miles east of the project site.

Riverside Fairy Shrimp has a very restricted and scattered distribution. In Riverside County this species has been detected in vernal pools and temporary ponds at the Santa Rosa Plateau, Menifee, Lake Elsinore, Skunk Hollow and other Murrieta locations, and in the vicinity of Temecula. Elsewhere, it occurs in locations such as Otay Mesa, Marine Corps Base Camp Pendleton, and Miramar Naval Air Station in San Diego County (Simovich and Fugate 1992). It also has been collected in a few places in Orange County and Baja California Norte, Mexico (Eriksen and Belk 1999). This species typically is found in longer-lived pools that often support spikerush (*Eleocharis* sp.). These pools tend to occur in seasonal grasslands sometimes interspersed with chaparral or coastal sage scrub vegetation. Riverside Fairy Shrimp appears to be a relatively warm-water species (i.e., hatching between 50 °F and 77 °F [10 °C and 25 °C]) (Eriksen and Belk 1999). It typically does not appear until late in the season, although it has been observed as early as late January (Eng et al. 1990). In Riverside County it is known to co-occur with two other species of fairy shrimp

(the threatened vernal pool fairy shrimp and the common versatile fairy shrimp [*Branchinecta lindahli*], which is not a special status/sensitive species). It typically occupies long-lasting pools in which the water persists into April or May, and which reach an average minimum depth of 11.8 inches (in) (30 centimeters [cm]) at filling (Eng et al. 1990). Riverside fairy shrimp requires approximately two months to reach reproductive age after hatching (USFWS 1998). Like vernal pool fairy shrimp, the main threats to this species are urban and agricultural development. The nearest known location for Riverside fairy shrimp is approximately six miles southeast of the project site.

For comparison, vernal pool fairy shrimp generally hatch earlier in the rainy season, mature more quickly, and use shallower, cooler pools (typical of early season pools) than Riverside Fairy Shrimp. In contrast, Riverside fairy shrimp usually hatch later in the season in pools that are warmer and deeper than vernal pool fairy shrimp, and they are slower to reach sexual maturity. These different ecological niches likely minimize competition between the species for food and other resources, even when they occupy the same pools.

Santa Rosa Plateau Fairy Shrimp is endemic to grassland cool-water vernal pools which are formed on southern basalt flows located at Santa Rosa Plateau, approximately 15 miles south-southwest of the project area. Therefore, it does not occur within the study area.

Versatile Fairy Shrimp commonly occurs in Riverside County and throughout California and may occupy the same pools as vernal pool fairy shrimp and the Riverside fairy shrimp. This species is common and is not considered to be sensitive by the resource agencies.

3.0 SITE CHARACTERIZATION

3.1 Climate

The study area is located within a Mediterranean climate region consisting of warm, dry summers and mild, wet winters. The average temperature is highest in August at 78.8° F (26.0° C) and lowest in December at 42.0° F (5.6° C) (Weather Currents 2022). Average annual precipitation for the area (Perris) is 12 inches (30.5 cm) (Riverside County Flood Control and Water Conservation District 2022). Most precipitation in coastal Southern California occurs from approximately October through May, but the official rainfall season includes precipitation events from July 1st through June 30th.

3.2 2022-2023 Wet Season

Total rainfall in Perris for the 2022-2023 wet season was at 13.1 inches (33.3 cm) as of 14 May 2023 (Riverside County Flood Control and Water Conservation District 2023), 109.2% of average.

1 inch = 400 feet

0 200 400 Feet



-  Project Area
 No fairy shrimp detected
 *Branchinecta lindahl*i detected

FIGURE 3
Fairy Shrimp Sampling Pools
Green Valley Project
Riverside County, CA

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4.0 SURVEY METHODOLOGY

The first storm of the season sufficient to create inundated areas occurred on 8 November 2022. On 9 November 2022, WSP senior biologist John F. Green, under the authority of USFWS 10a permit number TE054011-8, mapped inundated areas meeting the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017) criteria for pooling sufficient to support listed fairy shrimp species. Also, after each subsequent rain event, the site was resurveyed to determine if pools had reinundated or if any new pools had filled. Surveys were undertaken one week after rain events in any pools still inundated. Each ponded area was systematically sampled to account for all areas around the pond and within the entire water column. Dip nets were used to skim the surface, bottom and middle of the ponds. The first survey was conducted by Green on 16 November 2022. The site was continuously surveyed by Green on a weekly basis until the rainy season ended and all pools had dried, with a final visit on 12 May 2023. As needed, Green utilized additional WSP biologists as field assistants including Nathan Moorhatch, Emily Urquidi, Cindy Dunn, and Melanie Bukovac. All pools mapped and/or surveyed are shown on Figures 2 and 3. Table 1 lists pools inundated during the 2022-2023 wet season, and survey forms are attached as Appendix A.

5.0 SURVEY RESULTS

The common, unlisted versatile fairy shrimp was detected in 12 pools. See Table 1 and Figure 3 for details on shrimp localities. No other fairy shrimp species were detected.

6.0 CONCLUSION

The wet season survey did not detect any special status species of fairy shrimp. A full fairy shrimp survey, according to protocol, requires a dry-season survey of the depressions as well, however. The required dry-season survey is being scheduled.

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

John F. Green, Permit Number TE-054011-8

Date

Table 1. Fairy Shrimp Habitat

Pool Number	Maximum Pool Surface Area (meter²)	UTM East	UTM North	Fairy shrimp detected?*
1	9,530.07	482150	3734438	Y
2	0.50	482377	3734237	N
3	5.55	482353	3734242	N
4	2.16	482355	3734239	N
5+6	2.71	482348	3734239	N
7	2.67	482337	3734240	N
8	4.02	482336	3734236	N
9	18.03	482323	3734240	N
10	6.16	482315	3734239	N
11	0.73	482310	3734237	N
12	1.62	482301	3734237	N
13	0.54	482295	3734236	N
14	0.81	482293	3734236	N
15	2.05	482292	3734234	N
16	13.38	482287	3734236	N
17	25.19	482274	3734236	N
18	5.25	482267	3734235	N
19	2.69	482263	3734238	N
20	1.83	482216	3734236	N
21	8.35	482187	3734237	N
22+23	40.24	482157	3734237	Y
24	2.89	482147	3734234	N
25	0.66	482135	3734235	N
26	38.96	482126	3734239	N
27	1.69	482110	3734245	N
28	6.38	482052	3734260	N
29+58	745.27	481896	3733988	Y
30	16.57	481898	3733712	Y
31	4.75	481904	3733708	N
32	8.23	481912	3733708	N
33	5.49	481941	3733712	N
34	24.04	482037	3733713	N
35	5.54	482013	3733715	N
36	8.13	481981	3733717	N
37	3.95	481965	3733732	N
38	2.80	481970	3733736	N
39	1.14	481969	3733736	N

Green Valley Project
Results of 2022-2023 Wet Season Fairy Shrimp Focused Surveys
July 2023

Pool Number	Maximum Pool Surface Area (meter ²)	UTM East	UTM North	Fairy shrimp detected?*
40	42.98	481990	3733730	N
41	114.56	481985	3733746	Y
42	19.00	481969	3733746	Y
43	95.18	481958	3733752	Y
44	18.51	481933	3733750	N
45	0.29	481924	3733753	Y
46	4.56	481921	3733747	N
47+49+50+51+53	652.39	481900	3733768	Y
48	22.55	481902	3733739	N
52	189.44	481912	3733795	Y
54+64	125.88	481898	3733845	Y
55	9.95	481928	3733762	N
56	567.69	481987	3734444	N
57	0.84	482140	3734240	N
59	0.19	481924	3733767	N
60	162.34	482286	3734255	N
61	5.11	482223	3734234	N
62	5.76	482117	3734234	N
63	0.02	481905	3733870	N
65	7.15	481901	3733857	N
66	82.12	481903	3733884	Y

* The common versatile fairy shrimp (*Branchinecta lindahli*), which is not a special status species.

7.0 REFERENCES

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APPENDIX A

REPRESENTATIVE PHOTOS

Also see a photo of Pool 1 on the report's cover page. It is on an unpaved road and disced lands in the northeastern project area.



Photo 1. Pools created by disturbance in the southwestern project area. Pool 52 in left foreground contained fairy shrimp.



Photo 2. Only the common versatile fairy shrimp (*Branchinecta lindahl*) was detected on the project site. Not a special status species.



Photo 3. Pool 9, one of a series of depressions created by disturbance associated with the adjacent shopping center. Along the south-central-eastern site boundary. No fairy shrimp were detected in this pool.

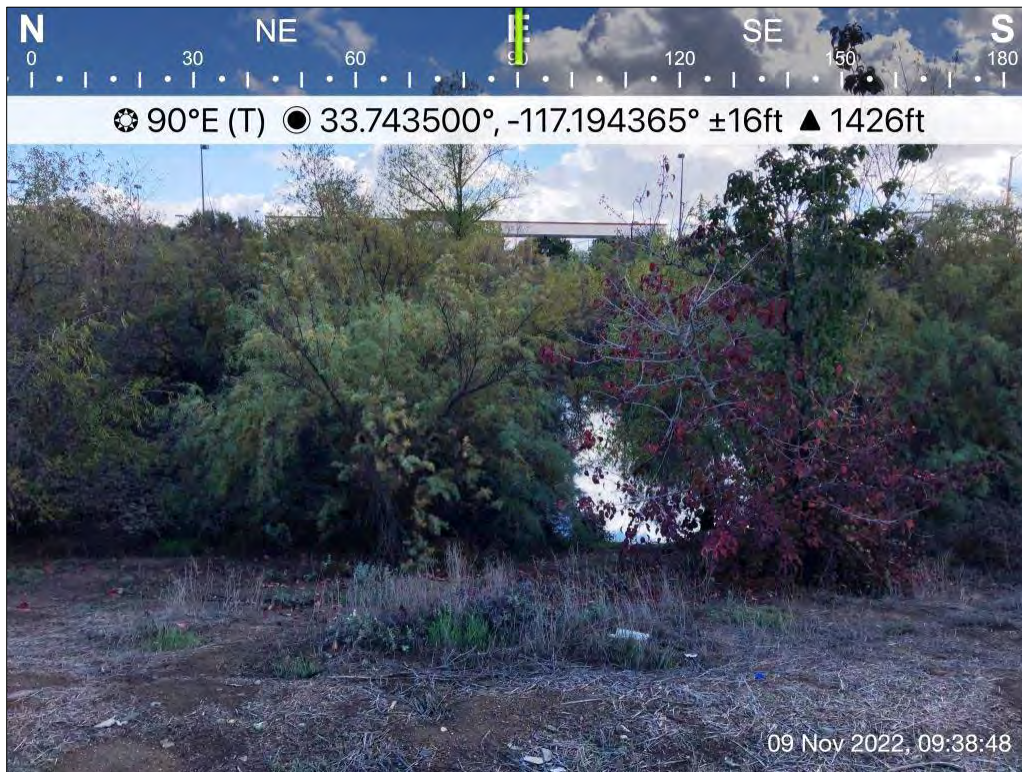


Photo 4. This artificial pond in the southeastern project area appears to be permanently inundated and thus not fairy shrimp habitat. As a precaution, it was monitored throughout the season and no fairy shrimp were ever detected.



Photo 5. An active drainage ditch and puddles in a graveled public road along the north project boundary were also not considered fairy shrimp habitat. As a precaution, they were monitored throughout the season and no fairy shrimp were ever detected.

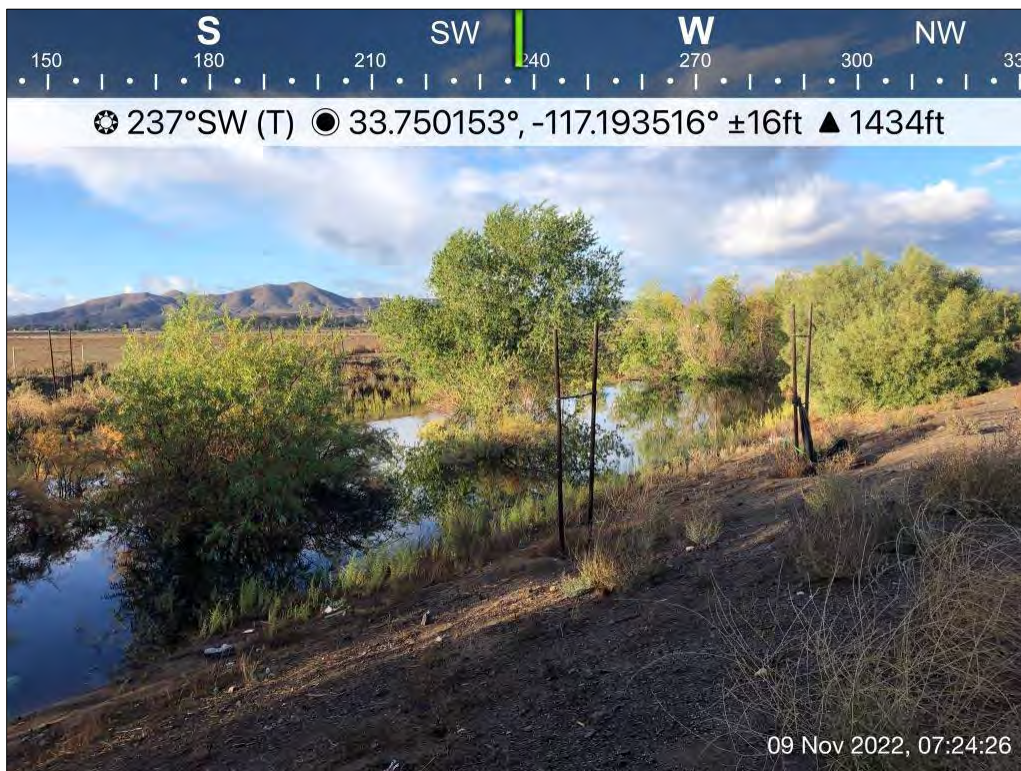


Photo 6. This artificial pond in the northwestern project area appears to be permanently inundated and thus not fairy shrimp habitat. As a precaution, it was monitored throughout the season and no fairy shrimp were ever detected.

