TETRA TECH EC, INC.

California Energy Commission
DOCKETED
11-AFC-3
TN # 67937
JUNE 01 2012

June 1, 2012

Eric Solorio, Project Manager
California Energy Commission
Docket No. 11-AFC-3
1516 9th St.
Sacramento, CA 95814

Cogentrix Quail Brush Generation Project - Docket Number 11-AFC-3: Quino Checkerspot Butterfly Protocol Survey Report, Cogentrix Quail Brush Generation Project, City of San Diego, San Diego County, California.

Docket Clerk:

Pursuant to the provisions of Title 20, California Code of Regulations, and on behalf of Quail Brush Genco, LLC, a wholly owned subsidiary of Cogentrix Energy, LLC, Tetra Tech hereby submits the *Quino Checkerspot Butterfly Protocol Survey Report, Cogentrix Quail Brush Generation Project, City of San Diego, San Diego County, California*, prepared in response to CEC data requests 29 and 30. The Quail Brush generation Project is a 100 megawatt natural gas fired electric generation peaking facility to be located in the City of San Diego, California.

The topics addressed in this letter include the following:

- Biological Resources

If you have any questions regarding this submittal, please contact Rick Neff at (704) 525-3800 or me at (303) 980.3653.

Sincerely,

Constance E. Farmer
Project Manager/Tetra Tech

cc: Lori Ziebart, Cogentrix
John Collins, Cogentrix
Rick Neff, Cogentrix
Proof of Service List

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE *QUAIL BRUSH GENERATION PROJECT*

DOCKET NO. 11-AFC-03

PROOF OF SERVICE
(Revised 5/14/2012)

APPLICANT

Cogentrix Energy, LLC
C. Richard "Rick" Neff, Vice President
Environmental, Health & Safety
9405 Arrowpoint Boulevard
Charlotte, NC 28273
rickneff@cogentrix.com

Cogentrix Energy, LLC
John Collins
Lori Ziebart
9405 Arrowpoint Blvd.
Charlotte, NC 28273
johncollins@cogentrix.com
loriziebart@cogentrix.com

APPLICANT'S CONSULTANTS

Tetra Tech EC, Inc.
Connie Farmer
Sr. Environmental Project Manager
143 Union Boulevard, Suite 1010
Lakewood, CO 80228
connie.farmer@tetratech.com

Tetra Tech EC, Inc.
Barry McDonald
VP Solar Energy Development
17885 Von Karmen Avenue, Ste. 500
Irvine, CA 92614-6213
e-mail service preferred
barry.mcdonald@tetratech.com

COUNSEL FOR APPLICANT

Bingham McCutchen LLP
Ella Foley Gannon
Camarin Madigan
Three Embarcadero Center
San Francisco, CA 94111-4067
e-mail service preferred
ella.gannon@bingham.com
camarin.madigan@bingham.com

INTERVENORS

Roslind Varghese
9360 Leticia Drive
Santee, CA 92071
roslindv@gmail.com

Rudy Reyes
8527 Graves Avenue, #120
Santee, CA 92071
rreyes2777@hotmail.com

Dorian S. Houser
7951 Shantung Drive
Santee, CA 92071
**e-mail service preferred*
dhouser@cox.net

*Kevin Brewster
8502 Mesa Heights Road
Santee, CA 92071
lzpup@yahoo.com

Phillip M. Connor
Sunset Greens Home Owners Association
8752 Wahl Street
Santee, CA 92071
connorphil48@yahoo.com

INTERESTED AGENCIES

California ISO
e-mail service preferred
e-recipient@caiso.com

City of Santee
Department of Development Services
Melanie Kush
Director of Planning
10601 Magnolia Avenue, Bldg. 4
Santee, CA 92071
mkush@ci.santee.ca.us

Morris E. Dye
Development Services Dept.
City of San Diego
1222 First Avenue, MS 501
San Diego, CA 92101
mdye@sandiego.gov

Mindy Fogg
Land Use Environmental Planner
Advance Planning
County of San Diego
Department of Planning & Land Use
5201 Ruffin Road, Suite B
San Diego, CA 92123
e-mail service preferred
Mindy.Fogg@sdcounty.ca.gov

*indicates change

ENERGY COMMISSION – DECISIONMAKERS

KAREN DOUGLAS
Commissioner and
Presiding Member
e-mail service preferred
Karen.Douglas@energy.ca.gov

CARLA PETERMAN
Commissioner and
Associate Member
Carla.Peterman@energy.ca.gov

Raoul Renaud
Hearing Adviser
e-mail service preferred
Raoul.Renaud@energy.ca.gov

Galen Lemei
Presiding Member's Advisor
e-mail service preferred
Galen.Lemei@energy.ca.gov

Jim Bartridge
Associate Member's Advisor
Jim.Bartridge@energy.ca.gov

ENERGY COMMISSION STAFF

Eric Solorio
Project Manager
Eric.Solorio@energy.ca.gov

Stephen Adams
Staff Counsel
e-mail service preferred
Stephen.Adams@energy.ca.gov

Eileen Allen
Commissioners' Technical
Adviser for Facility Siting
e-mail service preferred
Eileen.Allen@energy.ca.gov

ENERGY COMMISSION – PUBLIC ADVISER

Jennifer Jennings
Public Adviser's Office
e-mail service preferred
PublicAdviser@energy.ca.gov

DECLARATION OF SERVICE

I, Constance Farmer, declare that on June 1, 2012, I served and filed a copy of the *Quino Checkerspot Butterfly Protocol Survey Report, Cogentrix Quail Brush Generation Project, City of San Diego, San Diego County, California* (11-AFC-03. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/quailbrush/index.html].

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(Check all that Apply)
For service to all other parties:

☒ Served electronically to all e-mail addresses on the Proof of Service list;

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AND

For filing with the Docket Unit at the Energy Commission:

☒ by sending an electronic copy to the e-mail address below (preferred method); ***OR***

☐ by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 11-AFC-3
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512 docket@energy.state.ca.us

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

☐ Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
Michael J. Levy, Chief Counsel
1516 Ninth Street MS-14
Sacramento, CA 95814
mlevy@energy.state.ca.us

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Constance C. Farmer

Quino Checkerspot Butterfly Protocol Survey Report
Cogentrix Quail Brush Generation Project
City of San Diego, San Diego County, California

La Mesa, California, USGS 7.5-minute Topographic Quadrangle Map
Township 15 South, Range 1 West, Section 7, Township 15 South, Range 2 West,
Section 12 and Unsectioned portions of El Cajon and Mission San Diego Land Grants

Prepared for:

Tetra Tech EC, Inc.
143 Union Boulevard, Suite 100
Lakewood, CO 80228

Contact: Ms. Connie Farmer

Prepared by:

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602
714.508.4100

Author/Biologist: Scott Crawford, Section Manager

Michael Brandman Associates

June 1, 2012

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SECTION 1: SUMMARY

This report contains the results of protocol surveys for the Quino checkerspot butterfly (*Euphydryas editha quino*) conducted by Michael Brandman Associates (MBA) on the proposed Quail Brush Generation Project (project), in the City of San Diego, in San Diego County, California. The proposed project consists of a 100-megawatt gas-fired intermediate/peaking plant (plant site), a 138kV generation-tie transmission line (gentie), an electrical switchyard at the point of interconnection, an 8-inch underground natural gas pipeline, and temporary construction laydown and parking areas. The project site encompasses all project facilities described above.

The project site is located within gently rolling hills with non-native grasslands and patches of low to moderate quality coastal sage scrub. A recent brush fire temporarily cleared the project site of vegetation, but natural revegetation is progressing well. The project site is located adjacent to an existing landfill. The plant site contains approximately 1.6 acres of low to moderate quality coastal sage scrub, identified during a habitat assessment survey conducted by MBA in May 2011. In addition, several large patches of higher quality coastal sage scrub totaling 78.4 acres occurs within the proposed transmission line corridor right-of-way. The coastal sage scrub areas within both the plant site and transmission corridor make up the Quino checkerspot butterfly protocol survey area (survey area) described in detail in this technical report.

