BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) for a Permit to Construct Electrical Facilities With Voltages Between 50 kV and 200 kV: Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project	Application No. _____

PROPONENT'S ENVIRONMENTAL ASSESSMENT

CIRCLE CITY SUBSTATION AND MIRA LOMA-JEFFERSON 66 kV

SUBTRANSMISSION LINE PROJECT

VOLUME 3 of 6

(Attachment 4.4-C)

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Dated: **December 4, 2015**

ATTACHMENT 4.4-C: BIOLOGICAL TECHNICAL REPORT

Biological Technical Report

Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project, Riverside and San Bernardino Counties, California

Prepared for

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September 2012

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I Jurisdictional Delineation Report
J Construction Guidelines
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1.0 INTRODUCTION

This Biological Technical Report has been prepared to support California Environmental Quality Act (CEQA) documentation for the proposed Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project (hereinafter referred to as the "Proposed Project"). This information has been reported in accordance with accepted scientific and technical standards that are consistent with the requirements of the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG).

1.1 PROJECT DESCRIPTION AND LOCATION

The Proposed Project will construct a new 66/12 kilovolt (kV) distribution substation (i.e., the Circle City Substation) with four 66 kV source line segments, six new 12 kV distribution circuit getaways, and a new 66 kV subtransmission line (Mira Loma-Jefferson); upgrade the existing Mira Loma Substation; and install new fiber optic cable and communication equipment to connect the proposed Circle City Substation to Southern California Edison's (SCE's) existing telecommunication system. The purpose of the Proposed Project is to ensure the availability of safe and reliable electric service to meet customer electrical demand in the Electrical Needs Area.

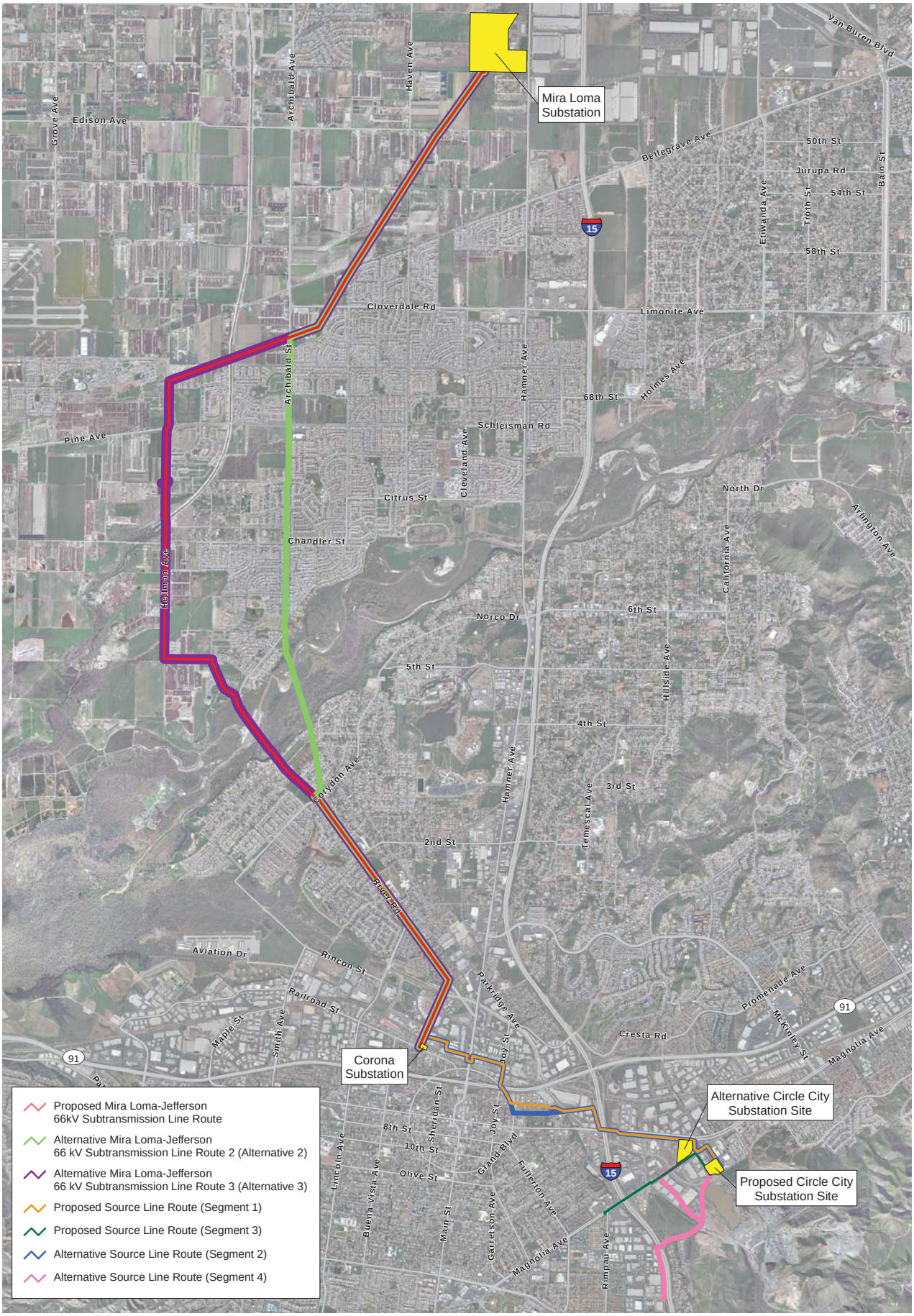
The Proposed Project extends from the City of Ontario in San Bernardino County south through the City of Eastvale, the City of Norco, and the City of Corona in Riverside County; an alternative to the Proposed Project also runs through the City of Chino in San Bernardino County (Figure 1). The Proposed Project primarily runs west of Interstate (I) 15 and north of State Route (SR) 91, with the southern end of the Proposed Project extending south of SR 91 and east of I-15.

It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Figures 2A–2C). Topography in the Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl). Land uses in the immediate Proposed Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project. Soils in the Study Area consist of Arbuckle gravelly loam; Buchenau loam, slightly saline-alkali; Cajalco fine sandy loam; Chino silt loam; Chino silt loam, drained; Chualar clay loam; Cieneba rocky sandy loam; Cortina sandy loam; Cortina gravelly sandy loam; Delhi fine sand; Delhi loamy fine sand; Dello loamy sand, poorly drained; Dello loamy fine sand, gravelly substratum; Domino silt loam; Gravel pits; Garretson gravelly very fine sandy loam; Grangeville loamy fine sand, drained; Grangeville fine sandy loam; Grangeville sandy loam, sandy substratum, drained, saline-alkali; Grangeville fine sandy loam, poorly drained, saline-alakali; Greenfield sandy loam; Hanford coarse sandy loam; Hilmar loamy sand; Hilmar loamy very fine sand; Hilmar loamy fine sand; Metz loamy fine sand, gravelly sand substratum; Pachappa fine sandy loam; Placentia fine sandy loam; Ramona sandy loam; Ramona very fine sandy loam; Riverwash; rough broken land; San Emigdio fine sandy loam; San Emigdio fine sandy loam, deep; San Emigdio loam; Temescal rocky loam; terrace escarpments; and Waukena fine sandy loam, saline-alkali (Figures 3A–3H).

1.1.1 Site-specific Information

The Study Area for the Proposed Project consists of the following:

1) A 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, the proposed Circle City Substation site, and the alternative Circle City Substation site);



Project Overview

Figure 1

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

4,000 2,000 0 4,000 Feet

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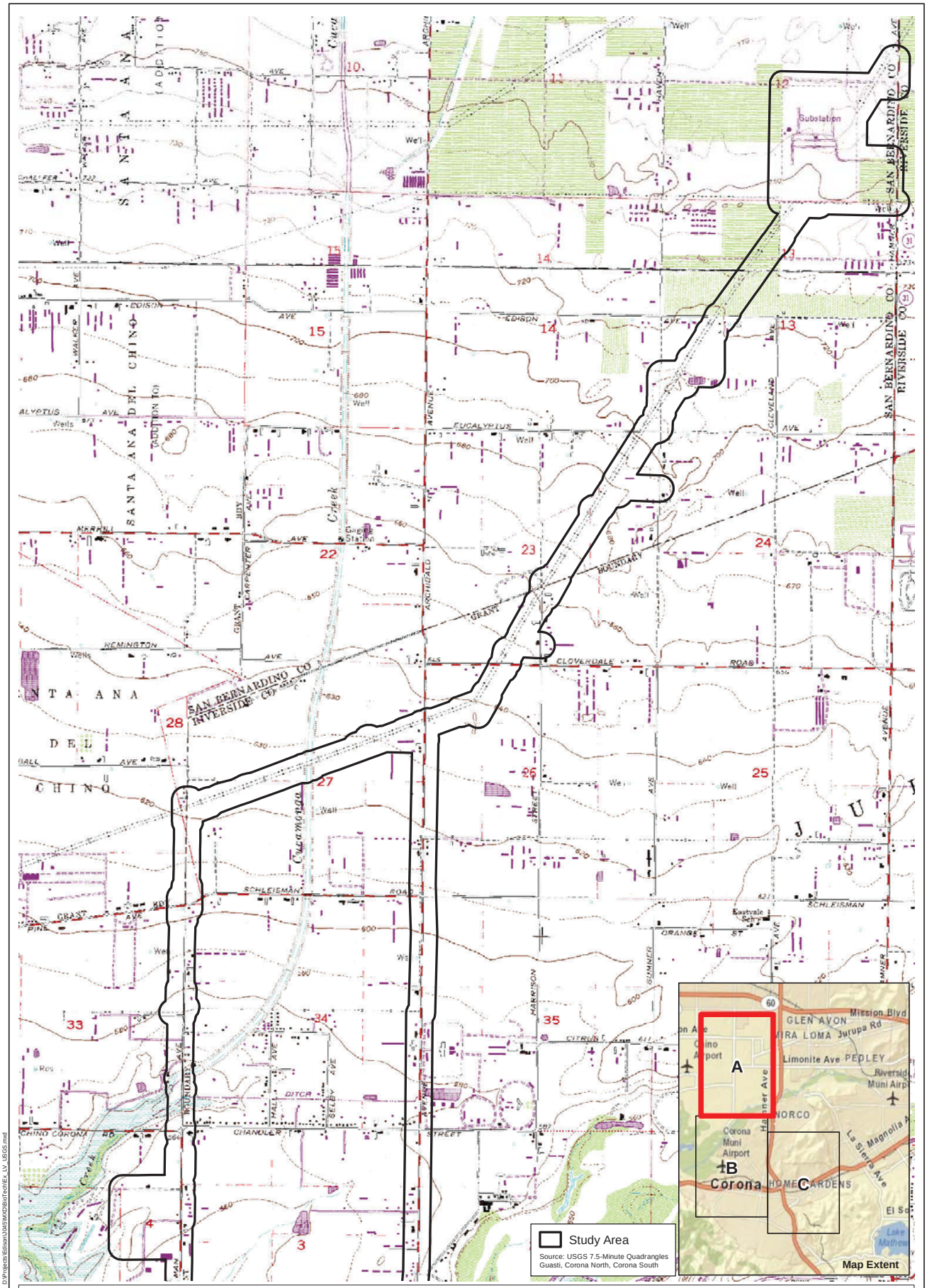

USGS 7.5-Minute Quadrangle

Figure 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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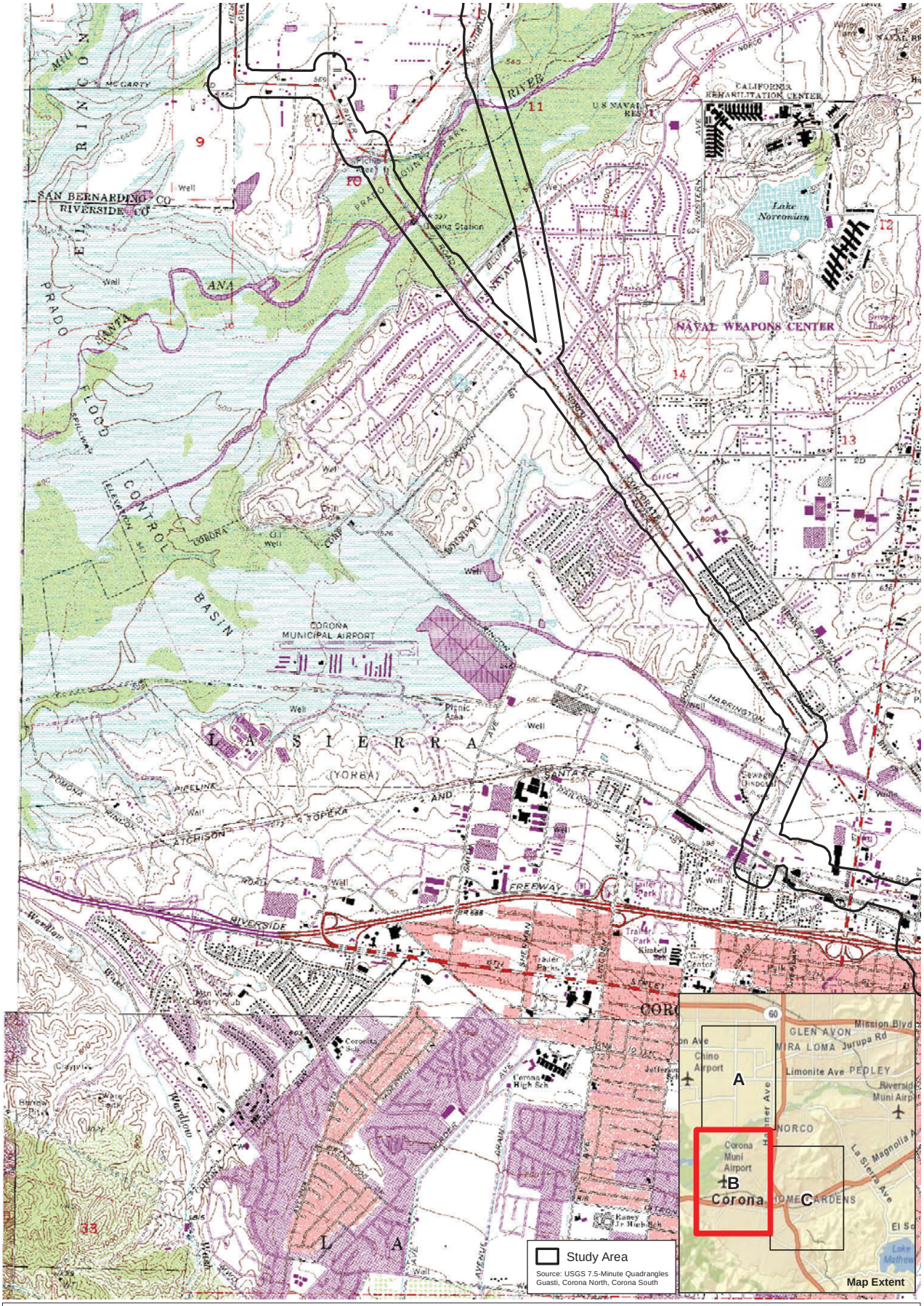

USGS 7.5-Minute Quadrangle

Figure 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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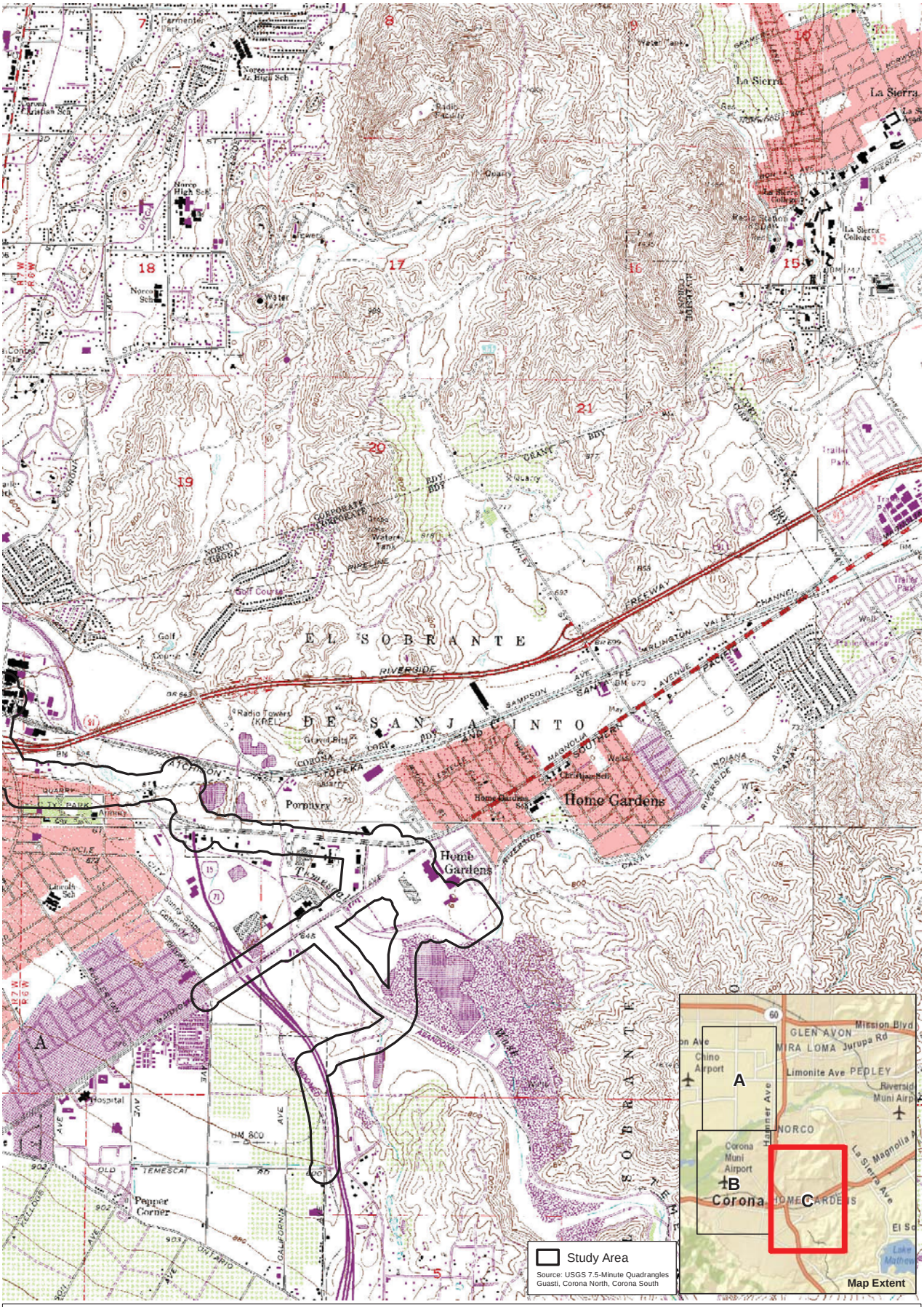

USGS 7.5-Minute Quadrangle

Figure 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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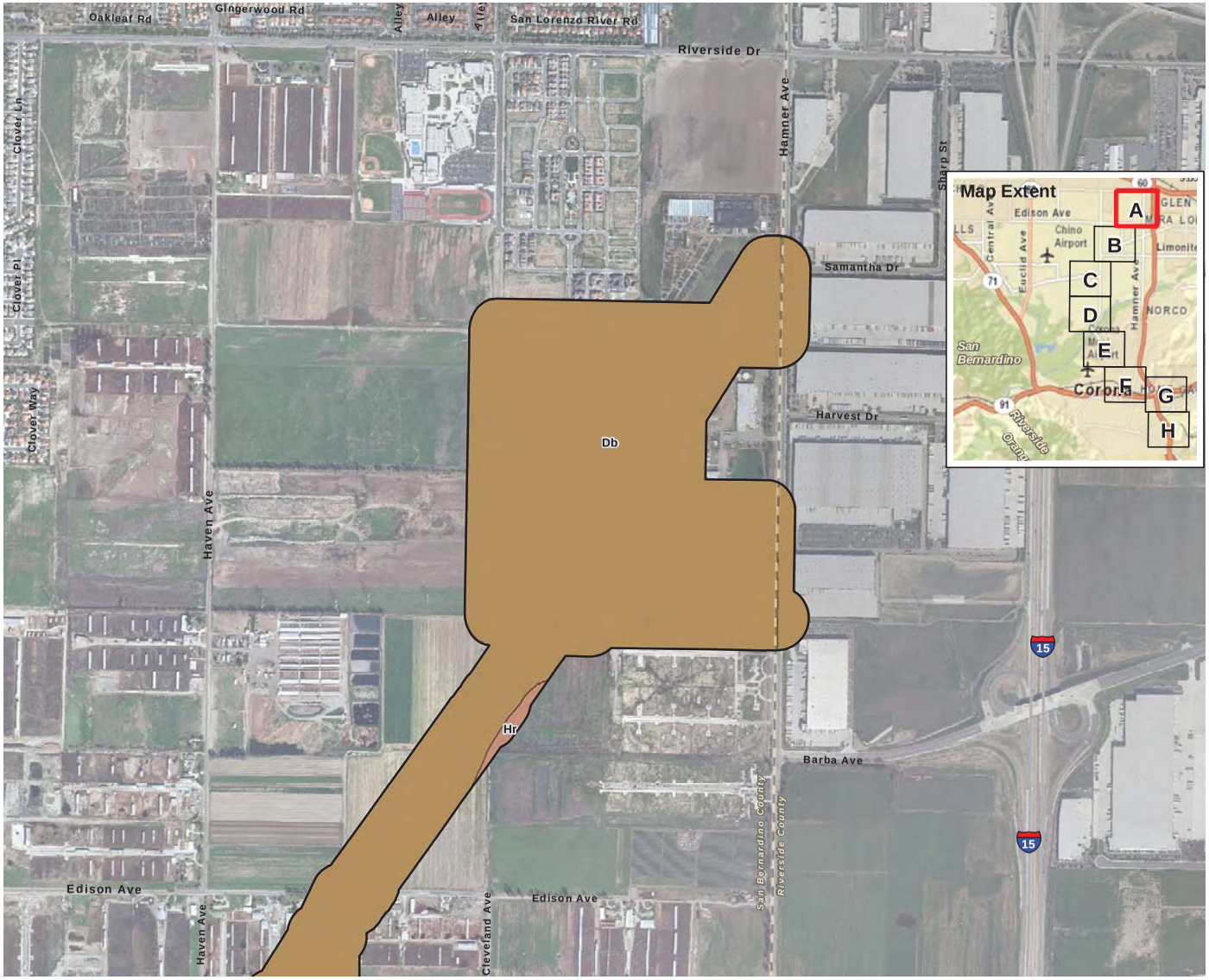

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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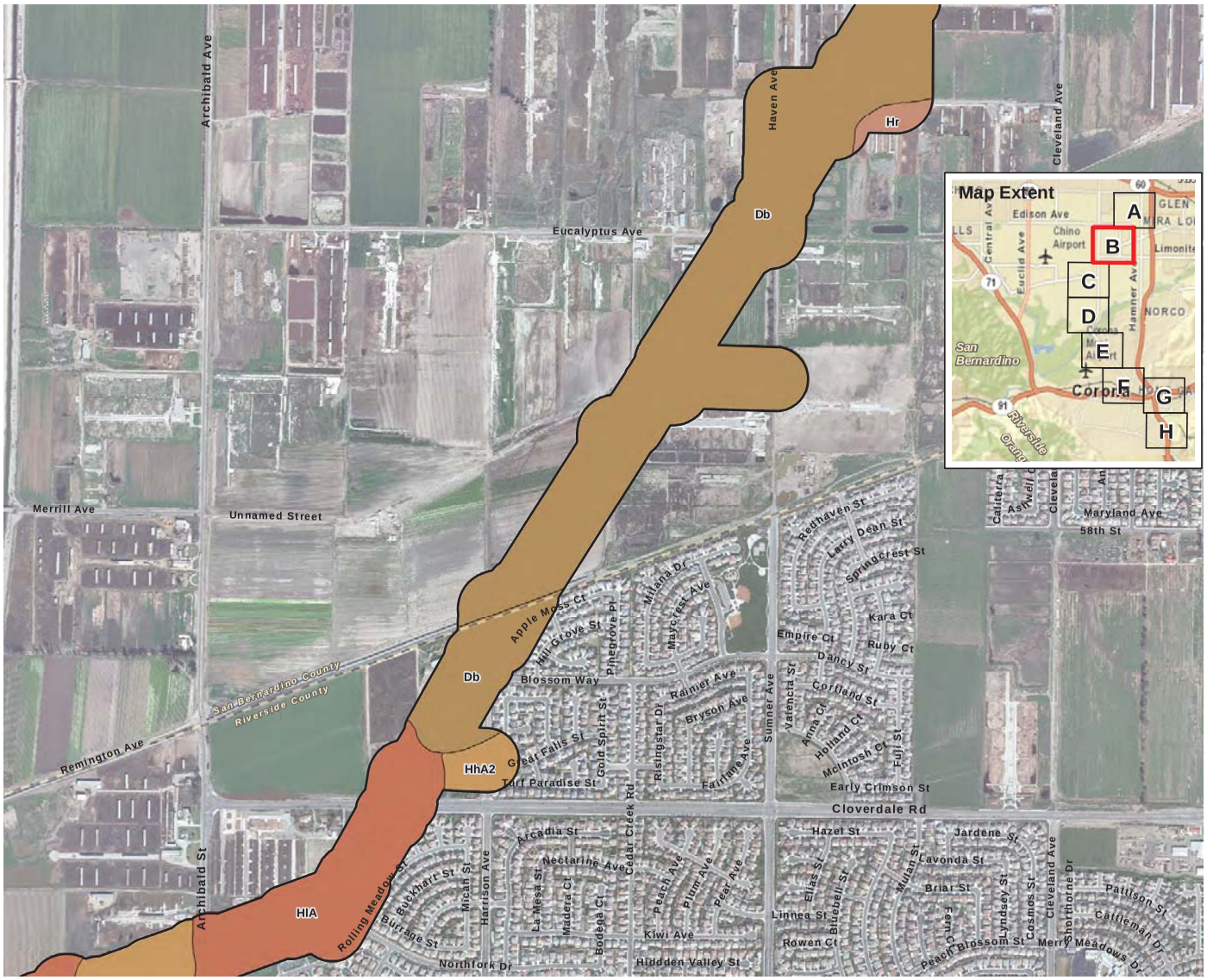

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
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- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
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- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
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- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
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- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3B

N W E S

1,000 500 0 1,000 Feet

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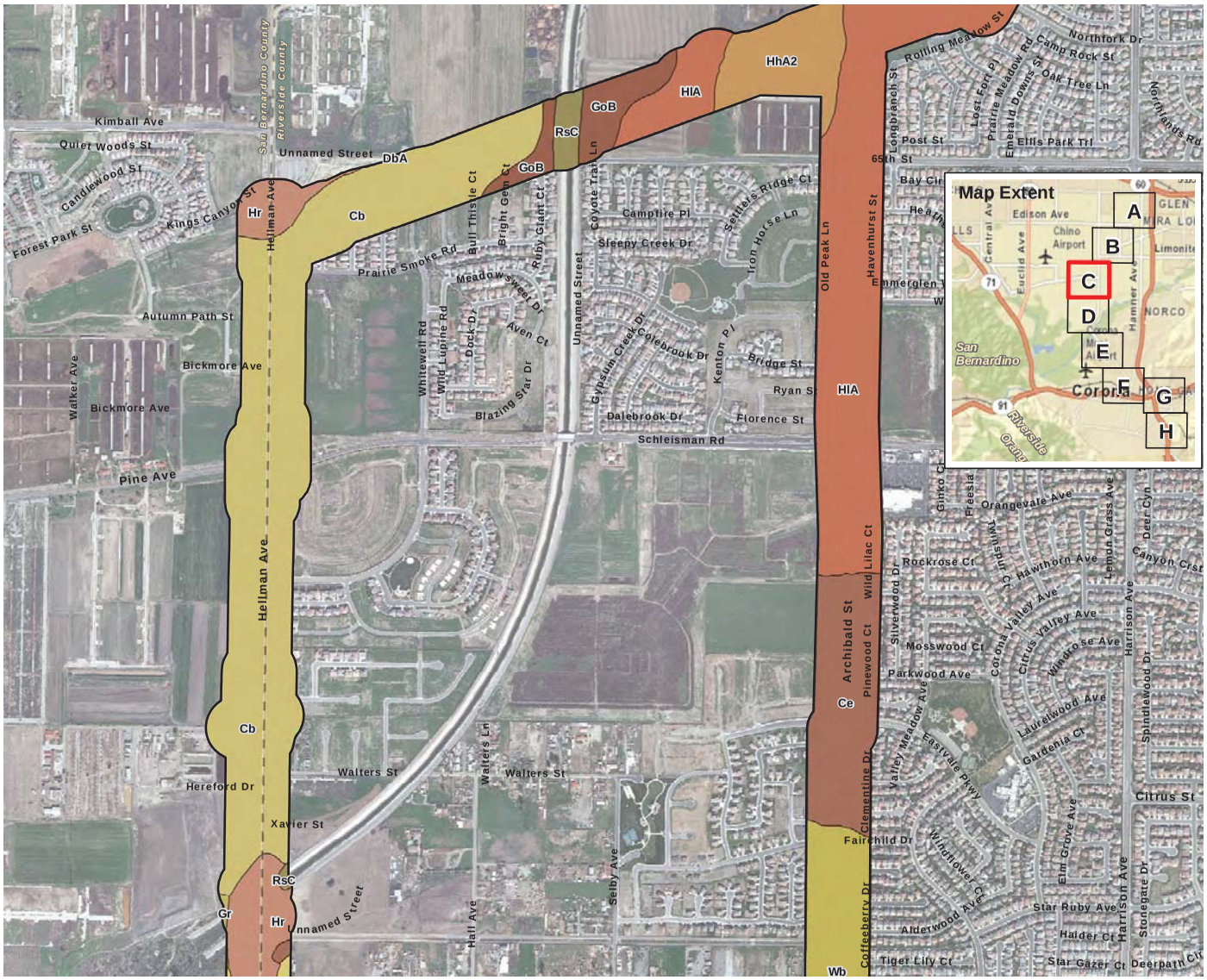

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- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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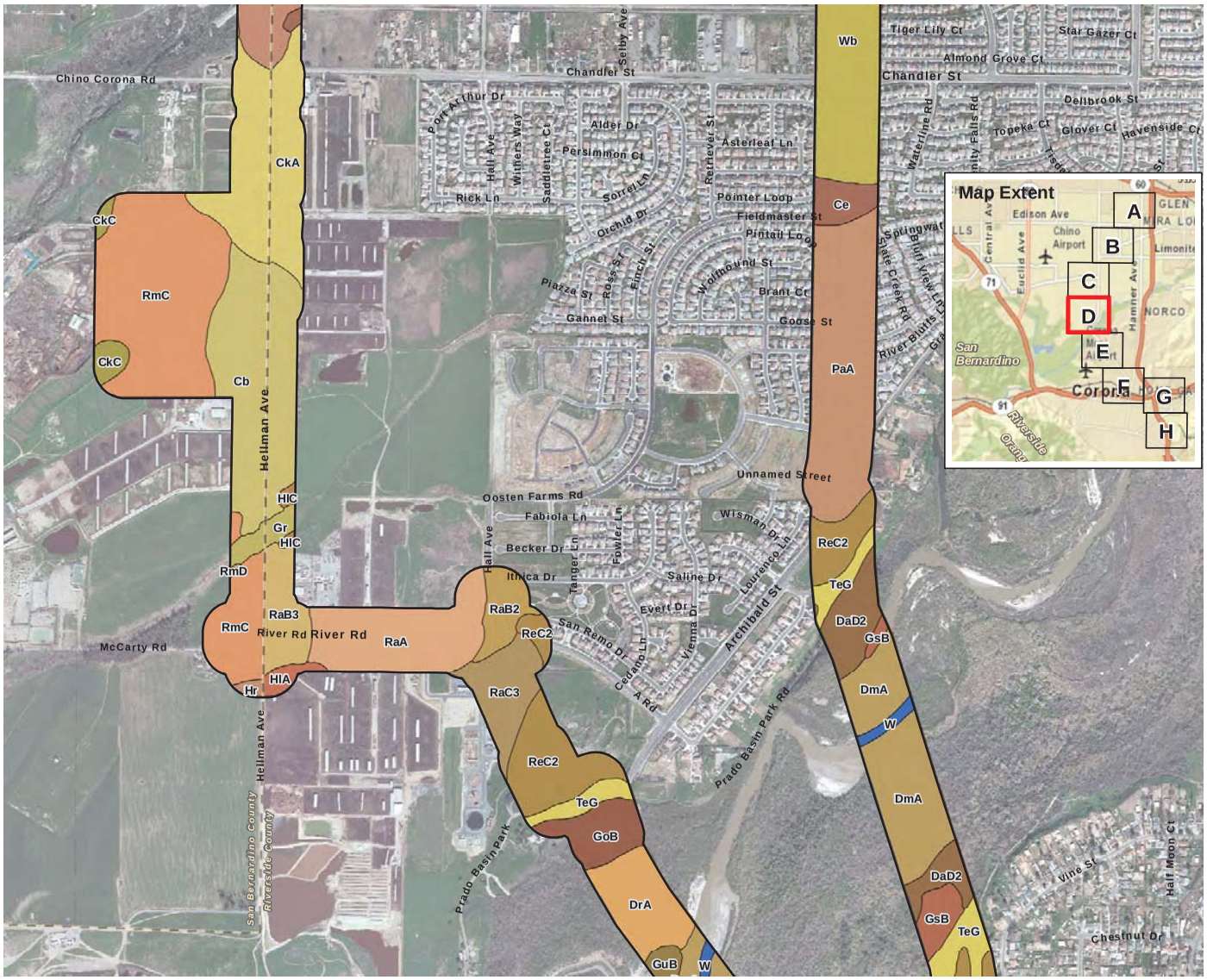

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- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PIB - Placentia fine sandy loam, 0 to 5 percent slopes
- PID - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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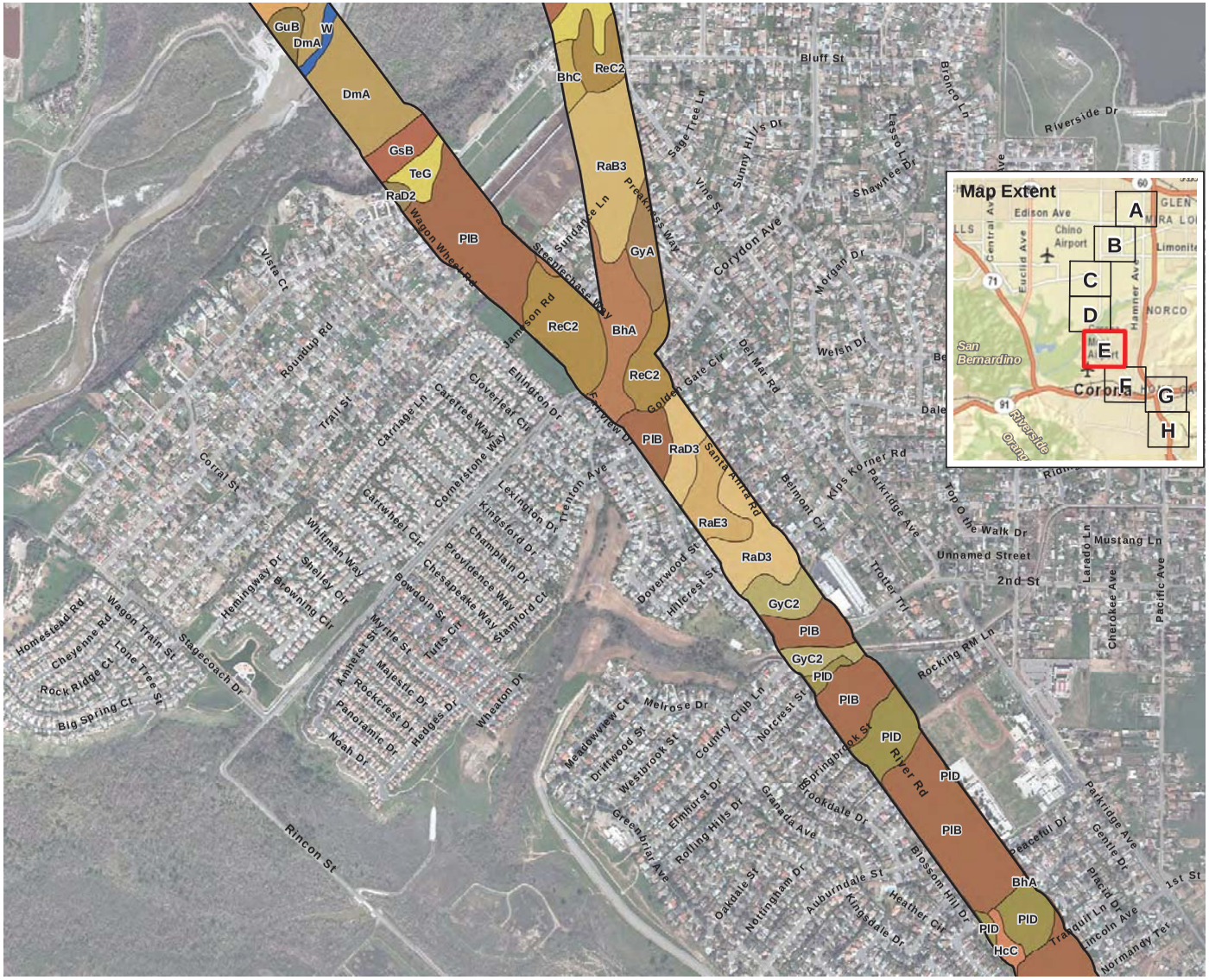

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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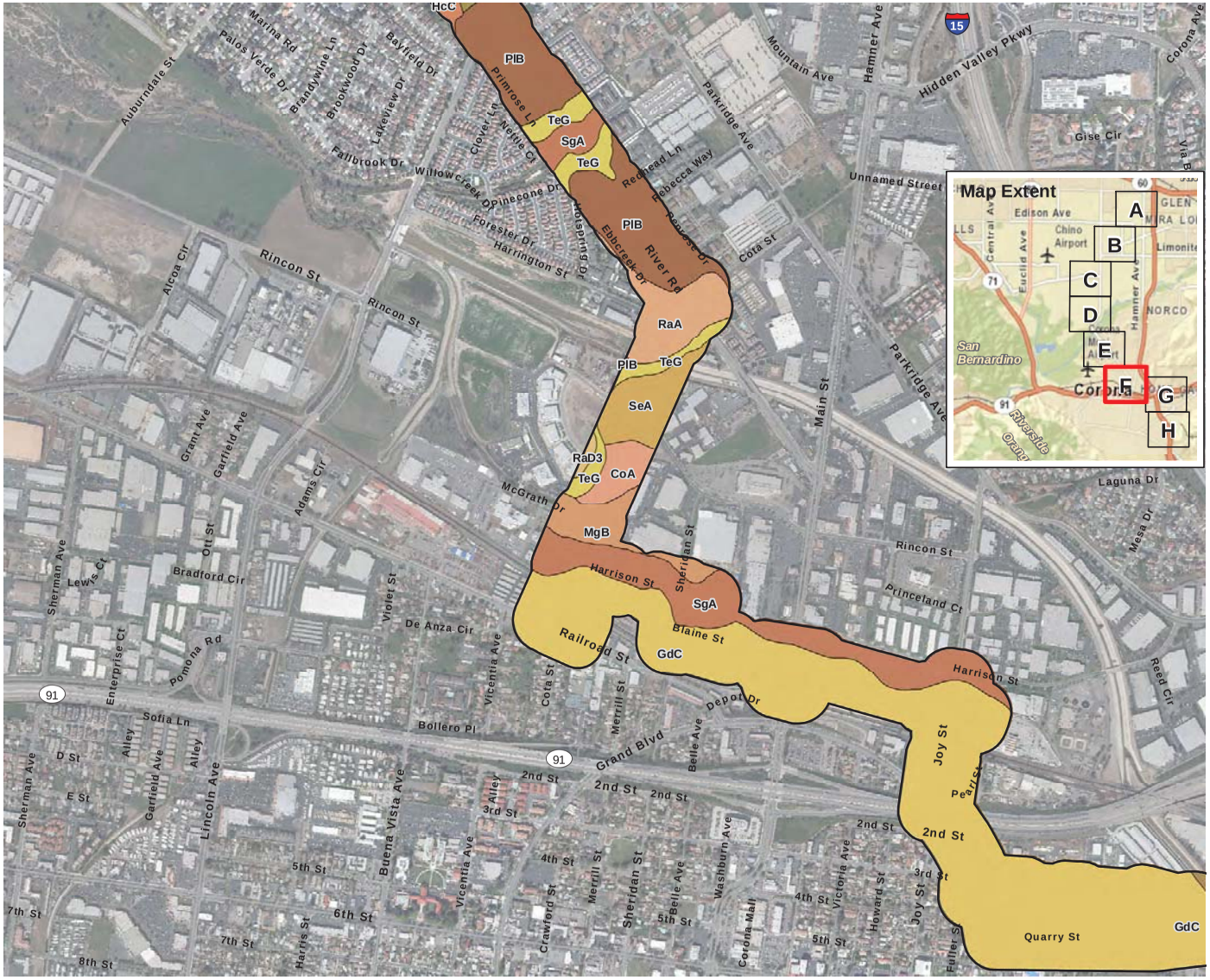

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3F

N W E S

1,000 500 0 1,000 Feet

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Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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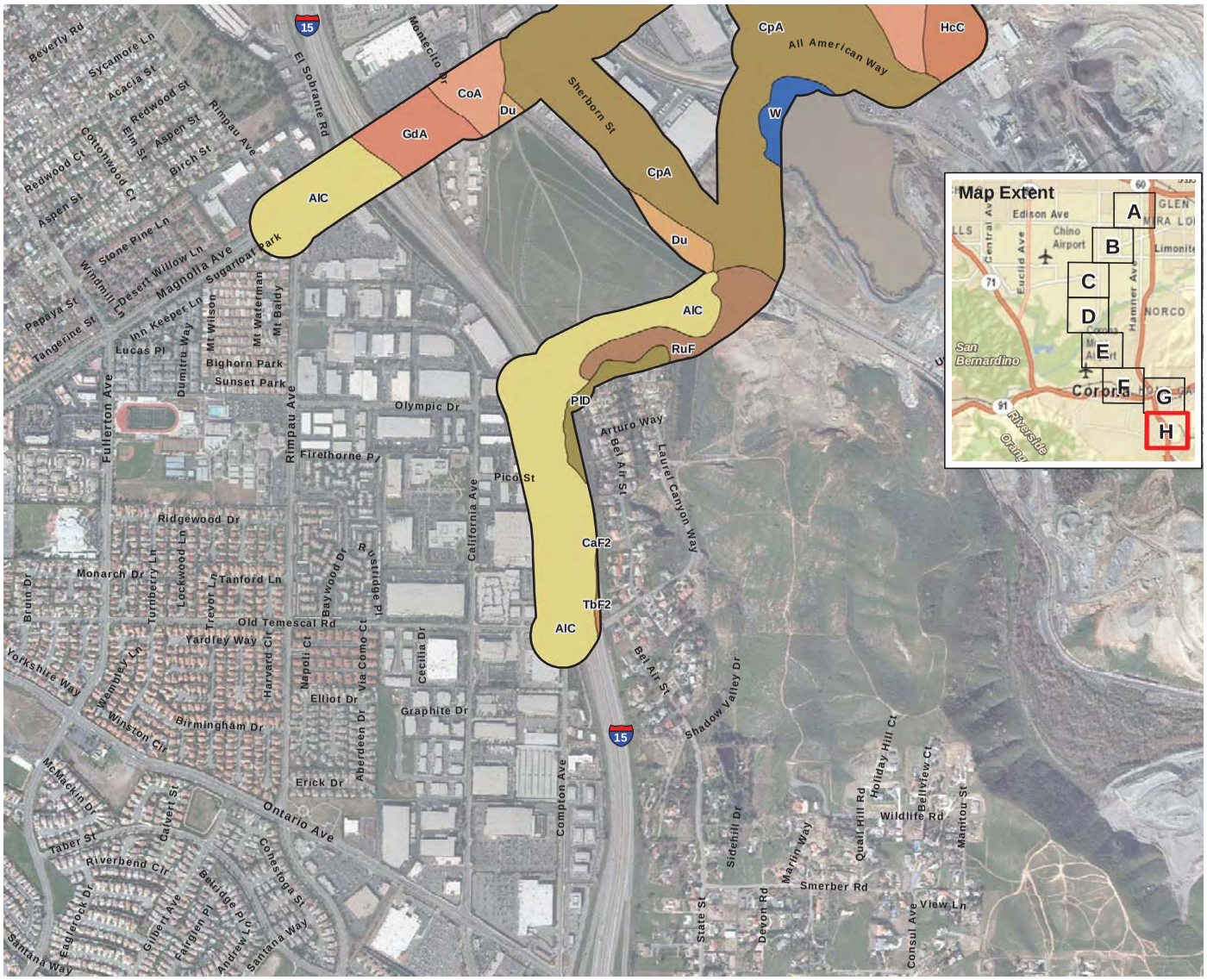

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

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2) A 300-foot buffer on either side of the proposed Mira Loma-Jefferson 66 kV subtransmission line route, the two alternative Mira Loma-Jefferson 66 kV subtransmission line routes (i.e., Alternative 2 and Alternative 3), and the proposed and alternative source line routes; and

3) A 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.

Each portion of the Study Area is discussed below and shown in Figure 1.

Mira Loma Substation

The Mira Loma Substation is located at the northern end of the Study Area in the City of Ontario. The site is adjacent to Hamner Avenue to the east and is located south of Riverside Drive. This is an existing facility.

Corona Substation

The Corona Substation is located between the Mira Loma and Circle City portions of the Study Area in the City of Corona. It is located north of the intersection of Cota Street and Railroad Street. This is an existing facility.

Proposed Circle City Substation Site

The proposed Circle City Substation site is located south of Leeson Lane, northeast of All American Way, and west of Temescal Street in the City of Corona. The substation would be located on an 11.15-acre portion of an approximate 20-acre parcel. Prior to being selected as the preferred alternative in Chapter 2 of the Proponent's Environmental Assessment (PEA), this site was referred to as "Substation Site Alternative A" (SCE 2012).

Alternative Circle City Substation Site

The alternative Circle City Substation site is located south of 6th Street, west and north of Magnolia Avenue, and east of private commercial/industrial buildings in the City of Corona. The substation would be located on approximately 5 acres of a 20-acre parcel. This site is referred to as "Substation Site Alternative B" in Chapter 2 of the PEA (SCE 2012).

Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route

The proposed Mira Loma-Jefferson 66 kV subtransmission line route extends from the Mira Loma Substation west of Hamner Avenue in the City of Ontario south to the Corona Substation in the City of Corona. It follows SCE's existing row in a southwesterly direction to Hellman Avenue, then turns south along Hellman Avenue to River Road. At River Road the route turns east, following the roadway to its intersection with Archibald Avenue and across the Santa Ana River. The route continues southeasterly along River Road to the intersection with North Cota Street. At North Cota Street, the route travels underground in a southerly direction then rises at the existing Mira Loma-Corona-Jefferson 66 kV Subtransmission line near the intersection of Railroad Street and North Cota Street, adjacent to the Corona Substation. It is approximately 10.7 miles long (10.1 miles aboveground and 0.6 mile underground).

Alternative 2

Alternative 2 extends from the Mira Loma Substation west of Hamner Avenue in the City of Ontario south to the Corona Substation in the City of Corona. A portion of this route runs east of the proposed route/Alternative 3 generally along Archibald Avenue. North of 65th Street and again south of Corydon Avenue, Alternative 2 overlaps the proposed Mira Loma-Jefferson 66 kV subtransmission line route. It is approximately 9.3 miles long.

Alternative 3

Alternative 3 extends from the Mira Loma Substation west of Hamner Avenue in the City of Ontario south to the Corona Substation in the City of Corona. It is approximately 10.7 miles long. This route runs parallel to the proposed Mira Loma-Jefferson 66 kV subtransmission line route for its entire length, but travels underground along Hellman Avenue until Schleisman Road.

Proposed Source Line Routes

The proposed source line routes consist of two segments which accommodate (1) the connection between the Circle City Substation and the Mira Loma-Corona-Pedley 66 kV Subtransmission Line and (2) the substation and the Chase-Corona-Databank 66 kV Subtransmission Line. Prior to being selected as the preferred alternative in the PEA, these segments were referred to as “Source Line Segment 1” and “Source Line Segment 3”, respectively (SCE 2012). The proposed source line routes would be approximately 4.61 miles long (3.73 miles aboveground and 0.88 mile underground) to the proposed Circle City Substation site or 3.91 miles long (3.03 miles aboveground and 0.88 mile underground) to the alternative Circle City Substation site.

The first segment extends east along Harrison Street from the intersection with North Cota Street to Sheridan Street; south along Sheridan Street to West Blaine Street; and east along West Blaine Street to the west side of Main Street, where it would extend underground to cross the Main Street overpass. After crossing the Main Street overpass, this segment would rise and extend overhead along West Blaine Street to Joy Street, and south along Joy Street to East Grand Boulevard, at which point the new 66 kV segment would extend underground in a southeasterly direction along East Grand Boulevard to East 3rd Street. It would then rise and extend overhead along East 3rd Street, crossing vacant land in a southeasterly direction until Quarry Street dead-ends on the west side of a flood control channel. This segment would then span the flood control channel and extend east along Quarry Street to El Sobrante Road, then south along El Sobrante Road to East 6th Street. The new segment would then cross over I-15 and extend easterly along East 6th Street to Magnolia Avenue, where it would either (1) enter the alternative Circle City Substation site or (2) turn south along Magnolia Avenue and then east along Leeson Lane to the proposed Circle City Substation site. This segment would be approximately 3.4 miles in length (3.0 miles aboveground and 0.4 mile underground) to the proposed Circle City Substation site, and approximately 2.9 miles long (2.5 miles aboveground and 0.4 mile underground) to the alternative Circle City Substation site.

The second segment extends from the intersection of Magnolia Avenue and Rimpau Avenue easterly along Magnolia Avenue, across I-15 within existing bridge cells, and underground to the eastern side of the Burlington Northern Santa Fe (BNSF) Railway Company right-of-way. Here, it would rise and extend overhead to either (1) the alternative Circle City Substation site or (2) along Magnolia Avenue to Leeson Lane where the segment would enter the proposed Circle City Substation site. This segment would be approximately 1.21 miles in length (0.73 mile aboveground and 0.48 mile underground) to the proposed Circle City Substation site, and

approximately 1.01 miles long (0.53 mile aboveground and 0.48 mile underground) to the alternative Circle City Substation site.

Alternative Source Line Routes

The alternative source line routes consist of two segments which accommodate (1) the connection between the Circle City Substation and the Mira Loma-Corona-Pedley 66 kV Subtransmission Line and (2) the substation and the Chase-Corona-Databank 66 kV Subtransmission Line. In Chapter 2 of the PEA, these segments were referred to as "Source Line Segment 2" and "Source Line Segment 4", respectively (SCE 2012). The alternative source line routes would be approximately 5.0 miles long (3.0 miles aboveground and 2.0 miles underground) to the proposed Circle City Substation site or 4.8 miles long (3.4 miles aboveground and 1.4 miles underground) to the alternative Circle City Substation site.

The first segment generally extends along the same alignment as Source Line Segment 1 of the proposed source line routes. However, as it extends underground in a southeasterly direction along East Grand Boulevard it diverges from the proposed source line route at Quarry Street instead of East 3rd Street. It continues underground along Quarry Street for approximately 500 feet then rises and extends overhead along Quarry Street to where Quarry Street dead-ends on the west side of a flood control channel. At the flood control channel, the path of Source Line Segment 2 again matches the path of Source Line Segment 1. This segment would be approximately 3.6 miles in length (1.6 miles aboveground and 2.0 miles underground) to the proposed Circle City Substation site, and approximately 3.0 miles in length (1.6 miles aboveground and 1.4 miles underground) to the alternative Circle City Substation site

The second segment extends from the intersection of Old Temescal Road and Compton Avenue north along Compton Avenue to Pico Street, along existing facilities within private commercial property to an I-15 crossing. It would then cross I-15 and extend in a northeasterly direction across vacant land to Sherborn Street, where the segment would curve north, paralleling the flood control channel on the property bordering the eastern side. Where the flood control channel turns west, this segment would continue northeasterly across the north side of a small body of water. It would either (1) continue across All American Way and terminate at the proposed Circle City Substation site or (2) prior to All American Way, turn northwesterly along Sherborn Street to Magnolia Avenue, where it would extend easterly along Magnolia Avenue to the alternative Circle City Substation Site. This segment would be approximately 1.4 miles in length to the proposed Circle City Substation site and approximately 1.83 miles in length to the alternative Circle City Substation site.

1.2 REGIONAL ENVIRONMENTAL SETTING

The Study Area is located between the San Gabriel Mountains to the north and the Santa Ana Mountains to the south. The surrounding areas of San Bernardino County are characterized by intense agricultural uses, including numerous dairy farming operations. The general area is converting into residential and related developments; thus, it exhibits a mosaic of developed and partially developed parcels, demolished and partially demolished dairies and farms, cleared lands, and active agricultural operations.

The Study Area is within the 1,680-square-mile Santa Ana River Watershed. The Prado Basin is located at the convergence of the Santa Ana River, Mill Creek, Chino Creek, and Temescal Creek. Prado Dam was constructed in 1941 and designed to control a 100-year flood event.

The region experiences a Mediterranean climate characterized by mild, rainy winters and hot, dry summers. The temperature is moderated by the coastal influence of the Pacific Ocean,

which creates mild conditions throughout most of the year. The most distinguishing characteristic of a Mediterranean climate is its seasonal precipitation. In Southern California, precipitation is characterized by brief, intense storms between November and March. It is not unusual for a majority of the annual precipitation to fall during a few storms over a short span of time. Rainfall patterns are subject to extreme variations from year to year and longer-term wet and dry cycles. The average annual rainfall for the area is approximately 15.04 inches (NOAA 2012).

1.3 REGULATORY SETTING

1.3.1 Federal

Federal Endangered Species Act

The Federal Endangered Species Act of 1973 (FESA, 16 United States Code [USC] 153 et seq.) protects plants and animals that are listed by the federal government as “Endangered” or “Threatened”. The FESA is implemented by enforcing Sections 7 and 9 of the Act. A federally listed species is protected from unauthorized “take” pursuant to Section 9 of the FESA. “Take,” as defined by the FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct”. All persons are presently prohibited from taking a federally listed species unless and until (1) the appropriate Section 10(a) permit has been issued by the USFWS or (2) an Incidental Take Statement is obtained as a result of formal consultation between a federal agency and the USFWS pursuant to Section 7 of the FESA and the implementing regulations that pertain to it (50 *Code of Federal Regulations* [CFR] 402). It should be noted that the Proposed Project must have a federal nexus in order to request “take” pursuant to Section 7. If there is no federal nexus and there are impacts to federally listed species, preparation of a Habitat Conservation Plan will likely be required. “Person” is defined in the FESA as “an individual, corporation, partnership, trust, association, or any private entity; any officer, employee, agent, department or instrument of the federal government; any State, Municipality, or political subdivision of the state; or any other entity subject to the jurisdiction of the United States”. The Project Applicant is a “person” for purposes of the FESA.

Section 404 and 401 of the Clean Water Act of 1972

Section 404 of the Clean Water Act (CWA, 33 USC 1251 et seq.) regulates the discharge of dredged or fill material into “Waters of the U.S.”, including wetlands. “Waters of the U.S.” include navigable coastal and inland waters, lakes, rivers, streams, and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. The U.S. Army Corps of Engineers (USACE) is the designated regulatory agency responsible for administering the 404 permit program and for making jurisdictional determinations. This permitting authority applies to all “Waters of the U.S.” where the material has the effect of (1) replacing any portion of “Waters of the U.S.” with dry land or (2) changing the bottom elevation of any portion of “Waters of the U.S.”. These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in the “Waters of the U.S.”. Dredge and fill activities are typically associated with development projects; water-resource related projects; infrastructure development and wetland conversion to farming; forestry; and urban development.

Under Section 401 of the CWA, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver thereof) to ensure that the activity will not violate established State water quality standards. The U.S. Environmental Protection Agency (USEPA) is the federal regulatory agency responsible for implementing the CWA. However, the State Water Resources Control Board (SWRCB), in conjunction with the nine California Regional

Water Quality Control Boards (RWQCBs), has been delegated the responsibility for administering the Section 401 water quality certification program.

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act. The RWQCB's jurisdiction extends to all "Waters of the State" and to all "Waters of the U.S.," including wetlands (isolated and non-isolated). Section 401 requires the RWQCB to provide "certification that there is reasonable assurance that an activity which may result in the discharge to 'waters of the U.S.' will not violate water quality standards." Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the nine Regional Boards' Basin Plans.

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act of 1918, as amended in 1972 (MBTA, 16 USC 703–711), makes it unlawful, unless permitted by regulations, to "pursue; hunt; take; capture; kill; attempt to take, capture or kill; possess; offer for sale; sell; offer to purchase; purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry or cause to be carried by any means whatever; receive for shipment, transportation, or carriage; or export, at any time, or in any manner, any migratory bird. . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird" (16 USC 703).

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles), Cathartidae (New World vultures), Falconidae (falcons and caracaras), Pandionidae (ospreys), Strigidae (typical owls), and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protect all species and subspecies of these families.

Bald and Golden Eagle Protection Act (16 USC 668)

This Act provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting—except under certain specified conditions—the taking, possession, and commerce of these two bird species. The 1972 amendments increased penalties for violating provisions of the Act and strengthened other enforcement measures. A 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. A 1994 Memorandum (59 CFR 22953, April 29, 1994) from President William J. Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

1.3.2 <u>State</u>

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA, California Fish and Game Code, Section 2050 et seq.) and Section 2081 of the *California Fish and Game Code,* an Incidental Take Permit from the CDFG is required for projects that could result in the take of a State-listed Threatened or Endangered species. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass", as the federal act does. As a result, the threshold for a take under the CESA is higher than that under the FESA. A CDFG-authorized Incidental Take Permit would be required where

a project could result in the take of a State-listed Threatened or Endangered Species. The application for an Incidental Take Permit under Section 2081(b) has a number of requirements, including the preparation of a conservation plan, generally referred to as a Habitat Conservation Plan.

The State of California considers an Endangered Species to be one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened Species as one present in such small numbers throughout its range that it is likely to become an Endangered Species in the near future in the absence of special protection or management; and a Rare Species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. The Rare Species designation applies only to California native plants. The CESA authorizes the CDFG to issue permits authorizing incidental take of Threatened and Endangered Species. A California Species of Special Concern is an informal designation which the CDFG uses for some declining wildlife species that are not State Candidates for listing. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFG.

California Environmental Quality Act

State law (California Fish and Game Code, Section 1802) confers upon the CDFG the trustee responsibility and authority for the public trust resource of wildlife in California. The CDFG may play various roles under the CEQA process. By State law, the CDFG has jurisdiction over the conservation, protection, and management of the wildlife, native plants, and habitat necessary to maintain biologically sustainable populations. The CDFG shall consult with lead and responsible agencies and shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities.

As a trustee agency, the CDFG has jurisdiction over certain resources held in trust for the people of California. Trustee agencies are generally required to be notified of CEQA documents relevant to their jurisdiction, whether or not these agencies have actual permitting authority or approval power over aspects of the underlying project (14 *California Code of Regulations* [CCR], Section 15386). The CDFG, as a trustee agency, must be notified of CEQA documents regarding projects involving fish and wildlife of the state, as well as Rare and Endangered native plants, wildlife areas, and ecological reserves. Although, as a trustee agency the CDFG cannot approve or disapprove a project, lead and responsible agencies are required to consult with the CDFG. The CDFG, as the trustee agency for fish and wildlife resources, shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities and shall make recommendations regarding those resources held in trust for the people of California (*California Fish and Game Code,* Section 1802).

Lake and Streambed Alteration Program

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that support wildlife resources and/or riparian vegetation are subject to CDFG regulations, pursuant to Sections 1600 through 1616 of the *California Fish and Game Code.* Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream, or lake designated by CDFG as waters within their jurisdiction without first notifying CDFG of such activity. Additionally, a person cannot use any material from the streambeds without first notifying the CDFG of such activity. For a project that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1616 of the *California Fish and Game Code,* CDFG authorization is required in the form of a Streambed Alteration Agreement.

Native Plant Protection Act

The Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.) provides for the preservation, protection, and enhancement of Endangered or Rare native plants in California. These sections also allow for the adoption of regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any Endangered or Rare native plants.

California Fully Protected Species

Bird, mammal, reptile, amphibian, and fish species are defined as California Fully Protected Species in Sections 3511, 4700, 5050, and 5515 of the *California Fish and Game Code*. Fully protected animals may not be harmed, taken, or possessed.

Nesting Bird Protection

Nesting birds are protected in Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code.* These sections state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by or any regulation made pursuant to this code. Section 3503.5 explicitly provides protection for all birds of prey, including their eggs and nests. Section 3513 makes it unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Threatened and Endangered Species

The *California Code of Regulations* (Sections 670.2 and 670.5) list species, subspecies, and varieties of plants (Section 670.2) and animals (Section 670.5) that are designated as Threatened or Endangered (as defined by Section 2067 of the *California Fish and Game Code*) or Rare (as defined by Section 1901 of the *California Fish and Game Code*) in California.

California Porter-Cologne Water Quality Control Act

Pursuant to the California Porter-Cologne Water Quality Control Act, the SWRCB and the nine RWQCBs may require permits (known as “Waste Discharge Requirements” or “WDRs”) for the fill or alteration of the “Waters of the State”. The term “Waters of the State” is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (*California Water Code,* Section 13050[e]). The State and Regional Boards have interpreted their authority to require WDRs to extend to any proposal to fill or alter “Waters of the State”, even if those same waters are not under USACE jurisdiction. Pursuant to this authority, the State and Regional Boards may require the submission of a “report of waste discharge” under *California Water Code*, Section 13260, which is treated as an application for WDRs.

1.3.3 <u>County</u>

Western Riverside Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional plan that focuses on conservation of species and their associated habitats in Western Riverside County. The MSHCP allows Riverside County and its Cities to better control local land use decisions and to maintain a strong economic climate in the region while addressing the requirements of the California and Federal Endangered Species Acts. The MSHCP Plan Area encompasses approximately 1.26 million acres in Western Riverside County. The MSHCP serves as a Habitat Conservation Plan pursuant to Section

10(a)(1)(B) of the Federal Endangered Species Act of 1973, and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP is used to allow the participating jurisdictions to authorize "take" of plant and wildlife species identified within the Plan Area. Under the MSHCP, the wildlife agencies (i.e., the USFWS and the CDFG) will grant "Take Authorization" for otherwise lawful actions. SCE is given the option of utilizing the MSHCP as a "Participating Special Entity" (PSE).[1]

The MSHCP has 146 "Covered Species" (including 14 Narrow Endemic plant species). Of these, 118 species (including 13 of the 14 Narrow Endemic plant species) are considered "adequately conserved" within the MSHCP. A covered species is considered adequately conserved when enough designated "Criteria Area" (i.e., geographic area, soils and/or habitat that supports or has the potential to support the Covered Species) has been acquired, or designated for acquisition, for that species in the MSHCP. For species not deemed adequately conserved, additional dedication and/or purchase of conservation land may be required, as determined on a case-by-case basis. A Narrow Endemic species has a limited geographic distribution (e.g., Santa Rosa Plateau or San Jacinto River Valley), an affinity for a particular soil-type (e.g., Domino, Travers, or Willow), and/or is restricted to a specific habitat (e.g., coastal sage scrub, vernal pools).

The MSHCP requires that project sites be evaluated for a number of factors to assess how they meet the criteria identified in the MSHCP. As part of this evaluation, the Study Area has been assessed for riparian/riverine resources, vernal pools, areas under the jurisdiction of the USACE and/or CDFG, urban/wildlands interface issues, and potential for special status species. If it is determined that there is potential for one of these resources and/or if the site is located within an Additional Survey Needs Area that indicates potential for particular wildlife species or narrow endemic plant species, focused surveys may be required (Table 1). Focused surveys must follow MSHCP protocol guidelines, which typically limit surveys to certain seasonal time periods and require a set number of surveys to be conducted. In addition, Criteria Area requirements may restrict the level of development allowable within a site.

The Study Area occurs within the Eastvale, Temescal Canyon, and Cities of Riverside/Norco Area Plans of the MSHCP. The target conservation acreage range for the Eastvale Area Plan is 1,040 to 1,185 acres. This area plan contains a small portion of Existing Core A. The target conservation acreage range for the Temescal Canyon Area Plan is 29,555 to 31,870 acres. This area plan contains Proposed Constrained Linkages 1 and 2; a large portion of Proposed Constrained Linkages 3 and 4; a large portion of Proposed Extension of Existing Cores 1 and 2; and a small portion of Existing Core A. The target conservation acreage range for the Cities of Riverside/Norco Area Plan is 3,465 to 3,615 acres. This Area Plan also contains a small portion of Proposed Constrained Linkage 7 and a small portion of Existing Core A.

[1] A "Participating Special Entity" is any regional public facility provider (e.g., a utility company, a public district or agency) that operates and/or owns land within the MSHCP Plan Area and that applies for Take Authorization pursuant to Section 11.8 of the Implementing Agreement.

TABLE 1
MSHCP ADDITIONAL SURVEY NEEDS AREA, CRITERIA CELLS, AND CELL GROUPS WITHIN AND ADJACENT TO THE STUDY AREA

Project Section	Additional Survey Needs Area		Criteria Cell	Cell Group	Target Criteria
	Burrowing Owl	Narrow Endemic Plant Species			
Mira Loma Substation	X[a]	San Diego ambrosia, Brand's star phacelia, San Miguel savory[a]	68[a], 118[a], 168[a]	A[a]	Conservation within these cells will follow species-specific Conservation Objectives 1A, 1B, or 1C for Delhi Sands flower-loving fly (see Table 9-2 of the MSHCP).
Corona Substation	–	–	–	–	–
Proposed Circle City Substation Site	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	1826	–	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 4. Conservation within this Cell will focus on water associated with Temescal Wash. Areas conserved within this Cell will be connected to water proposed for conservation to the south in Cell 1923. Conservation within this Cell will range from 15% to 25%, focusing on the southern portion of the Cell.
Alternative Circle City Substation Site	X[a]	San Diego ambrosia, Brand's star phacelia, San Miguel savory[a]	1826[a]	–	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 4. Conservation within this Cell will focus on water associated with Temescal Wash. Areas conserved within this Cell will be connected to water proposed for conservation to the south in Cell 1923. Conservation within this Cell will range from 15% to 25%, focusing on the southern portion of the Cell.
Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	–	–	–
Alternative 2	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	–	–	–

TABLE 1 (Continued
MSHCP ADDITIONAL SURVEY NEEDS AREA, CRITERIA CELLS, AND CELL GROUPS WITHIN AND ADJACENT TO THE STUDY AREA

Project Section	Additional Survey Needs Area		Criteria Cell	Cell Group	Target Criteria
	Burrowing Owl	Narrow Endemic Plant Species			
Alternative 3	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	–	–	–
Proposed Source Line Routes	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	1826	–	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 4. Conservation within this Cell will focus on water associated with Temescal Wash. Areas conserved within this Cell will be connected to water proposed for conservation to the south in Cell 1923. Conservation within this Cell will range from 15% to 25%, focusing on the southern portion of the Cell.
Alternative Source Line Routes	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	1826, 1923	–	• ***1826:*** Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 4. Conservation within this Cell will focus on water associated with Temescal Wash. Areas conserved within this Cell will be connected to water proposed for conservation to the south in Cell 1923. Conservation within this Cell will range from 15% to 25%, focusing on the southern portion of the Cell. • ***1923:*** Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 4. Conservation within this Cell will focus on water and riparian habitat associated with Temescal Wash. Areas conserved within this Cell will be connected to water proposed for conservation to the north in Cell 1826, and to riparian habitat proposed for conservation in Cell 1924 to the east. Conservation within this Cell will range from 10% to 20%, focusing on the northern and eastern portions of the Cell.

TABLE 1 (Continued
MSHCP ADDITIONAL SURVEY NEEDS AREA, CRITERIA CELLS, AND CELL GROUPS WITHIN AND ADJACENT TO THE STUDY AREA

Project Section	Additional Survey Needs Area		Criteria Cell	Cell Group	Target Criteria
	Burrowing Owl	Narrow Endemic Plant Species			
Proposed Material Yards	X	San Diego ambrosia, Brand's star phacelia, San Miguel savory	68[a], 1826	A[a]	• ***68:*** Conservation within this cell will follow species-specific Conservation Objectives 1A, 1B, or 1C for Delhi Sands flower-loving fly (see Table 9-2 of the MSHCP). • ***1826:*** Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 4. Conservation within this Cell will focus on water associated with Temescal Wash. Areas conserved within this Cell will be connected to water proposed for conservation to the south in Cell 1923. Conservation within this Cell will range from 15% to 25%, focusing on the southern portion of the Cell.

MSHCP: Western Riverside Multiple Species Habitat Conservation Plan; USFWS: U.S. Fish and Wildlife Service; San Diego ambrosia (*Ambrosia pumila*); Brand's star phacelia (*Phacelia stellaris*); San Miguel savory (*Clinopodium chandleri* [*Satureja chandleri*])
Note: Access roads, guard structures, and pulling sites are generally within the Project Section for the proposed routes.
"–" indicates that this is not applicable for this project section.
"X" indicates that surveys are required.

[a] The Criteria Cell or Cell Group is adjacent to this portion of the Study Area.

Source: Dudek 2003.

Portions of the Study Area overlap Criteria Cells 1826 and 1923, as shown in Figure 4. Other portions of the Study Area are adjacent to, but do not overlap, Criteria Cells 68, 118, and 168 and Cell Group A. The Study Area overlaps the "Additional Survey Needs" areas for three Narrow Endemic plant species—San Diego ambrosia (*Ambrosia pumila*), Brand's star phacelia (*Phacelia stellaris*), and San Miguel savory (*Clinopodium chandleri* [*Satureja chandleri*])—and burrowing owl (*Athene cunicularia*). The Study Area is outside all "Additional Survey Needs" areas for Criteria Area plant species, amphibians, and mammals.

It should be noted that specific to Stephens' kangaroo rat (*Dipodomys stephensi*), the Proposed Project is located outside of the Stephens' Kangaroo Rat Habitat Conservation Plan fee area and Core Reserve boundaries, but may be located within MSHCP boundaries. As such, the MSHCP can provide take coverage for this species, if needed.

Plant Protection and Management

The Riverside County Code (Chapter 12.24) provides for the protection of timberlands in Riverside County. This ordinance applies to any parcel or property greater than ½ acre in size, located in an area above 5,000 feet in elevation and within the unincorporated area of the county. The provisions of this chapter do not apply to activities conducted by a public utility, subject to the jurisdiction of the California Public Utilities Commission (CPUC) or any other constituted public agency, where, to construct and maintain safe operation of facilities under their jurisdiction, trees are removed, pruned, topped or braced.

The San Bernardino Code of Ordinances (Title 8, Division 8, Section 88.01) provides for the protection of plant resources in the County of San Bernardino. This ordinance applies to all private land within the unincorporated areas of San Bernardino County and to public lands owned by the County, except as specified by the provisions of this Division. The removal of any regulated native tree or desert native plant by "any public utility subject to jurisdiction of the CPUC or any other constituted public agency, including franchised cable TV where to establish or maintain safe operation of facilities under their jurisdiction, trees are pruned, topped or braced" may be exempt from this Division.

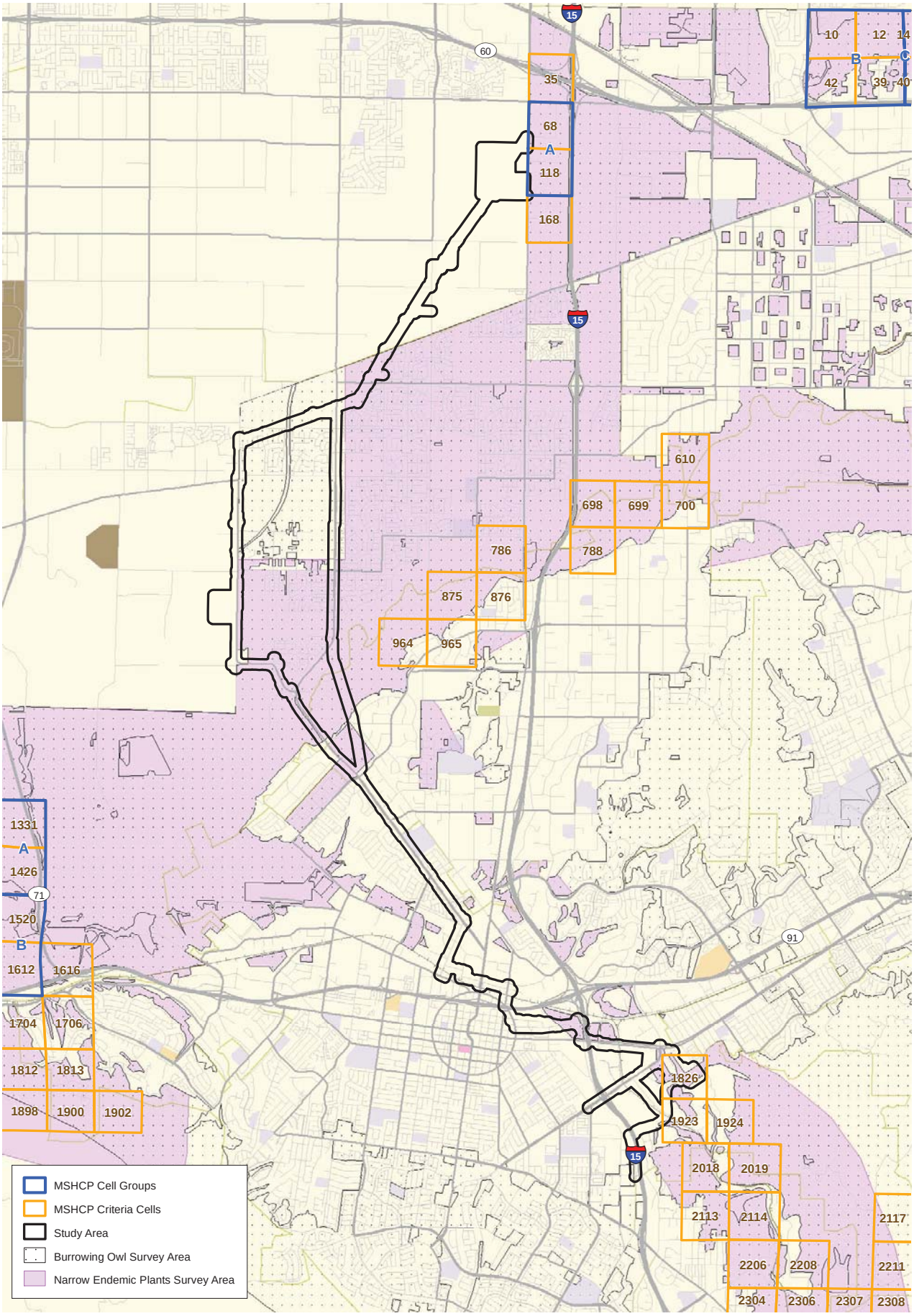
1.3.4 Local

City of Chino

Chapter 12.16 of the City of Chino Municipal Code states that no person shall, without written permission from the service department, remove, trip, prune, or cut any tree upon the streets or planting strips. Upon such permission being granted to any person for the purpose of trimming, pruning, cutting, or removing any trees, such trimming, pruning, cutting, or removal shall be done under the general supervision of the service department.

City of Corona

The City of Corona's Community Forestry Program was enacted, in part, to recognize, designate, and protect landmark trees on public property. As such, Corona has jurisdiction over the planning, planting, maintenance, alteration, and removal of all trees, shrubs, and landscape materials on public property. The City Municipal Code states that "it shall be unlawful for any person to alter or remove or plant any trees, shrubs or landscape materials on public property without a permit for such work issued by the Director" (Chapter 12.22, Section 070).



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Western Riverside County Multiple Species Habitat Conservation Plan

Figure 4

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

5,000 2,500 0 5,000 Feet

BonTerra CONSULTING

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City of Eastvale

The City of Eastvale is currently in the process of creating a municipal code. In the interim, the County of Riverside applies.

City of Norco

Chapter 12.08, Section 040 of the City of Norco Municipal Code states that no person, firm, corporation, public district, public agency, or political subdivision shall remove or severely trim any tree planted in the right-of-way of any city street. A permit from the city superintendent of streets is required prior to removal or severe trimming of any street tree.

City of Ontario

Chapter 10-2 of the City of Ontario Municipal Code states that no person shall cut, carve, mutilate, or otherwise do harm to any tree in any park, parkway, or public place, or prune or top such trees except as provided in this chapter, or to apply or allow to exist upon any parkway or tree any substance harmful to such trees. Authorization from the City's Public Works Agency is required for removal or relocation of any parkway tree.

2.0 SURVEY METHODOLOGIES

This section describes the methodology used to conduct a literature review; perform general and focused biological surveys; and assess the potential for each portion of the Study Area to support special status species.

2.1 LITERATURE REVIEW

A literature review was performed prior to the initiation of the 2010 general survey to identify special status plants, wildlife, and habitats known to occur (or that historically occurred) in the vicinity of the Study Area; the literature review was updated in 2012. These searches included a review of the USGS' Ontario, Guasti, Fontana, Prado Dam, Corona North, Riverside West, Corona South, and Lake Mathews 7.5-minute quadrangles in the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010, 2012) and the CDFG's California Natural Diversity Database (CNDDB) (CDFG 2010a, 2012a). In addition, the Assesor's Parcel Numbers (APNs) for the parcels within Riverside County were run through the Riverside County Conservation Summary Report Generator for the MSHCP (TLMA 2010). A review of FESA critical habitat documents was used to identify any portions of the Study Area occurring within proposed or designated critical habitat.

2.2 VEGETATION MAPPING AND GENERAL BIOLOGICAL SURVEYS

Table 2 provides a summary of the vegetation mapping and general survey effort for the Study Area. An initial biological reconnaissance survey was conducted to assess the general biological constraints at the original substation alternatives on March 2, 2010. On March 23, 2010, an additional biological constraints survey was conducted of the proposed Circle City Substation site; the alternative Circle City Substation site; an additional substation site alternative not included in the current Study Area; and numerous source line route segments (some of which were subsequently deleted from the current Project design). Summary forms were scored and provided to SCE to assist in the elimination of routes that had substantially more biological issues than other routes.

TABLE 2
SUMMARY OF GENERAL BIOLOGICAL SURVEYS

Date	Surveying Biologists	Area Surveyed
March 2, 2010	Stacie Tennant Sandra Leatherman	Original substation alternatives, including areas not in the current Study Area.
March 23, 2010	Lindsay Messett Sandra Leatherman	Substation alternatives, including an additional substation alternative not in the current Study Area, and several source line route segments, including some not in the current Study Area.
May 13, 2010	Allison Rudalevige Ann Johnston	A 50-foot buffer around the Mira Loma Substation and the previous alignments for the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3.
June 17, 2010	Allison Rudalevige	Revisions to the Mira Loma Substation; the alternative Circle City Substation site; and a 50-foot buffer around new alignments for the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, and proposed and alternative source line routes.
November 29, 2011	Allison Rudalevige Jason Mintzer	New portions of the alternative source line routes.
March 14, 2012	Allison Rudalevige	Proposed material yards and an expanded buffer of 300-feet throughout the Study Area.

A survey was conducted to describe and map the vegetation present in the Mira Loma portions of the Study Area on May 13, 2010. This survey also included an evaluation of the potential of the habitats to support special status plant and wildlife species in areas not previously surveyed during the initial reconnaissance survey. Following various shifts in the Proposed Project alignment, addition/removal of Proposed Project components, and the expansion of the buffer on either side of the Proposed Project components from 50 feet to 300 feet, additional surveys were conducted on June 17, 2010; November 29, 2011; and March 14, 2012. This report represents general biological conditions for the Proposed Project and all alternatives, including a 300-foot buffer around each one.

The general surveys included an evaluation of the potential of habitats to support special-status plant and wildlife species. The general surveys also included an assessment of resources to comply with MSHCP protocol; this included an assessment of riparian/riverine resources, vernal pools, areas under the jurisdiction of the USACE and/or the CDFG, and urban/wildlands interface issues. In addition, the Study Area was assessed for any Additional Survey Needs species (i.e., Narrow Endemic plant species and burrowing owl), per the MSHCP. Nomenclature for vegetation types generally follows the MSHCP. Vegetation was mapped in the field on an aerial photograph at a scale of 1 inch equals 200 feet (1″=200′). Photographs of the Study Area are included as Appendix A. Nomenclature for vegetation types generally follows that of the MSHCP (Dudek 2003).

Plant species were identified in the field or collected for subsequent identification using keys in Jepson Flora Project (2010), Munz (1974), Abrams (1923, 1944 1951), and Abrams and Ferris (1960). Taxonomy follows Baldwin et al. (2012) and current scientific data (e.g., scientific journals) for scientific and common names. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic sign, including scat, footprints, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows Eriksen and Belk (1999) for fairy shrimp, American Fisheries Society (1991) for fish, Crother (2008) for amphibians and reptiles, American Ornithologists' Union (AOU 2011) for birds, and Baker et al. (2003) for

mammals. All species observed were recorded in field notes. A list of observed plant and wildlife species is included as Appendices B-1 and B-2, respectively.

2.3 FOCUSED BIOLOGICAL SURVEYS

Focused biological surveys were conducted or are currently being conducted for special status plant species (including MSHCP Narrow Endemic species), Delhi Sands flower-loving fly (*Rhaphiomidas terminates abdominalis*), burrowing owl, least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). Habitat assessments were conducted for special status mammals. Surveys were conducted in 2010 for portions of the Study Area south of the Corona Substation, but the 2010 survey area differs slightly from the current Study Area because of changes to the transmission line alignments that were made following initiation of focused surveys. The 2011 surveys were conducted for most of the Study Area; however, the buffer around the Project alignment was smaller than the current buffer. Surveys in 2012 were conducted for the proposed substation and routes only, including proposed material yards, access roads, guard structures, and pulling sites for the proposed routes that have not been previously surveyed.

2.3.1 Special Status Plant Species

Special status plant surveys were floristic in nature and conducted following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009).

Prior to conducting the field surveys each year, reference populations were monitored for annual and difficult-to-detect target species with potential to occur in the Study Area to ensure that the scheduled surveys were comprehensive and conducted during the appropriate blooming period for the species. Reference populations of CNPS List 3 and 4 species, and perennial species that are readily observable were not monitored. A summary of reference population checks is provided in Table 3; reference plants were observed in bloom on the date of the reference population check.

According to the National Oceanic and Atmospheric Administration (NOAA), the region (data taken from Ontario International Airport) received 14.42 inches and 13.45 inches of precipitation from July 1, 2009 to June 30, 2010 and from July 1, 2010 to June 30, 2011, respectively (NOAA 2011). The normal yearly precipitation is 15.04, as measured between 1981 and 2010. Therefore, rainfall in those years appears adequate to support blooming of special status plant species. In contrast, the region received 8.91 inches of rain between July 1, 2011 and June 30, 2012 (NOAA 2012). Based on the reference population monitoring, target plant species were observable at the time the Project surveys were conducted.