APPENDIX B

WET SEASON SURVEY FORMS

1 of 4

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 11-9-92 Time: 0700 Weather Conditions: cool, PC

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max. <i>Today is max</i>	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1				deep		large													Deep mud, will measure next time
2				3	4		3												
3				3	5		4.5												
4				4	6		1.5												
5				3	4		1.25												
6				2	3		1												
7				3	5		1.75												
8				3	4		2												
9				5	8		7												
10				3	5		3.5												
11				3	4		1.25												
12				3	5		1.5												
13				3	4		1												
14				2	3		1												

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 11-9-22 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15				3	5		1.25												
16				4	7		5.5												
17				4	8		11.5												
18				3	5		2												
19				3	5		1												
20				3	5		1.25												
21				3	4		5.75												
22				4	7		1.75												
23				4	6		10												
24				2	3.5		1.25												
25				3	5		1												
26				4	8		10												
27				3	5		1												
28				3	6		4.5												

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 11-9-22 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
29				5	8		7.5												
30				4	7		7												
31				4	6		2												
32				3	5		2												
33				3	4		1.5												
34				5	9		14												
35				3	5		5												
36				3	5		3												
37				3	5		2												
38				3	4		2.5												
39				3	4		1												
40				6	10		20												
41				6	10		40												
42				5	9		11												

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindhehli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Existing wooded basin ~~at~~ near Southeast corner assumed to not be habitated

4 st 4

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: Green Quad: Township: Range: Section:

SURVEYOR / Permit Number: J. Greer

Date: 11-9-22 Time: end 1030 Weather Conditions: breezy, PC

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
43				5	9		40												
44				6	11		7												
45				3	5		2												
46				3	5		3												
47				7	12		19												
48				4	7		5												
49				6	10		large												mostly offsite
50				3	5		1.75												
51				7	12		18												
52				7	11		25												
53				5	9		8												
54				4	8		13												
55				3	5		2.5												

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahl*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: <u>Green Valley</u>				County: _____				Quad: _____				Township: _____		Range: _____		Section: _____			
SURVEYOR / Permit Number: <u>J. Green</u>																			
Date: <u>16 Nov 22</u>		Time: <u>0745</u>		Weather Conditions: <u>clear, breezy</u>															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
9		15.8	6.0	1	3	3													
16		"	"	0.5	1	0.25													
49		14.1	7.8	2	3	4													
41		"	"	3	5	3.5													
1		12.1	8.8	3	4	3		100s											
All other pools dry																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLL = *Branchinecta lindahli*). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley

County:

Quad:

Township:

Range:

Section:

SURVEYOR / Permit Number: J. Green

Date: 23 Nov 22 Time: 1145-1200 Weather Conditions: partly cloudy, still

[illegible]

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindernella occidentalis*, BRIL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

10FL4

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: _____

Date: 12-13-22 Time: 12:55 Weather Conditions: 24 hours after rain. See previous measurements

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	Inundated																		
2	"																		
3	"																		
4	"																		
5	"																		
6	"																		
7	"																		
8	"																		
9	"																		
10	"																		
11	"																		
12	"																		
13	"																		
14	"																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindheili*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: <u>Green Valley</u>				County:				Quad:				Township:				Range:		Section:	
SURVEYOR / Permit Number: <u>J. Green</u>																			
Date: <u>12-13-22</u>		Time:		Weather Conditions:															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15	Inundated																		
16	"																		
17	"																		
18	"																		
19	"																		
20	"																		
21	"																		
22	"																		
23	"																		
24	"																		
25	"																		
26	"																		
27	Dry																		
28	Inundated																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLL = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: <u>Green Valley</u>	County:	Quad:	Township:	Range:	Section:
SURVEYOR / Permit Number: <u>T. Green</u>					

Date: 12-13-22 Time: Weather Conditions:

I = inundated Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
29	I																		
30	"																		
31	"																		
32	Dry																		
33	"																		
34	"																		
35	Dry																		
36	Dry																		
37	"																		
38	I																		
39	"																		
40	"																		
41	"																		
42	"																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRIL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: _____

Date: 12-13-22 Time: 1400 Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
43	I																		
44	"																		
45	"																		
46	"																		
47	"																		
48	Dry																		
49	I																		
50	"																		
51	"																		
52	"																		
53	"																		
54	Dry																		
55	I																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

All pools slightly less full than first storm

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley

County:

Quad:

Township:

Range:

Section:

SURVEYOR / Permit Number: John Green

Date: 12-20-22

Time: 1325

Weather Conditions: clear, lt. breeze

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
9		23.5	19.3	1	2	1		None										as before	
41		"	20.0	2	4	1.5		"										"	
43		"	20.4	2	3	2		"										"	
1		"	19.5	2	3	1		Surprisingly, no shrimp perhaps due to cold temps this week										"	
ALL OTHER POOLS DRY																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRIL = *Branchinecta lindahli*). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 12-26-22 Time: 1145-1200 Weather Conditions: overcast, still, warm

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
ALL DRY																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

* STARTED SURVEY @ APPROX. 0800

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: <u>GREEN VALLEY</u>	County: _____	Quad: _____	Township: _____	Range: _____	Section: _____
SURVEYOR / Permit Number: <u>J. GREEN</u>					
Date: <u>01/07/23</u>	Time: <u>0800</u>	Weather Conditions: <u>60% cover, still</u>			

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae		TTP	
1		21.5	10.2	~15	≥19	SEE	MAP	15	Branchinella	sp.								immature	DEEP DEEP MUD
2		10.1	6.7	3	4	1.5												TT, T	
3		10.1	6.4	2.5	3	2.5												TT, T	
4				5	7	1												TT, T	
5				1	3	1.5												TT, T	
6																		TT, T	
7				5.5	7.5	1.75												TT, T	
8				2	3	2												TT, T	
9				8	10	9												TT, T	
10				5.5	8	3												TT, T	
11				2	4	1												TT, T	
12				2	4	1.5												TT, T	
13				4	7	0.75												TT, T	
14		↓	↓	1	3	0.5												TT, T	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindberghella occidentalis*, BRLI = *Branchinella lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: GREEN VALLEY County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. GREEN

Date: 01/07/23 Time: _____ Weather Conditions: 60% cover

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15				3	7.5	1.5		—	—	—	—	—	—	—	—	—	—	TT, T	
16				7	11	6		—	—	—	—	—	—	—	—	—	—	AG, TT, T	
17				5	7	10		—	—	—	—	—	—	—	—	—	—	TT, T	
18				3	6	1.5		—	—	—	—	—	—	—	—	—	—	TT, T	
19				3	4	1		—	—	—	—	—	—	—	—	—	—	TT, T	
20				4	6	1		—	—	—	—	—	—	—	—	—	—	TT, T	
21				1	2	2		—	—	—	—	—	—	—	—	—	—	TT, T	
[22				5	8	16		—	—	—	—	—	—	—	—	—	—	TT, T	
23								—	—	—	—	—	—	—	—	—	—		
24				3	4	0.5		—	—	—	—	—	—	—	—	—	—	TT, T	
25				4	6	1		—	—	—	—	—	—	—	—	—	—	TT, T	
26				3	4	7		—	—	—	—	—	—	—	—	—	—	TT, T	
27				4	7	0.5		—	—	—	—	—	—	—	—	—	—	TT, T	
28				2	3.5	2.25		—	—	—	—	—	—	—	—	—	—	TT, P	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahl*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: GREEN VALLEY County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. GREEN

Date: 01/07/23 Time: _____ Weather Conditions: 60% cover

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
DRY 29				—	—	—	—												
30				3.5	5	5		—	—	—	—	—	—	—	—	—		TT	
31				2	3	0.75		—	—	—	—	—	—	—	—	—		TT, T	
DRY 32				—	—	—	—												
DRY 33				—	—	—	—												
34				1.5	2	3		—	—	—	—	—	—	—	—	—		TT	
DRY 35				—	—	—	—												
DRY 36				—	—	—	—												
DRY 37				—	—	—	—												
38				1.5	2	1		—	—	—	—	—	—	—	—	—		AB, TT	
39				1	2	0.5		—	—	—	—	—	—	—	—	—		AB, TT	
40				3	4	6.5		—	—	—	—	—	—	—	—	—		AB, TT	
41				6	11.5	27		—	—	—	—	—	—	—	—	—		AB, TT	
42				3.5	5	8.5		—	—	—	—	—	—	—	—	—		AB, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: GREEN VALLEY County: Quad: Township: Range: Section:

SURVEYOR / Permit Number: J. GREEN

Date: 01/07/23 Time: 1045* Weather Conditions: 60% cloud cover

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
43				4	6	18		—	—	—	—	—	—	—	—	—	—	AB, TT	
44				3	4	4.5		—	—	—	—	—	—	—	—	—	—	TT	
45				3	4	2		—	—	—	—	—	—	—	—	—	—	TT,	
46				2.5	4	1		—	—	—	—	—	—	—	—	—	—	T	
47				8	13	17		—	—	—	—	—	—	—	—	—	—	AB, TT	
DRY 48				—	—	—		—	—	—	—	—	—	—	—	—	—		
49/53		16.9	9.1	7	13	SEE MAP		—	—	—	—	—	—	—	—	—	—	TT, AB	
[50		16.9	9.1	5	8	20		—	—	—	—	—	—	—	—	—	—	TT	
51								—	—	—	—	—	—	—	—	—	—		
52		16.9	9.1	4	7	16		—	—	—	—	—	—	—	—	—	—	AB, TT	
53	*SEE 49*			—	—	—		—	—	—	—	—	—	—	—	—	—		
54		17.4	10.6	3	5	3		—	—	—	—	—	—	—	—	—	—	TT	
55		17.4	10.6	3	5	3.25		—	—	—	—	—	—	—	—	—	—	AB	
NEW 56				~6	≥13	SEE MAP		—	—	—	—	—	—	—	—	—	—	P, T	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: <u>Green Valley</u>		County:		Quad:		Township:		Range:		Section:									
SURVEYOR / Permit Number: <u>J. Green</u>																			
Date: <u>1-18-23</u>		Time: <u>0900</u>		Weather Conditions: <u>7/c, still</u>															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1		28.6	16.2	8	24	GIS		✓	100%									DTT T AB	
2		16.7	7.1	3.5	6.2	1.5												DTT	
3				4.5	5	2												DTT AB	
4				6	8	1												DTT	
5/6				1.5	2	0.5												DTT	
7				4.5	6.5	1.25												DTT	
8				2	3.5	1.25												DTT	
9				6	12	6.5												DTT T AB	
10				5	8.5	3												DTT T AB	
11				3	3.5	0.75												DTT T AB	
12				3	4	0.75												DTT T AB	
13				3	4	0.75												DTT T AB	
14				1	2.5	0.5												DTT T AB	
15				4	5.5	1.25												DTT T AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

2 6.2 1.6

10 12 22 13
 13 3
 10 5
 6.5 10.5 14.5 2
 12.5 16 15
 17 7

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 1-18-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16		16.7	7.1	5	6.5	3.5											DTT AB		
17				5	7	7.25											DTT AB		
18				3	3.5	1											DTT AB		
19				2.5	4	0.25											DTT AB		
20				1	1.5	0.5											DTT AB		
21				1	1	2											DTT AB		
22/23				5.5	7.5	12											DTT AB		
24				3	3.5	0.5											DTT		
25				3	4.5	1											DTT		
26				4.5	7	6											DTT AB		
27				2	3.5	0.25											DTT AB		
28				2.5	3.5	3											DTT AB		
29		✓	✓	0.25	1.5	0.50											DTT AB		
30		21.6	11.4	2	3	8	← or site										DTT AB	Extends offsite West	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: <u>Green Valley</u>	County:	Quad:	Township:	Range:	Section:
SURVEYOR / Permit Number: <u>T. Green</u>					
Date: <u>1-18-23</u>	Time:	Weather Conditions:			

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
31		21.6	11.4	1	2	0.75												DTT	
32	Dry																		
33	Dry																		
34		21.6	11.4	2	3.5	5												DTT	
35	Dry																		
36	Dry																		
37	Dry																		
38		21.6	11.4	Trace	Trace	0.1												DTT AB	
39	Dry																		
40		21.6	11.4	2	4	10												DTT AB	
41		21.6	11.4	5.5	11.5	GIS												DTT AB	
42		21.6	11.4	3	5	11												DTT AB	
43		21.6	11.4	4	6.5	GIS		✓ _{10x}										DTT AB	
44		21.6	11.4	1.5	3	4												DTT AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Groen