U.S. Fish and Wildlife Service (USFWS) protocol surveys for the Quino checkerspot butterfly were conducted by USFWS permitted biologist, Scott Crawford[1] between February 23 and April 19, 2012 within approximately 80 acres of suitable habitat in the survey area. No Quino checkerspot butterflies were observed or otherwise detected during the protocol survey. This species is currently presumed to be absent from the project site.

[1] S. Crawford's Permit Number TE-019947-4, see Appendix B, Biologist Resume.

SECTION 2: INTRODUCTION

This report documents the results of protocol surveys for the Quino checkerspot butterfly on the proposed Quail Brush Generation project site in the City of San Diego, San Diego County, California. The Quino checkerspot butterfly is listed as threatened under the federal Endangered Species Act (ESA) of 1973, whereby "take" of this species and its habitat requires authorization and permitting through the USFWS. The objective of the protocol survey was to determine the presence/absence and distribution of Quino checkerspot butterfly within the proposed project site, and to provide recommended measures to address potential project-related impacts to the species and its habitat according to federal policy.

2.1 - Project Location

The proposed project site is generally located north of State Route (SR) 52 (San Clemente Canyon Freeway), south of SR-78, east of Interstate (I) 15, and west of SR-67 in the eastern portion of the City of San Diego, California (Exhibit 1). The proposed project is located within Township 15 South, Range 1 West, Section 7, Township 15 South, Range 2 West, Section 12, and unsectioned portions of the El Cajon and Mission San Diego Land Grants, within the La Mesa, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle map (Exhibit 2). The project is specifically located north of San Clemente Canyon Freeway (SR-52), east of Medina Drive, and on both sides of Sycamore Landfill Road adjacent to the Sycamore Canyon Landfill (Exhibit 3).

Land use adjacent to the proposed project site generally consists of the existing Sycamore Landfill and Hanson aggregate mine to the north, and open undeveloped hillsides to the south, east, and west. Previous disturbances include the development and maintenance of the Sycamore Landfill Road.

No portions of the proposed project site occur within USFWS designated critical habitat for the Quino checkerspot butterfly. The project site is located 12 miles northwest of the closest designated critical habitat for this species.

2.2 - Project Description

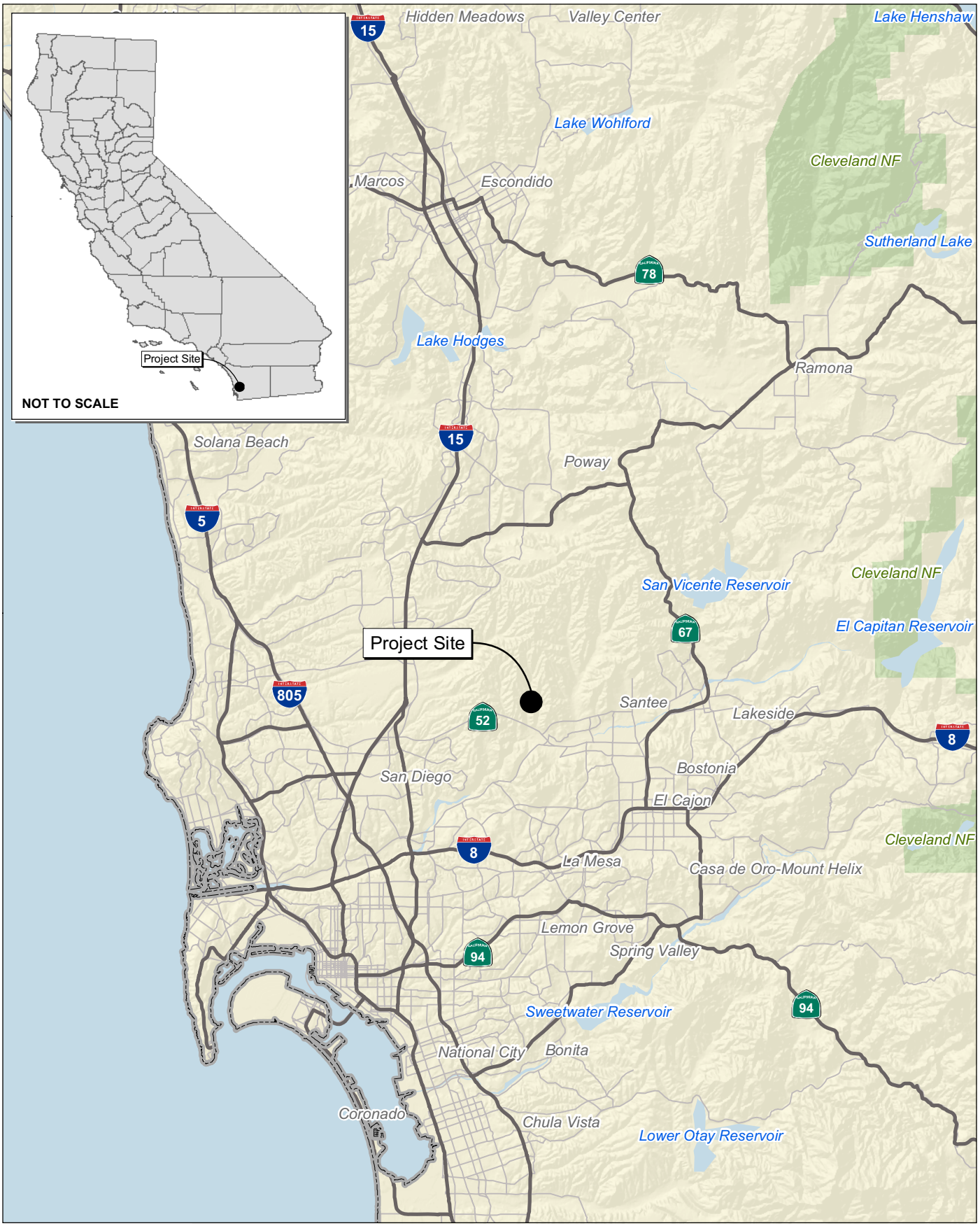
Cogentrix Energy, LLC, recently signed a long-term power-purchase agreement with San Diego Gas & Electric (SDG&E) to deliver power to homes and businesses in San Diego. This proposed Project was one of three projects selected by SDG&E to meet their 2009 solicitation for conventional generation. Natural gas power plants are a major goal of the San Diego Association of Governments (SANDAG) Regional Energy Strategy 2009. Goal two of the SANDAG Regional Energy Strategy 2030 is to increase in-county energy generation. The Quail Brush Generation Project is consistent with these strategies.

The proposed project consists of the construction and operation of the following facilities:

- A 100 MW peaker plant, to be constructed on 11 acres within a 22-acre parcel.
- A 138kV generation-tie transmission line to connect between the peaker plant and the existing substation.
- The new Point of Interconnection (POI) will now be located at the existing Carlton Hills Substation.
- An 8-inch underground natural gas pipeline that will be constructed by trenching within the right-of-way (ROW) of Sycamore Landfill Road southeast of the proposed project.

A temporary construction area for laydown of materials will occur within the existing Sycamore Landfill. Parking will be located at a paved parking lot at the southeast corner of Mission Gorge Road and Rancho Fanita Drive.

The overall survey area for the proposed project encompassed all of these facilities. The Quino checkerspot butterfly survey area was limited to coastal sage scrub habitat and other open canopy areas within the project site.



Source: Census 2000 Data, The CaSIL, MBA GIS 2011.