TABLE 3
SPECIAL STATUS SPECIES REFERENCE POPULATIONS CHECKED PRIOR TO FOCUSED SURVEYS

Species	2010 Date	2011 Date	2012 Date
Abronia villosa var. *aurita* chaparral sand-verbena	—*	May 12 Western Riverside County	—*
Allium munzii Munz's onion	—*	March 19 Western Riverside County (vegetative)[a]	—*
Ambrosia pumila San Diego ambrosia	June 15 Lake Elsinore	June 28 Lake Elsinore	April 20 Lake Elsinore (vegetative)[b]
Calochortus plummerae Plummer's mariposa lily	May 27 Fontana	June 3 Fontana	—*
Calochortus weedii var. *intermedius* intermediate mariposa lily	June 7 Corona	June 10 Corona	—*
Centromadia pungens ssp. *laevis* smooth tarplant	June 15 Lake Elsinore	May 11 Riverside	June 12 Lake Elsinore
Chorizanthe parryi var. *parryi* Parry's spineflower	April 15 Fontana	April 26 Rialto	—*
Chorizanthe polygonoides var. *longispina* long-spined spineflower	May 14 Temecula	June 1 Temecula	—*
Dodecahema leptoceras slender-horned spineflower	April 22 Soledad Canyon	April 28 Santa Clarita	May 7 Western Riverside County
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	—*	March 11 Riverside	—*
Phacelia stellaris Brand's star phacelia	—*	April 11 Santa Ana River	—*
Pseudognaphalium leucocephalum white rabbit-tobacco	—*	—*	August 11 Casper's Wilderness Park
Symphyotrichum defoliatum San Bernardino aster	—*	—*	August 11 Elsinore Mountains (vegetative)[b]

* Reference populations for this species were not conducted for this year.
[a] This species was observed in a vegetative state on this date. Surveys were postponed to a later date when the species would be blooming.
[b] This species was observed in a vegetative state on this date; however, it is identifiable in a vegetative state by the Senior Botanist conducting the plant survey.
Note: Special status plant surveys conducted in 2012 did not include Project alternatives; reference populations were not checked for species with suitable habitat confined to the Project alternatives.

A summary of the focused survey effort is included in Table 4. Complete survey reports are included in Appendix C. A systematic walking survey was conducted, and all plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they are a special status species. Any voucher specimens collected were deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California.

TABLE 4
SUMMARY OF SPECIAL STATUS PLANT SPECIES SURVEYS

Date	Surveying Biologists	Number of Person-Hours	Area Surveyed
April 13, 2010	Sandra Leatherman Jeff Crain Amber Oneal	21	The Corona Substation, the proposed Circle City Substation site, the alternative Circle City Substation site, and several proposed and alternative source line route segments, including some not in the current Study Area. Inaccessible areas near the southern end of the Study Area were not surveyed.
May 13, 2010	Sandra Leatherman Jeff Crain	14	
June 23, 2010	Sandra Leatherman Jeff Crain Amber Oneal Jennifer Pareti	28	
April 4, 2011	Sandra Leatherman Jennifer Pareti	16	The Mira Loma Substation, the Corona Substation, the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, the proposed source line routes, and portions of the alternative source line routes.
April 29, 2011	Allison Rudalevige	2.5	
May 27, 2011	Allison Rudalevige Sandra Leatherman	4.6	
June 9, 2011	Sandra Leatherman Stacie Tennant	7.4	
July 5, 2011	Allison Rudalevige Sandra Leatherman	11	
July 8, 2011	Allison Rudalevige Sandra Leatherman	11	
July 19, 2011	Allison Rudalevige Sandra Leatherman	3.4	
August 17, 2011	Allison Rudalevige Sandra Leatherman	5	
April 18, 2012	Allison Rudalevige Jennifer Pareti	4.3	The Mira Loma Substation; the Corona Substation; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; the proposed source line routes, and proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.
June 13, 2012	Sandra Leatherman David Bramlet	14.5	
June 18, 2012	Sandra Leatherman David Bramlet	16	
August 20, 2012	Robert Allen	1.5	
Alternatives not mentioned above that contain suitable habitat, may be surveyed in the future.			

2.3.2 Delhi Sands Flower-loving Fly

Focused surveys for Delhi Sands flower-loving fly were conducted by Consulting Biologists Gilbert Goodlett (USFWS Permit number TE005535-3) and Brian Drake (USFWS Permit number TE006328-4) in 2010 and 2011 generally following the USFWS protocol (USFWS 1996a, as amended); these surveys did not include suitable habitat in the proposed material yards. An evaluation of habitat suitability was initially conducted in areas within the Ontario Recovery Unit and excluded developed and agricultural areas. At the request of SCE, all suitable lands within the Ontario Recovery Unit, whether or not they contained Delhi series soils, were surveyed. The fly survey area was inspected to identify suitable areas for the Delhi Sands flower-loving fly.

Following the habitat evaluation, focused surveys for the Delhi Sands flower-loving fly were initiated. Survey protocol requires two consecutive years of surveys to establish the absence of the species. In both years, surveys were conducted at least twice a week from July 1 to

September 20 between the hours of 10:00 AM and 2:00 PM. No more than 50 acres per day may be surveyed by an individual biologist. Because the suitable Delhi Sands flower-loving fly habitat totaled 70.4 acres, two survey days were used to cover the survey area. Complete survey reports are included in Appendix D. Focused surveys are currently in progress for 2012 and the results will be included under a separate cover.

2.3.3 Fairy Shrimp

A habitat assessment for Riverside fairy shrimp (*Streptocephalus woottoni*) was conducted for the proposed Circle City Substation site on June 23, 2010, by BonTerra Consulting Biologist Jeff Crain (USFWS Permit Number TE-047998-1). A habitat assessment for the Mira Loma Substation, the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma–Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, the proposed source line routes, and portions of the alternative source line routes was conducted by Mr. Crain on November 26, 2010.

Focused surveys followed the USFWS' *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996b). Surveys were initiated after storm events when ponds were inundated (i.e., held greater than 3 centimeters of water 24 hours after a rain even). Ponds were sampled once every two weeks beginning no later than two weeks after inundation. Surveys continued until ponds were no longer inundated or until they experienced 120 days of continuous inundation. In the event that ponds dried and refilled, sampling was reinitiated within eight days of refilling. Surveys were conducted on December 10 and 24, and January 7 and 21, 2010 by Mr. Crain. In accordance with USFWS protocol, a complete survey requires either one consecutive wet season and dry season survey or two wet season surveys within a five-year period. The 2010 surveys represent one year of wet season surveys.

A second year of wet season surveys was initiated by BonTerra Consulting Biologist/Regulatory Technician Allison Rudalevige (USFWS Permit Number TE-177979-0) on November 21, 2011. Additional ponding areas (Ponds 3 through 8) were observed by Ms. Rudalevige on November 29, 2011; the 2011/2012 survey period represents the first year of wet season surveys in these areas. Surveys were conducted on November 29, 30, December 14, 29, 2011, and January 6, 25, February 8, 23, March 7, 21, April 5, 18, and May 3, 2012. Complete survey reports are included in Appendix E.

2.3.4 Burrowing Owl

Surveys for burrowing owl followed the Burrowing Owl Survey Instructions for the Western Riverside County MSHCP (County of Riverside 2006) and the California Burrowing Owl Consortium (CBOC) survey protocol (CBOC 1993). Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys. A summary of the focused survey effort is included in Table 5.

TABLE 5
SUMMARY OF BURROWING OWL SURVEYS

Date	Surveying Biologists	Survey Type	Area Surveyed
March 2, 2010	Sandra Leatherman Stacie Tennant	Habitat Assessment	The Corona Substation, the proposed Circle City Substation site, the alternative Circle City Substation site, and several potential source line route segments, including some not in the current Study Area.
July 5, 2010	Lindsay Messett Jennifer Pareti	Burrow Survey	
July 6, 7, 15, and 20, 2010	Lindsay Messett	Focused Owl Surveys	
April 14 and 29, 2011	Allison Rudalevige Jennifer Pareti Sandra Leatherman	Habitat Assessment	The Mira Loma Substation, the Corona Substation, the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, and several potential source line route segments, including some not in the current Study Area.
August 8, 2011	Lindsay Messett Cristhian Mace	Burrow Survey	
August 9, 10, 11, and 12, 2011	Lindsay Messett Jonathan Aguayo	Focused Owl Surveys	
July 9, 2012	Lindsay Messett Jonathan Aguayo	Burrow Survey	The Mira Loma Substation; the Corona Substation; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; the proposed source line routes; and proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.
July 9, 31, August 2 and 7, 2012	Lindsay Messett Jonathan Aguayo	Focused Owl Surveys	

The burrow survey was conducted by walking transects through potential habitat, with spacing that allowed 100 percent coverage of the ground surface. Areas of bare ground, low-density vegetation, man-made structures, abandoned equipment, and other areas considered suitable for burrowing owl were surveyed. All natural or man-made cavities large enough to allow burrowing owl entry were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. Any evidence of owl occupation was described and mapped, and the location of the evidence was recorded using a Global Positioning System (GPS) unit. The burrow survey was not conducted within five days of rain, which could have washed away potential sign. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained.

The focused owl surveys were conducted within portions of the Study Area where burrowing owls had a potential to occur based on the results of the habitat assessment and the burrow surveys. These surveys are crepuscular (dawn or dusk), with morning surveys conducted from one hour before sunrise to two hours after sunrise, and evening surveys conducted from two hours before sunset to one hour after sunset. Crepuscular surveys were conducted only when there was enough light to observe potential flights of burrowing owls. Four crepuscular surveys were conducted as required by the protocol. The surveys were conducted during weather conditions that were appropriate for locating burrowing owls. Binoculars were used to inspect potential perches such as rocks, fence posts, and other elevated structures for the presence of owls before approaching each area. Complete survey reports are included in Appendix F.

2.3.5 Least Bell's Vireo/Southwestern Willow Flycatcher

Focused surveys for least Bell's vireo were conducted in 2010 for the portions of the Study Area south of the Corona Substation that contain suitable habitat (i.e., willow riparian vegetation). This portion of the Study Area did not contain suitable habitat for southwestern willow flycatcher so surveys for that species were not conducted in 2010. Focused surveys were conducted in 2011 and 2012 for both least Bell's vireo and southwestern willow flycatcher north of the Corona Substation in areas that contain suitable habitat for both species (i.e., the Prado Basin). A summary of the focused survey effort is included in Table 6.

TABLE 6
SUMMARY OF LEAST BELL'S VIREO AND SOUTHWESTERN WILLOW FLYCATCHER SURVEYS

Date	Surveying Biologists	Species Included in Survey	Area Surveyed
May 13 and 24; June 5, 17, and 28; and July 8, 19, and 29, 2010	Lindsay Messett	least Bell's vireo	The alternative source line routes
April 14 and 27; May 16; June 3, 15, and 27; and July 11 and 22, 2011	Amber Oneal	least Bell's vireo and southwestern willow flycatcher	The proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3.
April 23, May 3, 18, 29, June 8, 18, 28, and July 9, 2012	Brian Daniels Lindsay Messett	least Bell's vireo and southwestern willow flycatcher	The proposed Mira Loma-Jefferson 66 kV subtransmission line route.

Surveys were conducted in accordance with USFWS survey guidelines for the least Bell's vireo (USFWS 2001b) and the southwestern willow flycatcher (Sogge et al. 2010). Least Bell's vireo survey protocol requires that at least eight surveys be conducted from April 10 to July 31, with a ten-day interval between site visits. The flycatcher protocol for project-related surveys where there is a potential impact to their habitat requires a minimum of five surveys performed within specified time periods: Survey 1 from May 15 to May 31; Surveys 2 and 3 from June 1 to June 24; and Surveys 4 and 5 from June 25 to July 17. Because of the similar ecological requirements of the species, the 2011 and 2012 surveys for the vireo and flycatcher were conducted simultaneously.

Riparian habitat was systematically surveyed by walking slowly and methodically along its margins. Following the willow flycatcher protocol, recordings of southwestern willow flycatcher vocalizations were played to elicit a response from any potentially territorial individual that may be present. If no southwestern willow flycatchers were detected after the initial tape playing, the recording was replayed where appropriate. The least Bell's vireo survey protocol does not require the playback of the vireo's vocalizations. Surveys were performed during appropriate weather conditions, generally between dawn and noon. If the species were detected by visual or auditory means, information pertaining to the sex, age, reproductive status, and habitat was recorded. The location of any least Bell's vireos or southwestern willow flycatchers was recorded with a GPS unit. Complete survey reports are included in Appendix G.

2.3.6 Special Status Mammals

A habitat assessment for San Bernardino kangaroo rat (*Dipodomys merrami parvus*), Stephens' kangaroo rat, and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) was conducted on July 18, 2010 and May 13, 2012, by Consulting Biologist Stephen Montgomery (USFWS Permit Number TE-745541-10). The assessment included the Mira Loma Substation,

the proposed Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, and the proposed source line route in both years; Alternative 2, Alternative 3, and portions of the alternative source line routes were only surveyed in 2010. General habitat conditions were viewed on an aerial photograph and all undeveloped areas were noted on a field map and checked in the field for potential suitability for the three species. Complete survey reports are included in Appendix H.

A habitat assessment for native bat species was conducted for the proposed Circle City Substation site on July 21 and September 12, 2011, by BonTerra Consulting Biologist Steve Norton. The first survey was conducted during the daytime to locate bat sign and/or potential roosting sites. The second survey was conducted at sunset to record relevant nocturnal site conditions and to incidentally observe any emerging bat species.

2.4 JURISDICTIONAL ASSESSMENT AND DELINEATION

The Study Area was assessed for the presence of jurisdictional "Waters of the U.S.", including wetlands (if present) and/or "Waters of the State". The assessment included a review of aerial images of the Study Area and a field visit to verify potential jurisdictional resources. BonTerra Consulting Regulatory Specialist Gary Medeiros conducted field visits on June 8 and July 1, 2010. The field visit did not include a formal delineation of the type and extent of areas under the jurisdiction of the USACE, the CDFG, and the RWQCB.

A formal jurisdictional delineation of the Study Area was conducted on November 23, 2011, and January 6, 2012, by Mr. Medeiros and Ms. Rudalevige. The delineation followed protocol in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008) and the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of "Waters of the U.S." and wetland resources. A three-parameter approach requiring evidence of wetland hydrology, hydrophytic vegetation, and hydric soils was used to identify wetland "Waters of the U.S.". Non-wetland "Waters of the U.S." were delineated based on the limits of the ordinary high water mark (OHWM), which can be determined by a number of factors including erosion; the deposition of vegetation or debris; and changes in vegetation. The CDFG's jurisdiction is defined as the top of the bank to the top of the bank of the stream, channel, or basin or to the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake or other impoundment. It should be noted that the RWQCB shares USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE's definition of the OHWM and/or the three-parameter wetlands methodology pursuant to the 1987 Wetlands Manual.

Jurisdictional features were delineated using a 1 inch equals 200 feet (1″ = 200′) scale aerial photograph. The field survey included the collection of vegetation, soils, and hydrologic data from nine sampling points in the Study Area; this information was recorded on Wetland Determination Data Forms. The jurisdictional delineation report is included as Appendix I.

3.0 EXISTING BIOLOGICAL RESOURCES

This section describes the biological resources that occur or potentially occur in the Study Area. Vegetation types, wildlife populations and movement patterns, special status vegetation types, and special status plant and wildlife species that are either known to occur or have the potential to occur in the Study Area are discussed below.

3.1 VEGETATION TYPES AND OTHER AREAS

Sixteen vegetation types and other areas occur in the Study Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, freshwater marsh, open water, flood control channel, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed (Figures 5A–5H; Table 7). Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the areas was mapped according to the uppermost vegetation.

TABLE 7
VEGETATION TYPES AND OTHER AREAS MAPPED WITHIN THE STUDY AREA

Vegetation Types or Other Areas	Amount (Acres)
Riversidian Sage Scrub	0.63
Disturbed Riversidian Sage Scrub	5.15
Non-native Grassland	126.50
Ruderal	214.35
Disturbed Mule Fat Scrub	1.47
Willow Riparian Forest	76.03
Freshwater Marsh	0.28
Open Water	19.01
Flood Control Channel	21.45
Impoundment	18.21
Agricultural Field	112.77
Dairy	102.52
Developed	431.32
Ornamental	36.45
Ornamental/ Developed	665.88
Disturbed	179.36
Total	**2,011.38**

3.1.1 Riversidian Sage Scrub

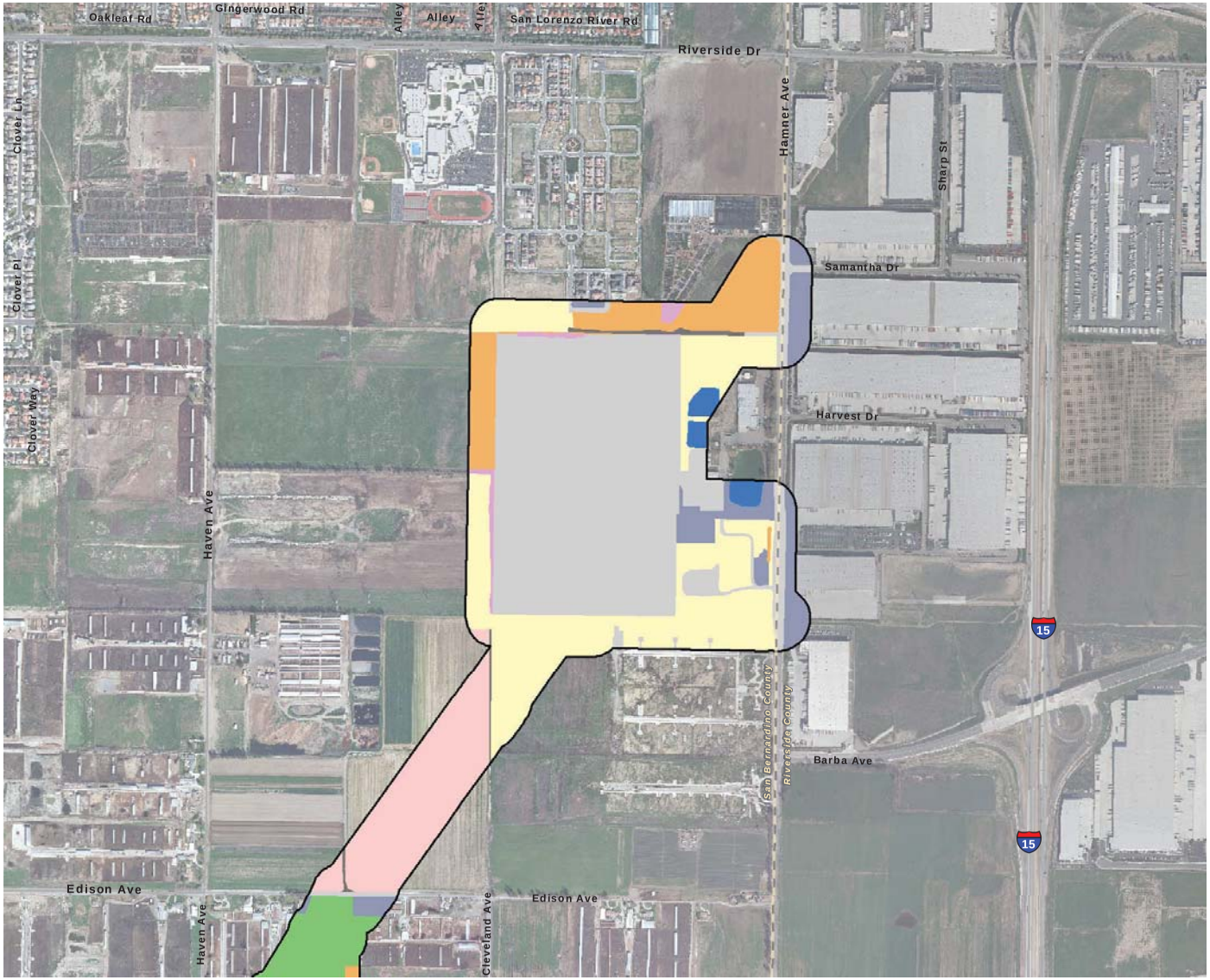
Riversidian sage scrub occurs near the southern end of the alternative source line routes on a slope above the banks of a man-altered drainage. This vegetation type is dominated by California buckwheat (*Eriogonum fasciculatum*) and California sagebrush (*Artemisia californica*).

3.1.2 Disturbed Riversidian Sage Scrub

Disturbed Riversidian sage scrub occurs near the southern end of the alternative source line routes adjacent to the I-15 and around the lake adjacent to this route. The area adjacent to the I-15 has been seeded. Both areas are dominated by a very sparse cover of California buckwheat and brittlebush (*Encelia farinosa*). Non-native vegetation, including tree tobacco (*Nicotiana glauca*) is intermixed with the native species.

3.1.3 Non-native Grassland

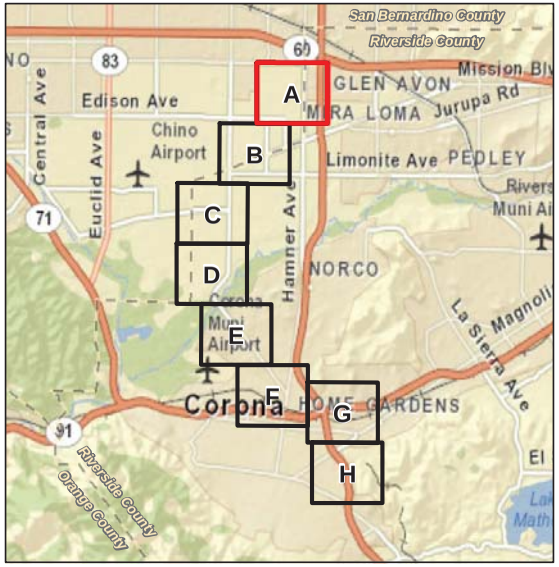
Non-native grassland is scattered throughout the Study Area. This vegetation type is dominated by a variety of non-native species including ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), wild oats (*Avena* sp.), foxtail fescue (*Vulpia myuros*),



Study Area

Vegetation Types and Other Areas

- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Vegetation Types and Other Areas

Figure 5A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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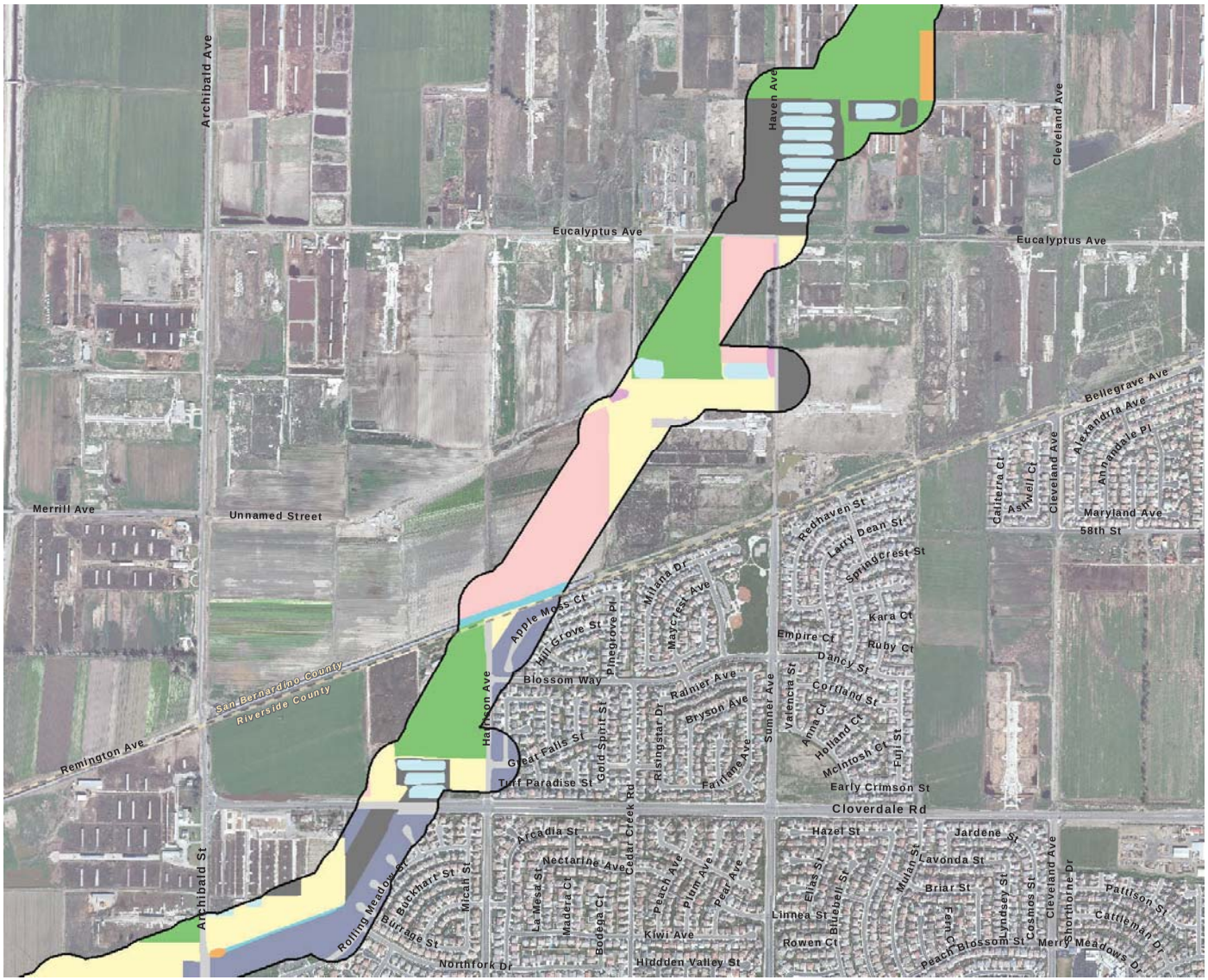

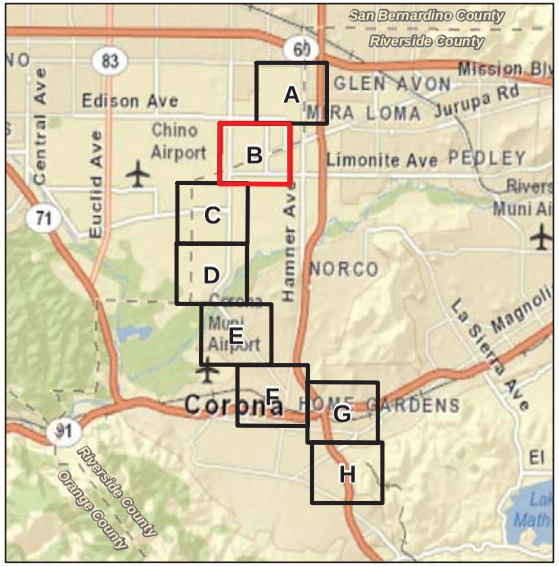

Vegetation Types and Other Areas

Figure 5B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

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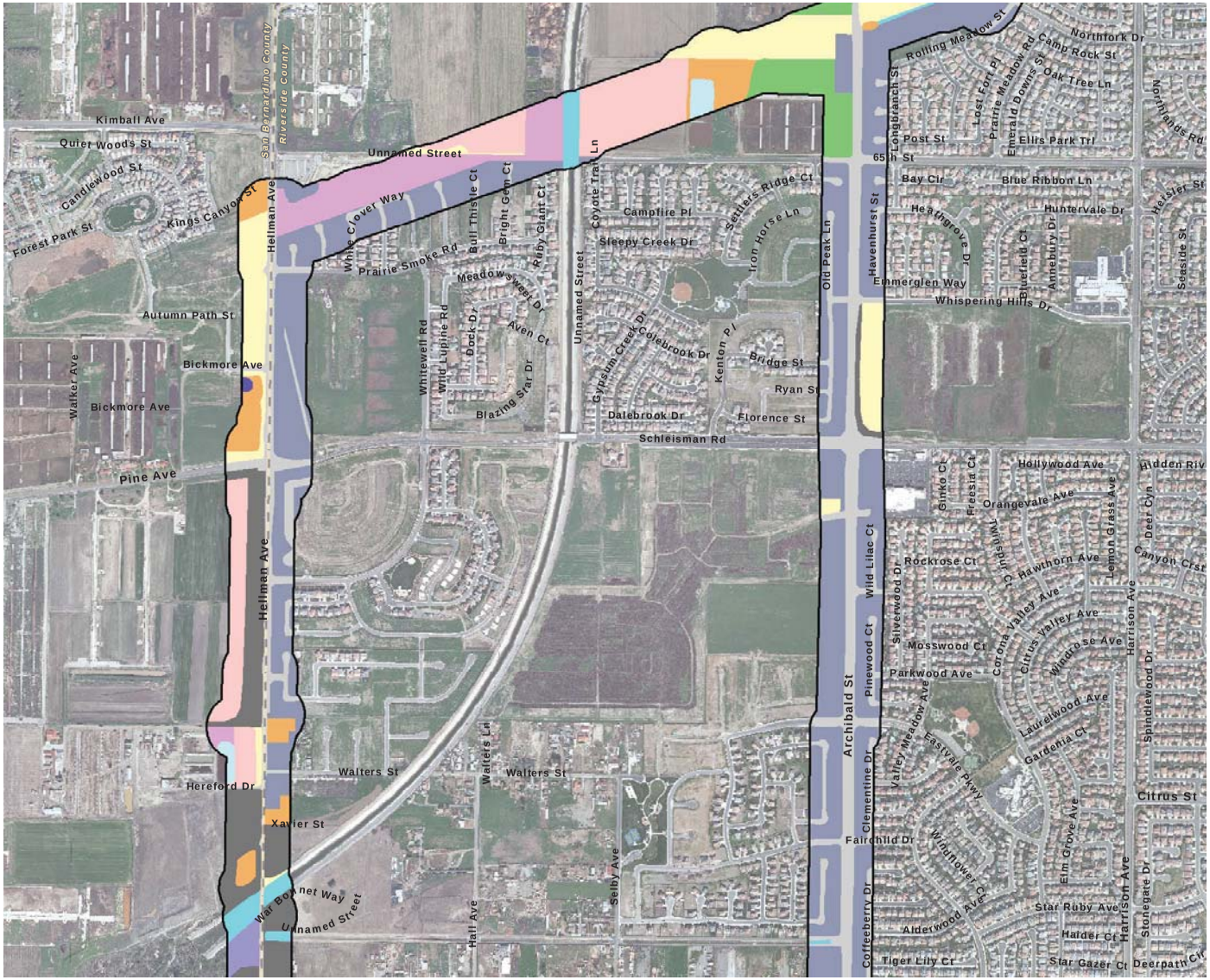
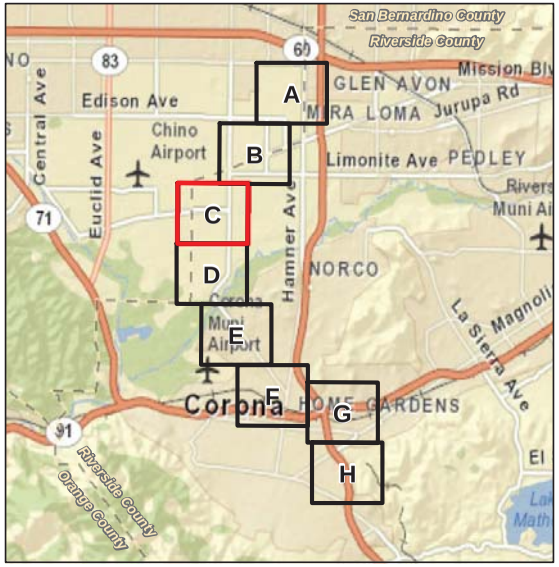


Study Area

Vegetation Types and Other Areas

- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Vegetation Types and Other Areas

Figure 5C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

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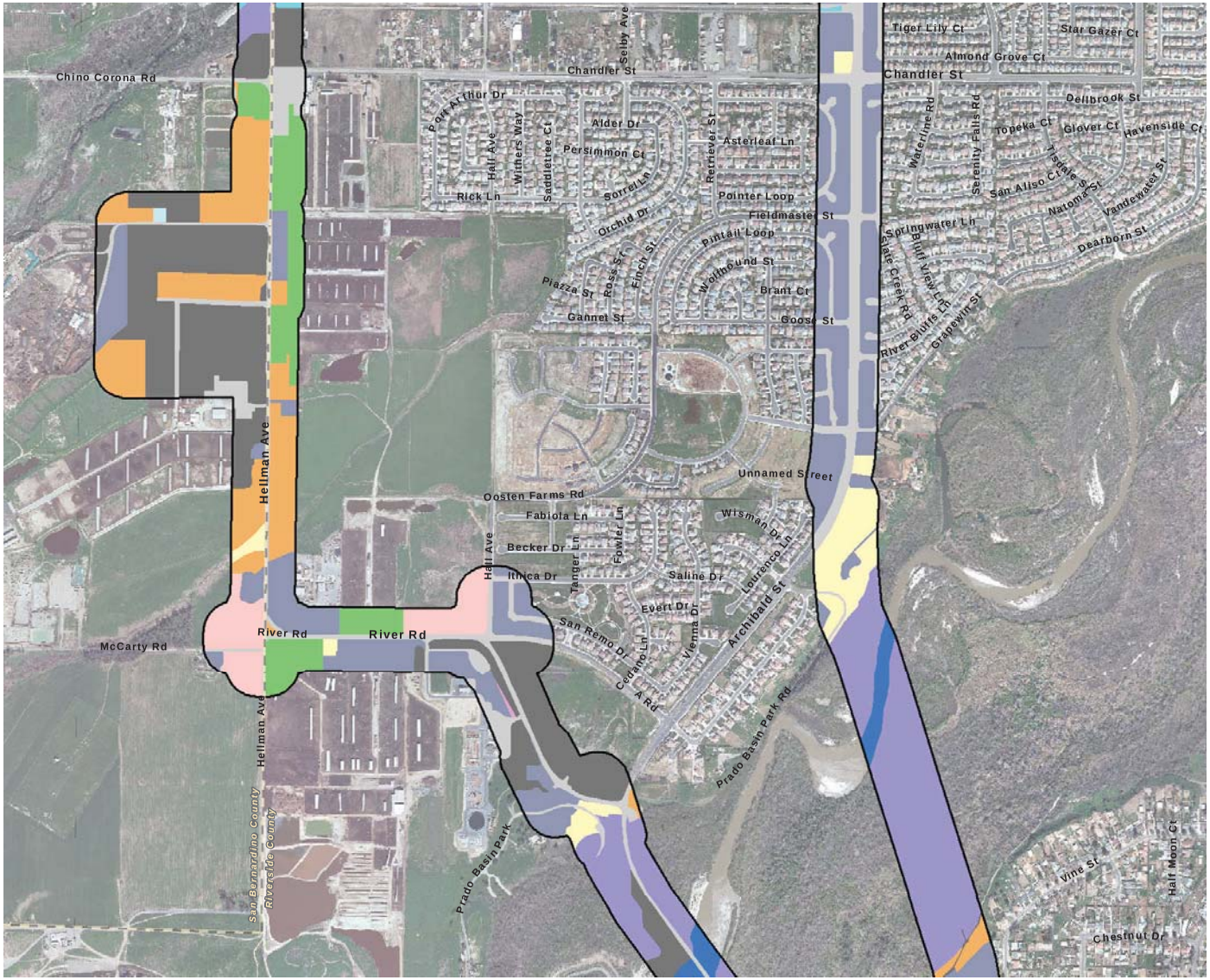
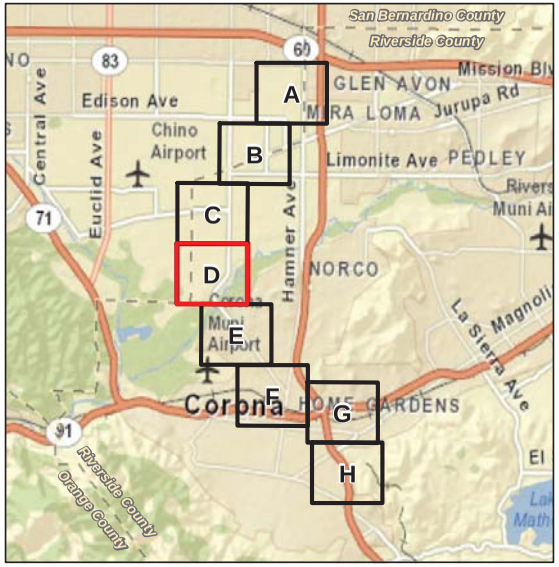


Study Area

Vegetation Types and Other Areas

- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Vegetation Types and Other Areas

Figure 5D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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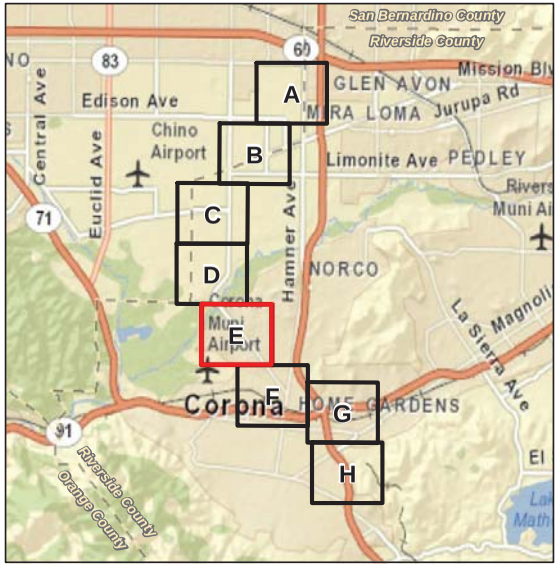
Study Area

Vegetation Types and Other Areas

- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Vegetation Types and Other Areas

Figure 5E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

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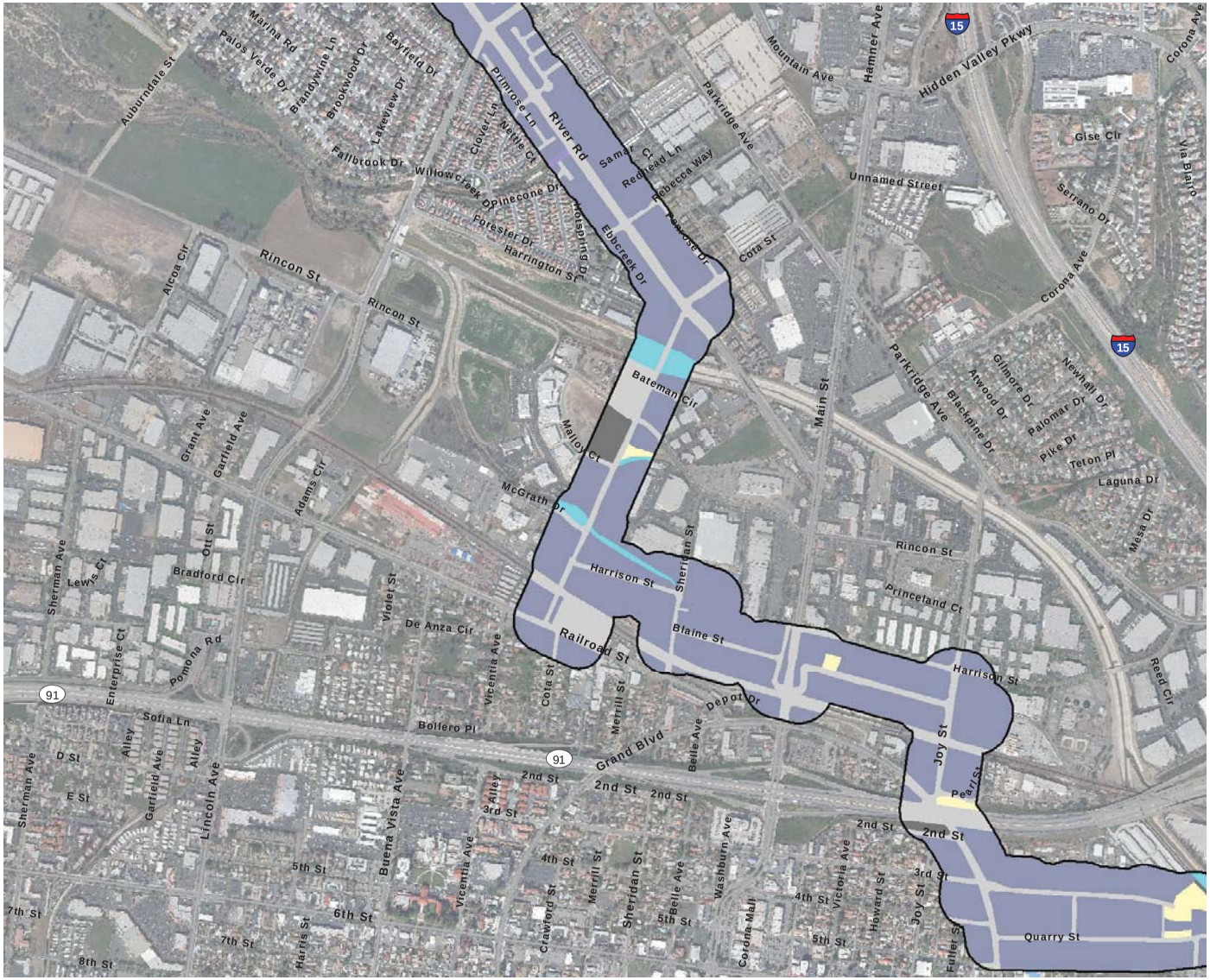

Vegetation Types and Other Areas

Figure 5F

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

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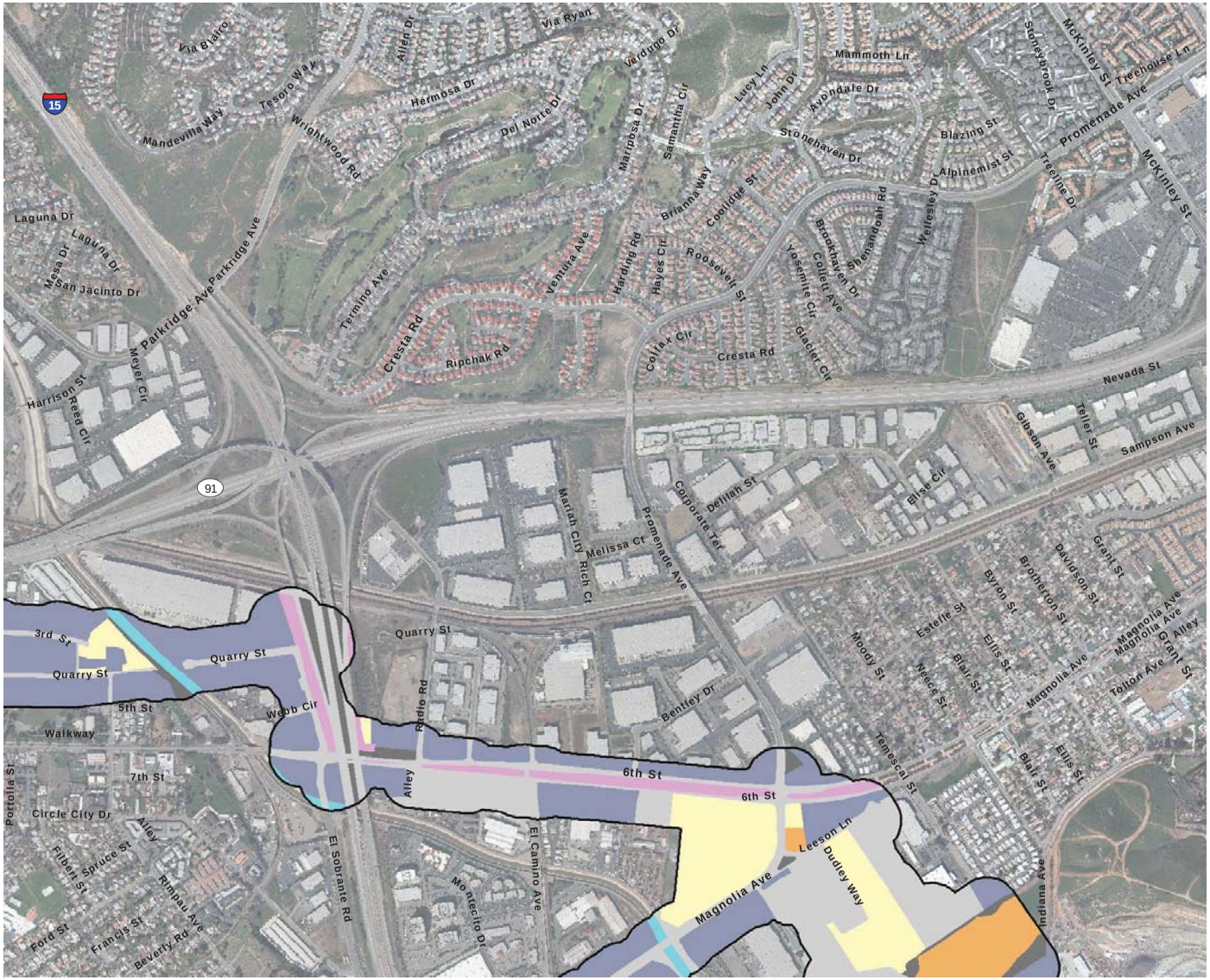
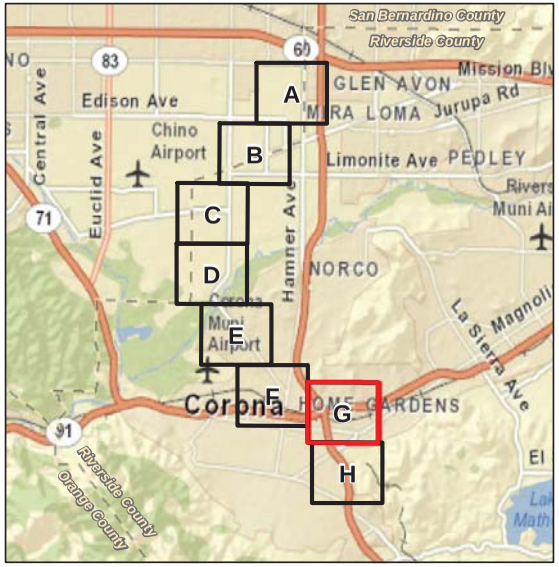


Study Area

Vegetation Types and Other Areas

- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Vegetation Types and Other Areas

Figure 5G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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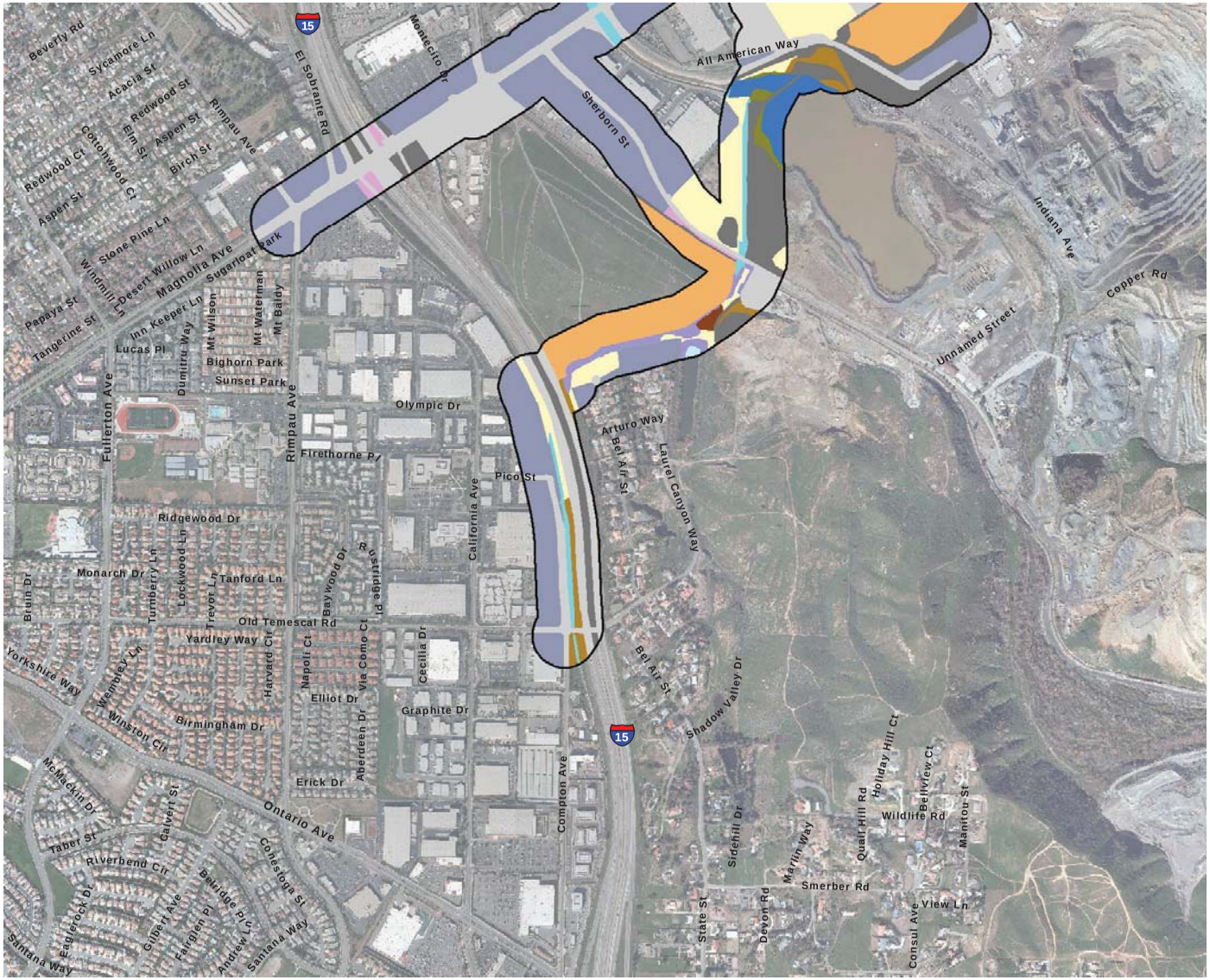

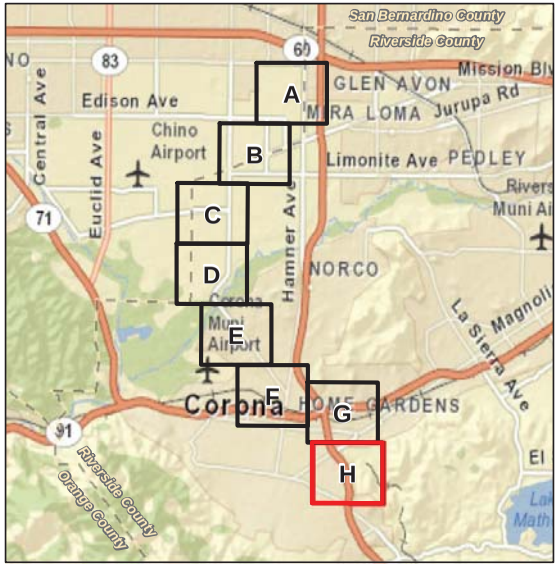

Vegetation Types and Other Areas

Figure 5H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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rancher's fiddleneck (*Amsinckia menziesii*), common horseweed (*Erigeron canadensis* [*Conyza canadensis*]), and foxtail barley (*Hordeum murinum*). The proportion of each species varies by patch. Ruderal species such as shortpod mustard (*Hirschfeldia incana*) or cheeseweed (*Malva parviflora*) are present in lesser densities.

3.1.4 Ruderal

Ruderal vegetation is scattered throughout the Study Area. It sometimes intergrades with non-native grassland. This vegetation type is dominated by a mixture of herbs and grasses. Dominant species, which vary by patch, include shortpod mustard, rancher's fiddleneck, western sunflower (*Helianthus annuus*), cheeseweed, ripgut grass, and wild oats. Other species present in lesser densities include Russian thistle (*Salsola tragus*), white nightshade (*Solanum americanum*), London rocket (*Sisymbrium irio*), and foxtail barley.

3.1.5 Disturbed Mule Fat Scrub

Disturbed mule fat scrub occurs along the alternative source line routes around the lake. This vegetation type is dominated by scattered mule fat (*Baccharis salicifolia*) with other species present, including water cress (*Nasturtium officinale* [*Rorippa nasturtium-aquaticum*]), broad-leaved peppergrass (*Lepidium latifolium*), and Spanish sunflower (*Pulicaria paludosa*).

3.1.6 Willow Riparian Forest

Willow riparian forest occurs along the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes within the Prado Basin and other drainages, as well as the alternative source line routes along a drainage. This vegetation type is dominated by large trees, primarily Goodding's black willow (*Salix gooddingii*) and red willow (*Salix laevigata*). The understory is dominated by mule fat in some areas and a mixture of mule fat, tree tobacco, and giant reed (*Arundo donax*) in other areas. Other large trees present in this vegetation type include gum tree (*Eucalyptus* sp.), narrow-leaved willow (*Salix exigua*), western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), Fremont cottonwood (*Populus fremontii*), blue elderberry (*Sambucus nigra* ssp. *caerulea* [*Sambucus mexicana*]), and tree of heaven (*Ailanthus altissima*). Open water occurs in some places under the tree canopy, but these areas were mapped based on the tree canopy.

3.1.7 Freshwater Marsh

Freshwater marsh occurs in one patch along the proposed Mira Loma-Jefferson 66 kV subtransmission line route. This vegetation type consists of cattails (*Typha* sp.) in a depression.

3.1.8 Open Water

Open water occurs within the Santa Ana River and at a lake adjacent to the alternative source line routes. Open water is mapped in the Santa Ana River in areas that did not contain emergent vegetation or a tree canopy.

3.1.9 Flood Control Channel

Flood control channels occur along all routes in the Study Area. These channels are concrete-lined or have earthen bottoms. They may contain open water and small amounts of vegetation; however, the water and vegetation are ephemeral in nature and relatively small and not mapped separately.

3.1.10 Impoundment

Impoundments occur in the northern portion of the Study Area and were created to disallow water runoff from dairies. One impoundment is also present at the southern end of the alternative source line routes. Impoundments consist of bare ground, ruderal vegetation, or open water; however, they are mapped separately from these other categories because their composition fluctuates throughout the year and from year to year.

3.1.11 Agricultural Field

Agricultural fields occur at the northern end of the Study Area along the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes. This mapping unit includes active row crops and tilled land. Ruderal species (such as shortpod mustard, wild oats, and cheeseweed) or unvegetated areas may be present along the margins of the fields; however, these areas were generally too small to be mapped separately.

3.1.12 Dairy

Dairies occur at the northern end of the Study Area along the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes. These areas are primarily unvegetated fields with associated structures (e.g., cattle pens). Domestic cattle (*Bos taurus*) are present in these areas.

3.1.13 Developed

Developed areas occur throughout the Study Area. This mapping unit consists of paved roads and utility structures that do not contain landscaped areas. No vegetation is present in these areas. Developed areas that contain vegetation adjacent to structures were mapped as “Ornamental/Developed”.

3.1.14 Ornamental

Ornamental vegetation is scattered throughout the Study Area. It includes landscaping (e.g., crape myrtle [*Lagerstroemia indica*], day lily [*Hemerocallis fulva*], and turf grass) in the center median or roads; nurseries; landscaped parks; and gum tree windrows adjacent to roads.

3.1.15 Ornamental/Developed

Ornamental/developed areas occur throughout the Study Area. This mapping unit includes residential and commercial development and associated ornamental landscaping. A large variety of ornamental species occur in these areas including, but not limited to, Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*), sweet gum (*Liquidambar styraciflua*), flowering plum (*Prunus* sp.), gum tree, fan palm (*Washingtonia robusta*) and date palm (*Phoenix* sp.), day lily, India hawthorn (*Raphiolepis indica*), roses (*Rosa* spp.), African fountain grass (*Pennisetum setaceum*), and turf grass.

3.1.16 Disturbed

Disturbed areas are located throughout the Study Area. These areas consist of bare ground and contain little to no vegetation. They have been disturbed by activities such as grading.

3.2 COMMON WILDLIFE

The Study Area provides suitable habitat for several wildlife species. Wildlife species observed or expected to occur within the Study Area are discussed below.

3.2.1 Fish

No fish species were observed in the Study Area during the surveys; however, there is suitable habitat for fish located in portions of the Study Area which transect the Santa Ana River.

3.2.2 Amphibians

Amphibians require moisture for at least a portion of their lifecycle and many require standing or flowing water for reproduction. Terrestrial species may or may not require standing water for reproduction; they survive in dry areas by aestivating (i.e., remaining beneath the soil in burrows or under logs and leaf litter, and emerging only when temperatures are low and humidity is high). Many of these species' habitats are associated with water and they emerge to breed once the rainy season begins. Soil moisture conditions can remain high throughout the year in some habitat types depending on factors such as amount of vegetation cover, elevation, and slope aspect.

Suitable habitat for amphibians is present in the Study Area within the Santa Ana River as well as several flood control channels located throughout the Study Area. Two native amphibian species were observed and/or detected through vocalization in the Study Area during the surveys including: Baja California treefrog (*Pseudacris hypochondriaca* [*Hyla regilla*]) and western toad (*Anaxyrus boreas [Bufo boreas*]). Additionally, two non-native, invasive species, bullfrog (*Lithobates catesbeianus* [*Rana catesbeiana*]) and African clawed frog (*Xenopus laevis*) were observed in the Study Area.

3.2.3 Reptiles

Reptilian diversity and abundance typically varies with vegetation type and character. Many species prefer only one or two vegetation types; however, most species will forage in a variety of habitats. Most reptile species that occur in open areas use rodent burrows for cover, protection from predators, and refuge during extreme weather conditions.

Reptile species observed in the Study Area include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis catenifer*). Other common reptile species expected to occur in the Study Area include southern alligator lizard (*Elgaria multicarinata*), common kingsnake (*Lampropeltis getula*), and western rattlesnake (*Crotalus oreganus*).

3.2.4 Birds

A variety of bird species are expected to be residents in the Study Area and to use the habitats throughout the year. Other species are present only during certain seasons. For example, the white-crowned sparrow (*Zonotrichia leucophrys*) is expected to occur in the Study Area during the winter season and would then migrate north in the spring to breed during the summer.

Although the same individuals may not be present year-round in the Study Area, the following common bird species were observed during the surveys and can be considered resident: great blue heron (*Ardea herodias*), great egret (*Ardea alba*), black-crowned night-heron (*Nycticorax nycticorax*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), Anna's

hummingbird (*Calypte anna*), Nuttall's woodpecker (*Picoides nuttallii*), black phoebe (*Sayornis nigricans*), Hutton's vireo (*Vireo huttoni*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), orange-crowned warbler (*Oreothlypis celata*), common yellowthroat (*Geothlypis trichas*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone* [*Pipilo*] *crissalis*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Spinus* [*Carduelis*] *psaltria*), and American goldfinch (*Spinus* [*Carduelis*] *tristis*).

Summer-only residents in the region that nest or were suspected of nesting in the Study Area during the surveys include black-chinned hummingbird (*Archilochus alexandri*), Pacific-slope flycatcher (*Empidonax difficilis*), ash-throated flycatcher (*Myiarchus cinerascens*), black-headed grosbeak (*Pheucticus melanocephalus*), blue grosbeak (*Passerina caerulea*), hooded oriole (*Icterus cucullatus*), and Bullock's oriole (*Icterus bullockii*).

Wintering species observed during the surveys include yellow-rumped warbler (*Setophaga coronata* [*Dendroica coronata*]), and white-crowned sparrow.

The turkey vulture (*Cathartes aura*), a scavenger, was observed in the Study Area. Other raptors (birds of prey) observed in the Study Area include white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), peregrine falcon (*Falco peregrinus*) and prarie falcon (*Falco mexicanus*).

3.2.5 Mammals

Small, ground-dwelling mammals observed in the Study Area include California ground squirrel (*Spermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*).

Bats occur throughout most of Southern California and may use any portion of the Study Area as foraging habitat. Most of the bats that could potentially occur in the Study Area are inactive during the winter and either hibernate or migrate, depending on the species. Several bat species may occur in the Study Area, including pallid bat (*Antrozous pallidus*), big brown bat (*Eptesicus fuscus*), and California myotis (*Myotis californicus*).

Medium- to large-sized mammals observed in the Study Area include Virginia opossum (*Didelphis virginiana*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), common raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*).

Domestic animals observed in the Study Area include domestic dog (*Canis familiaris*), domestic cat (*Felis catus*), domestic goat (*Capra aegagrus hircus*), domestic sheep (*Ovis* sp.), and domestic cow (*Bos taurus*).

3.2.6 Wildlife Movement

Wildlife corridors link together areas of suitable wildlife 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 mitigate the effects of this fragmentation by

(1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources (Noss 1983; Fahrig 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 or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for food or water, defending territories or searching for mates, breeding areas, or cover). A number of terms such as "wildlife corridor", "travel route", "habitat linkage", and "wildlife crossing" have been used in various wildlife movement studies to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and to facilitate the discussion on wildlife movement in this analysis, these terms are defined as follows:

- ***Travel route*** **–** a landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and to 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 it 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 bound by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and to facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat linkages" 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 man-made and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent "choke points" along a movement corridor, which may impede wildlife movement and increase the risk of predation.

It is important to note that in a large open space area where there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors (as defined above) may not yet exist. Given an open space area that is both large enough to maintain viable populations of species and to provide a variety of travel routes (e.g., canyons, ridgelines, trails, riverbeds, and others), wildlife will use these "local" routes while searching for food, water, shelter, and mates and will not need to cross into other large open space areas. Based on their size, location, vegetative composition and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water and cover, particularly for small- and medium-sized animals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles (such as roads and highways), the remaining landscape features or travel

routes that connect the larger open space areas become corridors as long as they provide adequate space, cover, food and water, and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

In general, animals discussed within the context of movement corridors typically include larger, more mobile species (such as mule deer [*Odocoileus hemionus*], black bear [*Ursus americanus*], mountain lion [*Puma concolor*], fox [*Urocyon* sp.], and coyote) and even some of the mid-sized mammals (such as northern raccoon, striped skunk, American badger [*Taxidea taxus*], and Virginia opossum). Most of these species have relatively large home ranges through which they move to find adequate food, water, and breeding and wintering habitat. It is assumed that corridors that serve larger, more vagile species also serve as corridors for many smaller, less mobile species, such as reptiles, amphibians, and rodents (generally discussed within the context of local movement). Regional movement for these species facilitates gene flow and requires at least some local "stepping stone" movement of individuals between populations.

The availability of open space corridors is generally considered less important for bird species. Most bird species are believed to fly in more or less direct paths to desired locations; however, some habitat-specific species may not move great distances from their preferred habitat types, and are believed to be less inclined to travel across unsuitable areas.

Ideally, an open space corridor should encompass a heterogeneous mix of vegetation types to accommodate the ecological requirements of a wide variety of resident species in any particular region. Most species typically prefer adequate vegetation cover during movement, which can serve as both a food source and as protection from weather and predators. Drainages, riparian areas, and forested canyon bottoms typically serve as natural movement corridors because these features provide cover, food, and often water for a variety of species. Very few species will move across large expanses of open, uncovered habitat unless it is the only option available to them. For some species, landscape linkages must be able to support animals for sustained periods, not just for travel. Smaller or less mobile animals (such as rodents and reptiles) require long periods to traverse a corridor, so the corridor must contain adequate food and cover for survival.

The Study Area is located in a mosaic of developed and partially developed parcels, demolished and partially demolished dairies/farms, cleared lands, active agricultural operations, and open space. Agricultural land uses tend to increase to the north along the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and developed land uses cover most of the southern portion of the Study Area. The agricultural portions of the Study Area are generally of low biological value due to the limited amount of suitable habitat for wildlife species and adjacency to existing indirect effects of urban development (e.g., night lighting, noise, and general human activity). Therefore, wildlife species are not expected to use the northern portion of the Study Area for regional wildlife movement. The developed land uses in the southern portion of the Study Area limit wildlife movement for similar reasons, with dense commercial and residential development creating a more inhospitable barrier to movement. Limited movement opportunities for common wildlife species may be found along the flood-control channels and railroad tracks within the Study Area.

Portions of the proposed Circle City Substation site, the alternative Circle City Substation site, and the alternative source line routes occur within the MSHCP Proposed Constrained Linkage 4.[2] This proposed linkage is comprised of the portion of Temescal Wash that extends from Indiana Avenue to El Cerrito Road. This linkage provides movement for species between

[2] A constricted connection expected to provide for movement of identified Planning Species between Core Areas, where options for assembly of the connection are limited due to existing patterns of use.

core areas in Lake Mathews/Estelle Mountain and areas upstream along Temescal Wash. The northern extent of this linkage is constrained by existing development in the City of Corona. Temescal Wash becomes concrete-lined and surrounded by commercial development where it is crossed by the alternative source line routes. Because of these modifications to the natural stream course, wildlife movement is expected to be limited in this area.

The proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3 would cross the Prado Basin. Riparian vegetation in this area represents a regional wildlife movement corridor separating the upper and lower Santa Ana River watershed. A variety of wildlife species are expected to utilize the riparian vegetation in the Prado Basin for both regional and local wildlife movement, especially since the area is constrained on all sides by existing urban development and agricultural uses. Amphibians, reptiles, and small mammals are expected to utilize the riparian vegetation for movement, though larger mammals are not as likely to be found along the river corridor (California State Coastal Conservancy 2001). Further, during appropriate seasonal flows, the Santa Ana River may provide a movement corridor for fish and other aquatic species. The wetlands of the Prado Basin are home to approximately 250 rare and Endangered bird and waterfowl species that migrate along the Pacific Flyway or are resident to the area (California State Coastal Conservancy 2001). Habitat within the Prado Basin and along the Santa Ana River comprises MSHCP Existing Core A. A Criteria Cell for Existing Core A (i.e., Cell 964) is located less than 3,000 feet upstream of the Study Area. This area functions as a linkage connecting Orange County to the west with San Bernardino County to the north. It is also connected to the Cleveland National Forest via both upland and riparian connections.

3.3 SPECIAL STATUS BIOLOGICAL RESOURCES

The following section addresses special status biological resources observed, reported, or that have the potential to occur in the vicinity of the Proposed Project. These resources include plant and wildlife species that have been afforded special status and/or are recognized by federal and State resource agencies, as well as private conservation organizations. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size, geographic range, and/or distribution resulting in most cases from habitat loss. Tables 9 and 10 provide a summary of special status plant and wildlife species known to occur in the Project vicinity, including information on the status, likelihood for occurrence, and definitions for the various status designations. Generally, this list includes species reported by the CNDDB and CNPS, supplemented with species from the author's experience that either occur nearby or could occur based on the presence of suitable habitat. In addition, special status biological resources include vegetation types and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined by federal, State, and local government conservation programs. Sources used to determine the special status of biological resources are as follows:

- **Plants** – Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010, 2012); California Natural Diversity Database (CDFG 2010a, 2012a); various USFWS *Federal Register* notices regarding listing status of plant species; and the CDFG's *List of Special Vascular Plants, Bryophytes, and Lichens* (CDFG 2012b).

- **Wildlife** – California Natural Diversity Database (CDFG 2010a, 2012a); various USFWS *Federal Register* notices regarding listing status of wildlife species; and the CDFG's *List of Special Animals* (CDFG 2011).

- **Habitats** – California Natural Diversity Database (CDFG 2010a, 2012a) and the CDFG's *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program* (CDFG 2010b).

3.3.1 Definitions of Special Status Biological Resources

A federally **Endangered** species is one facing extinction throughout all or a significant portion of its geographic range. A federally **Threatened** species is one likely to become Endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally Threatened or Endangered species within a project impact area generally imposes severe constraints on development, particularly if a project would result in "take" of the species or its habitat. The FESA defines the term "take" as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm, in this sense, can include any disturbance of habitats used by the species during any portion of its life history.

Proposed species or **Candidate** species are those officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a Proposed Project. The presence of a Proposed or Candidate species within the Project impact area may impose constraints on development if they are listed prior to issuance of Project permits, particularly if a Project would result in "take" of the species or its habitat.

The State of California considers an Endangered species as one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened species as one present in such small numbers throughout its range that it is likely to become an Endangered species in the near future in the absence of special protection or management; and a Rare species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. Rare species applies only to California native plants. State-listed Threatened and Endangered species are fully protected against take unless an incidental take permit is obtained from the resource agencies. The presence of any State-listed Threatened or Endangered species within a project impact area generally imposes severe constraints on development, particularly if a project would result in "take" of the species or its habitat.

California Species of Special Concern is an informal designation used by the CDFG for some declining wildlife species that are not State Candidates. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFG.

Species that are **California Fully Protected** and **Protected** include those protected by special legislation for various reasons, such as the mountain lion and white tailed kite. Fully Protected species may not be taken or possessed at any time. California Protected species include those species that may not be taken or possessed at any time except under special permit from the CDFG issued pursuant to the *California Code of Regulations* (14 *California Code of Regulations* §§650, 670.7) or Section 2081 of the *California Fish and Game Code*.

The California Rare Plant Rank (CRPR), formerly known as CNPS Lists, is a ranking system by the Rare Plant Status Review group[3] and managed by the CNPS and the CDFG. A CRPR summarizes information on the distribution, rarity, and endangerment of California's vascular plants. Plants with a CRPR of **1A** are presumed extinct in California because they have not been seen in the wild for many years. Plants with a CRPR of **1B** are Rare, Threatened, or

[3] A group of over 300 botanical experts from the government, academia, non-governmental organizations, and the private sector.

Endangered throughout their range. Plants with a CRPR of **2** are considered Rare, Threatened, or Endangered in California but are more common in other states. Plants with a CRPR of **3** require more information before they can be assigned to another rank or rejected; this is a "review" list. Plants with a CRPR of **4** are of limited distribution or infrequent throughout a broader area in California; this is a "watch" list. The CNPS Threat Rank is an extension added onto the CRPR to designate the level of endangerment by a 1 to 3 ranking. An extension of **.1** is assigned to plants that are considered to be "seriously threatened" in California (i.e., over 80 percent of the occurrences threatened or having a high degree and immediacy of threat). Extension **.2** indicates the plant is "fairly threatened" in California (i.e., between 20 and 80 percent of the occurrences threatened or having a moderate degree and immediacy of threat). Extension **.3** is assigned to plants that are considered "not very threatened" in California (i.e., less than 20 percent of occurrences threatened or having a low degree and immediacy of threat or no current threats known). The absence of a threat code extension indicates plants lacking any threat information.

3.3.2 Special Status Vegetation Types

In addition to providing an inventory of special status plant and wildlife species, the CNDDB also provides an inventory of vegetation types that are considered special status by the State and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS). Determination of the level of imperilment is based on the NatureServe Heritage Program Status Ranks that rank both species and vegetation types on a global (**G**) and statewide (**S**) basis according to their rarity; trend in population size or area; and recognized threats (e.g., proposed developments, habitat degradation, and non-native species invasion). The ranks are scaled from 1–5. NatureServe considers **G or S1** communities to be critically imperiled and at a very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors; **G or S2** communities to be imperiled and at high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors; **G or S3** communities to be vulnerable and at moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors; **G or S4** communities to be apparently secure and uncommon but not rare with some cause for long-term concern due to declines or other factors; and **G or S5** communities to be secure (Faber-Langendoen et al. 2009).

For vegetation alliances[4] that have State ranks of **S1** to **S3**, all associations within the alliance are considered to be highly imperiled. Currently, association ranks are not provided, but associations ranked as **S3** or rarer are noted.

The CNDDB reports the following high priority special status vegetation types in the Project vicinity: California walnut woodland, Riversidian alluvial fan sage scrub, southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern interior cypress forest, southern riparian forest, southern sycamore alder riparian woodland, and southern willow scrub. Of these, southern riparian forest (comparable to the mapped willow riparian forest) is present in the Study Area. Riversidian sage scrub is considered a special status vegetation type because of its ability to support listed species like the coastal California gnatcatcher (*Polioptila californica californica*). Special status vegetation types in the Study Area are described below and are shown on the overall vegetation map (Figures 5A–5H).

[4] A vegetation alliance is "a classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover" (Sawyer et al. 2009).

Riversidian Sage Scrub, Disturbed Riversidian Sage Scrub

Coastal sage scrub, of which Riversidian sage scrub is a xeric (i.e., dry) sub-association that occurs along the base of the Transverse and Peninsular ranges, has declined approximately 70 to 90 percent in its historic range in California (Noss and Peters 1995). It has largely been lost to land use changes in Southern California basins and foothills. Loss of sage scrub habitat has led to the listing of 11 mammal, 26 bird, and 10 reptile species as Threatened and Endangered (Barbour et al. 2007). The ecological function of Southern California's remaining sage scrub is threatened by habitat fragmentation, invasive non-native species, livestock grazing, off-highway vehicles, altered fire regime, and perhaps air pollution (O'Leary 1995).

Willow Riparian Forest

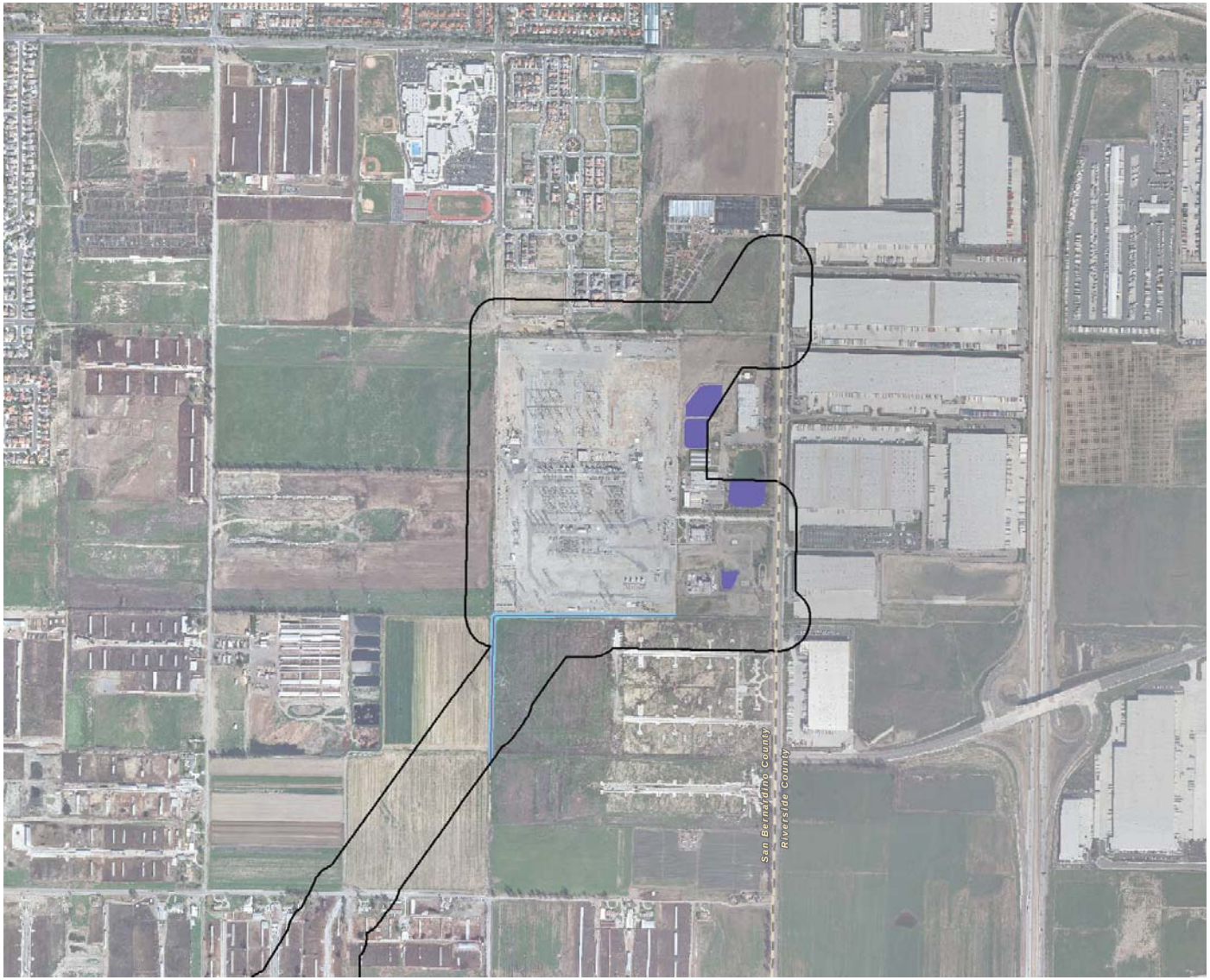
Willow riparian forest is considered rare by the CDFG; black willow thickets are ranked G4 S3 and red willow thickets are ranked G3 S3. Most natural riparian vegetation in Southern California has been lost or degraded by land use conversions to agricultural, urban, and recreational uses; channelization for flood control; sand and gravel mining; ground water pumping; water impoundments; and various other changes. It is estimated that as much as 95 to 97 percent of historic riparian habitats in Southern California have been lost (Faber et al. 1989). Riparian habitats are biologically productive as well as diverse, and are the exclusive habitat of several special status species. This vegetation type occurs along the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes and the alternative source line routes.

Jurisdictional Areas

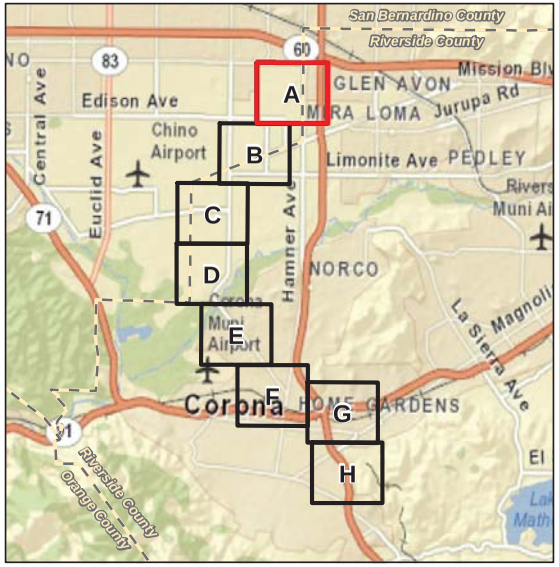
Riparian habitats are often under the jurisdiction of the USACE, the RWQCB, and/or the CDFG due to their association with wetlands, "Waters of the U.S.", or streambeds. However, it should be noted that the riparian habitats described above are not equivalent to delineated areas subject to the jurisdiction of the USACE, the RWQCB, and/or the CDFG. Only the portion of these habitats associated within a discernable streambed and/or adjacent wetlands that meet certain criteria are within the jurisdiction of these regulatory agencies.

Multiple blueline streams cross the Study Area, as shown on Figures 2A–2C. The Santa Ana River and the Prado Basin are the most prominent jurisdictional features in the Study Area, and would be crossed by the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3. Cucamonga Creek crosses the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3. Other unnamed blueline streams cross the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, the proposed source line routes, and the alternative source line routes.

The jurisdictional delineation identifies a total of 106.92 acres of USACE jurisdictional "Waters of the U.S." (4.39 acres are wetlands and 7.17 acres are open water) and 141.31 acres of CDFG jurisdictional "Waters of the State" in the Study Area (Figures 6A–6H; Table 8). The RWQCB jurisdictional boundaries are defined as those determined for the USACE under "Waters of the U.S.". Because the impoundments in the Study Area are isolated waters, the USACE is not expected to take jurisdiction over these areas. However, the RWQCB takes jurisdiction over both connected and isolated waters. Therefore, a total of approximately 131.11 acres under the jurisdiction of the RWQCB are present in the Study Area.



Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 6A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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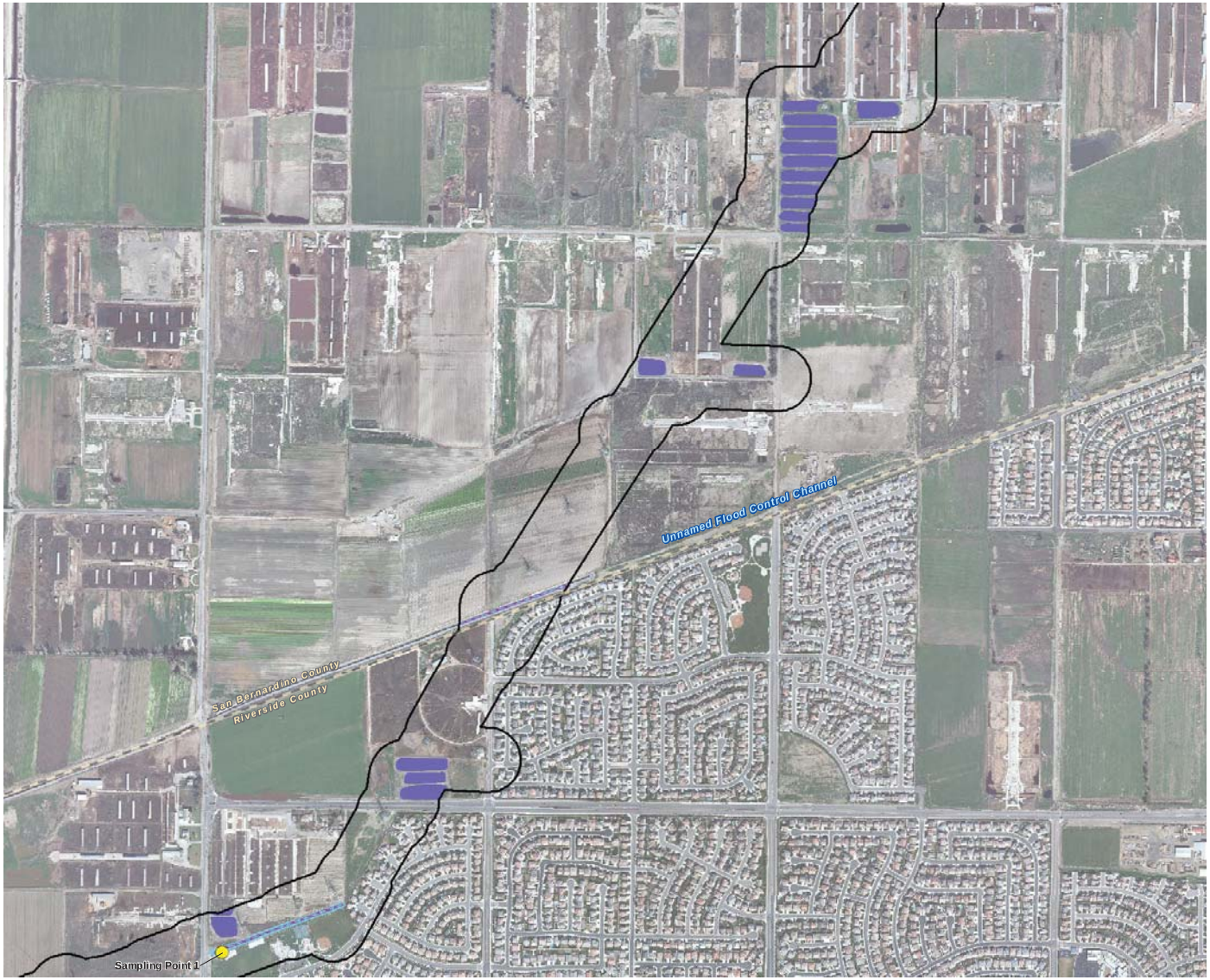
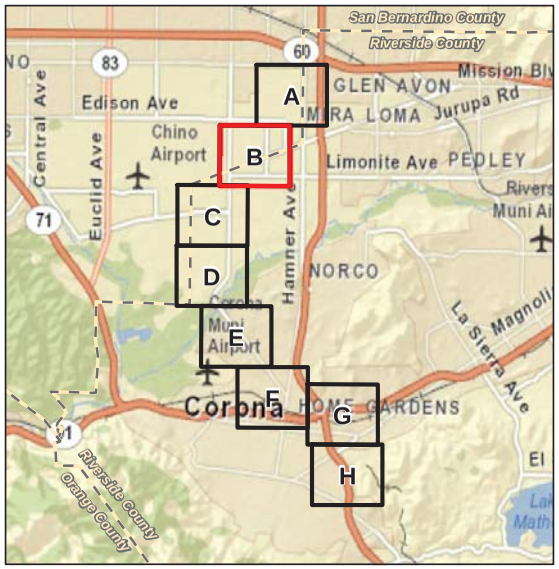
(Rev: 8-21-2012 CJS) Projects\Edison\J045\Graphics\BioTech\Ex6_JD.pdf



Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 6B

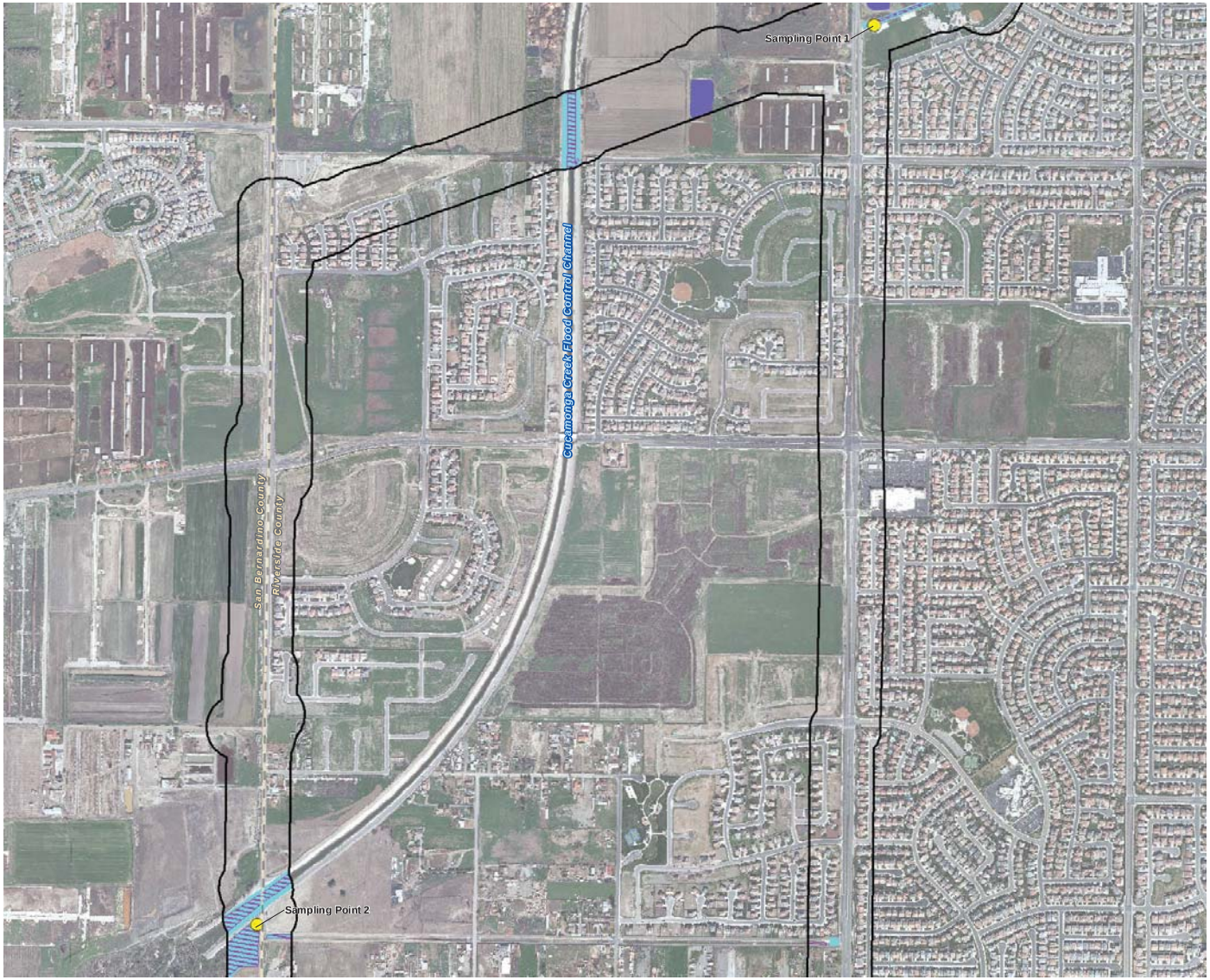
Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

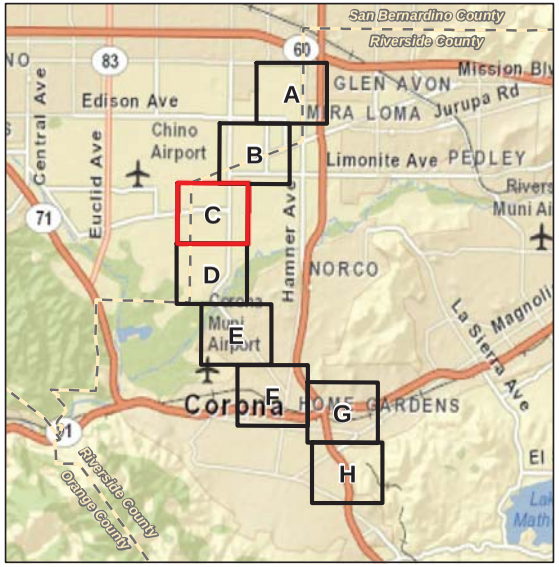
1,000 500 0 1,000 Feet

BonTerra CONSULTING

(Rev: 8-21-2012 CJS) Projects\Edison\J045\Graphics\BioTech\Ex6_JD.pdf



Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 6C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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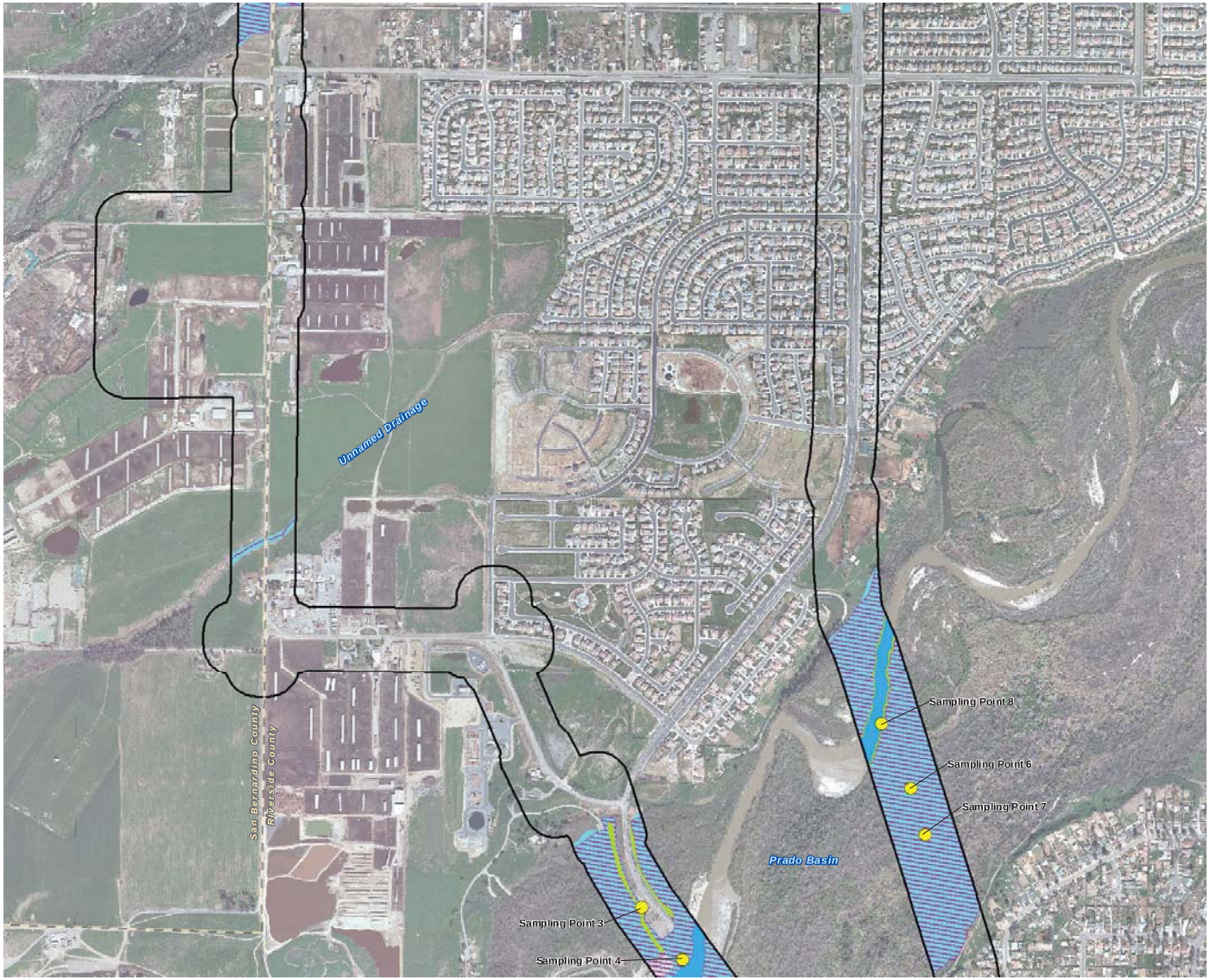
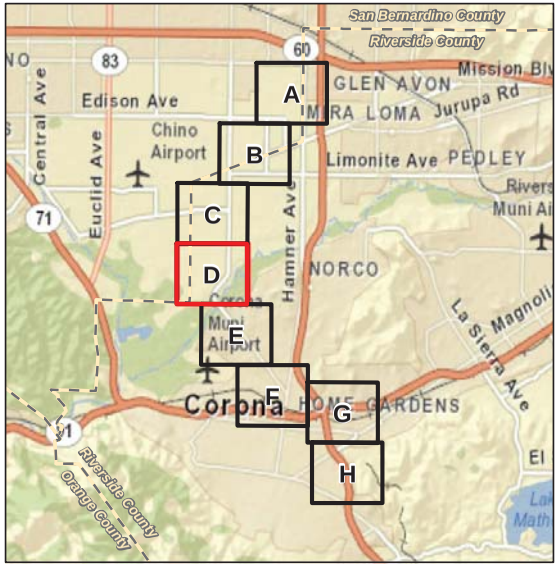


Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 6D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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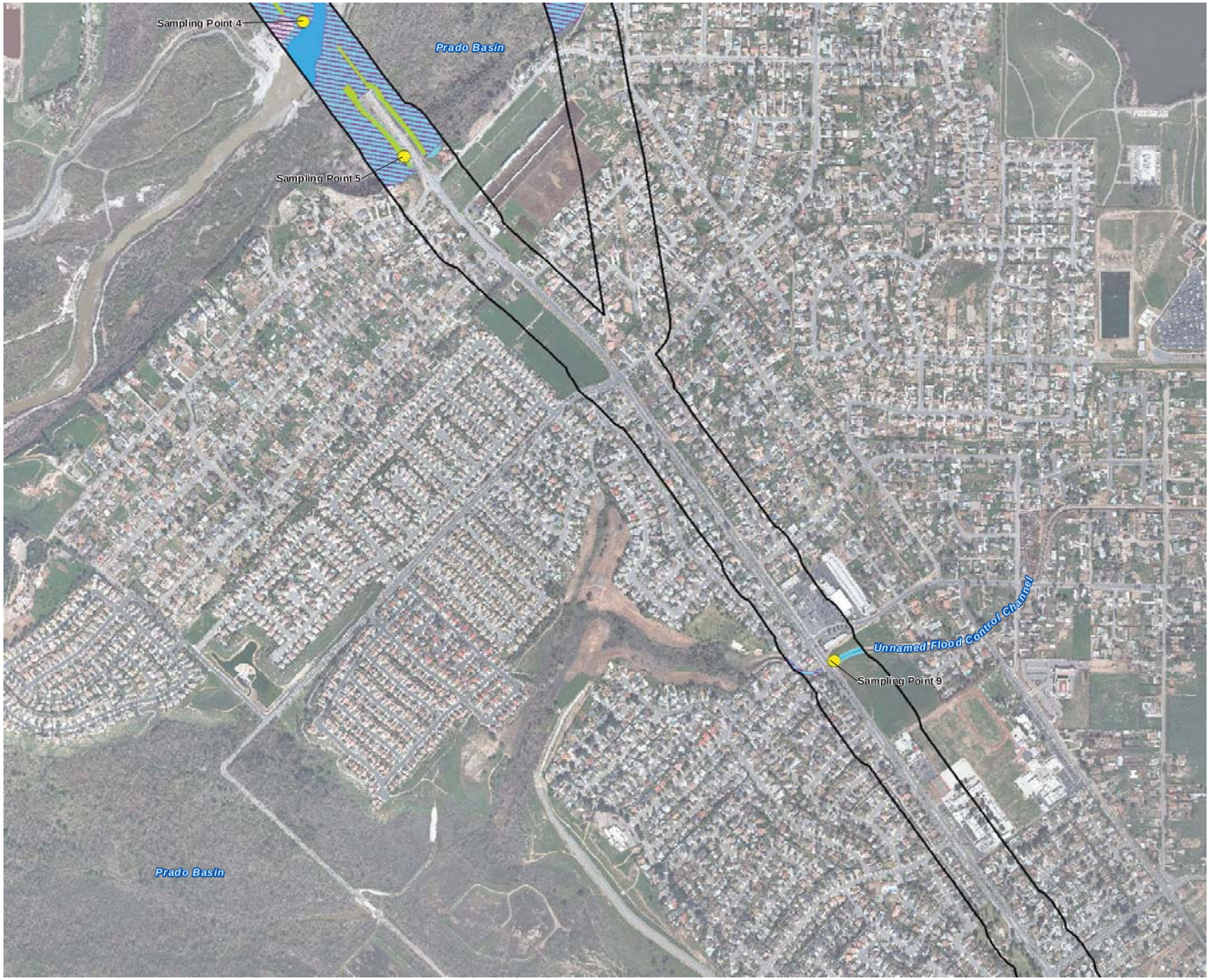
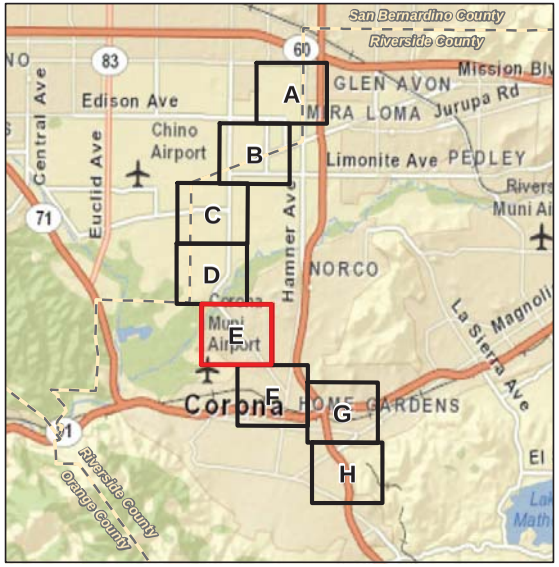


Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



Jurisdictional Resources

Figure 6E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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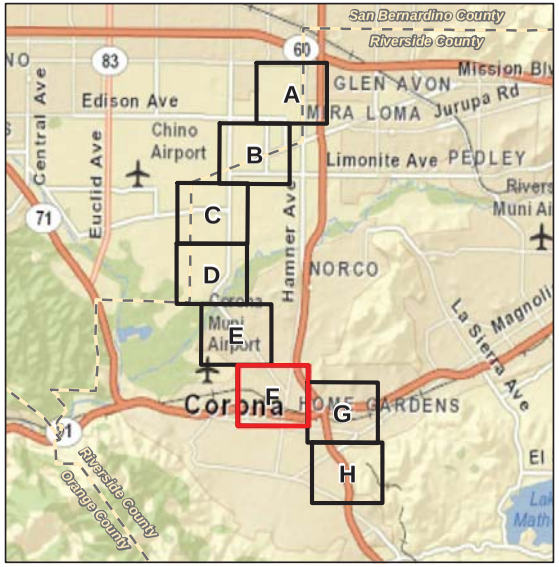
Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 6F

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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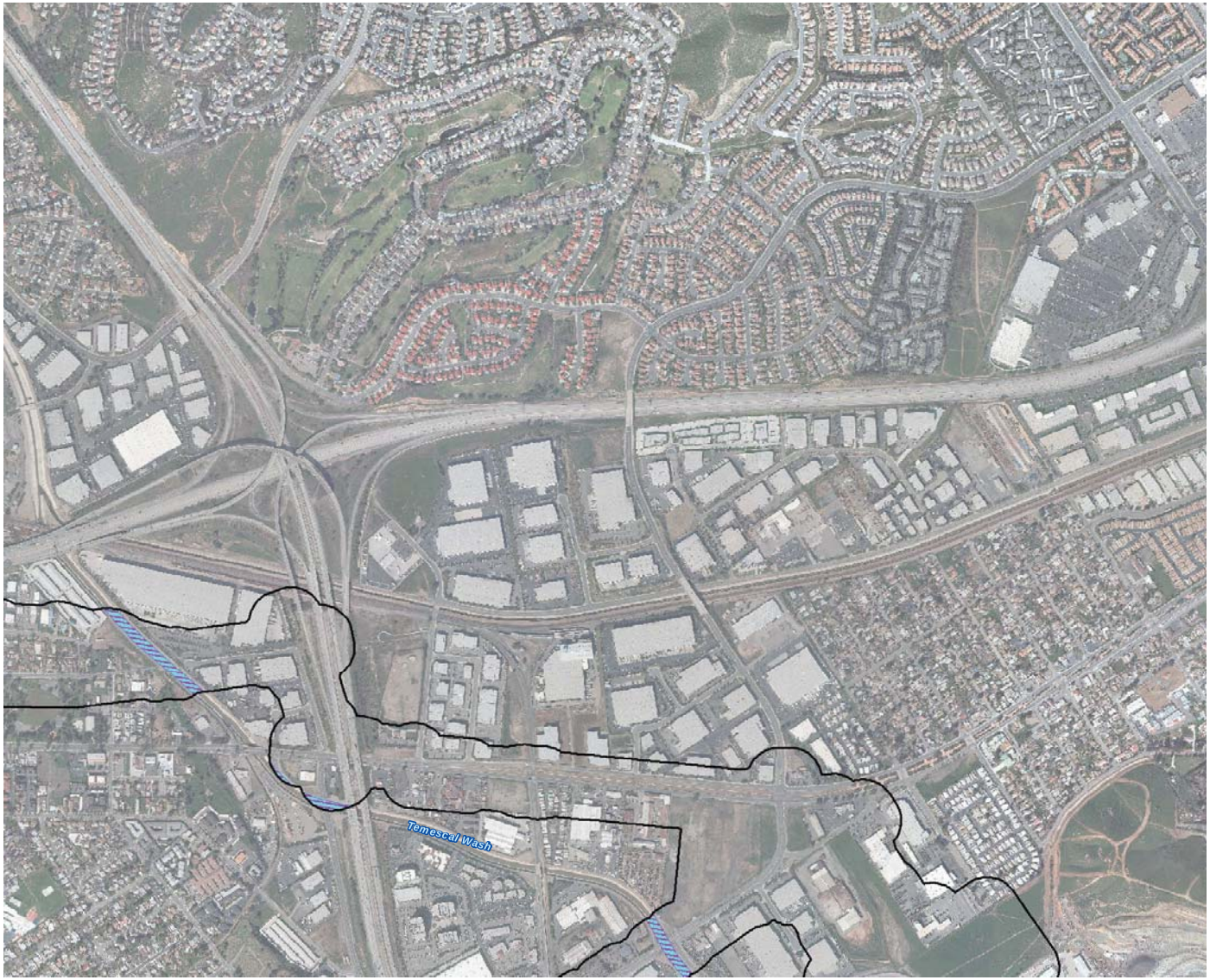
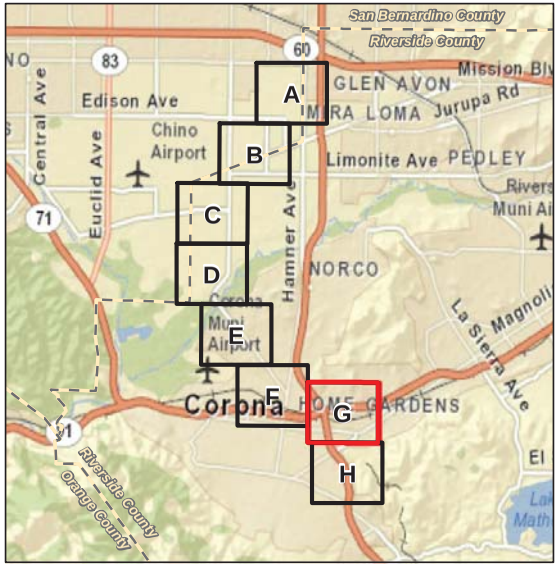


Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



Jurisdictional Resources

Figure 6G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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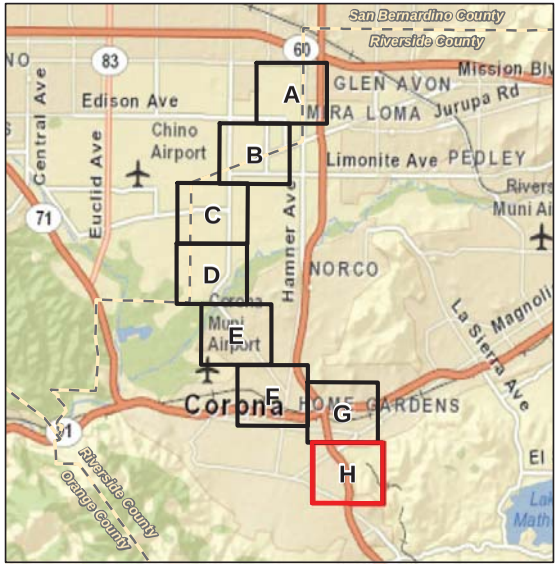
Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 6H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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TABLE 8
JURISDICTIONAL RESOURCES IN THE STUDY AREA

Jurisdiction	Amount (Acres)
Wetlands	4.39
Open Water	7.17
Other Non-wetland "Waters of the U.S."	95.36
Total "Waters of the U.S."	**106.92**
Isolated Waters	24.19
Non-isolated "Waters of the State"	117.12
Total "Waters of the State"	**141.31**

Protected Trees

Trees protected by the County of Riverside, County of San Bernardino, City of Chino, City of Corona, City of Eastvale, City of Norco, and City of Ontario may be present in the Study Area.

3.3.3 Special Status Plants

Thirty-nine special status plant species have been reported in the vicinity of the Project based on the results of the literature review described above. Table 9 provides a list of these species; their listing status; their MSHCP coverage; their potential to occur in each portion of the Study Area; and whether or not they were observed during focused surveys. Note that they are grouped alphabetically according to their scientific name. Potential occurrences were determined by biologists with expertise in botany. Species potential is provided separately for San Bernardino and Riverside County. A detailed description of each species follows the table.

TABLE 9
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY

Species	USFWS	Status			Potential For Occurrence (Riverside County/San Bernardino County)									Observed
		CDFG	CRPR	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Abronia villosa var. *aurita* chaparral sand-verbena	—	—	1B.1	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Allium munzii Munz's onion	FE	ST	1B.1	Covered[a]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Ambrosia pumila San Diego ambrosia	FE	—	1B.1	Covered[b]	—/LO	NE/—	LO/—	LO/—	LO/LO	LO/LO	LO/LO	LO/—	LO/—	No
Arenaria paludicola marsh sandwort	FE	SE	1B.1	—	—/NE	NE/—	NE/—	NE/—	MO/MO	MO/MO	MO/MO	NE/—	MO/—	No
Atriplex coulteri Coulter's saltbush	—	—	1B.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
California macrophylla round-leaved filaree	—	—	1B.1	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Calochortus plummerae Plummer's mariposa lily	—	—	1B.2	Covered[d]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Calochortus weedii var. *intermedius* intermediate mariposa lily	—	—	1B.2	Covered	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Calystegia sepium ssp. *binghamiae* Santa Barbara morning-glory	—	—	1B.1	—	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	NE/—	No
Centromadia pungens ssp. *laevis* smooth tarplant	—	—	1B.1	Covered[c]	—/MO	NE/—	MO/—	MO/—	MO/MO	MO/MO	MO/MO	MO/—	MO/—	No
Chloropyron maritimum ssp. maritimum [*Cordylanthus maritimus* ssp. *maritimus*] salt marsh bird's-beak	FE	SE	1B.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Chorizanthe parryi var. *parryi* Parry's spineflower	—	—	1B.1	Covered[d]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Chorizanthe polygonoides var. *longispina* long-spined spineflower	—	—	1B.2	Covered	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Chorizanthe xanti var. *leucotheca* white-bracted spineflower	—	—	1B.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Cladium californicum California saw-grass	—	—	2.2	—	—/NE	NE/—	NE/—	NE/—	MO/MO	MO/MO	MO/MO	NE/—	MO/—	No
Clinopodium chandleri [*Satureja chandleri*] San Miguel savory	—	—	1B.2	Covered[b]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Dodecahema leptoceras slender-horned spineflower	FE	SE	1B.1	Covered[a]	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	NE/—	No
Dudleya multicaulis many-stemmed dudleya	—	—	1B.2	Covered[a]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	FE	SE	1B.1	Covered	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	NE/—	No

TABLE 9 (Continued)
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY

Species	USFWS	Status			Potential For Occurrence (Riverside County/San Bernardino County)									Observed
		CDFG	CRPR	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Harpagonella palmeri Palmer's grapplinghook	—	—	4.2	Covered	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Hesperocyparis [*Callitropsis*] *forbesii* Tecate cypress	—	—	1B.1	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Horkelia cuneata ssp. *puberula* mesa horkelia	—	—	1B.1	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	—	—	1B.1	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Lepechinia cardiophylla heart-leaved pitcher sage	—	—	1B.2	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	—	—	1B.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Lycium parishii Parish's desert-thorn	—	—	2.3	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Monardella australis ssp. *jokerstii* Jokerst's monardella	—	—	1B.1	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Monardella pringlei Pringle's monardella	—	—	1A	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Muhlenbergia californica California muhly	—	—	4.3	Covered[d]	—/NE	NE/—	NE/—	NE/—	MO/MO	MO/MO	MO/MO	NE/—	NE/—	No
Navarretia prostrata prostrate vernal pool navarretia	—	—	1B.1	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Nolina cismontana Peninsular nolina	—	—	1B.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Phacelia keckii [*Phacelia suaveolens* ssp. *keckii*] Santiago Peak phacelia	—	—	1B.3	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Phacelia stellaris Brand's star phacelia	FC	—	1B.1	Covered[b]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	LO/—	No
Pseudognaphalium leucocephalum white rabbit-tobacco	—	—	2.2	—	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	NE/—	No
Senecio aphanactis chaparral ragwort	—	—	2.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Sidalcea neomexicana salt spring checkerbloom	—	—	2.2	—	—/NE	NE/—	NE/—	NE/—	MO/MO	MO/MO	MO/MO	NE/—	NE/—	No
Sphenopholis obtusata prairie wedge grass	—	—	2.2	—	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	LO/—	No
Symphyotrichum defoliatum San Bernardino aster	—	—	1B.2	—	—/NE	NE/—	NE/—	NE/—	LO/LO	LO/LO	LO/LO	NE/—	LO/—	No

TABLE 9 (Continued)
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY

Species	USFWS	Status			Potential For Occurrence (Riverside County/San Bernardino County)									Observed
		CDFG	CRPR	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Thysanocarpus rigidus [*Thysanocarpus laciniatus* var. *rigidus*] rigid fringepod	—	—	1B.2	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No

LEGEND:

Federal (USFWS)
FE Endangered
FC Candidate

State (CDFG)
SE Endangered
ST Threatened

California Rare Plant Rank (CRPR)
1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
4 Plants of Limited Distribution – A Watch List

California Rare Plant Rank (CRPR) Threat Code Extensions
None Plants lacking any threat information
.1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Fairly Endangered in California (20–80% of occurrences threatened)
.3 Not Very Threatened in California (low degree/immediacy of threat or no current threats known)

Potential to Occur in the Study Area
LO Low potential to occur due to marginal suitable habitat.
MO Moderate potential to occur due to suitable habitat.
NE No suitable habitat; not expected to occur in the Study Area

[a] These Narrow Endemic plant species are covered by the MSHCP, but the Proposed Project is outside the specific survey area for these particular species (Figure 6-1 of the MSHCP).
[b] These Narrow Endemic plant species are covered by the MSHCP and the Proposed Project is within the specific survey area for these particular species (Figure 6-1 of the MSHCP). Mitigation will be in accordance with procedures described in Section 6.1.3 of the MSHCP.
[c] These Criteria Area plant species are covered by the MSHCP, but the Proposed Project is outside the Additional Survey Needs area for these particular species (Figure 6-2 of the MSHCP).
[d] These species are Covered by the MSHCP and no additional mitigation is required. These species will be considered Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met. Species-specific conservation objectives for these species are presented in Section 9.0 of the MSHCP.

Note: A dash ("—") indicates that this is not applicable for the species.

Chaparral Sand Verbena

Chaparral sand verbena (*Abronia villosa* var. *aurita*) has a CRPR of 1B.1. It typically blooms between January and September (CNPS 2012). This perennial herb occurs in sandy places, primarily in coastal sage scrub, chaparral habitats, alluvial washes, and river benches (Baldwin et al. 2012; Roberts 2008); it is found at elevations between sea level and approximately 5,250 feet above msl (Baldwin et al. 2012). It is known from the central and southern South Coast and the western Sonoran (Colorado) Desert (Baldwin et al. 2012). In the vicinity of the Study Area, this variety has been reported near Glen Ivy Hot Springs, approximately seven miles southeast of the Study Area (CCH 2012) and historically from the City of Corona (CNPS 2012; 1934 record).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for chaparral sand verbena is very low because of lack of sandy soils, and this species was not observed during focused plant surveys. There are a few areas of sandy soil in the Study Area; however, these areas are not suitable habitat because of the high disturbance from the agricultural uses. Therefore, chaparral sand verbena is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

Munz's Onion

Munz's onion (*Allium munzii*) is a federally Endangered species; a State-listed Threatened species; and has a CRPR of 1B.1. It is covered by the MSHCP. It typically blooms between March and May (CNPS 2012). This perennial bulbiferous herb occurs in grassy openings in coastal sage scrub (Baldwin et al. 2012). It is restricted to heavy clay soils (Roberts et al. 2004). This species is endemic to western Riverside County and known from the east South Coast and northwestern Peninsular Ranges at elevations between approximately 985 and 2,950 feet above msl (Roberts et al. 2004; Baldwin et al. 2012). Threats to this species include urbanization and citrus groves (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from Temescal Canyon, approximately eight miles southeast of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Munz's onion is low, and this species was not observed during focused plant surveys. The grassland in the Study Area is heavily disturbed with non-native species and is isolated from areas of natural habitat. In addition, clay soils are not mapped in the Study Area; soils are primarily loams or sands. Therefore, Munz's onion is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

On June 7, 2005, the USFWS published a rule designating 176 acres of land as critical habitat for Munz's onion (USFWS 2005c). The critical habitat is located within the Cleveland National Forest at Elsinore Peak in western Riverside County. Following lawsuits, the USFWS proposed a revised critical habitat designation on April 17, 2012. This proposed rule would cover 889 acres in Riverside County, California (USFWS 2012). The Study Area is not located in final or newly proposed critical habitat for Munz's onion.

San Diego Ambrosia

San Diego ambrosia (*Ambrosia pumila*) is a federally Endangered species and has a CRPR of 1B.1. It is covered by the MSHCP. It typically blooms between April and October (CNPS 2012). This perennial rhizomatous herb occurs in low, seasonally wet areas with alkaline soils and

disturbed sites (Roberts et al. 2004; Baldwin et al. 2012). It is known from the southern South Coast and southern Peninsular Ranges of western Riverside and San Diego counties south to Baja California, Mexico at elevations between approximately 165 and 1,970 feet above msl (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from the Nichols Road wetlands area, approximately 15 miles southeast of the Study Area (CCH 2012), and a BonTerra Consulting Botanist has observed it in a disturbed area within the foothills surrounding Lake Elsinore.

Limited suitable habitat for this species occurs in most of the Study Area. Therefore, San Diego ambrosia has low potential to occur in the Study Area. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in the Study Area.

On November 30, 2010, the USFWS published a rule designating 783 acres of land as critical habitat for San Diego ambrosia (USFWS 2010c). The critical habitat is located in Riverside and San Diego counties. The Study Area is not located in final critical habitat for San Diego ambrosia.

Marsh Sandwort

Marsh sandwort (*Arenaria paludicola*) is a federally and State-listed Endangered species and has a CRPR of 1B.1. It typically blooms between May and August (CNPS 2012). This perennial stoloniferous herb (i.e., one that can reproduce by aboveground horizontal stems) occurs in wet meadows and marshes at elevations between sea level and approximately 985 feet above msl (Baldwin et al. 2012). It is known from the southern Central Coast (i.e., Nipomo Mesa), South Coast (i.e., the Santa Ana River), and Mexico, and it is considered to be extirpated from the San Francisco Bay (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from the Santa Ana River near San Bernardino, approximately 18 miles northeast of the Study Area (CCH 2012; 1899 record); however, this occurrence is believed to be extirpated (CDFG 2012a).

Potentially suitable habitat for this species is present along the Santa Ana River, at the ponds in the northern portion of the Study Area, and at the lake near the southern end of the Study Area. Therefore, marsh sandwort has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, and the alternative source line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

No critical habitat has been proposed by the USFWS for this species.

Coulter's Saltbush

Coulter's saltbush (*Atriplex coulteri*) has a CRPR of 1B.2. It typically blooms between March and October (CNPS 2012). This perennial herb occurs in alkaline soils or clay barrens in open areas of perennial grasslands, coastal sage scrub, and coastal bluff scrub at elevations between sea level and approximately 1,640 feet above msl (Baldwin et al. 2012; Roberts 2008). It is known from the South Coast and Channel Islands south to Baja California, Mexico, though perhaps only native to the southern coast of California (Baldwin et al. 2012). In the vicinity of the Study Area, this species is known historically from Chino Creek south of Ontario (1917 record); however, Coulter's saltbush occurrences in San Bernardino County may be misidentified (CDFG 2012a). The species has more recently been reported from the Perris-Aguanga Basin approximately 6 miles west of Hemet and over 20 miles east of the Study Area (CDFG 2012a).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Coulter's saltbush is low and this species was not observed during focused plant surveys. Therefore, Coulter's saltbush is not likely to be present along the alternative source line routes. It is not expected to occur in other portions of the Study Area due to lack of suitable habitat.

Round-leaved Filaree

Round-leaved filaree (*California macrophylla*) has a CRPR of 1B.1. It is covered by the MSHCP. It typically blooms between March and May (CNPS 2012). This annual herb occurs in open sites in grassland and scrubland at elevations between sea level and approximately 3,940 feet above msl (Baldwin et al. 2012). It is known from northern California south to northern Mexico and on Santa Cruz and Santa Catalina Islands (Baldwin et al. 2012). In the vicinity of the Study Area, this species is known from the Gavilan Hills south of Lake Mathews, approximately six miles southeast of the Study Area (CCH 2012).

Suitable clay soils are not present in the Study Area. Therefore, round-leaved filaree is not expected to occur in any portion of the Study Area.

Plummer's Mariposa Lily

Plummer's mariposa lily (*Calochortus plummerae*) has a CRPR of 1B.2, and it is covered by the MSHCP. It typically blooms between May and July (CNPS 2012). This species appears to integrade with intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) in the region (Roberts et al. 2004). This perennial bulbiferous herb occurs in coastal sage scrub; dry, rocky chaparral; and yellow-pine forest at elevations between sea level and approximately 5,580 feet above msl (Roberts et al. 2004; Baldwin et al. 2012). This species is known from the South Coast and Peninsular Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from Glen Avon Heights at the western end of the Jurupa Mountains, approximately 3.5 miles northeast of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Plummer's mariposa lily is low and this species was not observed during focused plant surveys. The grassland in the Study Area is heavily disturbed with non-native species and is isolated from areas of natural habitat. Therefore, Plummer's mariposa lily is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

Intermediate Mariposa Lily

Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) has a CRPR of 1B.2 and it is covered by the MSHCP. It typically blooms between May and July (CNPS 2012). This variety appears to integrade with Plummer's mariposa lily in the region (Roberts et al. 2004). This perennial bulbiferous herb occurs in coastal sage scrub and chaparral on dry, rocky, open slopes between sea level and approximately 2,230 feet above msl (Roberts 2008; Baldwin et al. 2012). It is known from the South Coast and northern Peninsular Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this variety has been reported from Hagador Canyon, approximately three miles west of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for intermediate mariposa lily is low and this species was not observed during focused plant surveys. The grassland in the Study Area is heavily disturbed with non-native species and is isolated from areas of natural habitat.

Therefore, intermediate mariposa lily is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

Santa Barbara Morning-glory

Santa Barbara morning-glory (*Calystegia sepium* ssp. *binghamiae*) is has a CRPR of 1B.1. It typically blooms between April and June (Baldwin et al. 2012). This rhizomatous herb occurs in coastal marshes and riverbanks (Baldwin et al. 2012). It is known from the northern and central South Coast at elevations between sea level and approximately 65 feet above msl (Baldwin et al. 2012). In the vicinity of the Study Area, this subspecies has been reported at Edison Avenue and Oaks Avenue approximately four miles northwest of the Study Area (CDFG 2012a). This location was rediscovered in 2011; the subspecies was previous considered extinct since 1999 (CNPS 2012).

Potentially suitable habitat for this subspecies is present along the Santa Ana River. Therefore, Santa Barbara morning-glory has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Smooth Tarplant

Smooth tarplant (*Centromadia pungens* ssp. *laevis*) has a CRPR of 1B.1. It is covered by the MSHCP. It typically blooms between April and September (CNPS 2012). This annual herb occurs on disturbed sites; grasslands; and open, poorly drained flats, depressions, and waterway beds and banks (Baldwin et al. 2012). It is known from the South Coast and Peninsular Ranges to northwestern Baja California, Mexico at elevations between 295 and 1,640 feet above msl (Baldwin et al. 2012). While this subspecies is threatened by agriculture, road maintenance, urbanization, and flood-control projects, it is tolerant of disturbance (CNPS 2012). In the vicinity of the Study Area, this subspecies has been reported near La Sierra Heights, approximately four miles east of the Study Area (CCH 2012).

Suitable habitat for this species occurs in most of the Study Area. Therefore, smooth tarplant has moderate potential to occur in the Study Area. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in the Study Area.

Salt Marsh Bird's-beak

Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum* [*Cordylanthus maritimus* ssp. *maritimus*]) is a federally and State-listed Endangered species and has a CRPR of 1B.2. It typically blooms between May and October (CNPS 2012). This hemiparasitic annual herb occurs in coastal salt marshes at elevations between sea level and approximately 33 feet above msl (Baldwin et al. 2012). It is known from the central and south coasts from Morro Bay to northern Baja California, Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species was historically reported from the San Bernardino Vally; however, the location is atypical for the species (CDFG 2012a; 1888 record).

The Study Area is outside the known range of the species and suitable habitat is not present. Therefore, salt marsh bird's-beak is not expected to occur in any portion of the Study Area.

No critical habitat has been proposed by the USFWS for this species.

Parry's Spineflower

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) has a CRPR of 1B.1, and it is covered by the MSHCP. It typically blooms between April and June (CNPS 2012). This annual herb occurs in open, sandy sites, often on gravelly slopes at elevations between approximately 295 and 2,625 feet above msl (Roberts et al. 2004; Baldwin et al. 2012). It is known from the east-central South Coast, the eastern Transverse Ranges, and the northwestern edge of the Sonoran Desert (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported on the east side of Lake Mathews, approximately seven miles east of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Parry's spineflower is low and this species was not observed during focused plant surveys. Therefore, Parry's spineflower is not likely to be present along the alternative source line routes. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Long-spined Spineflower

Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) has a CRPR of 1B.2, and it is covered by the MSHCP. It typically blooms between April and July (CNPS 2012). This annual herb occurs in sandy soils at elevations between approximately 100 and 4,920 feet above msl (Baldwin et al. 2012). It is known from the Peninsular Ranges of California to northern Baja California, Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from the south side of Lake Mathews, approximately five miles southeast of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for long-spined spineflower is low due to lack of clay soils, and this species was not observed during focused plant surveys. The grassland in the Study Area is heavily disturbed with non-native species and is isolated from areas of natural habitat. Therefore, long-spined spineflower is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

White-bracted Spineflower

White-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*) has a CRPR of 1B.2. It typically blooms between April and June (CNPS 2012). This annual herb occurs in sandy or gravelly soils at elevations between approximately 1,315 and 4,265 feet above msl, though possibly as low as 195 feet above msl (Baldwin et al. 2012). It is known from the eastern San Bernardino Mountains and northern San Jacinto Mountains (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from Temescal Canyon (CNPS 2012; 1932 record); however, recent reports are from the surrounding mountains more than 20 miles from the Study Area (CCH 2012).

The Study Area is outside the typical elevation range of this species. Therefore, white-bracted spineflower is not expected to occur in the Study Area.

California Saw-Grass

California saw-grass (*Cladium californicum*) has a CRPR of 2.2. It typically blooms between June and September (CNPS 2012). This rhizomatous herb generally occurs in alkaline marshes and swamps at elevations between sea level and approximately 7,055 feet above msl (Baldwin et al. 2012). It is known from the Central Coast, outer South Coast Ranges, South Coast,

Western Transverse Ranges, and Desert of California; outside of California, it is known from Utah, Arizona, Texas, and northern Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from Red Hill (CDFG 2012a; 1918 record).

Potentially suitable habitat for this species is present at the ponds in the northern portion of the Study Area and at the lake near the southern end of the Study Area. Therefore, California saw-grass has moderate potential to occur along the the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; and the alternative source line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

San Miguel Savory

San Miguel savory (*Clinopodium chandleri* [*Satureja chandler*]) has a CRPR of 1B.2, and it is covered by the MSHCP. It typically blooms between March and July (CNPS 2012). This shrub occurs on rocky slopes in chaparral and oak woodlands at elevations between sea level and approximately 3,610 feet above msl (Baldwin et al. 2012; Roberts et al. 2004). It is known from the Peninsular Ranges to northern Baja California, Mexico (Baldwin et al. 2012).

Suitable habitat for this species is not present in the Study Area. Therefore, San Miguel savory is not expected to occur in any portion of the Study Area.

Slender-horned Spineflower

Slender-horned spineflower (*Dodecahema leptoceras*) is a federally and State-listed Endangered species, has a CRPR of 1B.1, and is covered by the MSHCP. It typically blooms between April and June (CNPS 2012). This annual herb occurs in sandy or gravelly areas at elevations between approximately 655 and 2,295 feet above msl (Baldwin et al. 2012). It is known from the east-central South Coast; the adjacent foothills of the Transverse Ranges; and the Peninsular Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported near Temescal Canyon, approximately nine miles south of the Study Area (CCH 2012).

Suitable habitat for this species is present along the Santa Ana River. Therefore, slender-horned spineflower has moderate potential to occur along the the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

No critical habitat has been proposed by the USFWS for this species.

Many-stemmed Dudleya

Many-stemmed dudleya (*Dudleya multicaulis*) has a CRPR of 1B.2, and it is covered by the MSHCP. It typically blooms between April and July (CNPS 2012). This perennial herb, from a corm (i.e., a swollen underground vertical plant stem similar to a bulb), occurs in heavy, often clayey, soils in coastal sage scrub and native grassland on coastal plains and sandstone outcrops at elevations between sea level and approximately 1,970 feet above msl (Baldwin et al. 2012; Roberts 2008). It is known from the South Coast (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from the community of El Cerrito on the east side of Temescal Canyon Wash, less than two miles from the Study Area (CDFG 2012a).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for many-stemmed dudleya is low due to lack of clay soils, and this species was not observed during focused plant surveys. The grassland in the Study Area is heavily disturbed with non-native species and is isolated from areas of natural habitat. Therefore, many-stemmed dudleya is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

Santa Ana River Woollystar

Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*) is a federally and State-listed Endangered species and has a CRPR of 1B.1. It is covered by the MSHCP. It typically blooms between May and September (CNPS 2012). This perennial herb occurs in washes, floodplains, and dry river beds at elevations between sea level and approximately 1,640 feet above msl (Baldwin et al. 2012). It is known from the eastern South Coast (i.e., the Santa Ana River drainage) and southwestern San Bernardino County (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from the Santa Ana River north of Norco, approximately two miles east of the Study Area (CDFG 2012a).

Suitable habitat for this species is present along the Santa Ana River. Therefore, Santa Ana River woollystar has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

No critical habitat has been proposed by the USFWS for this species.

Palmer's Grapplinghook

Palmer's grapplinghook (*Harpagonella palmeri*) has a CRPR of 4.2, and it is covered by the MSHCP. It typically blooms between March and May (CNPS 2012). This annual herb occurs in dry, semi-barren sites in chaparral, coastal sage scrub, and grassland at elevations between sea level and approximately 3,280 feet above msl (Baldwin et al. 2012). It characteristically occurs in clay soil pockets (Roberts et al. 2004). This species is known from the South Coast, Peninsular Ranges, and southwestern Sonoran Desert to southwestern Arizona and northwestern Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported just south of Lake Mathews, approximately five miles southeast of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Palmer's grapplinghook is low due to the absence of clay soil, and this species was not observed during focused plant surveys. The grassland in the Study Area is heavily disturbed with non-native species and isolated from areas of natural habitat. Therefore, Palmer's grapplinghook is not likely to be present along the alternative source line routes and is not expected to occur in other portions of the Study Area.

Tecate Cypress

Tecate cypress (*Hesperocyparis forbesii* [*Callitropsis forbesii]*) has a CRPR of 1B.1. This evergreen shrub or tree occurs in chaparral at elevations between approximately 1,475 and 4,920 feet above msl (Baldwin et al. 2012). It occurs in the western Peninsular Ranges to northwestern Baja California, Mexico, but has also been planted outside its native range

(Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported near Sierra Peak, approximately four miles southwest of the Study Area (CCH 2012).

No suitable habitat for Tecate cypress is present in the Study Area. Therefore, Tecate cypress is not expected to occur in the Study Area.

Mesa Horkelia

Mesa horkelia (*Horkelia cuneata* ssp. *puberula*) has a CRPR of 1B.1. It typically blooms between February and July (CNPS 2012). This perennial herb occurs in dry, sandy coastal chaparral and openings in oak woodland at elevations between approximately 230 to 2,855 feet above msl (Baldwin et al. 2012; Roberts 2008). This species is known from the Outer South Coast Ranges, the Peninsular Ranges, and the South Coast, especially the foothill edge of the Los Angeles Basin; mesa horkelia occurs more inland than the other varieties (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from Highland Avenue west of I-15, approximately 15 miles north of the Study Area (CCH 2012).

Suitable habitat for this species is not present in the Study Area. Therefore, mesa horkelia is not expected to occur in any portion of the Study Area.

Coulter's Goldfields

Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) has a CRPR of 1B.1, and it is covered by the MSHCP. It typically blooms between February and June (CNPS 2012). This annual herb occurs in seasonally flooded vernal alkali plains, wetlands, and vernal pools at elevations between sea level and approximately 3,280 feet above msl (Roberts et al. 2004; Baldwin et al. 2012). This subspecies is known from the Inner North Coast Ranges, southern Sierra Nevada Foothills, Tehachapi, the Great Central Valley, Central Western California, the South Coast, the Peninsular Ranges, the western Mojave Desert, and Santa Rosa Island at elevations between sea level and approximately 3,280 feet above msl (CNPS 2012). Coulter's goldfields is almost a Riverside County endemic due to extirpation of many coastal populations (Roberts et al. 2004). In the vicinity of the Study Area, this species has been reported from Woodcrest, approximately nine miles east of the Study Area (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area. Therefore, Coulter's goldfields is not expected to occur in any portion of the Study Area.

Heart-Leaved Pitcher Sage

Heart-leaved pitcher sage (*Lepechinia cardiophylla*) has a CRPR of 1B.2, and it is covered by the MSHCP. It typically blooms between April and July (CNPS 2012). This shrub occurs in chaparral across the upper elevation ridgelines between approximately 1,970 and 3,940 feet above msl (Roberts et al. 2004; Baldwin et al. 2012). It is known from the Peninsular Ranges and is a near endemic of the Santa Ana Mountains (Baldwin et al. 2012; Roberts et al. 2004). In the vicinity of the Study Area, this species has been reported from Pleasants Peak, approximately six miles southwest of the Study Area (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area, and the Study Area is outside the elevational range of the species. Therefore, heart-leaved pitcher sage is not expected to occur in any portion of the Study Area.

Robinson's Pepper-Grass

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) has a CRPR of 1B.2. This variety is not currently recognized by The Jepson Manual (Baldwin et al. 2012). It typically blooms between January and July (CNPS 2012). This annual herb occurs in dry sandy or thin soils in coastal sage scrub and chaparral at elevations between sea level and approximately 1,640 feet above msl (Roberts et al. 2004; Hickman 1993). It is known from southwestern California and Baja California, Mexico (Hickman 1993). In the vicinity of the Study Area, this species has been reported from the Jurupa Mountains, approximately ten miles northeast of the Study Area (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Robinson's pepper-grass is low, and this species was not observed during focused plant surveys. Therefore, Robinson's pepper-grass is not likely to be present along the alternative source line routes. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Parish's Desert-Thorn

Parish's desert-thorn (*Lycium parishii*) has a CRPR of 2.3. It typically blooms between March and April (CNPS 2012). This shrub occurs on sandy to rocky slopes and canyons at elevations between sea level and approximately 3,280 feet above msl (Baldwin et al. 2012). It is known from the eastern South Coast and western Sonoran Desert to Arizona and northwestern Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species has historically been reported in the vicinity of San Bernardino; however, there are no recent reports from San Bernardino or Riverside counties (CCH 2012; 1885 record).

Suitable habitat for this species is not present in the Study Area. Therefore, Parish's desert-thorn is not expected to occur in any portion of the Study Area.

Jokerst's Monardella

Jokerst's monardella (*Monardella australis* ssp. *jokerstii*) has a CRPR of 1B.1. It typically blooms between July and September (CNPS 2012). This rhizomatous herb occurs on steep scree or talus, stony benches on canyon bottoms in montane forest or less commonly in chaparral (Baldwin et al. 2012). It is known from the eastern San Gabriel Mountains and less commonly from the northern South Coast at elevations generally between 4,430 and 5,740 feet above msl, though it is known from as low as 525 feet above msl (Baldwin et al. 2012). In the vicinity of the Study Area, this subspecies has been historically reported approximately three miles south of the California Institution for Men, which is approximately five miles west of the Study Area (CDFG 2012a; 1952 record).

Suitable habitat for this subspecies is not present in the Study Area. Therefore, Jokerst's monardella is not expected to occur in any portion of the Study Area.

Pringle's Monardella

Pringle's monardella (*Monardella pringlei*) has a CRPR of 1A, and it is presumed extinct in California. This annual herb was known to bloom between May and June (CNPS 2012). It occurred on interior sand dunes and sandy soils at elevations between 985 and 1,315 feet above msl (Baldwin et al. 2012). This species is known from the vicinity of Colton in Riverside and San Bernardino counties; it was last observed in 1941 (Baldwin et al. 2012).

Suitable habitat for Pringle's monardella is not present in the Study Area. Therefore, Pringle's monardella is not expected to occur in any portion of the Study Area.

California Muhly

California muhly (*Muhlenbergia californica*) has a CRPR of 4.3, and it is covered by the MSHCP. It typically blooms between June and September (CNPS 2012). This rhizomatous herb occurs in streambanks and canyons at elevations between approximately 330 and 6,560 feet above msl (Baldwin et al. 2012). It is known from the South Coast and the San Gabriel, San Bernardino, and San Jacinto mountains (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from Redhill (CDFG 2012a; 1916 record); however, all recent reports are from the San Gabriel and San Bernardino Mountains, over 15 miles north of the Study Area (CCH 2012).

Potentially suitable habitat for this species is present at the ponds in the northern portion of the Study Area and in the Prado Basin. Therefore, California muhly has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Prostrate Vernal Pool Navarretia

Prostrate vernal pool navarretia (*Navarretia prostrata*) has a CRPR of 1B.1, and it is covered by the MSHCP. It typically blooms between April and July (CNPS 2012). This annual herb occurs on alkaline floodplains and in vernal pools at elevations between sea level and approximately 2,300 feet above msl (Baldwin et al. 2012). It is known from the western San Joaquin Valley, the Central Coast, the San Francisco Bay area, the South Coast Ranges, the central South Coast, and the Peninsular Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from Redhill, near Upland (CDFG 2012a; 1917 record) and more recently from the Santa Rosa Plateau, approximately 27 miles south of the Study Area (CCH 2012).

Suitable habitat for this species is not present in the Study Area. Therefore, prostrate vernal pool navarretia is not expected to occur in any portion of the Study Area.

Peninsular Nolina

Peninsular nolina (*Nolina cismontana*) has a CRPR of 1B.2. It typically blooms between May and July (CNPS 2012). This evergreen shrub occurs in dry chaparral of coastal mountains at elevations between approximately 655 and 4,265 feet above msl (Baldwin et al. 2012). It is known from the South Coast, Western Transverse Ranges, and Peninsular Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from multiple locations on the west side of the Peninsular Range Santa Ana Mountains, over six miles from the Study Area (CCH 2012).

Suitable habitat for this species is not present in the Study Area. Therefore, peninsular nolina is not expected to occur in any portion of the Study Area.

Santiago Peak Phacelia

Santiago Peak phacelia (*Phacelia keckii* [*Phacelia suaveolens* var. *keckii*]) has a CRPR of 1B.3. It typically blooms between May and June (CNPS 2012). This annual herb occurs in open chaparral at elevations between approximately 3,280 and 5,250 feet above msl (Hickman 1993). It is known from the Santa Ana Mountains (Hickman 1993). In the vicinity of the Study Area, this species has been reported from Pleasants Peak, approximately six miles southwest of the Study Area (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area, and the Study Area is outside the elevational range for this species. Therefore, Santiago Peak phacelia is not expected to occur in the Study Area.

Brand's Star Phacelia

Brand's star phacelia (*Phacelia stellaris*) is a federal Candidate for listing, has a CRPR of 1B.1, and is covered by the MSHCP. It typically blooms between March and June (CNPS 2012). This annual herb occurs in open areas of coastal sage scrub at elevations between sea level and approximately 1,315 feet above msl (Baldwin et al. 2012). It is known from the South Coast to Baja California, Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, it is historically known from two locations along the Santa Ana River in Riverside County (Roberts et al. 2004; over 75 years ago) and from Rancho Cucamonga in San Bernardino County (CCH 2012).

A small amount of isolated Riversidian sage scrub occurs along the alternative source line routes. However, the suitability of this vegetation as habitat for Brand's star phacelia is low, and this species was not observed during focused plant surveys. Therefore, Brand's star phacelia is not likely to be present along the alternative source line routes. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

White Rabbit-Tobacco

White rabbit-tobacco (*Pseudognaphalium leucocephalum*) has a CRPR of 2.2. It typically blooms between August and November, uncommonly as early as July or as late as December (CNPS 2012). This perennial herb occurs on sandy or gravelly benches, dry stream bottoms, and canyon bottoms at elevations between sea level and approximately 1,640 feet above msl (Baldwin et al. 2012). It is known from the South Coast, San Bernardino Mountains, and Peninsular Ranges to Arizona, New Mexico, and Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from San Mateo Canyon, approximately 22 miles south of the Study Area (CCH 2012).

Suitable habitat for this species occurs along the Santa Ana River. Therefore, white rabbit-tobacco has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Chaparral Ragwort

Chaparral ragwort (*Senecio aphanactis*) has a CRPR of 2.2. It typically blooms between January and April (CNPS 2012). This annual herb occurs in alkaline flats and dry, open rocky areas of coastal bluff scrub and coastal sage scrub at elevations between approximately 30 and 1,805 feet above msl (Baldwin et al. 2012; Roberts 2008). It is known from Central Western

California and the South Coast to Baja California, Mexico and the Channel Islands (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from Wilder's Canyon in the Jurupa Mountains (1909 record), approximately ten miles northeast of the Study Area (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area. Therefore, chaparral ragwort is not expected to occur in the Study Area.

Salt Spring Checkerbloom

Salt spring checkerbloom (*Sidalcea neomexicana*) has a CRPR of 2.2. It typically blooms between March and June (CNPS 2012). This perennial herb occurs in alkaline seeps, springs, and marshes at elevations between sea level and approximately 4,920 feet above msl (Baldwin et al. 2012; Roberts 2008). It occurs along the South Coast, the San Gabriel Mountains, the San Bernardino Mountains, the Peninsular Ranges, and the southwestern Mojave Desert to New Mexico and northern Mexico; it is possibly extirpated from the Western Transverse Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from the San Jacinto Valley (1966 record), approximately 30 miles east of the Study Area (CCH 2012).

Potentially suitable habitat for this species is present at the ponds in the northern portion of the Study Area. Therefore, salt spring checkerbloom may occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Prairie Wedge Grass

Prairie wedge grass (*Sphenopholis obtusata*) has a CRPR of 2.2. It typically blooms between April and July (CNPS 2012). This perennial herb occurs in wet meadows, streambanks, and ponds at elevations between approximately 787 and 9,416 feet above msl (Baldwin et al. 2012). It is known from the northern Sierra Nevada foothills; the southern high Sierra Nevadas; the northeast South Coast (i.e., the Santa Ana River); the San Bernardino Mountains; the south-central Peninsular Ranges; and the White and Inyo Mountains of North America and the Caribbean (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported from the Santa Ana River bottom near Riverside Road (CDFG 2012a; 1907 record).

Potentially suitable habitat for this subspecies is present along the Santa Ana River and marginally suitable habitat is present at the pond near the southern end of the Study Area. Therefore, prairie wedge grass has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3; it has low potential to occur along the alternative source line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

San Bernardino Aster

San Bernardino aster (*Symphyotrichum defoliatum*) has a CRPR of 1B.2. It typically blooms between July and November (CNPS 2012). This perennial rhizomatous herb occurs in grasslands, seasonal or perennial wetlands, and disturbed places at elevations between sea level and approximately 6,725 feet above msl (Baldwin et al. 2012; Roberts et al. 2004). This

species is known from the San Gabriel Mountains, the San Bernardino Mountains, and the Peninsular Ranges (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been reported from Temescal Canyon, one mile north of Glen Ivy Hot Springs and less than five miles south of the Study Area (CCH 2012).

Marginally suitable habitat is present at the ponds in the northern portion of the Study Area and the lake near the southern end of the Study Area. Therefore, San Bernardino aster has low potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; along both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and along the alternative source line routes. However, this species was not observed during focused plant surveys; therefore, it is not likely to be present in these portions of the Study Area. The grassland in the Study Area is heavily disturbed with non-native species and is isolated from areas of natural habitat. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

Rigid Fringepod

Rigid fringepod (*Thysanocarpus rigidus* [*Thysanocarpus laciniatus* var. *rigidus*]) has a CRPR of 1B.2. It typically blooms between February and May (CNPS 2012). This annual herb occurs on rocky slopes of oak and pine woodlands at elevations between 1,968 and 7,218 feet above msl (Baldwin et al. 2012). It is known from the Peninsular Ranges and southwest desert of Riverside, San Bernardino, and San Diego counties to Baja California, Mexico (Baldwin et al. 2012). In the vicinity of the Study Area, this species has been historically reported approximately two miles north of Claremont (CDFG 2012a; 1923 record).

Suitable habitat for this species is not present in the Study Area. Therefore, rigid fringepod is not expected to occur in any portion of the Study Area.

3.3.4 Special Status Wildlife

Fifty-seven special status wildlife species have been reported in the vicinity of the Project based on the results of the literature review described above. Table 10 provides a list of these species; their listing status; MSHCP coverage; potential to occur in each portion of the Study Area; and whether or not they were observed during focused surveys. Note that they are grouped by type and listed in taxonomic order. Potential occurrences were determined by biologists with expertise with each wildlife species. Species potential is provided separately (i.e., separated by a “/”) for San Bernardino and Riverside County. A detailed description of each species follows the table.

TABLE 10
SPECIAL STATUS WILDLIFE SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY

Species	Status			Potential For Occurrence (Riverside County/San Bernardino County)									Observed
	USFWS	CDFG	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Invertebrates													
Brachinecta lynchi vernal pool fairy shrimp	FT	—	Covered[a]	—/NE	NE/—	NE/—	NE/—	MO/NE	NE/NE	MO/NE	LO/—	LO/—	No
Streptocephalus woottoni Riverside fairy shrimp	FE	—	Covered[a]	—/NE	NE/—	NE/—	NE/—	MO/NE	NE/NE	MO/NE	LO/—	LO/—	No
Rhaphiomidas terminates abdominalis Delhi Sands flower-loving fly	FE	—	Covered[b]	—/MO	NE/—	NE/—	NE/—	MO/MO	MO/MO	MO/MO	NE/—	NE/—	No
Fish													
Gila orcuttii arroyo chub	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	LO/NE	LO/NE	LO/NE	NE/—	NE/—	No
Rhinichthys osculus ssp. *3* Santa Ana speckled dace	—	SSC	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Catostomus santaanae Santa Ana sucker	FT	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	HI/NE	HI/NE	HI/NE	NE/—	NE/—	No
Amphibians													
Spea [*Scaphiopus*] *hammondii* western spadefoot	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	MO/—	No
Anaxyrus californicus [*Bufo microscaphus californicus*] arroyo toad	FE	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Lithobates [*Rana*] *pipiens* northern leopard frog (native populations only)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Reptiles													
Emys marmorata western pond turtle	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	MO/NE	MO/NE	MO/NE	NE/—	NE/—	No
Phrynosoma blainvillii coast horned lizard	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	LO/LO	LO/LO	LO/LO	NE/—	NE/—	No
Aspidoscelis hyperytha [*Cnemidophorus hyperythus beldingi*] orangethroat whiptail	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	LO/LO	LO/LO	LO/LO	NE/—	NE/—	No
Anniella pulchra pulchra silvery legless lizard	—	SSC	—	—/NE	NE/—	NE/—	NE/—	LO/LO	LO/LO	LO/LO	NE/—	NE/—	No
Lampropeltis zonata [L. z. pulchra] California mountain kingsnake (San Diego population)	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Thamnophis hammondii two-striped garter snake	—	SSC	—	—/NE	NE/—	NE/—	NE/—	HI/NE	HI/NE	HI/NE	NE/—	NE/—	No
Thamnophis sirtalis ssp. south coast garter snake (coastal plain from Ventura County to San Diego County)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	HI/NE	HI/NE	HI/NE	NE/—	NE/—	No
Crotalus ruber red-diamond rattlesnake	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No

TABLE 10 (Continued)
SPECIAL STATUS WILDLIFE SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY

Species	Status			Potential For Occurrence (Riverside County/San Bernardino County)									Observed
	USFWS	CDFG	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Birds													
Aythya americana redhead (nesting)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	POTF, NEB/NE	POTF, NEB/NE	POTF, NEB/NE	NE/—	NE/—	No
Dendrocygna bicolor fulvous whistling duck (nesting)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Pelecanus erythrorhynchos American white pelican (nesting colony)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/NE	POTF, NEB/—	No
Ixobrychus exilis least bittern	—	SSC	—	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Aquila chrysaetos golden eagle (nesting and nonbreeding/wintering)	—	FP	Covered[c]	—/NE	NE/—	POTF, NEB/—	POTF, NEB/—	POTF, NEB/POTF, NEB	POTF, NEB/POTF, NEB	POTF, NEB/POTF, NEB	NE/—	POTF, NEB/—	No
Buteo swainsoni Swainson's hawk (nesting)	—	ST	Covered[c]	—/NE	NE/—	POTF, NEB/—	POTF, NEB/—	POTF, NEB/POTF, NEB	POTF, NEB/POTF, NEB	POTF, NEB/POTF, NEB	NE/—	NE/—	No
Circus cyaneus northern harrier (nesting)	—	SSC	Covered[c]	—/NE	NE/—	POTF, NEB/—	POTF, NEB/—	POTF, LOB/POTF, NEB	POTF, LOB/POTF, NEB	POTF, LOB/POTF, NEB	NE/—	POTF, NEB/—	No
Elanus leucurus white-tailed kite (nesting)	—	FP	Covered[c]	—/NE	NE/—	POTF, NEB/—	POTF, NEB/—	**POTF, MOB/POTF, NEB**	**POTF, MOB/POTF, NEB**	**POTF, MOB/POTF, NEB**	NE/—	POTF, NEB/—	Yes
Haliaeetus leucocephalus bald eagle (nesting and nonbreeding/wintering)	Delisted	SE, FP	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Falco peregrinus anatum American peregrine falcon (nesting)	Delisted	Delisted/FP	Covered[c]	—/NE	NE/—	POTF, NEB/—	POTF, NEB/—	**POTF, NEB/POTF, NEB**	**POTF, NEB/POTF, NEB**	**POTF, NEB/POTF, NEB**	NE/—	POTF, NEB/—	Yes[f]
Charadrius montanus mountain plover (nonbreeding/wintering)	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	LOF, NEB/LOF, NEB	LOF, NEB/LOF, NEB	LOF, NEB/LOF, NEB	NE/—	NE/—	No
Coccyzus americanus occidentalis western yellow-billed cuckoo (nesting)	FC	SE	Covered[a]	—/NE	NE/—	NE/—	NE/—	POTF, LOB/NE	POTF, LOB/NE	POTF, LOB/NE	NE/—	NE/—	No
Asio otus long-eared owl (nesting)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	HIF, HIB/NE	HIF, HIB/NE	HIF, HIB/NE	NE/—	NE/—	No
Athene cunicularia burrowing owl (burrow sites; wintering in northern counties)	—	SSC	Covered[d]	—/HIF, HIB	NE/—	HIF, HIB/—	HIF, HIB/—	**HIF, HIB/HIF, HIB**	**HIF, HIB/HIF, HIB**	**HIF, HIB/HIF, HIB**	NE/—	HIF, HIB/—	Yes
Empidonax traillii extimus southwestern willow flycatcher (nesting)	FE	SE	Covered[a]	—/NE	NE/—	NE/—	NE/—	POTF, MOB/NE	POTF, MOB/NE	POTF, MOB/NE	NE/—	NE/—	No
Pyrocephalus rubinus Vermilion flycatcher (nesting)	—	SSC	—	—/NE	NE/—	NE/—	NE/—	MOF, MOB/NE	MOF, MOB/NE	MOF, MOB/NE	NE/—	NE/—	No

TABLE 10 (Continued)
SPECIAL STATUS WILDLIFE SPECIES KNOWN TO OCCUR IN THE PROJECT VICINITY

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	USFWS	CDFG	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Lanius ludovicianus loggerhead shrike (nesting)	—	SSC	Covered[c]	—/POTF, NEB	NE/—	POTF, NEB/—	POTF, NEB/—	**POTF, MOB/POTF, MOB**	**POTF, MOB/POTF, MOB**	**POTF, MOB/POTF, MOB**	NE/—	POTF, MOB/—	Yes
Vireo bellii pusillus least Bell's vireo (nesting)	FE	SE	Covered[a]	—/NE	NE/—	NE/—	NE/—	**HIF, HIB/POTF, MOB**	**HIF, HIB/NE**	**HIF, HIB/POTF, MOB**	NE/—	**HIF, HIB/—**	Yes
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren (San Diego and Orange Counties only)[e]	—	SSC[d]	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Cistothorus palustris clarkae Clark's marsh wren	—	SSC	—	—/NE	NE/—	NE/—	NE/—	**MOF, MOB/NE**	**MOF, MOB/NE**	**MOF, MOB/NE**	NE/—	NE/—	Yes[f]
Polioptila californica californica coastal California gnatcatcher	FT	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Dendroica petechia brewsteri yellow warbler (nesting)	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	**HIF, HIB/HIF, HIB**	**HIF, HIB/NE**	**HIF, HIB/HIF, HIB**	NE/—	**HIF, HIB/—**	Yes
Icteria virens yellow-breasted chat (nesting)	—	SSC	Covered[c]	—/NE	NE/—	NE/—	NE/—	**HIF, HIB/HIF, HIB**	**HIF, HIB/NE**	**HIF, HIB/HIF, HIB**	NE/—	HIF, HIB/—	Yes
Ammodramus savannarum grasshopper sparrow (nesting)	—	SSC	Covered[c]	NE/—	NE/—	NE/—	NE/—	HIF, HIB/HIF, HIB	HIF, HIB/HIF, HIB	HIF, HIB/HIF, HIB	NE/—	NE/—	No
Pooecetes gramineus affinis Oregon vesper sparrow (nonbreeding/wintering)	—	SSC	—	NE/—	NE/—	POTF, NEB/—	POTF, NEB/—	POTF, NEB/POTF, NEB	POTF, NEB/POTF, NEB	POTF, NEB/POTF, NEB	NE/—	POTF, NEB/—	No
Agelaius tricolor tricolored blackbird (nesting colony)	—	SSC	Covered[c]	NE/—	NE/—	LOF, NEB/—	LOF, NEB/—	MOF, LOB/LOF, NEB	MOF, LOB/LOF, NEB	MOF, LOB/LOF, NEB	NE/—	MOF, NEB/—	No
Xanthocephalus xanthocephalus Yellow-headed blackbird (nesting)	—	SSC	—	NE/—	NE/—	NE/—	NE/—	LOF, LOB/NE	LOF, LOB/NE	LOF, LOB/NE	NE/—	LOF, LOB/—	No
Mammals													
Antrozous pallidus pallid bat	—	SSC	—	NE/—	NE/—	LOF, NER/—	LOF, NER/—	LOF, NER/LOF, NER	LOF, NER/LOF, NER	LOF, NER/LOF, NER	NE/—	LOF, NER/—	No
Corynorhinus townsendii Townsend's big-eared bat	—	SSC	—	NE/—	NE/—	LOF, NER/—	LOF, NER/—	LOF, NER/LOF, NER	LOF, NER/LOF, NER	LOF, NER/LOF, NER	NE/—	LOF, NER/—	No
Lasiurus xathinus western yellow bat	—	SSC	—	NE/—	NE/—	NE/—	NE/—	MOF, LOR/NE	MOF, LOR/NE	MOF, LOR/NE	NE/—	NE/—	No
Eumops perotis californicus western mastiff bat	—	SSC	—	NE/—	NE/—	LOF, NER/—	LOF, NER/—	LOF, NER/ LOF, NER	LOF, NER/ LOF, NER	LOF, NER/ LOF, NER	NE/—	LOF, NER/—	No
Nyctinomops femorosaccus pocketed free-tailed bat	—	SSC		NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Nyctinomops macrotis big free-tailed bat	—	SSC		NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Lepus californicus bennettii San Diego black-tailed jackrabbit	—	SSC	Covered[c]	NE/—	NE/—	NE/—	NE/—	**MO/MO**	**MO/MO**	**MO/MO**	NE/—	MO/—	Yes

TABLE 10 (Continued)
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	USFWS	CDFG	MSHCP Coverage	Mira Loma Substation	Corona Substation	Proposed Circle City Substation Site	Alternative Circle City Substation Site	Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route	Alternative 2	Alternative 3	Proposed Source Line Routes	Alternative Source Line Routes	
Chaetodipus fallax fallax northwestern San Diego pocket mouse	—	SSC	Covered[c]	NE/—	NE/—	LO/—	LO/—	LO/LO	LO/LO	LO/LO	NE/—	LO/—	No
Dipodomys merriami parvus San Bernardino kangaroo rat	FE	SSC	Covered[c]	NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Dipodomys stephensi Stephens' kangaroo rat	FE	ST	Covered[c]	NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Perognathus longimembris brevinasus Los Angeles pocket mouse	—	SSC	Covered[c]	NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Neotoma lepida intermedia San Diego desert woodrat	—	SSC	Covered[c]	NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No
Taxidea taxus American badger	—	SSC	—	NE/—	NE/—	NE/—	NE/—	NE/NE	NE/NE	NE/NE	NE/—	NE/—	No

LEGEND:

Federal (USFWS)
FE Endangered
FT Threatened
FC Candidate

State (CDFG)
SE Endangered
ST Threatened
SSC Species of Special Concern
FP Fully Protected

Potential to Occur in the Study Area
LO Low potential to occur due to marginal suitable habitat.
MO Moderate potential to occur due to suitable habitat.
HI High potential to occur due to highly suitable habitat.
POTF Potential to occur for foraging due to suitable foraging habitat.
LOF Low potential to occur for foraging due to marginal suitable foraging habitat.
MOF Moderate potential to occur for foraging due to suitable foraging habitat.
HIF High potential to occur for foraging due to highly suitable foraging habitat.
LOB Low potential to occur for breeding due to marginal suitable breeding habitat.
MOB Moderate potential to occur for breeding due to suitable breeding habitat.
HIB High potential to occur for breeding due to highly suitable breeding habitat.
LOR Low potential to occur for roosting due to marginal suitable roosting habitat.
NE No suitable habitat; not expected to occur in the Study Area.
NEB No suitable breeding habitat; not expected to occur for breeding.
NER No suitable roosting habitat; not expected to occur for roosting.

[a] Species associated with Riparian/Riverine Areas or vernal pools have additional survey requirements per Section 6.1.2 of the MSHCP. Mitigation will be in accordance with procedures described in Section 6.1.2 of the MSHCP.
[b] Species are Covered by the MSHCP (Riverside County), but may have additional survey and/or mitigation requirements; mitigation is required in San Bernardino County.
[c] Surveys are not required either because the MSHCP does not require surveys for this species or because the Proposed Project is outside of the Additional Survey Needs area for the species (Section 6.3.2 of the MSHCP). No additional mitigation is required.
[d] Species within an Additional Survey Neds area (Figure 6-4 of the MSHCP). Mitigation will be in accordance with procedures described in Section 6.3.2 and Table 9-2 of the MSHCP.
[e] The coastal cactus wren is restricted to San Diego and Orange Counties; however, the taxonomy is not yet settled and all coastal populations of cactus wren appear to be declining.
[f] The full species was observed in the Study Area.

Note: A dash ("—") indicates that this is not applicable for the species. For species observed, either during focused surveys or incidentally, the portion of the Biological Study Area where that species was detected is in bold.

Invertebrates

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) is a federally Threatened species that is covered by the MSHCP. It is found primarily in the Central Valley and the foothills of the Sierra Nevada Mountains in northern California north to Oregon (Eriksen and Belk 1999; USFWS 2005b). In Southern California, the species is known only from western Riverside County (Dudek 2003). This species is restricted to seasonal vernal pools, preferring cool-water pools. They prefer pools which have low to moderate dissolved solids, are unpredictable, and are often short lived (Dudek 2003). In the vicinity of the Study Area, this species has been reported from the Santa Rosa Plateau, Skunk Hollow, and Homeland (Dudek 2003; CDFG 2012a).

Potentially suitable and marginally suitable habitat is present in the ponding areas of the Study Area. Therefore, vernal pool fairy shrimp has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3; it has low potential to occur along the proposed source line routes and the alternative source line routes. This species was not observed during focused surveys; however, protocol surveys have not been completed for the suitable habitat located along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3. Surveys in these areas were initiated during the 2011/2012 wet season and a complete survey requires an additional year of wet season surveys or a dry season survey. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

On August 6, 2003, the USFWS published a final rule designating 839,460 acres of land as critical habitat for the vernal pool fairy shrimp in Oregon south to Ventura County, California (USFWS 2003). Following lawsuits, the USFWS proposed a revised critical habitat designation on December 28, 2004. This proposed rule was finalized on August 11, 2005. The current final critical habitat designation covers 597,821 acres from Oregon south to Ventura County, California (USFWS 2005b). The Study Area is not located in final critical habitat for the vernal pool fairy shrimp.

Riverside Fairy Shrimp

Riverside fairy shrimp (*Streptocephalus woottoni*) is a federally Endangered species that is covered by the MSHCP. This species occurs in vernal pools and ephemeral ponds in coastal Southern California from Ventura County south to northwestern Baja California, Mexico (USFWS 2005e). Riverside fairy shrimp typically occur in deep, long-lived vernal pools on coastal plateaus and terraces that have emergent vegetation (USFWS 2005e). In the vicinity of the Study Area, this species has been reported from Alberhill (Dudek 2003).

Potentially suitable and marginally suitable habitat is present in the ponding areas of the Study Area. Therefore, Riverside fairy shrimp has moderate potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3; it has low potential to occur along the proposed source line routes and the alternative source line routes. This species was not observed during focused surveys; however, protocol surveys have not been completed for the suitable habitat located along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3. Surveys in these areas were initiated during the 2011/2012 wet season and a complete survey requires an additional year of wet season surveys or a dry season survey. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

On May 30, 2001, the USFWS published a final rule designating 6,870 acres of land as critical habitat for the Riverside fairy shrimp in Los Angeles, Orange, Riverside, San Diego, and Ventura counties (USFWS 2001a). Following lawsuits, the USFWS proposed a revised critical habitat designation on April 27, 2004. This proposed rule was finalized on April 12, 2005. The current final critical habitat designation covers 306 acres of land in Orange, San Diego, and Ventura Counties (USFWS 2005e). On June 1, 2011, the USFWS proposed to revise the critical habitat boundaries again. This new proposed rule would designate 2,984 acres of land in Ventura, Orange, Riverside, and San Diego counties (USFWS 2011b). The Study Area is not located in final or newly proposed critical habitat for Riverside fairy shrimp.

Delhi Sands Flower-loving Fly

Delhi Sands flower-loving fly (*Rhaphiomidas terminates abdominalis*) is a federally Endangered species that is covered by the MSHCP. This species is limited to areas that contain Delhi fine sand, an Aeolian soil type. Suitable vegetative cover for this fly is typically sparse (0 to 50 percent) to absent. Dominant native plant species in its habitat include California buckwheat, California croton (*Croton californicus*), and telegraph weed (*Heterotheca grandiflora*) (USFWS 1993). The Delhi Sands flower-loving fly is known from four locations in southwestern San Bernardino County and one location in Riverside County (USFWS 1993). In the vicinity of the Study Area, this species has been reported from Delhi sands in the USGS Guasti quadrangle; however, location information is sensitive and not disclosed to the public.

Suitable soils for this species are present only in the northern portion of the Study Area. Therefore, Delhi Sands flower-loving fly may occur in the undeveloped portions of the Mira Loma Substation; along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; and along both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. This species was not observed during focused surveys; however, protocol surveys are currently in progress for areas of suitable habitat that were not covered in the 2010 or 2011 focused surveys. It is not expected to occur in the remainder of the Study Area due to lack of suitable habitat.

The northern portion of the Study Area is within the Ontario Recovery Unit for this species. In 1997, the USFWS published a recovery plan for the Delhi Sands flower-loving fly (USFWS 1997). Three separate recovery units were established in areas known to be inhabited by the species or areas that contain restorable habitat. The Recovery Units do not include residential and commercial development, nor do they include areas that have otherwise been permanently altered by human activities. The majority of Delhi Sands flower-loving fly habitat in the Ontario Recovery Unit has been eliminated by long-standing agricultural land uses (USFWS 1997). Focused surveys for this species are currently in progress.

No critical habitat has been proposed by the USFWS for this species.

Fish

Arroyo Chub

Arroyo chub (*Gila orcuttii*) is a California Species of Special Concern that is covered by the MSHCP. It is a small freshwater fish that is found in coastal freshwater streams and rivers with steady current and emergent vegetation. This chub is an omnivorous species that forms schools and prefers slower-moving pools within streams. The chub is adapted to survive in widely fluctuating water temperatures and dissolved oxygen levels. The arroyo chub is now common at only three of its native locations: Santa Margarita and De Luz Creeks in San Diego County; Trabuco and San Juan Creeks in Orange County; and Malibu Creek in Los Angeles County (Swift et al. 1993). The chub has also been introduced into several rivers and streams in

Southern California. In the immediate vicinity of the Study Area, this species has been reported from Temescal Creek (CDFG 2012a).

Marginal suitable habitat for this species is present in the Prado Basin. Therefore, arroyo chub has low potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Santa Ana Speckled Dace

Santa Ana speckled dace (*Rhinichthys osculus* ssp. *3*) is a California Species of Special Concern. This small, freshwater fish requires permanent flowing streams (Moyle et al. 1995). It prefers riffles in clean, rocky-bottomed streams and rivers, but is also found near the shores of lakes (Moyle et al. 1995). Except for the breeding season, this species does not form schools. This species was once distributed throughout the upland portions of the Santa Ana, San Gabriel, and Los Angeles river systems, but currently has a limited distribution in the headwaters of the Santa Ana and San Gabriel Rivers (Moyle et al. 1995). In the vicinity of the Study Area, this species has been reported from the Santa Ana River in the City of Riverside (CDFG 2012a).

Santa Ana speckled dace is not expected to occur as far downstream in the Santa Ana River as the Study Area. Therefore, Santa Ana speckled dace is not expected to occur in any portion of the Study Area.

Santa Ana Sucker

Santa Ana sucker (*Catostomus santaanae*) is a federally Threatened species and a California Species of Special Concern that is covered by the MSHCP. This fish is found in small to medium-sized perennial streams with currents that run from slight to swift (Moyle et al. 1995). They are usually found in clear water, but can tolerate seasonal turbidity (Moyle et al. 1995). Preferred substrates are generally coarse and consist of gravel, rubble, or boulder, but this species is occasionally found on sand/mud substrates (Moyle et al. 1995). In-stream or bank-side riparian vegetation that provides shade and cover is also preferred (USFWS 2009). It is known from watersheds draining the San Gabriel and San Bernardino Mountains of Southern California, and their historical distribution extended from upper watershed areas to the Pacific Ocean (USFWS 2009). The only populations that are federally protected are those within its historic range, which consists of the Los Angeles, San Gabriel, and Santa Ana River drainages. In the immediate vicinity of the Study Area, this species has been reported from the Santa Ana River (CDFG 2012a).

Highly suitable habitat for this species is present in the Prado Basin. Therefore, Santa Ana sucker may occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

On January 4, 2005, the USFWS published a final rule designating critical habitat for the Santa Ana sucker. Two areas in Los Angeles County—one along the San Gabriel River (Unit 2) and the other along Big Tujunga Creek (Unit 3)—were designated as critical habitat for the Santa Ana sucker (USFWS 2005f). This encompasses approximately 8,305 acres. Essential habitat for the species in Orange, Riverside, and San Bernardino Counties was excluded from the final critical habitat designation. Following lawsuits, the USFWS proposed a revised designation of critical habitat on December 9, 2009. This proposed rule was finalized on December 14, 2010. The current final critical habitat designation covers 9,331 acres of habitat in the Santa Ana River in San Bernardino, Riverside, and Orange Counties and the San Gabriel River and Big Tujunga

Creek in Los Angeles County (USFWS 2010b). The Study Area is located within final critical habitat for this species (Figure 7).

Amphibians

Western Spadefoot

Western spadefoot (*Spea* [*Scaphiopus*] *hammondii*) is a California Species of Special Concern that is covered by the MSHCP. This species breeds in quiet streams, vernal pools, and temporary ponds, and is rarely encountered outside the breeding season (January to March) given that it aestivates in burrows during the driest summer months and hibernates in the coldest winter months, emerging occasionally to forage during suitable conditions (Lannoo 2005). It occurs in the Great Valley and bordering foothills, and in the Coast Ranges from Monterey Bay south to Baja California, Mexico (Stebbins 2003). From the Santa Clara River Valley in Los Angeles and Ventura Counties southward, an estimated 80 percent of habitat for this species has been lost (Stebbins 2003). In the vicinity of the Study Area, this species has been reported adjacent to the Circle City Alternate Route (ECORP 2010).

Suitable habitat for this species is present in the Prado Basin and along the drainage that crosses the alternative source line routes. Therefore, western spadefoot may occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes.