Date: 1-18-23 Time: 1325 Weather Conditions: P/C, still

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects			Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae		
45		21.6	11.4	1.5	3	2.5		—	—	—	—	—	—	—	—	—	DTT AB	
46		21.6	11.4	1	2.5	0.5		—	—	—	—	—	—	—	—	—	D	
47		21.6	11.4	3.5	8.5	14		✓ _{10s}	—	—	—	—	—	—	—	—	DTT T AB	
48	Dry																	
49/53		21.6	11.4	8.5	19	GIS		✓ _{10s}	—	—	—	—	—	—	—	—	DTT T AB	
50/51		21.6	11.4	5	11	GIS		✓ _{10s}	—	—	—	—	—	—	—	—	DTT T AB	
52		21.6	11.4	4.5	6.5	GIS		✓ _{10s}	—	—	—	—	—	—	—	—	DTT T AB	
54		21.6	11.4	3	4	6		—	—	—	—	—	—	—	—	—	DTT T AB	
55		21.6	11.4	3.5	8	6		—	—	—	—	—	—	—	—	—	DTT T AB	
56		28.6	16.2	12	28	GIS		—	—	—	—	✓ _{10000s}	—	—	—	—	DTT T	
57		21.6	21.6	3	4	0.5	0.5	—	—	—	—	—	—	—	—	—	DTT T	
58		21.6	11.4	4.75	9	GIS	GIS	—	—	—	—	—	—	—	—	—	DTT T	
59		21.6	11.4	6	8	0.25	0.25	—	—	—	—	—	—	—	—	—	DTT	springtail raft

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRIL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

2 7 4
1.5 9 3
6.5 9 6
2.5 5.5 3
2 5.5

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 1-25-23 Time: 1240 Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
7		22.5	17.2	1	2	0.25		_____	_____	_____	_____	_____	_____	_____	_____	_____		D, TT, AM	
2	DRY																		
3	DRY																		
4	DRY																		
5-6	DRY																		
1		18.5	18.5	6	12	~100		10s- 100s	_____	_____	_____	_____	1s- 10s	_____	_____	_____		D, TT, AM, B. lindahli T, P	
8	DRY																		
9		20.5	17.2	4	7	6		_____	_____	_____	_____	_____	_____	_____	_____	_____		D, TT, AM T	
10	DRY																		
11																			
12																			
13																			
14																			
15																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindberghia occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

2.f 4

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: <u>Green Valley</u>			County:		Quad:			Township:			Range:			Section:					
SURVEYOR / Permit Number: <u>J. Green</u>																			
Date: <u>1-25-23</u>		Time: <u>1240</u>		Weather Conditions:															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16		17.2	20.5	3	6	3												P, TT, AM, T	
17		"	"	2	4	2.5												"	
18	DRY																		
19	DRY																		
20	DRY																		
21	DRY																		
22-23		17.2	20.5	2	4	0.5												D, TT	
24	DRY																		
25	DRY																		
26	DRY																		
27	DRY																		
28	DRY																		
29	DRY																		
30	DRY																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLL = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 1-25-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
31	DRY																		
32	DRY																		
33	DRY																		
34	DRY																		
35	DRY																		
36	DRY																		
37	DRY																		
38	DRY																		
39	DRY																		
40	DRY																		
41		18.5	18.5	6	12	15		105									D, TT, T, AM		Trny Branchinecta sp.
42	DRY																		
43		18.5	18.5	2	5	5.5							✓					D, AM	
44	DRY																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley **County:** **Quad:** **Township:** **Range:** **Section:**

SURVEYOR / Permit Number: J. Green

Date: 1-25-23 **Time:** 1515 **Weather Conditions:**

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
45	DRY																		
46	DRY																		
47		18.5	18.5	2	5	1.25												D, T, T, T, AM, T	
48	DRY																		
49+53		18.5	18.5	12	30	100+												D, T, T, T, AM	Surprising lack of shrimp
50-51		"	"	4	7	4												D, T, T, T, AM	
52	DRY																		
54	DRY																		
55	DRY																		
56		18.5	18.5	6	12	36						knobs						D, P, AM, T	
57	DRY																		
58	DRY																		
59	DRY																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																							
Site or Project Name: <u>Green Valley</u>				County:				Quad:				Township:				Range:				Section:			
SURVEYOR / Permit Number: <u>J. Green</u>																							
Date: <u>2-1-23</u>				Time: <u>1225-1420</u>				Weather Conditions: <u>windy, clear</u>															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects					Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information			
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae							
1		23.2	20.1	1	3	0.25		15-10s					✓			✓			D: TT, T, AB				
2																							
3																							
4																							
5+6																							
7																							
8																							
9		23.2	20.1	2	4	3														D: T, TT, AB			
10																							
11																							
12																							
13																							
14																							
15																							

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Pools on blank lines were dry

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 2-1-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16		23.2	20.1	1	3	1												D: TT, T, AB	
17																			
18																			
19																			
20																			
21																			
22+23																			
24																			
25																			
26																			
27																			
28																			
29																			
30																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 2-1-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
31													✓						
32																			
33																			
34																			
35																			
36																			
37																			
38																			
39																			
40																			
41		23.2	20.1	2	5	4.5		10s					✓		✓			D: TT, T, AB	
42																			
43																			
44																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: <u>Green Valley</u>	County: _____	Quad: _____	Township: _____	Range: _____	Section: _____
SURVEYOR / Permit Number: <u>J. Green</u>					
Date: <u>2-1-23</u>	Time: <u>1420</u>	Weather Conditions: <u>same</u>			

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
45																			
46																			
47																			
48																			
49+53		23.2	20.1	5	22	~100		105- 100s				✓	✓					D: TT, T, AB	
50+51																			
52																			
54																			
55																			
56 *		23.2	20.1	3	8	14						✓						D: TT, T, AB, P	
57																			
58																			
59																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley

County:

Quad:

Township:

Range:

Section:

SURVEYOR / Permit Number: J. Green

Date: 2-8-23

Time: 1310-1355

Weather Conditions:

clear. H wind 69°F - 70

[illegible]

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

All dry except pool being actively₂₃ disturbed by adjacent property owner.
Will check back next week.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley

County:

Quad:

Township:

Range:

Section:

SURVEYOR / Permit Number: J. Green

Date: 2-5-23 Time: 1005-1040 Weather Conditions: 45° clear 8 mph

[illegible]

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindafiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-2-23 Time: 0820- Weather Conditions: clear still

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1				deep	16+	see	GIS											AB	deep / bog
2		15°	6.9°	4	6	2													
3				4	5	3													
4				5.5	8.5	0.75													
5+6				3	4.5	2													
7				5	8.5	1.5													
8				3	4.5	2													
9				7.5	11.5	8													
10				5	6	3													
11				3	4	1													
12				4	5.5	1.25													
13				4	6	1													
14				6	8	2												AB	
15				8	10	4												AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

2045

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-2-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16				1.5	3	0.75													
17				7	10	8													
18				3.5	4.5	2													
19				3.5	4.5	1													
20				4	5	0.5													
21				1.5	2	2													
22+23				5	8.5	see GIS													
24				3	4	0.75													
25				3	4	0.75													
26				5	8	see GIS													
27				7	9	0.75													
28				4.5	6	4.5													
29				— dry —	—	—													
30				6.5	10	see GIS													

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____SURVEYOR / Permit Number: J. GreenDate: 3-2-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
31				2	3.5	1													
32				dry	—	—													
33				1.5	3.5	0.25													
34				3.5	7	7													
35				0.5	1	0.25													
36				1	2.5	1													
37				2	4	1.25													
38				1	2	0.5												AB	
39				1	2	0.25												AB	
40				3	5	8												AB	
41				10	17	See GIS												AB	
42				4	7	See GIS												AB	
43				5.5	9.5	See GIS												AB	
44				3	6	See GIS												AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-2-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
45				4.5	8	3.5													
~~46~~				~~4.5~~	~~8~~	~~3.5~~													
* 47	connected					see	GIS											D, AB, TT	
48				2	3	2												AB	
* 49 + 53	connected			7	16.5	see	GIS											D, AB, TT	
* 50 + 51				8	14	see	GIS											"	
52				6	9	see	GIS											AB, TT	
54				3	4	4												D, TT, AB	
55				5.5	9	6													
56				deep	20+	see	GIS											AB	deep/big
57				4	6	0.5													
58				8	12	see	GIS												
59				6	8	1													
60				4	9	see	GIS											D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-7-23 Time: 1230 Weather Conditions: Sunny

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
61				4	5	1												D, TT	
62				2.5	3	1.5												D, TT	
63				3.5	5	3												D, TT	
64				6	11	see	GIS											D, TT	
65				4.5	7	3.5												D, TT	
46				3	4	3													

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed
 by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 3-9-23 Time: 11:00 Weather Conditions: 20% cover, light wind Date 1300

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16		26.5	23.5	3.5	4	2												AB	
17				3	3.5	0.5												AB	
22				2	3	1													
23				1	1.5	1.5		1s										AB	immature branchinecta
26				2	2.5	0.75												AB	
58				0.5	1	0.10		1s											immature branchinecta
49				2.5	6	0.5												TT	
47				3	5	1.5		low 10s										AB	immature branchinecta
51				2.5	4	9		low 100s										AB, T	immature branchinecta
43				2	3	3		10s										AB	immature "
41				6	7	19		low 100s										AB	immature "
1				~10	12+	big		100s				100s	1s					AB	immature " (did not collect)
56				~10	10+	30						100s						AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Dry pools not recorded

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 3/17/23 Time: 1305-1620 Weather Conditions: Partly cloudy light wind end: same

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects			Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae		
16		24.1	27.2	5	11		5.6	—	—	—	—	—	—	—	—	—	AB	
17		21.1	27.2	4	11		7.0	—	—	—	—	—	—	—	—	—	AB	
22		1	1	3	5		1.25	—	—	—	—	—	—	—	—	—	AB	
23*		1	1	3	8		8.5	—	—	—	—	—	—	—	—	—	AB	
26		1	1	3	8		6	—	—	—	—	—	—	—	—	—	AB	
58*		23.8	27.8	4	10		BIGGGIS	—	—	—	—	—	—	—	—	—	AB	
49-53		1	1	5	13		BIGGGIS	1's										BRLI
47*		1	1	3	10		BIGGGIS	1's	None collected								AB	BRLI
56-51*		1	1	4	12		BIGGGIS	10's				1000					AB	BRLI
43*		1	1	3	10		BIGGGIS	10w 100s									AB	BRLI
41*		1	1	2	8		BIGGGIS	10w 100s									AB	BRLI
1*		23.2	26.6	13	≥22		BIGGGIS	10's	None collected								AB	BRLI
56		1	1	8	≥22		BIGGGIS										AB	NO shrimp
2		21.1	27.2	2	5		.25	—	—	—	—	—	—	—	—	—	AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-17-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
3		21.2	27.2	2	4		.75											AB	
4				2	4		.75												
5				4	1		.16												
8				3	7		1.5											AB	
9				4	1		.10											AB	
10				4	7		2.25											AB	
11				1	2		0.5											AB	
12				3	6		1.0											AB	
13				2	6		.75											AB	
15				4	7		1.0											AB	
60				2	4		0.25											AB	
18				2	4		1.25											AB	
19				2	6		.75											AB	
61				2	3		.25												

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed
 by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-17-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
21		21.1	27.2	41	1		.10	—	—	—	—	—	—	—	—	—		AB	
24		—	—	2	5		.25	—	—	—	—	—	—	—	—	—		AB	
57		—	—	1	4		.25	—	—	—	—	—	—	—	—	—		AB	
25		—	—	3	7		0.5	—	—	—	—	—	—	—	—	—		AB	
62		—	—	41	2		.75	—	—	—	—	—	—	—	—	—			
27		—	—	3	8		.5	—	—	—	—	—	—	—	—	—		AB	
28		—	—	2	4		2	—	—	—	—	—	—	—	—	—		AB	
63		23.8	27.8	3	7		4	—	—	—	—	—	—	—	—	—			
65		—	—	2	3		.75	—	—	—	—	—	—	—	—	—		AB	
64		—	—	2	7		6	—	—	—	—	—	—	—	—	—		AB	
54		—	—	41	2		1.5	—	—	—	—	—	—	—	—	—		AB	
30		—	—	2	5		8	—	—	—	—	—	—	—	—	—		AB	
31		—	—	41	1		trace	—	—	—	—	—	—	—	—	—			
34		—	—	41	2		4.5	—	—	—	—	—	—	—	—	—			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindberghia occidentalis*, BRLI = *Branchinecta lindberghii*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

[illegible]