Michael Brandman Associates

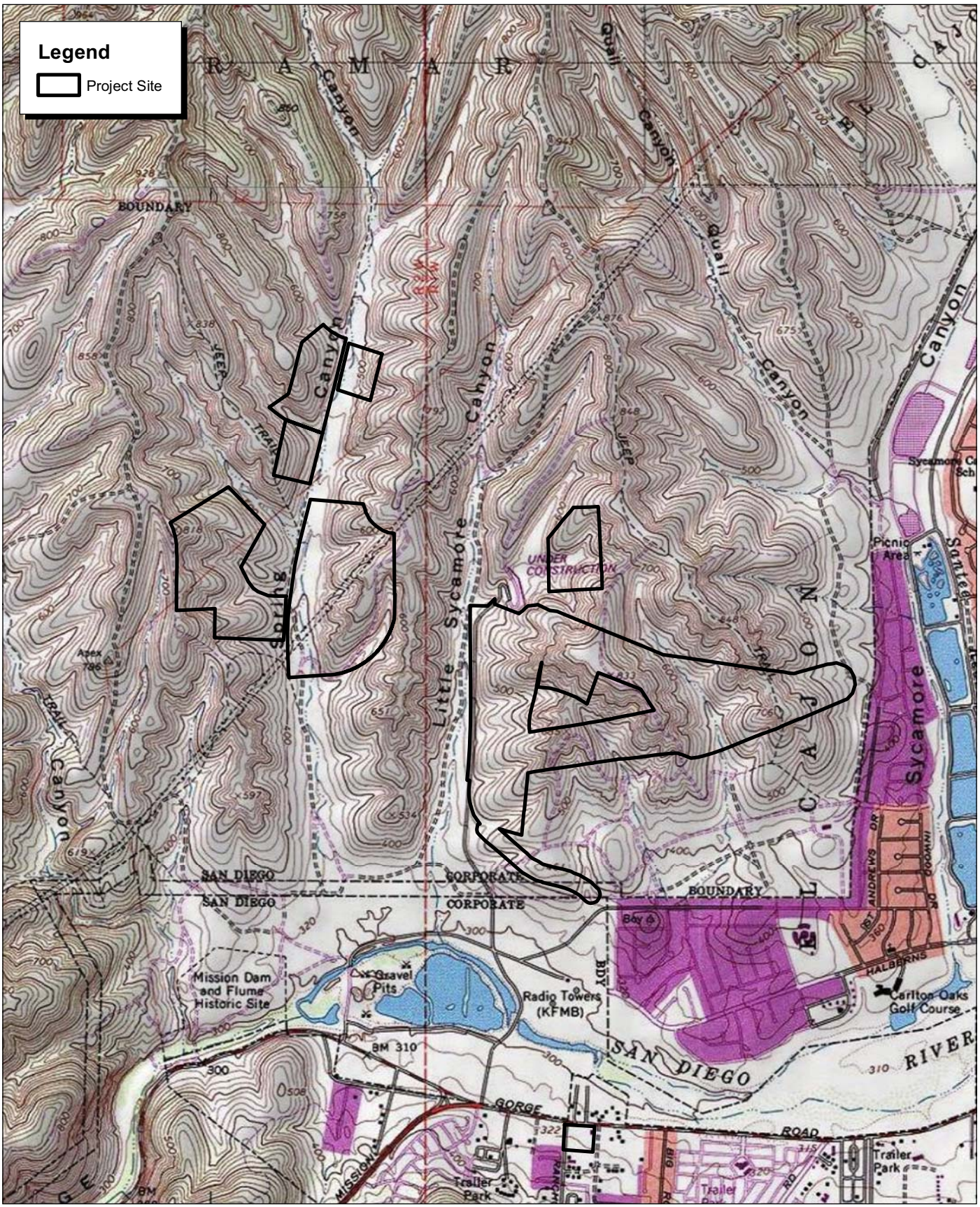
NORTH

5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

17510009 • 04/2012 | 1_regional.mxd

TETRA TECH EC, INC. • QUAIL BRUSH PROJECT
QUINO CHECKERSPOT BUTTERFLY PROTOCOL SURVEY REPORT



Source: ESRI USA Topo La Mesa, CA (1994) and Poway, CA (1996) 7.5' DRG.

Exhibit 2
Local Vicinity Map
Topographic Base

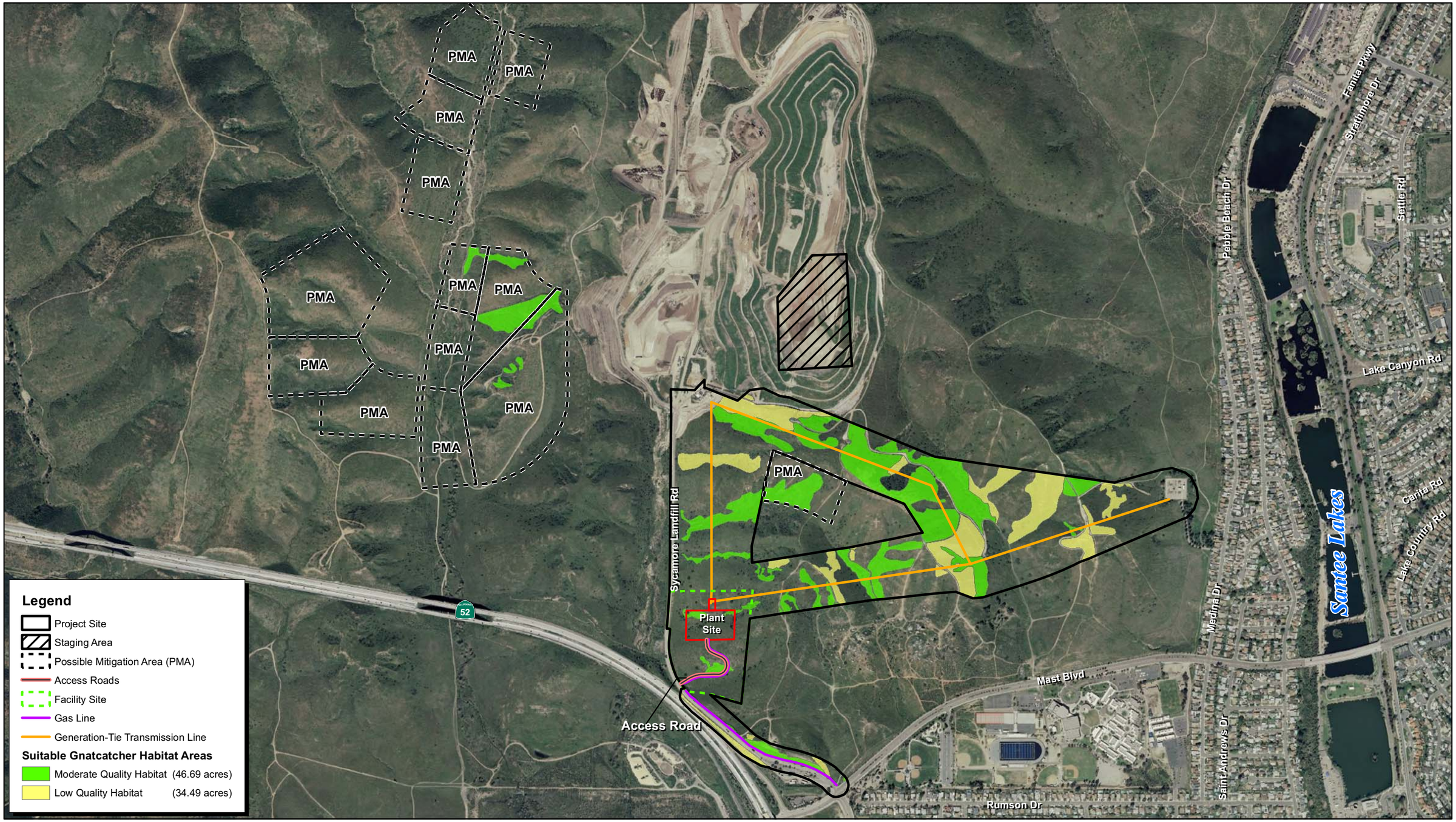
NORTH

2,000 1,000 0 2,000
Feet

Michael Brandman Associates

17510009 • 04/2012 | 2_local_topo.mxd

TETRA TECH EC, INC. • QUAIL BRUSH PROJECT
QUINO CHECKERSPOT BUTTERFLY PROTOCOL SURVEY REPORT



Source: ESRI Aerial Imagery. CNDDB Data, April 2012. MBA Field Survey and GIS Data, 2012.