Arroyo Toad

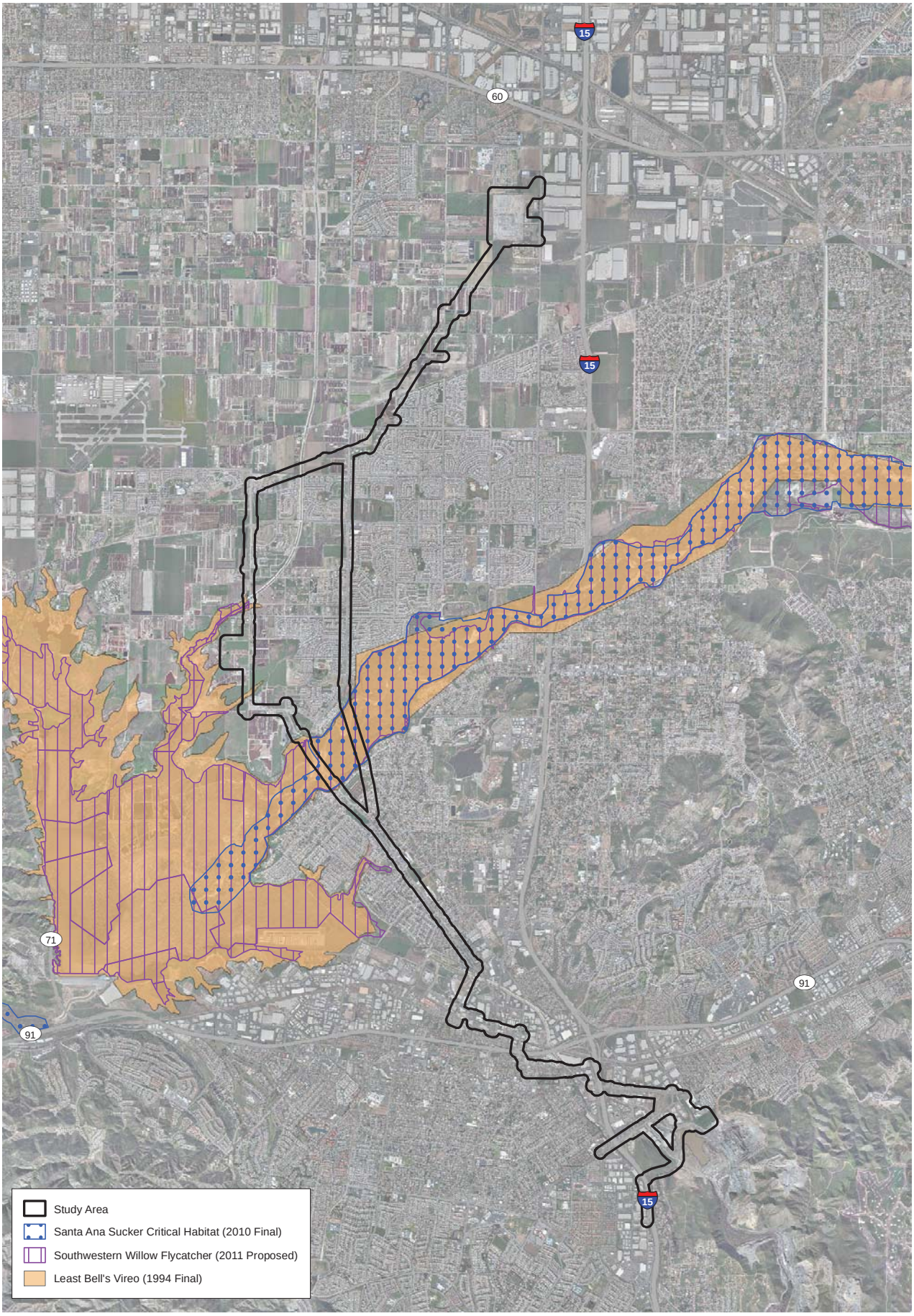
Arroyo toad (*Anaxyrus californicus* [*Bufo microscaphus californicus*]) is a federally Endangered species and a California Species of Special Concern. It is covered by the MSHCP. This toad only occurs in streams of southwestern California and northwestern Baja California, Mexico (USFWS 1994a). In California, it primarily occurs along the Coast Ranges from San Luis Obispo County south to San Diego County, but also occurs at a few locations on the western edge of the desert (Jennings and Hayes 1994). The arroyo toad is generally found in semi-arid regions near washes or intermittent streams (Zeiner et al. 1988). However, this species has highly specialized habitat requirements such as breeding pools within approximately 300 feet of juvenile and adult habitat consisting of shoreline with stable, sandy terraces and little herbaceous cover (Jennings and Hayes 1994). In the vicinity of the Study Area, this species has been reported from Silverado Canyon in the Cleveland National Forest (CDFG 2012a).

Suitable breeding habitat for this species is not present in the Study Area. Therefore, arroyo toad is not expected to occur in any portion of the Study Area.

On April 13, 2005, the USFWS published a final rule designating critical habitat for arroyo toad (USFWS 2005d). This final rule designated 11,695 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, and Riverside Counties as critical habitat. Following lawsuits, the USFWS proposed a revised designation of critical habitat on October 13, 2009. This proposed rule was finalized on February 9, 2011. The current final critical habitat designation covers 98,366 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties (USFWS 2011c). The Study Area is not located in designated critical habitat for this species.

Northern Leopard Frog

Northern leopard frog (*Lithobates* [*Rana*] *pipiens*) is a California Species of Special Concern; special status applies to native populations only. This species breeds and overwinters in aquatic



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Critical Habitat

Figure 7

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

5,000 2,500 0 5,000 Feet

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habitat and forages in dense, relatively tall, grass- or forb-dominated vegetation with a moist substrate (Jennings and Hayes 1994). This is one of the most broadly distributed frogs in North America, with over 98 percent of its geographic range occurring outside California (Jennings and Hayes 1994). In California, native populations of the northern leopard frog are known only from Modoc and Lassen counties, although it has been introduced elsewhere (Jennings and Hayes 1994). In the vicinity of the Study Area, this species has been historically reported from Prado Dam as an introduced species (CDFG 2012a; 1967 record).

Suitable habitat for this species is present in the Prado Basin; however, the Study Area is outside the natural range of this species. Therefore, native populations of northern leopard frog are not expected to occur in any portion of the Study Area.

Reptiles

Western Pond Turtle

Western pond turtle (*Emys marmorata*) is a California Species of Special Concern that is covered by the MSHCP. Formerly divided into two subspecies, the full species is currently projected (CDFG 2011). This aquatic turtle occurs in ponds, lakes, marshes, rivers, streams, and irrigation ditches with a rocky or muddy bottom and aquatic vegetation such as watercress (*Nasturtium* spp.), cattails (*Typha* spp.), or waterlilies (*Nymphaea* spp.) (Stebbins 2003). It requires an upland area in which to lay eggs, typically in a clay or silty substrate (Jennings and Hayes 1994). It occurs at elevations from sea level to approximately 6,696 feet above msl, though primarily below 4,980 feet above msl (Stebbins 2003). Historically, the western pond turtle was relatively continuously distributed from the Pacific slope drainages in Washington to northern Baja California, Mexico (Jennings and Hayes 1994). It is now estimated to be in decline throughout 75 to 80 percent of its range (Stebbins 2003). In addition to loss of habitat, this species is also threatened by grazing, non-native species, and disease (Jennings and Hayes 1994). In the vicinity of the Study Area, this species has been reported from Aliso Creek from Bane Canyon to the confluence with the Santa Ana River, approximately four miles west of the Study Area (CDFG 2012a).

Suitable habitat for this species is present in the Prado Basin. Therefore, western pond turtle has potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Coast Horned Lizard

Coast horned lizard (*Phrynosoma blainvilii*) is a California Species of Special Concern that is covered by the MSHCP. This species was formerly split into two subspecies of coast horned lizard, *P. coronatum blainvillii* and *P.c. frontale*. They were recently eliminated based on research by Montanucci (2004) and Leaché et al. (2009) and the name *P. blainvillii* is currently applied to populations in Northern California, Southern California, and northern Baja California, Mexico while *P. coronatum* is applied to populations in southern Baja California, Mexico. Coast horned lizard is a small, spiny, somewhat rounded lizard that occurs in scrubland, grassland, coniferous forests, and broadleaf woodland vegetation types (Stebbins 2003). It prefers open areas for basking and loose, friable soil for burrowing (Stebbins 2003). The coast horned lizard occurs throughout much of California, west of the desert and Cascade-Sierra highlands, south to Baja California, Mexico (Stebbins 2003). However, many of the populations in lowland areas have been reduced or eliminated due to urbanization and agricultural expansion (Stebbins 2003). Three factors have contributed to its decline: loss of habitat, overcollecting, and the introduction of exotic ants (Jennings and Hayes 1994). In the vicinity of the Study Area, this species has been reported approximately three miles north of the Study Area (CDFG 2012a).

Marginal suitable habitat is present in the northern portion of the Study Area. Therefore, coast horned lizard has low potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Orangethroat Whiptail

Orangethroat whiptail (*Aspidoscelis hyperytha* [*Cnemidophorus hyperythus beldingi*]) is a California Species of Special Concern that is covered by the MSHCP. The two former subspecies of the orangethroat whiptail (*C.h. hyperythrus* and *C.h. beldingi*) have recently been eliminated in scientific literature, such as Stebbins (2003), based on current scientific studies on this species. The orangethroat whiptail occurs in washes and in open areas of sage scrub and chaparral with gravelly soils, often with rocks. It prefers the well drained, friable soil on slopes that are barren or only sparsely covered with vegetation and that have a southern exposure. This species occurs between sea level and 2,000 feet above msl in the western Peninsular Ranges from Orange and San Bernardino Counties south to Baja California, Mexico (Stebbins 2003). Approximately 75 percent of the former range has been lost to development, and remaining populations are highly fragmented (Stebbins 2003). In the vicinity of the Study Area, this species has been reported southeast of El Cerrito, approximately two miles from the Study Area (CDFG 2012a).

Marginal suitable habitat is present in the northern portion of the Study Area. Therefore, orangethroat whiptail has low potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Silvery Legless Lizard

Silvery legless lizard (*Anniella pulchra pulchra*) is a California Species of Special Concern. It is a small, secretive lizard that spends most of its life beneath the soil, under stones, logs, debris, or in leaf litter. It requires areas with loose sandy soil, moisture, warmth, and plant cover. This subspecies occurs in chaparral, pine-oak woodland, beach, and riparian vegetation types at elevations between sea level and approximately 5,100 feet above msl (Stebbins 2003). The silvery legless lizard occurs in the Coast, Transverse, and Peninsular Ranges from Contra Costa County south to Baja California, Mexico (Stebbins 2003). This subspecies is naturally rare since it specializes in substrates with high sand content, but it is also threatened by grazing; off-road vehicle activity; sand mining; beach erosion; excessive recreational use of coastal dunes; and the introduction of exotic plants (Jennings and Hayes 1994). In the vicinity of the Study Area, this species has been reported from Deer Creek near the Ontario Airport, approximately four miles north of the Study Area (CDFG 2012a).

Marginally suitable habitat for this subspecies is present along the Santa Ana River. Therefore, silvery legless lizard has low potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

California Mountain Kingsnake

California mountain kingsnake (*Lampropeltis zonata* [*L.z. pulchra*]) is a California Species of Special Concern; special status applies to the San Diego population. It is covered by the MSHCP. This species occurs primarily in mixed woods, including coniferous forest, woodland, and chaparral ranging in elevation from sea level to high in the mountains. It may be found in narrow riparian woodlands associated with chaparral and coastal sage scrub (Jennings and

Hayes 1994). Rocks or rocky outcrops appear to be an important landscape feature for this species (Jennings and Hayes 1994). It occurs throughout the length of the state in the Sierras; Cascades; Coast Ranges; and San Bernardino, San Gabriel, and San Jacinto Mountains. In the vicinity of the Study Area, this species has been reported near Bald Peak southwest of Temescal Valley (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area, and the Study Area is outside the range of the protected population of this species. Therefore, California mountain kingsnake is not expected to occur in any portion of the Study Area.

Two-striped Garter Snake

Two-striped garter snake (*Thamnophis hammondii*) is a California Species of Special Concern. This highly aquatic species occurs primarily in or near perennial or intermittent freshwater streams with rocky beds bordered by willows or other dense vegetation (Jennings and Hayes 1994; Stebbins 2003). The two-striped garter snake feeds on tadpoles, newt larvae, toads, frogs, fish, fish eggs, and earthworms (Stebbins 2003). It occurs from Monterey County south to El Rosario in Baja California, Mexico at elevations between sea level and approximately 8,000 feet above msl (Stebbins 2003). It is considered locally rare in southwestern California. It is estimated that development and other human impacts have reduced the historic range of this species in California by 40 percent (Stebbins 2003). In the vicinity of the Study Area, this species has been reported from the mouth of Live Oak Canyon in La Verne (CDFG 2012a).

Highly suitable habitat for this species is present in the Prado Basin. Therefore, two-striped garter snake has potential to occur along the proposed Mira Loma-Jefferson 66 kV Subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

South Coast Garter Snake

South coast garter snake (*Thamnophis sirtalis* ssp.) is a California Species of Special Concern; individuals on the coastal plain from Ventura County to San Diego County at elevations between sea level and 2,790 feet above msl are protected. The California red-sided garter snake (*Thamnophis sirtalis* ssp. *infernalis*) is the subspecies that occurs along coastal California from the Santa Clara River Valley south to San Pasqual in San Diego County (Stebbins 2003; Jennings and Hayes 1994). The California red-sided garter snake is associated with permanent or semi-permanent bodies of water in a variety of habitats such as grassland, woodland, scrub, chaparral, and forest (Zeiner et al. 1988; Stebbins 2003). There are unsubstantiated reports of this species from biologists monitoring the least Bell's vireo population in the Prado Basin.

Highly suitable habitat for this species is present in the Prado Basin. Therefore, south coast garter snake has potential to occur along the proposed Mira Loma-Jefferson 66 kV Subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Red-diamond Rattlesnake

Red-diamond rattlesnake (*Crotalus ruber*) is a California Species of Special Concern that is covered by the MSHCP. It inhabits open scrub, chaparral, woodland, and grassland vegetation types. This species ranges from eastern Orange County and Riverside County south to Baja California, Mexico at elevations from sea level to about 5,000 feet above msl (Stebbins 2003; Zeiner et al. 1988). This species is threatened by development and human disturbance

(Jennings and Hayes 1994). In the vicinity of the Study Area, this species has been reported from Norco and Corona, less than three miles from the Study Area (CDFG 2012a).

Suitable habitat for northern red-diamond rattlesnake is not present in the Study Area. Therefore, northern red-diamond rattlesnake is not expected to occur in any portion of the Study Area.

Birds

Redhead

Redhead (*Aythya americana*) is a California Species of Special Concern. This species occurs from Alaska and southwest to central Canada south through most of the United States into Mexico and some of the Caribbean Islands (DeGraff and Rappole 1995). Both migratory and resident populations occur within the overall range for this species. The California status is complex, with both migratory and resident populations coexisting seasonally (Grinell and Miller 1986). This bay or diving duck dives or dabbles for its food, which generally consists of aquatic plants and insects (Woodin and Michot 2002). This duck often parasitizes the nests of other ducks, including other redheads, and other waterbird species (Beedy and Deuel 2008). It requires open marshes and ponds with some vegetation cover, such as reed beds of cattails (*Typha* spp.) or bulrushes (*Scirpus* spp.), for nesting, but is found in deeper bodies of water during winter and migration (Garrett and Dunn 1981; Beedy and Deuel 2008). This duck regularly breeds in the Prado Basin (Beedy and Deuel 2008). In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging habitat, but no suitable breeding habitat for this species occurs in the Prado Basin. Therefore, redhead may occur for foraging along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. It is not expected to breed in the Study Area.

Fulvous Whistling Duck

Fulvous whistling duck (*Dendrocygna bicolor*) is a California Species of Special Concern; nesting individuals are protected. During the first half of the century, this species was a locally common summer resident in California, mainly in the San Joaquin Valley and in coastal Southern California, with active or historic breeding locations south to San Diego County (Grinnell and Miller 1986). Currently, this species is only regularly seen in California at the southern end of the Salton Sea where it is a rare summer breeder (Patten et al. 2003; Shuford and Gardali 2008). This species occurs in freshwater and coastal marshes (Shuford and Gardali 2008).

The freshwater marsh vegetation is not extensive enough to provide suitable habitat for this species. Therefore, fulvous whistling duck is not expected to occur for breeding or foraging in any portion of the Study Area.

American White Pelican

American white pelican (*Pelecanus erythrorhynchos*) is a California Species of Special Concern; nesting colonies are protected. In the Project vicinity, this species is a common winter visitor. Breeding occurs at large freshwater or saltwater lakes, usually on small islands or remote dikes, primarily in the Klamath Basin of Northern California (Zeiner et al. 1990a). American white pelicans occur in ponds, lakes, and estuaries where they dive for fish from the surface of the water rather than from the air like the California brown pelican (*Pelecanus occidentalis*

californicus). Their diet consists almost entirely of fish, although they may also prey upon amphibians and crustaceans. In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging habitat, but no suitable breeding habitat is present in the lake near the southern end of the Study Area. Therefore, American white pelican may occur for foraging along the alternative source line routes. It is not expected to breed in the Study Area.

Least Bittern

Least bittern (*Ixobrychus exilis*) is a California Species of Special Concern. This species is a common summer visitor of the Salton Sea, but is rare to coastal Southern California (Garrett and Dunn 1981). The least bittern breeds in freshwater and brackish marshes with dense, tall growth of aquatic or semi-aquatic vegetation interspersed with clumps of woody vegetation and open water (Gibbs et al. 1992). This species eats mainly small fish, aquatic and terrestrial insects, and crayfish; they may also eat amphibians and small mammals (Zeiner et al. 1990a). Least bitterns rarely venture out of the dense marsh vegetation; because of this behavior, it is likely that many escape detection (Gallagher 1997). In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

The freshwater marsh vegetation in the Study Area is not extensive enough to provide habitat for this species. Therefore, least bittern is not expected to occur in any portion of the Study Area.

Golden Eagle

Golden eagle (*Aquila chrysaetos*) is a California Fully Protected species and is also protected by the Federal Bald Eagle Act; both nesting and wintering individuals are protected. It is covered by the MSHCP. This species breeds in open and semi-open habitats, such as tundra, shrublands, grasslands, woodland-brushlands, coniferous forests, farmland, and riparian habitats (Kochert et al. 2002). Broad expanses of open country are required for foraging, while nesting is primarily restricted to rugged mountainous areas with large trees or on cliffs (Johnsgard 2001); they are generally absent from the immediate coast and urbanized areas (Garrett and Dunn 1981). The golden eagle is an uncommon resident throughout Southern California, except in the Colorado Desert and Colorado River where it is a casual winter visitor (Garrett and Dunn 1981). In the vicinity of the Study Area, this species has been reported from Chino Hills State Park (CDFG 2012a).

Suitable foraging habitat, but no suitable breeding habitat for this species is present in the northern portion of the Study Area and in the open areas at the southern end of the Study Area. Therefore, golden eagle may occur for foraging at the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes. It is not expected to breed in the Study Area.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a State-listed Threatened species; nesting individuals are protected. It is covered by the MSHCP. It forages over the grassland and ruderal vegetation types during migration to and from South America, primarily feeding on small rodents, reptiles, and some insects within these habitats. It is a very rare migrant along the coast of Southern California (Garrett and Dunn 1981). This species formerly bred along the coast in Southern California, but breeding is now mostly limited to the Sacramento and San Joaquin Valleys, the

extreme northeastern part of California, as well as Mono and Inyo Counties (England et al. 1997). This species is threatened by loss of habitat; habitat deterioration on the South American wintering grounds; human disturbance at nest sites; shooting; and possibly pesticides (Remsen 1978).

Suitable foraging habitat, but no suitable breeding habitat for this species is present in the northern portion of the Study Area. Therefore, Swainson's hawk may occur for foraging at the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. It is not expected to breed in the Study Area.

Northern Harrier

Northern harrier (*Circus cyaneus*) is a California Species of Special Concern; nesting individuals are protected. It is covered by the MSHCP. It is a regular winter migrant in marshes and fields throughout Southern California, but is very scarce as a local breeder (Garrett and Dunn 1981). Some breeding populations may be resident, though the species appears to be nomadic, both between years and within the breeding season (Shuford and Gardali 2008). This raptor occurs year-round over open habitats, nesting on the ground within dense vegetation (Shuford and Gardali 2008). While once a relatively common species during fall, winter, and spring in undeveloped areas, the northern harrier population is now greatly reduced and localized in distribution. This species is threatened by loss of habitat; pesticides (Ehrlich et al. 1988); and loss of suitable breeding habitat (Macwhirter and Bildstein 1996). In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging habitat for this species is present in the northern portion of the Study Area and in the open areas at the southern end of the Study Area. Therefore, northern harrier may occur for foraging at the proposed Circle City Substation site; the alternative Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and the alternative source line routes. Marginal suitable breeding habitat is present in the Prado Basin. Therefore, northern harrier has low potential to occur for breeding along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

White-tailed Kite

White-tailed kite is a California Fully Protected species; nesting individuals are protected. It is covered by the MSHCP. This species occurs in low elevation grassland, agricultural areas, wetlands, oak woodlands, savannahs, and riparian habitat adjacent to open areas (Dunk 1995). Kites nest in a variety of tree species, whether the trees are isolated or part of a contiguous forested area (Dunk 1995). This species is an uncommon to locally fairly common resident in coastal Southern California as well as a rare visitor and local breeder on the western edge of the deserts (Garrett and Dunn 1981). Many populations in North America declined in the 1980s and 1990s, including those in Southern California (Dunk 1995). In the vicinity of the Study Area, this species has been reported from the Prado Basin, approximately two miles west of the Study Area (CDFG 2012a).

Suitable foraging habitat for this species is present in the northern portion of the Study Area and in the open areas at the southern end of the Study Area. Therefore, white-tailed kite may occur for foraging at the proposed Circle City Substation site; the alternative Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and the alternative source line routes.

Suitable breeding habitat is present in the Prado Basin. Therefore, white-tailed kite has potential to occur for breeding along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. White-tailed kite was incidentially observed during the 2012 burrowing owl surveys in the northern portion of the Study Area.

Bald Eagle

Bald eagle (*Haliaeetus leucocephalus*) is a State-listed Endangered Species, a California Fully Protected species, and is also protected by the Federal Bald Eagle Act; both nesting and wintering individuals are protected. It is covered by the MSHCP. This species was delisted by the USFWS in 2007, and will be monitored for 20 years as part of the Post-Delisting Monitoring Plan for the species, issued on May 11, 2010 (USFWS 2010a). This species requires large bodies of water or free-flowing rivers with abundant fish and adjacent to snags or perches (Zeiner et al. 1990a). The bald eagle nests in large, old-growth trees or snags in remote stands near water (Zeiner et al. 1990a). In Western Riverside County, the bald eagle is primarily a migrant and wintering species (Dudek 2003). In the vicinity of the Study Area, this species has been reported near Lake Mathews (CDFG 2012a).

Large areas of open space are not present in the Study Area. Therefore, bald eagle is not expected to occur in any portion of the Study Area for foraging or breeding.

All designated critical habitat for bald eagle was removed upon publication of the final rule delisting this species (USFWS 2007b).

American Peregrine Falcon

American peregrine falcon (*Falco peregrinus anatum*) is a California Fully Protected species; nesting individuals are protected. It is covered by the MSHCP. It was formerly a federally and State-listed Endangered species, but has since recovered and was delisted by the USFWS and the CDFG in 1999 and 2009, respectively. As a delisted species, the peregrine falcon will continue to be periodically monitored until 2015 (USFWS 2006). Peregrine falcons prey almost exclusively on birds and use a variety of habitats, particularly wetlands and coastal areas. This falcon is a rare summer resident in Southern California, although it is more common during migration and the winter season. For nesting, this falcon prefers inaccessible areas such as cliffs, high building ledges, bridges, or other such structures. In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging habitat for this species is present in the northern portion of the Study Area and in the open areas at the southern end of the Study Area. Therefore, American peregrine falcon may occur for foraging at the proposed Circle City Substation site; the alternative Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and the alternative source line routes. Peregrine falcon was incidentially observed during the 2011 and 2012 burrowing owl surveys in the northern portion of the Study Area. It is not expected to breed in the Study Area.

All designated critical habitat for American peregrine falcon was removed upon publication of the final rule delisting this species (USFWS 1999a).

Mountain Plover

Mountain plover (*Charadrius montanus*) is a California Species of Special Concern; nonbreeding/wintering individuals are protected. It is covered by the MSHCP. This species

breeds from southern Alberta and southwestern Saskatchewan south through Montana and Wyoming to southeastern New Mexico and western Texas (AOU 1998). Most of these birds spend the winter in the Central and Imperial Valleys of California (Knopf 1996). Its winter range in California was previously described as interior valleys and plains at low elevations from the Sacramento Valley and eastern parts of the San Francisco Bay region south to the coastal counties of Southern California and the Imperial Valley (Grinnell and Miller 1986). The largest numbers of mountain plovers currently winter in the Imperial Valley and in the Central Valley from Colusa County south to Kern County (Shuford and Gardali 2008). Relatively small populations also occur in the Panoche Valley and Carrizo Plains west of the San Joaquin Valley (or southern Central Valley), in the Colorado River Valley near Blythe, and the western Antelope Valley (Shuford and Gardali 2008). For both breeding and wintering, mountain plovers are strongly associated with short-grass prairie habitats, or other similar habitats, that are flat and generally lack vegetation (Knopf 1996). They also occur on more natural, non-cultivated sites, such as alkali sink scrub, valley sink scrub, alkali playa, and annual grasslands (USFWS 1999b). Grazed or burned agricultural fields also provide suitable habitat for this species, as well as Bermuda grass fields (Knopf 1996).

Limited suitable foraging, but no suitable breeding habitat for this species occurs in the northern portion of the Study Area. Therefore, mountain plover may occur for foraging along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Western Yellow-billed Cuckoo

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is a State-listed Endangered species and a federal Candidate for listing by the USFWS; nesting individuals are protected. It is covered by the MSHCP. The western yellow-billed cuckoo requires broad areas of old-growth riparian habitats dominated by willows (*Salix* spp.) with dense understory vegetation (Zeiner et al. 1990a). California's population was once estimated to be over 15,000 pairs, but in less than a hundred years, it has declined to less than 30 pairs (Hughes 1999). Along the coast, breeding cuckoos currently persist along the Santa Ana River in Riverside County and perhaps along the San Luis Rey River in San Diego County (Zeiner et al. 1990a). Transients are rarely observed away from known breeding populations (Garrett and Dunn 1981). The Santa Ana River, specifically Prado Basin, is the only area in the region with riparian woodlands extensive enough to support breeding western yellow-billed cuckoos and a few birds have persisted there until recently. In the immediate vicinity of the Study Area, this species has been reported from the Prado Basin (CDFG 2012a).

Suitable foraging and limited suitable breeding habitat for this species are present in the Prado Basin. Therefore, western yellow-billed cuckoo may occur for foraging and breeding along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Long-eared Owl

Long-eared owl (*Asio otus*) is a California Species of Special Concern; nesting individuals are protected. This owl hunts mostly at night over grasslands and other open habitats (Marks et al. 1994). Nesting occurs in dense trees such as oaks and willows where it occupies the stick nests of other species, particularly raptors and corvids (Marks et al. 1994; Bloom 1994). This species is an uncommon resident in the deserts, and is quite rare coastally (Garrett and Dunn 1981). Long-eared owls have declined in Southern California due to the loss of riparian and grassland habitats to development (Marks et al. 1994). In the vicinity of the Study Area, this species has been historically reported from the entrance to Carbon Canyon (CDFG 2012a; 1925 record).

Highly suitable foraging and breeding habitat for this species are present in the Prado Basin. Therefore, long-eared owl may occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Burrowing Owl

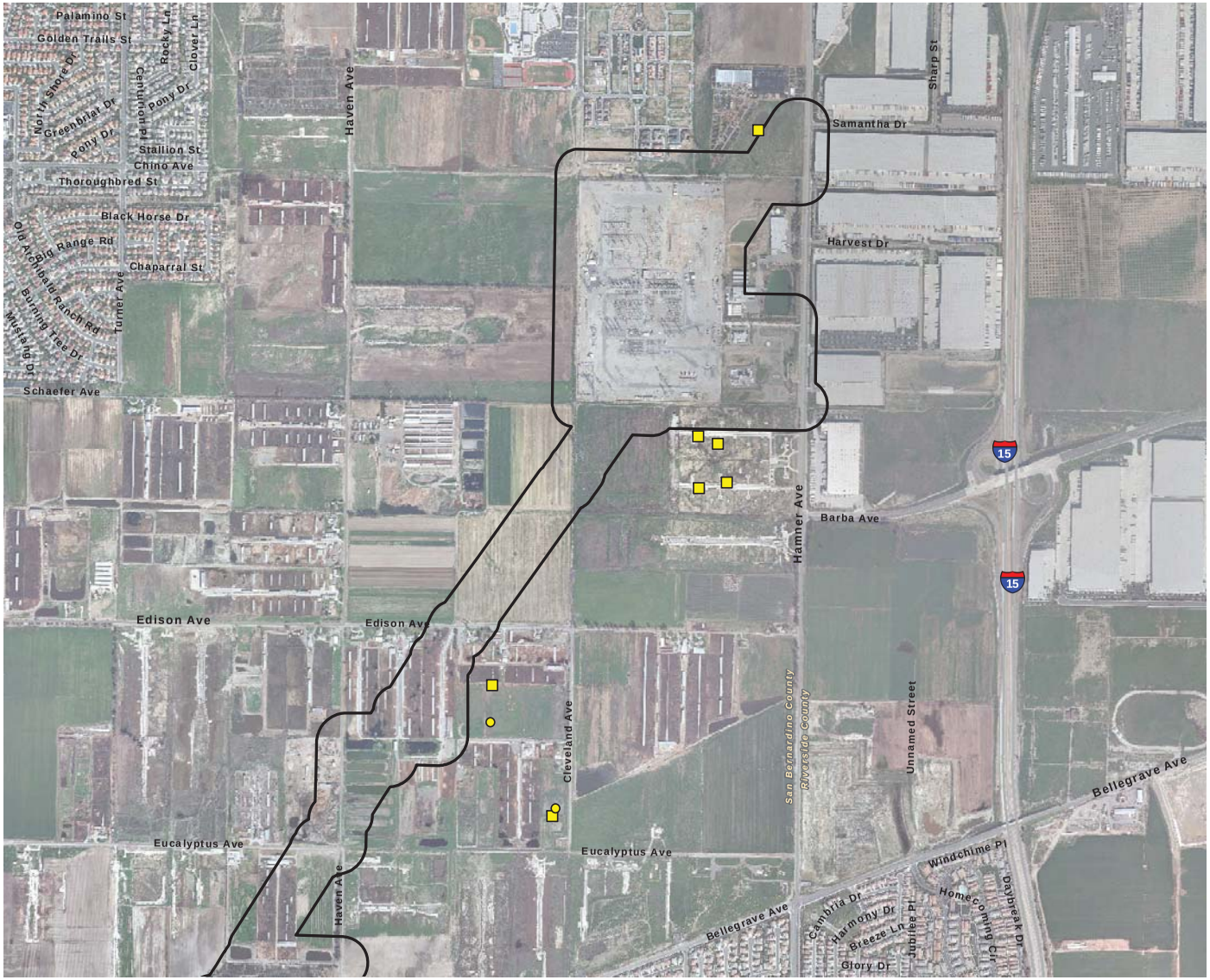
Burrowing owl is a California Species of Special Concern; burrow sites are protected. It is covered by the MSHCP. Although the burrowing owl was proposed as a State Candidate for listing (CBD et al. 2003), the CDFG determined that the species did not warrant listing in consideration of its population throughout the State. However, this species is considered a Species of Local Concern because it is much less common in Southern California than in the Central Valley. Burrowing owls use a wide variety of arid and semi-arid environments (e.g., grasslands, steppes, deserts, prairies, and agricultural land), with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug et al. 1993; Dechant et al. 2003). These small owls nest in mammal burrows (e.g., those of the California ground squirrel) (Haug et al. 1993), but have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. In the immediate vicinity of the Study Area, this species has been reported from multiple locations around Corona (CDFG 2012a).

Suitable habitat for burrowing owl occurs in the dairies, fallow agricultural land, grasslands, and ruderal fields throughout the the Study Area. Therefore, burrowing owl may occur for foraging and breeding at the Mira Loma Substation; at the proposed Circle City Substation site; at the alternative Circle City Substation site; along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; along both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and the along alternative source line routes. The remaining portions of the Study Area are too highly developed to support this species.

Burrowing owl has been observed in the northern portion of the Study Area. In 2011, a total of eight individuals were observed during focused surveys near the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes, north of SR-91 near the Mira Loma Substation; two of these individuals were observed just south of Edison Avenue (Figures 8A–8C). These individuals were observed near, but not within, the Study Area boundary. In 2012, a total of 11 individuals were observed during focused surveys near the proposed and alternative Mira Loma-Jefferson 66 kV subtransmission line routes; 6 individuals were within approximately 500 feet of the Study Area and 5 owls were incidentally observed nearby (Figures 8A–8C).

Southwestern Willow Flycatcher

Southwestern willow flycatcher is a federally and State-listed Endangered species; nesting individuals are protected and the State listing includes all subspecies (CDFG 2011). It is covered by the MSHCP. It occurs in riparian habitats along rivers, streams, or other wetlands where dense growths of willows (*Salix* spp.), baccharis (*Baccharis* sp.), arrowweed (*Pluchea* sp.), tamarisk (*Tamarix* sp.), or other plants are present, often with a scattered overstory of cottonwood (*Populus* sp.) (USFWS 2005a). This subspecies was once considered a common breeder in coastal Southern California. However, it has declined drastically due to loss of breeding habitat and nest parasitism by the brown-headed cowbird (Sedgwick 2000). In the immediate vicinity of the Study Area, this species has been reported from the Prado Basin (CDFG 2012a).



Study Area

Species Observed

2010 Survey

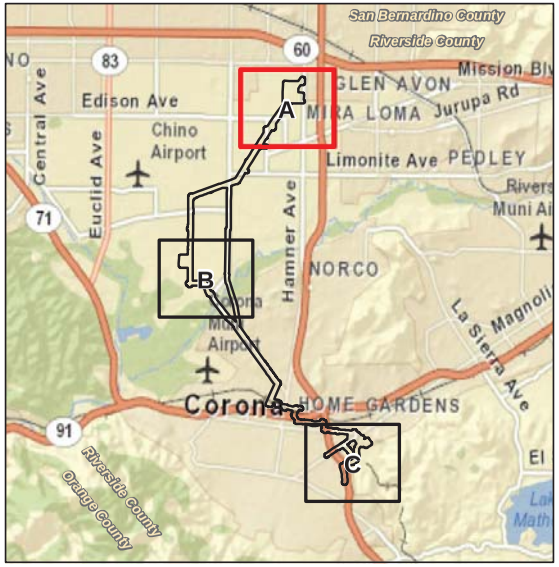
- Least Bell's Vireo

2011 Survey

- Burrowing Owl
- Least Bell's Vireo

2012 Survey

- Burrowing Owl
- Least Bell's Vireo
- Yellow Warbler/Yellow-breasted Chat
- Yellow Warbler



Special Status Species Locations

Figure 8A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,250 625 0 1,250 Feet

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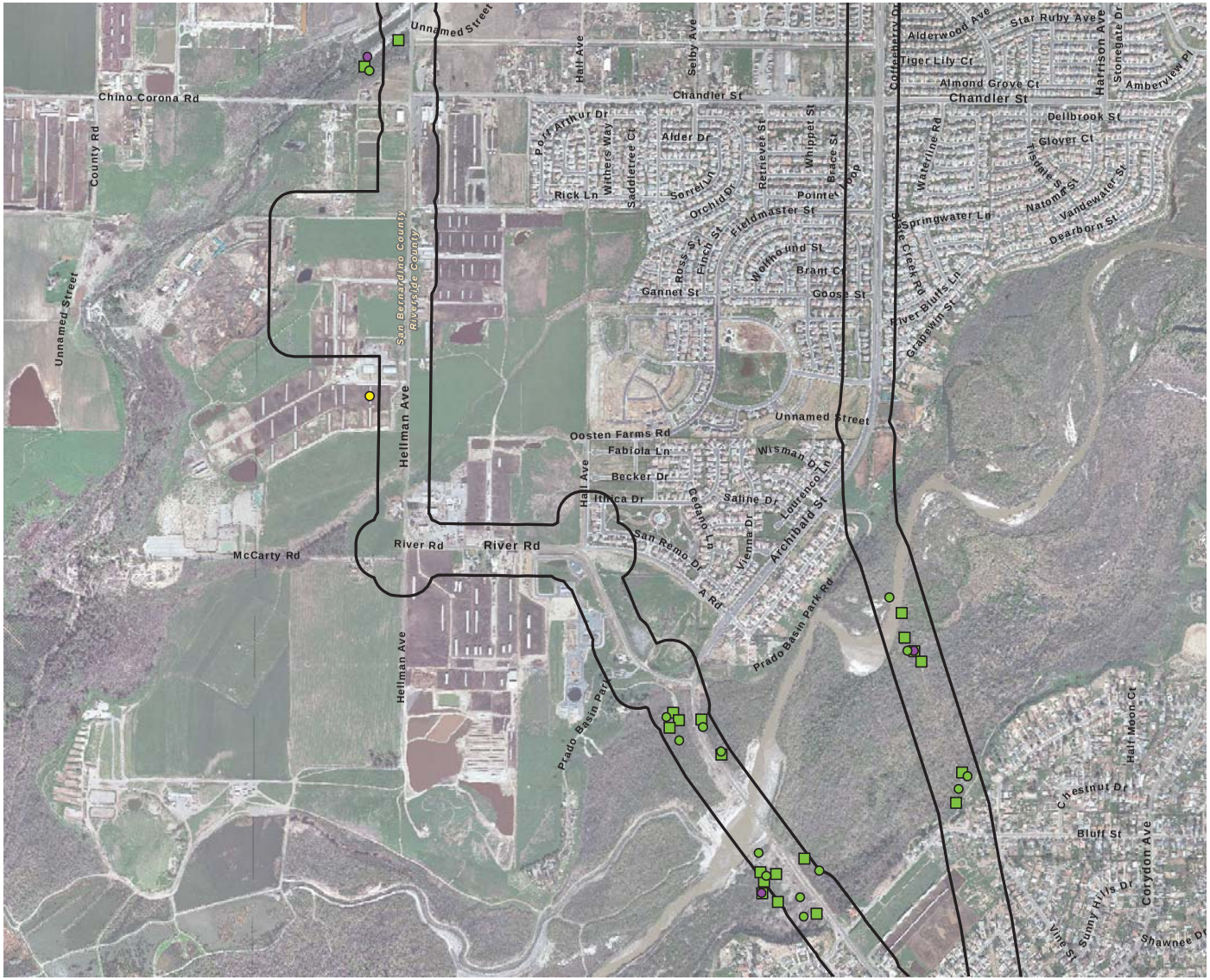


Study Area

Species Observed

2010 Survey

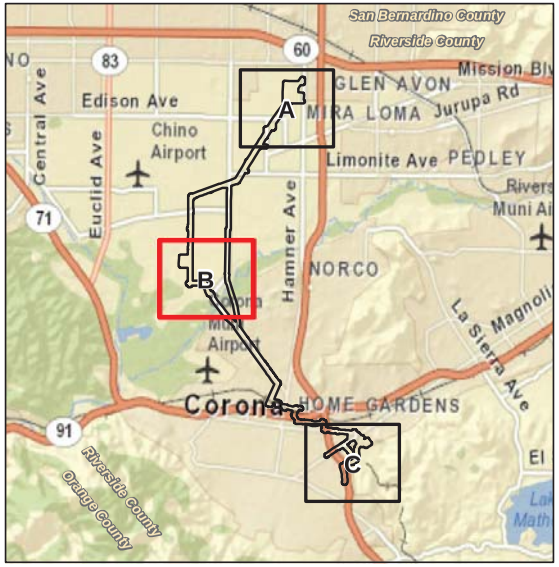
- Least Bell's Vireo

2011 Survey

- Burrowing Owl
- Least Bell's Vireo

2012 Survey

- Burrowing Owl
- Least Bell's Vireo
- Yellow Warbler/Yellow-breasted Chat
- Yellow Warbler



Special Status Species Locations

Figure 8B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,250 625 0 1,250 Feet

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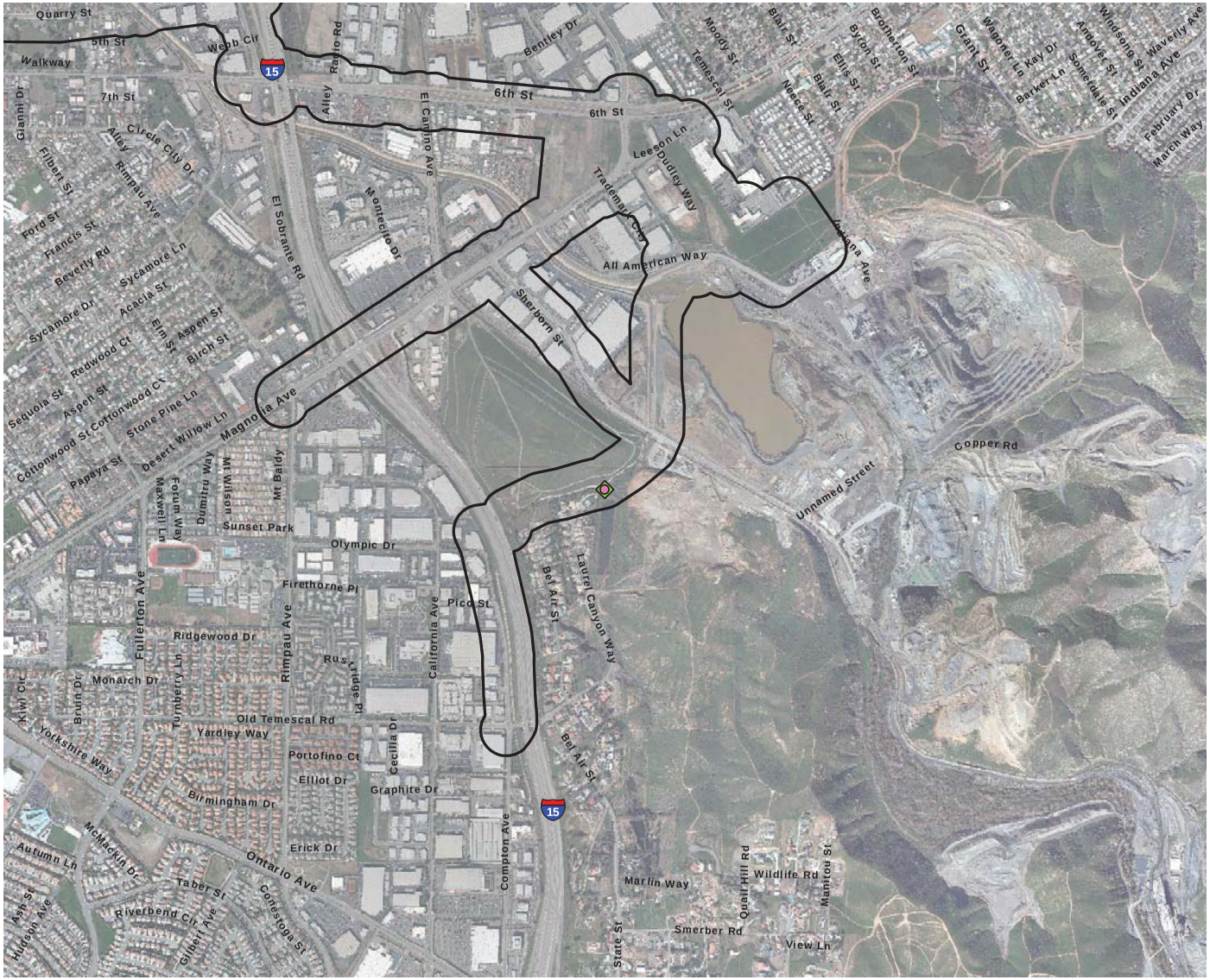


Study Area

Species Observed

2010 Survey

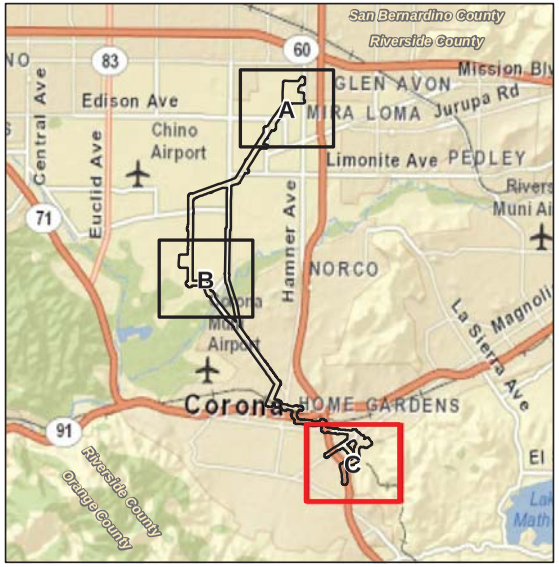
- Least Bell's Vireo

2011 Survey

- Burrowing Owl
- Least Bell's Vireo

2012 Survey

- Burrowing Owl
- Least Bell's Vireo
- Yellow Warbler/Yellow-breasted Chat
- Yellow Warbler



Special Status Species Locations

Figure 8C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,250 625 0 1,250 Feet

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Suitable foraging and breeding habitat for this species is limited to the Prado Basin in the Study Area. Therefore, southwestern willow flycatcher may occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. The willow riparian forest along the alternative source line routes is not dense enough to support this species. This species was not observed during focused surveys.

On October 19, 2005, the USFWS published a final rule designating critical habitat for the southwestern willow flycatcher (USFWS 2005a). This final rule designated 120,824 acres in Arizona, California, Nevada, New Mexico, and Utah as critical habitat. Of that, 17,212 acres were designated in Kern, Santa Barbara, San Bernardino, and San Diego Counties. Following lawsuits, the USFWS proposed a revised critical habitat designation on August 15, 2011. This proposed rule would cover 2,090 stream miles in California, Nevada, Utah, Colorado, Arizona, and New Mexico (USFWS 2011a). The Study Area is not located in designated critical habitat for this species but is located in proposed critical habitat (Figure 7); areas within the MSHCP may be excluded from the revised critical habitat designation (USFWS 2011a).

Vermilion Flycatcher

Vermilion flycatcher (*Pyrocephalus rubinus*) is a California Species of Special Concern; nesting individuals are protected. This is a widespread species that occurs from South and Central America to the southwestern United States (DeGraff and Rappole 1995). This species is generally a resident within its California range of the Colorado River north to the Nevada state line, just north of Needles and west to the Imperial and Coachella Valleys (Grinnell and Miller 1986). Previously a fairly common breeder in California (Grinnell and Miller 1986), this species has declined in overall numbers despite an apparent westward and upward elevational shift in its breeding range (Patten et al. 2003; Shuford and Gardali 2008). Despite decreasing numbers of birds along the Colorado River (Rosenberg et al. 1991), this area still supports the largest numbers of breeding birds in California (Shuford and Gardali 2008). This species recently bred in the Prado Basin (Shuford and Gardali 2008). Although a small flycatcher, the male of this species is hard to miss as it is brilliant red and typically perches in the open, where it makes frequent sallies to catch its insect prey. Typical breeding habitat for this species consists of a mixture of trees, open fields, and open water habitats (Wolf and Jones 2000). In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging and breeding habitat for this species is limited to the Prado Basin in the Study Area. Therefore, vermilion flycatcher may occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. The willow riparian forest along the alternative source line routes is not dense enough to support this species.

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is a California Species of Special Concern; nesting individuals are protected. It is covered by the MSHCP. Year-round, shrikes inhabit open habitats with short vegetation such as pastures, agricultural fields, riparian areas, and open woodlands (Yosef 1996). They can often be found perched on fences and posts from which prey items (e.g., large insects, small mammals, and lizards) can be seen. This species was widely distributed across North America but has declined throughout most of its range in recent decades (Yosef 1996). It was considered to be a fairly common year-round resident in Southern California (Garrett and Dunn 1981), but has recently shown declines in its California population

(Small 1994; Shuford and Gardali 2008). In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging habitat for this species is present throughout the Study Area. Therefore, loggerhead shrike may occur for foraging at the Mira Loma Substation; at the proposed Circle City Substation site; at the alternative Circle City Substation site; along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; along both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and along the alternative source line routes. The remaining portions of the Study Area are too highly developed to support this species. Suitable breeding habitat for this species is present in the northern portion of the Study Area and along the alternative source line routes. Therefore, loggerhead shrike has potential to occur for breeding along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and along the alternative source line routes. Loggerhead shrike was incidentially observed during the 2012 burrowing owl surveys in the northern portion of the Study Area.

Least Bell's Vireo

Least Bell's vireo is a federally and State-listed Endangered species; nesting individuals are protected. It is covered by the MSHCP. This subspecies was formerly considered to be a common breeder in riparian habitats throughout the Central Valley and other low-elevation river systems in California and Baja California, Mexico (Franzreb 1989). It is now a rare and local summer resident of Southern California's lowland riparian woodlands. The least Bell's vireo breeds primarily in riparian habitats dominated by willows with dense understory vegetation (USFWS 1986). A dense shrub layer two to ten feet above ground is the most important habitat characteristic for this subspecies (Goldwasser 1981; Franzreb 1989). While destruction of lowland riparian habitats has played a large role in driving this subspecies to its present precarious situation, brood parasitism by brown-headed cowbirds is the most important factor in its decline (Garrett and Dunn 1981). In the immediate vicinity of the Study Area, this species has been reported from multiple locations in the Prado Basin (CDFG 2012a).

Highly suitable foraging and breeding habitat for this species occurs in the Prado Basin and in other patches of riparian forest in the Study Area. Therefore, least Bell's vireo has high potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and the alternative source line routes. One least Bell's vireo pair was observed during the 2010 focused surveys along the alternative source line routes (Figures 8A–8C). These individuals were observed foraging in the Study Area but assumed to be nesting off site. A total of 19 least Bell's vireo territories were observed during the 2011 focused surveys in the Prado Basin (17 locations) and along Mill Creek northwest of Hellman Avenue and Chandler Street (2 locations) (Figures 8A–8C). A total of ten least Bell's vireo territories were observed during the 2012 focused surveys in the Prado Basin (8 locations) and along Mill Creek northwest of Hellman Avenue and Chandler Street (1 location) (Figures 8A–8C).

On February 2, 1994, the USFWS published a final critical habitat for the least Bell's vireo, designating approximately 37,560 acres of land in California's Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties (USFWS 1994b). The Study Area is located in designated critical habitat for this species (Figure 7).

Coastal Cactus Wren

Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) is a California Species of Special Concern in San Diego and Orange Counties only; in Riverside and San Bernardino

counties it is not considered to have special status, although it is covered by the MSHCP. The full species occurs in arid and semi-arid regions from California, Nevada, Utah, Arizona, New Mexico, and Texas south to Mexico and Baja California, Mexico (Shuford and Gardali 2008).The *sandiegensis* subspecies occurs from northwestern Baja California, Mexico through San Diego County and into southern Orange County, though the taxonomic status of cactus wrens and northern limits of this subspecies is uncertain (Shuford and Gardali 2008; Proudfoot et al. 2000). Coastal cactus wrens typically inhabit coastal sage scrub and alluvial sage scrub habitats that have sufficient amounts of prickly pear cactus (*Opuntia littoralis*) and/or cholla (*Opuntia prolifera*) (Shuford and Gardali 2008). Nests are built almost exclusively in cholla or prickly pear cactus (Shuford and Gardali 2008). In the vicinity of the Study Area, this species has been reported from the Chino Hills, approximately four miles west of Prado Dam (CDFG 2012a).

Suitable habitat for this species is not present in any portion of the Study Area. Therefore, coastal cactus wren is not expected to occur in the Study Area.

Clark's Marsh Wren

Clark's marsh wren (*Cistothorus palustris clarkae*) is a California Species of Special Concern. This subspecies is restricted to freshwater and brackish marshes dominated by bulrushes or cattails (Shuford and Gardali 2008). This subspecies occurs along the coast of Southern California from the Los Angeles basin south to the Mexican border (Shuford and Gardali 2008). In the vicinity of the Study Area, the marsh wren (*Cistothorus palustris*) has been reported from the Santa Ana River Valley (Audubon 2012). Subspecific identification needs confirmation in western Riverside County to determine whether *C. p. clarkae* or *C. p. aestuarinus* is present (Shuford and Gardali 2008).

Suitable foraging and breeding habitat for this species occurs in the Prado Basin in the Study Area. Therefore, Clark's marsh wren has potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. Marsh wren has been incidentally observed during focused surveys for least Bell's vireo and southwestern willow flycatcher along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3; however, subspecific identification was not made.

Coastal California Gnatcatcher

Coastal California gnatcatcher is a federally Threatened species and a California Species of Special Concern. It is covered by the MSHCP. In California, this subspecies is an obligate resident of coastal sage scrub vegetation types. It occurs in most of Baja California, Mexico's arid regions, but this subspecies is extremely localized in the United States, where it predominantly occurs in coastal regions of highly urbanized Los Angeles, Orange, Riverside, and San Diego Counties (Atwood 1992). Brood parasitism by brown-headed cowbirds and loss of habitat to urban development have been cited as causes of coastal California gnatcatcher population decline (Unitt 1984; Atwood 1990). In the vicinity of the Study Area, this species has been reported adjacent to alternative source line route (ECORP 2010).

A small amount of isolated Riversidian sage scrub occurs in the Study Area; however, the suitability of this vegetation as habitat for the coastal California gnatcatcher is very limited. Therefore, coastal California gnatcatcher is not expected to occur in any portion of the Study Area.

On October 24, 2000, the USFWS published a final rule designating critical habitat for the coastal California gnatcatcher. This final rule designated 207,890 acres in Los Angeles, Orange,

Riverside, San Bernardino, and San Diego counties as critical habitat (USFWS 2000). Following lawsuits, the USFWS proposed a revised critical habitat designation on April 24, 2003. This proposed rule was finalized on December 19, 2007. The revised critical habitat designates 197,303 acres of land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, California (USFWS 2007a). The Study Area is not located in designated critical habitat for this species.

Yellow Warbler

Yellow warbler (*Dendroica petechia brewsteri*) is a California Species of Special Concern; nesting individuals are protected. It is covered by the MSHCP. This subspecies breeds in Southern California (Dunn and Garrett 1997); most yellow warblers are migrants. It occurs in coastal areas from northwestern Washington south to western Baja California, Mexico (Dunn and Garrett 1997). The species occurs in riparian vegetation in close proximity to water, often occupying areas with willows (*Salix* spp.) and cottonwoods (*Platanus* spp.) (Shuford andGardali 2008). In Southern California, it breeds locally in riparian woodlands, but during migration, it can forage in a variety of different habitat types. This subspecies is threatened by loss of habitat and nest parasitism by brown-headed cowbirds (Remsen 1978). In the immediate vicinity of the Study Area, this species has been reported from the Prado Basin (CDFG 2012a).

Highly suitable foraging and breeding habitat for this species occurs in the Prado Basin and other patches of riparian forest in the Study Area. Therefore, yellow warbler has high potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; both alternative Mira Loma-Jefferson 66 kV subtransmission line routes; and the alternative source line routes. Yellow warbler has been observed during focused surveys along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3 and the alternative source line routes (Figures 8A–8C). A high count of 48 yellow warblers were observed on June 3, 2011. The locations shown on Figures 8A–8C are not exhaustive, but are representative of where the species was observed.

Yellow-Breasted Chat

Yellow-breasted chat (*Icteria virens*) is a California Species of Special Concern; nesting individuals are protected. It is covered by the MSHCP. This species nests along the narrow border of streams, creeks, sloughs, and rivers in dense thickets and tangles of species such as blackberry (*Rubus* spp.), wild grape (*Vitis* spp.), and willow (*Salix* spp.); taller trees such as cottonwood (*Populus* spp.) and alder (*Alnus* spp.) are required for song perches (Shuford and Gardali 2008). The yellow-breasted chat occurs as an uncommon and local summer resident in Southern California along the coast and in the deserts (Garrett and Dunn 1981). This large warbler was once a fairly common summer resident in riparian woodlands throughout California, but is now much reduced in numbers, especially in Southern California (Remsen 1978). This species is threatened by loss of habitat and possibly nest parasitism by the brown-headed cowbird (Remsen 1978). In the immediate vicinity of the Study Area, this species has been reported from the Santa Ana River (CDFG 2012a).

Highly suitable foraging and breeding habitat for this species occurs in the Prado Basin and other patches of riparian forest in the Study Area. Therefore, yellow-breasted chat has high potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes. Yellow-breasted chat has been observed during focused surveys along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3 (Figures 8A–8C). A high count of 15 yellow-breasted chats were observed on June 3, 2011. The

locations shown on Figures 8A–8C are not exhaustive, but are representative of where the species was observed.

Grasshopper Sparrow

Grasshopper sparrow (*Ammodramus savannarum*) is a California Species of Special Concern; nesting individuals are protected. It is covered by the MSHCP. This species occupies dense, dry or well-drained grassland, especially those with a mix of grasses and forbs for foraging and nesting and scattered shrubs for singing perches (CDFG BDB 2011). In Southern California, this species occurs mainly on hillsides and mesas in coastal areas, but has bred up to 5,000 feet in the San Jacinto Mountains (CDFG BDB 2011). This species occurs across North America from southern Canada south to Ecuador (Shuford and Gardali 2008). It is an uncommon and very local summer resident along the coastal slope of Southern California (Garrett and Dunn 1981). In the vicinity of the Study Area, this species has been reported from the Chino Hills near Wire Springs Canyon (CDFG 2012a).

Highly suitable habitat for this species is present along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes. Therefore, grasshopper sparrow has potential to occur for foraging and breeding in these portions of the Study Area.

Oregon Vesper Sparrow

Oregon vesper sparrow (*Pooecetes gramineus affinis*) is a California Species of Special Concern; nonbreeding/wintering individuals are protected. This species occurs from southern Canada south through most of the United States into Mexico (DeGraff and Rappole 1995). There is limited overlap between the breeding and wintering range, but at any season, this is a sparrow of open fields and grasslands with little vegetation or short grasses and low annuals (DeGraff and Rapple 1995; Shuford and Gardali 2008). The Great Basin vesper sparrow (*P.g. confinis*) and Oregon vesper sparrow both breed and winter in California with the former confined to the Great Basin region of the state and the Oregon vesper sparrow breeding, albeit rarely, on the coast of Del Norte County (Small 1994). Both subspecies winter to the south in California, with the smaller and browner Oregon vesper sparrow occurring on the coast of Southern California (Patten et al. 2003). The winter ranges of both subspecies, however, overlap in coastal Southern California, so determining the actual status and distribution of these similar appearing subspecies is difficult and not well known (Erickson 2008). In the vicinity of the Study Area, the vesper sparrow (*Pooecetes gramineus*) has been reported from the Santa Ana River Valley (Audubon 2012).

Suitable foraging, but no suitable breeding habitat for this species is present in the open grasslands in the Study Area. Therefore, Oregon vesper sparrow may occur for foraging, but is not expected to breed at the proposed Circle City Substation site, the alternative Circle City Substation site, and along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes.

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) is a California Species of Special Concern; nesting colonies are protected. It is covered by the MSHCP. These colonial nesting birds prefer to breed in marsh vegetation of bulrushes and cattails and have also been recorded nesting in willows (*Salix* spp.), blackberries (*Rubus ursinus*), and mustard (*Brassica* spp.) (Beedy et al. 1991). During winter months, they are often found foraging in wet pastures, agricultural fields, and

seasonal wetlands. Tricolored blackbirds are nomadic, wandering during the nonbreeding season and occupying colony sites intermittently (Unitt 1984). The species occurs primarily in California, except for small, local nesting colonies in Oregon, Washingon, Nevada, and coastal Baja California, Mexico (Shuford and Gardali 2008). In the vicinity of the Study Area, this species has been historically reported approximately one mile west of the Study Area (1950 record); a more recent observation is from the San Bernardino Flood Control Basin (CDFG 2012a).

Suitable or marginally suitable foraging habitat for this species is present in the northern portion of the Study Area and in the open areas at the southern end of the Study Area. Therefore, tricolored blackbird may occur for foraging at the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes. Marginal suitable breeding habitat is present in the Prado Basin. Therefore, tricolored blackbird has low potential to occur for breeding along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Yellow-Headed Blackbird

Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) is a California Species of Special Concern; nesting individuals are protected. Depending on availability of food resources, these blackbirds are either territorial or form loose colonies (Twedt and Crawford 1995). Male yellow-headed blackbirds are typically polygynous, generally mating with two to six females (Twedt and Crawford 1995). These blackbirds typically nest in marshes with tall emergent vegetation such as bulrushes and cattails adjacent to open water (Shuford and Gardali 2008). A common summer resident at the Salton Sea and in the Colorado River Valley, this species is an uncommon to fairly common migrant that remains to breed irregularly at just a few locations elsewhere in Southern California (Garrett and Dunn 1981). In the vicinity of the Study Area, this species has been reported from the Santa Ana River Valley (Audubon 2012).

Marginal suitable foraging and breeding habitat for this species is present in the Prado Basin and in riparian vegetation in the southern portion of the Study Area. Therefore, yellow-headed blackbird has low potential to occur for foraging and breeding along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes.

Mammals

Pallid Bat

Pallid bat is a California Species of Special Concern. It occurs in a wide variety of habitats, including grasslands, shrublands and woodlands, but is most common in open habitats with rocky areas for roosting (Zeiner et al. 1990b). Roosting habitat consists of caves, crevices, mines, and occasionally hollow trees and buildings (Whitaker 1980; Zeiner et al. 1990b). The pallid bat is very sensitive to disturbance at its roosting sites (Zeiner et al. 1990b). This species occurs throughout California except for the high Sierra Nevada from Shasta to Kern Counties and in the northwestern portion of the State (Zeiner et al. 1990b). In the vicinity of the Study Area, this species has been historically reported from Ontario (CDFG 2012a; 1951 record).

Marginal suitable foraging, but no suitable roosting, habitat for this species is present in the open areas of the Study Area. Therefore, pallid bat has low potential to occur for foraging, but not for roosting, at the proposed Circle City Substation site, the alternative Circle City Substation

site, and along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line route.

Townsend's Big-Eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*) is a California Species of Special Concern. The pale big-eared bat (*C.t. pallescens*) is one of two subspecies of the Townsend's big-eared bat that occurs throughout most of California (Williams 1986). The Townsend's big-eared bat, including both subspecies, is considered an uncommon year-round resident throughout much of California (Zeiner et al. 1990). It occupies a variety of habitats including oak woodlands, arid deserts, grasslands, and high-elevation forests and meadows (Hall 1981). Known roosting sites in California include mine tunnels, limestone caves, lava tubes, buildings, and other man-made structures (Williams 1986). The roosts, especially of larger breeding colonies, are especially susceptible to disturbance (Williams 1986).

Marginal suitable foraging, but no suitable roosting, habitat for this species is present in the open areas of the Study Area. Therefore, Townsend's big-eared bat has low potential to occur for foraging, but not for roosting, at the proposed Circle City Substation site, the alternative Circle City Substation site, and along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes.

Western Yellow Bat

Western yellow bat (*Lasiurus xanthinus*) is a California Species of Special Concern. Little is known about its habitat, but it is known to roost in leafy vegetation (Best et al. 1998). This species is associated with dry thorny vegetation of the Mexican Plateau, coastal western Mexico, and the deserts of the southwestern U.S. (Best et al. 1998). In the immediate vicinity of the Study Area, this species has been reported from Corona and Norco (CDFG 2012a).

Suitable foraging and marginal suitable roosting habitat for this species is present in the Prado Basin. Therefore, western yellow bat has potential to occur for foraging and low potential to occur for roosting along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and both alternative Mira Loma-Jefferson 66 kV subtransmission line routes.

Western Mastiff Bat

Western mastiff bat (*Eumops perotis californicus*) is a California Species of Special Concern. It is found in many open semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas (Zeiner et al. 1990b). The western mastiff bat is a very wide-ranging and high-flying insectivore that typically forages in open areas with high cliffs. It roosts in small colonies in crevices on cliff faces. It occurs in the southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through Southern California, and from the coast eastward to the Colorado Desert (Zeiner et al. 1990b). Threats to this subspecies include loss of habitat due to development, drainage of marshes, and conversion of land to agriculture (Williams 1986). In the immediate vicinity of the Study Area, this species has been reported from Norco City Hall (CDFG 2012a).

Marginal suitable foraging but no suitable roosting habitat for this species is present in the open areas of the Study Area. Therefore, western mastiff bat has low potential to occur for foraging, but not for roosting, at the proposed Circle City Substation site, the alternative Circle City Substation site, and along the proposed Mira Loma-Jefferson 66 kV subtransmission line route,

both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes.

Pocketed Free-tailed Bat

Pocketed free-tailed bat (*Nyctinomops fermorosaccus*) is a California Species of Special Concern. This species is known to occur in rocky desert areas with relatively high cliffs (Williams 1986) such as pinyon-juniper woodland, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases (Zeiner et al. 1990b). It primarily roosts in crevices in rugged cliffs, slopes, and tall rocky outcrops (Best et al. 1998). This bat occurs from the southwestern United States to south-central Mexico (Best et al. 1998). In the vicinity of the Study Area this species has been reported from Corona (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area. Therefore, pocketed free-tailed bat is not expected to occur in any portion of the Study Area.

Big Free-tailed Bat

Big free-tailed bat (*Nyctinomops macrotis*) is a California Species of Special Concern. This species feeds primarily on moths caught while flying over water sources in suitable habitat (Zeiner et al. 1990b). It prefers rugged, rocky terrain and roosts in crevices in high cliffs or rocky outcrops (Zeiner et al. 1990b). This species occurs from the western U.S. to northern South America and the Caribbean Islands (Williams 1986). In California, it is known from only a few low-lying arid areas (Williams 1986), but probably does not breed in the state (Zeiner et al. 1990b). In the vicinity of the Study Area this species has been reported from Pomona (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area. Therefore, big free-tailed bat is not expected to occur in any portion of the Study Area.

San Diego Black-tailed Jackrabbit

The San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) is a California Species of Special Concern. It is covered by the MSHCP. The species occurs in herbaceous and desert-shrub areas and open, early stages of forest and chaparral habitats (Zeiner et al. 1990b). The San Diego subspecies of the widespread black-tailed jackrabbit is restricted to the Pacific slope from Santa Barbara County south to northwestern Baja California, Mexico. In the vicinity of the Study Area, this species has been reported from the El Sobrante Hills (CDFG 2012a).

Suitable habitat for this species is present in the open areas of the northern and southern portions of the Study Area. Therefore, San Diego black-tailed jackrabbit has potential to occur along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes. San Diego black-tailed jackrabbit was incidentially observed during the 2012 burrowing owl surveys in the northern portion of the Study Area.

Northwestern San Diego Pocket Mouse

Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is a California Species of Special Concern. It is covered by the MSHCP. It occupies a variety of habitats including chaparral, coastal sage scrub, and grassland (CDFG 2012a). This subspecies ranges from southwest San Bernardino County south to northern Baja California, Mexico. The primary threat

to this species is loss of habitat due to development. In the vicinity of the Study Area, this species has been reported from Upland and Fontana (CDFG 2012a).

Marginal suitable habitat for this species is present in the open areas of the Study Area. Therefore, northwestern San Diego pocket mouse has low potential to occur at the proposed Circle City Substation site, the alternative Circle City Substation site, and along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, both alternative Mira Loma-Jefferson 66 kV subtransmission line routes, and the alternative source line routes.

San Bernardino Kangaroo Rat

San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is a federally Endangered species and a California Species of Special Concern. It is covered by the MSHCP. It is a subspecies of the Merriam's kangaroo rat (*Dipodomys merriami*), which is widely distributed throughout the western United States and northwestern Mexico. San Bernardino kangaroo rat historically occurred from the San Bernardino Valley in San Bernardino County to Menifee Valley in Riverside County. This species is found primarily on sandy and sandy loam substrates typically associated with alluvial scrub vegetation. San Bernardino kangaroo rat habitat is characterized by a low-stature, relatively open shrub canopy with a reduced herbaceous cover. In the immediate vicinity of the Study Area, this species has been reported from the City of Corona (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area. Therefore, San Bernardino kangaroo rat is not expected to occur in any portion of the Study Area.

On October 17, 2008, the USFWS published a final rule revising critical habitat for the San Bernardino kangaroo rat. The revised critical habitat designates 7,779 acres of land in San Bernardino and Riverside Counties, California (USFWS 2008). The Study Area is not located in designated critical habitat for this species.

Stephens' Kangaroo Rat

Stephens' kangaroo rat (*Dipodomys stephensi*) is a federally Endangered species and a State-listed Threatened species. It is covered by the MSHCP. It primarily occurs in annual and perennial grasslands, but also occurs in coastal sage scrub habitats with sparse canopy cover. Habitats occupied by Stephens' kangaroo rat characteristically occur on level to gently sloping terrain, although the species has occasionally been found on relatively steep slopes. Soils in habitats harboring Stephens' kangaroo rat are typically loamy in nature, while soils dominated by clay or sand very rarely contain this species (Price and Endo 1989; O'Farrell 1990; O'Farrell and Uptain 1987). In the vicinity of the Study Area, this species has been reported approximately one mile east of the Study Area (CDFG 2012a).

Suitable habitat for this species is not present in the Study Area. Therefore, Stephens' kangaroo rat is not expected to occur in any portion of the Study Area.

No critical habitat has been proposed by the USFWS for this species.

Los Angeles Pocket Mouse

Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) is a California Species of Special Concern. It is covered by the MSHCP. This subspecies occurs in lower elevation grasslands and coastal sage scrub vegetation (Williams 1986). It inhabits areas with open ground and fine sandy soils (Williams 1986). Los Angeles pocket mouse occurs from the Los

Angeles Basin, from approximately Burbank and San Fernando in the northwest; to San Bernardino in the northeast; and Cabazon, Hemet, and Aguanga in the east and southeast (Williams 1986). In the vicinity of the Study Area, this species has been reported from Fontana (CDFG 2010a).

Suitable habitat for this species is not present in the Study Area. Therefore, Los Angeles pocket mouse is not expected to occur in any portion of the Study Area.

San Diego Desert Woodrat

San Diego desert woodrat (*Neotoma lepida intermedia*) is a California Species of Special Concern. It is covered by the MSHCP. The species occurs in Joshua tree woodland, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats (Zeiner et al. 1990b). The San Diego subspecies is restricted to the Pacific slope in a range that stretches from San Luis Obispo south to northwestern Baja California, Mexico (Hall and Kelson 1959). In the vicinity of the Study Area, this species has been reported from Rancho Cucamonga, Upland, and Claremont (CDFG 2010a).

Suitable habitat for this species is not present in the Study Area. Therefore, San Diego desert woodrat is not expected to occur in any portion of the Study Area.

American Badger

American badger is a California Species of Special Concern. This species occupies a wide variety of habitats and ranges throughout California except for the extreme northwest (CDFG BDB 2011). It is most abundant in drier, open stages of most shrub, forest, and herbaceous habitats with friable soil (CDFG BDB 2011). In Southern California, this species is most commonly associated with grasslands and other relatively open habitats with friable, uncultivated soils (Zeiner et al. 1990b).

Suitable habitat for this species is not present in the Study Area. Therefore, American badger is not expected to occur in any portion of the Study Area.

4.0 PROJECT IMPACTS

4.1 INTRODUCTION

The determination of impacts in this analysis is based on a comparison of maps depicting project limits and maps of biological resources in the Study Area. All construction activities, including proposed material yards, stock-pile areas, access roads, and equipment areas, are assumed to be within the limits of the Study Area boundaries. Should any of the impact areas extend beyond the limits shown, additional analysis may be required. Both direct and indirect impacts on biological resources have been evaluated for construction and operation of the Proposed Project. Direct impacts are those that involve the direct mortality of species or the initial loss of habitats due to grading, construction, and construction-related activities. Indirect impacts are those that would be related to impacts on the adjacent remaining habitat due to construction activities (e.g., noise, dust) or operation of the Project (e.g., human activity).

Biological impacts associated with the Proposed Project are evaluated with respect to the following special status biological issues:

- federally or State-listed Endangered or Threatened species of plants or wildlife;

- non-listed species that meet the criteria in the definition of Rare or Endangered in the CEQA Guidelines (i.e., §15380);
- species designated as California Species of Special Concern;
- streambeds, wetlands, and their associated vegetation;
- habitats suitable to support a federally or State-listed Endangered or Threatened species of plants or wildlife;
- habitat, other than wetlands, considered special status by regulatory agencies (e.g., USFWS, CDFG) or resource conservation organizations;
- criteria in the western Riverside County MSHCP; and
- other species or issues of concern to regulatory agencies or conservation organizations.

The actual and potential occurrence of these resources in the Study Area was correlated with the significance criteria listd in Section 4.2 to determine whether the impacts of the Proposed Project on these resources would be considered significant.

4.2 SIGNIFICANCE CRITERIA

The environmental impacts relative to biological resources are assessed using impact significance criteria that mirror the policy contained in CEQA (*California Public Resources Code* §21001[c]). Accordingly, the State Legislature has established it to be the policy of the State to:

> Prevent the elimination of fish or 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.

Determining whether or not a project may have a significant effect or impact plays a critical role in the CEQA process. According to Section 15064.7 of the CEQA Guidelines (Thresholds of Significance), each public agency is encouraged to develop and adopt—by ordinance, resolution, rule or regulation—their own significance thresholds that the agency would use in determining the impact of environmental effects. A significance threshold defines the quantitative, qualitative, or performance limits of a particular environmental effect. If these thresholds are exceeded, the agency would consider it to be significant.

In the development of significance thresholds for impacts to biological resources, the CEQA Guidelines provide guidance (primarily in Section 15065, Mandatory Findings of Significance, and Appendix G, Environmental Checklist Form). Section 15065(a) states that a project may have a significant effect where:

> The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species.

Appendix G of the CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including candidate, sensitive, or special status species; riparian habitat or other special status natural communities; federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and adopted habitat conservation plans. These factors are considered

through the checklist of questions answered during the Initial Study process, which is used to determine a project's appropriate environmental documentation (i.e., Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report [EIR]). Because these questions are derived from standards employed in other laws, regulations and commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. For each of the thresholds identified below, the section of the CEQA Guidelines upon which the threshold is based has been provided. For the purpose of this analysis, impacts to biological resources are considered significant (before calculating the offsetting impacts of mitigation measures [MMs]) if one or more of the following conditions would result from implementation of the Proposed Project:

1. The project has the potential to substantially degrade the quality of the environment (§15065[a]).
2. The project has the potential to substantially reduce the habitat of any fish or wildlife species (§15065[a]).
3. The project will cause fish or wildlife populations to drop below self-sustaining levels (§15065[a]).
4. The project will threaten to eliminate a plant or animal community (§15065[a]).
5. The project will reduce the number or restrict the range of an Endangered, Rare, or Threatened species (§15065[a]).[5]
6. The project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a Candidate or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS (Appendix G, IV[a]).
7. The project has a substantial adverse effect on any riparian habitat or other special status natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS (Appendix G, IV[b]).
8. The project has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Appendix G, IV[c]).
9. The project interferes substantially with the movement of any native or migratory fish or wildlife species; inhibits established native resident or migratory wildlife corridors; or impedes the use of native wildlife nursery sites (Appendix G, IV[d]).
10. The project conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Appendix G, IV[e]).
11. The project conflicts with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan (Appendix G, IV[f]).

[5] Endangered and Threatened species as used in this threshold are those listed by the USFWS and/or CDFG as Threatened or Endangered. Section 15380 of the CEQA Guidelines indicates that a lead agency can consider a non-listed species (e.g., CNPS List 1B plants) to be Endangered, Rare, or Threatened for the purposes of CEQA if the species can be shown to meet the criteria in the definition of "Rare" or "Endangered". For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered in determining if a non-listed species met the definitions for "Rare" and "Endangered" according to Section 15380 of the CEQA Guidelines.

In order to evaluate whether an impact on biological resources would result in a "substantial adverse effect", both the resource itself and how that resource fits into a regional context must be considered. The Proposed Project's regional setting includes the western Riverside County MSHCP.

For impact analysis purposes, a "substantial adverse effect" is defined as the loss or harm of a magnitude which, based on current scientific data and knowledge, would (1) substantially diminish population numbers of a species or distribution of a habitat type within the region or (2) eliminate the functions and values of a biological resource in the region.

4.3 CONSTRUCTION IMPACTS – DIRECT

The actual and potential occurrence of biological resources in the Project vicinity was correlated with the significance criteria described above to determine whether impacts from the Project on these resources would be significant. Impacts were quantified for the Proposed Project and are discussed qualitatively for the alternatives. Potential impacts of the proposed Circle City Substation site and new overhead structures are assumed to be permanent. Impacts resulting from the 18-foot-wide access roads (including shoulders) will vary and may be either permanent or temporary. Potential impacts of the underground route (i.e., a 2-foot-wide trench), underground structures, vaults, proposed material yards, guard structures, and pulling sites are assumed to be temporary. Some of the Project components overlap in their positioning in the Project area (e.g., pulling sites and proposed material yards). The areas of overlap have been separated in Table 11 to avoid including the impact value under multiple Project components and thereby artificially increasing the total potential impact. The total potential impact represents the summation of the impacts of all Proposed Project components (whether named or included in the "overlap" category).

The MSHCP presents guidelines (Section 7.5.3) to address various impacts resulting from construction of the Proposed Project (Appendix J). SCE has incorporated these guidelines as Proposed Project design features. While provided as part of the MSHCP, these guidelines are adequate to address indirect impacts both in Riverside and San Bernardino Counties

Detailed Proposed Project design has not been developed for the Project alternatives; therefore a quantitative analysis of potential impacts has not been conducted for the alternative Circle City Substation site, Alternative 2, Alternative 3, the alternative source line routes, and any material yards, access roads, guard structures, and pulling sites that would be associated with these routes. With few exceptions, the general biological conditions of the alternatives would be consistent with the Proposed Project and the resultant impacts would be expected to be qualitatively similar.

TABLE 11
VEGETATION TYPES AND OTHER AREAS POTENTIALLY IMPACTED BY EACH PROPOSED PROJECT COMPONENT

Vegetation Types and Other Areas	Circle City Substation Site (Acres)	New Overhead Structures (Acres)	Underground Route (Acres)	Underground Structure (Acres)	Vault (Acres)	Proposed Material Yards (Acres)	Access Roads (Acres)	Guard Structures (Acres)	Pulling Sites (Acres)	Overlap (Acres)	Total (Acres)
Riversidian Sage Scrub	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Disturbed Riversidian Sage Scrub	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	**0.11**
Non-native Grassland	0.00	0.00	0.00	0.00	0.00	19.75	1.06	0.08	1.73	0.29	**22.91**
Ruderal	9.13	0.01	0.02	0.00	0.00	0.06	4.81	0.32	4.36	4.70	**23.41**
Disturbed Mule Fat Scrub	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Willow Riparian Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.36	0.00	**0.38**
Freshwater Marsh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Open Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Flood Control Channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.60	0.00	**0.70**
Impoundment	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.04	0.31	0.00	**0.62**
Agricultural Field	0.00	0.01	0.05	0.00	0.00	0.00	4.99	0.24	1.22	0.13	**6.64**
Dairy	0.00	0.01	0.00	0.00	0.00	0.00	3.63	0.24	0.85	0.23	**4.96**
Developed	6.42	0.01	3.38	0.01	0.02	2.19	0.51	1.45	23.15	2.46	**39.60**
Ornamental	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.08	1.80	0.10	**2.42**
Ornamental/ Developed	0.00	0.02	0.05	0.01	0.02	0.09	0.05	1.83	13.36	0.52	**15.95**
Disturbed	0.00	0.02	0.05	0.00	0.00	32.96	3.73	0.60	4.38	1.22	**42.96**

New overhead structures include hybrid H-Frames, light weight steel poles, and tubular steel poles. Impacts assume a single footing for the light-weight steel poles and tubular steel poles, and two footings for the hybrid H-frames based on the maximum approximate diameter provided in Table 3.2 of the Proponent's Environmental Assessment (SCE 2012).

4.3.1 Vegetation Types

The total potential impact on vegetation types and other areas in the Study Area resulting from the Proposed Project are shown in Table 11 and Figures 9A–9H. A total of approximately 160.66 acres may be impacted by the Proposed Project. This represents a maximum impact of the Proposed Project; actual impacts are expected to be less.

Riversidian Sage Scrub, Disturbed Riversidian Sage Scrub

Coastal sage scrub, of which Riversidian sage scrub is a sub-association, is considered a special-status vegetation type due to its decline in the region. However, the 0.11 acre of disturbed Riversidian sage scrub that would be potentially temporarily impacted by the Proposed Project is very sparse and degraded by the presence of non-native species, decreasing its value as a special-status vegetation type. Higher quality Riversidian sage scrub is present along the alternative source line routes, and impacts to this vegetation type have not been quantified. Impacts would be considered potentially significant because of this vegetation type's decline in the Proposed Project region. SCE is proposing to implement Mitigation Measure (MM) 1 to ensure that impacts to potentially sensitive vegetation types would be less than significant. Should SCE opt to request PSE status pursuant to the MSHCP, potential impacts to this vegetation type would be covered by the MSHCP and no further actions would be required.

Non-native Grassland, Ruderal, Impoundment, Agricultural Field, Dairy, Developed, Ornamental, Ornamental/Developed, Disturbed

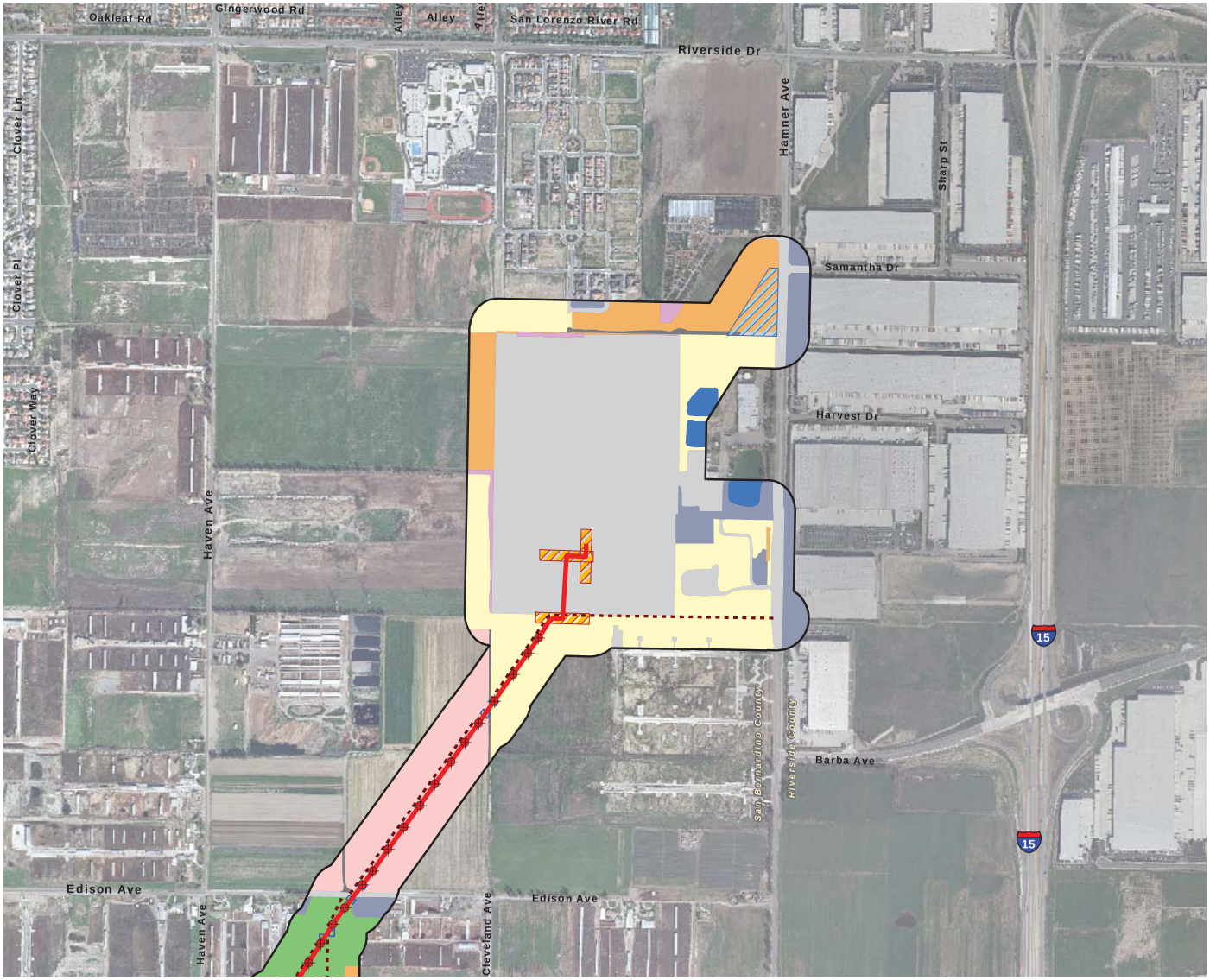
The Proposed Project may impact a total of 159.47 acres of non-native grassland, ruderal, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed areas. These areas generally have low biological value because they are mainly composed of unvegetated areas or are vegetated predominantly with non-native species. These areas generally provide limited habitat for native plant and wildlife species, although they may occasionally be used by native species. Therefore, impacts to these areas are considered less than significant and no MMs would be required.