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-24-23 Time: 1220-1530 Weather Conditions: 60°F (Final), partly cloudy, Omph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher Information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16		18.3	24.8	8	11	4.5		—	—	—	—	—	—	—	—	—		AB, TT	
17		"	"	7.5	9	9		—	—	—	—	—	—	—	—	—		AB, T	
22				2.5	5	1		—	—	—	—	—	—	—	—	—			
23				5.5	9	See GIS		—	—	—	—	—	—	—	—	—			
26				6	10	See GIS		—	—	—	—	—	—	—	1s	—			
58-29				10	20	See GIS		—	—	—	—	—	—	—	—	—		AB, TT	
49-53				5	7	See GIS		low 100s										AB, T - branchinecta - not collected	BRL
47				6	7	See GIS		100s										AB, TT BRLI	
50-51				8	10	See GIS		high 100s										AB	
43				5	7.5	See GIS		100s							1s			AB BRLI	
41				~8	15	See GIS		100s											BRLI
1				~15	≥25	See GIS		10s				100s			10s	100s		AB, TT BRLI	
56				~12	25	See GIS						100s	—	—	—	—		AB	
2		↓	↓	1.5	4	1		—	—	—	—	—	—	—	—	—		AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLI = *Branchinecta lindahl*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-24-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
3		18.3	24.8	3	3.5	1		—	—	—	—	—	—	—	—	—		AB	
4		—	—	5	6.5	0.5		—	—	—	—	—	—	—	—	—		AB	
5		—	—	dry				—	—	—	—	—	—	—	—	—			
8		—	—	3	5	1.5		—	—	—	—	—	—	—	—	—		AB	
9		—	—	dry				—	—	—	—	—	—	—	—	—			
10		—	—	6	8.3	3		—	—	—	—	—	—	—	—	—		AB	
11		—	—	1	3	0.75		—	—	—	—	—	—	—	—	—		AB	
12		—	—	3	6	1.25		—	—	—	—	—	—	—	—	—		AB, TT	
13		—	—	3	5	0.75		—	—	—	—	—	—	—	—	—		AB, TT	
15		—	—	4	7.25	1.25		—	—	—	—	—	—	—	—	—		AB	
60		—	—	4	8	6		—	—	—	—	—	—	—	—	—		AB	
18		—	—	3	4.5	1		—	—	—	—	—	—	—	—	—		AB, TT	
19		—	—	4.5	7	0.75		—	—	—	—	—	—	—	—	—		AB, TT	
61		↓	↓	4.5	6	0.75		—	—	—	—	—	—	—	—	—		AB, TT	

No shrimp last week

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Green

Date: 3-24-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
21		18.3	24.8	1	2	1.25		—	—	—	—	—	—	—	—	—		AB	
24		1	1	dry				—	—	—	—	—	—	—	—	—			
57		1	1	1.5	3	2.5		—	—	—	—	—	—	—	—	—		AB	
25		1	1	2	3.5	0.5		—	—	—	—	—	—	—	—	—		AB, TT	
62		1	1	1.5	3	1		—	—	—	—	—	—	—	—	—		TT	
27		1	1	4	6.5	0.75		—	—	—	—	—	—	—	—	—		AB, TT	
28		1	1	3	5	2.5		—	—	—	—	—	—	—	—	—		AB, TT	
63		1	1	dry				—	—	—	—	—	—	—	—	—			
65		1	1	3	3.5	1.5		—	—	—	—	—	—	—	—	—		AB	
64		1	1	8	10	see GIS		—	—	—	—	—	—	—	—	—		AB	
54		1	1	3.5	5	3		—	—	—	—	—	—	—	—	—		AB, TT	
30		1	1	3	4.5	7		10s										AB	BRLI
31		1	1	dry				—	—	—	—	—	—	—	—	—			
34		↓	↓	2.5	3.5	6		—	—	—	—	—	—	—	—	—		AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindberghia occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

No shrimp last week

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: Quad: Township: Range: Section:SURVEYOR / Permit Number: J. GreenDate: 3-24-23 Time: Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
40		18.3	24.8	3	3.5	8		—	—	—	—	—	—	—	—	—	—	AB	
42		—	—	3	4.5	8		1s	—	—	—	—	—	—	—	—	—	AB	Immature BR not collected
45		—	—	4	6	2.25		1s	—	—	—	—	—	—	—	—	—	AB	BRLI
55		—	—	3	5	6		—	—	—	—	—	—	—	—	—	—	AB	
59		—	—	7	8	1		—	—	—	—	—	—	—	—	—	—	AB, TT	
46		—	—	1	2	1		—	—	—	—	—	—	—	—	—	—	AB	
52		—	—	6	9	see GIS		10s	—	—	—	—	—	—	—	—	—	AB, TT	Immature BR - not collected
7		—	—	6	8.5	1.25		—	—	—	—	—	—	—	—	—	—	AB	
14		—	—	0.5	≤1	trace		—	—	—	—	—	—	—	—	—	—	AB	
66 (?)		—	—	8	11	see GIS		—	—	—	—	—	—	—	—	—	—	AB, TT	
37		—	—	2	3	0.5		—	—	—	—	—	—	—	—	—	—	AB	
44		—	—	1	2	1.5		—	—	—	—	—	—	—	—	—	—	AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*)

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

No shrimp last week

1 of 5

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 31 Mar 23 Time: 1430 Weather Conditions: overcast, 0-2 mph, 95-100% cover

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1		21.8	22.0	~12	~15+	See	GIS					100s	10s	10s				AB, TT, T	
2		21.7	26.1	3	6	1												AB	
3				3	5	1.25												AB,	
4				6	9.5	1												AB, TT, T	
5				1.5	2	0.5												AB, TT	
6				1	1	0.25												AB, TT	
7				4.5	6	1												TT	
8				3	4	1.25												AB, TT	
9				2	3	1												AB, TT, T, D	
10				4.5	7	3												AB, TT, T	
11				2	4	1												AB, TT, T	
12				5	7	1.25												AB, TT, T	
13				6	7.5	1												AB, TT, T	
14				3	4.5	0.75												AB, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: <u>Green Valley</u>			County:		Quad:		Township:		Range:		Section:								
SURVEYOR / Permit Number: <u>John Green</u>																			
Date: <u>31 Mar 23</u>		Time:		Weather Conditions:															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15		27.7	26.1	4.5	7	1.25												AB, TT, T	
16				8	9.5	5												AB, TT, T	
17				6	8.5	12												AB, TT, T	
18				3.5	4.5	2												AB, TT, T	
19				4	5.5	0.75												AB, TT, T	
20				2	3	0.25												AB, TT, T	
21				1.5	3	3												AB, TT, T	
22				3.5	5	1.25												TT, D	
23				3.5	7.5	12												AB, TT, T	
24				2	3	0.5												TT, D	
25				1	1	1												TT, D	
26				4	9	12												AB, TT, T, D	
27				4	8	0.75												TT, D	
28				3	5	2.25												AB, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

30P5

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 31 Mar 23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
29-58		28.1	24.3	6	~16	See GIS		10s										AB, TT	BRLI - collected
30				4	5	5												AB, D	
31				2	3.5	1												AB, TT, T	
32				DRY															
33				2	4.5	0.10													
34				1	2.5	2												AB	
35				DRY															
36				DRY															
37				2	3	1.5												AB	
38				DRY															being removed by flow
39				DRY															
40				2	3.5	6													
41				4	~12	See GIS		100s										AB	more juveniles, immatures, BRLI
42		✓	✓	3.5	4.5	8												AB	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool, UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 31 Mar 23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Playhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
yes 43		28.1	24.3	4.5	6	see GIS												AB	
no 44				3	4	3												AB	
yes 45				2.5	3	1.25												AB	
no 46				1.5	2.5	0.5													
yes 47				5	8.5	see GIS		10s										AB, TT, T, D	BRLI
dry 48				1	2	1.25												AB, TT, D	
yes 49-53				4	6	see GIS		10s								10s		AB, TT, T, D	BRLI
yes 50-51				3	6	see GIS		100s										AB, TT, T, D	BRLI 25% - 75% more juveniles
yes 52				3.5	6.5	see GIS		10s								10s		AB, TT, T, D	immature BR
no ~~54~~																			(joined w/ #64)
no 55				3	5	2												AB	
no 56				~15	~20+	see GIS						10k	10s					AB, T	flow from #1
no 57				2	3	0.75												AB, TT	
no 59				2	4	0.10													

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindnerella occidentalis*, BRLI = *Branchinecta lindneri*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed, G = grazed, UG = ungrazed
by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 7 Apr 23 Time: 1455 Weather Conditions: 25%, 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1		25.3	22.2	7	15	60		—	—	—	—	100s	10s		100s	10s	—		
2	DRY																		
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 4-7-23 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16	DRY	31.8	29.1	3	6	2										105		AB	
17		"	"	3	6	2													
15	DRY																		
18																			
19																			
21																			
22																			
23		31.8	29.1	1	3	0.25													
26		"	"	2	4	0.5												AB	
25	DRY																		
24	DRY																		
27	DRY																		
28	DRY																		
✓ 29-58		31.6	31.9	3	5	6		15					105		15	15			BRLI

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindberghia occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Groves

Date: 4-7-73 Time: _____ Weather Conditions: _____

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
30	DRY																		
34																			
37																			
40																			
✓ 41		32.6	31.9	4	8	3.5		low 1905											BRLI - collected
42	DRY																		
43																			
44																			
45																			
46																			
✓ 47																			
48																			
✓ 49-53																			
✓ 50-51																			

Notes. Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows. NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 4-7-23 Time: 1630 Weather Conditions: 10%, 5-9 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
✓ 52	DRY																		
✓ 54-64	DRY																		
55	DRY																		
✓ 56		25.3	22.7	7	15	30						1000						AB	
57	DRY																		
59	DRY																		
60	DRY																		
61	DRY																		
62	DRY																		
65	DRY																		
✓ 66	DRY																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: John Green

Date: 4-14-23 Time: 1410-1430 Weather Conditions: mostly overcast, 1-4 mph, 59°

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	DRY																		
16	DRY																		
17	DRY																		
23	DRY																		
26	DRY																		
29-58	DRY																		
41	DRY																		
56	DRY																		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Reinundations

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Geert Valley County: _____ Quad: _____ Township: _____ Range: _____ Section: _____

SURVEYOR / Permit Number: J. Greer

Date: 5-5-23 Time: 1140-1205 Weather Conditions: windy, cool, overcast

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
4					5	1													
7					5	1.5													
12					4	0.25													
13					4	0.75													
15					5	1													
16					3	0.5													
17					6	1													
22					6	1.25													
23					5	1.25													
26					9	8													
62					4	1.25													
27					5	0.25													
1					8	15													

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Green Valley

County:

Quad:

Township:

Range:

Section:

SURVEYOR / Permit Number: J. Green

Date: 12 May 23	Time:
-----------------	-------

Time: _____

Weather Conditions:

[illegible]

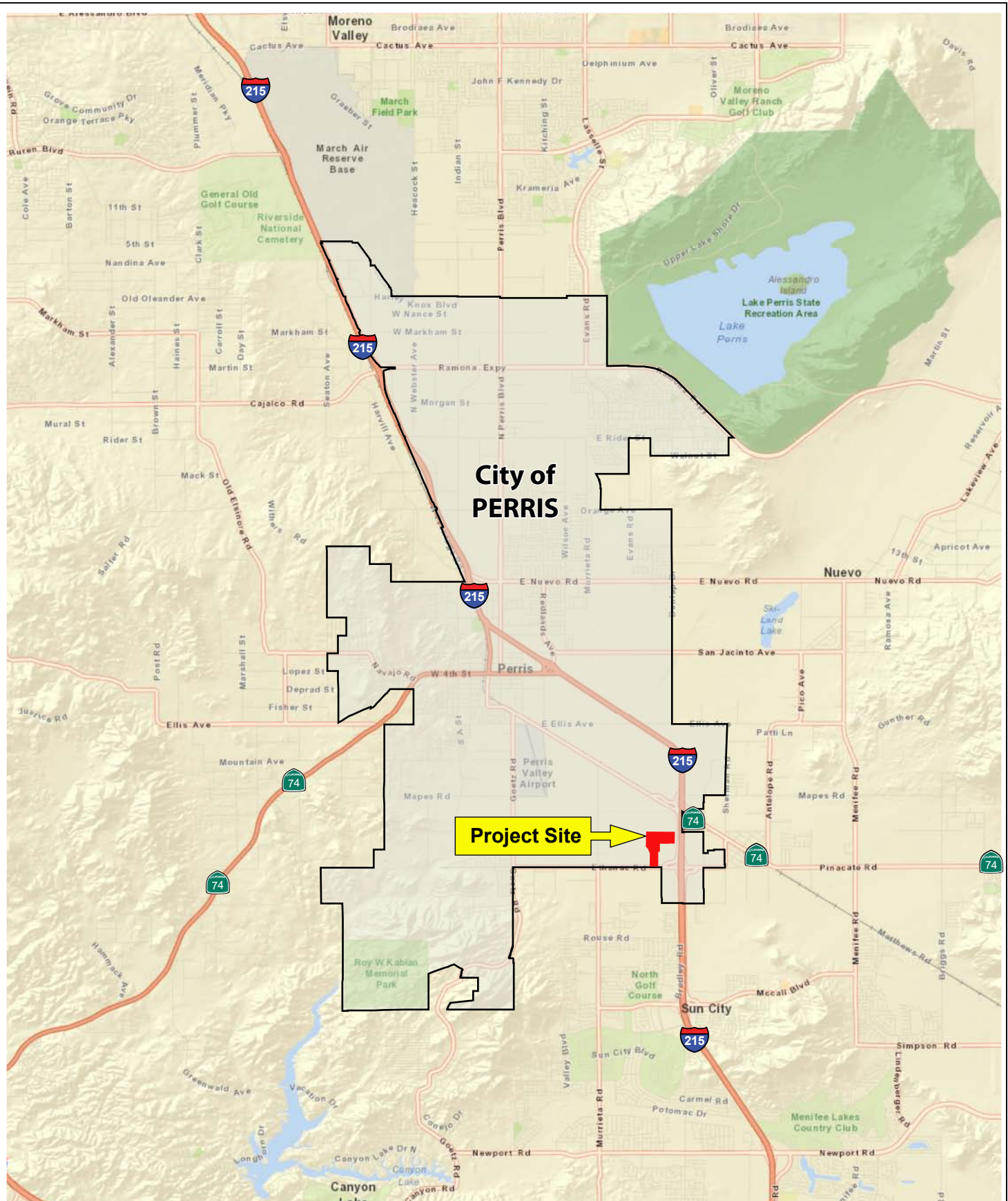
Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool, UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed, G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