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

17510009 • 05/2012 | 3_QCB_habitat_survey_location.mxd

Exhibit 3
Suitable Quino Checkerspot Butterfly Habitat
Survey Area Locations

SECTION 3: TARGET SPECIES BIOLOGY

3.1 - Quino Checkerspot Butterfly

The Quino checkerspot butterfly (*Euphydryas editha quino*) was listed as an endangered species on January 16, 1997 (62 FR 2313), and is protected under the provisions of the ESA of 1973, as amended. Quino checkerspot butterfly is listed as endangered by the federal government.

Adults usually fly from late-February to mid-April, during which time they mate and lay eggs. The eggs hatch about a week and a half later and the larvae begin feeding. The larvae may use either dwarf plantain (*Plantago erecta*) or exserted Indian paintbrush (*Castilleja exserta* spp. *exerta*; also called purple owl's clover), both of which may be common in meadows and upland sage scrub/chaparral habitat. These plants are annuals, which die back in the summer, and the larvae thus have a period of summer diapause during which they do not feed. In the late winter and early spring, as the plants appear again, the larvae commence feeding again and then enter a short pupal phase. Because of their dependence on annual host-plants that dry up and senesce, pre-diapause larvae are the stage most susceptible to mortality. It is vital that newly hatched larvae locate a host-plant rapidly.

Adult Quino checkerspot butterfly nectar primarily on annuals (their flight period is too early in the season for most perennials to be in bloom) including goldfields (*Lasthenia* sp.), cryptantha (*Cryptantha* sp.), gilia (*Gilia* sp.), linanthus (*Linanthus* sp.), and trefoil (*Lotus* sp.).

The current known distribution of Quino checkerspot butterfly is in the coastal plains and inland valleys in portions of Riverside and San Diego counties and northwestern Baja California. The species' historic range includes areas of southern California and Baja California, and portions of San Diego, Orange, Los Angeles, and western Riverside counties. This species is threatened by one or more of the following factors: habitat loss and fragmentation due to urban development, over collection and other human disturbances, drought, fire, or other weather extremes, and by the displacement of the primary larval food plant by non-native grasses and other weedy annuals.

The Quino checkerspot butterfly exists in low elevation (sea level to 3,000 feet) open grasslands and sunny openings within shrubland habitats, and is usually associated with clay soils or deposits of cryptogamic soils. The cryptogamic soils develop a hard crust, which is occupied by low growing herbaceous annuals including the Quino larvae's primary food plant, dwarf plantain and the larvae's additional food plant, owl's clover. The Quino checkerspot is found only in areas where are there are fairly dense stands of one or both of the larvae's food plants.

Adult Quino checkerspot butterflies live from 4 to 8 weeks and are in flight from approximately late January to mid-May. Courtship behavior consists of male butterflies hill-topping on open or sparsely vegetated rounded hilltops, ridgelines, and rocky outcrops. Adults sun themselves at the base of hills and have been observed flying through areas of unsuitable habitat, most likely dispersing to sites with

the food plants. After mating, adults lay eggs, which hatch in about 10 days. The larvae feed on the food plants for about two weeks, at which time the food plants senesce and dry up. Larvae then locate cracks in the soil or other concealed areas where they diapause and remain dormant during the dry season until the next winter. After the food plants germinate following fall or winter rains, the larvae pupate into adults. The larvae may remain dormant for one or more seasons, which is dependent how quickly rain facilitates the sprouting of food plant seeds. In approximately a two-week period, the adults emerge, feed, disperse, reproduce, and then die.

SECTION 4: METHODOLOGY

4.1 - Literature Review

Prior to conducting protocol surveys, a literature review was conducted to obtain background information and resources pertinent to the survey effort. The literature review began with a thorough review of aerial imagery of the proposed project site and vicinity, as well as the topographic electronic and hard copies of the La Mesa, California USGS 7.5-minute topographic quadrangle map. Mapping sources used for the effort also included online interactive mapping tools provided by Google Earth.

Data on previous observations of the target species that have been recorded in the vicinity of the project site was compiled from the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB), a sensitive species and plant community account database. MBA conducted a query of the CNDDB records based on a 10-mile radius surrounding the project site that included the Del Mar, El Cajon, Jamul Mountains, La Jolla, La Mesa, National City, Point Loma, Poway, and San Vicente Reservoir, California USGS 7.5-minute topographic quadrangle maps. The CNDDB Geographical Information Systems (GIS) database was also used, together with ArcGIS software, to confirm and map the locations of all sensitive species recorded by the CNDDB.

The literature review also included research of existing data and documents pertaining to the target species, including federal register listings, protocol survey guidelines, and species data provided by the USFWS and CDFG. Other documents reviewed for the effort include material prepared for the Biological Resources Survey Report for the Quail Brush Project (MBA 2011). This and other references are provided in Section 9, References.

4.2 - Protocol Survey

Protocol breeding season surveys for the Quino checkerspot butterfly were conducted by Scott Crawford under USFWS Section 10(a)(1)(A) permit number TE-019947-4. Methods employed were in conformance with the Quino Checkerspot Butterfly Survey Protocol Information, issued by the USFWS in February 2002. A minimum of 5 surveys are required at least one week apart, during the entire flight season, between 0900 hours and 1400 hours, within all Quino checkerspot butterfly protocol survey area (survey area) in that portion of the project site containing suitable coastal sage scrub habitat, as discussed in Section 5, Biological Survey Area.

The biologist slowly traversed the biological survey area, stopping at approximately 100-foot intervals scanning for Quino checkerspot butterfly and possible host plant and nectar sources. Surveys were not conducted during poor weather conditions.

SECTION 5: BIOLOGICAL SURVEY AREA

5.1 - Quino Checkerspot Butterfly Survey Area

Quino checkerspot butterfly is known to frequent gentle sloping hillsides adjacent to high-quality coastal sage scrub. The Quino checkerspot butterfly survey area is generally located on south-facing slopes within coastal sage scrub habitat (Exhibit 3). The Quino checkerspot butterfly survey area was determined based on the presence of important habitat suitability elements for the Quino checkerspot butterfly, most importantly, the presence of suitable coastal sage scrub habitat within the vicinity of known populations of Quino checkerspot butterfly. Other factors considered in establishing the survey area included areas where slopes are less than 40 percent, the vegetative canopy and terrain are open, and there is adjacency to non-sage scrub habitats that may provide space for the dispersal, foraging, and nesting requirements of the species.

5.1.1 - Topography

The Quino checkerspot butterfly survey area occurs on a gently sloping hillside adjacent to an existing access road at approximately 400 to 550 feet above mean sea level. The project site is located within Little Sycamore Canyon and Spring Canyon. The Mission Trails Park is located to the southwest of the proposed project site. The surrounding land to the north, east, and west consists of rolling hills containing non-native grasslands and scattered scrub habitat. A residential community is located to the southeast of the project site.

5.1.2 - Disturbance

Direct disturbances to the proposed project site include constant truck traffic on Landfill Road accessing Sycamore Landfill and the aggregate mine. Additionally, recent brush fires (2007) have greatly disturbed vegetation growth within the coastal sage scrub plant areas, which vary in quality. Indirect disturbances to the proposed project site are limited to those pertaining to nighttime lighting and noise as a result of the adjacent landfill.

5.1.3 - Vegetation Communities/Habitat Types

The plant site, is located within a previously burned area east of Landfill Road. The majority of the plant site contains a dense stand of non-native grasslands with three patches of remnant coastal sage scrub habitat. The most common plant species observed is deer weed (*Lotus scoparius*). Isolated individual plants scattered within the patch of deer weed include California buckwheat (*Eriogonum fasciculatum*), wild cucumber (*Marah macrocarpus*), and white sage (*Salvia apiana*).

The gentie corridor is largely undeveloped with only a few dirt access roads associated with the existing transmission line ROW. The gentie corridor also contains a dense stand of non-native grasslands with isolated patches of coastal sage scrub/non-native grassland mix and chamise chaparral.