Disturbed Mule Fat Scrub, Willow Riparian Forest, Freshwater Marsh, Open Water, Flood Control Channel

Disturbed mule fat scrub, freshwater marsh, and open water are not expected to be impacted by the Proposed Project. Therefore, no mitigation would be required.

The CDFG considers willow riparian forest to be a special status vegetation type. The Proposed Project may temporarily impact 0.38 acre of willow riparian forest; less than 0.005 acre may be permanently impacted. A similar impact is expected if one of the alternative Mira Loma-Jefferson 66 kV subtransmission line routes is selected. Because there are additional riparian/riverine resources and jurisdictional resources at the southern end of the alternative source line routes (i.e., Segment 4), total impacts on these resources may be potentially higher than those of the Proposed Project.

Although seemingly duplicative with mitigation for impacts to jurisdictional waters (discussed below), impacts need to be addressed in terms of no net loss of habitat functions and values for special status species associated with these resource (e.g., the least Bell's vireo and the Santa Ana sucker). In addition, mapped riparian habitats are not necessarily equivalent to delineated areas subject to the jurisdiction of the USACE, the RWQCB, and/or the CDFG. Only the portion of these habitats associated with a discernible streambed and/or adjacent wetlands that meet



Study Area

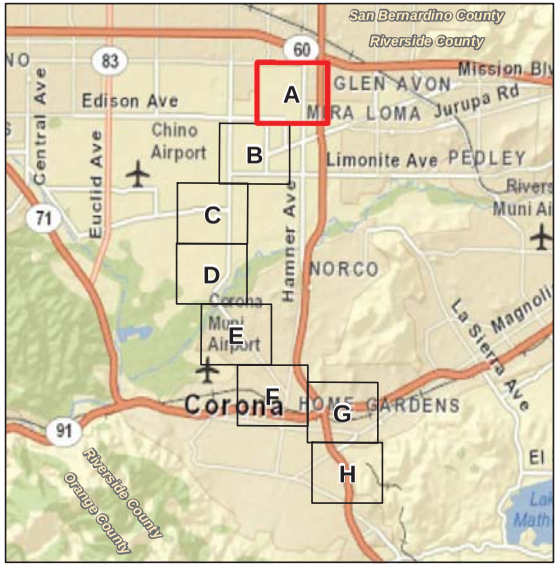
Project Components

Preferred Route
- Overhead
- Underground

New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

Vegetation Types and Other Areas
- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Project Impacts – Vegetation Types and Other Areas

Figure 9A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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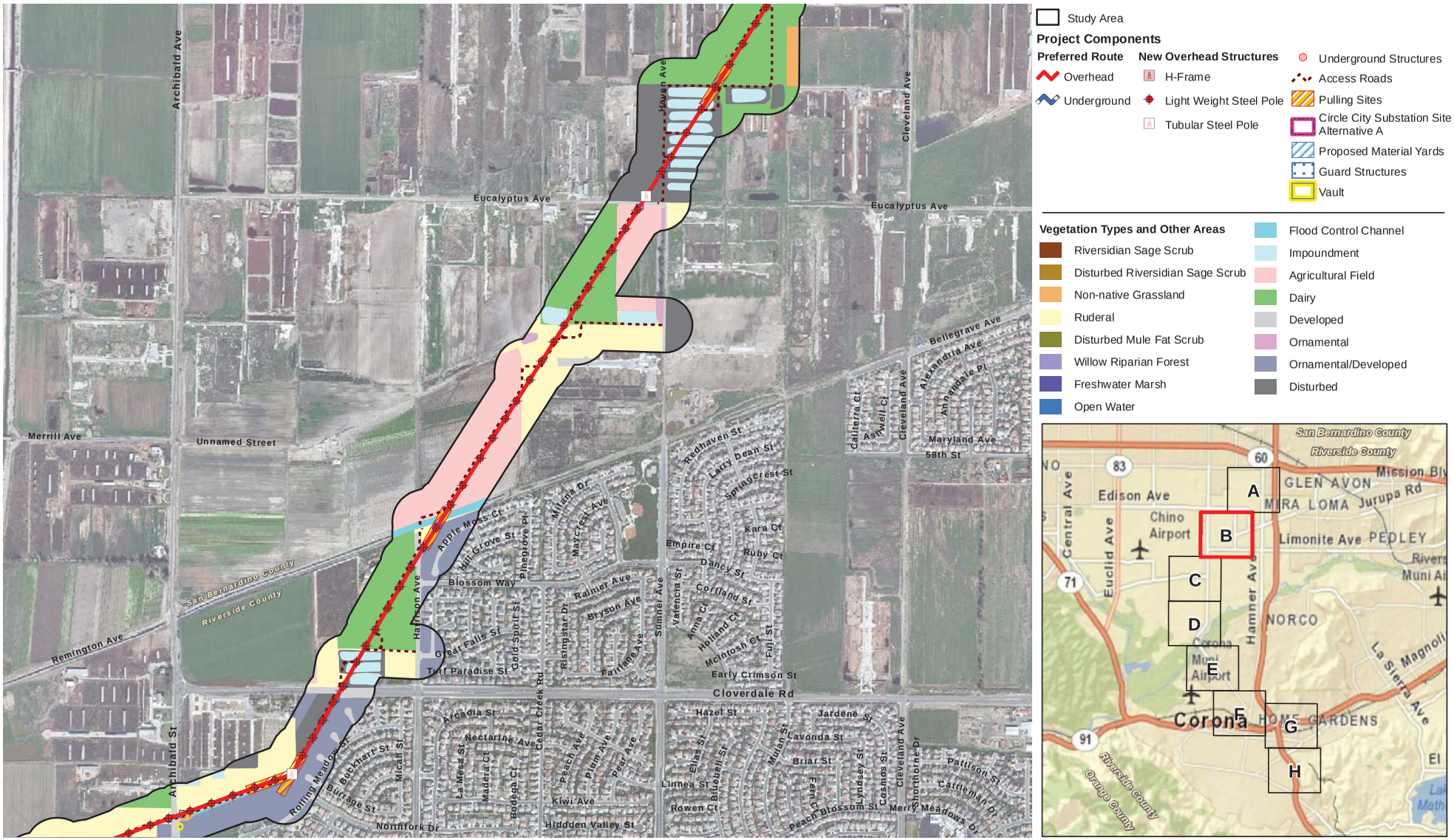

Project Impacts – Vegetation Types and Other Areas

Figure 9B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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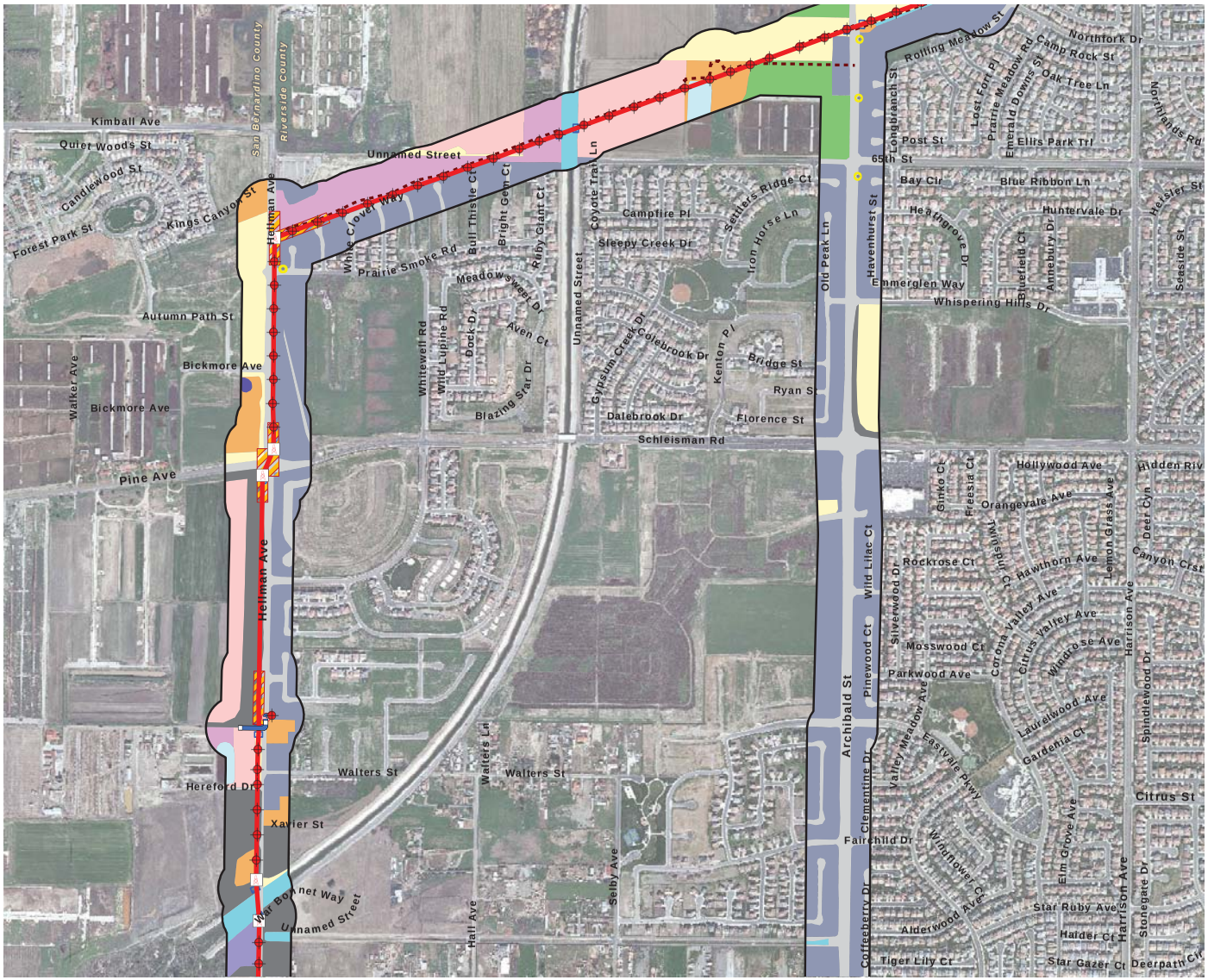


Study Area

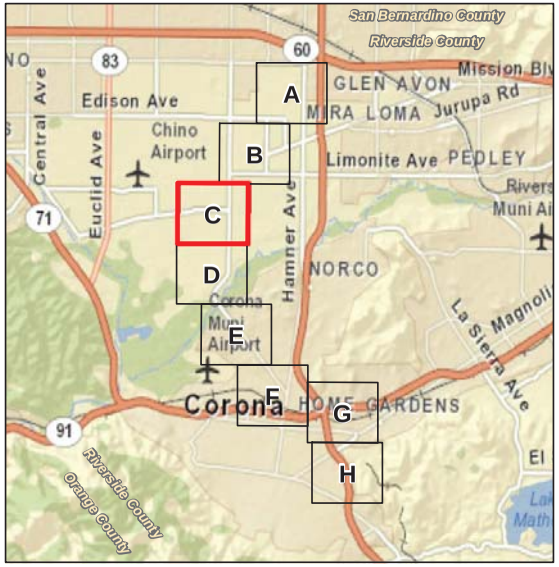
Project Components

Preferred Route
- Overhead
- Underground

New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

Vegetation Types and Other Areas
- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Project Impacts – Vegetation Types and Other Areas

Figure 9C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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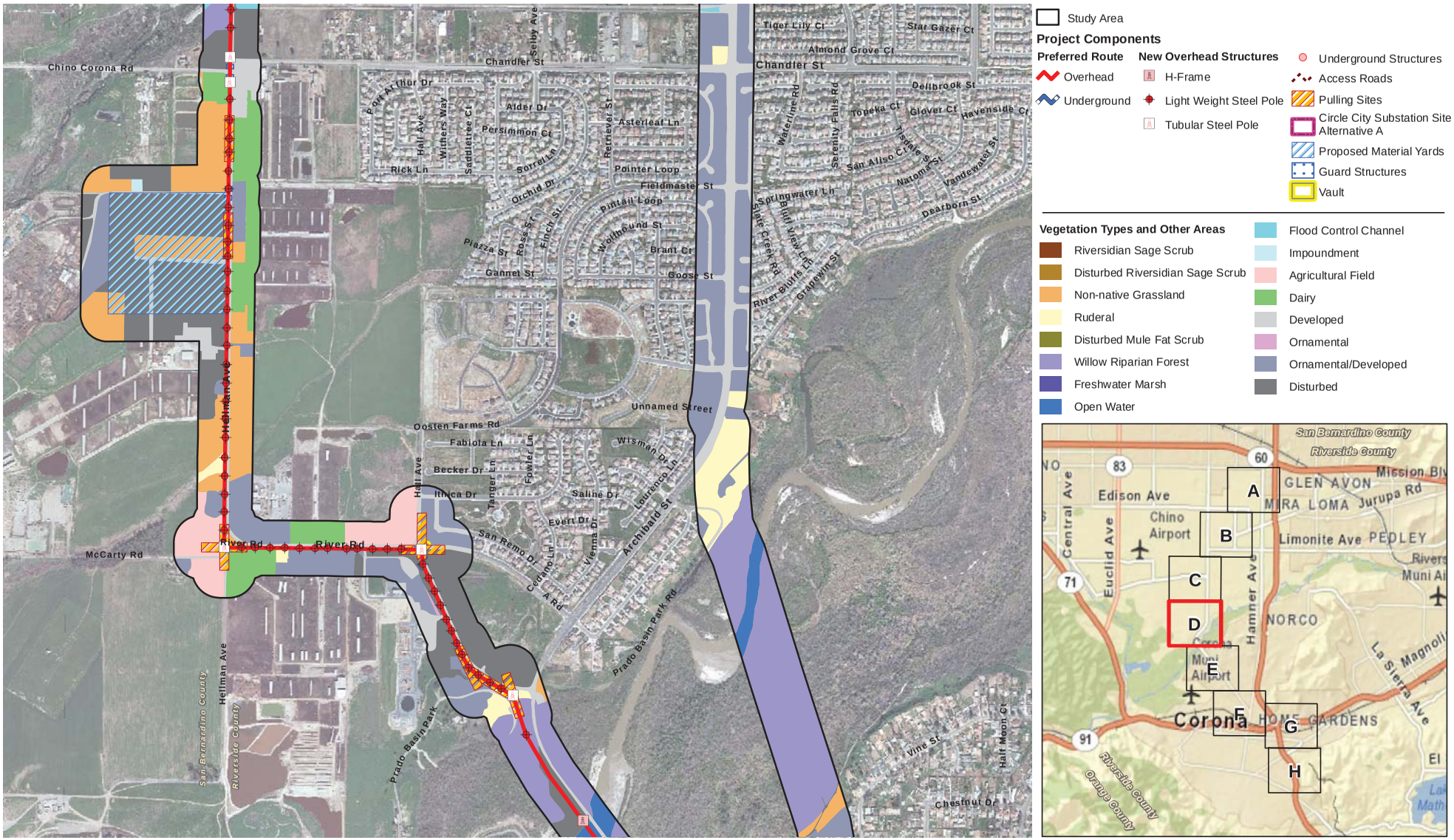

Project Impacts – Vegetation Types and Other Areas

Figure 9D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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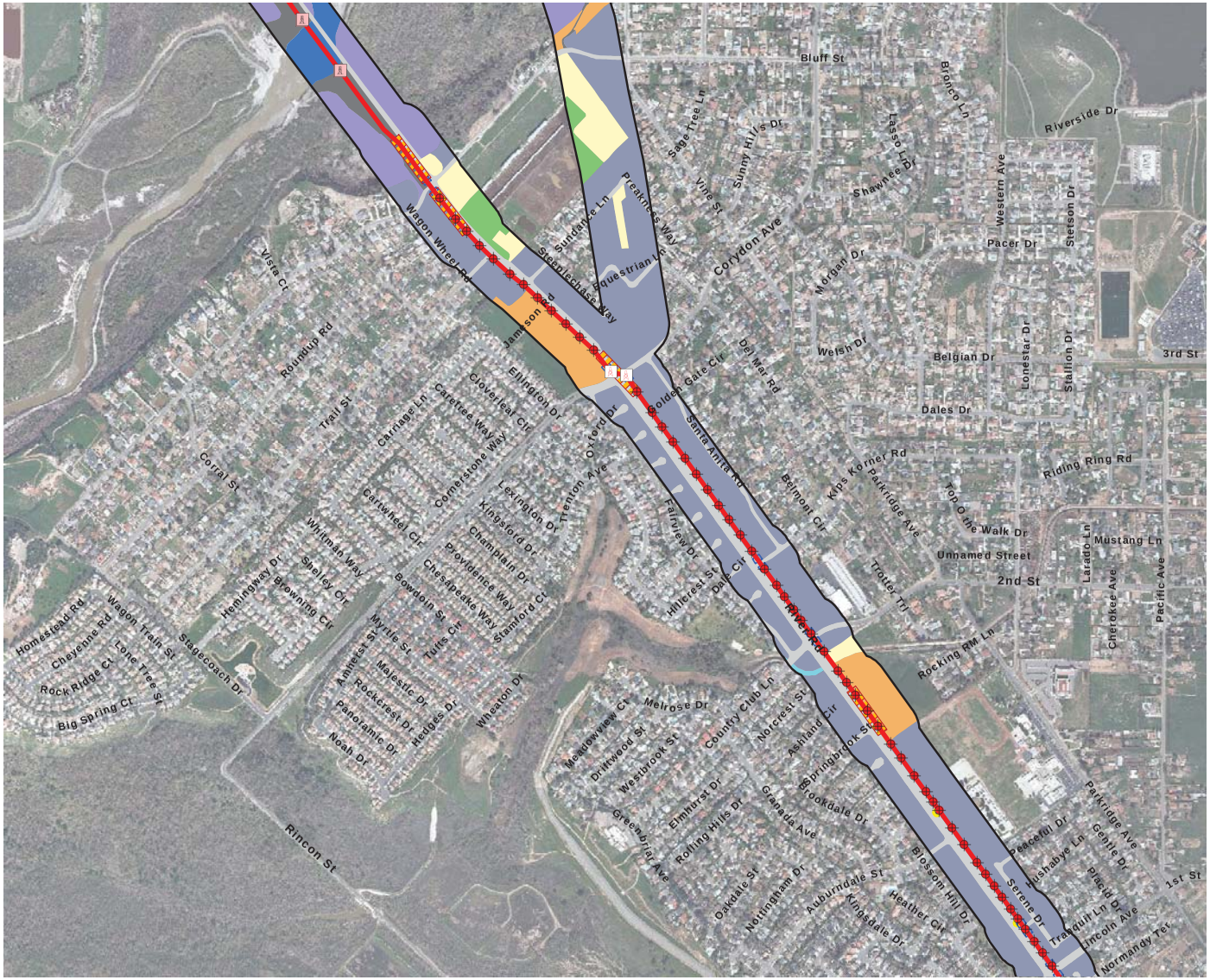


Study Area

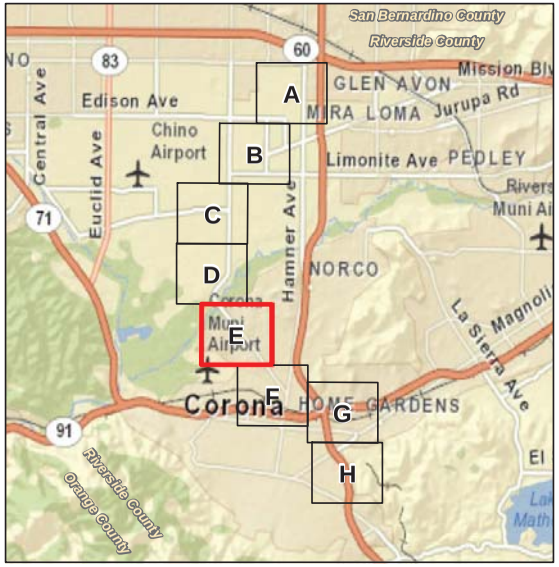
Project Components

Preferred Route
- Overhead
- Underground

New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

Vegetation Types and Other Areas
- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Project Impacts – Vegetation Types and Other Areas

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 9E

N W E S

1,000 500 0 1,000 Feet

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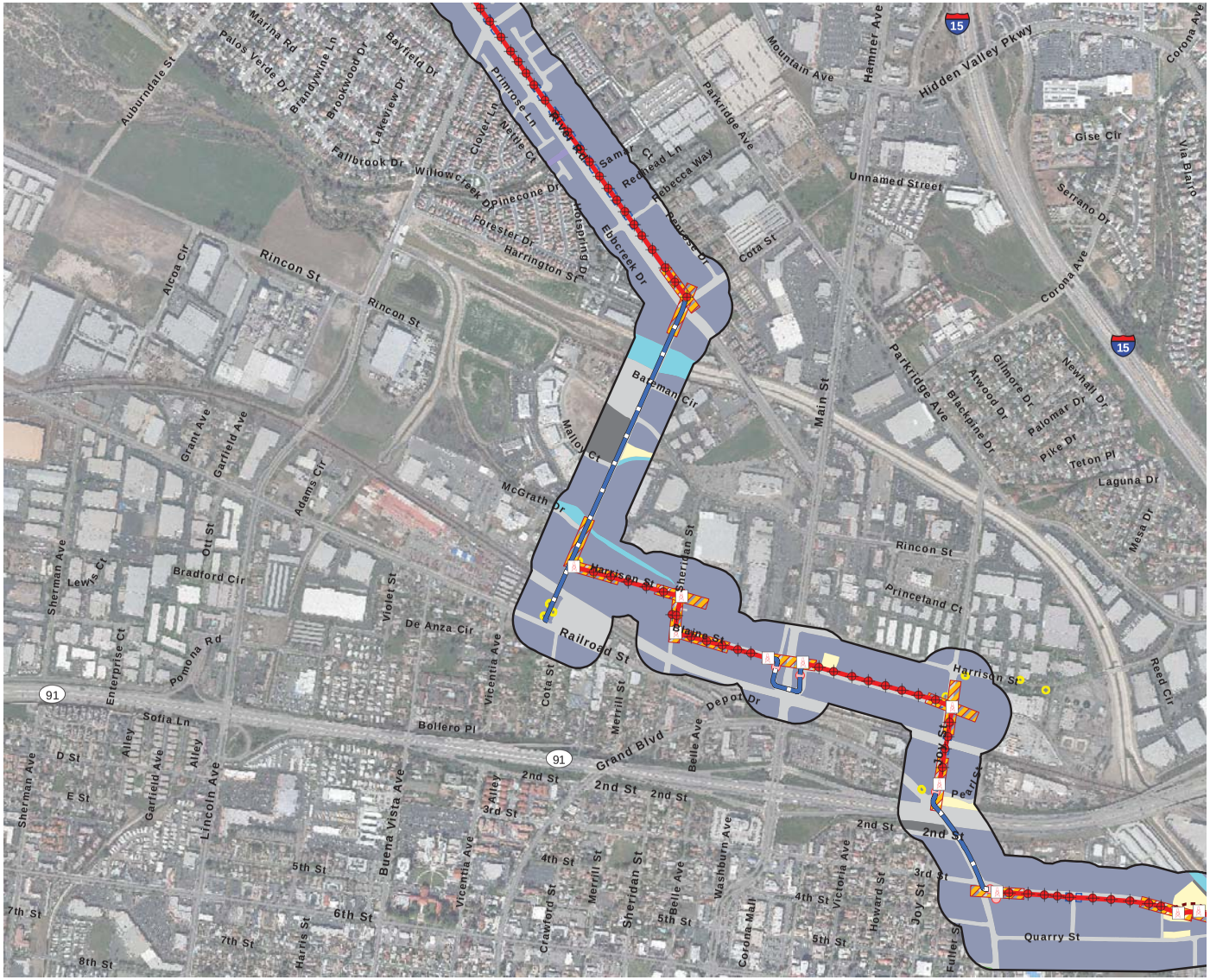


Study Area

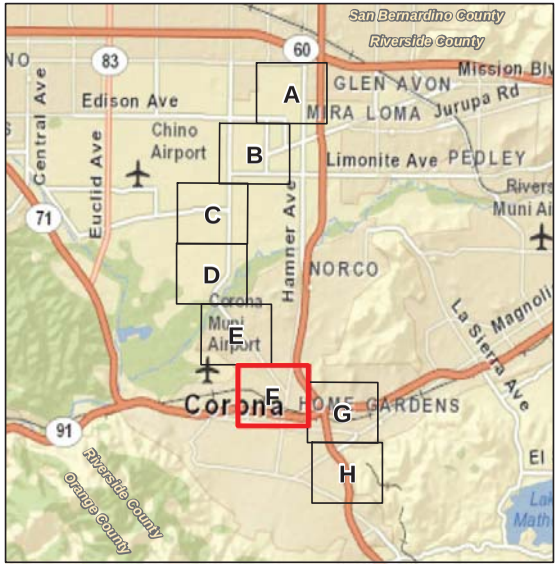
Project Components

Preferred Route
- Overhead
- Underground

New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

Vegetation Types and Other Areas
- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Project Impacts – Vegetation Types and Other Areas

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 9F

N W E S

1,000 500 0 1,000 Feet

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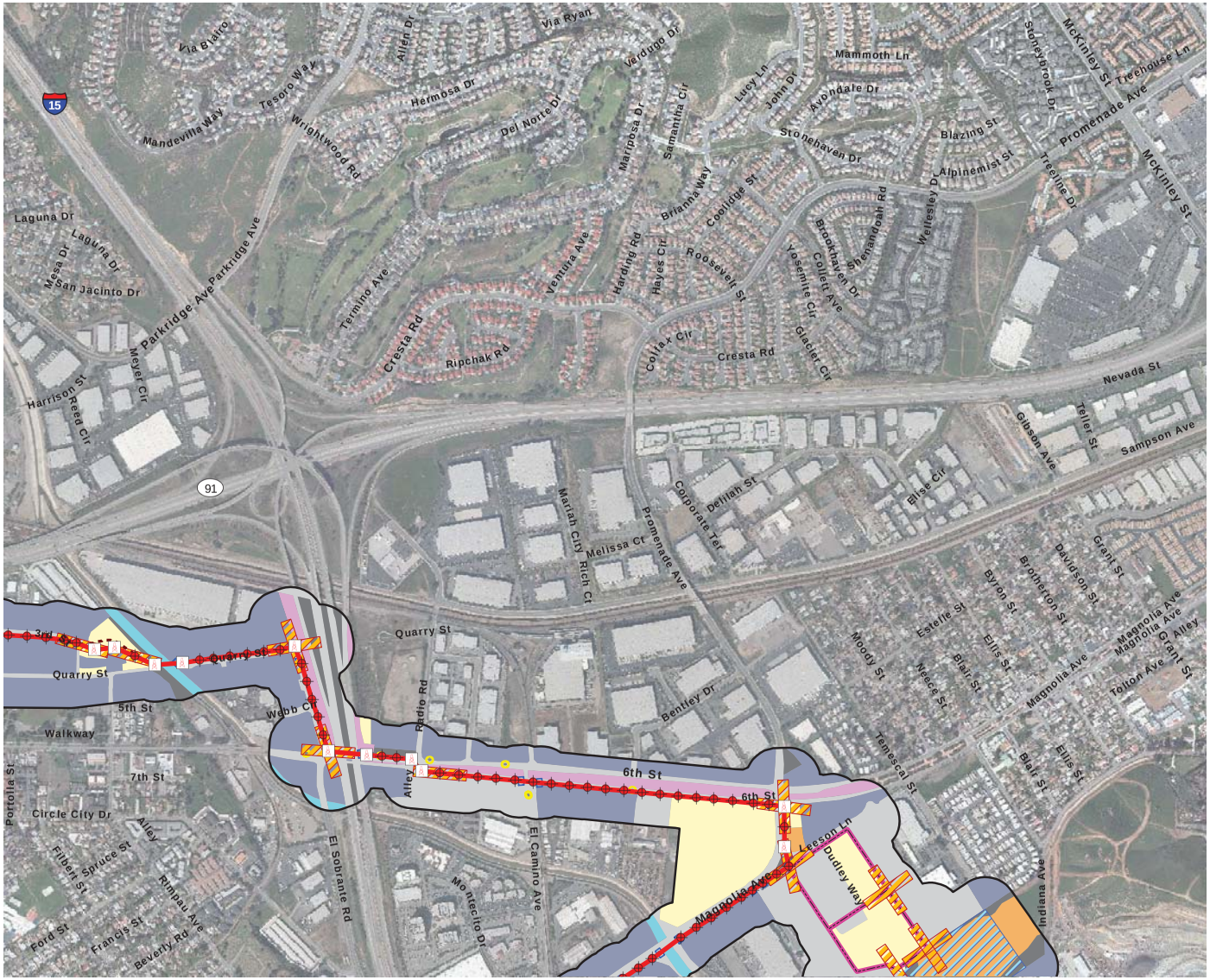

Study Area

Project Components

Preferred Route
- Overhead
- Underground

New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

Vegetation Types and Other Areas
- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
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- Disturbed Mule Fat Scrub
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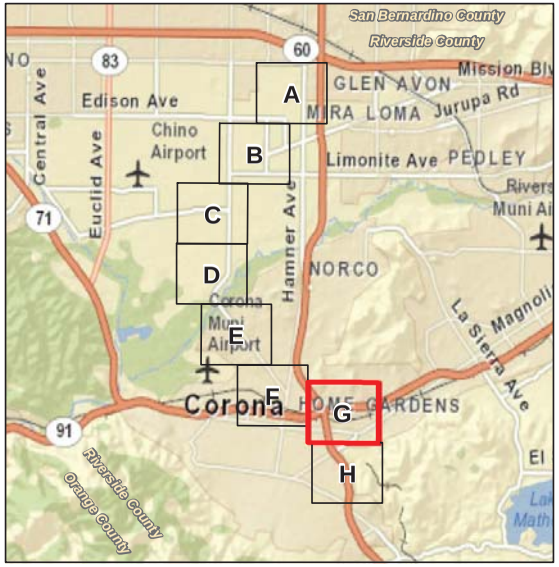
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Project Impacts – Vegetation Types and Other Areas

Figure 9G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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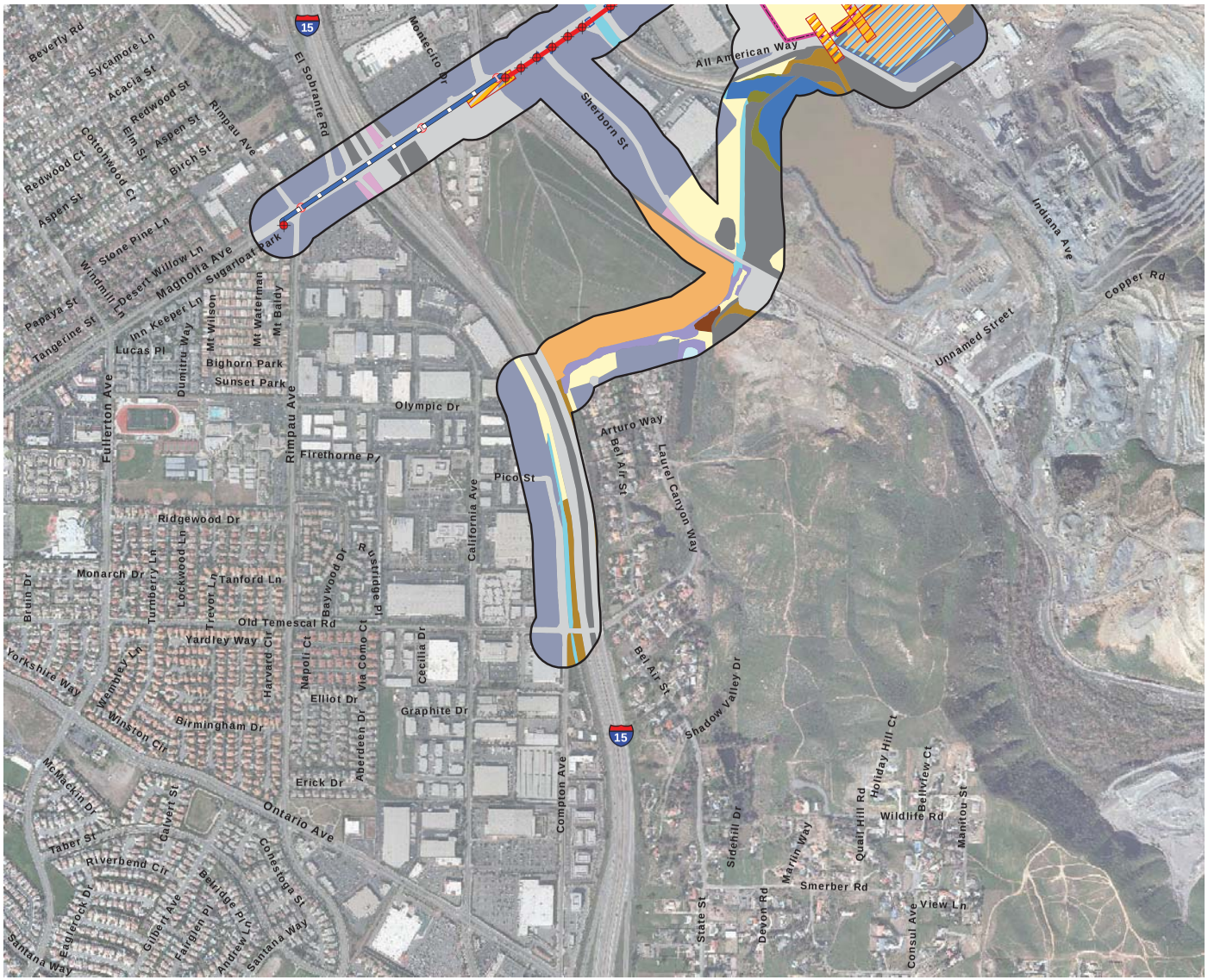


Study Area

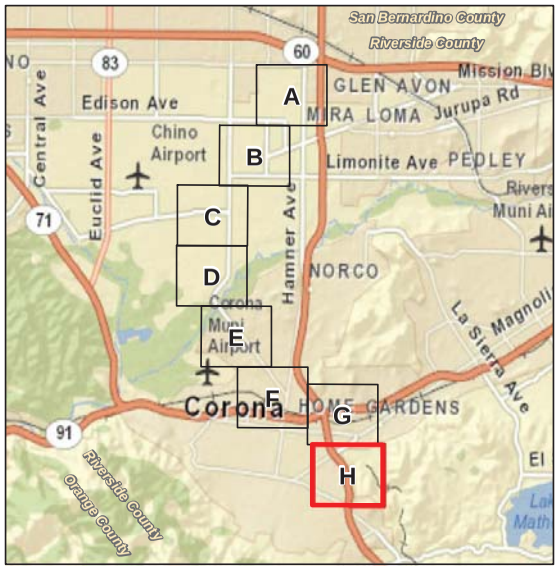
Project Components

Preferred Route
- Overhead
- Underground

New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

Vegetation Types and Other Areas
- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Non-native Grassland
- Ruderal
- Disturbed Mule Fat Scrub
- Willow Riparian Forest
- Freshwater Marsh
- Open Water
- Flood Control Channel
- Impoundment
- Agricultural Field
- Dairy
- Developed
- Ornamental
- Ornamental/Developed
- Disturbed



Project Impacts – Vegetation Types and Other Areas

Figure 9H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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certain criteria are within the jurisdiction of the USACE, the RWQCB, and/or the CDFG. Mitigation for jurisdictional waters is typically inclusive of what is required to reduce potential impacts on least Bell's vireo habitat and/or Santa Ana sucker habitat to less than significant. However, a separate mitigation plan for riparian/riverine resources in the format of a Determination of Biologically Equivalent or Superior Preservation (DBESP) is required as part of the MSHCP PSE review process. SCE is proposing implementation of MM 2 to ensure potential impacts to riparian/riverine habitat (i.e., willow riparian forest habitat for least Bell's vireo and/or Santa Ana sucker) would be less than significant.

The Proposed Project may temporarily impact 0.70 acre of flood control channel. Flood control channels in the Study Area are primarily unvegetated or concrete-lined and so have low biological value for most wildlife species. However, these areas are similar to the delineated areas subject to the jurisdiction of the USACE, the RWQCB, and/or the CDFG and mitigation for flood control channels is typically included in jurisdictional resources mitigation. Since flood control channels may be considered riparian/riverine resources by the MSHCP, a separate mitigation plan in the format of a DBESP is required as part of the MSHCP PSE review process. SCE is proposing implementation of MM 2 to ensure potential impacts to riparian/riverine resources would be less than significant.

4.3.2 Wildlife Impacts

To assess impacts on wildlife, the total impacts on particular vegetation types that provide habitat for wildlife were assessed. Figures 9A–9H illustrates the vegetation types (i.e., wildlife habitat) that would be impacted as a result of Proposed Project construction. The following discussion of wildlife impacts focuses on the common species occurring in the Study Area.

General Habitat Loss and Wildlife Loss

Construction of the Proposed Project may result in the loss of native habitat (i.e., disturbed Riversidian sage scrub, willow riparian forest) that provides valuable aquatic, nesting, foraging, roosting, and denning opportunities for a wide variety of wildlife species. In addition, implementation of the Proposed Project would result in the loss of non-native habitats (i.e., non-native grassland, ruderal, impoundment, agricultural field, dairy, ornamental, and disturbed) or non-habitat cover types (i.e., flood control channel, developed, and ornamental/developed) that provide lower-quality or no wildlife habitat. However, the non-native habitats may provide nesting, foraging, roosting, and denning opportunities for some species.

Removing or altering habitats in the Study Area would result in the loss of small mammals, reptiles, amphibians, and other slow-moving animals that live in the Proposed Project's direct impact area. More mobile wildlife species that are now using the Study Area would be forced to move into the remaining areas of open space, which would consequently increase competition for available resources in those areas. This situation would result in the loss of individuals that cannot successfully compete.

The loss of native and non-native vegetation that provides wildlife habitat is considered an adverse impact. However, the loss of native and non-native habitat would not be expected to reduce wildlife populations below self-sustaining levels. Therefore, impacts to these areas are considered adverse but less than significant and no MMs would be required.

Impacts to Nesting Birds

The Migratory Bird Treaty Act of 1918 implemented the 1916 Convention between the United States and Great Britain (for Canada) for the protection of migratory birds. Specific provisions of the statute include the establishment of a federal prohibition, unless permitted, to:

> pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of the Convention … for the protection of migratory birds … or any part, nest, or egg of any such bird.

Bird species protected under the provisions of the Migratory Bird Treaty Act are identified by the List of Migratory Birds (Title 50 of the *Code of Federal Regulations,* Section 10.13, as updated by the 1983 American Ornithologists' Union [AOU] Checklist and published supplements through 2011). The loss of any active nest would be considered significant. Impacts on active nests would be reduced to less than significant levels with the implementation of MM 3.

Common raptor species such as red-tailed hawk have potential to nest in large trees and transmission line towers in the Study Area. Should an active raptor nest (common or special status species) be found in the Study Area, the loss of the nest would be considered a violation of Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code*. The loss of any active raptor nest occurring in the Study Area would be considered significant. Impacts on raptor nests would be reduced to less than significant levels with the implementation of MM 3.

Wildlife Movement and Habitat Fragmentation

The Proposed Project area contains open water that is suitable for movement of arroyo chub and Santa Ana sucker. Current Proposed Project design does not directly impact open water in the Prado Basin; however, the active channel that would provide potentially suitable habitat for special status fish species would flow between the proposed hybrid H-frames. Dependent upon water levels and seasonal flow, there is potential for impacts to fish movement. As a result, SCE is proposing MMs 2, 4 and 5 to ensure impacts to special status fish movement or their nursery sites are less than significant. As previously described, MM 4 would require biological monitoring in Proposed Project construction areas where sensitive biological resources or habitat suitable to any special status species are located. MM 5 would provide for avoidance, minimization, or mitigation of impacts to special-status fish species. MM 2 would provide mitigation for any impacts to riparian/riverine habitat suitable for special-status fish species as appropriate.

The Proposed Project is located in a region dominated by agricultural and residential land uses. Terrestrial wildlife movement opportunities in the area are already constrained by development. Therefore, the Proposed Project is not expected to interfere substantially with the movement of any terrestrial wildlife species or impede the use of nursery sites in the developed portions of the Study Area. Impacts on local wildlife movement would be considered adverse but less than significant and no MMs would be required.

Specific to the MSHCP, the Santa Ana River/Prado Basin and Temescal Wash areas are important landscape linkages in the region. Habitat within the Prado Basin comprises MSHCP Existing Core A and the Temescal Wash comprises MSHCP Proposed Constrained Linkage 4. Conservation of Criteria Cell 1826 focuses on 15 to 25 percent of the southern portion of Criteria

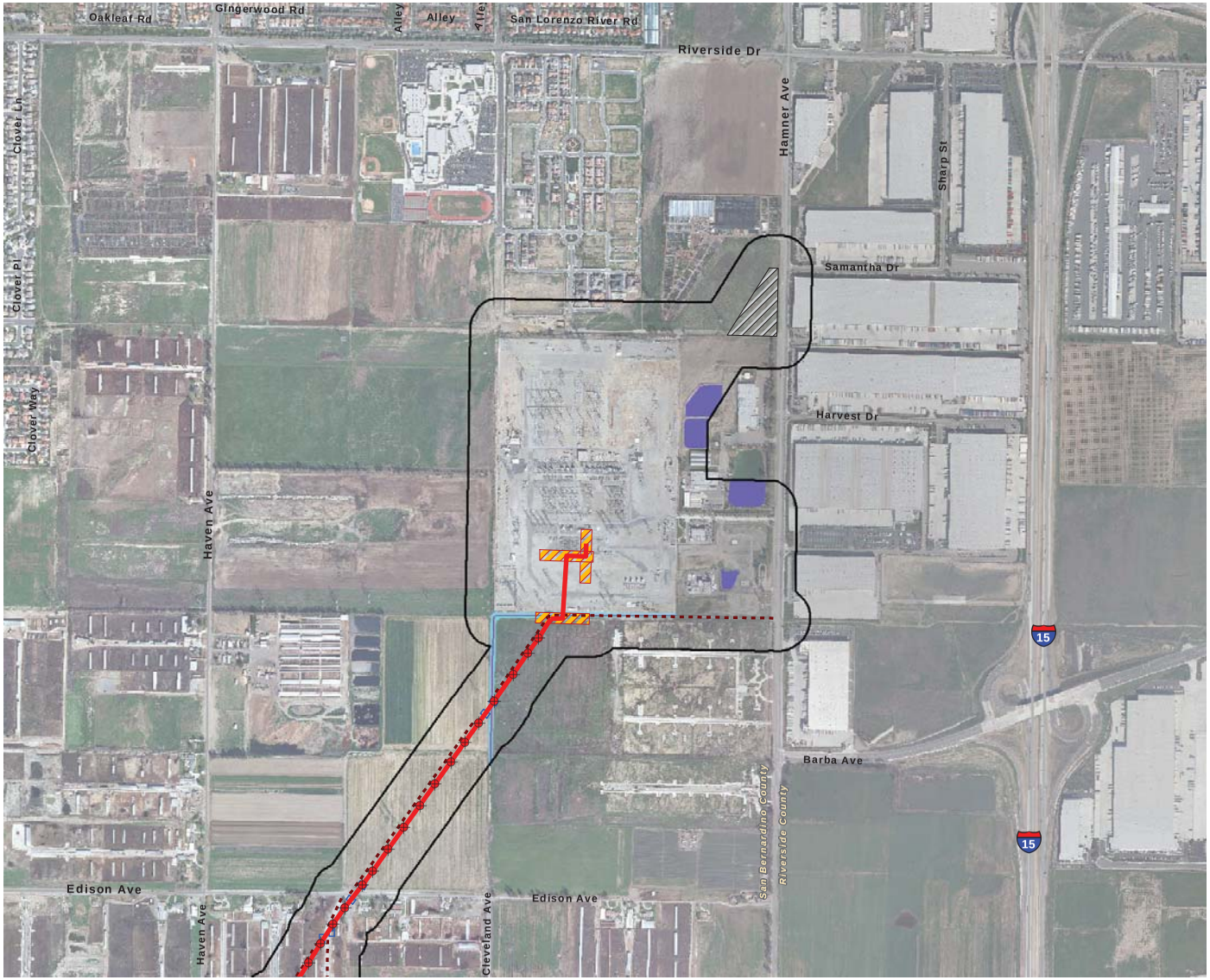
Cell 1826 to provide for conservation of Temescal Wash. The Proposed Project will not impact the southern 15 to 25 percent of this Criteria Cell; the Project alignment crosses the channelized portion of Temescal Wash northwest of the area described for conservation. As such, terrestrial wildlife movement along Temescal Wash would not be impacted by the Proposed Project. The Proposed Project is not expected to conflict with the MSHCP goals for wildlife movement through Constrained Linkage 4 in Cell 1826. However, the alternative source line routes would cross Criteria Cells in this area. Conservation of this area focuses on the 15 to 25 percent of the southern portion of Criteria Cell 1826 and 10 to 20 percent of the northern and eastern portions of Criteria Cell 1923. The alternative source line routes occur within these portions of the Criteria Cells that are the focus of conservation. Therefore, the alternative source line routes may potentially impact Proposed Constrained Linkage 4. However, it is anticipated that temporary guard structures would be in place on either side of Temescal Wash to prevent impacts from occurring within the wash. Therefore, no MMs would be required.

4.3.3 Special Status Biological Resource Impacts

Implementation of the Proposed Project could potentially result in impacts on special status plant and wildlife species if they occur in the Study Area. Potential impacts on these species were evaluated by determining the impacts on habitat that the species are known or expected to occupy and their known or expected occurance based on the results of focused survey efforts.

Jurisdictional Features

The Proposed Project would potentially impact a total of approximately 1.50 acres USACE-jurisdictional “Waters of the U.S.” (of which 0.32 acre is wetlands), 2.42 acres under the jurisdiction of the RWQCB, and 3.24 acres of CDFG-jurisdictional “Waters of the State” (Table 12; Figures 10A–10H). This includes at least 0.35 acre of “Waters of the U.S.” and 1.21 acres of “Waters of the State” impacted due to hybrid H-frames and access roads that may represent either a permanent or a temporary impact; the remaining impacts are expected to be temporary. Some of the Project components present an overlap (e.g., pulling sites and proposed materials yards). The areas of overlap have been separated in Table 12 to avoid including the impact value under multiple Project components and thereby artificially increasing the total potential impact. The total potential impact represents the summation of the impacts of all Proposed Project components (whether named or included in the “overlap” category).



Study Area

Project Components

Preferred Route
- Overhead
- Underground

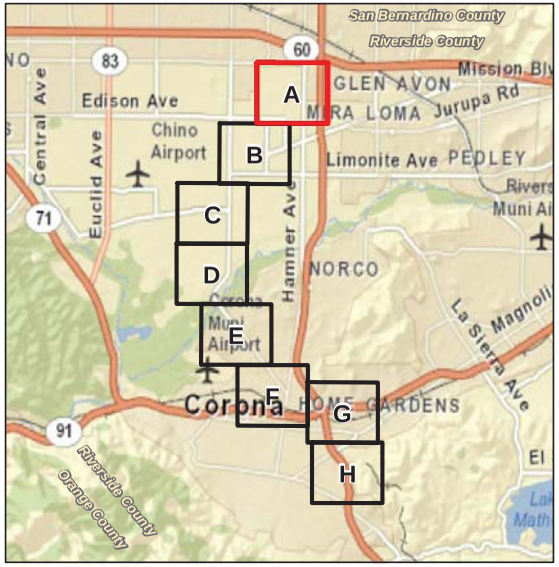
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Figure 10A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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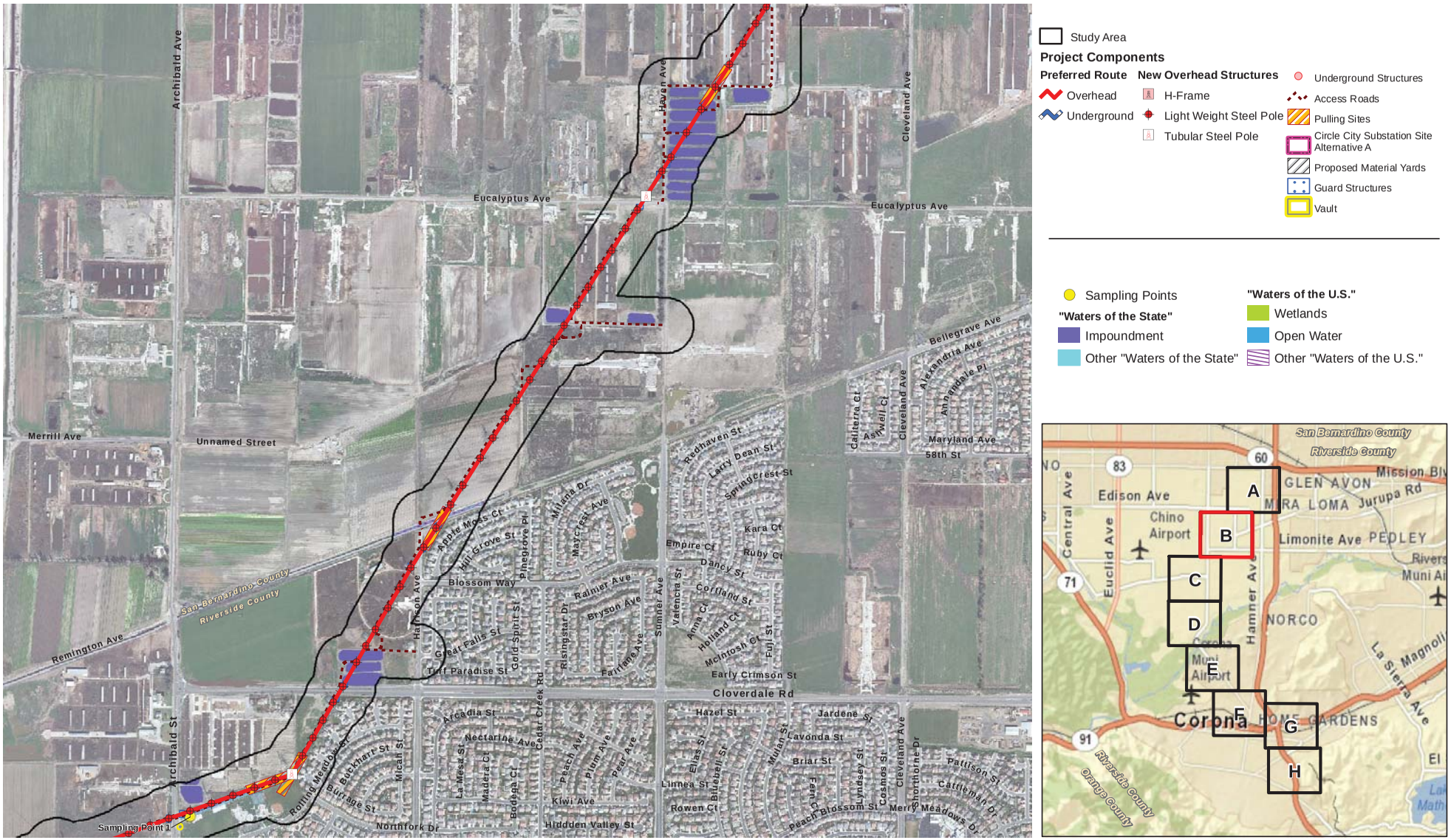

Project Impacts – Jurisdictional Resources

Figure 10B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N S W E

1,000 500 0 1,000 Feet

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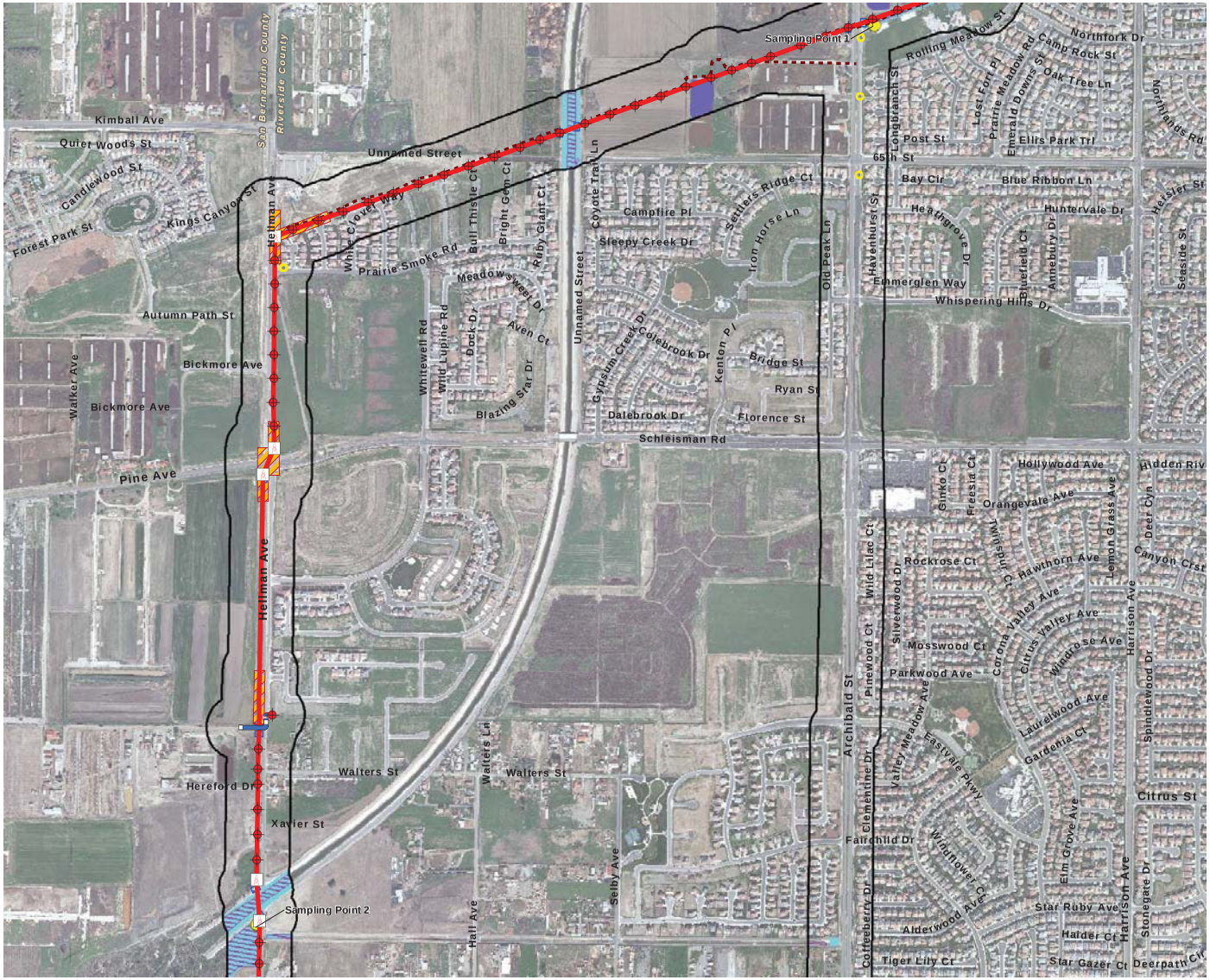


Study Area

Project Components

Preferred Route
- Overhead
- Underground

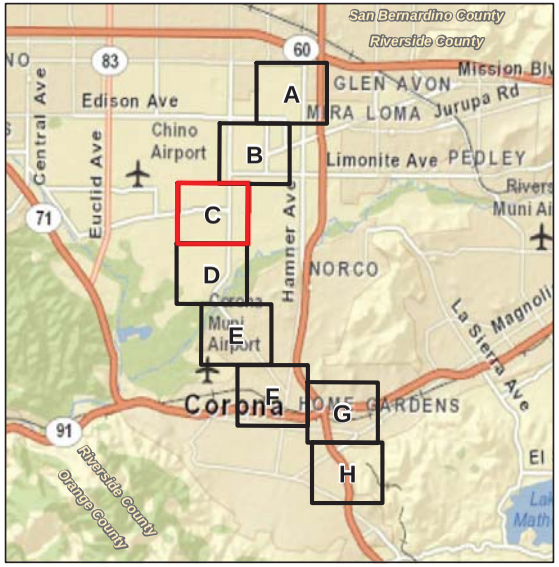
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 10C

N W E S

1,000 500 0 1,000 Feet

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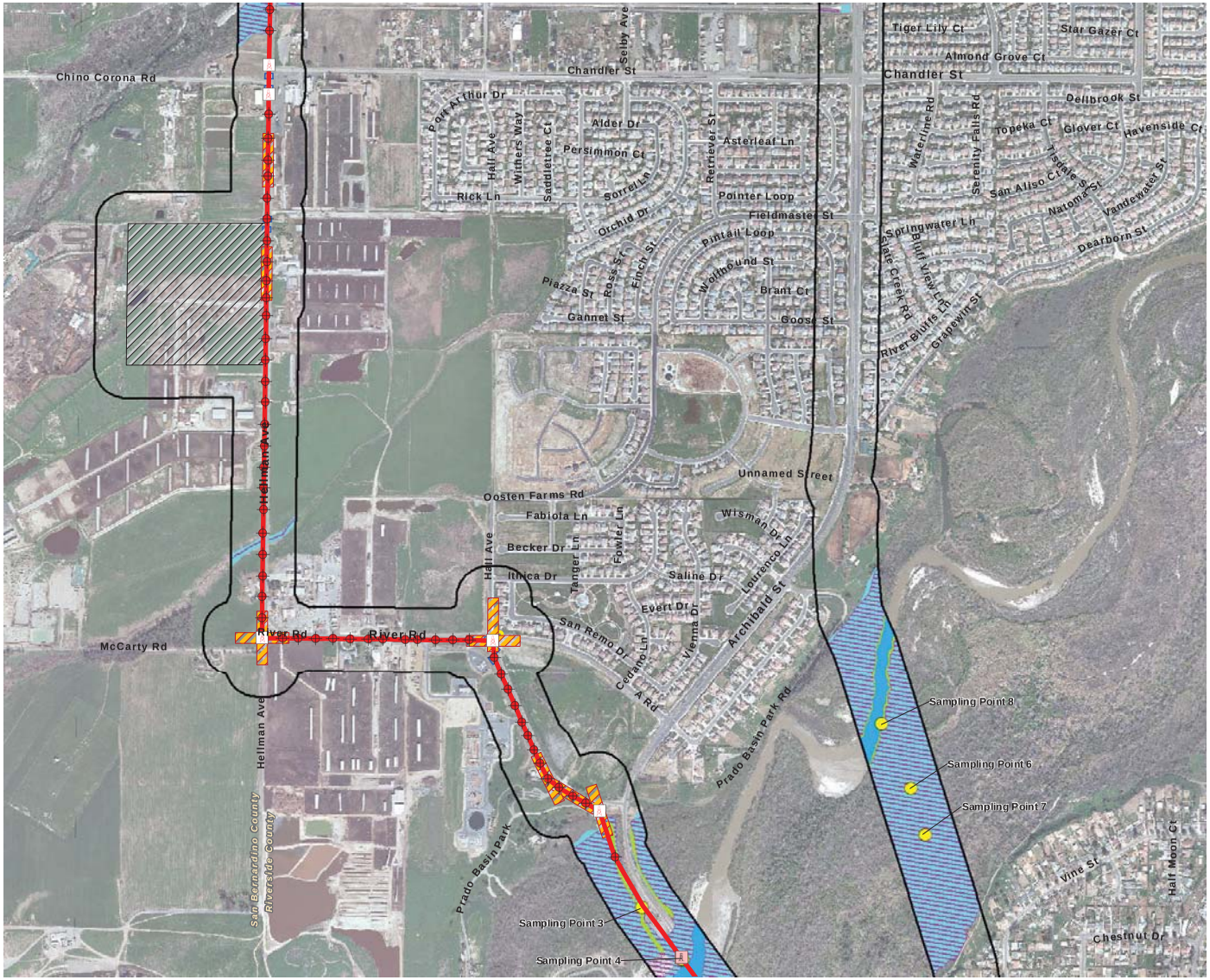


Study Area

Project Components

Preferred Route
- Overhead
- Underground

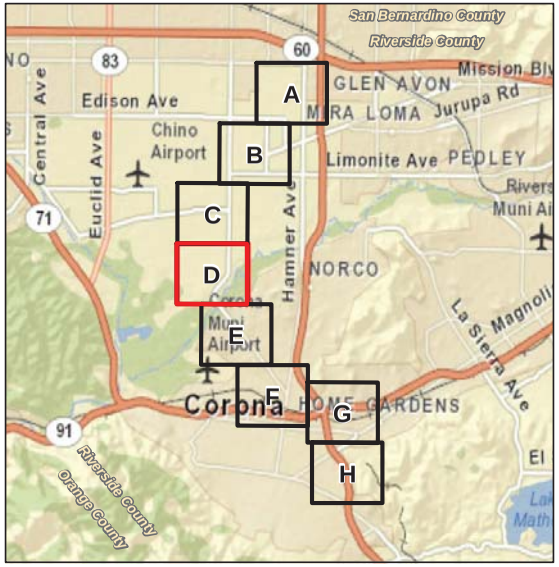
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Figure 10D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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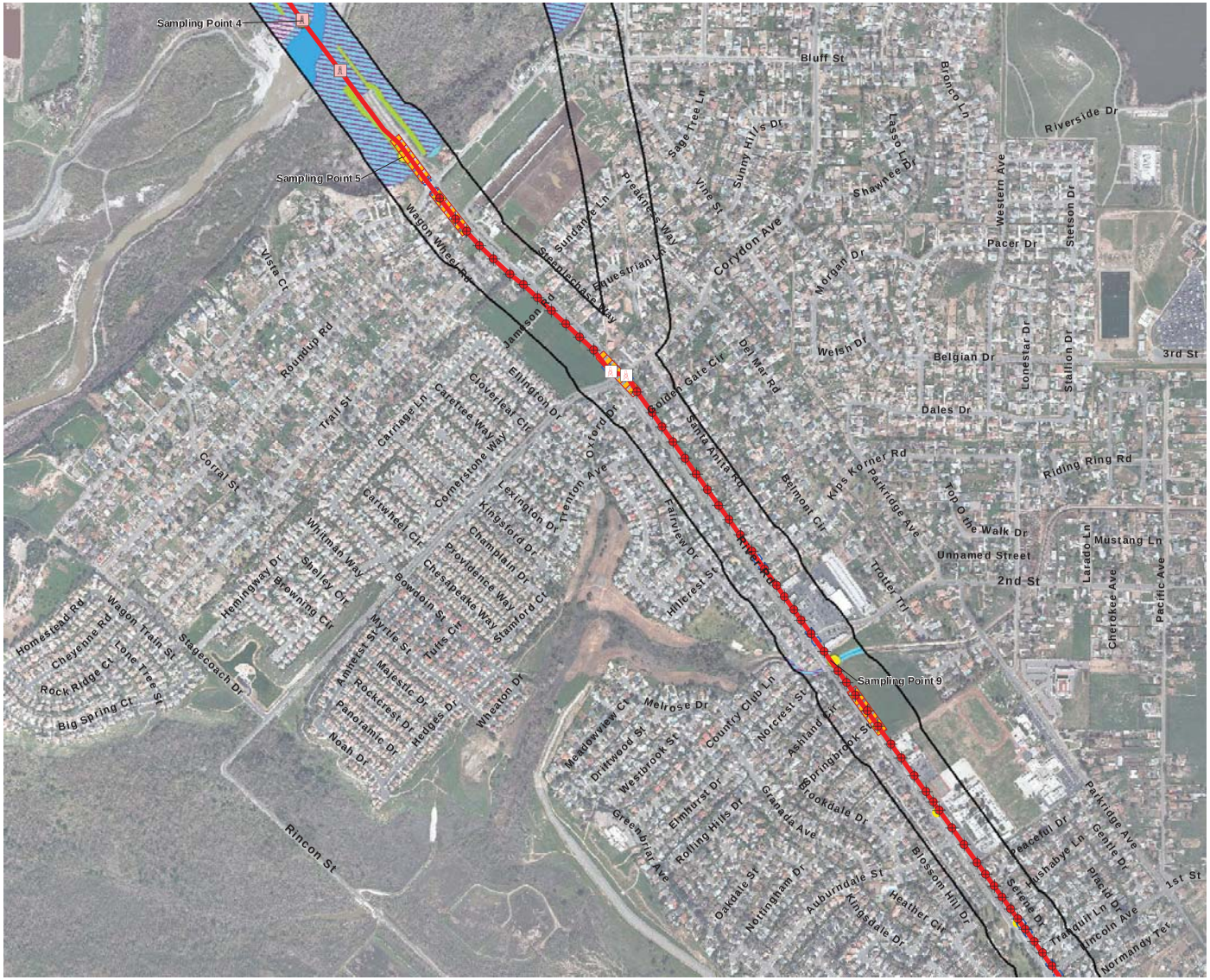


Study Area

Project Components

Preferred Route
- Overhead
- Underground

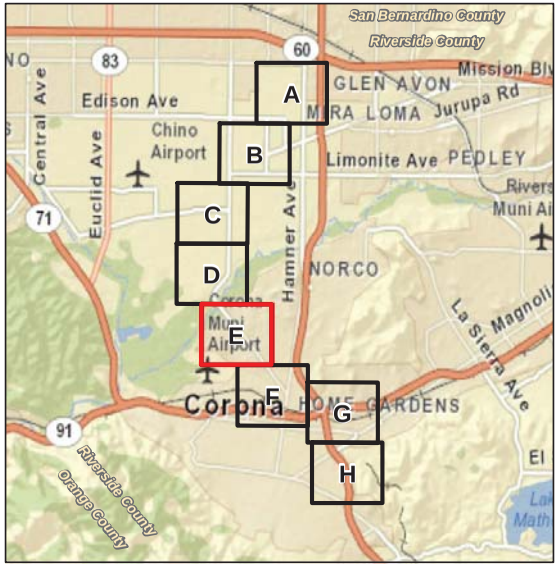
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Figure 10E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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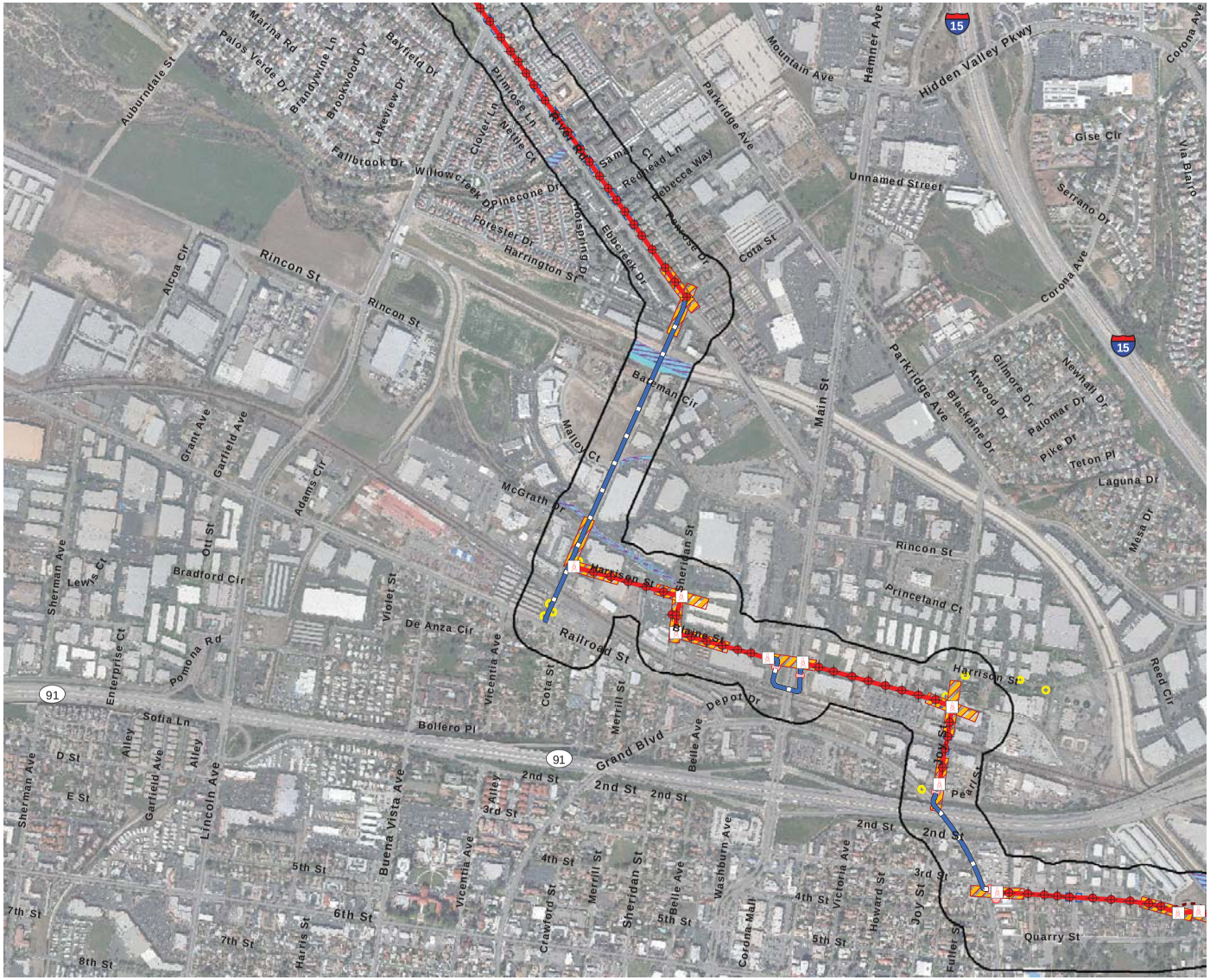


Study Area

Project Components

Preferred Route
- Overhead
- Underground

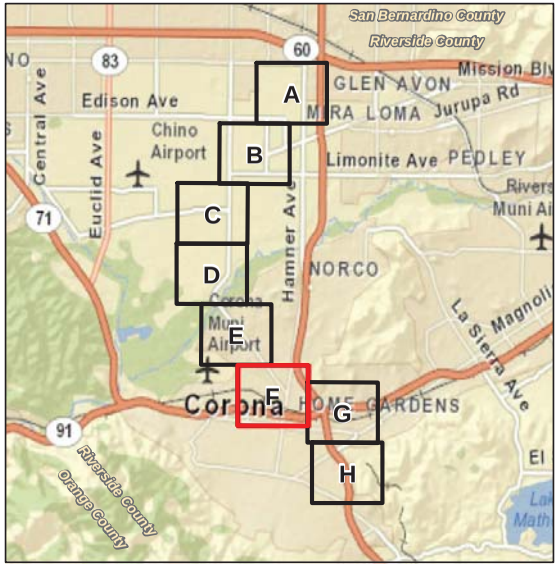
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 10F

N W E S

1,000 500 0 1,000 Feet

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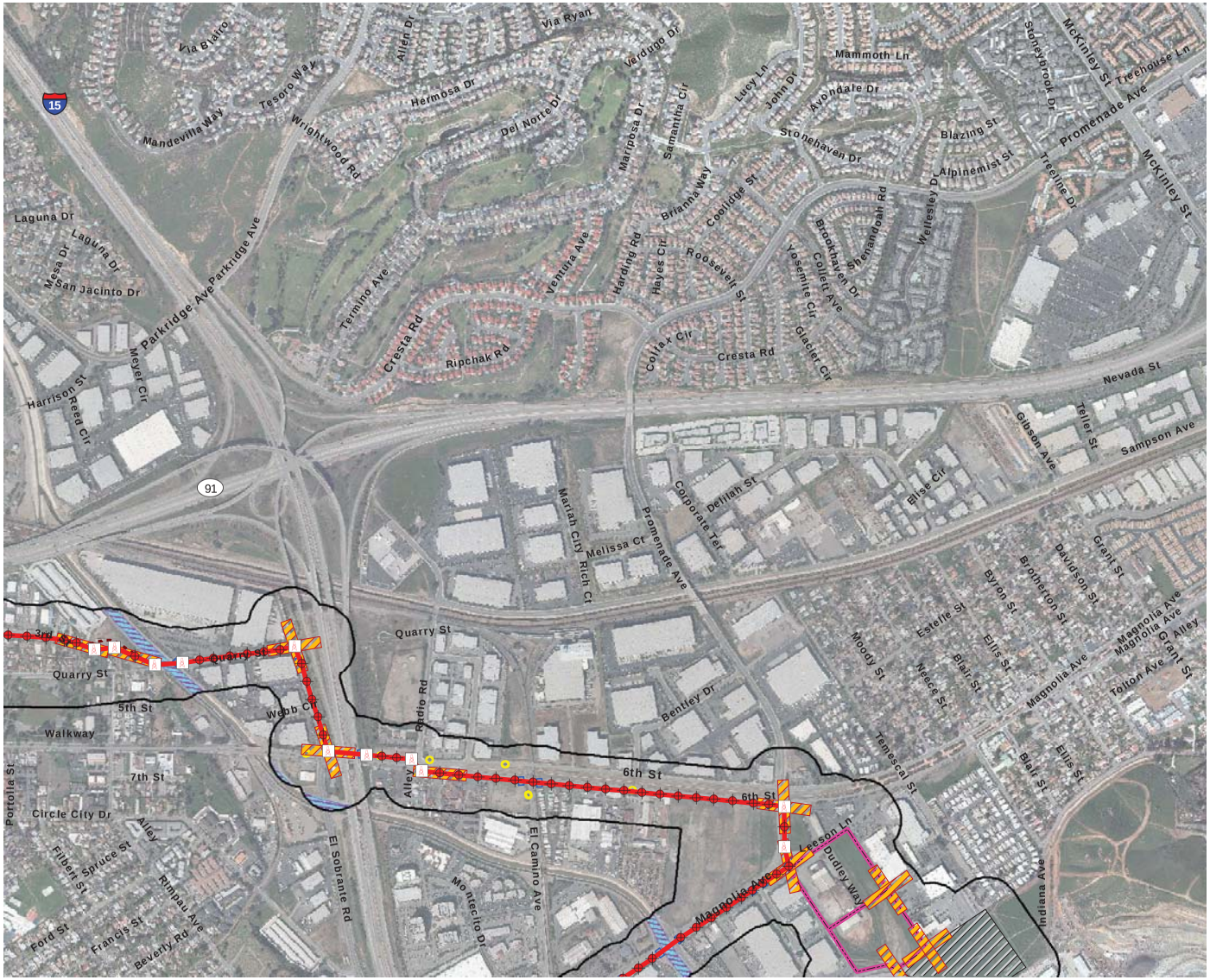

Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 10G

N W E S

1,000 500 0 1,000 Feet

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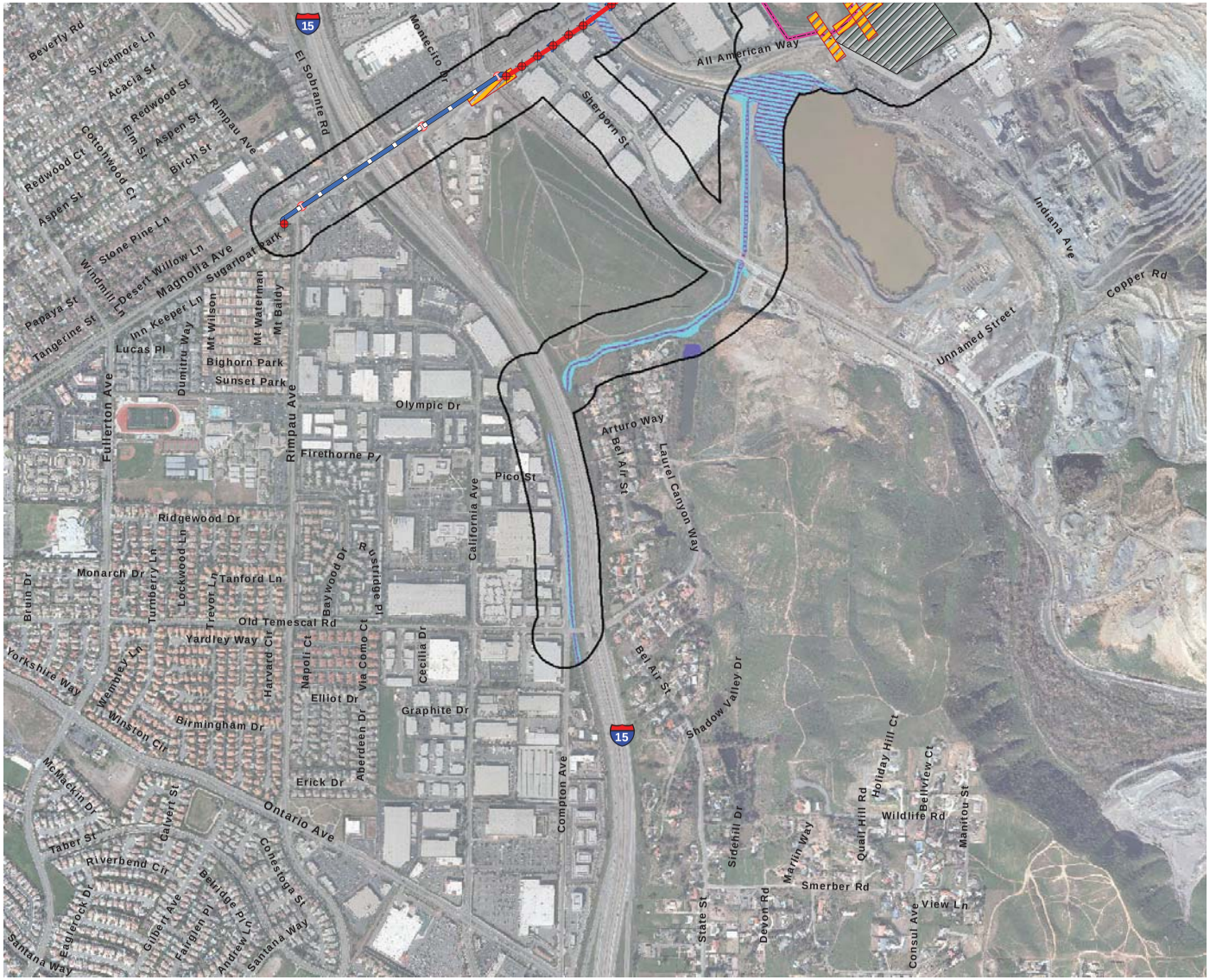


Study Area

Project Components

Preferred Route
- Overhead
- Underground

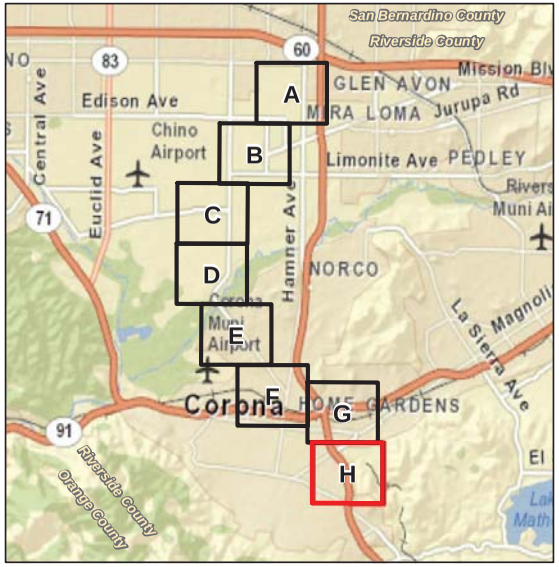
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Figure 10H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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TABLE 12
JURISDICTIONAL RESOURCES IMPACTED BY EACH PROPOSED PROJECT COMPONENT

Jurisdiction	Amount (Acres)	Impacts (Acres)						Total
		New Overhead Structures	Underground Route	Access Roads	Guard Structures	Pulling Sites	Overlap	
USACE Jurisdiction								
Wetlands	4.39	0.00*	0.00	0.00	0.00	0.32	0.00	**0.32**
Open Water	7.17	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Other Non-wetland "Waters of the U.S."	95.36	0.00*	0.05	0.35	0.02	0.59	0.17	**1.18**
Total "Waters of the U.S."	**106.92**	**0.00***	**0.05**	**0.35**	**0.02**	**0.91**	**0.17**	**1.50**
CDFG Jurisdiction								
Isolated Waters	24.19	0.00*	0.00	0.65	0.09	0.18	0.00*	**0.92**
Non-isolated "Waters of the State"	117.12	0.00*	0.08	0.56	0.12	1.18	0.38	**2.32**
Total "Waters of the State"	**141.31**	**0.00***	**0.08**	**1.21**	**0.21**	**1.36**	**0.38**	**3.24**

New overhead structures include hybrid H-Frames, light-weight steel poles, and tubular steel poles. Impacts assume a single footing for the light-weight steel poles and tubular steel poles, and 2 footings for the hybrid H-frames based on the maximum approximate diameter provided in Table 3.2 of the PEA (SCE 2012).
* Impacts would be less than 0.005 acre.

Implementation of MMs 4 and 6 would ensure impacts to jurisdictional resources would be less than significant. It should also be noted that mitigation for riparian/riverine habitat discussed above and MM 2 would, in part, cover impacts to wetlands discussed here.

Protected Trees

The County of Riverside and County of San Bernardino Codes of Ordinances and municipal codes for the City of Chino, the City of Corona, the City of Eastvale, the City of Norco, and the City of Ontario provide for the protection of plant resources in their respective jurisdictions. Plants protected under these codes may be present within the Study Area and potentially impacted by Project activities. As a result, SCE is proposing to implement MM 7 to ensure impacts to protected trees are less than significant.

Special Status Plants

Focused surveys for special status plant species were conducted in spring/summer of 2010, 2011, and 2012. No special status plant species have been observed during the surveys. Therefore, there would be no impact on special status plant species and no MMs would be required.

Special Status Wildlife

Invertebrates

The proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3 contain suitable habitat for Riverside fairy shrimp and vernal pool fairy shrimp. Limited suiable habitat occurs along the proposed and alternative source line routes; however, these species have not been observed during two years of focused surveys in these areas. Focused surveys for these species are currently in progress along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3. These species have not been observed during the first year of focused surveys; the second year of surveys is expected to be completed in spring 2013. Any impact on these species (e.g., direct mortality, loss of habitat) would be considered significant. If the species are not observed during focused surveys, there would be no impact and no MMs would be required. However, if listed fairy shrimp are found prior to or during construction, additional mitigation would be required. As a result, SCE is proposing MMs 4 and 8 in the event that listed fairy shrimp are found in San Bernardino County or in Riverside County, with and without participation in the MSHCP.

The Mira Loma Substation, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3 contain suitable habitat for Delhi Sands flower-loving fly. Focused surveys for Delhi Sands flower-loving fly were conducted in 2010 and 2011 for some portions of the Proposed Project area that overlap the Ontario Recovery Unit and contain Delhi series soils. To date, this species has not been observed during the surveys. However, focused surveys were not conducted for the northernmost proposed material yard, which contains Delhi series soils. Focused surveys will be conducted for this area in 2012 and 2013 pursuant to the USFWS survey protocol. Any impact on this species (e.g., direct mortality, loss of habitat) would be considered significant. If this species is not observed during focused surveys of the proposed materials yard, then there would be no impact and no MMs would be required. Until more information is obtained regarding presence/absence of this species following the completion of focused surveys in September 2013, SCE is proposing to implement MMs 4 and 9 to ensure impacts would be less than significant.

The remaining portions of the Study Area do not contain suitable habitat for special status invertebrate species. Therefore, there would be no impact on these species, and no mitigation would be required.

Fish

Suitable habitat for Santa Ana speckled dace is not present in the Study Area. Therefore, there would be no impact on this species, and no mitigation would be required.

The proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3 contain suitable habitat for arroyo chub and Santa Ana sucker in Riverside County. Current Proposed Project design does not directly impact open water in the Prado Basin; however, the active channel that would provide potentially suitable habitat for special status fish species would flow between the proposed hybrid H-frames. Further, the existing H-frames that are proposed for removal are located on the river bank. Therefore, there is potential for these species to be impacted (e.g., direct mortality) depending on the water levels at the time of Proposed Project construction and pole removal. Any impact on the Santa Ana sucker would be considered significant. As a result, SCE is proposing MMs 2, 4, and 5 to ensure impacts to special status fish species are less than significant.

The Proposed Project overlaps designated critical habitat for the Santa Ana sucker. This overlapping critical habitat is entirely within the MSHCP. As such, should SCE opt to request PSE status pursuant to the MSHCP, potential impacts on designated critical habitat would be addressed by participation in the MSHCP. If SCE opts out of the MSHCP, additional coordination with USFWS would be required.

The remaining portions of the Study Area do not contain suitable habitat for special status fish species. Therefore, there would be no impact on these species, and no mitigation would be required.

Amphibians

Suitable habitat for arroyo toad and northern leopard frog is not present in the Study Area. Therefore, there would be no impact on these species, and no mitigation would be required.

Suitable habitat for western spadefoot is present along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, and the alternative source line routes. Potential impacts on this species (e.g., direct mortality, loss of habitat) would be considered adverse but less than significant in consideration of their current status (i.e., Species of Special Concern); the limited amount of habitat loss; and the fact that impacts to suitable habitat would be temporary in nature. In addition, this species is covered by the MSHCP. MM 4, to be implemented for other species, would also protect western spadefoot.

Reptiles

Suitable habitat for California mountain kingsnake and northern red-diamond rattlesnake is not present in the Study Area. Therefore, there would be no impact on these species, and no mitigation would be required.

Suitable or marginally suitable habitat for western pond turtle, coast horned lizard, orangethroat whiptail, silvery legless lizard, two-striped garter snake, and south coast garter snake is present along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3. Potential impacts on these species (e.g., direct mortality, loss of habitat) would be considered less than significant in consideration of their current status (i.e., Species of Special Concern); the limited amount of habitat loss; and the fact that impacts to their suitable habitat are primarily temporary in nature. In addition, western pond turtle, coast horned lizard, and orangethroat whiptail are covered by the MSHCP. MM 4, to be implemented for other species, would also protect these species.

Birds

Suitable habitat for fulvous whistling duck, least bittern, bald eagle, coastal cactus wren, and coastal California gnatcatcher is not present in the Study Area. Therefore, there would be no impacts on these species, and no mitigation would be required.

Suitable foraging, but not breeding, habitat for redhead, American white pelican, Swainson's hawk, and American peregrine falcon occurs in portions of the Study Area; American peregrine falcon was observed in the Study Area. Because there is no suitable breeding habitat for these species, there would be no impacts on nesting individuals. Therefore, no mitigation would be required.

Suitable foraging and breeding habitat for the following federal or State-listed Threatened or Endangered species is present along the proposed Mira Loma-Jefferson 66 kV subtransmission

line route, Alternative 2, and Alternative 3: western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo; suitable foraging and breeding habitat for the least Bell's vireo is also present along the alternative source line routes, and the least Bell's vireo has been observed in the Study Area. Any impact on these species (e.g., direct mortality) or through habitat modifications would be considered significant. Non-listed special status riparian bird species observed in, and having potential to nest in, the Study Area include yellow warbler and yellow-breasted chat. In addition, Vermilion flycatcher has potential to nest in the Study Area. Potential impacts on breeding habitat (e.g., loss of habitat) for the non-listed species would be considered less than significant in consideration of the species' current status (i.e., Species of Special Concern); the limited amount of foraging/nesting habitat loss; and the fact that impacts to suitable habitat are primarily temporary in nature. Further, yellow warbler and yellow-breasted chat are covered by the MSHCP.

Construction of the Proposed Project would result in the loss of moderate- to high-quality, occupied habitat for least Bell's vireo (i.e., 0.38 acre of willow riparian forest). As a result, SCE is proposing MMs 4 and 10 to ensure that potential impacts to least Bell's vireo are less than significant. Further, implementation of MM 2 addresses loss of riparian/riverine habitat suitable for least Bell's vireo. Mitigation implemented for least Bell's vireo would also protect yellow warbler, yellow-breasted chat, and Vermilion flycatcher.

The Proposed Project area overlaps designated critical habitat for the least Bell's vireo in both San Bernardino County and Riverside County. Construction in San Bernardino County adjacent to critical habitat includes one new tubular steel pole and two new light-weight steel poles. These structures would be placed along an existing road (i.e., Hellman Avenue) and not within suitable habitat for least Bell's vireo. Although impacts to critical habitat within San Bernardino County are unlikely, the placement of these poles in critical habitat may require additional coordination with the USFWS. Construction adjacent to critical habitat in the Prado Basin in Riverside County would consist of new light-weight steel poles, hybrid H-frames, and conductor pulling sites. These impacts would occur along an existing road (i.e., River Road) adjacent to suitable habitat for least Bell's vireo. Should there be any encroachment into critical habitat in Riverside County, potential impacts could be addressed by participation in the MSHCP if SCE opts to request PSE status. Otherwise, additional coordination with the USFWS may be necessary.

Suitable or marginally suitable breeding habitat for northern harrier, white-tailed kite, and long-eared owl is present along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3. Potential impacts on these species would be considered less than significant in consideration of the limited amount of potential habitat loss and the fact that impacts to suitable habitat are primarily temporary in nature. In addition, northern harrier and white-tailed kite are covered by the MSHCP.

Suitable foraging habitat for golden eagle, northern harrier, white-tailed kite, and long-eared owl is present along the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; and Alternative 3. Suitable foraging habitat for golden eagle, northern harrier, and white-tailed kite is also present at the proposed Circle City Substation site; the alternative Circle City Substation site; and along the alternative source line routes. The estimated amount of this foraging habitat (non-native grassland, ruderal, impoundment, agricultural field, dairy, and disturbed) within the Study Area is 101.50 acres; however, the amount actually lost as a result of the Proposed Project would constitute only a portion of the 101.50 acres and impacts will be primarily temporary in nature. The loss of foraging habitat for these species could contribute to the ongoing regional and local loss of raptor foraging habitat. Impacts would be less than significant with mitigation, subject to the review of the Regional Conservation Authority (RCA)

and/or the wildlife agencies. SCE is proposing to implement MM 1 to ensure potential impacts to raptor foraging habitat are minimized to the greatest extent feasible.

Suitable foraging and breeding habitat for burrowing owl is present at the Mira Loma Substation; the proposed Circle City Substation site; the alternative Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; and the alternative source line routes. Although the burrowing owl was not observed or detected in the Study Area during focused surveys, it was observed within 500 feet of the Proposed Project and suitable habitat for this species exists throughout the Study Area. As such, there is potential for burrowing owls to occupy the Study Area in the future. There are currently two regulatory frameworks for addressing burrowing owl surveys, minimization measures, and mitigation: species-specific objectives provided in the County of Riverside MSHCP and the CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 2012c). Given that burrowing owls observed, to date, in the vicinity of the Study Area were located in San Bernardino County, mitigation for those owls would likely be pursuant to the CDFG's guidelines. However, mitigation has also been included below pursuant to the MSHCP in the event that burrowing owls are found in Riverside County during subsequent surveys. As a result, SCE is proposing MMs 4 and 11 to ensure potential impacts to burrowing owl are less than significant.

Suitable or limited suitable foraging habitat for mountain plover and Oregon vesper sparrow is present in the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; and Alternative 3. Suitable habitat for Oregon vesper sparrow is also present at the proposed Circle City Substation site; the alternative Circle City Substation site; and the alternative source line routes. Non-breeding/wintering individuals are protected. Potential impacts on these species would be considered less than significant in consideration of their current status (i.e., Species of Special Concern); the limited amount of potential habitat loss; and the fact that impacts to suitable habitat are primarily temporary in nature. In addition, mountain plover is covered by the MSHCP. No MMs would be required.

Loggerhead shrike has been observed in the Proposed Project area. This species and grasshopper sparrow have potential to nest along the the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; and Alternative 3. Loggerhead shrike also has potential to nest along the alternative source line routes. Potential impacts on breeding habitat for these species would be considered less than significant in consideration of the species' current status (i.e., Species of Special Concern); the limited amount of habitat loss; and the fact that impacts to suitable habitat are primarily temporary in nature. In addition, loggerhead shrike and grasshopper sparrow are covered by the MSHCP.

Suitable or limited suitable foraging and breeding habitat for Clark's marsh wren, tricolored blackbird, and yellow-headed blackbird is present in the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3. Limited suitable foraging, but not breeding, habitat for the tricolored blackbird is also present at the proposed Circle City Substation site, the alternative Circle City Substation site, and the alternative source line route. Limited suitable foraging and breeding habitat is also present for the yellow-headed blackbird at the alternative source line route. Potential impacts on these species would be considered less than significant in consideration of their current status (i.e., Species of Special Concern); the limited amount of potential habitat loss; and the fact that impacts to suitable habitat are primarily temporary in nature. In addition, tricolored blackbird is covered by the MSHCP.

Pursuant to the MBTA and applicable provisions of the *California Fish and Game Code* (specifically §§3503, 3503.5, and 3515), impacts to active bird nests, including raptor nests, are not permitted. The loss of any active nest, whether of a common or special-status species,

would be considered significant in that it could be considered a violation of the MBTA and *California Fish and Game Code.* Potential impacts on active nests would be reduced to less than significant levels with implementation of MMs 3 and 4.

Mammals

Suitable habitat for pocketed free-tailed bat, big free-tailed bat, San Bernardino kangaroo rat, Stephens' kangaroo rat, Los Angeles pocket mouse, San Diego desert woodrat, and American badger is not present in the Study Area. With the exception of the badger, these species are covered by the MSHCP. Therefore, there would be no impact on these species, and no mitigation would be required.

Suitable or limited suitable foraging habitat for pallid bat, Townsend's big-eared bat, western yellow bat, and western mastiff bat is present in the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; and Alternative 3. Limited suitable habitat for the pallid bat, Townsend's big-eared bat, and western mastiff bat is also present at the proposed Circle City Substation site; the alternative Circle City Substation site; and along the alternative source line routes. The loss of foraging habitat for these species (i.e., disturbed Riversidian sage scrub, non-native grassland, ruderal, willow riparian forest, impoundment, agricultural field, dairy, and ornamental that may provide a limited food source) would contribute to the ongoing regional and local loss of foraging habitat. Impacts (e.g., loss of habitat for a food source) would be less than significant with mitigation, subject to the review of the wildlife agencies. SCE is proposing to implement MMs 1 and 2 to ensure potential impacts to bat foraging habitat are minimized to the greatest extent feasible.

Limited suitable roosting habitat for western yellow bat is present along the the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3, and the alternative source line routes. The loss of an active roost of this species would be considered less than significant in consideration of its current status (i.e., Species of Special Concern), the limited amount of potential habitat loss, and the fact that impacts are primarily temporary in nature. No MMs would be required for this species.

Suitable habitat or limited suitable habitat for San Diego black-tailed jackrabbit and northwestern San Diego pocket mouse is present in the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; and Alternative 3. Limited suitable habitat for the the northwestern San Diego pocket mouse is also present at the proposed Circle City Substation site and the alternative Circle City Substation site. Potential impacts on these species (e.g., direct mortality, loss of habitat) would be considered less than significant in consideration of their current status (i.e., Species of Special Concern); the limited amount of habitat loss; and the fact that impacts are primarily temporary in nature. In addition, these species are covered by the MSHCP. No MMs would be required for these species.

4.4 CONSTRUCTION IMPACTS – INDIRECT

Construction activites may result in indirect impacts, often called "edge effects". These impacts affect the quality of nearby wildlife habitat resulting from disturbance by construction (such as noise, dust, and urban pollutants). This is especially relevant when the adjacent habitat is dedicated for conservation, such as an MSHCP Criteria Cell. It is anticipated that there may be some indirect impacts resulting from Project construction, which are discussed below.

4.4.1 Drainage

Impacts on biological resources in the vicinity of the Proposed Project could occur as a result of changes in water quality. During construction, runoff carrying excessive silt or petroleum residues from construction equipment could potentially impact water quality and, in turn, affect plant and wildlife species using habitat adjacent to the Proposed Project. Adverse effects on water quality could affect populations of aquatic species, including special status species, by reducing the amount of available habitat and smothering eggs of aquatic species which, in turn, may result in direct mortality. Adverse effects on water quality could also impact populations of terrestrial wildlife species that use riparian areas by affecting the plant species that are used by terrestrial species, which would reduce the available riparian habitat, the food web interactions affecting prey (e.g., insects, tadpoles, fish, and other aquatic prey), or through biomagnification (i.e., the buildup of pesticides to toxic levels in higher trophic levels). These impacts are considered potentially significant. The MSHCP presents guidelines pertaining to the Urban/Wildlands Interface to address various indirect impacts resulting from a Proposed Project (Appendix K). SCE has incorporated these guidelines as Proposed Project design features to reduce this potential impact to a less than significant level. While provided as part of the MSHCP, these guidelines are adequate to address indirect impacts both in Riverside and San Bernardino Counties.

4.4.2 Increased Dust and Urban Pollutants

Grading and other construction activities would disturb soils and result in the accumulation of dust on the surface of the leaves of trees, shrubs, and herbs. The respiratory function of the plants in the area could be impaired if dust accumulation is excessive. This indirect impact is considered adverse but less than significant since it would not reduce plant populations below self-sustaining levels in the region. Therefore, no mitigation would be required.

4.4.3 Lighting

Night lighting may impact the behavioral patterns of nocturnal and crepuscular (i.e., active at dawn and dusk) wildlife adjacent to the lighted areas. Of greatest concern is the effect on small, ground-dwelling animals that use the darkness to hide from predators and on owls, which are specialized night foragers. Construction activities are expected to occur during the day. Therefore, there would be no light sources on at night as a result of Project construction and no indirect impact on the open space habitat radjacent to the Proposed Project. No mitigation would be required.

4.4.4 Noise

Construction activities, while temporary in nature, may create noise within and adjacent to the Project area, including in the vicinity of MSHCP Existing Core A. Wildlife may be deterred by noise and human activity; however, most wildlife movement would occur at night while construction activities would occur during the day. In addition, the Study Area occurs in a developed area currently exposed to noise. These impacts are considered adverse but less than significant. The MSHCP presents guidelines pertaining to the Urban/Wildlands Interface to address various indirect impacts resulting from a Proposed Project (Appendix K). SCE has incorporated these guidelines as Proposed Project design features to minimize adverse effects of construction noise. While provided as part of the MSHCP, these guidelines are adequate to address indirect impacts both in Riverside and San Bernardino Counties.

4.5 OPERATIONAL IMPACTS – DIRECT

Operational impacts are those related to the long-term use of the Proposed Project.

4.5.1 Vegetation Types

Upon the start of Project operation, the proposed or alternative Mira Loma-Jefferson 66 kV subtransmission line would operate in a similar manner as it currently operates under existing conditions. The proposed or alternative Circle City Substation sites and proposed source line routes are not associated with riparian/riverine resources. Therefore, no significant impact would result from the operation of the Circle City Substation; the Mira Loma-Jefferson 66 kV subtransmission line; or the proposed source line. No mitigation would be required.

4.5.2 Wildlife Impacts

General Habitat Loss and Wildlife Loss

Operation of the Proposed Project has the potential to increase the electrocution and collision risk for avian species, particularly large raptors. Electrocution can occur when the bird's body is in contact with two different phases at the same time (e.g., connecting phase to ground or connecting phase to phase). Collision risk may occur when the bird's body comes into contact with a static wire. These impacts would be considered potentially significant. However, as stated in Chapter 3 – Project Description of the PEA (SCE 2012), all 66 kV Subtransmission structures will be designed consistent with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006) and the Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 (APLIC 1994).

Impacts to Nesting Birds

The proposed or alternative Mira Loma-Jefferson 66 kV subtransmission line would operate in a similar manner as it currently operates under existing conditions.

Wildlife Movement and Habitat Fragmentation

The proposed or alternative Mira Loma-Jefferson 66 kV subtransmission line would operate in a similar manner as it currently operates under existing conditions. Wildlife movement would not be blocked by the new overhead lines. All trenches and holes created by the Proposed Project would be covered at Proposed Project completion. As stated in Chapter 3 – Project Description of the PEA (SCE 2012), all 66 kV Subtransmission structures will be designed consistent with the guidelines in Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 (APLIC 1994). Therefore, no significant impact would result from the operation of the proposed or alternative Mira Loma-Jefferson 66 kV subtransmission line.

The proposed Circle City Substation site is located adjacent to existing commercial and industrial development, which does not provide suitable wildlife movement corridors. Therefore, wildlife movement would not be impacted by a new substation. Therefore, no mitigation would be required.

4.5.3 Special Status Biological Resource Impacts

Jurisdictional Features

Upon the start of Project operation, the proposed or alternative Mira Loma-Jefferson 66 kV subtransmission line would operate in a similar manner as it currently operates under existing conditions. Therefore, no significant impact would result from the operation of these routes. The proposed or alternative source line routes are new lines, but they are not expected to operate in a manner different from existing lines.

No jurisdictional resources would be impacted by the new substation operation. Therefore, no mitigation would be required.

Protected Trees

The County of Riverside and County of San Bernardino Codes of Ordinances and the municipal codes for the City of Chino, the City of Corona, the City of Eastvale, the City of Norco, and the City of Ontario provide for the protection of plant resources in their respective jurisdictions. Plants protected under these codes may be present within the Study Area and potentially impacted by Project activities. As a result, SCE is proposing to implement MM 7 to ensure impacts to protected trees are less than significant.

Special Status Plants

Operation of the Proposed Project is not expected to have any additional impact on special status plant species. Therefore, to mitigation would be required.

Special Status Wildlife

Operation of the Proposed Project has the potential to increase the electrocution and collision risk for avian species, particularly large raptors. Electrocution can occur when the bird's body is in contact with two different phases at the same time (e.g., connecting phase to ground or connecting phase to phase). Collision risk may occur when the bird's body comes into contact with a static wire. These impacts would be considered potentially significant. However, as stated in Chapter 3 – Project Description of the PEA (SCE 2012), all 66 kV Subtransmission structures will be designed consistent with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006) and the Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 (APLIC 1994).

4.6 OPERATIONAL IMPACTS – INDIRECT

The long-term operation of the Proposed Project may result in indirect impacts on adjacent wildlife habitat.

4.6.1 Increased Dust and Urban Pollutants

No dust or urban pollutants would be expected during operation of the proposed or alternative Circle City Substation. Therefore, there would be no impact and no mitigation would be required.

4.6.2 Lighting

Although night lighting may increase over present levels due to normal operation of the proposed or alternative Circle City Substation, the Proposed Project lighting would be minor. In addition, the proposed and alternative Circle City Substation sites are in a developed area with existing night lighting. Therefore, the impacts of night lighting are expected to be adverse but less than significant. The MSHCP presents guidelines pertaining to the Urban/Wildlands Interface to address various indirect impacts resulting from Project construction (Appendix K). SCE has incorporated these guidelines as Proposed Project design features to minimize adverse effects of night lighting. While provided as part of the MSHCP, these guidelines are adequate to address indirect impacts both in Riverside and San Bernardino Counties.

4.6.3 Noise

Although noise levels may increase over present levels due to normal operation of the proposed or alternative Circle City Substation, the Proposed Project noise would be minor. Wildlife species stressed by noise may disperse from the habitat located in the vicinity of the proposed or alternative Circle City Substation. However, this potential impact is considered less than significant, and no mitigation would be required.

4.6.4 Invasives

Invasive species are often more adapted to a wider variety of growing conditions and can out-compete native plant populations for available nutrients, prime growing locations, and other resources. Because these plants reproduce so quickly and in such large amounts, they can quickly replace many native plant populations, resulting in lower species diversity, loss of areas suitable for breeding and/or nesting by wildlife species, changes in riparian ecosystem, and overall reduction in habitat values. Any landscaping or restoration associated with the Proposed Project would exclude the use of invasive plant species. Not only is this SCE's standard practice, but landscaping and restoration may also be subject to review and approval by the CPUC, the Regional Conservation Authority (RCA), and the USFWS/CDFG. Therefore, there would be no impact as a result of invasive species, and no mitigation would be required.

5.0 MITIGATION MEASURES

SCE proposes the MMs to avoid, minimize, correct, reduce, or eliminate impacts on special status biological resources.

5.1 MITIGATION MEASURES FOR POTENTIAL BIOLOGICAL RESOURCES IMPACTS

5.1.1 Mitigation Measure 1: Avoid and/or Minimize Impacts to Special Status Vegetation – Non-riparian

This measure applies to the following portions of the Study Area: the Mira Loma Substation; the proposed Circle City Substation site; the alternative Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; the alternative source line routes; and proposed material yards, access roads, guard structures, and pulling sites.

Impacts to native vegetation types and those that may support special status species and foraging habitat for sensitive raptors and other bird species shall be avoided to the extent feasible. Native vegetation shall be marked as "off limits" in construction plans and/or maps, and flagged prior to construction by a qualified Biological Monitor. If significant impacts to native

vegetation and foraging habitat are unavoidable, mitigation may be necessary depending on the quality of vegetation and the ability to support habitat for special status species. Should SCE opt to participate in the MSHCP, impacts to special status vegetation types within Riverside County are fully covered through payment of mitigation fees. Should SCE choose to opt out of the MSHCP PSE process, a Restoration Plan shall be prepared in consultation with the USFWS and the CDFG. The Restoration Plan shall include, but is not limited to, identification of responsible parties; restoration details and schedule; monitoring and maintenance requirements; and success criteria.

5.1.2 Mitigation Measure 2: Avoid, Minimize, and Mitigate Impacts to Riparian Vegetation/Riverine Habitat

This measure applies to the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; and the alternative source line routes.

Prior to construction, the limits of grading shall be clearly marked around any sensitive habitat to avoid riparian/riverine habitat to the extent practicable. In areas where avoidance is not possible, similar to mitigation in MM-BIO-11 but not intended to be duplicative, impacts to willow riparian forest vegetation and/or riverine habitat shall be mitigated at a minimum replacement ratio of 2:1 to ensure no net loss of habitat. SCE will pay into a mitigation bank, pay into an in-lieu fee program, or work with a local Resource Conservation District (RCD) to establish appropriate mitigation within the same watershed as the area of impact. On-site restoration back to existing conditions shall be implemented where possible; however, mitigation on site with conservation easements and deed restrictions is rarely possible within SCE work easements. Subject to the approval of the resource agencies (USACE, RWQCB, and CDFG), SCE shall submit the required materials and mitigation proposal as part of the regulated waters application processes. SCE shall comply with all conditions as set forth in the regulated water permits.

Should SCE opt to participate in the MSHCP and, pursuant to Section 6.1.2, if the Proposed Project design does not incorporate avoidance of the riparian/riverine resource, avoidance and minimization measures shall be implemented in accordance with the species specific objectives for least Bell's vireo and Santa Ana sucker. SCE shall prepare a Mitigation Plan in the format of a DBESP as part of the PSE review process, taking into special consideration long term conservation value for least Bell's vireo and Santa Ana sucker. The RCA shall request that the USFWS and the CDFG concur with their MSHCP "findings of consistency" and DBESP approval. Subsequent coordination on any biological issues shall be handled through consultation with RCA. RCA shall determine the need for additional consultation with the USFWS and the CDFG.

5.1.3 Mitigation Measure 3: Impacts to Nesting Birds

This measure applies to all portions of the Study Area.

In order to avoid impacts to nesting birds (common or special status), ongoing pre-construction surveys and daily sweep surveys by a qualified Wildlife Biologist shall focus on breeding behavior and a search for active nests within 300 feet (and a binocular search to 500 feet) of the Proposed Project area prior to disturbance. SCE shall prepare an Adaptive Management Plan to address nesting birds and that shall be subject to the approval of the CDFG. Conditions typically implemented in this "Nesting Bird Management Plan" (Plan) shall include the following: clearing of vegetation suitable for nesting shall be scheduled outside of breeding season (the breeding season is generally between February 15 and September 15 for migratory birds, and February 1 and June 30 for raptors) to the extent practicable; biological monitoring shall be conducted by

Biologists with expertise in bird behavior; nesting deterrents shall be used where appropriate; and implementation of species-specific buffer modification guidelines shall be determined by species sensitivity, along with an ongoing focus on observations of "nest disruption" limiting the degree at which buffers can be modified. The Biological Monitor shall ensure buffer implementation and that construction activities do not disturb the nest occupants. The active nest site and applicable buffer shall be protected until nesting activity has ended. Active nest reports shall be submitted to the CDFG and CPUC on a biweekly basis, with any "take" of nests being reported to the CDFG, the CPUC, and the USFWS within 24 hours of a known incident.

5.1.4 Mitigation Measure No.4: Implement Biological Monitoring

This measure applies to all portions of the Study Area.

Biological Monitors shall be utilized during construction of the Proposed Project within areas encompassing sensitive biological resources or habitat suitable to any special status species. The Biological Monitors shall be responsible for ensuring that impacts on special status species, native vegetation, wildlife habitat, and unique resources are avoided to the extent feasible. Where appropriate, Biological Monitors shall flag the boundaries of areas where activities need to be restricted to protect native plants and wildlife and/or special status species. These restricted areas shall be monitored for their protection during construction. If non-listed sensitive resources are found within the impact area and could be harmed, the Biological Monitor shall relocate the individual out of the Project impact area. If listed species are found within the impact area, only a Biologist with the appropriate permit to handle that species is allowed to relocate the individual. The Biological Monitor shall be present to help SCE in preventing issues of non-compliance and shall have the authority to suspend any operation which is, in the qualified Biologist's opinion, not consistent with any regulations and approved mitigation plans.

5.1.5 Mitigation Measure 5: Avoid or Minimize Impacts to Special Status Fish Species

This measure applies to the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; the Alternative 2; and Alternative 3.

SCE shall incorporate avoidance measures to ensure that special status fish species are not present within the construction area. If feasible, work shall be conducted during the dry season when there would be less potential to impact water supporting special status fish species. Prior to the initiation of construction activities within the Santa Ana River, blocking nets shall be installed upstream and downstream from the work area, allowing sufficient space for construction crews to operate and to exclude special status fish species from the work areas. These nets are intended to keep fish out of the work area so that once fish have been removed from the impact area, they are unable to re-enter during the entire work period. Daily monitoring shall be performed; if necessary, cleaning of debris would be performed at the end of each work day. Any fish that may appear inside the barriers will be captured and relocated outside the work area by a qualified Biologist.

5.1.6 Mitigation Measure 6: Impacts to Jurisdictional Waters

This measure applies to the following portions of the Study Area: the Mira Loma Substation; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; the proposed source line routes, and the alternative source line routes.

Impacts to potential USACE and CDFG jurisdictional areas shall be avoided to the extent feasible. These areas shall be marked as "off limits" in construction plans and/or maps. If avoidance is not feasible, permits from the USACE, the CDFG, and the RWQCB shall be

obtained for direct and indirect impacts on areas within these agencies' jurisdictions. It is anticipated that the regulatory permit requirements will contain measures to avoid, reduce, and/or mitigate for impacts on their respective jurisdictions. In areas where avoidance is not possible, impacts to jurisdictional waters shall be mitigated at a minimum replacement ratio of 2:1 to ensure no net loss of habitat. SCE shall pay into a mitigation bank; pay into an in-lieu fee program; or work with a local RCD to establish appropriate mitigation within the same watershed as the area of impact. On-site restoration back to existing conditions shall be implemented where possible; however, mitigation on site with conservation easements and deed restrictions is rarely possible within SCE work easements. Subject to the approval of the resource agencies (USACE, RWQCB, and CDFG), SCE shall submit the required materials and mitigation proposal as part of the regulated waters application processes. SCE shall comply with all conditions set forth in the regulated water permits.

5.1.7 Mitigation Measure 7: Avoid, Minimize, and Mitigate Impacts to Protected Trees

This measure applies to all portions of the Proposed Project within the County of San Bernardino, the City of Chino, the City of Corona, the City of Eastvale, the City of Norco, and the City of Ontario.

The Project shall be designed to avoid protected trees to the greatest extent practicable. Should the SCE need to trim, encroach into protected root zone, relocate, or remove any protected trees as part of the Proposed Project, a permit shall be required by the local jurisdiction's applicable ministerial tree ordinances. Due to the varying jurisdictions within the survey areas, measures shall be implemented depending on the location of the protected trees, as well as conditions stated in each approved tree permit.

5.1.8 Mitigation Measure 8: Avoid, Minimize, and Mitigate Impacts to Fairy Shrimp

This measure applies to the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3.

Impacts to fairy shrimp habitat (i.e., ponding areas) shall be avoided to the extent feasible. Habitat areas will be marked as "off limits" in construction plans and/or maps. For areas within San Bernardino County or if SCE opts out of the MSHCP in Riverside County, SCE shall prepare a Habitat Conservation Plan (HCP) and seek take authorization through Section 7 or Section 10 of the FESA for impacts to listed fairy shrimp. Prior to construction, SCE shall obtain a Biological Opinion issued from the USFWS authorizing the removal of applicable resources (i.e., potential fairy shrimp habitat). It is anticipated that the USFWS Biological Opinion will contain conservation recommendations to avoid or reduce impacts.

Should SCE opt to participate in the MSHCP, pursuant to Section 6.1.2 of the MSHCP and/or if the Proposed Project design cannot incorporate avoidance of the vernal pool resources, avoidance and minimization measures shall be implemented in accordance with the species-specific objectives for Riverside fairy shrimp and vernal pool fairy shrimp. If avoidance is not feasible, a practicable alternative that minimizes direct and indirect effects to vernal pools and associated functions and values to the greatest extent possible shall be selected. Those impacts that are unavoidable shall be mitigated such that the lost functions and values are replaced, as set forth under a DBESP. The RCA would request USFWS and CDFG concurrence with their MSHCP "findings of consistency" and DBESP approval. Subsequent coordination on any biological issues would be handled through consultation with RCA. RCA will determine the need for additional consultation with USFWS and CDFG. It should also be noted that, assuming all fairy shrimp surveys are current and have been conducted pursuant to approved protocol at the time of the PSE and DBESP review, any MSCHP-covered fairy shrimp

species not observed during surveys but which are observed at a later date prior to or during construction do not require additional mitigation.

5.1.9 Mitigation Measure 9: Avoid, Minimize, and Mitigate Impacts to Delhi Sands Flower-loving Fly

This measure applies to the following portions of the Study Area that encompass Delhi series soils and that would be within the Ontario Recovery Unit: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; and the proposed material yard at the north end of the Study Area.

Impacts to Delhi Sands flower-loving fly shall avoided to the extent practicable. Should avoidance be infeasible, SCE shall seek take authorization through Section 10 of the FESA for impacts to occupied habitat of Delhi Sands flower-loving fly in San Bernardino County and in Riverside County, if SCE did not opt to become a PSE in the MSHCP. Prior to construction, SCE shall prepare an HCP and seek a Biological Opinion issued from the USFWS that would authorize the removal of applicable resources (i.e., Delhi Sands flower-loving fly habitat). It is anticipated that the USFWS Biological Opinion would contain conservation recommendations to avoid or reduce impacts. Should SCE opt to participate in the MSHCP, and Delhi Sands flower-loving fly were found, full avoidance through on-site preservation would be preferred. However, should on-site preservation be infeasible, purchase of suitable Delhi Sands flower-loving fly habitat at a 3:1 ratio in specifically designated areas could be required by the RCA.

5.1.10 Mitigation Measure 10: Avoid, Minimize, and Mitigate Impacts to Least Bell's Vireo

This measure applies to the following portions of the Study Area: the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; and the alternative source line routes.

Should SCE opt out of the MSHCP, they would seek take authorization through Section 10 of the FESA for impacts to habitat for the least Bell's vireo. Prior to construction, SCE would prepare an HCP and seek a Biological Opinion issued from the USFWS that would authorize the removal of applicable resources (i.e., potential least Bell's vireo habitat). Conservation recommendations are anticipated to include the following:

- The Biological Monitor shall delineate (by the use of fencing or lath and ropes/flagging) all areas adjacent to the impact area that contain habitat suitable for least Bell's vireo occupation.
- Activities involving the removal of riparian habitat shall be prohibited during the least Bell's vireo breeding season (generally March 15 through September 15) unless otherwise allowed by the USFWS and the CDFG.
- Construction activities anticipated to impact least Bell's vireo shall be prohibited within the typical required buffer of 500 feet of an active least Bell's vireo nest during the breeding season of this species (generally March 15 through September 15), unless otherwise allowed by the USFWS and the CDFG.
- Appropriate noise-abatement measures shall be implemented to ensure that noise levels are less than 65 A-weighted decibels (dBA) at specified monitoring locations near breeding activity and active nest(s). This shall be verified by weekly noise monitoring conducted by the Biological Monitor during the breeding season (generally March 15 through September 15).

- If construction were to occur during the breeding season, a summary of construction monitoring activities and noise monitoring results shall be provided to the USFWS and the CDFG following completion of construction.

Should SCE opt to participate in the MSHCP for areas within Riverside County, SCE shall prepare a DBESP that includes conservation recommendations similar to those that are included in the HCP, as previously described. The RCA shall request USFWS and CDFG concurrence with their MSHCP "findings of consistency", as well as DBESP approval. Subsequent coordination on any biological issues shall be handled through consultation with RCA. RCA shall determine the need for additional consultation with the USFWS and the CDFG.

5.1.11 Mitigation Measure 11: Avoid, Minimize, and Mitigate Impacts to Burrowing Owl

This measure applies to the following portions of the Study Area: the Mira Loma Substation; the proposed Circle City Substation site; the alternative Circle City Substation site; the proposed Mira Loma-Jefferson 66 kV subtransmission line route; Alternative 2; Alternative 3; the alternative source line routes; and proposed material yards, access roads, guard structures, and pulling sites.

Impacts to burrowing owl habitat shall be avoided to the extent feasible. Habitat areas shall be marked as "off limits" in construction plans and/or maps. Pre-construction surveys shall be conducted, ending no less than 14 days prior to any ground disturbance for development of the Proposed Project. Pre-construction surveys can be conducted at any time of year. If burrowing owls and their habitat could be protected in place or adjacent to the Proposed Project, the use of buffer zones, visual screens, or other measures shall be used to minimize disturbance impacts. If nesting activity is present at an active burrow, the active site shall be protected until nesting activity has ended. Peak nesting activity for the burrowing owl normally occurs between April and July. To protect the active burrow, the following restrictions to construction activities shall be required until the burrow is no longer active: (1) Clearing limits shall be established within a 500-foot buffer around any active burrow and (2) access and surveying shall be restricted within 300 feet of any active burrow. Construction shall be allowed to proceed when the qualified Biologist has determined that fledglings have left the nest. CDFG may be consulted to determine whether a reduced buffer can be accommodated without adversely impacting occupied burrows.

If impacts to occupied burrowing owl habitat would be unavoidable, a Mitigation Plan shall be prepared and implemented by SCE. The Mitigation Plan shall be prepared through consultation with the CDFG and shall follow guidelines presented by the CDFG (2012c). It shall include one of the following mitigation options: (1) restoration of temporary impact areas to high quality burrowing owl habitat; (2) permanent conservation of suitable burrowing owl habitat comparable to or better than that of the impact area; or (3) protection of mitigation land through a conservation easement.

Should SCE opt to participate in the MSHCP for areas within Riverside County, then avoidance/minimization shall also be preferred, as previously described. However, if avoidance/minimization is not possible (i.e., 90 percent of the areas with long-term conservation value were conserved), then a DBESP shall be prepared that includes suitable burrowing owl habitat creation and translocation. The RCA shall request that USFWS and CDFG concur with their MSHCP "findings of consistency" and DBESP approval. Subsequent coordination on any biological issues shall be handled through consultation with RCA. RCA would determine the need for additional consultation with USFWS and CDFG.

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APPENDIX A

SITE PHOTOGRAPHS

Riversidian sage scrub (foreground) and willow riparian forest (background) along the alternative source line route at the southern end of the Study Area.

Non-native grassland in the proposed material yard at the northern end of the Study Area.

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Site Photographs

Appendix A-1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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Ruderal vegetation at the intersection of 3rd Street and Quarry Street along the proposed and alternative source line routes.

Willow riparian forest at the Santa Ana River along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3.

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Site Photographs

Appendix A-2

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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Willow riparian forest adjacent to the Cucamonga Creek Flood Control Channel along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3.

The Temescal Wash flood control channel at Cota Street, north of Bateman Circle along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3.

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Site Photographs

Appendix A-3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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Impoundment at Cloverdale Road and Harrison Avenue along the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, and Alternative 3.

The agricultural field adjacent to River Road east of Hellman Avenue along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3.

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Site Photographs

Appendix A-4

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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The dairy along the proposed Mira Loma-Jefferson 66 kV subtransmission line route and Alternative 3.

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Site Photographs

Appendix A-5

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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APPENDIX B

PLANT AND WILDLIFE COMPENDIA

PLANT COMPENDIUM

Species	
***PTERIDOPHYTES* - FERNS AND ALLIES**	
AZOLLACEAE - MOSQUITO FERN FAMILY	
Azolla filiculoides	Pacific mosquito fern
GYMNOSPERMS	
PINACEAE - PINE FAMILY	
Pinus attenuata	knobcone pine
SAURURACEAE - LIZARD'S-TAIL FAMILY	
Anemopsis californica	yerba mansa
EUDICOTS	
ADOXACEAE - MUSKROOT FAMILY	
Sambucus nigra ssp. *caerulea* [*S. mexicana*]	blue elderberry
AIZOACEAE - FIG-MARIGOLD FAMILY	
*Carpobrotus chilensis**	sea fig
*Carpobrotus edulis**	freeway iceplant
*Mesembryanthemum crystallinum**	crystalline iceplant
*Mesembryanthemum nodiflorum**	slender-leaved iceplant
Sesuvium verrucosum	western sea-purslane
AMARANTHACEAE - AMARANTH FAMILY	
*Amaranthus albus**	tumbleweed
*Amaranthus retroflexus**	red-root pigweed
ANACARDIACEAE - SUMAC FAMILY	
*Schinus molle**	Peruvian pepper tree
*Schinus terebinthifolius**	Brazilian pepper tree
Toxicodendron diversilobum	western poison oak
APIACEAE - CARROT FAMILY	
Apiastrum angustifolium	wild celery
*Apium graveolens**	common celery
*Conium maculatum**	poison hemlock
*Foeniculum vulgare**	sweet fennel
APOCYNACEAE - DOGBANE FAMILY	
*Nerium oleander**	common oleander
ASTERACEAE - SUNFLOWER FAMILY	
Ambrosia acanthicarpa	annual bur-sage
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Artemisia dracunculus	tarragon
Baccharis pilularis ssp. *consanguinea* [*B. pilularis*]	coyote brush
Baccharis salicifolia ssp. salicifolia [*B. salicifolia*]	mule fat
Bebbia juncea var. *aspera*	sweetbush
Bidens frondosa	sticktight
Bidens laevis	bur-marigold
*Bidens pilosa**	common beggar-ticks
*Carduus pycnocephalus ssp. pycnocephalus**	Italian thistle
*Centaurea melitensis**	tocalote, Malta star-thistle

PLANT COMPENDIUM
(Continued)

Species	
*Cirsium vulgare**	bull thistle
Corethrogyne filaginifolia[*Lessingia f.*]	California-aster
*Cotula australis**	Australian cotula
*Cynara cardunculus**	cardoon, globe artichoke
Deinandra fasciculata [*Hemizonia f.*]	fascicled tarweed
Deinandra paniculata [*Hemizonia p.*]	San Diego, paniculate tarplant
Encelia californica	California brittlebush
Encelia farinosa	desert brittlebush
Ericameria nauseosa [*Chrysothamnus nauseosus*]	rubber rabbitbrush
Ericameria palmeri var. *pachylepis*	grassland goldenbush
Ericameria pinifolia	pine-bush
Ericameria sp.	goldenbush
Erigeron bonariensis [*Conyza b.*]*	flax-leaved horseweed
Erigeron canadensis [*Conyza c.*]	common horseweed
Erigeron foliosus	leafy fleabane
Eriophyllum confertiflorum	golden-yarrow
Euthamia occidentalis	western goldenrod
*Gazania linearis**	gazania
Glebionis coronaria [*Chrysanthemum coronarium*]*	garland daisy
Helianthus annuus	western sunflower
Heterotheca grandiflora	telegraph weed
Heterotheca sessiliflora	sessileflower goldenaster
*Hypochaeris glabra**	smooth cat's-ear
Isocoma menziesii	coastal goldenbush
*Lactuca serriola**	prickly lettuce
Laennecia coulteri [*Conyza c.*]	Coulter's horseweed
Lasthenia californica	California goldfields
Layia platyglossa	tidy-tips
Lepidospartum squamatum	scale-broom
Logfia filaginoides [*Filago californica*]	California cottonrose
Logfia gallica [*Filago g.*]*	daggerleaf cottonrose
Malacothrix saxatilis	cliff malacothrix
Matricaria discoidea [*Chamomilla suaveolens*]*	pineapple weed
Pseudognaphalium californicum [*Gnaphalium c.*]	California everlasting
Pseudognaphalium canescens [*Gnaphalium c.*]	everlasting
Pseudognaphalium luteoalbum [*Gnaphalium l.*]*	weedy cudweed
*Pulicaria paludosa**	Spanish sunflower
*Senecio vulgaris**	common groundsel
*Silybum marianum**	milk thistle
Solidago sp.	goldenrod
Solidago velutina ssp. californica [*Solidago c.*]	California goldenrod
Sonchus asper ssp. *asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
Stephanomeria exigua ssp. *exigua*	small wreath plant

PLANT COMPENDIUM
(Continued)

Species	
Stephanomeria virgata ssp. *virgata*	tall wreath plant
Stylocline gnaphaloides	everlasting neststraw
*Tanacetum parthenium**	feverfew
Verbesina encelioides var. *exauriculata**	golden crownbeard
Xanthium spinosum	spiny cocklebur
Xanthium strumarium	cocklebur
BORAGINACEAE - BORAGE FAMILY	
Amsinckia menziesii [*Amsinckia m.* var. *m.*]	rigid fiddleneck
Cryptantha intermedia	common cryptantha
*Echium candicans**	pride of Madera
Eucrypta chrysanthemifolia	common eucrypta
Heliotropium curassavicum var. *oculatum*	salt heliotrope / alkali heliotrope
Pectocarya linearis ssp. *ferocula*	slender pectocarya
Phacelia distans	common phacelia
Phacelia minor	wild canterbury-bell
Phacelia ramosissima	branching phacelia
BRASSICACEAE - MUSTARD FAMILY	
*Brassica nigra**	black mustard
Brassica oleracea	cultivated broccoli
Descurainia pinnata [*D.p.* ssp. *halictorum*]	western tansy mustard
*Hirschfeldia incana**	shortpod mustard
Lepidium didymum [*Coronopus didymum*]*	lesser swine cress
*Lepidium latifolium**	broad-leaved peppergrass
Lepidium nitidum	peppergrass / shining peppergrass
*Nasturtium officinale [Rorippa nasturtium-aquaticum]**	water cress
*Raphanus sativus**	radish
*Sisymbrium irio**	London rocket
*Sisymbrium orientale**	hare's ear cabbage
CACTACEAE - CACTUS FAMILY	
Cylindropuntia californica var. *parkeri [Opuntia parryi]*	Parry's cholla
*Opuntia ficus-indica**	mission prickly-pear
Spergularia sp.	sand-spurrey
Spergularia bocconei	Boccone's sand-spurrey
Spergularia marina	saltmarsh sand-spurrey
CHENOPODIACEAE - GOOSEFOOT FAMILY	
Atriplex prostrata [A. triangularis]	fat-hen
*Atriplex suberecta**	sprawling saltbush
Atriplex triangularis	Watson's saltbush
*Bassia hyssopifolia **	five-hook bassia
*Chenopodium album**	lamb's quarters
*Chenopodium murale**	nettle-leaved goosefoot
*Dysphania ambrosioides [Chenopodium a.]**	Mexican tea
*Dysphania botrys [Chenopodium b.]**	Jerusalum oak

PLANT COMPENDIUM
(Continued)

Species	
Dysphania pumilio [Chenopodium pumilio] *	Tasmanian goosefoot
*Kochia scoparia**	kochia
*Salsola tragus**	Russian thistle
CONVOLVULACEAE - MORNING-GLORY FAMILY	
Calystegia macrostegia	large-bracted morning-glory
*Convolvulus arvensis**	bindweed
Cuscuta californica	chaparral dodder
CRASSULACEAE - STONECROP FAMILY	
Crassula connata	pygmy-weed
CUCURBITACEAE - GOURD FAMILY	
Cucurbita foetidissima	coyote melon / calabazilla
Cucurbita cf. *palmata*	coyote melon
EUPHORBIACEAE - SPURGE FAMILY	
Chamaesyce albomarginata [Euphorbia a.]	rattlesnake weed
*Chamaesyce maculata [Euphorbia m.]**	spotted spurge
Chamaesyce polycarpa [Euphorbia p.]	golondrina / small-seed sandmat
Chamaesyce sp.*	spurge
Croton setigerus [Eremocarpus s.]	doveweed / turkey mullein
*Ricinus communis**	castor bean
FABACEAE - LEGUME FAMILY	
Acacia sp.*	acacia
Acmispon americanus [Lotus purshianus]	American lotus
Acmispon glaber var. glaber [Lotus scoparius var. *scoparius]*	coastal deerweed
Acmispon hamatus [Lotus h.]	grab lotus / San Diego lotus
Acmispon cf. *heermannii [Lotus h.]*	woolly lotus
Acmispon strigosus [Lotus s.]	strigose lotus
Albizia julibrissin	mimosa
Cassia sp.*	ornamental senna
*Lotus corniculatus**	birdfoot trefoil
Lupinus bicolor	miniature lupine
Lupinus succulentus	arroyo lupine
Lupinus truncatus	truncate lupine / collar lupine
*Medicago polymorpha**	California burclover
*Medicago sativa**	alfalfa
*Melilotus alba**	white sweetclover
*Melilotus indica**	sourclover
*Robinia pseudoacacia**	black locust
Trifolium sp.*	clover
FAGACEAE - OAK / BEECH FAMILY	
Quercus agrifolia	coast live oak
GERANIACEAE - GERANIUM FAMILY	
*Erodium botrys**	long-beaked filaree
*Erodium cicutarium**	red-stemmed filaree
*Erodium moschatum**	white-stemmed filaree

PLANT COMPENDIUM
(Continued)

Species	
LAMIACEAE - MINT FAMILY	
*Marrubium vulgare**	common horehound
Stachys rigida	hedge-nettle
Trichostema lanatum	woolly blue curls
LYTHRACEAE - LOOSESTRIFE FAMILY	
Punica sp.*	pomegranate
MALVACEAE - MALLOW FAMILY	
*Abutilon theophrasti**	velvet-leaf
Hibiscus trionum (? Or Abutilon)*	flower-of-an-hour
*Malva nicaeensis**	bull mallow
*Malva parviflora**	cheeseweed
Malvella leprosa	alkali mallow
MELIACEAE - MAHOGANY FAMILY	
*Melia azedarach**	china berry
MORACEAE - FIG FAMILY	
*Morus alba**	white mulberry
MYRSINACEAE - MYRSINE FAMILY	
*Anagallis arvensis**	scarlet pimpernel
MYRTACEAE - MYRTLE FAMILY	
Eucalyptus sp.*	gum
*Eucalyptus camaldulensis**	river red gum
*Eucalyptus citronella**	gum
OLEACEAE - OLIVE FAMILY	
*Fraxinus uhdei**	evergreen ash
Fraxinus sp.*	ash
*Olea europaea**	olive
ONAGRACEAE - EVENING PRIMROSE FAMILY	
Camissonia sp.	suncup
Camissoniopsis bistorta [Camissonia b.]	California sun cup
Clarkia sp.	willow-herb
Epilobium ciliatum	willow-herb
*Ludwigia peploides**	yellow waterweed
Oenothera elata ssp. *hookeri*	evening-primrose
Oenothera elata ssp. *hirsutissima*	evening-primrose
OXALIDACEAE - WOOD-SORREL FAMILY	
*Oxalis pes-caprae**	Bermuda buttercup / sour grass
PAPAVERACEAE - POPPY FAMILY	
Eschscholzia caespitosa	tufted poppy
Eschscholzia californica	California poppy
PHRYMACEAE - LOPSEED FAMILY	
Mimulus aurantiacus	bush monkeyflower
Mimulus cardinalis	scarlet monkeyflower
Mimulus guttatus	seep monkeyflower

PLANT COMPENDIUM
(Continued)

Species	
PLANTAGINACEAE - PLANTAIN FAMILY	
*Plantago major**	common plantain
Plantago ovata	woolly plantain
*Veronica anagallis-aquatica**	water speedwell
PLATANACEAE - SYCAMORE FAMILY	
Platanus racemosa	western sycamore
PLUMBAGINACEAE - LEADWORT FAMILY	
Limonium sp.*	statice
POLYGONACEAE - BUCKWHEAT FAMILY	
Eriogonum fasciculatum	California buckwheat
Eriogonum sp.	buckwheat
Persicaria lapathifolia [Polygonum lapathifolium]	willow weed
*Polygonum argyrocoleon**	Persian knotweed
*Polygonum aviculare ssp. depressum [Polygonum arenastrum]**	common knotweed
*Rumex crispus**	curly dock
Rumex salicifolius	willow dock
*Rumex pulcher**	fiddle dock
PORTULACACEAE - PURSLANE FAMILY	
*Portulaca oleracea**	common purslane
RANUNCULACEAE - CROWFOOT FAMILY	
Clematis sp.	clematis
ROSACEAE - ROSE FAMILY	
Heteromeles arbutifolia	toyon / christmas berry
Rosa californica	California rose
Rubus ursinus	California blackberry
SALICACEAE - WILLOW FAMILY	
Populus sp.	ornamental cottonwood
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Salix exigua	narrow-leaved willow
Salix gooddingii	Goodding's black willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
SAPINDACEAE - SOAP BERRY FAMILY	
Koelreuteria bipinnata	Chinese flame tree
SCROPHULARIACEAE - FIGWORT FAMILY	
*Verbascum thapsus**	woolly mullein
SIMAROUBACEAE - QUASSIA FAMILY	
*Ailanthus altissima**	tree of heaven
SOLANACEAE - NIGHTSHADE FAMILY	
*Datura stramonium**	jimson weed
Datura wrightii	jimson weed
*Nicotiana glauca**	tree tobacco
Nicotiana quadrivalvis	Wallace's tobacco
Solanum americanum	white nightshade

PLANT COMPENDIUM
(Continued)

Species	
Solanum rostratum	buffalo berry
Solanum sarrachoides	hairy nightshade
TAMARICACEAE - TAMARISK FAMILY	
*Tamarix sp.**	tamarix
*Tamarix ramosissima**	saltcedar
URTICACEAE - NETTLE FAMILY	
Urtica dioica ssp. *holosericea*	hoary nettle
*Urtica urens**	dwarf nettle
VERBENACEAE - VERVAIN FAMILY	
Verbena lasiostachys	vervain
VITACEAE - GRAPE FAMILY	
Vitis girdiana	desert wild grape
ZYGOPHYLLACEAE - CALTROP FAMILY	
*Tribulus terrestris**	puncture vine
ALLIACEAE - ONION or GARLIC FAMILY	
*Allium cepa**	cultivated onion
ARACEAE - ARUM FAMILY	
Lemna sp.	duckweed
Lemna minor	water lentil / lesser duckweed
ARECACEAE - PALM FAMILY	
*Phoenix canariensis.**	Canary island palm
Phoenix sp.*	date palm
*Washingtonia robusta**	Mexican fan palm
CYPERACEAE - SEDGE FAMILY	
Cyperus eragrostis	tall umbrella-sedge
*Cyperus involucratus**	African umbrella-sedge
Cyperus odoratus	fragrant umbrella-sedge
*Cyperus rotundus**	purple nutsedge
Cyperus sp.	umbrella-sedge
Eleocharis macrostachya	perennial spike rush
Schoenoplectus americanus [Scirpus a.]	Olney's bulrush
JUNCACEAE - RUSH FAMILY	
Juncus bufonius	toad rush
Juncus oxymeris	pointed rush
Juncus sp.	rush
POACEAE - GRASS FAMILY	
Agrostis sp.	bentgrass
*Arundo donax**	giant reed
*Avena barbata**	slender wild oat
*Avena fatua**	wild oat
*Avena sativa**	cultivated oat
*Bromus catharticus**	rescue grass
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	red brome

PLANT COMPENDIUM
(Continued)

Species	
*Bromus tectorum**	cheat grass
*Cynodon dactylon**	bermuda grass
Distichlis spicata	salt grass
*Echinochloa colona**	jungle rice
*Echinochloa crus-galli**	barnyard grass
Elymus condensatus [Leymus c.]	giant wild rye
Elymus glaucus	blue wild-rye
Elymus triticoides [Leymus t.]	beardless wild rye
Festuca microstachys [Vulpia m. var. *pauciflora]*	Pacific fescue
Festuca myuros [Vulpia m. var. *hirsuta]**	foxtail fescue
*Festuca myuros [Vulpia m.]**	foxtail fescue
*Festuca perennis [Lolium perenne, L. multiflorum]**	perennial ryegrass
Hordeum murinum var. *leporinum**	hare barley
*Hordeum vulgare**	cultivated barley
*Lamarckia aurea**	goldentop
Leptochloa fusca ssp. *uninervia [L.u.]*	Mexican sprangletop
*Lolium perenne**	perennial ryegrass
*Paspalum dilatatum**	dallis grass
*Pennisetum setaceum**	crimson fountain grass
*Phalaris minor**	little-seed canary grass
*Poa annua**	annual bluegrass
*Polypogon monspeliensis**	annual beard grass
Polypogon viridis [*Agrostis v.*]*	water beard grass
*Schismus barbatus**	Mediterranean schismus
Setaria sp.*	bristle grass
*Sorghum bicolor**	sorghum
*Sorghum halepense**	Johnson grass
*Stenotaphrum secundatum**	Saint Augustine grass
Stipa lepida [Nassella l.]	foothill needlegrass
*Stipa miliacea [Piptatherum miliacea]**	smilo grass
TYPHACEAE - CATTAIL FAMILY	
Typha sp.	cattail
Typha domingensis	southern cattail
Typha latifolia	broad-leaved cattail
* non-native to the region it was found cf. appears similar to	

WILDLIFE COMPENDIUM

Species	
AMPHIBIANS	
***AMPHIBIA* - AMPHIBIANS**	
BUFONIDAE - TRUE TOADS	
Anaxyrus boreas [Bufo boreas]	western toad
HYLIDAE - TREEFROGS	
Pseudacris hypochondriaca [*Hyla regilla*]	Baja California treefrog
RANIDAE - TRUE FROGS	
Lithobates catesbeianus [*Rana catesbeiana*] *	bullfrog
PIPIDAE - TONGUELESS FROGS	
Xenopus laevis *	African clawed frog
REPTILES	
***LEPIDOSAURIA* - LIZARDS & SNAKES**	
PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, & HORNED LIZARDS	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
COLUBRIDAE - COLUBRID SNAKES	
Pituophis catenifer	gopher snake
BIRDS	
***AVES* - BIRDS**	
ANATIDAE - WATERFOWL	
Branta canadensis	Canada goose
Aix sponsa	wood duck
Anas platyrhynchos	mallard
Anas cyanoptera	cinnamon teal
PHASIANIDAE – PHEASANTS & UPLAND GAME BIRDS	
Pavo cristatus	common peafowl
PHALACROCORACIDAE - CORMORANTS	
Phalacrocorax auritus	double-crested cormorant
ODONTOPHORIDAE - QUAILS	
Callipepla californica	California quail
PODICIPEDIDAE - GREBES	
Aechmophorus clarkii	Clark's grebe
ARDEIDAE - HERONS, BITTERNS, & ALLIES	
Ardea herodias	great blue heron
Ardea alba	great egret
Egretta thula	snowy egret
Bubulcus ibis	cattle egret
Butorides virescens	green heron
Nycticorax nycticorax	black-crowned night heron
THRESKIORNITHIDAE - IBIS	
Plegadis chihi	white-faced ibis
CATHARTIDAE - NEW WORLD VULTURES	
Cathartes aura	turkey vulture

WILDLIFE COMPENDIUM
(Continued)

Species	
ACCIPITRIDAE - HAWKS, KITES, EAGLES, & ALLIES	
Elanus leucurus	white-tailed kite
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
FALCONIDAE - FALCONS	
Falco sparverius	American kestrel
Falco peregrinus	peregrine falcon
Falco mexicanus	prairie falcon
RALLIDAE - RAILS	
Porzana carolina	sora
Gallinula galeata [*Gallinula chloropus*]	common gallinule (moorhen)
Fulica americana	American coot
CHARADRIIDAE - PLOVERS	
Charadrius vociferus	killdeer
RECURVIROSTRIDAE - STILTS & AVOCETS	
Himantopus mexicanus	black-necked stilt
Recurvirostra americana	American avocet
SCOLOPACIDAE - SANDPIPERS & PHALAROPES	
Actitis macularius	spotted sandpiper
Tringa melanoleuca	greater yellowlegs
Tringa flavipes	lesser yellowlegs
Numenius phaeopus	whimbrel
Calidris minutilla	least sandpiper
Limnodromus scolopaceus	Long-billed dowitcher
LARIDAE – GULLS & TERNS	
Larus occidentalis	western gull
Larus californics	California gull
Sterna forsteri	Forster's tern
COLUMBIDAE - PIGEONS & DOVES	
Patagioenas fasciata	band-tailed pigeon
Columba livia *	rock pigeon
Streptopelia decaocto *	Eurasian collared-dove
Streptopelia chinensis *	spotted dove
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
Columbina passerina	common ground-dove
TYTONIDAE - BARN OWLS	
Tyto alba	barn owl
STRIGIDAE - TRUE OWLS	
Athene cunicularia	burrowing owl
APODIDAE - SWIFTS	
Chaetura vauxi	Vaux's swift
Aeronautes saxatalis	white-throated swift

WILDLIFE COMPENDIUM
(Continued)

Species	
TROCHILIDAE - HUMMINGBIRDS	
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
Selasphorus sp.	rufous/Allen's hummingbird
PICIDAE - WOODPECKERS	
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Colaptes auratus	northern flicker
TYRANNIDAE - TYRANT FLYCATCHERS	
Contopus sordidulus	western wood pewee
Empidonax difficilis	pacific-slope flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus vociferans	Cassin's kingbird
Tyrannus verticalis	western kingbird
LANIIDAE - SHRIKES	
Lanius ludovicianus	loggerhead shrike
VIREONIDAE - VIREOS	
Vireo bellii pusillus	least Bell's vireo
Vireo huttoni	Hutton's vireo
Vireo gilvus	warbling vireo
CORVIDAE - CROWS & JAYS	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE - SWALLOWS	
Tachycineta bicolor	tree swallow
Tachycineta thalassina	violet-green swallow
Stelgidopteryx serripennis	northern rough-winged swallow
Riparia riparia	bank swallow
Petrochelidon pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
AEGITHALIDAE - BUSHTITS	
Psaltriparus minimus	bushtit
SITTIDAE - NUTCHATCHES	
Sitta carolinensis	White-breasted nutchatch
TROGLODYTIDAE - WRENS	
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Cistothorus palustris	marsh wren
SYLVIIDAE - SYLVIID WARBLERS	
Chamaea fasciata	wrentit
TURDIDAE – THRUSHES & ROBINS	
Catharus ustulatus	Swainson's thrush

WILDLIFE COMPENDIUM
(Continued)

Species	
MIMIDAE - THRASHERS	
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
STURNIDAE - STARLINGS	
Sturnus vulgaris *	European starling
PARULIDAE - WARBLERS	
Oreothlypis [*Vermivora*] *celata*	orange-crowned warbler
Geothlypis trichas	common yellowthroat
Setophaga petechia [*Dendroica petechia*]	yellow warbler
Setophaga coronata [*Dendroica coronata*]	yellow-rumped warbler
Cardellina pusilla [*Wilsonia pusilla*]	Wilson's warbler
Icteria virens	yellow-breasted chat
EMBERIZIDAE - SPARROWS & JUNCOS	
Pipilo maculatus	spotted towhee
Melozone [*Pipilo*] *crissalis*	California towhee
Chondestes grammacus	lark sparrow
Amphispiza bilineata	black-throated sparrow
Melospiza melodia	song sparrow
Zonotrichia leucophrys	white-crowned sparrow
CARDINALIDAE - CARDINALS & ALLIES	
Piranga ludoviciana	western tanager
Pheucticus melanocephalus	black-headed grosbeak
Passerina caerulea	blue grosbeak
ICTERIDAE - BLACKBIRDS	
Agelaius phoeniceus	red-winged blackbird
Sturnella neglecta	western meadowlark
Euphagus cyanocephalus	Brewer's blackbird
Quiscalis mexicanus	great-tailed grackle
Quiscalus quiscula	common grackle
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
FRINGILLIDAE - FINCHES	
Carpodacus mexicanus	house finch
Spinus [Carduelis] psaltria	lesser goldfinch
Spinus [Carduelis] lawrencei	Lawrence's goldfinch
Spinus [Carduelis] tristis	American goldfinch
PASSERIDAE - OLD WORLD SPARROWS	
Passer domesticus *	house sparrow
MAMMALS	
***MAMMALIA* - MAMMALS**	
DIDELPHIDAE - NEW WORLD OPOSSUMS	
Didelphis virginiana *	Virginia opossum
LEPORIDAE - HARES & RABBITS	
Sylvilagus audubonii	desert cottontail

WILDLIFE COMPENDIUM
(Continued)

Species	
Lepus californicus	black-tailed jackrabbit
Lepus californicus bennettii	San Diego black-tailed jackrabbit
SCIURIDAE - SQUIRRELS	
Spermophilus beecheyi	California ground squirrel
GEOMYIDAE - POCKET GOPHERS	
Thomomys bottae	Botta's pocket gopher
CANIDAE - WOLVES & FOXES	
Canis latrans	coyote
Canis familiaris	domestic dog
PROCYONIDAE - RACCOONS	
Procyon lotor	northern raccoon
MUSTELIDAE - WEASELS, OTTERS, & BADGERS	
Mustela frenata	long-tailed weasel
MEPHITIDAE - SKUNKS	
Mephitis mephitis	striped skunk
FELIDAE - CATS	
Lynx rufus	bobcat
Felis catus	domestic cat
BOVIDAE - CATTLE, ANTELOPE, SHEEP, & GOATS	
*Bos taurus **	domestic cattle
Capra aegagrus hircus	domestic goat
INVERTEBRATES	
***MALACOSTRACA* - ISOPODS, AMPHIPODS, KRILL, LOBSTERS, CRAYFISH, SHRIMP, & CRABS**	
CAMBARIDAE - CAMBARID CRAYFISH	
*Procambarus clarkii **	red swamp crayfish
***INSECTA* - INSECTS**	
ODONATA- DRAGON FLIES AND DAMSELFLIES	
***Aeshnidae* - Darners**	
Aeshna multicolor	blue-eyed darner
***Lestida* - Damselfly**	
Libellulidae - Common Skimmers	
Pachydiplax longipennis	blue dasher
Perithemis intensa	Mexican amberwing
Coenagrionidae - Common Damselflies	
Argia sp.	damselfly
Papilio rutulus	western tiger swallowtail
ORTHOPTERA- GRASSHOPPERS, KATYDIDS & CRICKETS	
***Acrididae* - Short-horned Grasshoppers**	
Schistocerca nitens	gray bird grasshopper
Trimerotropis pallidipennis	pallid band-winged grasshopper
Trimerotropis sp.	short-horned grasshopper
Subfamily: Gryllinae	souse and field crickets

WILDLIFE COMPENDIUM
(Continued)

Species	
HEMIPTERA - TRUE BUGS	
***Lygaeidae* - Seed Bugs**	
Lygaeus kalmii	small milkweed bug
Pentatomidae - Stink Bugs	
Chlorochroa sayi	say's stink bug
NEUROPTERA - NERVE-WINGED INSECTS	
Myrmeleontidae - Antlions	
Brachynemerus sp.	antlion
LEPIDOPTERA - MOTHS AND BUTTERFLIES	
Pyralidae - Pyralid Moths	
Pyralis sp.	pyralid moth
PIERIDAE - WHITES, SULFURS, & ORANGETIPS	
Eurema nicippe	sleepy orange
Colias eurytheme	alfalfa butterfly (orange sulphur)
Pieris protodice	common white
NYMPHALIDAE - BRUSH-FOOTED BUTTERFLIES	
Vanessa atalanta	red admiral
Precis coenia	buckeye
Vanessa cardui	painted lady
Vanessa sp.	unidentified lady
LYCAENIDAE - BLUES, HAIRSTREAKS, & COPPERS	
Icaricia acmon	acmon blue
Brephidium exilis	western pygmy-blue
HESPERIIDAE - SKIPPERS	
Atalopedes campestris	field skipper
COLEOPTERA - BEETLES	
Coccinellidae - Ladybird Beetles	
Coccinella sp.	ladybird beetle
Hippodamia convergens	convergent ladybird beetle
***Scarabaeidae* - Scarab Beetles**	
Cotinus mutabilis	green fruit beetle
***Chrysomelidae* - Leaf Beetles**	
Lema trilineata	three-lined potato beetle
DIPTERA - FLIES	
Apioceridae - Flower-loving Flies	
Apiocera sp.	flower fly
Asilidae - Robber Flies	
Mallophora fautrix	bumble bee robber fly
Promachus aldrichii	robber fly
Protocanthus sp.	giant robber fly
Mydidae - Mydas Flies	
Nemomydas pantherinus	mydas fly
Bombyliidae - Bee Flies	
Exoprosopa sp.	bee fly
Poecilanthrax sp.	bee fly

WILDLIFE COMPENDIUM
(Continued)

Species	
Villa sp.	bee fly
Syrphidae - Syrphid Flies	
Eristalis sp.	drone fly
Tephritidae - Fruit Flies	
Muscidae - Muscid Flies	
Musca domestica	house fly
Sarcophagidae - Flesh Flies	
Sarcophaga sp	flesh fly
* introduced species	

APPENDIX C

SPECIAL STATUS PLANT SPECIES REPORTS

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November 1, 2010

Ms. Adelina Muñoz
Southern California Edison
G.O.3, 340F
2131 Walnut Grove Avenue
Rosemead, California 91770

VIA EMAIL AND MAIL
Adelina.Munoz@sce.com

Subject: Results of Focused Plant Surveys for the Circle City Substation and Transmission Line Project, Riverside and San Bernardino Counties, California

Dear Ms. Muñoz:

This Letter Report presents the findings of focused plant surveys conducted along a portion of the Circle City Substation and Transmission Line Project (hereafter referred to as "the Project Study Area") in Riverside and San Bernardino Counties, California (Exhibits 1 and 2). The Project Study Area includes substation site alternatives (the Mira Loma Substation Site, the Preferred Substation Site, the Substation 1st Alternative Site, the Substation 2nd Alternative Site, and the Corona Substation), transmission line route alternatives (the Mira Loma Preferred Route, the Mira Loma Alternate Route, the Circle City Preferred Route, and the Circle City Alternate Route), and proposed connection alternatives (the Sub Site Preferred Connection, the Sub Site 1st Alternative Connection, and the Sub Site 2nd Alternative Connection).

The Survey Area includes an approximate 50-foot buffer on either side of the proposed powerlines at the Circle City Preferred and Alternate Routes, substation sites, and connections. The Survey Area does not include the Corona Substation, the Mira Loma Substation Site, and the Mira Loma Source Line portion of the Project Study Area. The Survey Area differs from the Project Study Area because of changes to the transmission line alignments that were made following the initiation of focused surveys. The Survey Area is located on the U.S. Geological Survey's (USGS's) Corona North and Corona South 7.5-minute quadrangles (Exhibit 2). Topography in the Survey Area is relatively flat with elevations ranging from approximately 630 to 790 feet above mean sea level (msl).

METHODS

Botanical surveys were floristic in nature and consistent with the current protocols created by the California Department of Fish and Game (CDFG) (CDFG 2009). Reference populations were monitored for annual and difficult-to-detect target species to ensure that the scheduled surveys were comprehensive. Known reference populations of San Diego ambrosia (*Ambrosia pumila*), Plummer's mariposa lily (*Calochortus plummerae*), intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), and slender-horned spineflower (*Dodecahema leptoceras*) were monitored to confirm their flowering status and to verify that the surveys were conducted during the appropriate blooming period for these species. San Diego ambrosia and

smooth tarplant were monitored at Lake Elsinore in Riverside County and observed flowering on June 15, 2010. Plummer's mariposa lily was monitored in Fontana and observed flowering on May 27, 2010. Intermediate mariposa lily was monitored near Foothill Parkway in Riverside County and was observed flowering on June 7, 2010. Parry's spineflower was monitored in Fontana in San Bernardino County and observed flowering on April 15, 2010. Long-spined spineflower was monitored near Temecula in Riverside County and was observed flowering on May 14, 2010. Slender-horned spineflower was monitored at Soledad Canyon in Los Angeles County and observed flowering on April 22, 2010. According to the National Weather Service (NWS), the region (data taken from Ontario International Airport and Ramona) received 11.94 and 12.71 inches of precipitation between January 1 and June 2010, which is 0.70 and 0.71 inch above average (NWS 2010).

A literature search was conducted to identify special status plants and habitats known to occur in the vicinity of the Survey Area. Sources reviewed include the USGS's Ontario, Guasti, Fontana, Prado Dam, Corona North, Riverside West, Corona South, and Lake Mathews 7.5-minute quadrangles in the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010) and the CDFG's California Natural Diversity Database (CNDDB) (CDFG 2010). Table 1 lists the special status plant species known to occur in the vicinity of the Survey Area.

The Survey Area was surveyed for special status plant species on April 13, 2010, by BonTerra Consulting Senior Botanist Sandra Leatherman, Botanist Jeff Crain, and Senior Biologist Amber Oneal; on May 13, 2010, by Ms. Leatherman and Mr. Crain; and on June 23, 2010, by Ms. Leatherman, Mr. Crain, Ms. Oneal, and BonTerra Consulting Biologist Jennifer Pareti. The total number of person-hours spent on each survey date was 21, 14, and 28, respectively. A systematic survey was conducted in all areas of suitable special status plant habitat within the Survey Area. Photographs of the Survey Area were taken during surveys and are included as Attachment A. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they are a special status species. Plants were identified using taxonomic keys, descriptions, and illustrations in Hickman (1993), Munz (1974), Abrams (1923, 1944, 1951), and Abrams and Ferris (1960). All voucher specimens collected will be deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California. Taxonomy and nomenclature follows Hickman (1993), the CNPS (2010), or current scientific journals for scientific and common names.

SITE DESCRIPTION

Fourteen vegetation types and other areas occur in the Project Study Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, open water, flood-control channel, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost layer of vegetation. Vegetation was not mapped in all portions of the Survey Area because Project boundaries changed during the course of the surveys. Vegetation in the final Project Study Area will be shown in the Proponent's Environmental Assessment to be prepared in 2011.

Soil types in the Survey Area include Arbuckle gravelly loam, Cortina sandy loam, Cortina gravelly sandy loam, gravel pits, Garretson gravelly very fine sandy loam, Hanford coarse sandy loam, Placentia fine sandy loam, rough broken land, and San Emigdio loam (Exhibit 3) (USDA NRCS 2007).

SURVEY RESULTS

Table 1 identifies the special status plants with potential to occur in the Survey Area and the survey results.

TABLE 1
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Abronia villosa var. *aurita* chaparral sand-verbena	—	—	1B.1	—	Limited marginal habitat. Not observed during focused surveys.
Allium munzii Munz's onion	FE	ST	1B.1	Covered [a]	Limited marginal habitat. Not observed during focused surveys.
Ambrosia pumila San Diego ambrosia	FE	—	1B.1	Covered [a]	Suitable habitat. Not observed during focused surveys.
Arenaria paludicola marsh sandwort	FE	SE	1B.1	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Atriplex coulteri Coulter's saltbush	—	—	1B.2	—	Limited marginal habitat. Not observed during focused surveys.
California macrophylla round-leaved filaree	—	—	1B.1	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Callitropsis forbesii Tecate cypress	—	—	1B.1	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Calochortus plummerae Plummer's mariposa lily	—	—	1B.2	Covered [b]	Limited marginal habitat. Not observed during focused surveys.
Calochortus weedii var. *intermedius* intermediate mariposa lily	—	—	1B.2	Covered	Limited marginal habitat. Not observed during focused surveys.
Centromadia pungens ssp. *laevis* smooth tarplant	—	—	1B.1	Covered [c]	Suitable habitat. Not observed during focused surveys.
Chorizanthe parryi var. *parryi* Parry's spineflower	—	—	1B.1	Covered [b]	Limited marginal habitat. Not observed during focused surveys.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	—	—	1B.2	Covered	Limited marginal habitat. Not observed during focused surveys.
Chorizanthe xanti var. *leucotheca* white-bracted spineflower	—	—	1B.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Cladium californicum California saw-grass	—	—	2.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Cordylanthus maritimus ssp. *maritimus* salt marsh bird's-beak	FE	SE	1B.2	—	No potential to occur; no suitable habitat and outside the known range of the species. Not observed during focused surveys.
Dodecahema leptoceras slender-horned spineflower	FE	SE	1B.1	Covered [a]	No potential to occur; no suitable habitat. Not observed during focused surveys.
Dudleya multicaulis many-stemmed dudleya	—	—	1B.2	Covered [a]	No potential to occur; limited marginal habitat. Not observed during focused surveys.

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

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	FE	SE	1B.1	Covered	No potential to occur; no suitable habitat. Not observed during focused surveys.
Harpagonella palmeri Palmer's grapplinghook	—	—	4.2	Covered	Limited marginal habitat. Not observed during focused surveys.
Horkelia cuneata ssp. *puberula* mesa horkelia	—	—	1B.1	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	—	—	1B.1	Covered [c]	No potential to occur; no suitable habitat. Not observed during focused surveys.
Lepechinia cardiophylla heart-leaved pitcher sage	—	—	1B.2	Covered [c]	No potential to occur; no suitable habitat. Not observed during focused surveys.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	—	—	1B.2	—	Limited marginal habitat. Not observed during focused surveys.
Lycium parishii Parish's desert-thorn	—	—	2.3	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Monardella pringlei Pringle's monardella	—	—	1A	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Muhlenbergia californica California muhly	—	—	4.3	Covered [b]	No potential to occur; no suitable habitat. Not observed during focused surveys.
Navarretia prostrata prostrate vernal pool navarretia	—	—	1B.1	Covered [c]	No potential to occur; no suitable habitat. Not observed during focused surveys.
Nolina cismontana Peninsular nolina	—	—	1B.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Phacelia suaveolens ssp. *keckii* Santiago Peak phacelia	—	—	1B.3	—	No potential to occur; no suitable habitat and outside the elevation range of the species. Not observed during focused surveys.
Pseudognaphalium leucocephalum white rabbit-tobacco	—	—	2.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Senecio aphanactis chaparral ragwort	—	—	2.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.
Sidalcea neomexicana salt spring checkerbloom	—	—	2.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.

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

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Symphyotrichum defoliatum San Bernardino aster	—	—	1B.2	—	No potential to occur; no suitable habitat. Not observed during focused surveys.

LEGEND:

Federal (USFWS)
FE Endangered

State (CDFG)
SE Endangered
ST Threatened

California Native Plant Society (CNPS) List Categories
List 1A Plants Presumed Extinct in California
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2 Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 4 Plants of Limited Distribution – A Watch List

California Native Plant Society (CNPS) Threat Code Extensions
None Plants lacking any threat information
.1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Fairly Endangered in California (20–80% of occurrences threatened)
.3 Not Very Threatened in California (low degree/immediacy of threat or no current threats known)

Note: The Project Study Area occurs within the Eastvale, Temescal Canyon, and Cities of Riverside/Norco Area Plans of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

[a] Surveys may be required for these species within the Narrow Endemic Plant Species Survey Area as described in Section 6.1.3 of the MSHCP.
[b] These Covered Species will be considered to be Covered Species Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met. Species-specific conservation objectives for these species are presented in Section 9.0 of the MSHCP. Refer to Table 9-3 for specific conservation objectives that must be met for these species prior to including them on the list of Covered Species Adequately Conserved.
[c] Surveys may be required for these species within Criteria Area as described in Section 6.3.2 of the MSHCP.

No special status plant species were observed during focused surveys. A list of all plants observed within the Survey Area during focused surveys can be found in Attachment B. Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a site but may not be detectable at the time of the surveys.