APPENDIX C

USFWS NOTIFICATION



APNs 327-220-011, 327-220-012, 327-220-077, and Right of Ways

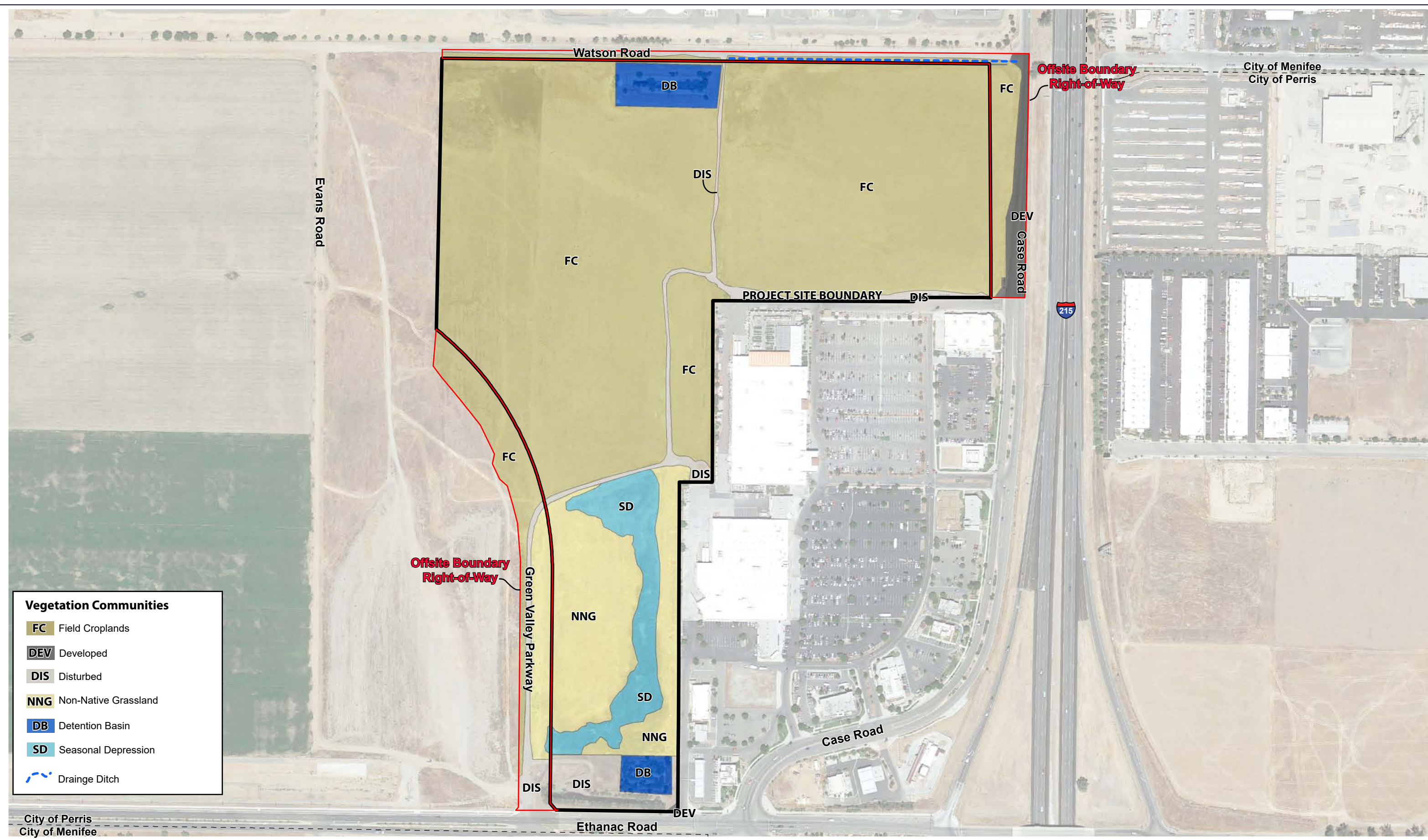
Attachment A - Regional Location Map

*MSHCP/CEQA Biological Resources Constraints Assessment
Green Valley Project Site, City of Perris*

CADRE
Environmental



not to scale



Vegetation Communities

- FC** Field Croplands
- DEV** Developed
- DIS** Disturbed
- NNG** Non-Native Grassland
- DB** Detention Basin
- SD** Seasonal Depression
- Drainage Ditch

APPENDIX F

Green Valley Project – Dry Soil and Cyst Culturing, City of Perris, Riverside County, California. (WSP USA Environment & Infrastructure, Inc. 2024)

**DRY SOIL ANALYSIS
AND CYSTS CULTURING
FOR THE
DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
GREEN VALLEY PROJECT, PERRIS, RIVERSIDE COUNTY, CALIFORNIA**



Prepared for:



WSP USA ENVIRONMENT AND INFRASTRUCTURE, INC.
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Contact: Scott Crawford
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Prepared by:



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Contact: Dr. Brent Helm
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March 2024

**DRY SOIL ANALYSIS
FOR THE
DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
GREEN VALLEY PROJECT,
PERRIS, RIVERSIDE COUNTY, CALIFORNIA**

INTRODUCTION

Helm Biological Consulting (HBC), a division of Tansley Team, Inc., was contracted by WSP USA Environment and Infrastructure, Inc. (hereafter “WSP”) to perform an analysis of soils collected from dry seasonally-inundated depressions (hereafter “pools”) at the Green Valley Project (hereafter “Project”), for the presence of large branchiopods (fairy shrimp, tadpole shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., the threatened vernal pool fairy shrimp [*Branchinecta lynchi*], the endangered Riverside fairy shrimp [*Streptocephalus woottoni*]).

The Project is located north of Ethanac Road, east of Evans Road, south of Watson Road and west of Escondido Expressway, less than two miles south by southeast of the City of Perris, Riverside County, California (Figures 1 and 2). Moreover, Project is located in the south eastern ¼ of Section 9, Township 5 South, Range 3 West, and San Bernardino Baseline Meridian on the Romoland U.S. Geological Survey (USGS) 7.5 topographic quadrangle map (approximate center coordinates in decimal degrees: World Geodetic System [WGS84] Latitude: 33.747425°, Longitude: -117.195157°, Figure 2).

BACKGROUND

Wet-season surveys were conducted during the winter of 2022 through spring 2023 by WSP on behalf of Richland Real Estate Fund. These dry-season surveys efforts represent the second portion of the large branchiopod survey effort in accordance with most recent U.S. Fish and Wildlife Service (USFWS) protocol (USFWS 2017).

The remainder of this report discusses the methods and results of the soil examinations and cyst culturing to determine the presence of federally-listed large branchiopods at the Project.

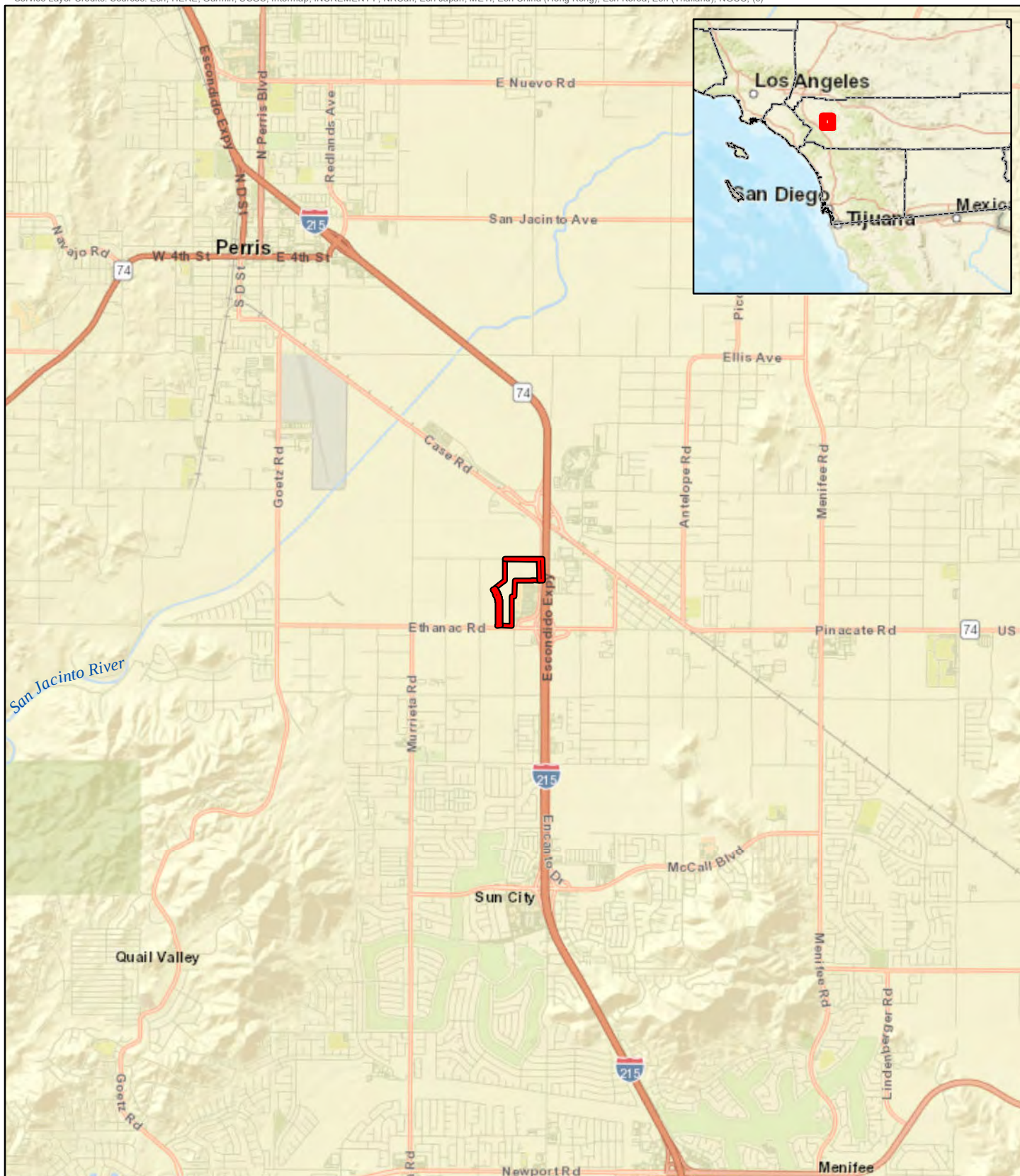


"I certify that the information in this survey report and attached exhibits fully and accurately represents my work."

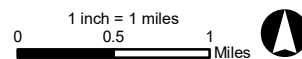
Brent P. Helm
(TE-795930-12)

Signature Brent Helm

Date 03-1-2024



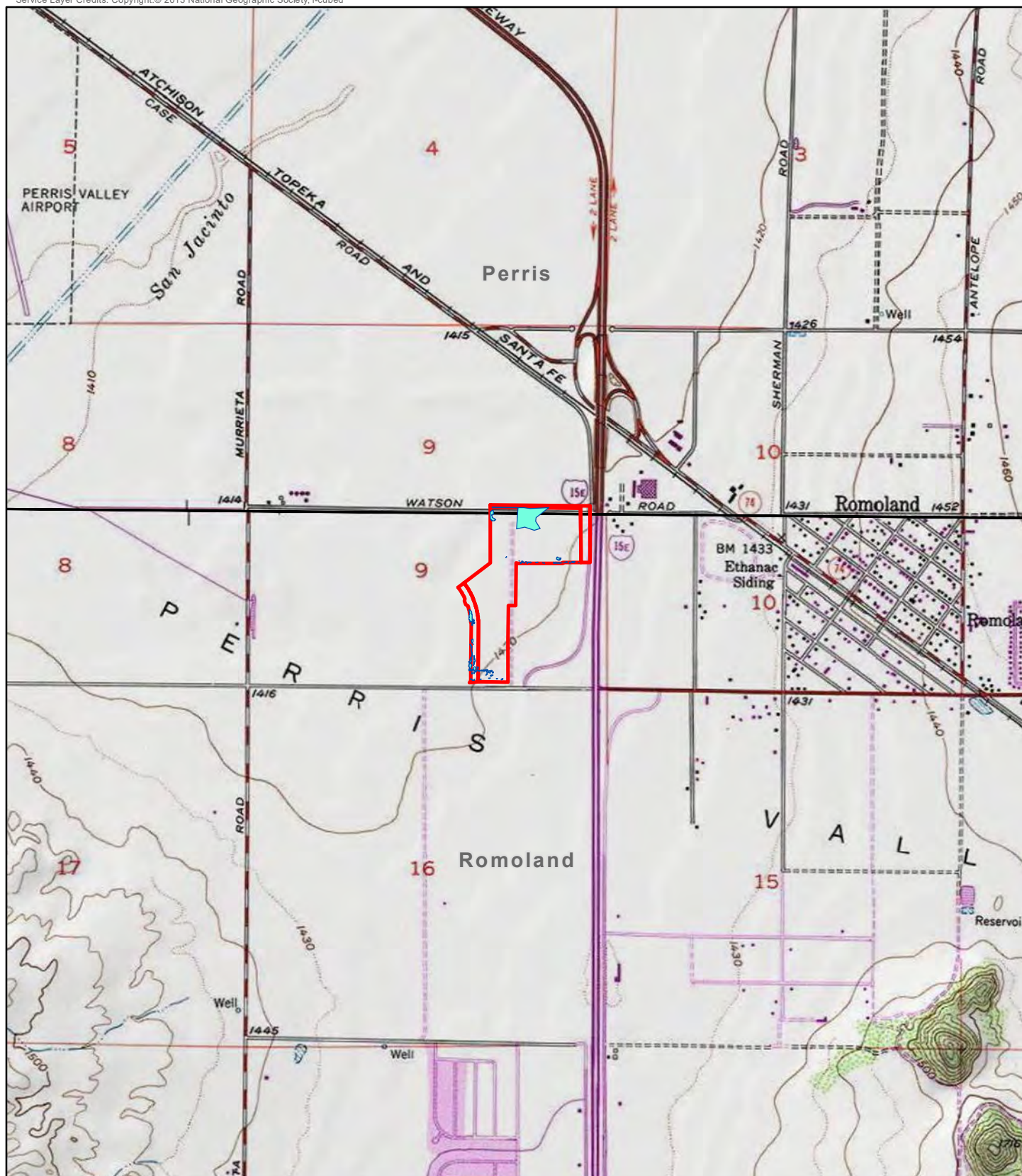
Path: \\sdg1-fs1\gis\3554_NaturalResources\Riverwoods_FairyShrimp\MXD\ReportFigures\GreenValley_FS\Fig1_ProjectLocation.mxd, aaron.johnson 5/30/2023