A description of the suitable coastal sage scrub community that defines the Quino checkerspot butterfly survey area is provided below, and includes a discussion of the vegetative constituents and overall structure of the coastal sage scrub within the biological survey area, and a statement of the overall quality and general resource value of the habitat for the Quino checkerspot butterfly.

Coastal Sage Scrub

Coastal sage scrub habitat contains a sparse to dense arrangement of low-growing, drought-deciduous and evergreen shrubs, typically occupying steep and gentle slopes below 3,000 feet in elevation, and ranging throughout southern California and south into Baja California. This community is typically located on sites with low moisture availability, such as steep, xeric slopes or clay-rich soils that release stored moisture slowly. It intergrades at higher elevations and more mesic sites with chaparral communities and with Riversidean sage scrub in drier inland areas. This community is dominated by drought-deciduous, low-growing native shrubs averaging two to three feet in height, and is characterized by an herbaceous understory typically consisting of non-native grasses and forbs.

Dominant species observed within the coastal sage scrub include deer weed, California buckwheat, black sage, and chamise (*Adenostoma fasciculatum*). A few native species comprised the understory such as chia (*Salvia columbariae*) and popcorn flower (*Cryptantha* sp.).

Overall, Quino checkerspot butterfly habitat quality within the project survey area is considered low. The shrub density and canopy cover is low; however, the Quino checkerspot butterfly survey area is located within the vicinity of occupied Quino checkerspot butterfly habitat. The recorded occurrence (observed September 2002) is located within a previously disturbed area within Sycamore Landfill. It is highly likely that this species is no longer present, due to recent habitat disturbance in that area. There is no longer coastal sage scrub along the slopes previously identified as occupied habitat. This area was not affected by the 2007 fire.

SECTION 6: PROTOCOL SURVEY RESULTS

6.1 - Target Species Presence/Absence Determination

No Quino checkerspot butterfly were observed or otherwise detected during any of the five protocol surveys. Quino checkerspot butterfly are not likely to establish a breeding territory or take residence within any portion of the project site or in the Quino checkerspot butterfly survey area due to the lack of a sufficient patch of host plant to support a population of Quino checkerspot butterfly. In addition, MBA contacted biologists in the area that also completed Quino checkerspot butterfly surveys near the Mission Trails Park. These surveys were also negative (personal communication, April Farmer 2012) (Farmer, pers. comm.). Table 1 below provides a summary of the protocol survey results.

Table 1: Quino Checkerspot Butterfly Protocol Survey Results

Survey	Surveyor	Date	Time		Temperature (°F)	Cloud Cover (%)	Wind Speed Average (MPH)	Quino Checkerspot Butterfly Observed/ Detected
			Begin	End				
1	S. Crawford	2/23/12	900	1100	72	0	0-2	No
2	S. Crawford	3/1/12	920	1120	65	0	0-2	No
3	S. Crawford	3/8/12	1000	1200	68	0	5-10	No
4	S. Crawford	3/22/12	1230	1530	69	0	0-2	No
5	S. Crawford	4/5/12	1100	1400	73	65	2-3	No

The location of the coastal sage scrub within the proposed project site and current reported distribution of the Quino checkerspot butterfly contribute to possible explanations as to why this species was not observed or otherwise detected during breeding season surveys. The locations of the coastal sage scrub present within the proposed project site surveyed for Quino checkerspot butterfly are located on south-facing slopes and surrounded by dense stands of non-native grasslands. Furthermore, the existing habitat is mostly dense stands of deer weed with isolated patches of buckwheat and few other coastal sage scrub species. Quino checkerspot butterfly prefer sage scrub-dominated habitat. Due to the disturbed nature of the coastal sage scrub within the project site and the lack of adjacent higher quality coastal sage scrub, it is highly unlikely that the coastal sage scrub on site would support a population of Quino checkerspot butterfly.

6.2 - Additional Butterfly Species

Butterfly activity during protocol surveys was relatively high with a wide range of butterfly species observed or otherwise detected throughout the course of the surveys. Common butterfly species observed during surveys include species commonly found in grasslands, coastal sage scrub, and disturbed habitats; these included: Behr's metalmark (*Apodemia mormo virgulti*), southern blue

(*Glaucopsyche lygdamus australis*), pygmy blue (*Brephidium exilis*), green hairstreak (*Callophyrys affinis perplexa*), anise swallowtail (*Papilio zeicaon zelicaon*), and Gabb's checkerspot (*Melitaea gabbii gabbii*). A complete list of butterfly species observed during the protocol surveys is provided in Appendix A, Fauna Compendia. The above-mentioned butterfly species were observed in abundance on site, numbering in the hundreds. This indicates that weather conditions for similar species, including Gabb's checkerspot butterfly, were sufficient to support numerous butterfly species.

SECTION 7: CONCLUSIONS AND RECOMMENDATIONS

Quino checkerspot butterfly protocol surveys have been completed for the proposed Quail Brush Generation Project in accordance with the USFWS presence/absence survey protocol and pursuant to the federal ESA. No Quino checkerspot butterfly were observed or otherwise detected during the surveys between February 23, 2012 and April 5, 2012. The Quino checkerspot butterfly is currently presumed to be absent from the proposed project site, and no further action with regard to this species is warranted at this time.

SECTION 8: CERTIFICATION

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

Date: June 1, 2012 Signed: _____

Scott Crawford, Section Manager
Michael Brandman Associates
Permit Number TE-019477-4

SECTION 9: REFERENCES

California Department of Fish and Game (CDFG). 2011. Endangered and Threatened Animals List. The Resources Agency of California, Department of Fish and Game, Natural Heritage Division, Natural Diversity Database. Sacramento, California.

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Appendix A: Fauna Compendium

Fauna Compendium

Papilionidae		**Swallowtail Butterflies**
Papilio	*rutulus*	western tiger swallowtail
Papilio	*zelicaon*	anise swallowtail
Pieridae		**Whites, Sulphurs, and Orangetips**
Pieris	*rapae*	cabbage white
Lycaenidae		**Blues and Hairstreaks**
Glaucopsyche	*lygdamus australis*	southern blue
Icaricia	*acmon*	acmon blue
Brephidium	*exilis*	pygmy blue
Callophrys	*perplexa dumetorum*	perplexing hairstreak
Nymphalidae		**Brush-Footed Butterflies**
Charidryas	*gabbii*	Gabb's checkerspot
Precis	*coenia*	buckeye butterfly
Vanessa	*cardui*	painted lady
Hesperiidae		**Skippers**
Erynnis	*funeralis*	funereal dusky wing
Pyrgus	*communis*	checkered skipper
Riodinidae		**Metalmarks**
Apodemia	*mormo virgulti*	Behr's metalmark

Appendix B:
Biologist Resume

Scott Crawford
Senior Project Manager

Education
M.A., Biological Science, California State University, Fullerton 1997

B.A., Environmental Biology, California State University, Northridge 1995

Professional Registrations
Collection Permit: 801034-03 Exp. 1/3/14

Flat-Tailed Horned Lizard Certification 6/2001

Wetland Training Institute: Wetland Delineation Training: 12/1998

Desert Tortoise Council Workshop 10/1999

Desert Tortoise Egg Handling/ Artificial Burrow Construction 10/1999

Project Management Boot Camp 1 – PSMJ Resources, Inc. 3/2004

Managing Multiple Project Objectives and Deadlines, Skill Path 1/2006

Registered Wildlife Biologist – San Diego County- 3/2006

LAX Security Clearance/Driving Clearance – 2001

FEDERAL PERMIT # TE019947-04, California gnatcatcher, Quino Checkerspot Butterfly, Listed Fairy Shrimp

Experience Summary

Since 1994 Mr. Crawford has obtained experience conducting herpetological, mammalian and avian surveys in Southern California. He is experienced in conducting jurisdictional delineation surveys and sensitive plant surveys. Mr. Crawford has a federal permit to conduct surveys for the California Gnatcatcher, Quino Checkerspot Butterfly and listed fairy shrimp species. He also possesses extensive experience in conducting surveys for other sensitive wildlife species including El Segundo Blue Butterfly, Red-Legged Frog, Arroyo Toad, Western Spadefoot, Desert Tortoise, Western Pond Turtle, Least Bell's Vireo, and Burrowing Owl. Mr. Crawford is well-seasoned in GIS (Geographic Information Systems) and vegetation mapping. In addition to his years of fieldwork, Mr. Crawford is experienced in preparing biological sections for General Plans, Specific Plans and EIRs. He participated in third-party reviews for both cities and counties. Along with preparing and reviewing written documents, Mr. Crawford is a practiced technical expert for public hearings including City Council Meetings, Planning Commission meetings and County Board of Supervisors. Mr. Crawford currently assists in the management of the natural resource team at MBA for southern California.