If you have any comments or questions, please call Stacie Tennant at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

for

Sandra J. Leatherman
Senior Project Manager, Senior Botanist

Enclosures: Exhibit 1 – Regional Location
Exhibit 2 – USGS Quadrangle
Exhibit 3 – Soil Types
Attachment A – Site Photographs
Attachment B – Plant Compendium

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Regional Location

Exhibit 1

Circle City Substation and Transmission Line Project

N W E S

10 5 0 10 Miles

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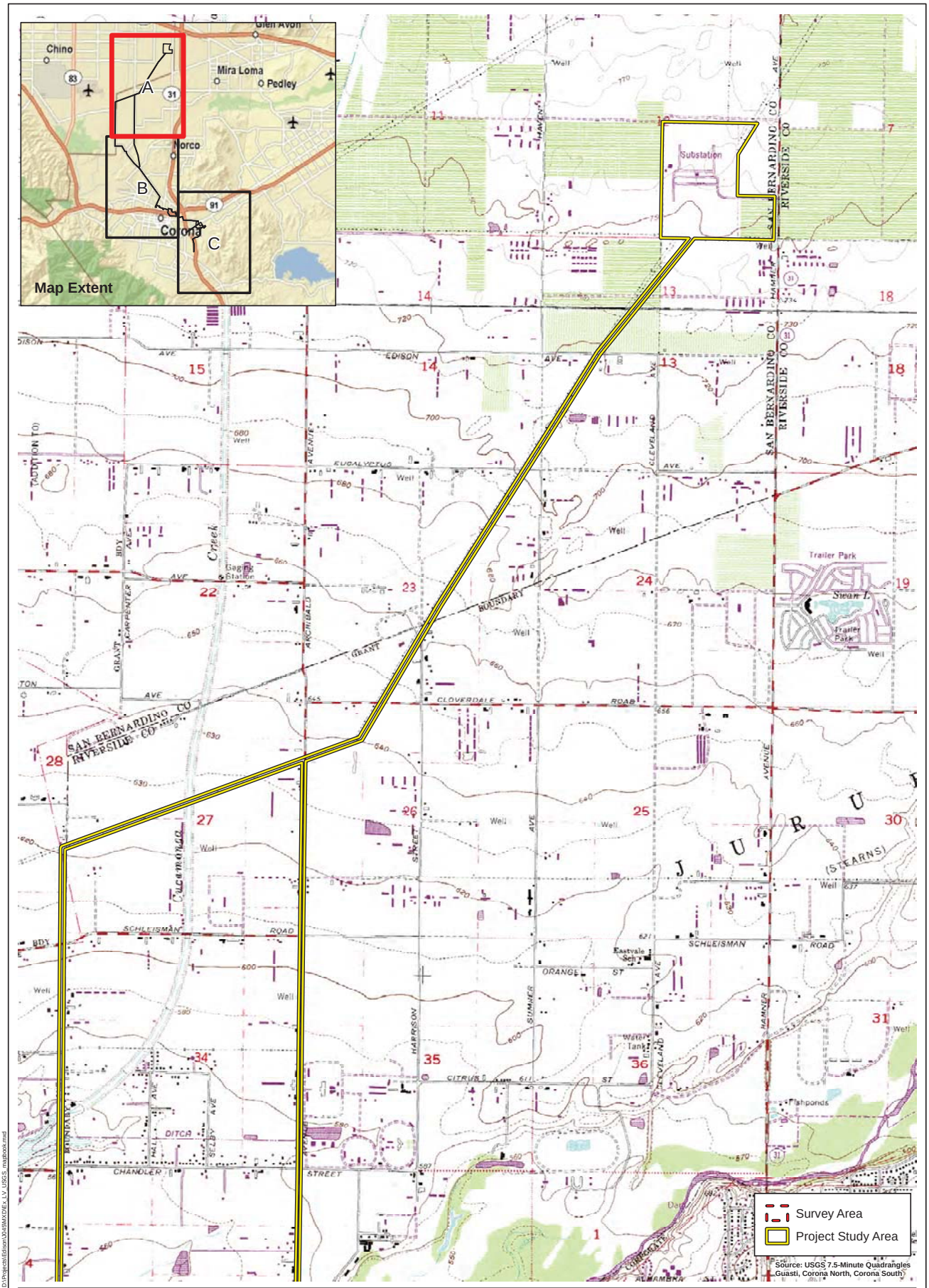

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USGS Quadrangle

Exhibit 2A

Circle City Substation and Transmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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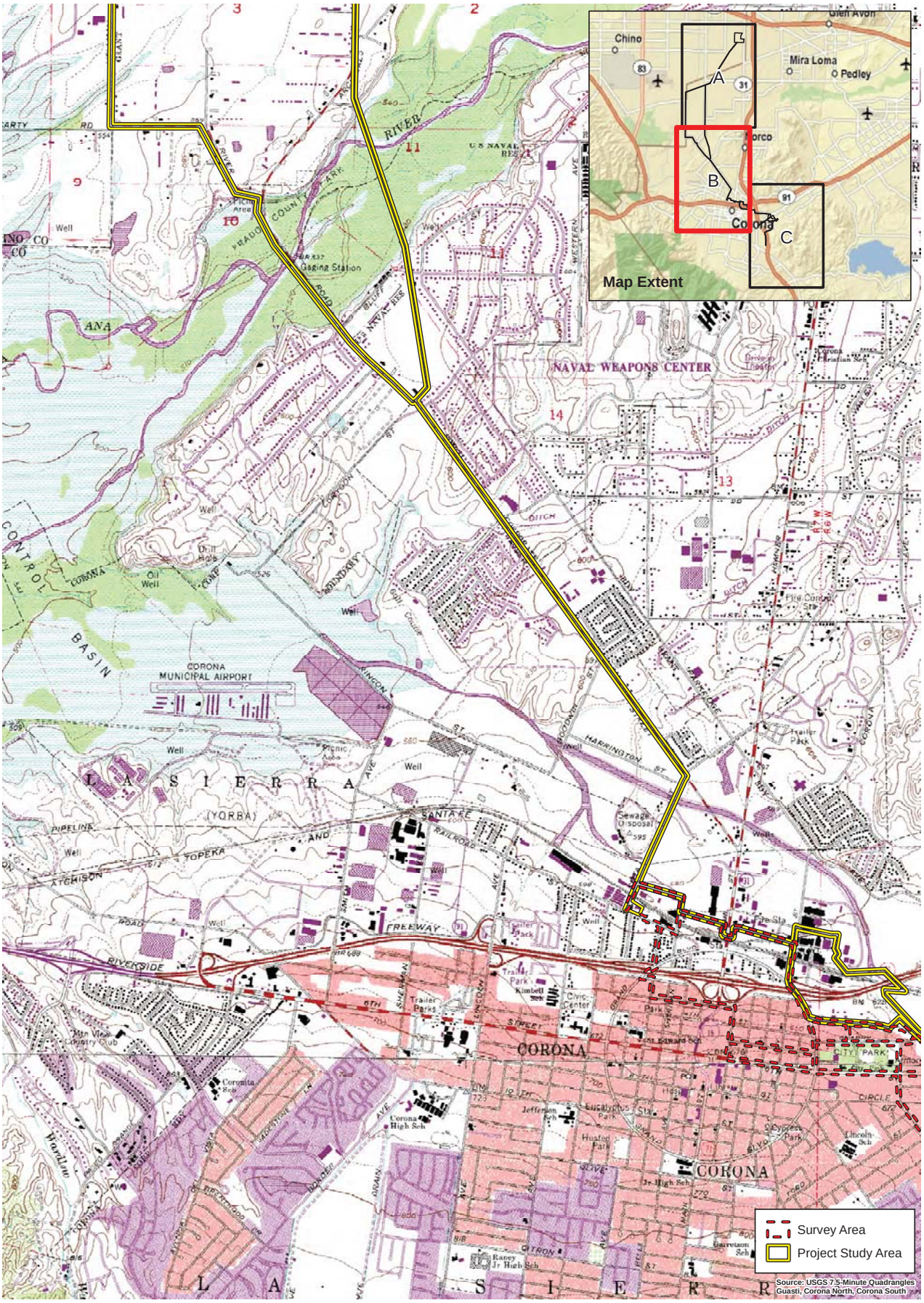

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USGS Quadrangle

Exhibit 2B

Circle City Substation and Transmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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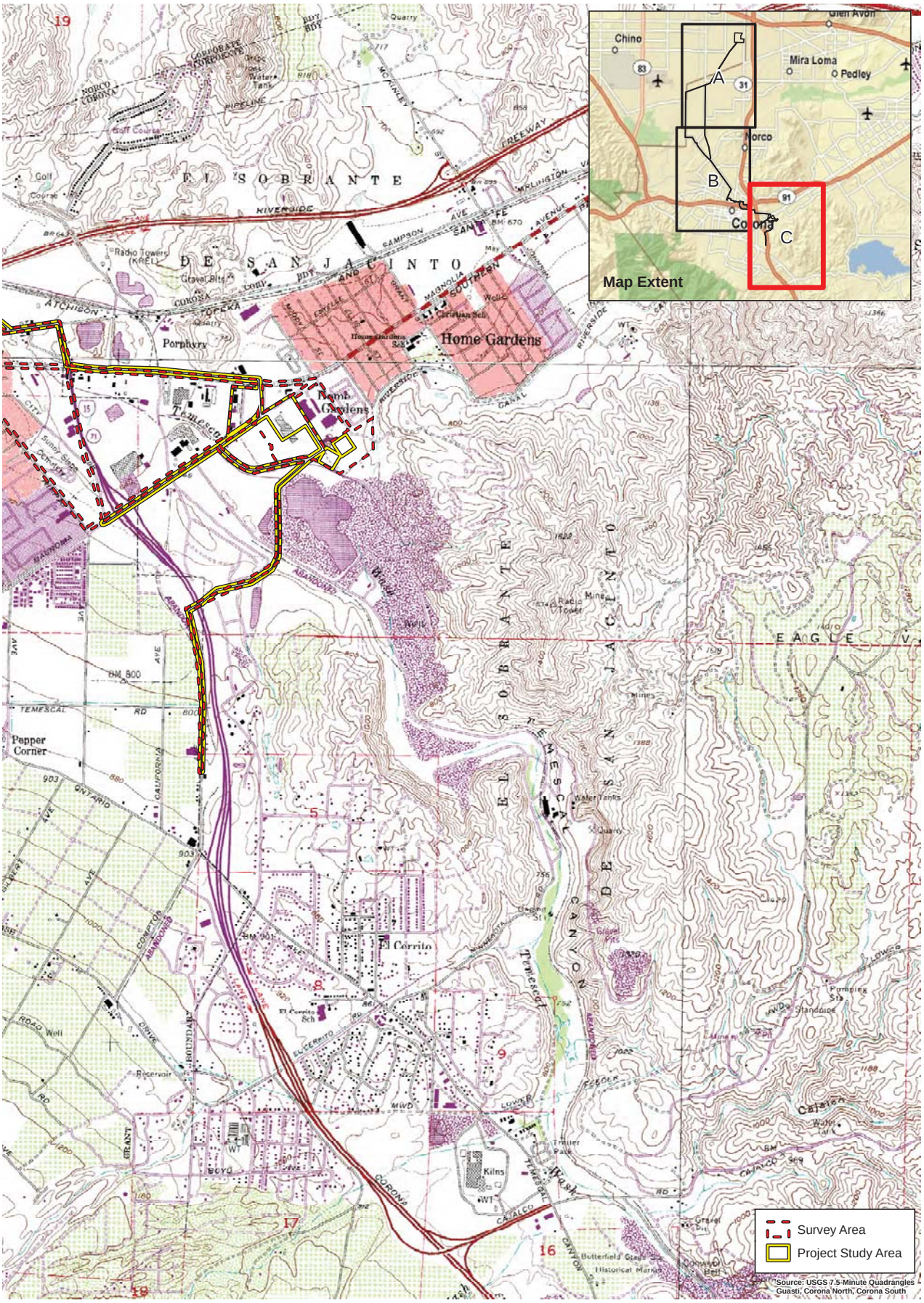

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USGS Quadrangle

Exhibit 2C

Circle City Substation and Transmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

BonTerra CONSULTING

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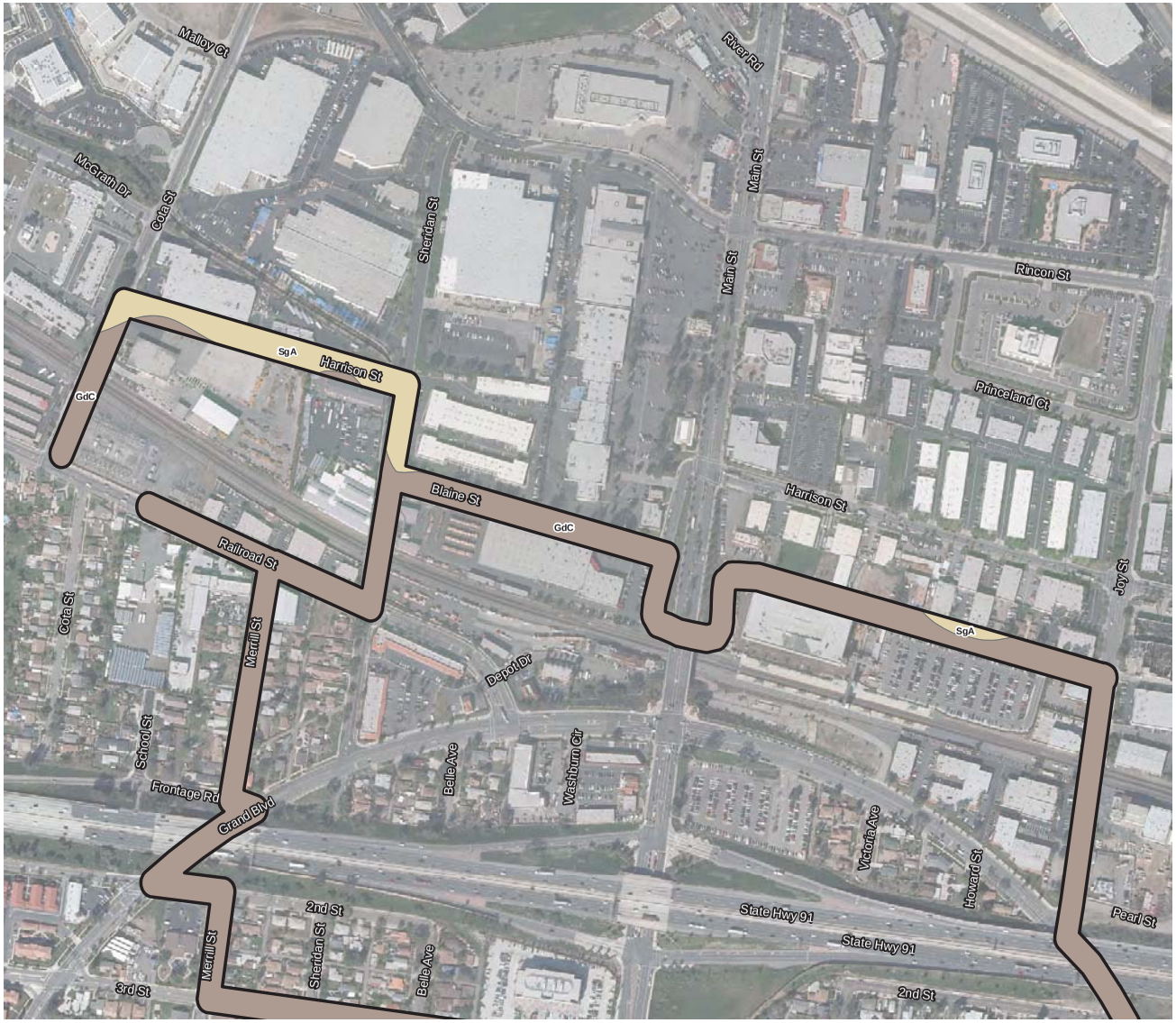
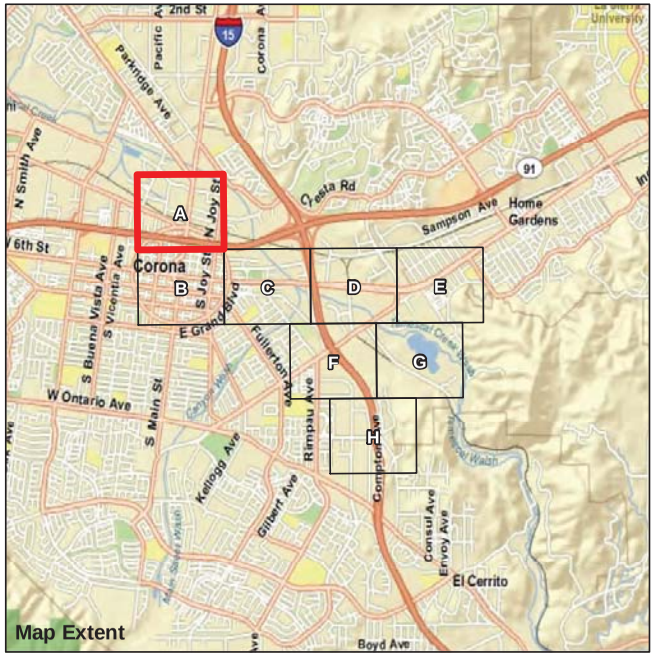


Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



Soil Types

Circle City Substation and Transmission Line Project

Exhibit 3A

N W E S

400 200 0 400 Feet

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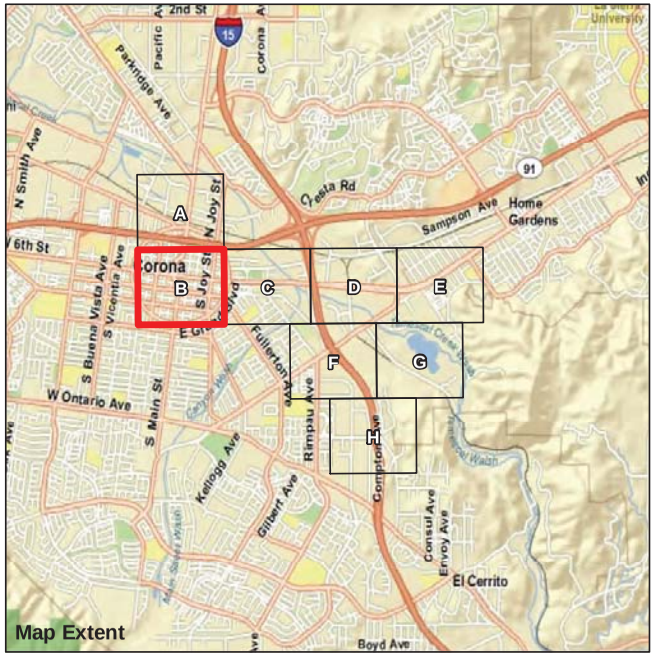
Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



Soil Types

Exhibit 3B

Circle City Substation and Transmission Line Project

N W E S

400 200 0 400 Feet

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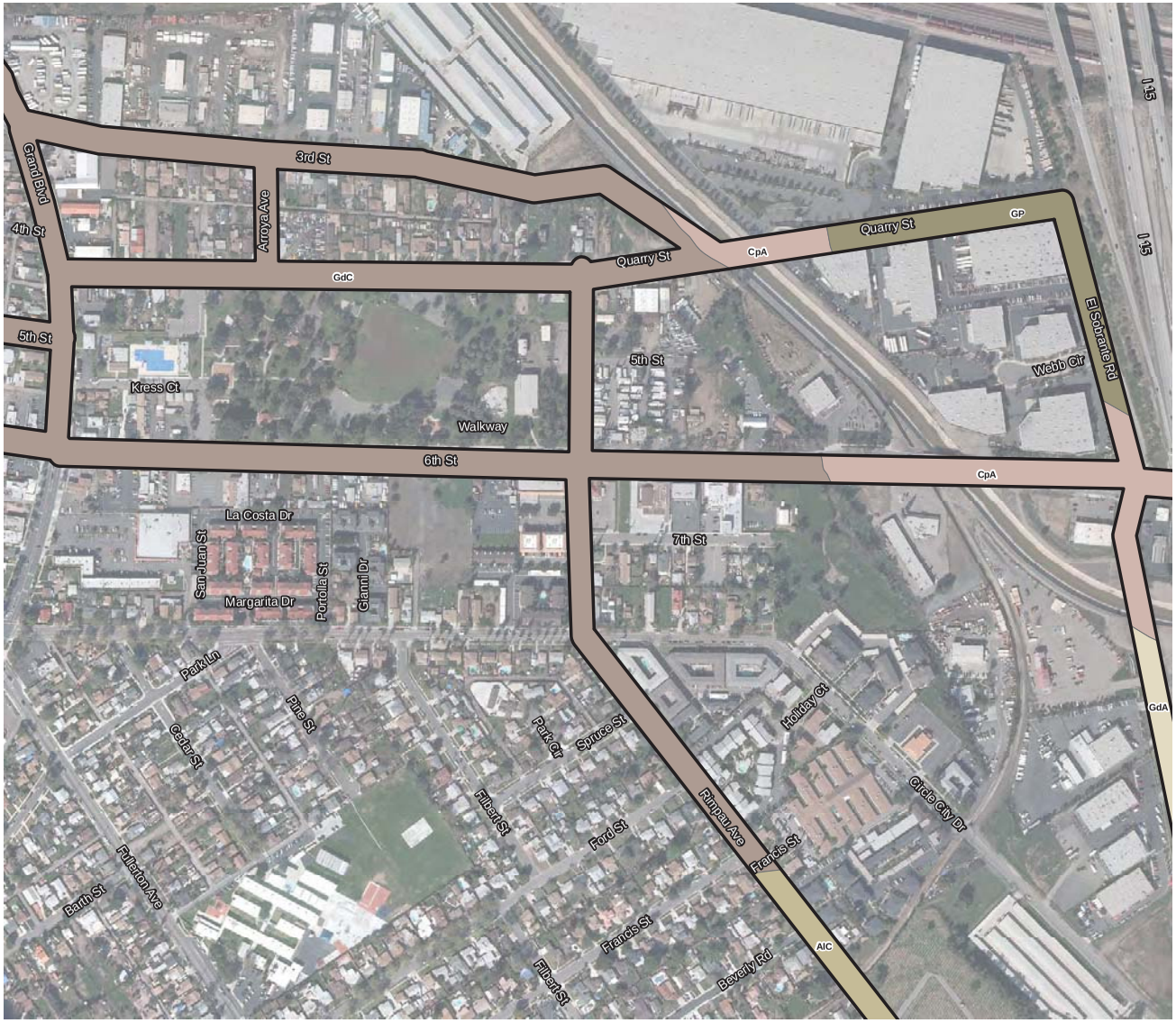
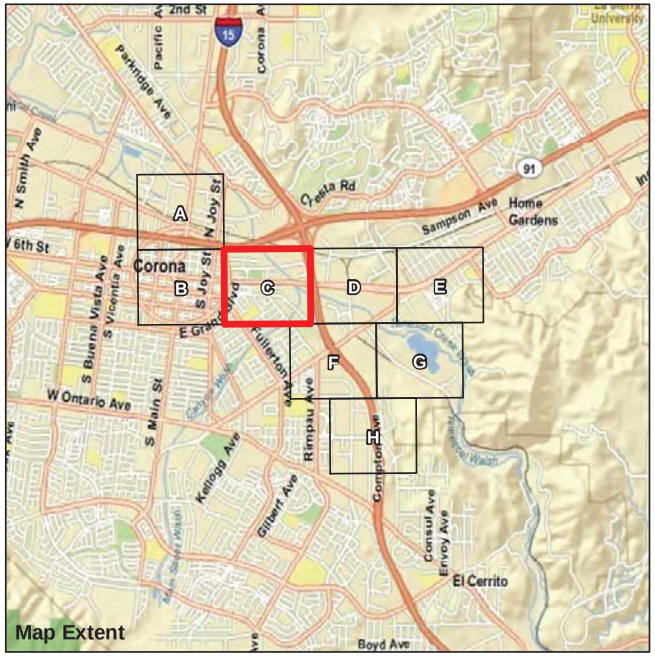


Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



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Soil Types

Exhibit 3C

Circle City Substation and Transmission Line Project

N W E S

400 200 0 400 Feet

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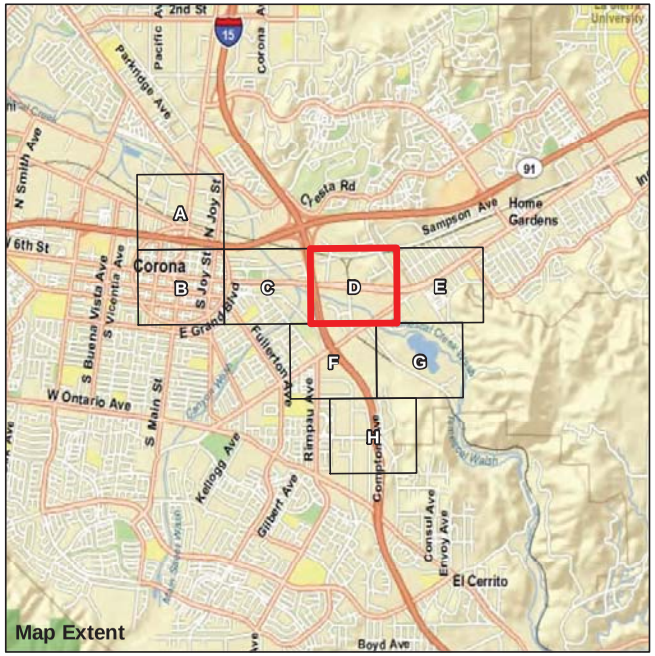
Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



Soil Types

Circle City Substation and Transmission Line Project

Exhibit 3D

N W E S

400 200 0 400 Feet

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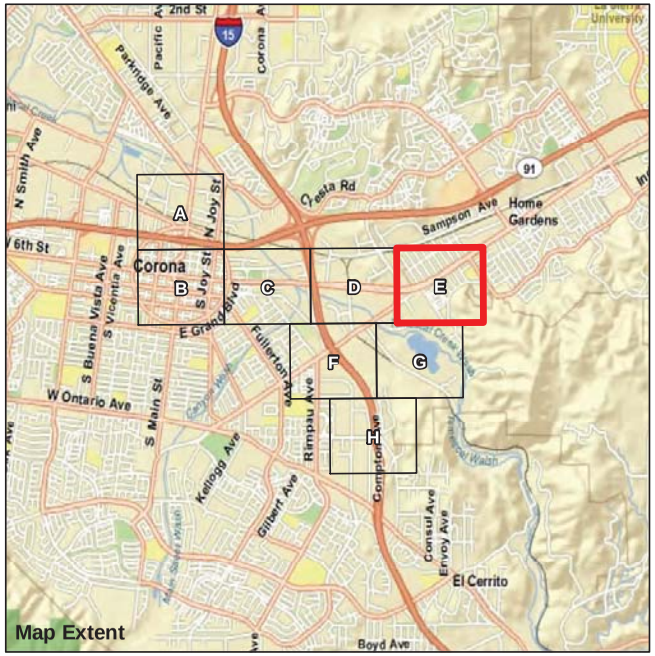
Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



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Soil Types

Circle City Substation and Transmission Line Project

Exhibit 3E

400 200 0 400 Feet

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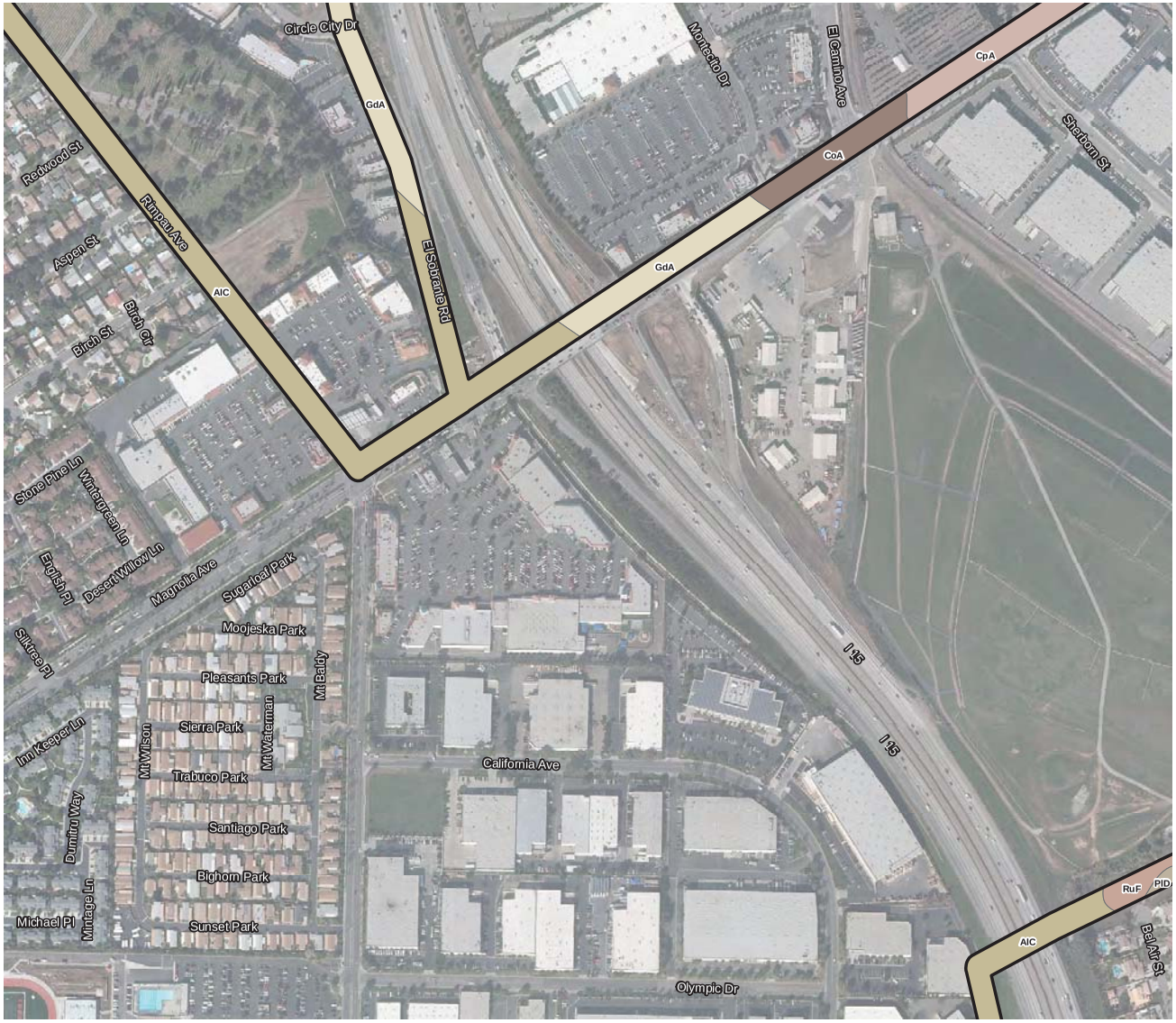
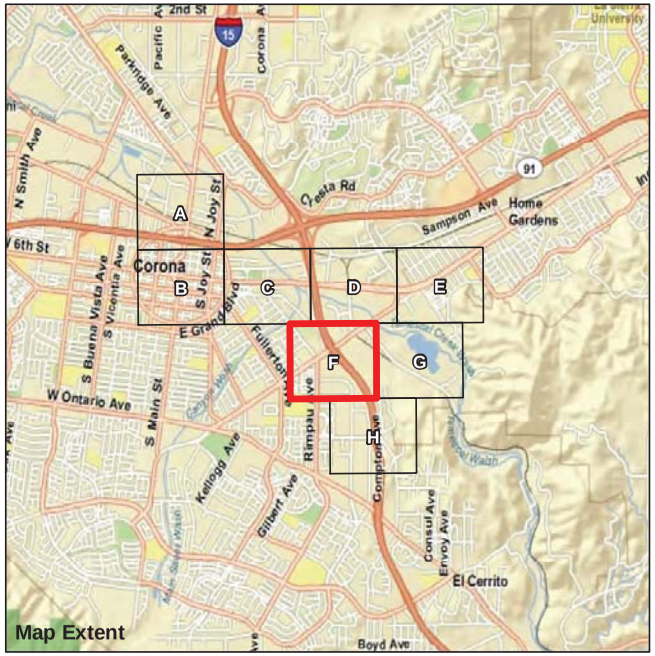


Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



Soil Types

Circle City Substation and Transmission Line Project

Exhibit 3F

N W E S

400 200 0 400 Feet

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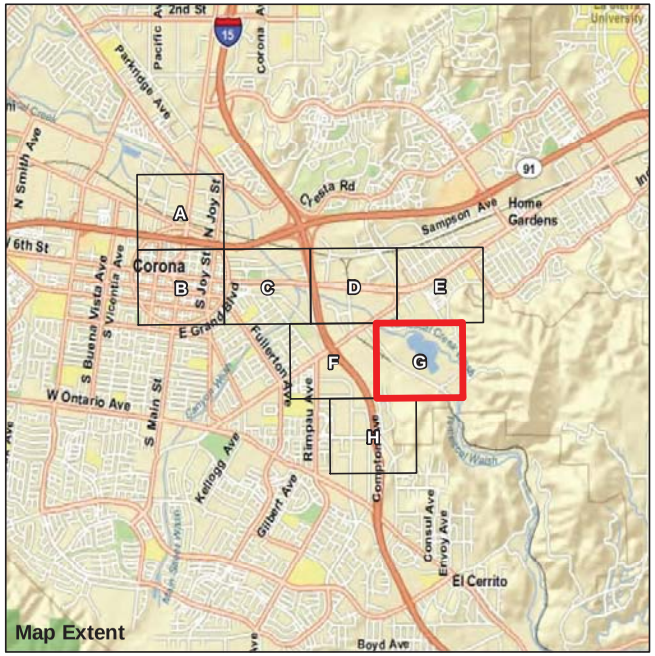
Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



Soil Types

Circle City Substation and Transmission Line Project

Exhibit 3G

N W E S

400 200 0 400 Feet

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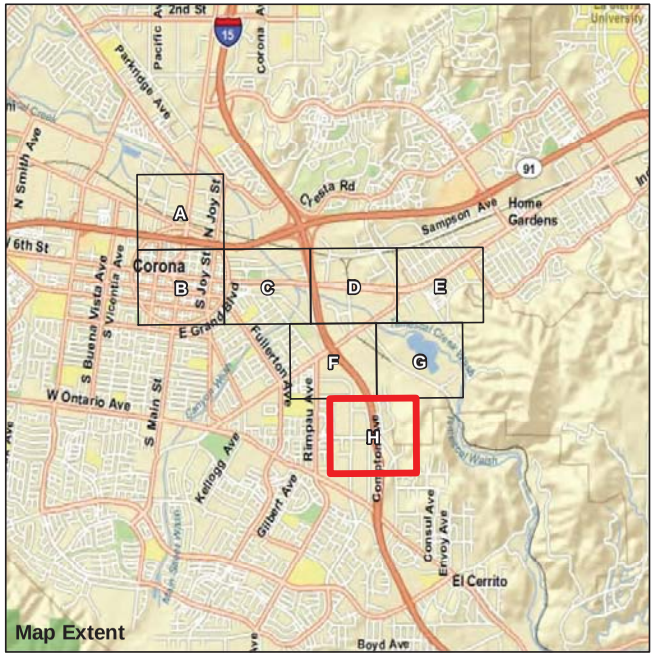
Survey Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RuF - Rough broken land
- SgA - San Emigdio loam, 0 to 2 percent slopes



Soil Types

Circle City Substation and Transmission Line Project

Exhibit 3H

N W E S

400 200 0 400 Feet

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ATTACHMENT A

SITE PHOTOGRAPHS

Representative photograph of the survey area showing ruderal vegetation.

Representative photograph of the survey area showing Riversidian sage scrub vegetation.

Representative photograph of the survey area showing willow riparian forest (left) and ruderal vegetation (right).

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Site Photographs

Attachment A

Circle City Substation and Transmission Line Project

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ATTACHMENT B

PLANT COMPENDIUM

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS

Species
FLOWERING PLANTS
CLASS DICOTYLEDONES (DICOTS)
AIZOACEAE - FIG-MARIGOLD FAMILY
*Carpobrotus chilensis**   sea fig
*Carpobrotus edulis**   hottentot fig
*Mesembryanthemum crystallinum**   crystalline iceplant
AMARANTHACEAE - AMARANTH FAMILY
*Amaranthus albus**   tumbleweed
ANACARDIACEAE - SUMAC FAMILY
*Schinus molle**   Peruvian pepper tree
*Schinus terebinthifolius**   Brazilian pepper tree
ASTERACEAE (COMPOSITAE) - SUNFLOWER FAMILY
Ambrosia acanthicarpa   annual bursage
Artemisia californica   California sagebrush
Artemisia douglasiana   mugwort
Baccharis pilularis   coyote brush
Baccharis salicifolia   mule fat
*Carduus pycnocephalus**   Italian thistle
*Centaurea melitensis**   tocalote
*Chamomilla suaveolens**   common pineapple weed
Conyza canadensis   common horseweed
Encelia farinosa   brittlebush
Erigeron foliosus   fleabane daisy
Filago californica   fluffweed
*Gazania linearis**   gazania
Gnaphalium californicum   California everlasting
Gnaphalium canescens   everlasting
*Gnaphalium luteo-album**   weedy cudweed

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species
FLOWERING PLANTS
Helianthus annuus western sunflower
Hemizonia fasciculata fascicled tarweed
Hemizonia paniculata San Diego tarweed
Heterotheca grandiflora telegraph weed
Heterotheca sessiliflora golden aster
*Hypochaeris glabra** smooth cat's ear
*Lactuca serriola** prickly lettuce
Lasthenia californica California goldfields
Layia platyglossa tidy-tips
Lepidospartum squamatum scale-broom
Lessingia filaginifolia California aster
Malacothrix saxatilis cliff malacothrix
*Pulicaria paludosa** Spanish sunflower
*Senecio vulgaris** common groundsel
*Silybum marianum** milk thistle
*Sonchus asper** prickly sow-thistle
*Sonchus oleraceus** common sow-thistle
Stephanomeria sp. wreath plant
BORAGINACEAE - BORAGE FAMILY
Amsinckia menziesii rancher's fiddleneck
Cryptantha intermedia common cryptantha
*Echium candicans** pride of Madera
Heliotropium curassavicum salt heliotrope/alkali heliotrope
Pectocarya linearis comb-bur

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species
FLOWERING PLANTS
BRASSICACEAE (CRUCIFERAE) - MUSTARD FAMILY
*Brassica nigra**   black mustard
*Hirschfeldia incana**   shortpod mustard
*Lepidium latifolium**   broad-leaved peppergrass
Lepidium nitidum var. *nitidum*   peppergrass/shining peppergrass
*Raphanus sativus**   wild radish
*Rorippa nasturtium-aquaticum**   white water cress
*Sisymbrium irio**   London rocket
CACTACEAE - CACTUS FAMILY
Opuntia parryi   Parry's cholla
CAPRIFOLIACEAE - HONEYSUCKLE FAMILY
Sambucus mexicana   blue elderberry
CARYOPHYLLACEAE - PINK FAMILY
Spergularia sp.   sand spurrey
Spergularia marina   salt-marsh sand spurrey
CHENOPODIACEAE - GOOSEFOOT FAMILY
*Chenopodium album**   lamb's quarters
*Chenopodium ambrosioides**   Mexican tea
*Salsola tragus**   Russian thistle
CONVOLVULACEAE - MORNING-GLORY FAMILY
Calystegia macrostegia   morning-glory
*Convolvulus arvensis**   bindweed
CRASSULACEAE - STONECROP FAMILY
Crassula connata   pigmy-weed
EUPHORBIACEAE - SPURGE FAMILY
Eremocarpus setigerus   doveweed/turkey mullein
*Ricinus communis**   castor bean

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species
FLOWERING PLANTS
FABACEAE (LEGUMINOSAE) - LEGUME FAMILY
Acacia sp.* acacia
Lotus hamatus grab lotus/San Diego lotus
Lotus heermannii woolly lotus
Lotus scoparius deerweed/California broom
Lotus strigosus strigose lotus
Lupinus bicolor miniature lupine
Lupinus succulentus arroyo lupine
Lupinus truncatus truncate lupine/collar lupine
*Medicago polymorpha** California burclover
*Melilotus indica** sourclover
*Robinia psuedoacacia** black locust
GERANIACEAE - GERANIUM FAMILY
*Erodium botrys** long-beaked filaree
*Erodium cicutarium** red-stemmed filaree
*Erodium moschatum** white-stemmed filaree
HYDROPHYLLACEAE - WATERLEAF FAMILY
Eucrypta chrysanthemifolia common eucrypta
Phacelia distans common phacelia
LAMIACEAE (LABIATAE) - MINT FAMILY
*Marrubium vulgare** common horehound
MALVACEAE - MALLOW FAMILY
*Malva parviflora** cheeseweed
Malvella leprosa alkali mallow
MYRTACEAE - MYRTLE FAMILY
Eucalyptus sp.* gum
*Eucalyptus citronella** gum

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species
FLOWERING PLANTS
OLEACEAE - OLIVE FAMILY
Fraxinus sp.* ash
*Olea europaea** olive
ONAGRACEAE - EVENING PRIMROSE FAMILY
Camissonia bistorta California sun cup
Epilobium sp. willow-herb
OXALIDACEAE - WOOD-SORREL FAMILY
*Oxalis pes-caprae** Bermuda buttercup/sour grass
POLYGONACEAE - BUCKWHEAT FAMILY
Eriogonum fasciculatum var. *fasciculatum* California buckwheat
*Rumex crispus** curly dock
ROSACEAE - ROSE FAMILY
Heteromeles arbutifolia toyon/christmas berry
SALICACEAE - WILLOW FAMILY
Populus fremontii ssp. *fremontii* Fremont cottonwood
Populus sp.* ornamental cottonwood
Salix exigua narrow-leaved willow
Salix gooddingii black willow
Salix laevigata red willow
Salix lasiolepis arroyo willow
SCROPHULARIACEAE - FIGWORT FAMILY
*Veronica anagallis-aquatica** great water speedwell
SIMAROUBACEAE - QUASSIA FAMILY
*Ailanthus altissima** tree of heaven
SOLANACEAE - NIGHTSHADE FAMILY
Datura wrightii jimson weed
*Nicotiana glauca** tree tobacco
Solanum americanum white nightshade

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species
FLOWERING PLANTS
TAMARICACEAE - TAMARISK FAMILY
Tamarix sp.* tamarisk
*Tamarix ramosissima** Mediterranean tamarisk
URTICACEAE - NETTLE FAMILY
*Urtica urens** dwarf nettle
ZYGOPHYLLACEAE - CALTROP FAMILY
*Tribulus terrestris** puncture vine
CLASS MONOCOTYLEDONES (MONOCOTS)
ARECACEAE (PALMAE) - PALM FAMILY
Phoenix sp.* date palm
Washingtonia sp.* fan palm
*Washingtonia robusta** Mexican fan palm
CYPERACEAE - SEDGE FAMILY
Cyperus sp. umbrella-sedge
POACEAE [GRAMINEAE] - GRASS FAMILY
*Arundo donax** giant reed
*Avena barbata** slender wild oat
*Avena fatua** wild oat
*Bromus diandrus** ripgut grass
Bromus madritensis ssp. *rubens** foxtail chess
*Bromus tectorum** cheat grass
*Cynodon dactylon** bermuda grass
*Hordeum murinum** foxtail barley
*Hordeum vulgare** cultivated barley
*Lamarckia aurea** goldentop grass
*Lolium perenne** perennial ryegrass
*Pennisetum setaceum** African fountain grass

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species
FLOWERING PLANTS
Piptatherum miliaceum* smilo grass/millett ricegrass
*Poa annua** annual bluegrass
*Schismus barbatus** Mediterranean schismus
*Sorghum halepense** Johnson grass
*Stenotaphrum secundatum** Saint Augustine grass
*Vulpia myuros** foxtail fescue
TYPHACEAE - CATTAIL FAMILY
Typha latifolia broad-leaved cattail
** introduced species*

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October 27, 2011

Ms. Adelina Muñoz
Southern California Edison
1218 South Fifth Avenue
Monrovia, California 91016

VIA EMAIL
Adelina.Munoz@sce.com

Subject: Results of Focused Plant Surveys for the Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project, Riverside and San Bernardino Counties, California

Dear Ms. Muñoz:

This Letter Report presents the findings of focused plant surveys conducted for Southern California Edison (SCE) for the Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project (hereafter referred to as "the Proposed Project") in Riverside and San Bernardino Counties, California (Exhibit 1).

Project Location and Description

The Project Study Area includes the existing Mira Loma Substation, the existing Corona 66-kilovolt (kV) Substation, the substation site alternatives (the Preferred Substation Site, Site 34S, the Substation 2nd Alternative Site), and the transmission line route alternatives (the Mira Loma Preferred Route, the Mira Loma Alternative Route 1, the Mira Loma Alternative Route 2, the Circle City Preferred Route, and the Circle City Alternate Route). The special status plant Survey Area includes an approximate 150-foot buffer around the substation sites and on either side of the proposed powerlines at the Mira Loma Preferred Route, the Mira Loma Alternative Route 2, the Circle City Preferred Route, and the Circle City Alternate Route. The buffer does not extend 150 feet to the east of the Mira Loma Alternative Route 1 because that alternative was added to the Project design following completion of the focused plant surveys; the alignment itself falls within the buffer of the Mira Loma Alternative Route 2.

The Survey Area extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino (San Bernardino County; Mira Loma Preferred Route and Mira Loma Alternative Route 1 only), and the City of Norco to the City of Corona, California (Exhibit 1). It generally runs west of Interstate (I) 15 with the Mira Loma Source Line north of State Route (SR) 91. The portion of the Survey Area within Riverside County occurs in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)[1]. The Survey Area is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangles (Exhibits 2A–2C). Topography in the Survey Area is relatively flat with elevations ranging from approximately 630 to 790 feet above mean sea level (msl).

[1] SCE is given the option of utilizing the MSHCP as a "Participating Special Entity". This is any regional public facility provider that operates and/or owns land within the MSHCP Plan Area and that applies for Take Authorization pursuant to Section 11.8 of the Implementing Agreement.

Soil types in the Survey Area are mapped as Arbuckle gravelly loam, Buchenau loam, Chino silt loam, Chualar clay loam, Cortina sandy loam, Cortina gravelly sandy loam, Delhi fine sand, Dello loamy sand, Dello loamy fine sand, Domino silt loam, gravel pits, Garretson gravelly very fine sandy loam, Grangeville loamy fine sand, Grangeville fine sandy loam, Grangeville sandy loam, Greenfield sandy loam, Hanford coarse sandy loam, Hilmar loamy sand, Hilmar loamy very fine sand, Hilmar loamy fine sand, Metz loamy fine sand, Pachappa fine sandy loam, Placentia fine sandy loam, Ramona sandy loam, Ramona very fine sandy loam, riverwash, rough broken land, San Emigdio fine sandy loam, San Emigdio loam, terrace escarpments, Waukena fine sandy loam, and water. (Exhibits 3A–3Z) (USDA NRCS 2007).

Fourteen vegetation types and other areas occur in the Survey Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, open water, flood-control channel, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost layer of vegetation.

METHODS

Botanical surveys were floristic in nature and conducted following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). A literature search was conducted to identify special status plants and habitats known to occur in the vicinity of the Survey Area. Sources reviewed include the USGS' Ontario, Guasti, Fontana, Prado Dam, Corona North, Riverside West, Corona South, and Lake Mathews 7.5-minute quadrangles in the California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2011) and the California Department of Fish and Game's (CDFG's) California Natural Diversity Database (CNDDB) (CDFG 2011). In addition, the MSHCP was reviewed to determine if the Survey Area was within an "Additional Survey Needs Area" that indicates potential for specific criteria area or narrow endemic plant species.

Reference populations (Table 1) were monitored for annual and difficult-to-detect target species to ensure that the scheduled surveys were comprehensive and conducted during these species' appropriate blooming period. Based on the reference population monitoring, the Project surveys were conducted during a time frame when the target plant species were observable.

According to the National Weather Service (NWS), the region (data taken from Ontario International Airport and Ramona) received 13.45 inches of precipitation this season (i.e., between July 1, 2010 and June 30, 2011), which is 1.32 inches below average (NWS 2011).

TABLE 1
SPECIAL STATUS PLANT SPECIES REFERENCE POPULATIONS CHECKED PRIOR TO FOCUSED SURVEYS

Species	Date	Location
Abronia villosa var. *aurita* chaparral sand-verbena	May 12, 2011	western Riverside County
Allium munzii Munz's onion	March 19, 2011[a]	western Riverside County
Ambrosia pumila San Diego ambrosia	June 28, 2011	Lake Elsinore
Calochortus plummerae Plummer's mariposa lily	June 3, 2011	Fontana
Calochortus weedii var. *intermedius* intermediate mariposa lily	June 10, 2011	Corona
Centromadia pungens ssp. *laevis* smooth tarplant	May 11, 2011	Riverside
Chorizanthe parryi var. *parryi* Parry's spineflower	April 26, 2011	Rialto
Chorizanthe polygonoides var. *longispina* long-spined spineflower	June 1, 2011	Temecula
Dodecahema leptoceras slender-horned spineflower	April 28, 2011	Santa Clarita
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	March 11, 2011	western Riverside County

[a] Munz's onion was observed in a vegetative state on this date. Surveys for blooming individuals should be conducted at a later date.

All potentially suitable habitats for special status plant species within the Survey Area were systematically surveyed. Surveys were conducted by BonTerra Consulting Biologists Allison Rudalevige, Jennifer Pareti, and Stacie Tennant and Consulting Botanist Sandra Leatherman (Table 2). A total of 61 person-hours were spent conducting all surveys. Photographs of the Survey Area were taken during surveys and are included as Attachment A. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they are a special status species. Plants were identified using taxonomic keys, descriptions, and illustrations in Baldwin et al. (2011), Hickman (1993), Munz (1974), Abrams (1923, 1944, 1951), and Abrams and Ferris (1960). Taxonomy and nomenclature follows Baldwin et al. (2011), Hickman (1993), and current scientific journals for scientific and common names. All voucher specimens collected will be deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California. For each special status species population observed, data was collected on the number and phenology of individuals and microsite characteristics such as slope, aspect, soil texture, surrounding habitat, and associated species.

TABLE 2
2011 SURVEY SCHEDULE

Date	Surveyors	Number Person-hours
April 14	Sandra Leatherman, Jennifer Pareti	16.0
April 29	Allison Rudalevige	2.5
May 27	Allison Rudalevige, Sandra Leatherman	4.6
June 9	Sandra Leatherman, Stacie Tennant	7.4
July 5	Allison Rudalevige, Sandra Leatherman	11.0
July 8	Allison Rudalevige, Sandra Leatherman	11.0
July 19	Allison Rudalevige, Sandra Leatherman	3.4
August 17	Allison Rudalevige, Sandra Leatherman	5.0
	Total	**60.9**

SURVEY RESULTS

Table 3 identifies the special status plants known to occur in the vicinity of the Survey Area and the survey results.

TABLE 3
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Abronia villosa var. *aurita* chaparral sand-verbena	—	—	1B.1	—	Limited marginal habitat. Not observed during focused surveys.
Allium munzii Munz's onion	FE	ST	1B.1	Covered[a]	Limited marginal habitat. Not observed during focused surveys.
Ambrosia pumila San Diego ambrosia	FE	—	1B.1	Covered[a]	Suitable habitat. Not observed during focused surveys.
Arenaria paludicola marsh sandwort	FE	SE	1B.1	—	Limited marginal habitat. Not observed during focused surveys.
Atriplex coulteri Coulter's saltbush	—	—	1B.2	—	Limited marginal habitat. Not observed during focused surveys.
California macrophylla round-leaved filaree	—	—	1B.1	—	No potential to occur; no suitable habitat.
Callitropsis forbesii Tecate cypress	—	—	1B.1	—	No potential to occur; no suitable habitat.
Calochortus plummerae Plummer's mariposa lily	—	—	1B.2	Covered[b]	Limited marginal habitat. Not observed during focused surveys.
Calochortus weedii var. *intermedius* intermediate mariposa lily	—	—	1B.2	Covered	Limited marginal habitat. Not observed during focused surveys.
Centromadia pungens ssp. *laevis* smooth tarplant	—	—	1B.1	Covered[c]	Suitable habitat. Not observed during focused surveys.
Chorizanthe parryi var. *parryi* Parry's spineflower	—	—	1B.1	Covered[b]	Limited marginal habitat. Not observed during focused surveys.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	—	—	1B.2	Covered	Limited marginal habitat. Not observed during focused surveys.

TABLE 3
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY
(Continued)

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Chorizanthe xanti var. *leucotheca* white-bracted spineflower	—	—	1B.2	—	No potential to occur; no suitable habitat.
Cladium californicum California saw-grass	—	—	2.2	—	Limited marginal habitat. Not observed during focused surveys.
Cordylanthus maritimus ssp. *maritimus* salt marsh bird's-beak	FE	SE	1B.2	—	No potential to occur; no suitable habitat and outside the species' known range.
Dodecahema leptoceras slender-horned spineflower	FE	SE	1B.1	Covered[a]	Limited marginal habitat. Not observed during focused surveys.
Dudleya multicaulis many-stemmed dudleya	—	—	1B.2	Covered[a]	Limited marginal habitat. Not observed during focused surveys.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	FE	SE	1B.1	Covered	No potential to occur; no suitable habitat.
Harpagonella palmeri Palmer's grapplinghook	—	—	4.2	Covered	Limited marginal habitat. Not observed during focused surveys.
Horkelia cuneata ssp. *puberula* mesa horkelia	—	—	1B.1	—	No potential to occur; no suitable habitat.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	—	—	1B.1	Covered[c]	No potential to occur; no suitable habitat.
Lepechinia cardiophylla heart-leaved pitcher sage	—	—	1B.2	Covered[c]	No potential to occur; no suitable habitat.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	—	—	1B.2	—	Limited marginal habitat. Not observed during focused surveys.
Lycium parishii Parish's desert-thorn	—	—	2.3	—	No potential to occur; no suitable habitat.
Nama stenocarpa mud nama	—	—	2.2	Covered[c]	Limited marginal habitat. Not observed during focused surveys.
Monardella pringlei Pringle's monardella	—	—	1A	—	No potential to occur; no suitable habitat.
Muhlenbergia californica California muhly	—	—	4.3	Covered[b]	No potential to occur; no suitable habitat.
Navarretia prostrata prostrate vernal pool navarretia	—	—	1B.1	Covered[c]	No potential to occur; no suitable habitat.
Nolina cismontana Peninsular nolina	—	—	1B.2	—	No potential to occur; no suitable habitat.
Phacelia stellaris Brand's star phacelia	FC	—	1B.1	Covered[a]	No potential to occur; no suitable habitat.
Phacelia suaveolens ssp. *keckii* Santiago Peak phacelia	—	—	1B.3	—	No potential to occur; no suitable habitat and outside the elevation range of the species.
Pseudognaphalium leucocephalum white rabbit-tobacco	—	—	2.2	—	Limited marginal habitat. Not observed during focused surveys.
Satureja chandleri San Miguel savory	—	—	1B.2	Covered[a]	No potential to occur; no suitable habitat.
Senecio aphanactis chaparral ragwort	—	—	2.2	—	No potential to occur; no suitable habitat.
Sidalcea neomexicana salt spring checkerbloom	—	—	2.2	—	Limited marginal habitat. Not observed during focused surveys.

TABLE 3
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY
(Continued)

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Symphyotrichum defoliatum San Bernardino aster	—	—	1B.2	—	Limited marginal habitat. Not observed during focused surveys.

LEGEND:

Federal (USFWS)
FE Endangered
FC Candidate

State (CDFG)
SE Endangered
ST Threatened

California Native Plant Society (CNPS) List Categories
List 1A Plants Presumed Extinct in California
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2 Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 4 Plants of Limited Distribution – A Watch List

California Native Plant Society (CNPS) Threat Code Extensions
None Plants lacking any threat information
.1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Fairly Endangered in California (20–80% of occurrences threatened)
.3 Not Very Threatened in California (low degree/immediacy of threat or no current threats known)

Note: The Survey Area occurs within the Eastvale, Temescal Canyon, and Cities of Riverside/Norco Area Plans of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

[a] Surveys may be required for these species within the Narrow Endemic Plant Species Survey Area as described in Section 6.1.3 of the MSHCP.

[b] These Covered Species will be considered to be Covered Species Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met. Species-specific conservation objectives for these species are presented in Section 9.0 of the MSHCP. Refer to Table 9-3 of the MSHCP for specific conservation objectives that must be met for these species prior to including them on the list of Covered Species Adequately Conserved.

[c] Surveys may be required for these species within Criteria Area as described in Section 6.3.2 of the MSHCP.

No special status plant species were observed during focused surveys. A list of all plants observed within the Survey Area during focused surveys can be found in Attachment B. Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a site but may not be detectable at the time of the surveys.

If you have any comments or questions, please call Stacie Tennant at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager/Biologist

Allison D. Rudalevige
Biologist/Regulatory Technician

Enclosures: Exhibit 1 – Project Location
Exhibits 2A–2C – USGS Quadrangle
Exhibits 3A–3Z – Soil Types
Attachment A – Site Photographs
Attachment B – Plant Compendium

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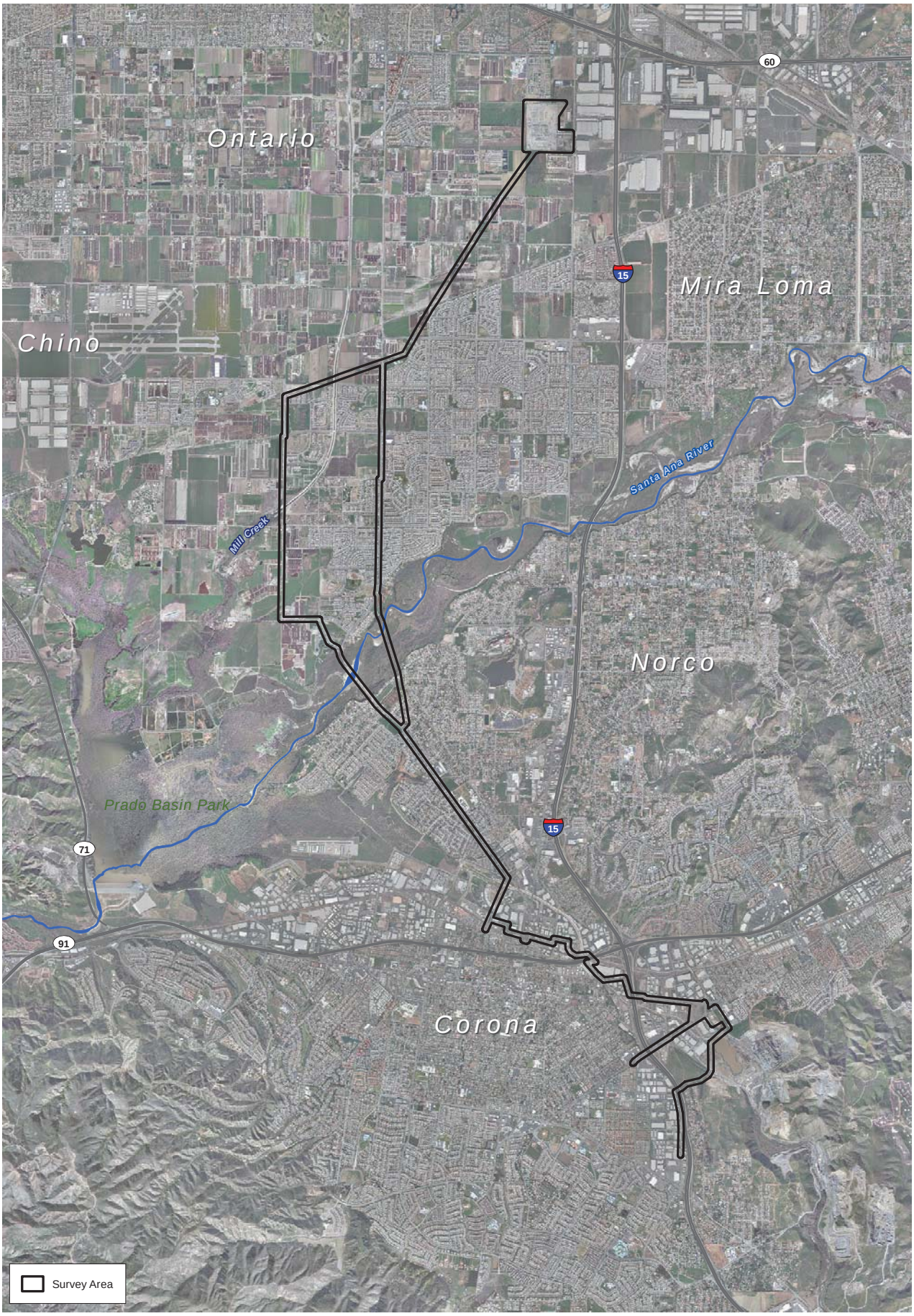

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Project Location

Exhibit 1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

5,000 2,500 0 5,000 Feet

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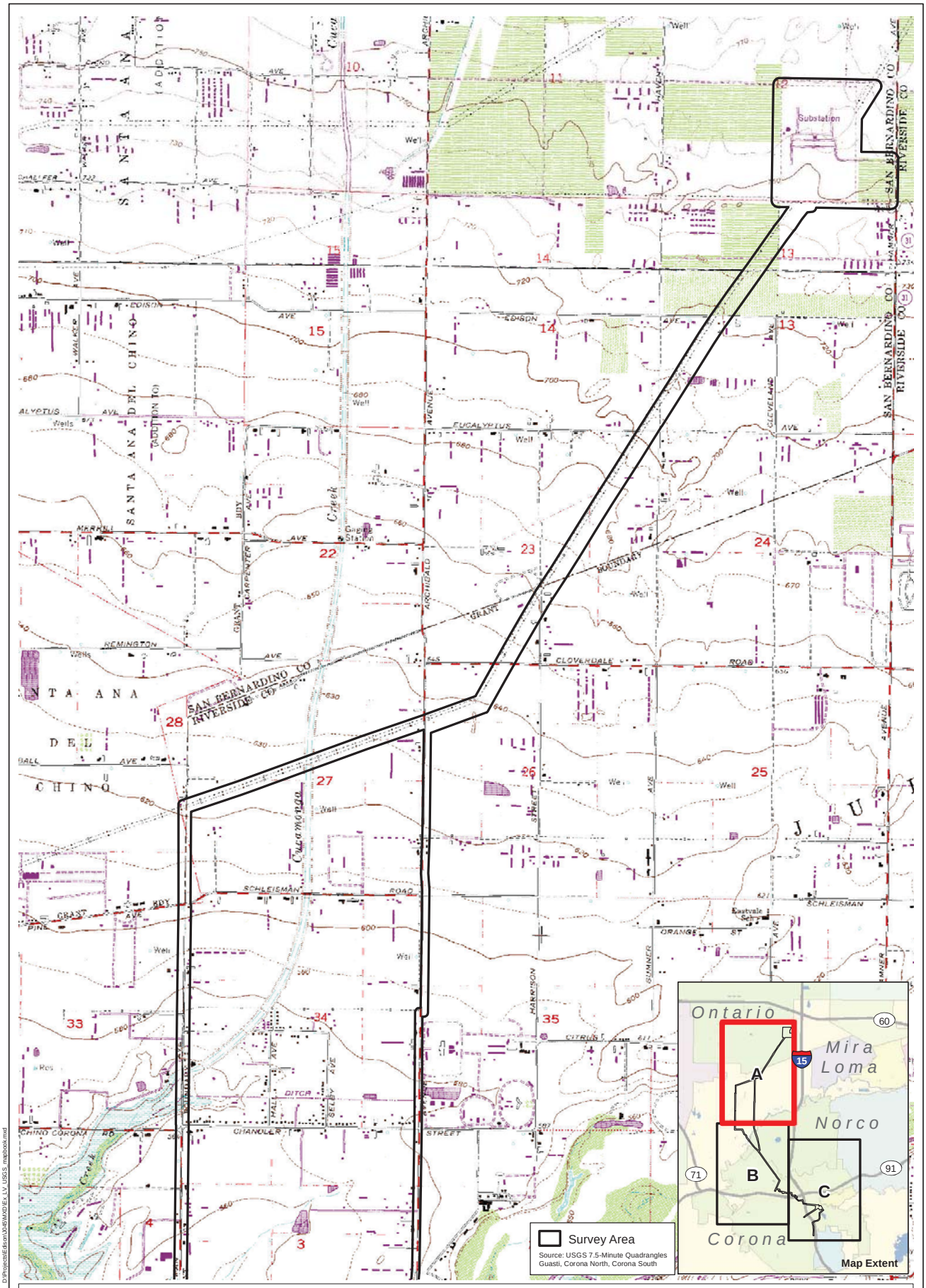

USGS Quadrangle

Exhibit 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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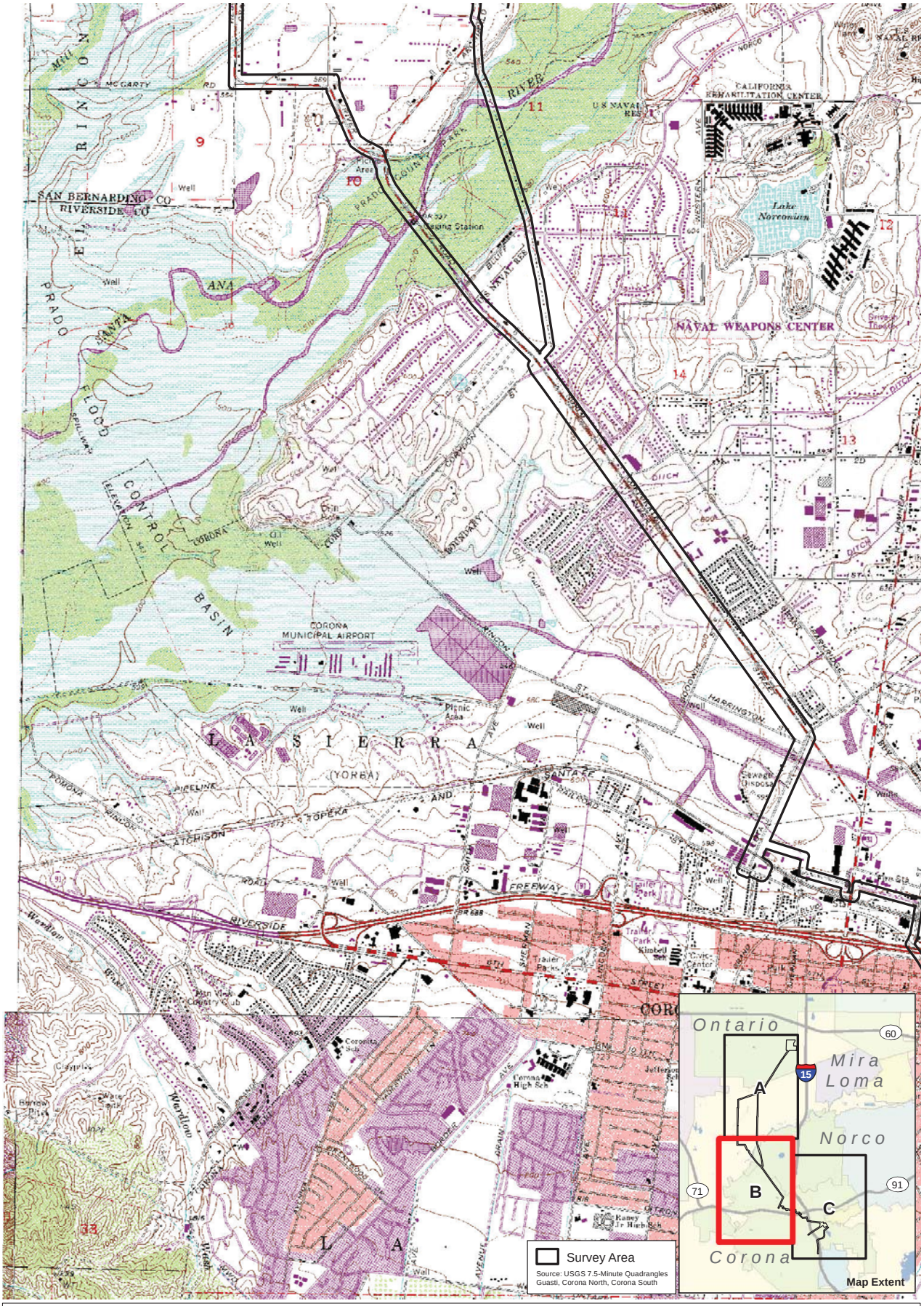

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USGS Quadrangle

Exhibit 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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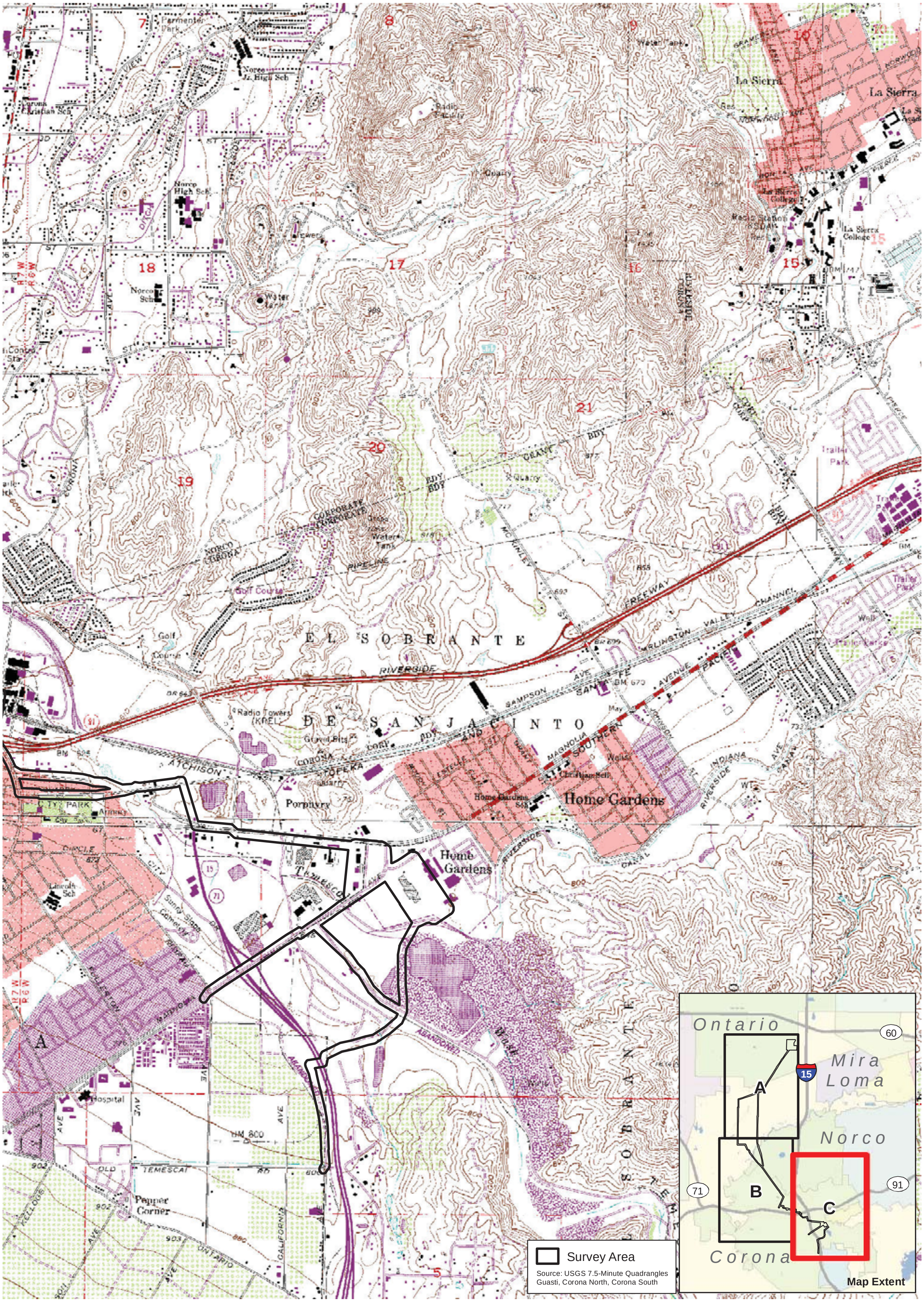

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USGS Quadrangle

Exhibit 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

2,000 1,000 0 2,000 Feet

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Soil Types

- AlC - Arbuckle Gravelly Loam, 2 To 8 Percent Slopes
- BhA - Buchenau Loam, Slightly Saline-Alkali, 0 To 2 Percent Slopes
- BhC - Buchenau Loam, Slightly Saline-Alkali, 2 To 8 Percent Slopes
- Cb - Chino Silt Loam
- Ce - Chino Silt Loam, Drained
- CkA - Chualar Clay Loam, 0 To 2 Percent Slopes
- CoA - Cortina Sandy Loam, 0 To 2 Percent Slopes
- CpA - Cortina Gravelly Sandy Loam, 0 To 2 Percent Slopes
- DaD2 - Delhi Fine Sand, 2 To 15 Percent Slopes, Wind-Eroded
- Db - Delhi Fine Sand
- DmA - Dello Loamy Sand, Poorly Drained, 0 To 2 Percent Slopes
- DrA - Dello Loamy Fine Sand, Gravelly Substratum, 0 To 2 Percent Slopes
- Du - Domino Silt Loam
- GP - Gravel Pits
- GdA - Garretson Gravelly Very Fine Sandy Loam, 0 To 2 Percent Slopes
- GdC - Garretson Gravelly Very Fine Sandy Loam, 2 To 8 Percent Slopes
- GoB - Grangeville Loamy Fine Sand, Drained, 0 To 5 Percent Slopes
- Gr - Grangeville Fine Sandy Loam
- GsB - Grangeville Sandy Loam, Sandy Substratum, Drained, Sali Ne-Alkali , 0 To 5 Percent Slopes
- GuB - Grangeville Fine Sandy Loam, Poorly Drained, Saline-Alk Ali, 0 To 5 Percent Slopes
- GyA - Greenfield Sandy Loam, 0 To 2 Percent Slopes
- GyC2 - Greenfield Sandy Loam, 2 To 8 Percent Slopes, Eroded
- HcC - Hanford Coarse Sandy Loam, 2 To 8 Percent Slopes
- HhA2 - Hilmar Loamy Sand, 0 To 2 Percent Slopes, Eroded
- HlA - Hilmar Loamy Very Fine Sand, 0 To 2 Percent Slopes
- HlC - Hilmar Loamy Very Fine Sand, 2 To 8 Percent Slopes
- Hr - Hilmar Loamy Fine Sand
- MgB - Metz Loamy Fine Sand, Gravelly Sand Substratum, 0 To 5 Percent Slopes
- PaA - Pachappa Fine Sandy Loam, 0 To 2 Percent Slopes
- PlB - Placentia Fine Sandy Loam, 0 To 5 Percent Slopes
- PlD - Placentia Fine Sandy Loam, 5 To 15 Percent Slopes
- RaA - Ramona Sandy Loam, 0 To 2 Percent Slopes
- RaB2 - Ramona Sandy Loam, 2 To 5 Percent Slopes, Eroded
- RaB3 - Ramona Sandy Loam, 0 To 5 Percent Slopes, Severely Eroded
- RaC3 - Ramona Sandy Loam, 5 To 8 Percent Slopes, Severely Eroded
- RaD3 - Ramona Sandy Loam, 8 To 15 Percent Slopes, Severely Eroded
- RaE3 - Ramona Sandy Loam, 15 To 25 Percent Slopes, Severely Eroded
- ReC2 - Ramona Very Fine Sandy Loam, 0 To 8 Percent Slopes, Eroded
- RmC - Ramona Sandy Loam, 2 To 9 Percent Slopes
- RsC - Riverwash
- RuF - Rough Broken Land
- SeA - San Emigdio Fine Sandy Loam, 0 To 2 Percent Slopes
- SgA - San Emigdio Loam, 0 To 2 Percent Slopes
- TeG - Terrace Escarpments
- Wb - Waukena Fine Sandy Loam, Saline-Alkali
- W - Water

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Soil Types Legend

Exhibit 3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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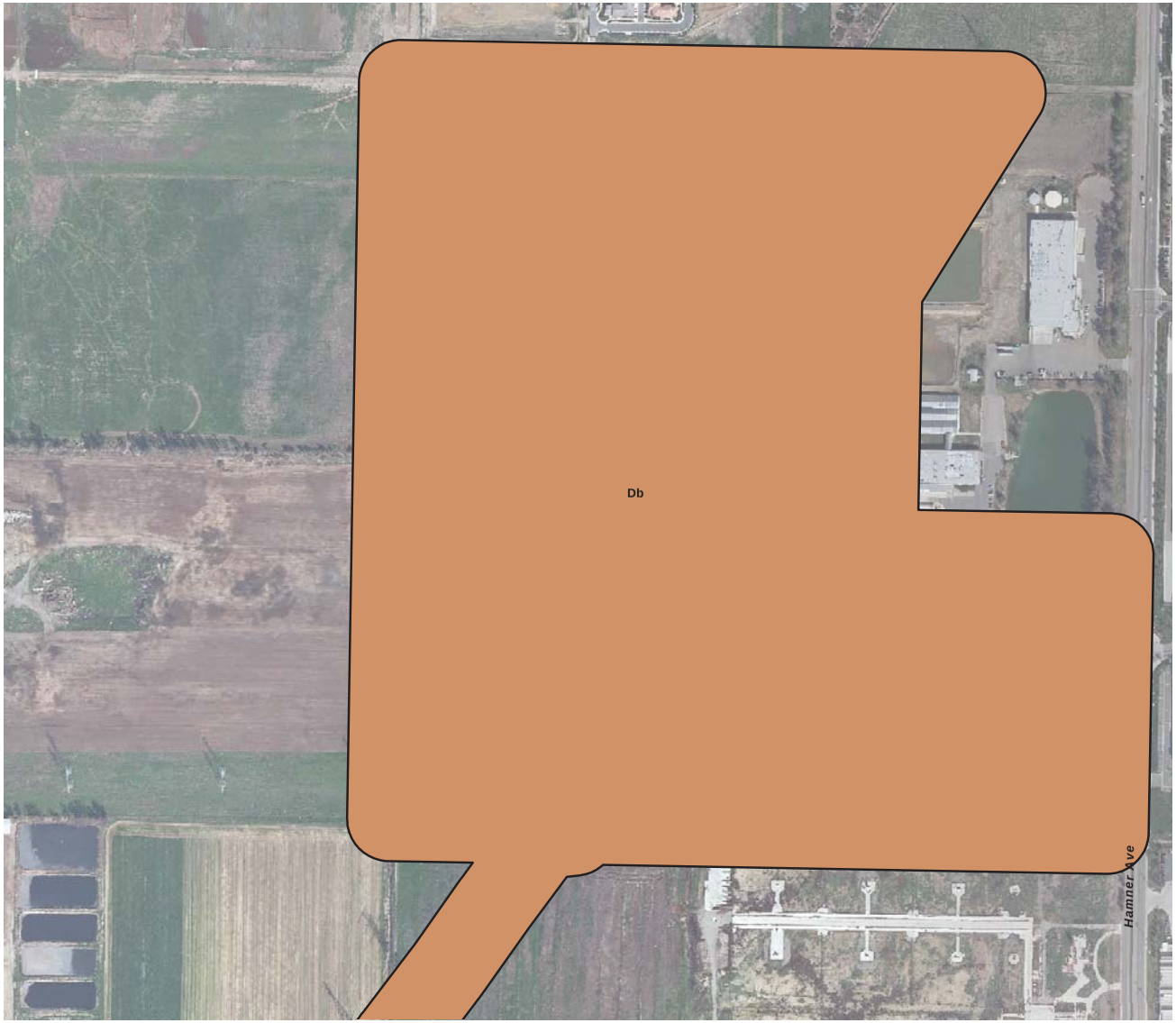
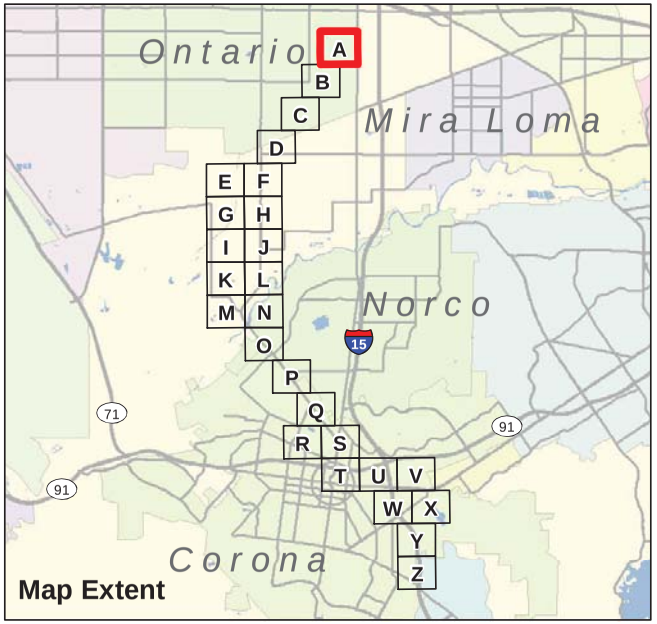


Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Exhibit 3A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

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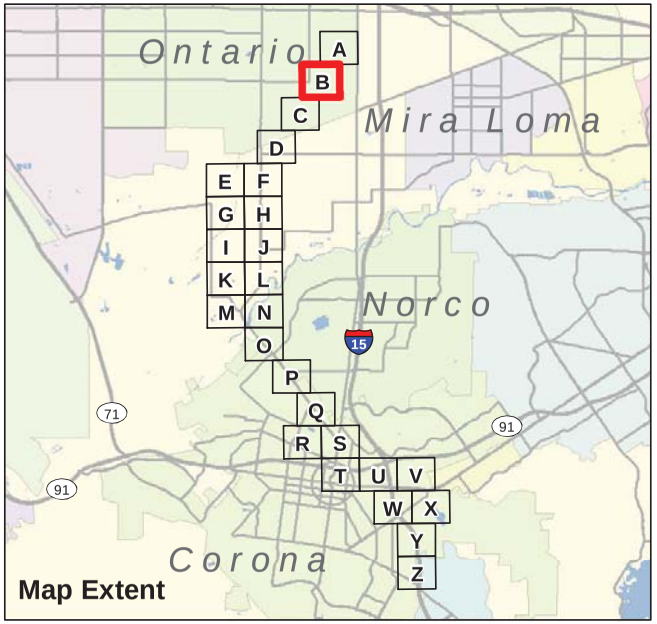
Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

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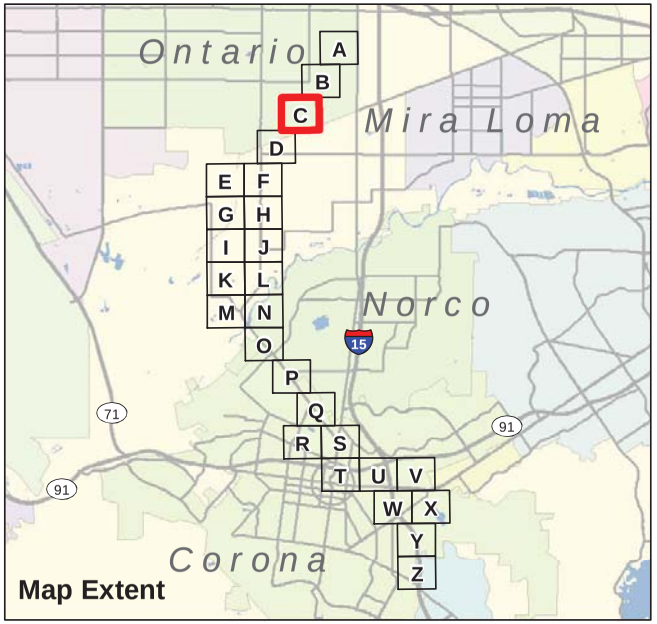
Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

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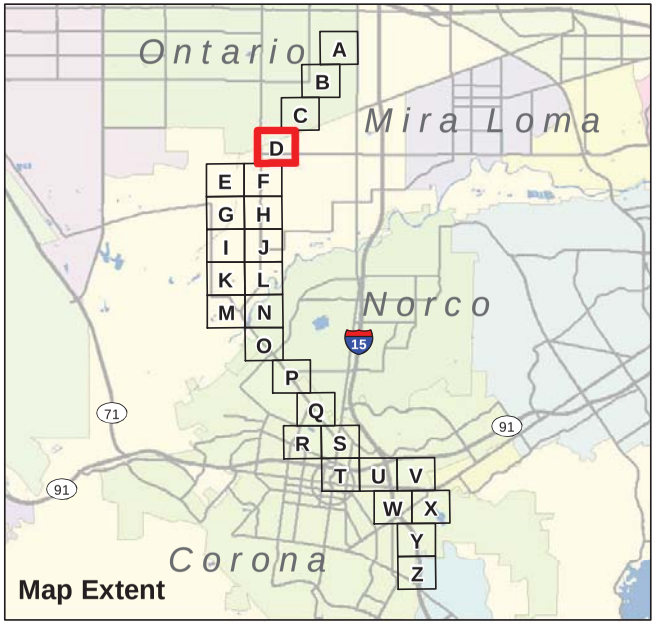
Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3D

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

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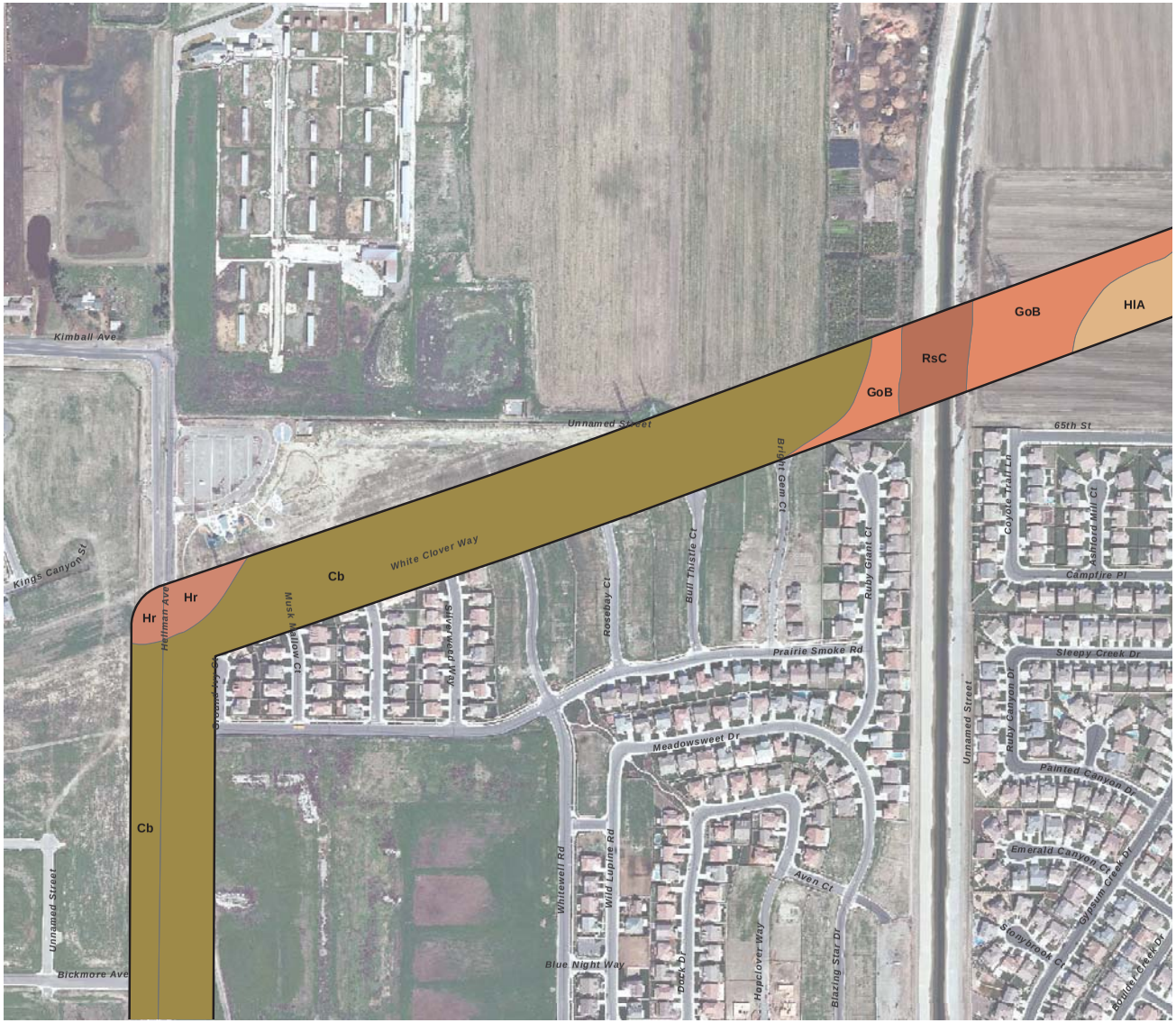

Survey Area

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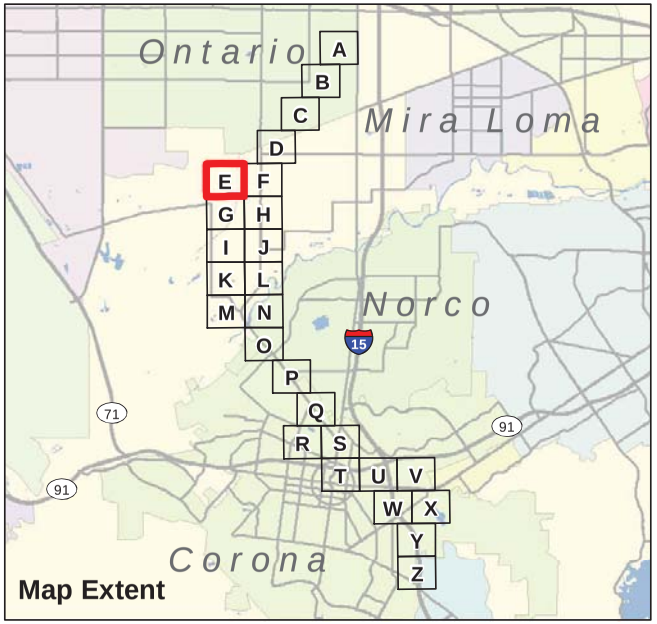