 Project Location

FIGURE 1

Project Location
Green Valley Project
Riverside County, CA



Path: \\sdg1-fs1\gis\3554_NaturalResources\Riverwoods_FairyShrimp\MXD\ReportFigures\GreenValley_FS\Fig2_USGS.mxd, aaron.johnson 5/30/2023



- Fairy Shrimp Sampling Pools
- Project Boundary

1 inch = 2,000 feet
0 1,000 2,000 Feet



FIGURE 2

USGS 7.5' Quads: Perris, Romoland
Green Valley Project
Riverside County, CA

METHODS

Methods followed USFWS's (2017) *Survey Guidelines for Listed Large Branchiopods* for dry-season sampling and consisted of first soil collection, then second soil processing and analysis.

SOIL COLLECTION

Dry soils were collected on July 26, 2023 by Mr. John Green of WSP as authorized by USFWS under permit number TE-054011 of Section 10(a)(1)(A) of the federal Endangered Species Act (ESA), 16 U.S.C. 1531 et seq., and its implementing regulations (Appendix A). The collected soils were delivered to HBC for subsequent processing and analysis as described below.

SOIL PROCESSING AND ANALYSIS

Soil samples obtained from WSP were processed and analyzed by Dr. Brent Helm of HBC as authorized by the USFWS under recovery permit number TE-795930-12 of Section 10(a)(1)(A) of the federal ESA, 16 U.S.C. 1531 et seq., and its implementing regulations. In HBC's laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The soil retained from the 75-micron diameter pore size sieve was then removed and thinly (≈ 1.0 mm) spread into plastic petri dishes.

The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock *et al.* 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, Thiery *et al.* 1995, and Rabet 2010) were used to identify and compare any cysts observed within the soil samples. This processing method (described above) favors the detection of cysts belonging to the genera *Branchinecta*, *Lepidurus*, and *Streptocephalus* since these three genera have species that are federally listed. The presence of other aquatic macroinvertebrates encountered was also noted on the laboratory data sheet.

Because there are several species within the genus *Branchinecta* that could occur or are known to occur within the vicinity of the Project, cysts belonging to the genus *Branchinecta* observed within the soils, were cultured to determine species as described below.

CYST CULTURING

Petri dishes containing soils with *Branchinecta* cysts were placed into individual six-quart plastic containers. The soils were saturated with 50° F well water (non-chlorinated) and allowed to dry. This saturation and drying process was repeated three times. The soils were then inundated completely with 50° F well water. The containers holding the inundated soils were inserted into an environmental chamber. The environmental chamber controls were set to mimic the winter light, humidity, and temperature fluctuations of the Project's vicinity. The contents of the containers were monitored daily for fairy shrimp hatchlings (instars).

If no hatchlings were observed after ten (10) days, the containers were removed from the environmental chamber and the soils were allowed to completely dry before reinitiating the hatching process described above. A total of three hatching attempts were performed on each soil sample.

Fairy shrimp hatchlings were feed ground fish food and reared in the environmental chamber until they were mature enough to be identified using dichotomous keys and diagrams from "Fairy Shrimps of California's Puddles, Pools, and Playas" (Eriksen and Belk 1999) and two more recent publications concerning the identification of San Diego fairy shrimp (*Branchinecta sandiegonensis*) (Simovich *et al.* 2013, Patel *et al.* 2018); along with comparisons to Dr. Helm's large branchiopod reference collection. Representative mature listed large branchiopods specimens were obtained from each container and preserved in 95% ethanol as species vouchers.

RESULTS

SOIL COLLECTION

Soil samples collected from 59 basins by WSP (Figure 3).

SOIL PROCESSING AND ANALYSIS

Visual examinations of the processed soils revealed the presence of cysts belonging to the genus *Branchinecta* in ten of the 59 basins where soils collected (Table 1). No evidence of cysts belonging to the genus *Streptocephalus* were observed in the processed soils. Representative photographs of the basins sampled using dry-season techniques are provided in Appendix B.

CYST CULTURING

No federally-listed large branchiopods were cultured. However, the non-special status versatile fairy shrimp (*Branchinecta lindahli*) was successfully hatched and raised to maturity from five of the ten basin soils that were observed to have *Branchinecta* cysts. After three hatching attempts, a total of 37 fairy shrimp were hatched and 12 were raised to maturity and identified as the versatile fairy shrimp (Table 2).

1 inch = 400 feet

0 200 400 Feet



-  Project Area
 No fairy shrimp detected
 *Branchinecta lindahl*i detected

FIGURE 3
Fairy Shrimp Sampling Pools
Green Valley Project
Riverside County, CA

Table 1. Results of Soil Examinations

Pool No.	Insect Exo- Skeletons	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Branchiopod Cysts	Nematoda	Collembola
				Branchinecta sp.		
GV-01	X			Med		X
GV-02	X					X
GV-03	X					X
GV-04	X					X
GV-05,06	X					X
GV-07	X					X
GV-08	X					X
GV-09	X					X
GV-10	X					X
GV-11	X					X
GV-12	X					X
GV-13	X					X
GV-14	X					X
GV-15	X					X
GV-16	X					X
GV-17	X			Low		X
GV-18	X					X
GV-19	X					X
GV-20	X					X
GV-21	X					X
GV-22	X					X
GV-23	X			Low		X
GV-24	X					X
GV-25	X					X
GV-26	X					X
GV-27	X					X
GV-28	X				X	X
GV-30	X			Low		X
GV-31	X					X
GV-32	X					X
GV-33	X					X
GV-34	X		X			X
GV-35	X					X
GV-36	X					X
GV-37	X					X
GV-38	X					X
GV-39	X					X
GV-40	X	X				X
GV-41	X			Med		X
GV-42	X					X
GV-43	X	X		Low	X	X
GV-44	X			Low		X
GV-45	X					X
GV-46	X					X
GV-47	X			Low		X
GV-48	X					X
GV-52	X					X
GV-55	X					X
GV-56	X		X			X
GV-57	X					X
GV-58,29	X				X	X
GV-59	X					X
GV-60	X					X
GV-61	X					X
GV-62	X					X
GV-63	X					X
GV-64,54	X	X		Low	X	X
GV-65	X					X
GV-66	X			Low		X

X = Present

*Abundance categories are derived from USFWS's Survey Guidelines for the Listed Large Branchiopods - Section V(d) (none = no cysts found in sample; low abundance = estimate of 1-10 cysts/100 ml soil; medium abundance = estimate of 11-50 cysts/100 ml soil; high abundance = estimate of more than 50 cysts/100 ml soil)

Table 2. Cyst Culturing Results from Soils Collected at the Green Valley Project, Riverside County, California

Pool #	Hatching Round #									Total		
	1			2			3					
	# of BRsp Hatched	# of Identified BRLI Male	# of Identified BRLI Female	# of BRsp Hatched	# of Identified BRLI Male	# of Identified BRLI Female	# of BRsp Hatched	# of Identified BRLI Male	# of Identified BRLI Female	# of BRsp Hatched	# of Identified BRLI Male	# of Identified BRLI Female
GV - 47, 49, 50, 51, 53	0	0	0	4	0	2	0	0	0	4	0	2
GV - 41	0	0	0	2	1	1	15	2	0	17	3	1
GV - 30	3	1	0	2	0	0	3	2	0	8	3	0
GV - 23	0	0	0	0	0	0	0	0	0	0	0	0
GV - 1	3	1	0	2	0	1	0	0	0	5	1	1
GV - 66	0	0	0	0	0	0	0	0	0	0	0	0
GV - 64, 54	0	0	0	0	0	0	0	0	0	0	0	0
GV - 43	0	0	0	3	0	2	0	0	0	3	0	2
GV - 44	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	2	0	13	1	6	18	4	0	37	7	6

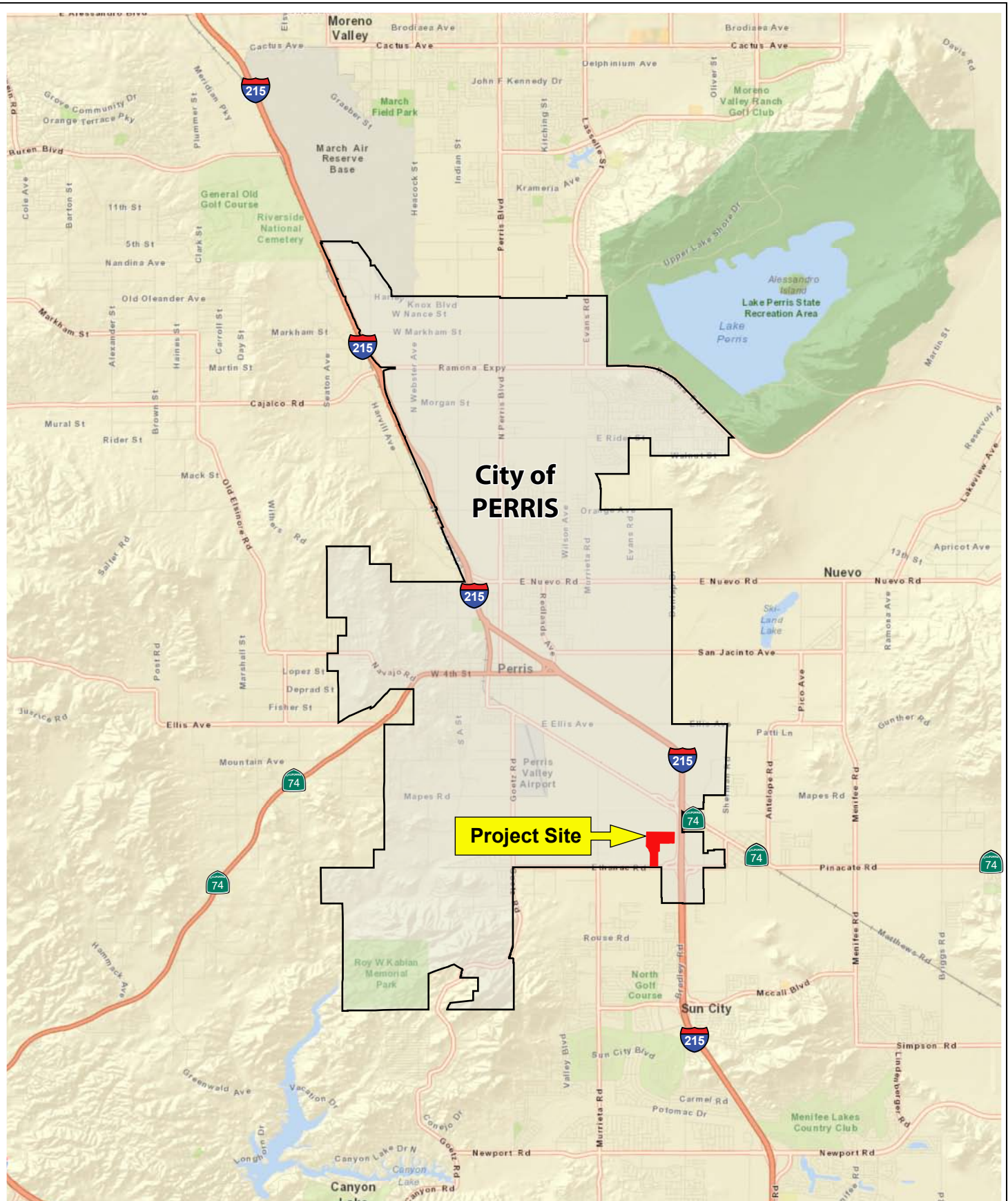
Note: BRsp = *Branchinecta* sp. Immature, BRLI = *Branchinecta lindahli* versatile fairy shrimp

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- U.S. Department of the Interior, U.S. Fish and Wildlife Service (USFWS). 2017. Survey guidelines for the listed large branchiopods. 24 pp. Dated: 31 May 2015 (Revised November 13, 2017).