Recent Project Experience

Sensitive Species Surveys

California Gnatcatcher Surveys, Via Escola Lattice Tower, Orange County. Conducted protocol surveys for California gnatcatcher prior to installation of a proposed cellular communication facility. The surveys were conducted on a 5-acre patch of coastal sage scrub within the vicinity of an existing water tank facility. No California gnatcatchers were observed. 2010

California Gnatcatcher Surveys, Serrano Lattice Tower, Orange County. Conducted protocol surveys for California gnatcatcher prior to installation of a proposed cellular communication facility. The surveys were conducted on a 5-acre patch of coastal sage scrub within the vicinity of an existing water tank facility. A single male California gnatcatchers were observed. 2010

Informal Consultation with Resource Agencies for several well locations, King/Kern County. Conducted informal consultation with USFWS, CDFG, BLM, and DOGGR with regard to appropriate mitigation measures for potential impacts to threatened and/or endangered species protected under the Endangered Species Act. Coordinated Blunt-nosed leopard lizard surveys to determine presence/absence prior to grading activities.

Avian Surveys for a Wind Energy Project in Pine Canyon, LADWP, Kern County. Conducted avian point count surveys for a proposed wind energy project for LADWP. As part of the avian surveys, we also mapped existing vegetation and conducted bat surveys for a better understanding the biological resources present within the area. The surveys were conducted with the use of LADWP Helicopters. Approximately 40 hours of helicopter time was logged throughout the surveys.

California Gnatcatcher Surveys, Ronald Regan Library, Ventura County. Conducted protocol surveys for California gnatcatcher prior to installation of a proposed cellular communication facility. The surveys were conducted on a 5-acre patch of coastal sage scrub within the vicinity of an existing water tank facility. No California gnatcatchers were observed. 2009

Western Spadefoot Capture and Relocation Study- Conducted a pre-construction survey for western spadefoot in the summer by artificially flooding existing ponded areas. Pit fall traps and silt fence were installed to assist in capturing western spadefoots. A single western spadefoot was captured and relocated. 2009

California Gnatcatcher Surveys, Canyon Heights Restoration Area, Riverside County. Conducted protocol surveys for California gnatcatcher as part of the on-going monitoring for a conservation area. The surveys were conducted on a 5-acre patch of coastal sage scrub within the conservation area. A single pair of California gnatcatchers was observed. 2009

California Gnatcatcher Surveys, Cricket Cellular Communication, City of Escondido. Conducted protocol surveys for California gnatcatcher. The surveys were conducted on a 10-acre transmission line hilltop that contained suitable coastal sage scrub habitat. No gnatcatchers were observed during the survey. 2009

Arroyo Toad Study for the Rio Santiago Property in the City of Orange. Conducted a protocol survey for arroyo toad within the 110-acre proposed senior living complex in the City of Orange. The information was used to prepare an EIR. 2008

Wildlife Movement Corridor Study, Los Angeles and Orange Counties. Conducted a year-long study of wildlife movement within the Tonner Canyon property in the Los Angeles and Orange Counties. Surveys included spot counts for birds, scent stations for tracks, and photo stations for active wildlife movement photographs. The survey was conducted for a 5-day period once a month for an entire year. 2007 to 2008.

Riverside Fairy Shrimp Protocol Survey, Rancho Diamante, Riverside County. Conducted protocol wet season surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on previous agricultural lands. Common fairy shrimp were observed. 2008

Riverside Fairy Shrimp Protocol Survey, Quail Lake, Riverside County. Conducted protocol wet season surveys for the federally endangered Riverside Fairy Shrimp. The ponded areas did not pond long enough to be considered suitable habitat. No fairy shrimp were observed during the survey. 2008

Riverside Fairy Shrimp Protocol Survey, Oliver Cagle, Riverside County. Conducted protocol wet season surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on an old stock pond. No fairy shrimp were observed. 2007

Riverside Fairy Shrimp Protocol Survey, Classic Pacific, City of Beaumont. Conducted protocol dry season surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on two natural occurring ponded areas. Branchinecta cysts were observed. 2007

Riverside Fairy Shrimp Protocol Survey, Classic Pacific, City of Beaumont. Conducted protocol wet season surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on two natural occurring ponded areas. Common versatile fairy shrimp were observed. 2006

Riverside Fairy Shrimp Protocol Survey, Granite Homes, Riverside County. Conducted protocol dry season surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on an old stock pond. Branchinecta and Streptocephalus cysts were observed. 2005

Riverside Fairy Shrimp Protocol Survey, Courdures LLC, City of Perris. Conducted protocol dry season surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on a single large ponded area. Branchinecta cysts were observed. 2005

Riverside Fairy Shrimp Protocol Survey, County of Orange. Conducted protocol surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on two natural occurring and one man-made vernal pool as part of a mitigation site for the Antonio Parkway extension. 2004

Riverside Fairy Shrimp Protocol Survey, Greenpark Runkle Canyon LLC. Conducted protocol surveys for the federally endangered Riverside Fairy Shrimp. The surveys were conducted on one natural occurring vernal pool and two man-made vernal pools in order to determine presence/absence. The common *Branchinecta lindahli* was the only species of fairy shrimp observed in the sampling. 2003

Riverside Fairy Shrimp Habitat Assessment, Enviro-recycling, City of Hemet. Conducted a habitat assessment for Riverside Fairy Shrimp. The ponded area onsite was created by continual off-road vehicle use on an existing dirt access road. The ponded area did not support any fairy shrimp species. 2003

El Segundo Blue Butterfly (ESB) Protocol Surveys, Los Angeles World Airport. Conducted block-count surveys for the endangered ESB. These surveys were conducted to determine the status of the existing ESB population in the dune system west of the airport. Thousands of butterflies were identified during the survey. 2001

Quino Checkerspot Butterfly Habitat Assessment and Protocol Surveys, Armada LLC. Conducted a habitat assessment for a proposed residential development just south of the City of Corona along Cajalco Road. Suitable habitat was observed and focused surveys were conducted. No butterflies were observed during the surveys. 2006

Quino Checkerspot Butterfly Habitat Assessment and Protocol Surveys, Century Crowell Communities. Assisted with conducting habitat assessment and protocol surveys for a project site in the Gavilan Plateau area. Suitable habitat was observed and focused surveys were conducted. No butterflies were observed during the surveys. 2003

Quino Checkerspot Butterfly Surveys, Winchester Area. Assisted in conducting the first protocol survey for two parcels in the Winchester area for the Quino Checkerspot Butterfly. 2002

Habitat Assessment for Quino Checkerspot Butterfly, City of Yucaipa. Conducted preliminary habitat assessment for the Quino checkerspot butterfly. Suitable Quino habitat was observed on the 450-acre site during the second day of surveys, therefore adult surveys were recommended. 2000

Quino Checkerspot Butterfly Protocol Surveys (QCB), Century Crowell Communities, Riverside County. Conducted protocol surveys for the endangered QCB. The surveys were conducted in the Gavilan Plateau area that was once known to contain a large population of QCB. 2000

Habitat Assessment for Quino Checkerspot Butterfly, City of Ontario. Conducted preliminary habitat assessment for the Quino checkerspot butterfly. The survey was conducted on a total of four parcels of land that encompassed approximately one thousand acres. The habitat consisted of active cow pastures and agricultural land. It was determine that no suitable Quino checkerspot butterfly habitat occurred within either of the four project sites. 1999