APPENDIX A. USFWS AUTHORIZATION LETTER



APNs 327-220-011, 327-220-012, 327-220-077, and Right of Ways

Attachment A - Regional Location Map

*MSHCP/CEQA Biological Resources Constraints Assessment
Green Valley Project Site, City of Perris*

CADRE
Environmental



not to scale



APPENDIX B.

REPRESENTATIVE PHOTOGRAPHS



Photo 1: Looking east showing the southern drainage basin.

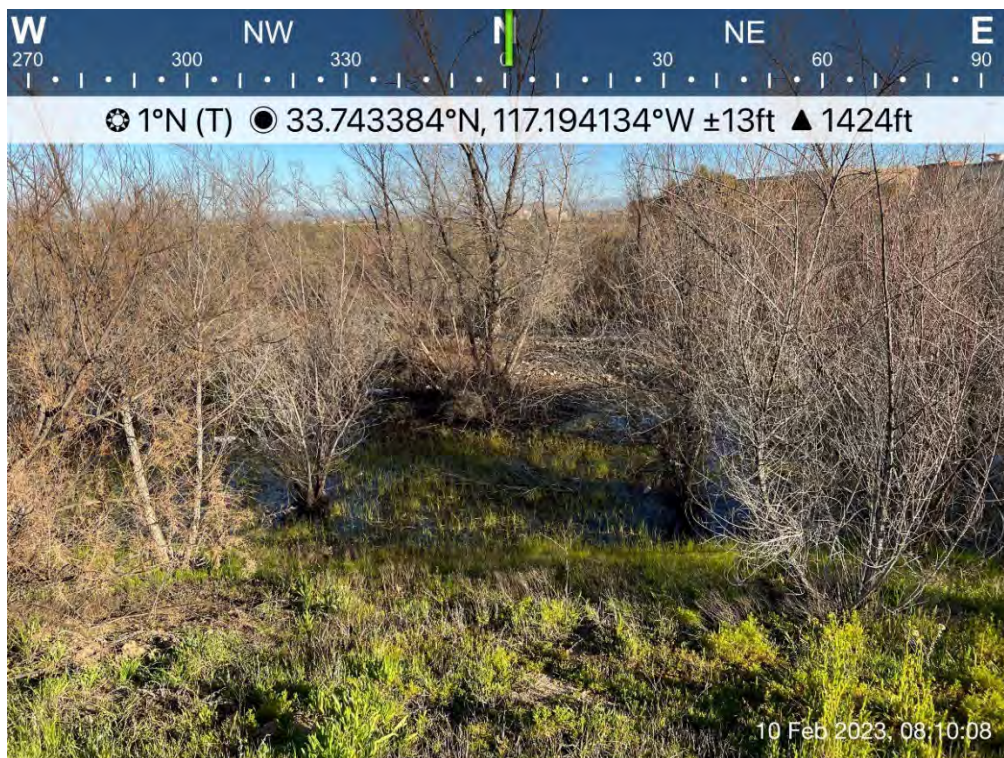


Photo 2: Looking north showing the southern drainage basin.

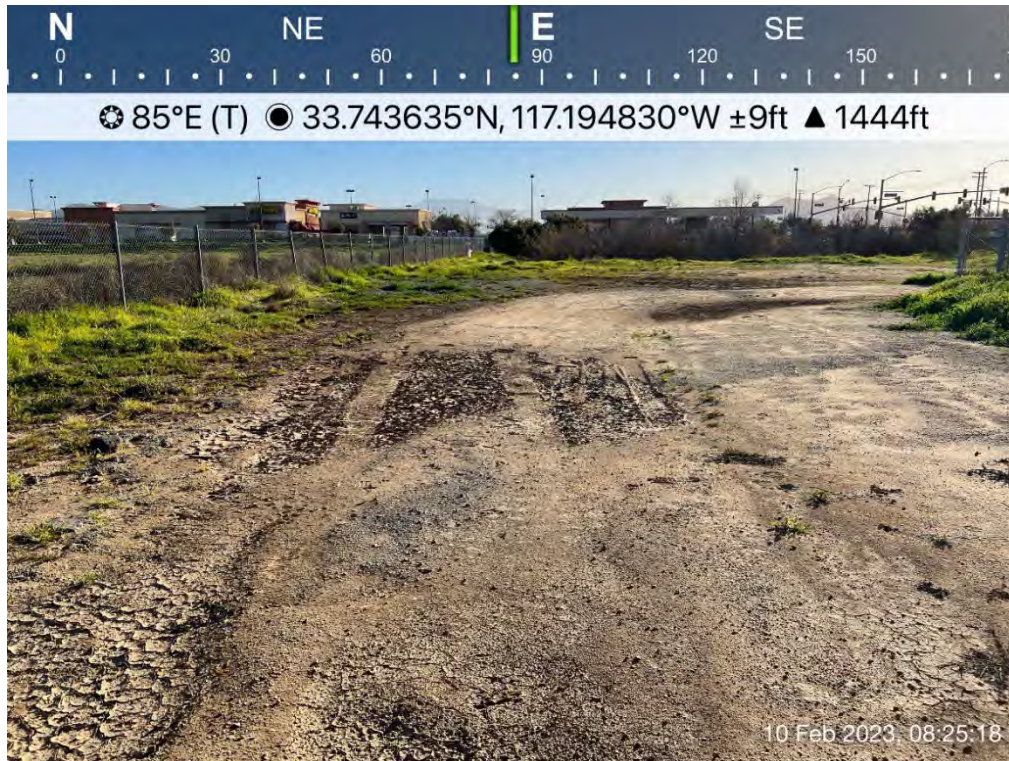


Photo 3: Looking east showing the southern drainage basin has no outlet flows. The cracked soils in the foreground are an example of the pooled water areas.

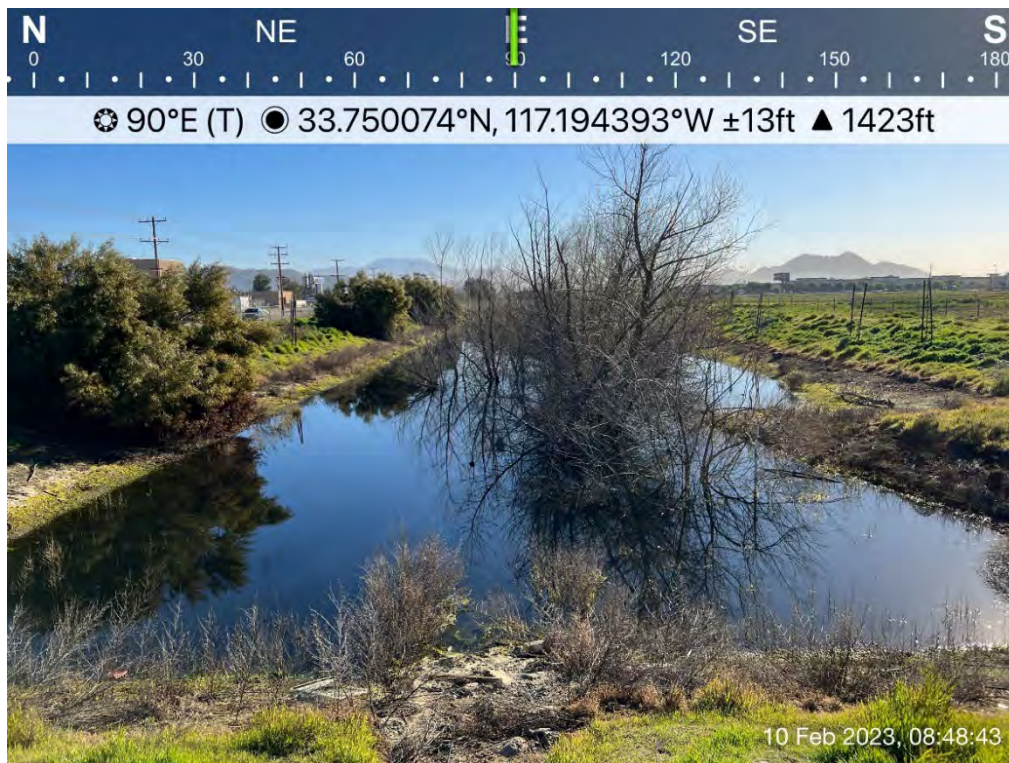


Photo 4: The northern basin looking east from the west side.



Photo 5: Looking west showing the northern bank of the northern basin.

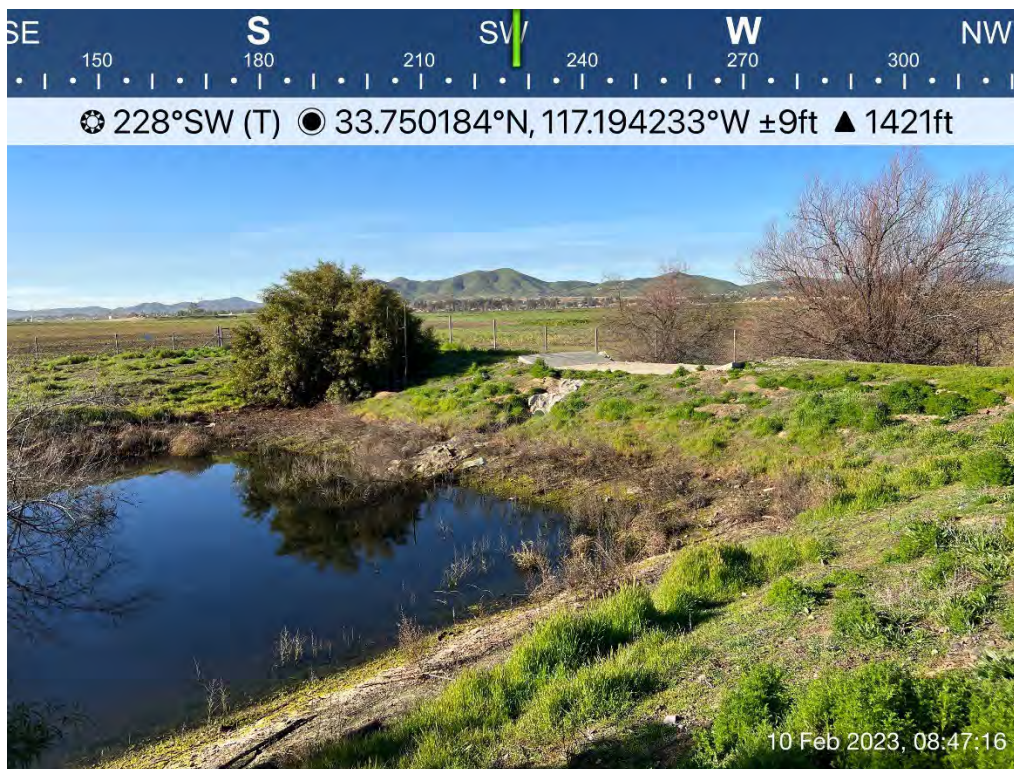


Photo 6: Looking southwest showing the spillway if the basin overflows. No evidence of any regular outflow was observed.



Photo 7: Roadside ditch observed along the northern boundary of the project is not considered to be jurisdictional.

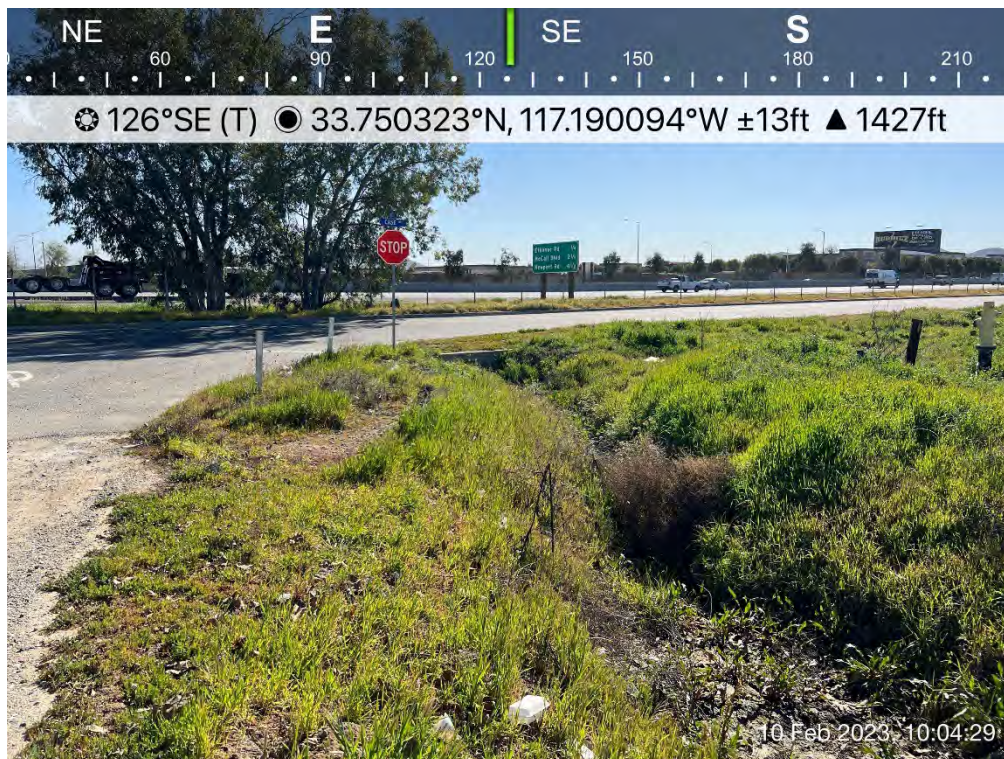


Photo 8: Roadside ditch at the northeast corner of the project area.

APPENDIX G

**Green Valley Project – Green Valley MSHCP Section 6.1.2 Compliance Addendum,
City of Perris, Riverside County, California. (WSP USA Environment &
Infrastructure, Inc. 2023c).**

05 October 2023



RICHLAND COMMUNITIES

Attn: DEREK BARBOUR
Vice President - Land
361 Michelson Drive, Suite 425
Irvine, CA 92615
Phone: 714.932.0650

Subject: Green Valley MSHCP Section 6.1.2 Compliance Addendum

Dear Mr. Barbour:

WSP USA, Environment and Infrastructure, Inc. (WSP USA) is pleased to provide you with this addendum to clarify the impacts to Section 6.1.2 of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). This addendum specifically addresses issues associated with Riparian/Riverine Resources associated with the Green Valley Project (APN: 327-220-012 and 327-220-044).

RIPARIAN/RIVERINE AREAS AND VERNAL POOLS (MSHCP SECTION 6.1.2)

Riparian/ Riverine Resources

Methods

An evaluation for MSHCP riparian/riverine resources was conducted by WSP USA, Senior Biologist, Dale Hameister, on February 10, 2023 and again on July 12, 2023. Prior to conducting the field assessment, a literature review and was conducted and the following resources literature and materials was reviewed:

- Aerial photographs (2021) to determine potential jurisdictional features;
- USGS topographic maps to determine the presence of any “blue line” drainages;
- USDA soil mapping data; and
- USFWS National Wetlands Inventory Map to identify potential mapped wetland features

MSHCP riparian/riverine features were defined and mapped (if present), according to the definition provided in section 6.1.2 of the MSHCP (2004):

“riparian/riverine areas are characterized by an abundance of trees, shrubs, persistent emergents, or emergent mosses and lichens. These areas rely on soil moisture from a nearby freshwater source, or exhibit intermittent or sustained freshwater flow throughout the year”.

Additionally, riverine features were considered to encompass both natural elements and previously natural aquatic features that have undergone significant modification and/or

redirection. This category also encompassed features indirectly influenced by human alteration of the landscape, including the channelization of historical riverine features, if present.

Existing Conditions and Results

The project site is located within a historically agricultural zone, containing remnants of irrigation basins utilized for such purposes. Three features within the project area were assessed for potential classification as MSHCP riparian/riverine resources. These include a basin feature along Watson Road, a basin north of Ethanac Road, and a road side drainage ditch. The functions and values of all features were evaluated regarding their potential classification as MSHCP riparian/riverine resources. However, none of these resources exhibits key attributes associated with such features. For instance, there is no hydrologic connectivity to downstream resources, including connections to riparian/riverine resources or MSHCP Conserved Lands, which encompass reservoirs, other large waterbodies, or lands designated for conservation. Moreover, the features, do not provide sediment retention, transport, nutrient processing, flood storage, flood flow modification, or containment of contaminants (i.e., chemical factors). While a few immature individual Godding's black willow (*Salix gooddingii*) were observed in the basin near Ethanac Road, the predominant species in both basin features is salt cedar (*Tamarix ramosissima*). Furthermore, the vegetation within the basin features and the road side ditch is sparse, isolated, and consequently does not constitute viable habitat for species typically associated with riparian habitat. The drainage ditch was surveyed during an active rain event that recorded over 0.5 of rain. Evidence of flows targeted during the survey included clearly defined bed and bank features, debris rack, sedimentation deposits, water staining, hydrophytic vegetation, hydric soils, and/or presence of flowing water. There was no evidence of flow within the roadside ditch or the presence of riparian/riverine habitat. As such, it is concluded that the artificially created irrigation basins and roadside drainage feature do not meet the criteria described in Section 6.1.2 of the MSHCP for riparian/riverine resources.

Impacts

No impacts for riparian/riverine resources are proposed. The project does not conflict with section 6.1.2 of the MSHCP.

Mitigation

No impacts for riparian/riverine resources are proposed. No mitigation is required.

Vernal Pools

Methods

Vernal pools are defined according to the definition provided in section 6.1.2 of the MSHCP (2004):

“Seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season.”

To assess the project site for potential vernal pool features, a literature review and field assessment(s) were conducted by WSP USA Senior Biologist, Dale Hameister (refer to riparian/riverine methods section).

Existing Conditions and Results

The literature review, including a historical aerial analysis, and on-site field assessment of the project site yielded no evidence of vernal pools. A jurisdictional wetland delineation was conducted during the wet season on February 10, 2023, with an additional follow-up assessment carried out in July 2023. While certain areas were identified as low-lying depressions modified by human activity, including two basin features, no obligate hydrophytes or facultative wetland plant species typically prevalent during the wetter phase of the growing season were observed. Consequently, it is determined that vernal pool resources are not present in the project area.

Impacts

The project footprint does not contain vernal pool resources, and thus, no impacts on vernal pools are anticipated. The project does not conflict with section 6.1.2 of the MSHCP.

Mitigation

No impacts for vernal pool resources are proposed. No mitigation is required.

Fairy Shrimp

Methods

Fairy shrimp surveys were conducted by permitted WSP USA biologist, John Green in pursuant to the USFWS Survey Guidelines for the Listed Large Branchiopods (USFWS 2017). A number of season ponds were identified and sampled during the wet season. Although

dry season fairy shrimp survey soil samples have been collected, they have not been processed at this time.

Existing Conditions and Results

Based on the survey results, no listed fairy shrimp species was identified within the ponded areas. The common versatile fairy shrimp (*Branchinecta lindahli*) was observed in several pools.

Impacts

The project footprint does not contain vernal pool resources, and thus, no impacts on vernal pools are anticipated. Consequently, a DBESP is unnecessary and the project does not conflict with section 6.1.2 of the MSHCP.

Mitigation

No impacts for vernal pool resources is proposed. No mitigation is required.

Riparian Birds

Methods

Cadre Environmental performed a comprehensive analysis of pertinent data encompassing biological characteristics, sensitive habitats, and potentially existing species both on and in proximity to the Project Site. This evaluation included a thorough examination of aerial photography and USGS topographic map data. Subsequently, on October 7, 2022, Cadre Environmental conducted a habitat assessment for riparian bird species. Following this assessment, it was determined that low quality habitat for the least Bell's vireo exists in the two detention basins located on-site. As such, a total of eight (8) protocol surveys for the least Bell's vireo were carried out within all identified suitable habitats on site. These surveys adhered to the recommended guidelines outlined by the US Fish and Wildlife Service (USFWS) (USFWS 2001). Specifically, the guidelines stipulate a minimum of eight (8) surveys conducted between April 10th and July 31st for least Bell's vireo assessments.

Existing Conditions and Results

Low quality habitat exists on the project site for the least Bell's vireo. No breeding or transitory least Bell's vireo were documented onsite during the focused surveys conducted during the spring of 2023 by Cadre Environmental.

Impacts

No impacts to riparian bird species are anticipated as a result of project implementation. The project does not conflict with section 6.1.2 of the MSHCP.

Mitigation

No impacts to riparian bird species are anticipated. No mitigation is required.

Other Section 6.1.2 Species

The following species were evaluated for their potential to utilize the project site.

Fish, Amphibians, Reptile

There is no suitable habitat for these species on-site:

- arroyo chub (*Gila orcutti*)
- Santa Ana sucker (*Catostomus santaanae*)
- arroyo toad (*Anaxyrus [Bufo] californicus*)
- coast range newt (*Taricha tarosa tarosa*)
- mountain (Southern) yellow-legged frog (*Rana muscosa*)
- western pond turtle (*Clemm's marmorata pallida*)

Birds:

• American bittern (*Botaurus lentiginosus*): American bitterns in California are found almost exclusively in emergent habitat of freshwater marshes and vegetated borders of ponds and lakes. There is no habitat on-site.

• bald eagle (*Haliaeetus leucocephalus*): Considered a bird of aquatic ecosystems, it occurs primarily at or near seacoasts, rivers, swamps, and large lakes. It is known to occur at Lake Perris to the north and Diamond Valley Lake to the southeast, but is unlikely to use on-site habitats.

• black-crowned night heron (*Nycticorax nycticorax*): Habitat requirements are varied, including all types of wetland areas including swamps, streams, rivers, margins of pools, ponds, lakes, lagoons, tidal mudflats, fresh, brackish, and salt water ecosystems and even using man-made ditches, canals, reservoirs, and wet agricultural fields. In inland areas, most colonies are associated with large wetlands. No suitable habitat on-site.

• black swift (*Cypseloides niger*): It nests in moist crevices or caves on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. It forages widely over many habitats. Unlikely to occur on-site, even as a foraging bird and there is no nesting habitat.

• Cooper's hawk (*Accipiter cooperii*): This species is usually found in areas with dense tree stands or patchy woodland habitat. There is potential for it to occur on-site.

- double-crested cormorant (*Phalacrocorax auritus*): Require lakes, rivers, reservoirs, estuaries, or the ocean. Possible only as a flyover species.
- downy woodpecker (*Dryobates pubescens*): Within southern California, the species generally nests in deciduous (often willow) woodlands, deciduous growth/oak woodlands, orchards, suburban plantings, and occasionally in conifers. Lowland stream-bottoms constitute the main theaters of activity for this woodpecker. Available water may be a factor for presence of the species. On-site habitat is unsuitable.
- Lincoln's sparrow (*Melospiza lincolni*): Breeding in southern California occurs in wet montane meadows of corn lily, sedges, and low willows. During the winter and spring and fall migration, the species requires thickets of shrubs or migration, migrates through lowland woodland and riparian habitats. It may occur on-site at that time, but there is no breeding habitat.
- osprey (*Pandion haliaetus*): Uses rivers, lakes, and reservoirs for foraging and rocky pinnacles, and large trees and snags in open forest for cover and nesting. It is likely to occur at Lake Perris to the north and Diamond Valley Lake to the southeast, but unlikely to use on-site habitats.
- peregrine falcon (*Falco peregrinus*): Within southern California, peregrine falcons are primarily found at coastal estuaries and inland oases. Nests on cliffs, generally 200 to 300 feet in height that tend to dominate the surrounding landscape. Could possibly forage onsite, however, there is no suitable breeding habitat.
- purple martin (*Progne subis*): The species nests in cavities constructed by other bird species in tall, old trees near a body of water. It forages over riparian areas, forest, and woodland. They may be found virtually anywhere in aerial habitat during migration, but are quite rare. It may occur on-site during migration, but breeding is not expected.
- tree swallow (*Tachycineta bicolor*): The species forages primarily over and around ponds, marshes, rivers, lakes, and estuaries. Tree swallows nest almost exclusively in cavity-containing trees or snags with cavities that are near, or preferably in, water. May be found virtually anywhere in aerial habitat during migration and winter. It may occur while foraging or during migration, but breeding is not expected.
- tricolored blackbird (*Agelaius tricolor*): Breeding colonies require nearby water, a suitable nesting substrate, and open-range foraging habitat composed of grassland, woodland, or agricultural cropland. In winter, they often form single-species, and sometimes single-sex, flocks, but they also flock with other blackbird species. Unlikely to forage on-site, and there is no breeding habitat.

- white-faced ibis (*Plegadis chihi*): In southern California, extensive marshes are required for nesting. The species prefers shallow, grassy marshes and nests in dense, fresh emergent wetland. Migrant and wintering birds forage in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries. No on-site habitat.
- white-tailed kite (*Elanus leucurus*) : The white-tailed kite inhabits low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Riparian areas adjacent to open areas are used for nesting. Nesting on or site is unlikely but the site could be used for foraging.
- Wilson's warbler (*Cardellina [Wilsonia] pusilla*): Breeding habitats for the Wilson's warbler include montane meadows and low, dense willow thickets as well as other shrubs and scrub, often on steep slopes. During migration, these birds can be seen passing through many habitats. It may occur on-site at that time, but there is no breeding habitat.
- yellow-breasted chat (*Icteria virens*) : In Southern California primarily found in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Seldom seen in migration. It may occur on-site at that time, but there is no breeding habitat.
- yellow warbler (*Setophaga petechia*): In Southern California, this species breeds in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs. During migration, they occur in many habitats. It may occur on-site at that time, but there is no breeding habitat.

CONSLUSION

WSP USA biologist found no evidence of MSHCP riparian, riverine, vernal pools, fairy shrimp, riparian birds, or other sensitive species on the project site. Additionally, Cadre Environmental conducted targeted surveys for burrowing owl and least Bell's vireo, yielding negative results for both species. Furthermore, permitted WSP USA biologist conducted comprehensive protocol surveys for wet season fairy shrimp (dry season pending), with all wet season sampling surveys returning negative results for sensitive fairy shrimp species.

At present, it is unlikely that a DBESP will be required for the project. The project remains in compliance with section 6.1.2 of the MSHCP.

If you have any questions or comments regarding this letter report and would like to discuss them in detail, please do not hesitate to contact me at 951-369-8060. Thank you and we look forward to continuing our work with you on this project.

Sincerely,

A handwritten signature in black ink, appearing to be 'SCOTT CRAWFORD', written in a cursive style.

Scott Crawford

Assistant Vice President

WSP USA Environment & Infrastructure, Inc.