Arroyo Toad Surveys, Rio Santiago, Orange County, California. Conducted protocol surveys for arroyo toad at the Rio Santiago project site in the City of Orange. The surveys were conducted within Santiago Creek. No arroyo toads were observed on site. 2008

O'Neal Park Arroyo Toad Focused Surveys, County of Orange. Conducted focused surveys for Arroyo Toad for a proposed sewer line within the campground portion of O'Neal Park. 2006

Arroyo Toad Surveys, Los Angeles County Department of Public Works. Assisted in surveying for Arroyo Toad in the Big Tujunga wash as part of a habitat comparison study for potential mitigation measures for impacts associated with the sluicing of Morris and San Gabriel Dams along the San Gabriel River Channel. No arroyo toads were observed. 1997

Runkle Canyon Property Western Spade-foot Toad Focused Survey, California Greenpark Group, LLC. Conducted a focused survey for the presence of western spade-foot toad. The survey was conducted at all suitable ponded areas located on the property. Western spade-foot tadpoles and adults were identified during the survey. 2005

Saddleback Meadows Western Spade Foot Toad Focused Survey, Irvine. Conducted a focused survey for the presence of western spade-foot toad. The survey was conducted within suitable ephemeral ponds located on the Saddleback Meadows property in Irvine. The survey was used to update a previous study on spade-foot occurrences within the project site. Western spade-foot toad tadpoles were observed at the site. Vocalizations were heard at four of the ponds. 1997

Southwestern Pond Turtle Trapping, City of Laguna Hills. Assisted in trapping southwestern pond turtles in the Aliso Creek Channel, a tributary to Aliso Creek. A total of thirty nine turtles were captured, measured, and relocated further downstream in the Aliso Creek system. Also assisted in surveying for hatchling turtles in the upland portion of the study site and construction monitoring near the edge of the undrained pond. Assisted in surveying the drained pond for juvenile pond turtles. 1998

Southwestern Pond Turtle Trapping, Los Angeles County Department of Public Works. Assisted in trapping southwestern pond turtles at Sawpit Dam. Due to the rough terrain of the site, traps were set using a boat to get to the remote portions of the reservoir. No pond turtles were observed during the trapping session. 1997

Southwestern Pond Turtle Habitat Assessment, Los Angeles Department of Public Works. Assisted in habitat assessment for the southwestern pond turtle in five locations within the upper west fork and east fork of the San Gabriel River system. The surveys consisted of walking the stream course and evaluating suitable aquatic habitat as well suitable refugia and basking sites. 1997

Southwestern Pond Turtle Trapping/Telemetry, Los Angeles County Department of Public Works. Assisted in trapping southwestern pond turtles in the San Gabriel water shed prior to the sluicing of Morris Dam. A total of twelve turtles were captured, processed, fitted with a radio telemetry transmitter, and relocated in the upper west fork of the San Gabriel River. Turtles were then monitored bi-monthly for movement and recaptured to determine health and status of each individual. 1997

Desert Tortoise Surveys, Garlock Mine, Kern County, California. Conducted a desert tortoise protocol survey on a large mining operation outside of the City of Johannesburg, California. Two desert tortoises were observed within the project site and two were observed in the Zone of Influence area. 2008

Focused Surveys for Desert Tortoise, WZI Engineering. Conducted a focused survey for desert tortoise for the proposed expansion of Ridgecrest Road in the northern portion of the City of Ridgecrest. No desert tortoise or desert tortoise sign was observed during the survey. 2003

Desert Tortoise Protocol Survey, Cellular Site, City of Mojave. Conducted a zone of influence survey to determine possible impacts to desert tortoise populations with regard to the development of a cellular-phone utility pole site near the city of Mojave. No tortoises or sign of tortoises were observed during the survey. 1997

Desert Tortoise Protocol Survey, Cellular Site, Antelope Valley. A zone of influence survey was conducted to determine possible impacts to desert tortoise populations with regard to the development of a cellular-phone utility pole site in Antelope Valley. No tortoises or sign of tortoises were observed during the survey. 1998

Flat-tailed Horned Lizard Focused Surveys, County of Riverside, **City of Desert Hot Springs.** Conducted focused surveys for the presence/absence of flat-tailed horned lizards within all suitable habitat associated with the County of Riverside project in the City of Desert Hot Springs. No horned lizards were observed during the surveys. 2007

Flat-tailed Horned Lizard Focused Surveys, Agua Caliente Band of Cahuilla Indians, **Coachella Valley.** Conducted focused surveys for the presence/absence of flat-tailed horned lizards within all suitable habitat associated with the Indian Reservation lands. A single horned lizard was observed during the surveys. 2000

Flat-tailed Horned Lizards Focused Survey, Country Club Estates. Assisted Marie Barrett in conducting a focused scat survey for the flat-tailed horned lizard in desert scrub habitat. It was determined that the project site contained limited suitable habitat and this species was determined to be absent from the project site. 1998

Two-stripe Garter Snake Surveys, Los Angeles County Department of Public Works. Assisted in surveying for the two-stripe garter snake in the San Gabriel water shed prior to the sluicing of Morris Dam. Los Angeles Department of Public Works. Surveys were conducted by walking along the banks of the stream course and surveying in suitable garter snake habitat. 1997

Focused Burrowing Owl Survey, Granite Equities, French Valley Property. A focused survey was conducted on a 30-acre project site. Two pairs of burrowing owl were observed onsite and an additional two were observed off-site. 2006

Agua Bella Property Burrowing Owl Focused Survey, Highland Fairview Properties, Riverside County. Conducted focused surveys for burrowing owl within a proposed residential development. No burrowing owls were observed during the survey. 2006

Bel Lago Property Burrowing Owl Focused Survey, Highland Fairview Properties, Riverside County. Conducted focused surveys for burrowing owl within a proposed residential development. A single pair of burrowing owls was observed during the survey. 2006

Romoland South Site Burrowing Owl Focused Survey, Classic Pacific, Riverside County. Conducted focused surveys for burrowing owl within a proposed residential development. No burrowing owls were observed during the survey. 2006

Romoland North Site Burrowing Owl Focused Survey, Classic Pacific, Riverside County. Conducted focused surveys for burrowing owl within a proposed residential development. No burrowing owls were observed during the survey. 2006

Burrowing Owl Focused Survey, Spring Mountain Ranch, Riverside County. Conducted focused surveys for burrowing owl within a proposed residential development. No burrowing owls were observed during the survey. 2006

Millwood Property California Gnatcatcher Focused Survey, Cingular, Orange County. Conducted focused surveys for California gnatcatcher within a proposed cellular communication facility in the City of Lake Forest. Two pairs of gnatcatchers were observed during the survey. 2005

Laguna Canyon California Gnatcatcher Focused Survey, AT&T, Orange County. Conducted focused surveys for California gnatcatcher within a proposed cellular communication facility west of State Highway 133. Two pairs of gnatcatchers were observed during the survey. 2005

California Gnatcatcher Surveys, Van Daele Development, Menifee Area. Conducted protocol surveys in the Menifee area. The surveys were conducted on a 60-acre parcel of land that contained suitable coastal sage scrub habitat. Three pairs of gnatcatchers were observed during the survey. 2005

California Gnatcatcher Surveys, Community of Three-Arch-Bay. Conducted protocol surveys for California gnatcatcher. The surveys were conducted on a 5-acre parcel of land that contained suitable coastal sage scrub habitat. The proposed project includes the expansion of an existing detention basin. No gnatcatchers were observed during the survey. 2005

California Gnatcatcher Focused Surveys, Citrus Valley Health Partners, City of Diamond Bar. Conducted a focused survey for California Gnatcatchers for a proposed commercial development. Suitable habitat was observed and focused surveys were conducted. No Gnatcatchers were observed during the surveys. 2005

California Gnatcatcher Focused Surveys, Armada LLC. Conducted a focused survey for California Gnatcatchers for a proposed residential development just south of the City of Corona along Cajalco Road. Suitable habitat was observed and focused surveys were conducted. A single pair of Gnatcatchers was observed during the surveys. 2005

California Gnatcatcher Focused Survey, Lewis Homes, City of Fontana. Conducted focused California gnatcatcher surveys on a 700-acre parcel proposed for residential development in the northeastern portion of the City of Fontana. No California gnatcatchers were observed during the survey. 2005

California Gnatcatcher Protocol Surveys, Nuevo Development, City of Nuevo. Conducted protocol surveys for the California gnatcatcher. No coastal California gnatcatchers were observed during the surveys. 2005

California Gnatcatcher Surveys, Sprint, City of Camarillo. Conducted protocol surveys for California gnatcatcher. The surveys were conducted on a 10-acre site adjacent to an orchard that contained suitable coastal sage scrub habitat. No gnatcatchers were observed during the survey. 2004

California Gnatcatcher Surveys, Cingular, City of Glendale. Conducted protocol surveys for California gnatcatcher. The surveys were conducted on a 10-acre water tank site that contained suitable coastal sage scrub habitat. No gnatcatchers were observed during the survey. 2004

Laguna Canyon California Gnatcatcher Focused Survey, Cingular, Orange County. Conducted focused surveys for California gnatcatcher within a proposed cellular communication facility west of State Highway 133. Two pairs of gnatcatchers were observed during the survey. 2004

California Gnatcatcher Protocol Surveys, Quest Diagnostics, Orange County. Conducted protocol surveys for the California gnatcatcher. A single coastal California gnatcatcher was observed during the surveys.2003

East Highland Ranch Property California Gnatcatcher Focused Surveys, Spring Pacific Properties, LLC. Conducted a focused survey for California Gnatcatchers on the property. Suitable habitat was observed and focused surveys were conducted. No Gnatcatchers was observed during the surveys. 2003

Tonner Canyon California Gnatcatcher Focused Survey, Sprint PCS. Conducted focused surveys for California gnatcatcher within a proposed cellular communication facility along the southern portion of Tonner Canyon. No gnatcatchers were observed during the survey. 2003

La Tuna Canyon California Gnatcatcher Focused Survey, Cingular, Los Angeles County. Conducted focused surveys for California gnatcatcher within a proposed cellular communication facility north of State Highway 210, Los Angeles County. No gnatcatchers were observed during the survey. 2003

California Gnatcatcher Surveys, City of Anaheim. Conducted protocol surveys in the Anaheim Hills area. The surveys were conducted on a 100-acre parcel of land that contained suitable coastal sage scrub habitat. One pair of gnatcatchers was observed during the survey. 2002

California Gnatcatcher Surveys, Nuevo Development. Conducted protocol surveys in the unincorporated community of Nuevo. The surveys were conducted on a 250-acre parcel of land that contained suitable coastal sage scrub habitat. No gnatcatchers were observed during the survey. 2002

California Gnatcatcher Focused Surveys, Rose Hills Cemetery. Conducted a focused survey for California Gnatcatchers on a proposed construction footprint required to repair a landslide within the Cemetery Property. Suitable habitat was observed and focused surveys were conducted. No Gnatcatchers was observed during the surveys. 2002

California Gnatcatcher Focused Survey, County of Orange. Conducted focused surveys for California gnatcatcher within a proposed bridge expansion project site for the widening of an Antonio Parkway bridge. No gnatcatchers were observed during the survey. 2002

California Gnatcatcher Focused Survey, City of Beaumont. Assisted in conducting a survey to determine the presence and location of any individual or pair of gnatcatchers within a 536-acre parcel. No gnatcatchers were identified during the survey. 2000

California Gnatcatcher Protocol Surveys, Urban Environs, Community of East Highlands. Conducted protocol surveys for the California gnatcatcher. No coastal California gnatcatchers were observed during the surveys. Blue-Gray gnatcatchers were observed within the project site. 2000

California Gnatcatcher Focused Survey, Orange County. Assisted in conducting a focused survey to determine the presence and location of any individual or pair of gnatcatchers within a 595-acre parcel located in Cypress Canyon. Four pairs of gnatcatchers were identified during the survey. 1997

Least Bell's Vireo Surveys, Armada LLC. Conducted a focused survey for Least Bell's Vireo for a proposed residential development just south of the City of Corona along Cajalco Road. Suitable habitat was observed and focused surveys were conducted. No Least Bell's Vireo were observed during the surveys. 2006

Nesting Bird Survey, Brandywine Development, City of Orange. Conducted a nesting bird survey to determine if construction activity would affect any active bird nests protected under the migratory bird treaty act. A total of three active nests were observed during the survey. 2001

Palm Springs Pocket Mouse Trapping, Country Club Estates. Conducted a 5 days trapping effort for the Palm Springs pocket mouse.. A total of 1,035 trap-nights were set and checked. No Palm Springs Pocket Mouse individuals were captured during the trapping effort. The site contained marginal and mostly unsuitable habitat for this species. 1998

Pacific Pocket Mouse Focused Surveys, Transportation Corridor Authority. Assisted in trapping for pacific pocket mouse along the north side of Camp Pendleton in known pacific pocket mouse habitat. The trapping effort consisted of approximately 6,900 trap-nights. A total of 8 individuals were trapped, processed, and released during the three weeks of trapping. 1997

San Bernardino Kangaroo Rat, Calmat, City of Etiwanda. Conducted a preliminary habitat survey for occurrence of suitable habitat on site for the San Bernardino kangaroo rat. The 80-acre project site was determined to have marginal habitat for this species, and the focused trapping effort was stopped during the second night due to lack of significant trap success. It was determined that the species was not present onsite. 1998

Santa Ana River Channel Bat Species Focused Survey, City of Santa Ana. Conducted focused surveys for bat species within four proposed bridge expansion projects within the Santa Ana River Channel. No bats were observed during the survey. 2004

Nevin's Barberry Focused Survey, Spring Brook Estates, Riverside County. Conducted focused surveys for Nevin's barberry within a 5-acre survey area. The area was part of a much larger 200-acre proposed residential development. No sensitive plants were observed during the survey. 2006

Nevin's Barberry and Vail Lake Ceanothus Focused Survey, Realty Trust, Riverside County. Conducted focused surveys for Nevin's barberry and Vail Lake Ceanothus. No sensitive plants were observed during the survey. 2005

Cagney Property Site Sensitive Plants Focused Survey, Pulte Homes. Conducted focused surveys to identify any sensitive plant species within the site. No sensitive plant species were identified during the site visit. 2003

Fagan Property Sensitive Plant Species Focused Survey, Shea Homes, Ventura County. Conducted a focused survey for listed plant species. No sensitive plant species were observed during the survey. 2002

Santa Susana Tarplant (*Hemizonia minthornii*) Focused Plant Survey, Sprint PCS, City of Chatsworth. Conducted a 100% coverage survey for the Santa Susana tarplant. The site was located within an existing water tank facility that has previously mitigated for impacts to the species. The plants were mapped and project redesign was recommended to avoid impacts to the species. 2001

Broad-leaved Crownbeard Focused Plant Survey, Khalda Development, City of Laguna Beach. Conducted a 100% coverage survey for Broad-leaved Crownbeard (Verbesina dissita). Several plants were observed onsite and mapped. The project site was redesigned to avoid all impacts to the plant. 2001

Scale Broom Focused Survey, Lennar Homes. Conducted scale broom surveys to identify and assist in vegetation removal of scale broom, which is known to damage the foundations of new home construction. 400 to 500 plants were observed during the survey and herbicide application and vegetation removal was monitored for six months. 2000

Cowbird Trapping, County of Orange. Conducted cow-bird trapping at 5 separate sites with a total of 20 traps. Cowbird trapping was required as part of the mitigation for impacts to California Gnatcatchers. The standard cow-bird trapping protocol was used including: maintaining a proper number of cowbirds in the traps, routine trap maintenance, providing sufficient seed and water, identifying and count captured species, releasing non-target species, and euthanizing target species. 1997