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Soil Types

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

Exhibit 3E

N W E S

400 200 0 400 Feet

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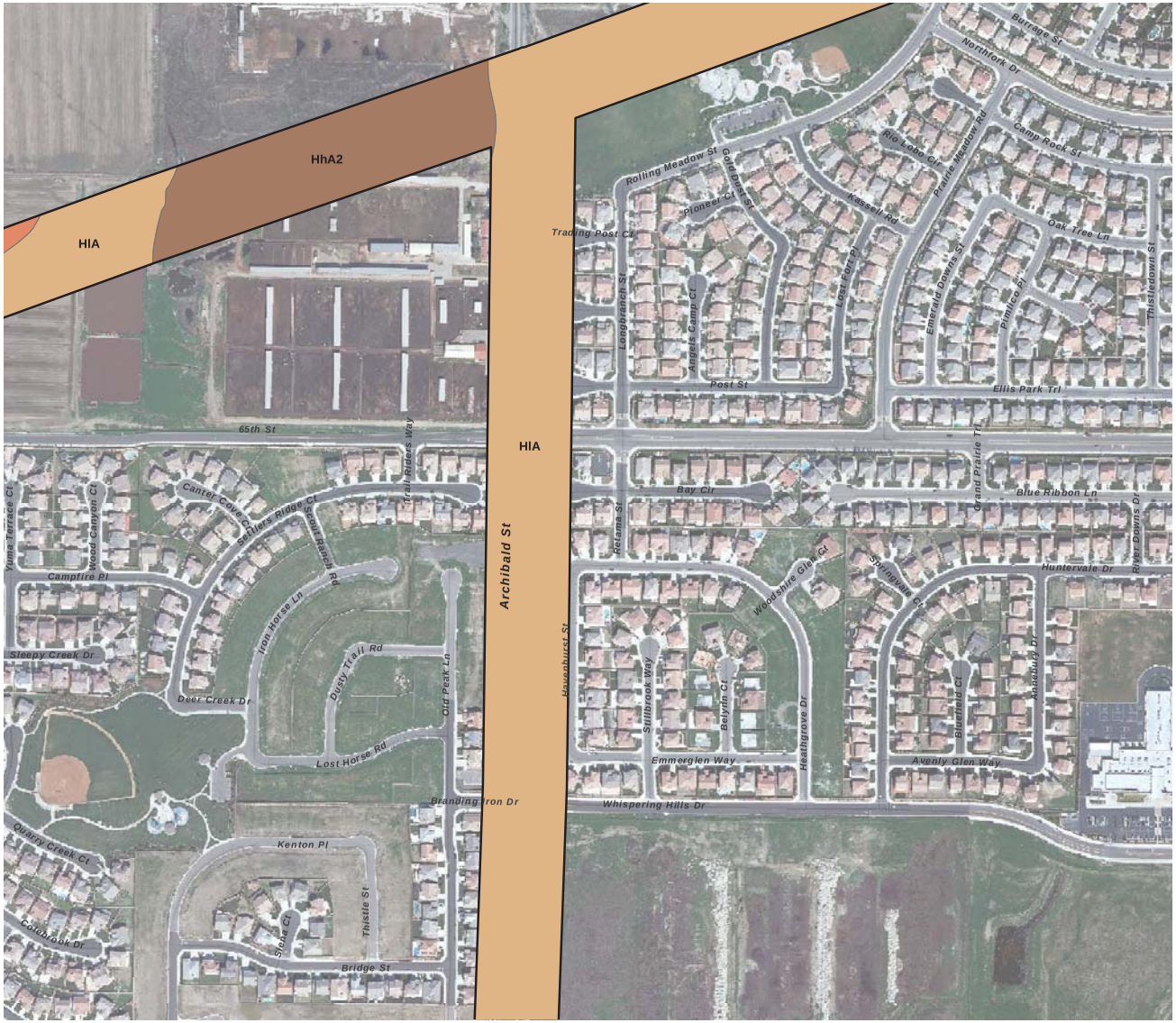

Survey Area

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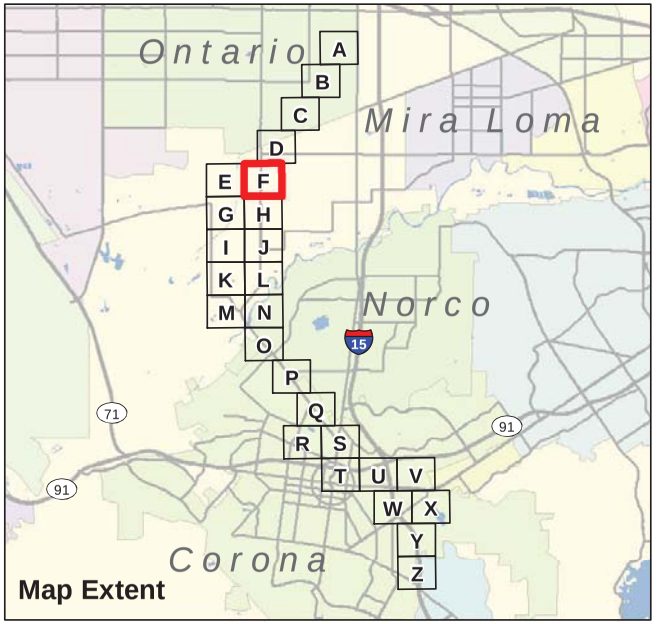

Soil Types

Exhibit 3F

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

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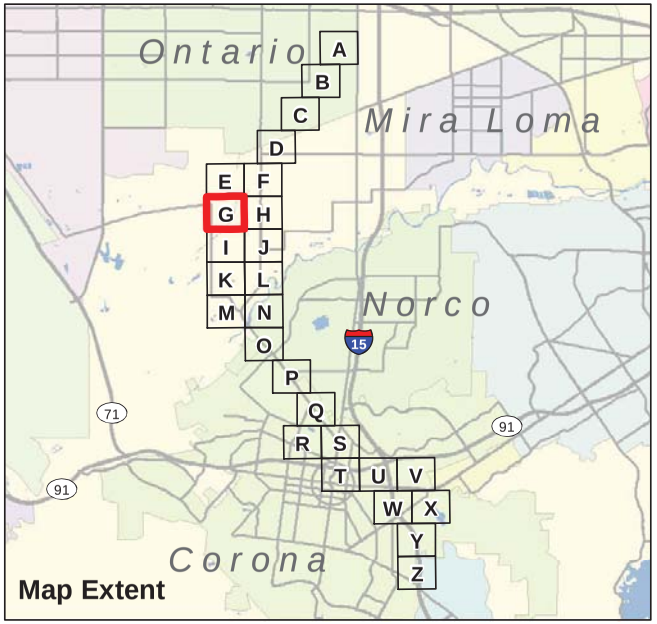
Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3G

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

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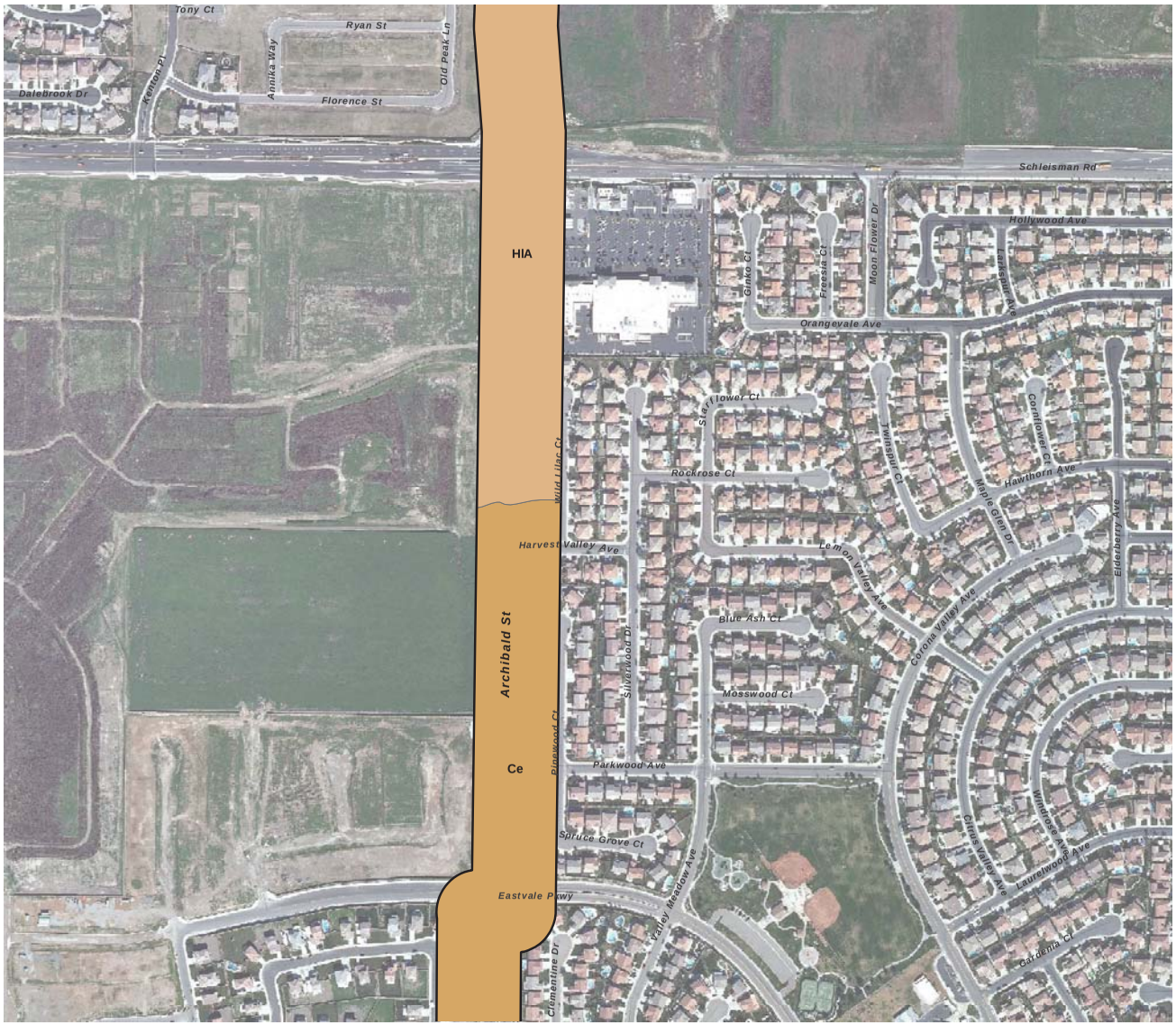

Survey Area

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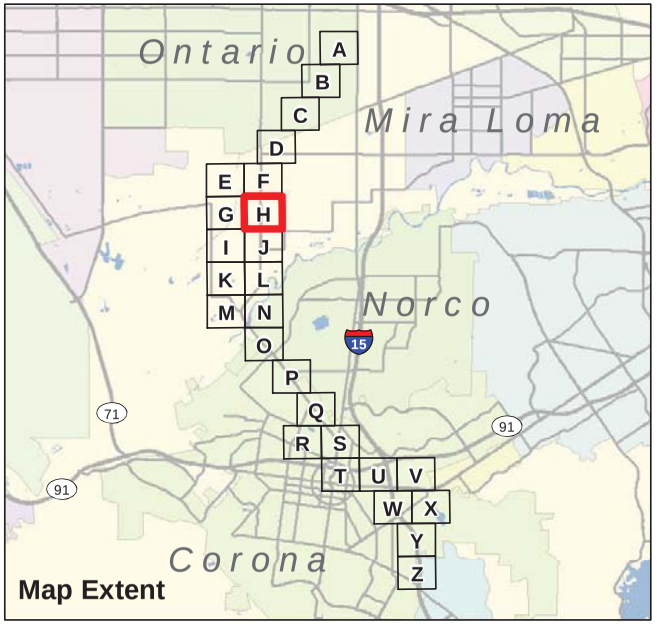

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Soil Types

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

Exhibit 3H

N W E S

400 200 0 400 Feet

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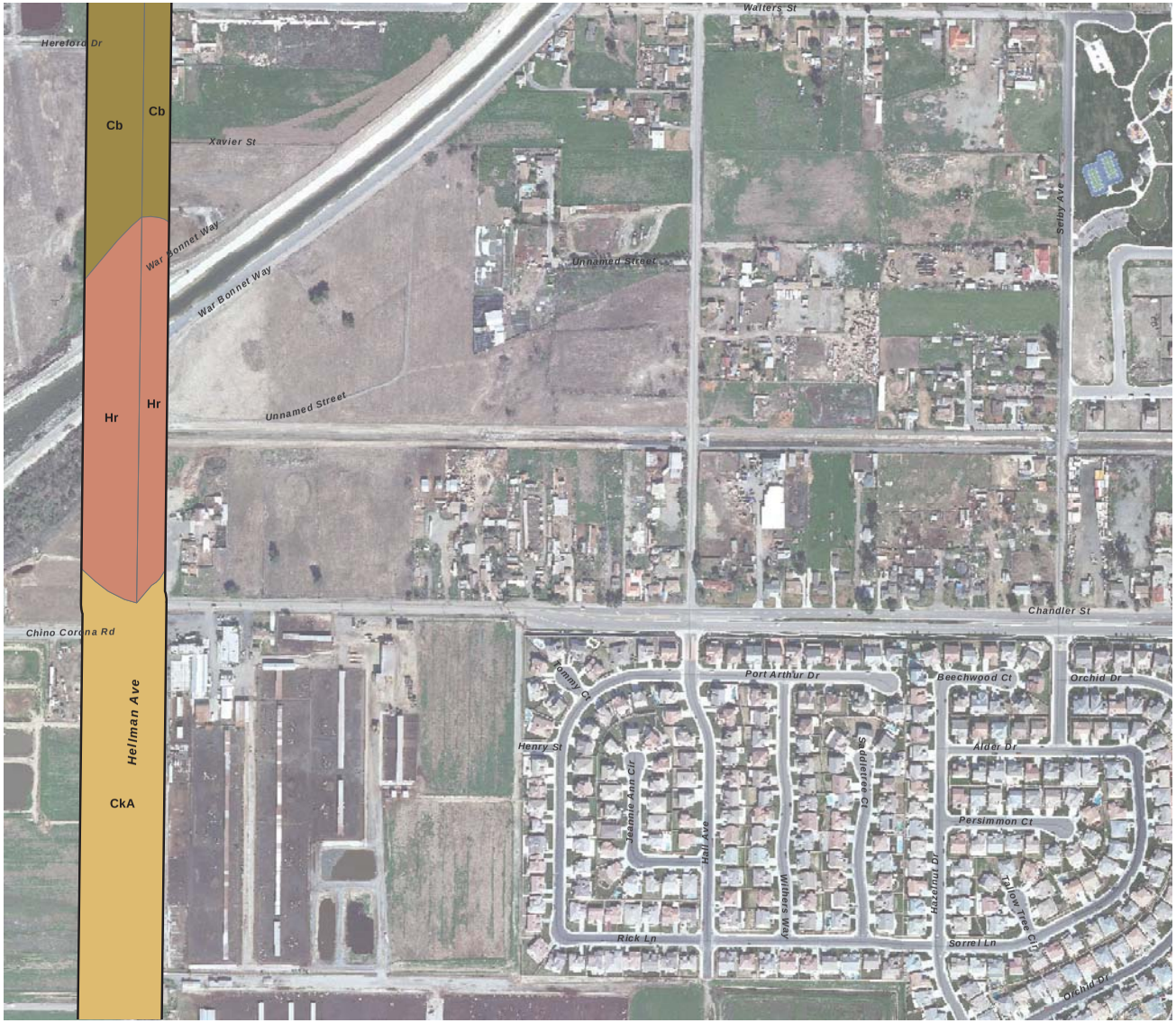
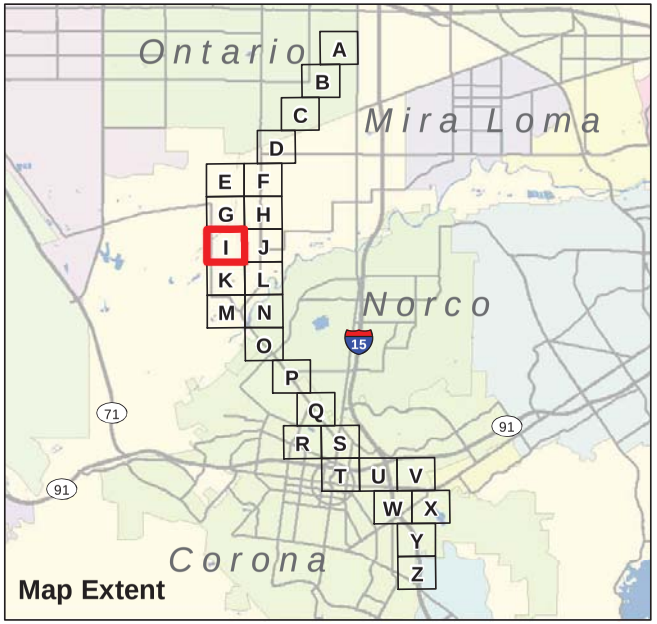


Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3I

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

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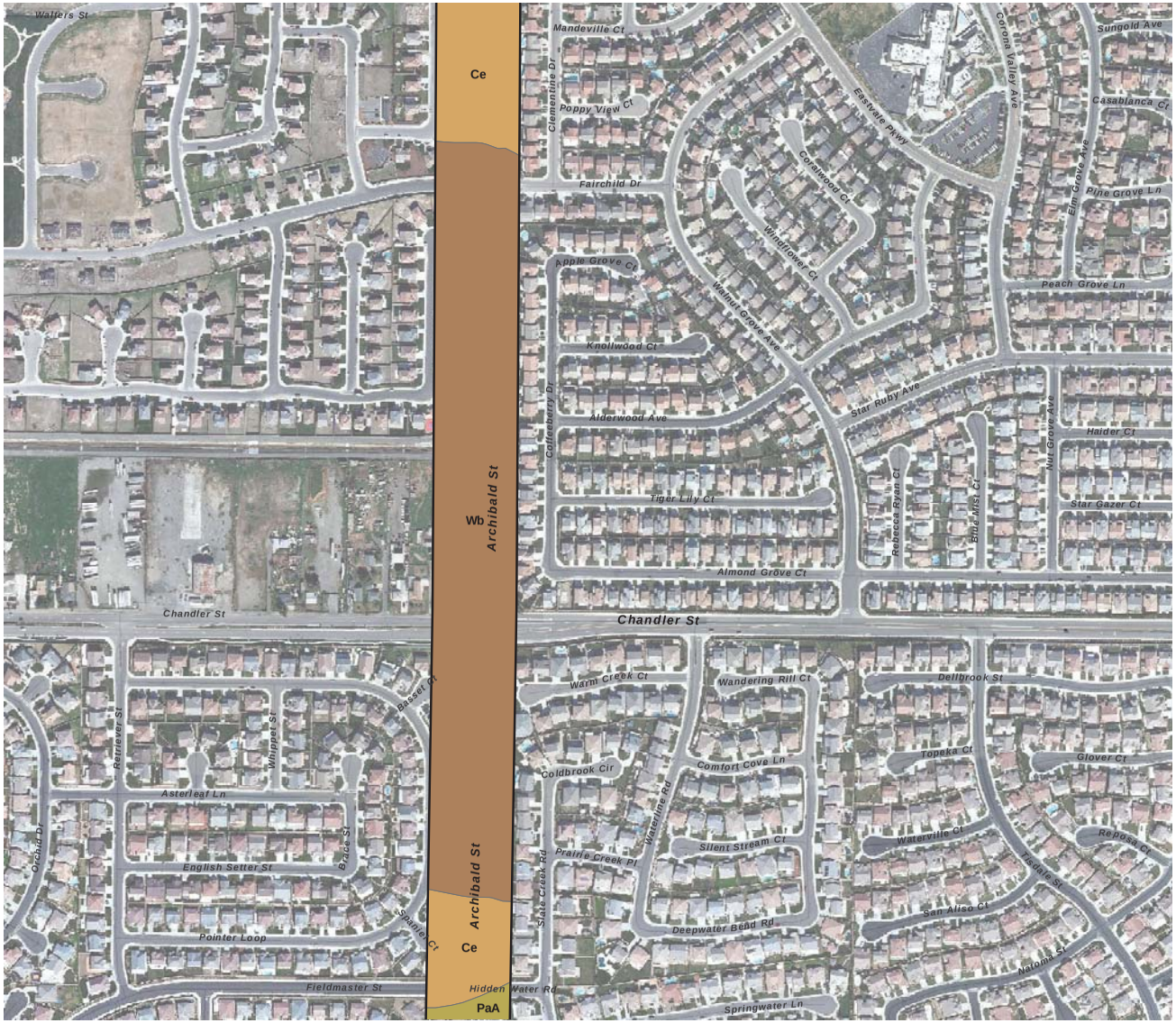
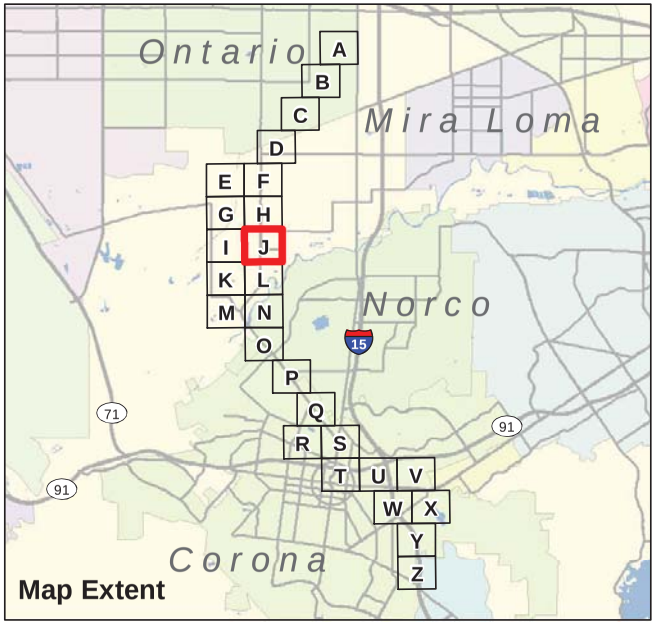


Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

Exhibit 3J

N W E S

400 200 0 400 Feet

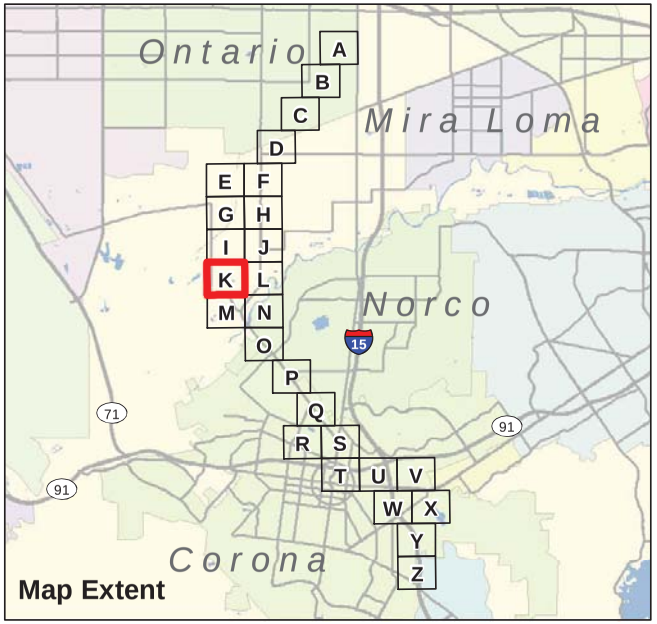
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

D:\Projects\Edison\J045\MXDex_plants_soils.mxd

Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



D:\Projects\Edison\J045\MXDex_plants_soils.mxd

Soil Types

Exhibit 3K

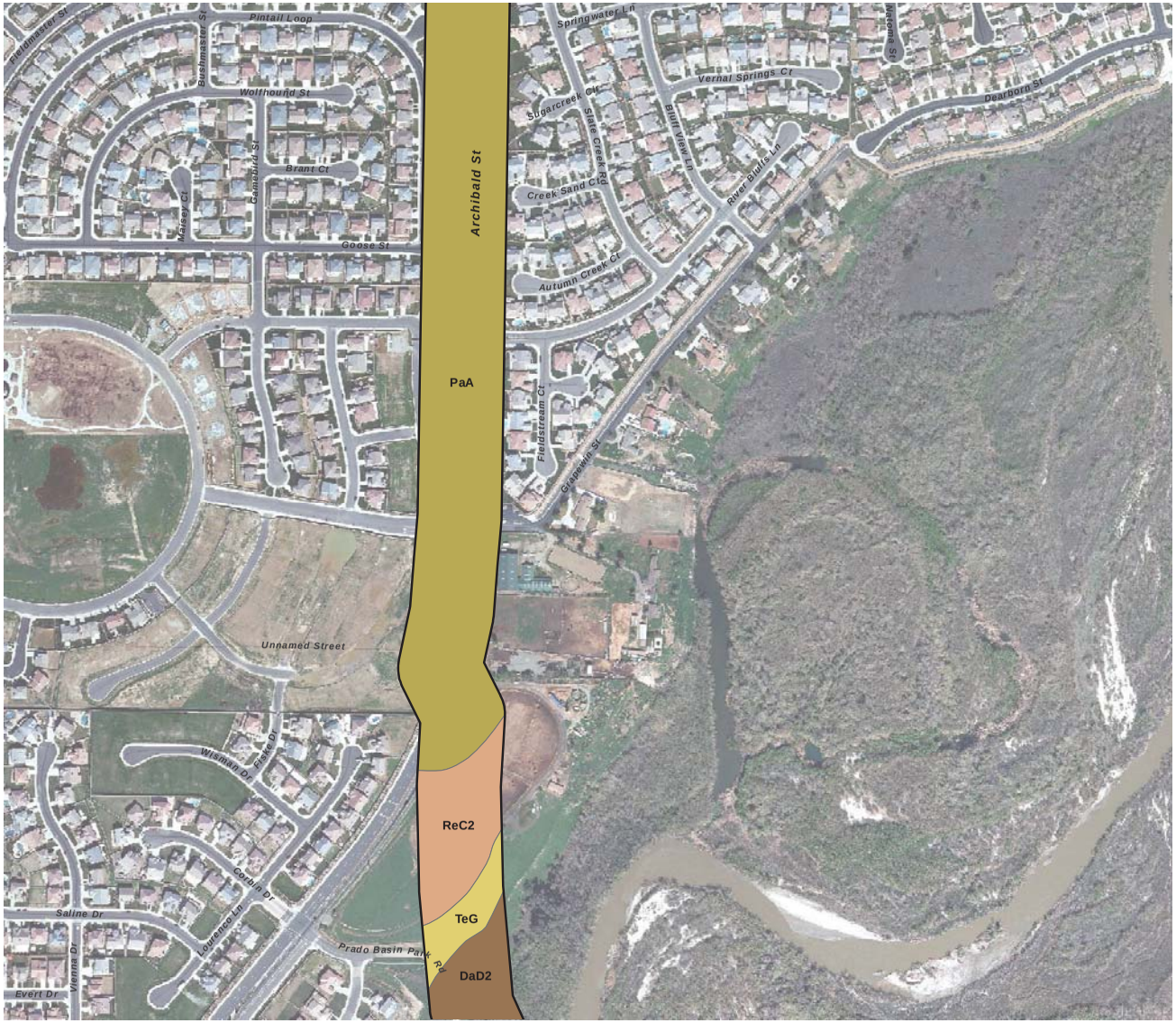
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

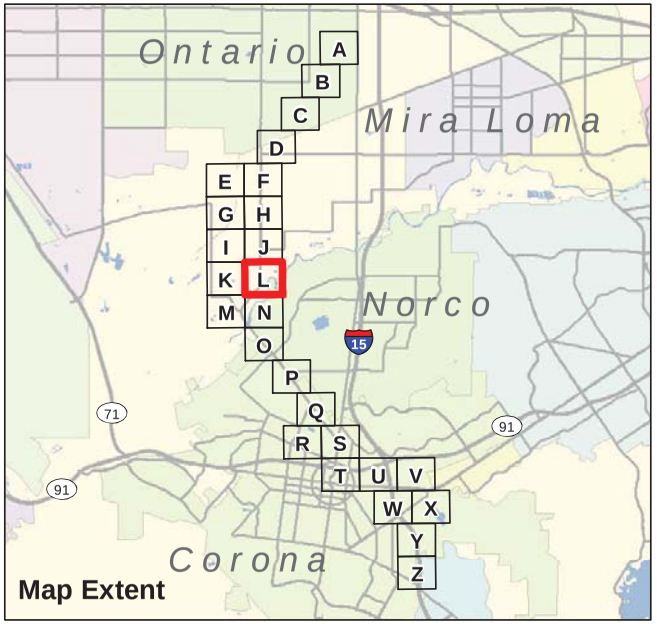
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdff



Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3L

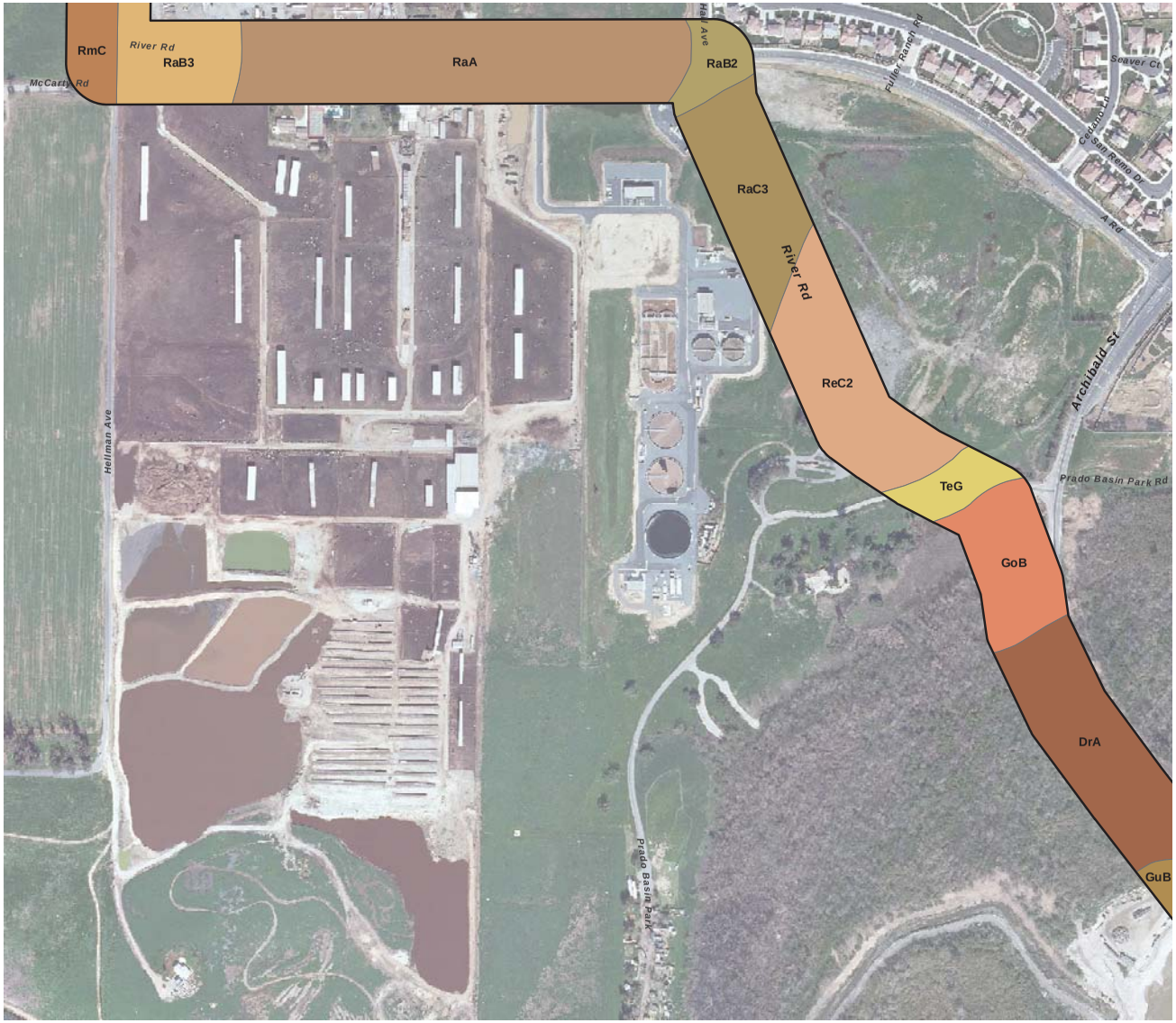
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

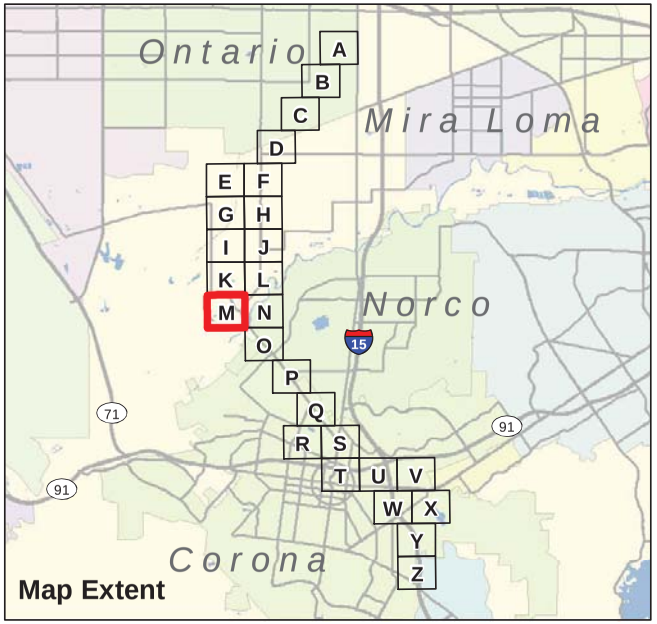
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf



Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3M

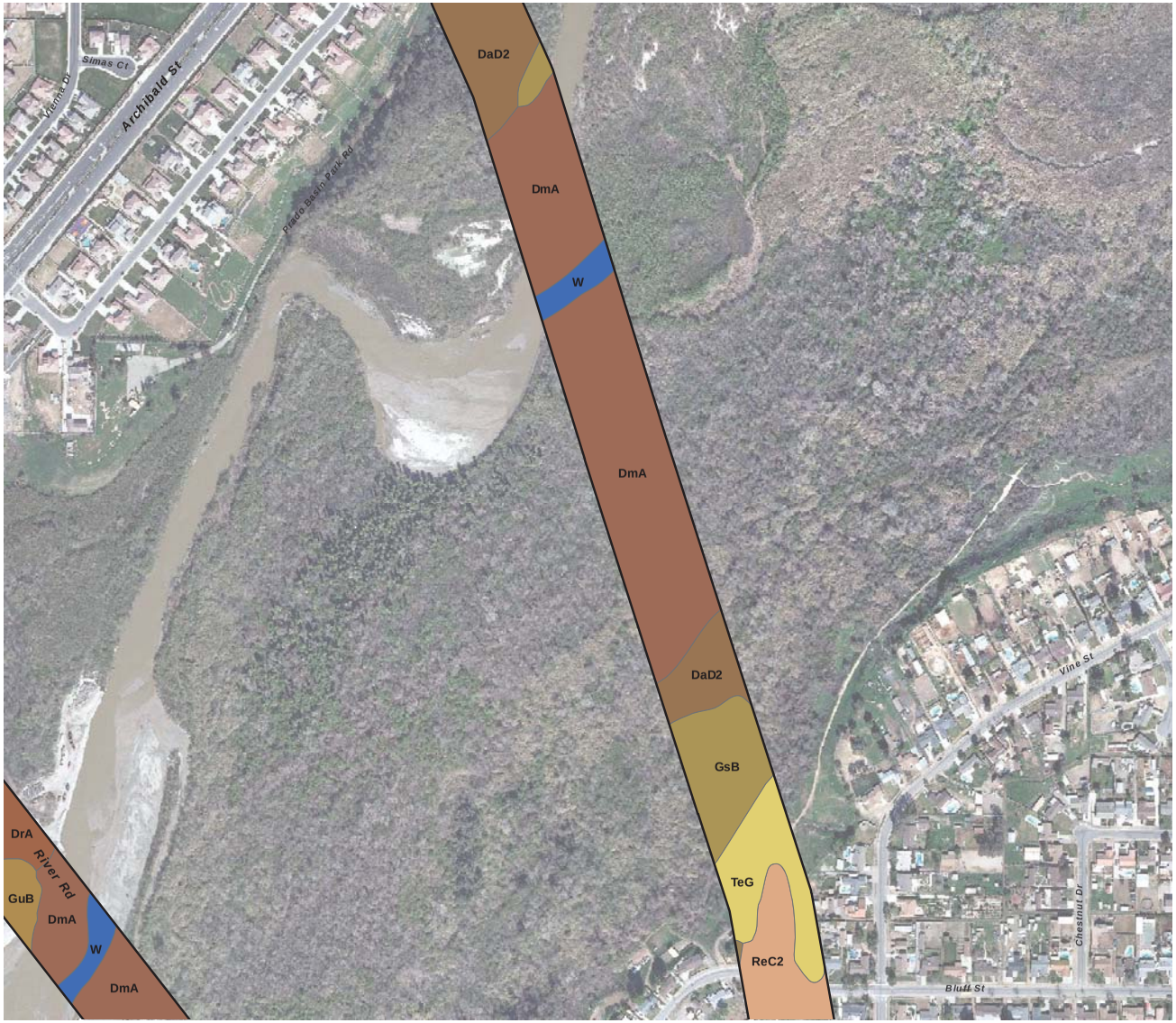
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

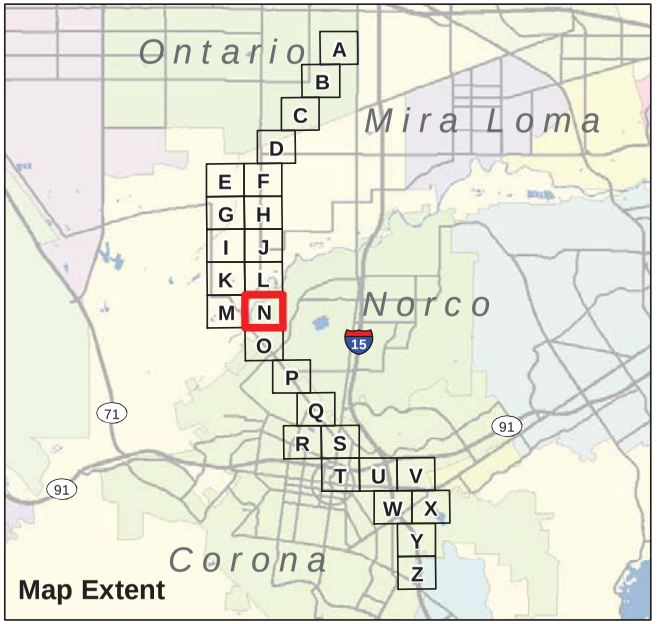
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdff



Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3N

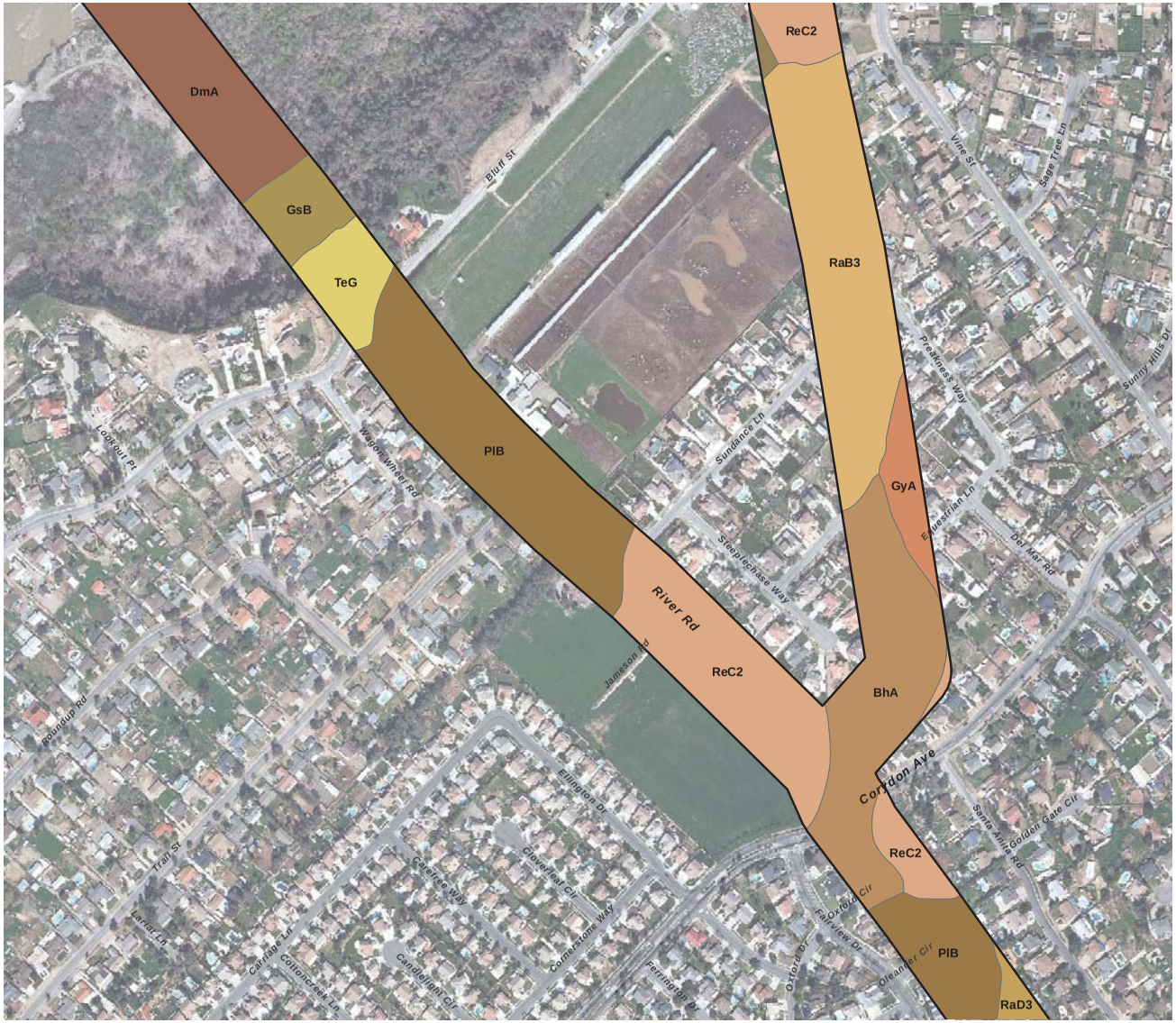
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

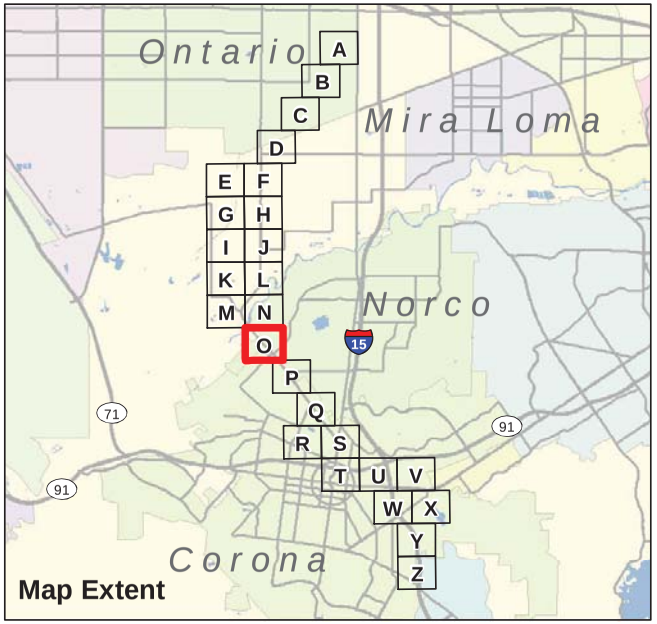
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf



Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Exhibit 3O

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

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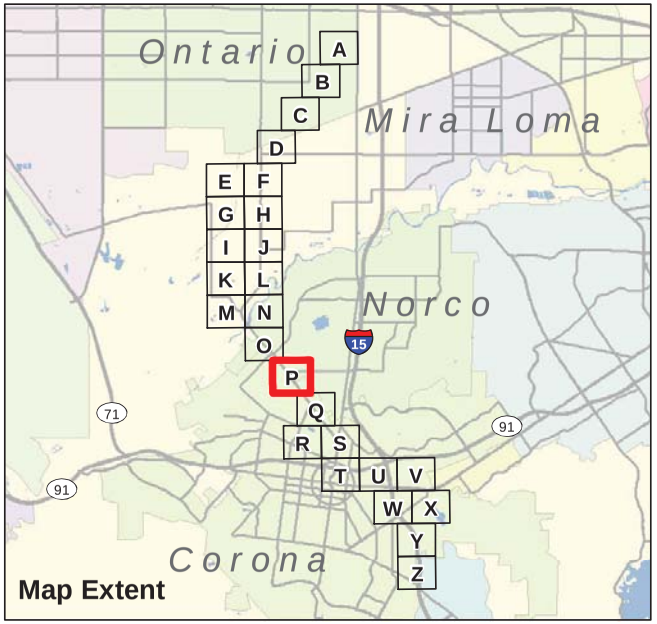
Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

Exhibit 3P

N W E S

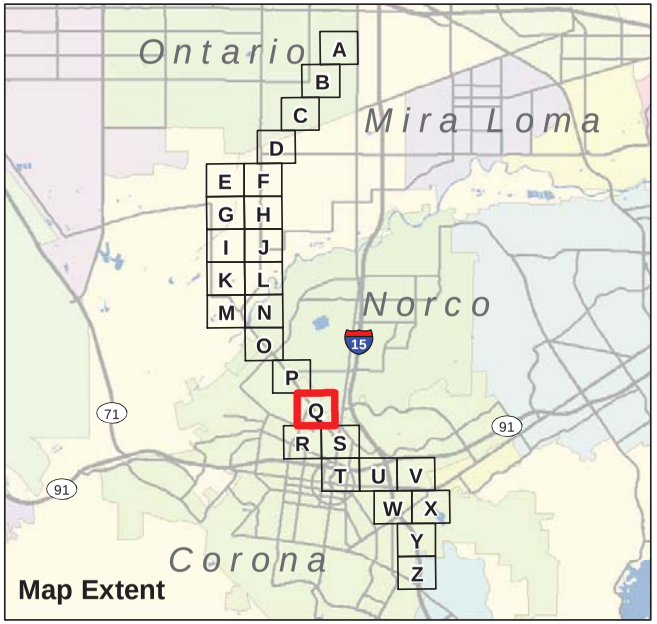
400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



D:\Projects\Edison\J045\MXDex_plants_soils.mxd

Soil Types

Exhibit 3Q

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

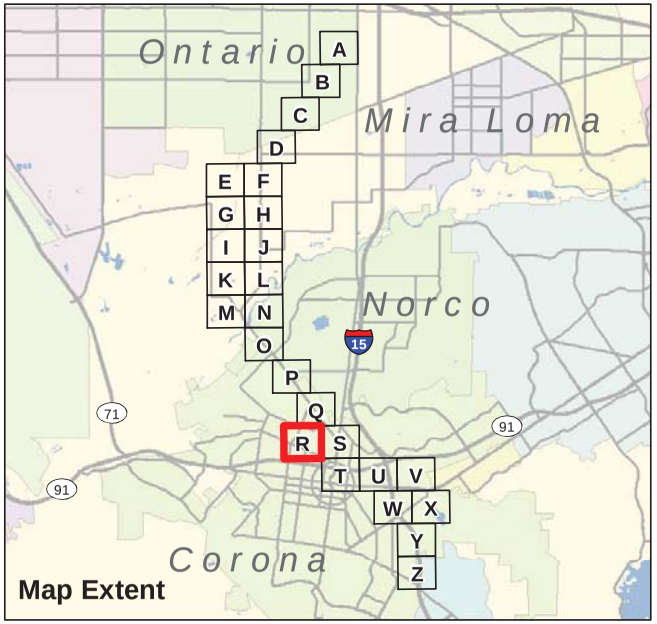
400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3R

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

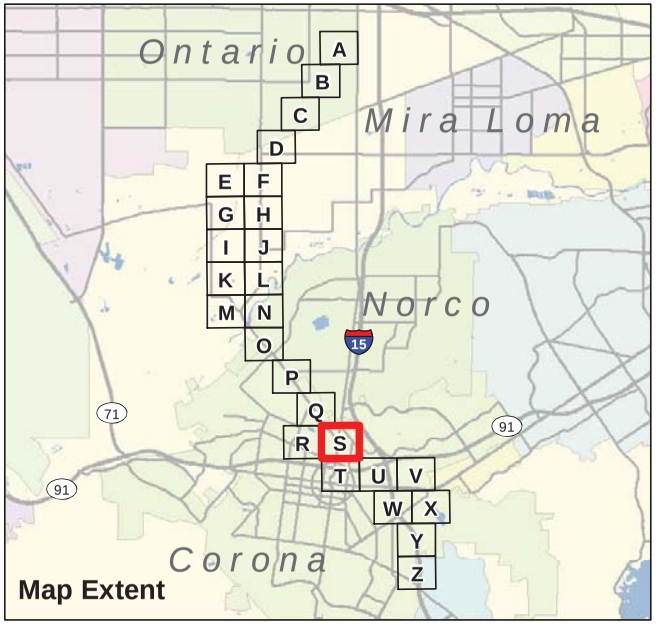
400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

Exhibit 3S

N W E S

400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdff

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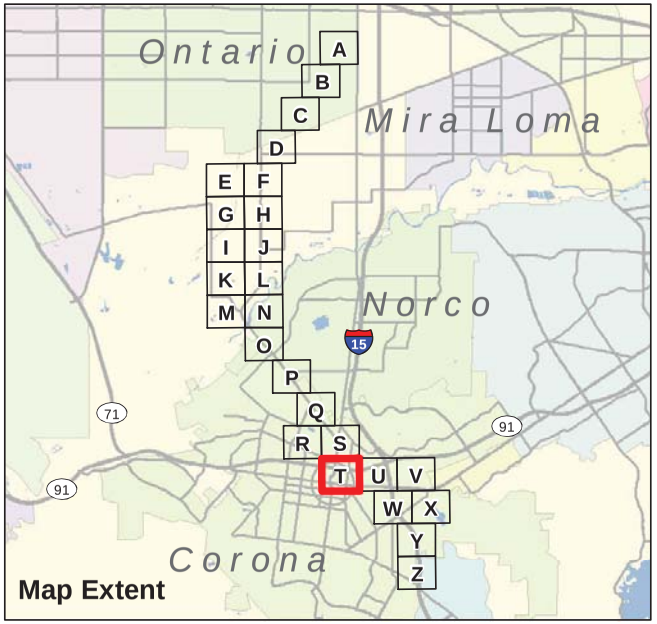
Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Exhibit 3T

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

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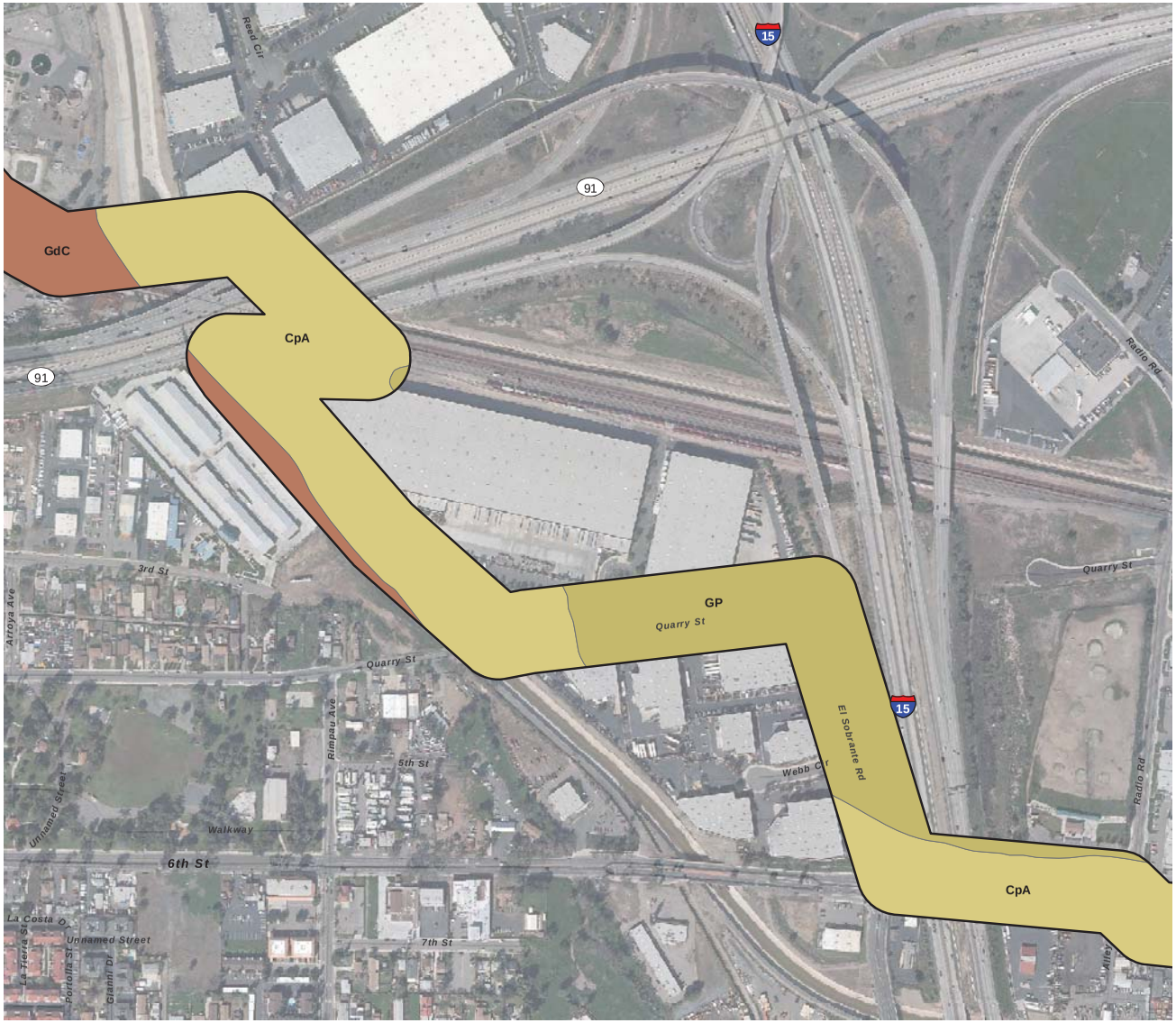
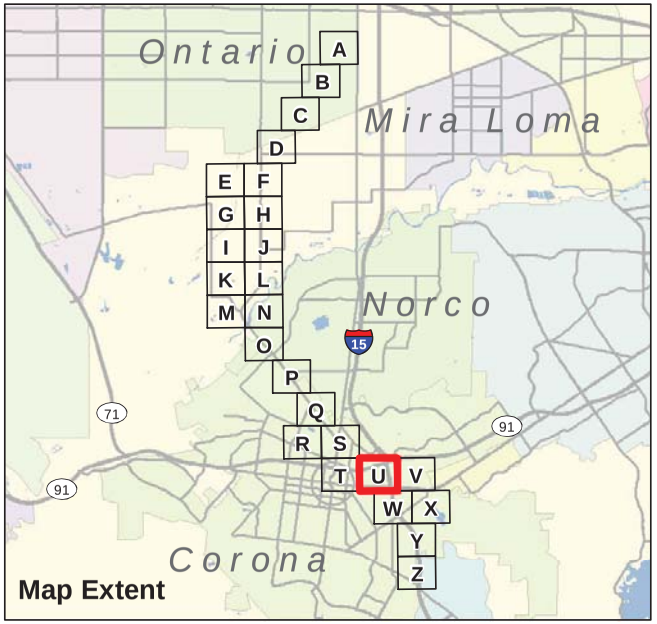


Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3U

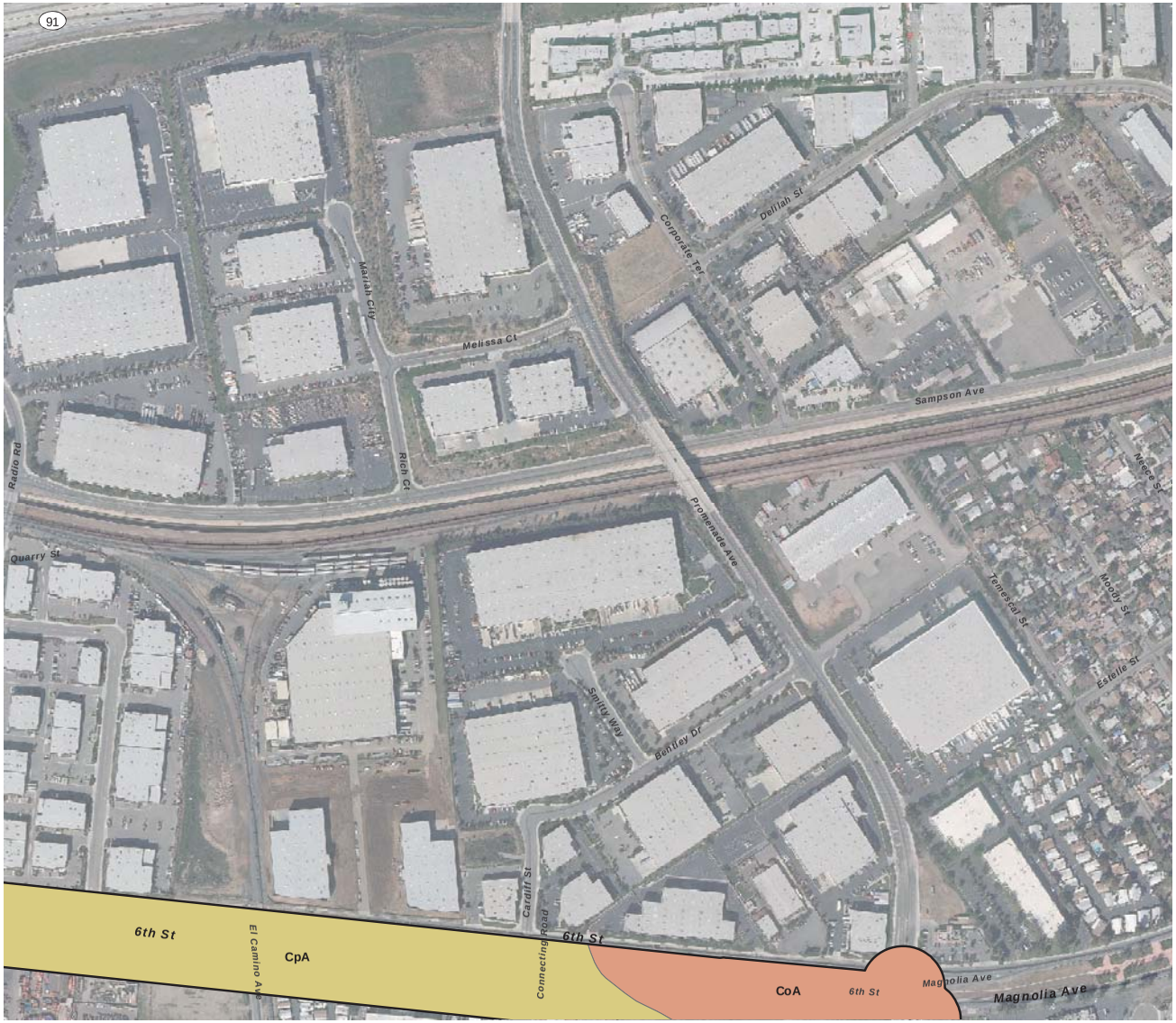
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

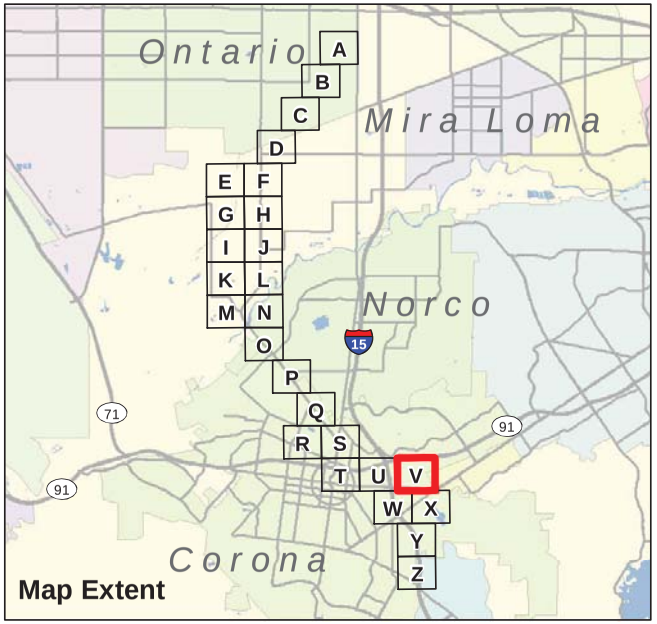
N W E S

400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf





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Soil Types

Exhibit 3V

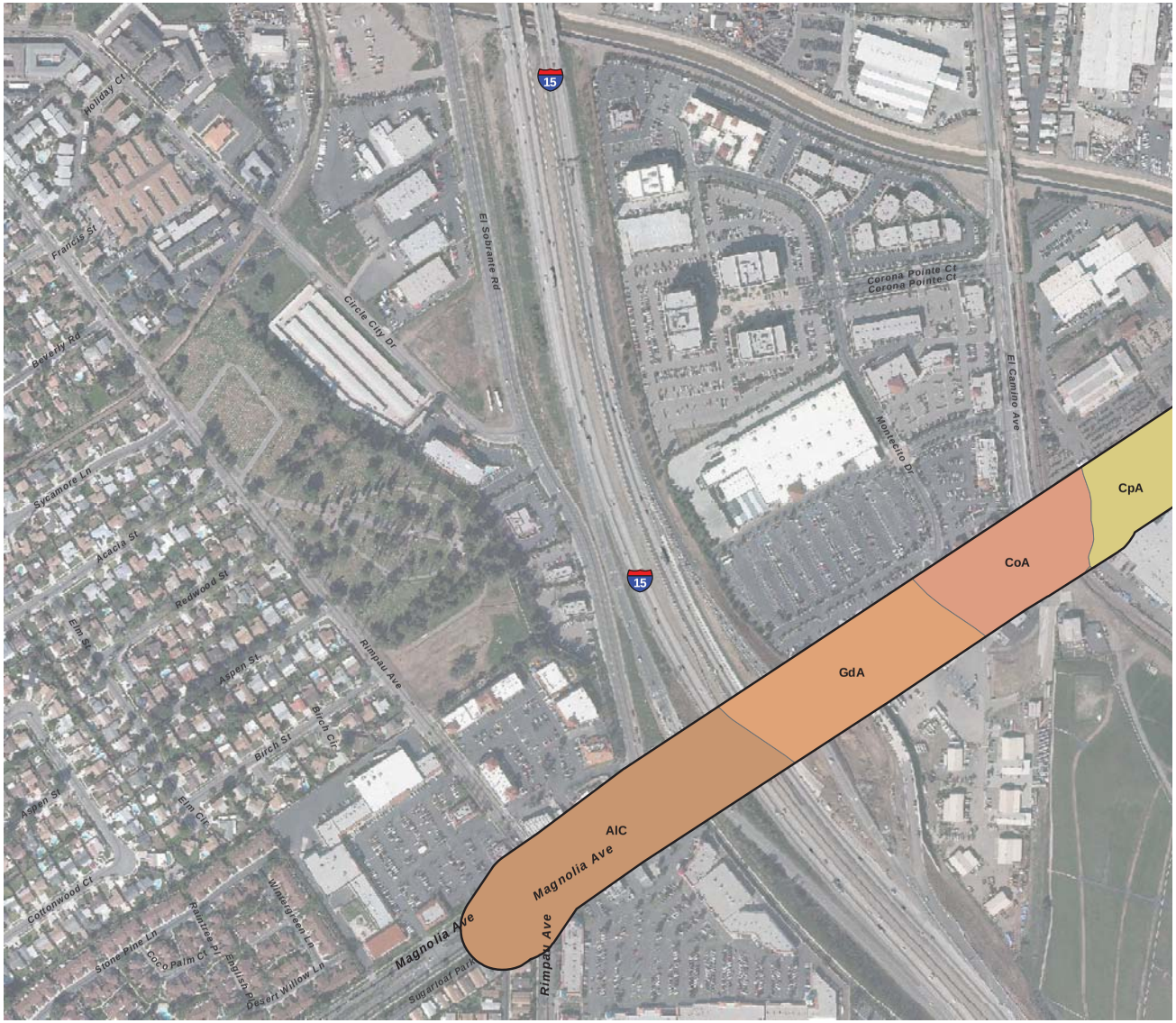
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

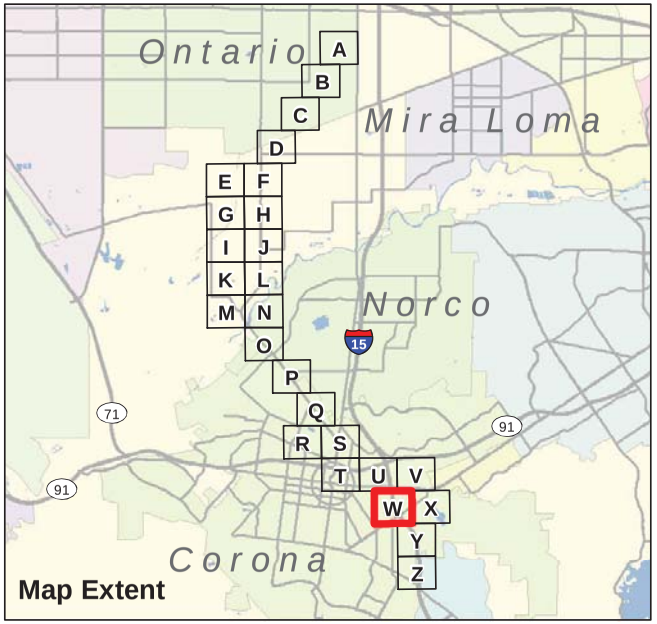
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf



Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Exhibit 3W

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdf

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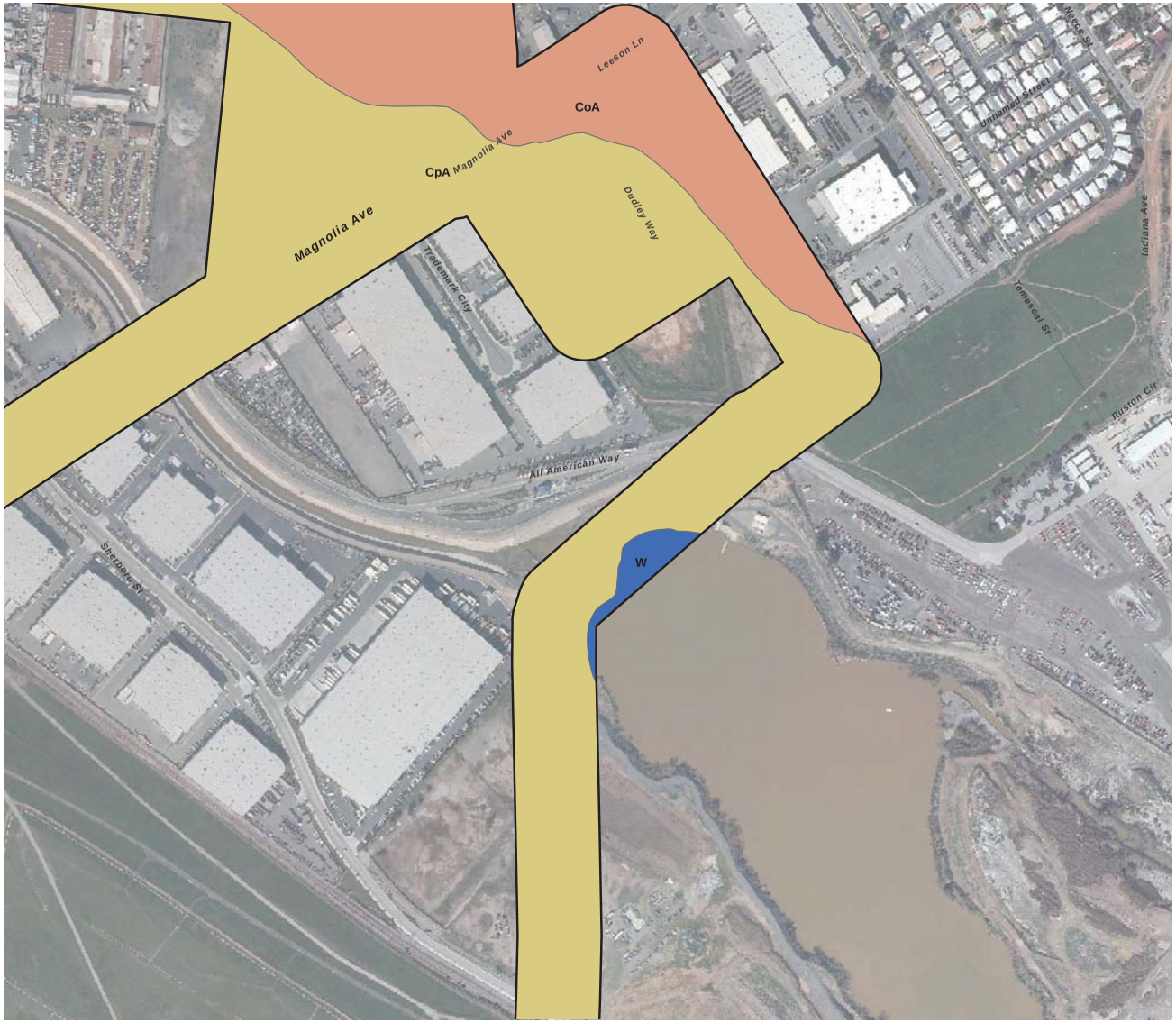
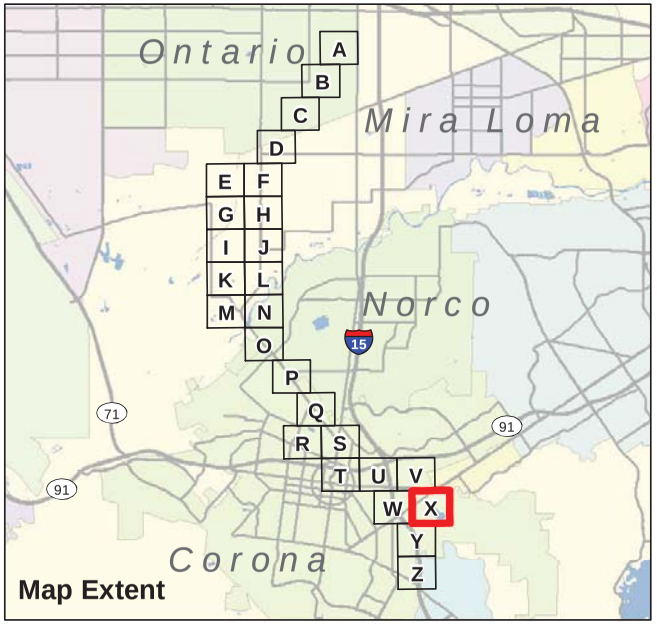


Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



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Soil Types

Exhibit 3X

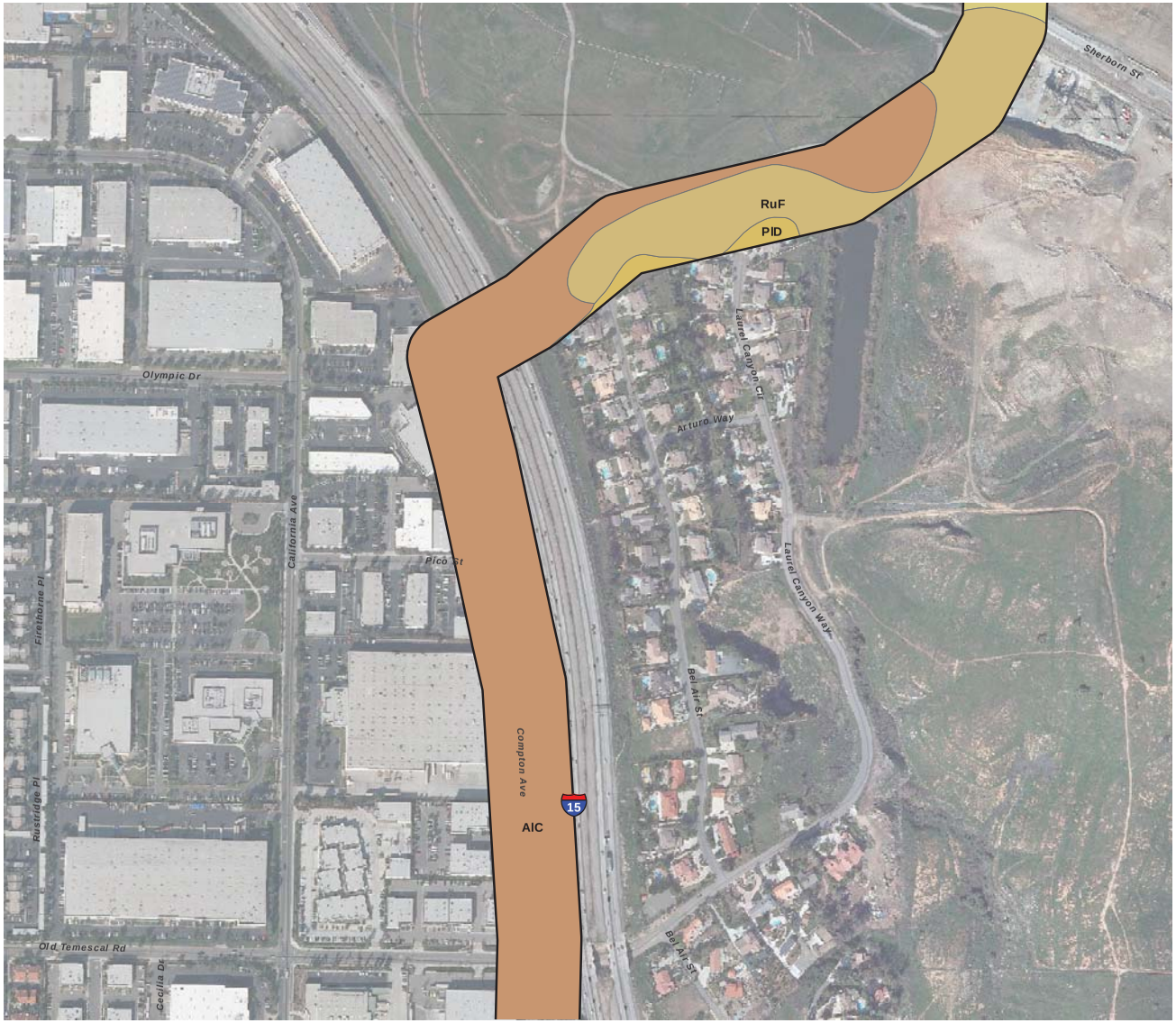
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

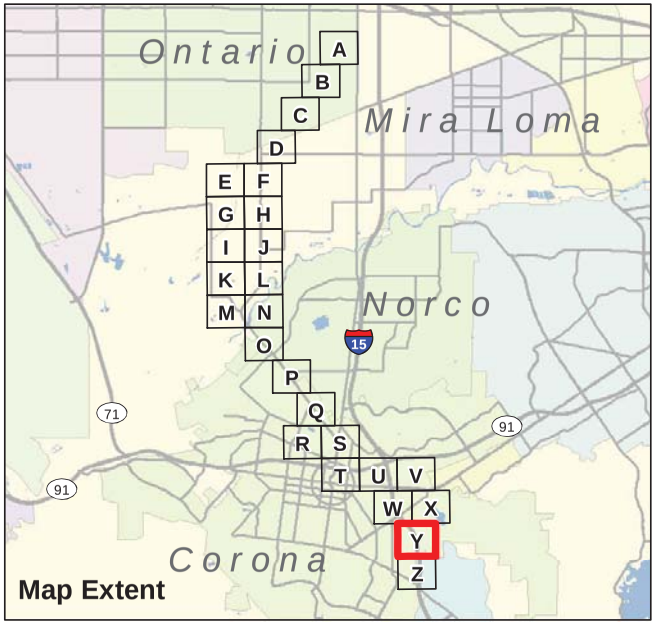
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdff



Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Exhibit 3Y

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

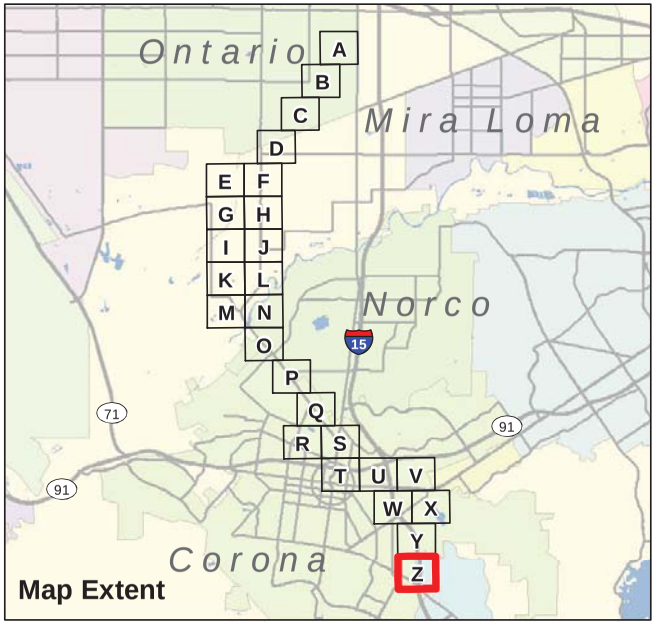
BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdff

D:\Projects\Edison\J045\MXDex_plants_soils.mxd

Survey Area

Note: Please see Exhibit 3 for the Soil Types Legend.



Soil Types

Exhibit 3Z

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

400 200 0 400 Feet

BonTerra CONSULTING

(Rev 101911 JFG) R:\Projects\Edison\J045\Graphics\Biol\Ex3_soils.pdff

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ATTACHMENT A

SITE PHOTOGRAPHS

From the northwest, facing southeast. Riversidian sage scrub along the Circle City Alternate Route.

From the south, facing north. Willow riparian forest located along the Edison Trail (Mira Loma Alternative Route 2).

From the northeast, facing southwest. The margin of willow riparian forest along the River Road Bridge (Mira Loma Preferred Route and Alternative Route 1).

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Site Photographs

Attachment A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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(101911 KFD) R:\Projects\Edison\J045\Graphics\Plant Report 2011\ExAttA_sp.pdf

From the east, facing west. Willow riparian forest (left) and ruderal vegetation (right) along the Circle City Alternate Route.

From the southeast, facing northwest. Ruderal vegetation on Site 34S.

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Site Photographs

Attachment A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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ATTACHMENT B

PLANT COMPENDIUM

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS

Species	
***PTERIDOPHYTES* - FERNS AND ALLIES**	
GYMNOSPERMS	
PINACEAE – PINE FAMILY	
Pinus sp.	pine
***ANGIOSPERMAE* – FLOWERING PLANTS**	
DICOTYLEDONES	
ADOXACEAE – MUSKROOT FAMILY	
Sambucus nigra ssp. *caerulea*	blue elderberry
AIZOACEAE – FIG-MARIGOLD FAMILY	
Sesuvium verrucosum	western sea-purslane
AMARANTHACEAE – AMARANTH FAMILY	
*Amaranthus albus**	tumbleweed
ANACARDIACEAE – SUMAC FAMILY	
*Schinus molle**	pepper tree
*Schinus terebinthifolius**	Brazilian pepper tree
APIACEAE (UMBELLIFERAE) – CARROT FAMILY	
Apiastrum angustifolium	wild celery
*Conium maculatum**	poison hemlock
APOCYNACEAE – DOGBANE FAMILY	
*Nerium oleander**	common oleander
ASTERACEAE (COMPOSITAE) – SUNFLOWER FAMILY	
Ambrosia acanthicarpa	annual bur-sage
Artemisia californica	California sagebrush
Baccharis salicifolia ssp. *salicifolia* [*Baccharis salicifolia*]	mule fat
Bebbia juncea var. *aspera*	sweetbush
*Centaurea melitensis**	tocalote/Maltese star thistle
Erigeron canadensis [*Conyza canadensis*]	common horseweed
Corethrogyne filaginifolia [*Lessingia filaginifolia*]	California-aster
*Cotula australis**	Australian cotula
Deinandra fasciculata [*Hemizonia fasciculata*]	fascicled tarweed
Deinandra paniculata [*Hemizonia paniculata*]	San Diego tarweed
Encelia farinosa	brittlebush
Ericameria nauseosa [*Chrysothamnus nauseosus*]	rubber rabbitbrush
Eriophyllum confertiflorum	golden-yarrow
*Gazania linearis**	gazania
Helianthus annuus	western sunflower
Heterotheca grandiflora	telegraph weed
*Hypochaeris glabra**	smooth cat's-ear
*Lactuca serriola**	prickly lettuce
Lepidospartum squamatum	scale-broom
Logfia gallica [*Filago gallica*]*	daggerleaf cottonrose
Malacothrix saxatilis	cliff malacothrix

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
Pseudognaphalium californicum [*Gnaphalium californicum*]	California everlasting
Pseudognaphalium canescens [*Gnaphalium canescens*]	everlasting
Pseudognaphalium luteoalbum [*Gnaphalium luteoalbum*]*	weedy cudweed
*Pulicaria paludosa**	Spanish sunflower
*Silybum marianum**	milk thistle
*Sonchus oleraceus**	common sow thistle
Stephanomeria virgata ssp. *virgata*	tall wreath plant
Stylocline gnaphaloides	everlasting neststraw
Xanthium strumarium	cocklebur
BORAGINACEAE – BORAGE FAMILY	
Amsinckia menziesii [*Amsinckia menziesii* var. *menziesii*]	rigid fiddleneck
Heliotropium curassavicum var. *oculatum*	salt heliotrope/alkali heliotrope
Pectocarya linearis ssp. *ferocula*	slender pectocarya
BRASSICACEAE (CRUCIFERAE) – MUSTARD FAMILY	
*Brassica oleracea**	cultivated broccoli
*Brassica nigra**	black mustard
Descurainia pinnata	tansy mustard
*Hirschfeldia incana**	shortpod mustard
*Lepidium didymum**	peppergrass
*Lepidium latifolium**	broad-leaved peppergrass
*Raphanus sativus**	radish
CARYOPHYLLACEAE – PINK FAMILY	
*Spergularia bocconei**	Boccone's sand-spurrey
CHENOPODIACEAE – GOOSEFOOT FAMILY	
Bassia hyssopifolia	five-hook bassia
*Chenopodium album**	lamb's quarters
Dysphania ambrosioides [*Chenopodium ambrosioides*] *	Mexican tea
*Salsola tragus**	Russian thistle
CONVOLVULACEAE – MORNING-GLORY FAMILY	
Calystegia macrostegia	morning-glory
Cuscuta californica	chaparral dodder
CRASSULACEAE – STONECROP FAMILY	
Crassula connata	pygmy-weed
EUPHORBIACEAE – SPURGE FAMILY	
Chamaesyce albomarginata	rattlesnake weed
*Chamaesyce maculata**	spotted spurge
Croton setigerus [*Eremocarpus setigerus*]	doveweed/turkey mullein
*Ricinus communis**	castor bean
FABACEAE (LEGUMINOSAE) – LEGUME FAMILY	
Acmispon americanus [*Lotus purshianus*]	Pursh's lotus
Acmispon hamatus [*Lotus hamatus*]	grab lotus/San Diego lotus
Acmispon glaber [*Lotus scoparius*]	deerweed

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
*Medicago polymorpha**	California burclover
*Melilotus alba**	white sweetclover
*Melilotus indica**	sourclover
*Robinia psuedoacacia**	black locust
GERANIACEAE – GERANIUM FAMILY	
*Erodium cicutarium**	red-stemmed filaree
*Erodium moschatum**	white-stemmed filaree
LAMIACEAE (LABIATAE) – MINT FAMILY	
*Marrubium vulgare**	common horehound
Trichostema lanatum	woolly blue curls
MALVACEAE – MALLOW FAMILY	
*Malva parviflora**	cheeseweed
MYRSINACEAE – MYRSINE FAMILY	
*Anagallis arvensis**	scarlet pimpernel
MYRTACEAE – MYRTLE FAMILY	
Eucalyptus sp.*	gum
ONAGRACEAE – EVENING PRIMROSE FAMILY	
*Ludwigia peploides**	yellow waterweed
Oenothera sp.	evening primrose
PAPAVERACEAE – POPPY FAMILY	
Eschscholzia californica	California poppy
PHRYMACEAE – LOPSEED FAMILY	
Mimulus cardinalis	scarlet monkeyflower
Mimulus guttatus	seep monkeyflower
PLANTAGINACEAE – PLANTAIN FAMILY	
*Plantago major**	common plantain
PLUMBAGINACEAE – LEADWORT FAMILY	
Limonium sp.	statice
POLYGONACEAE – BUCKWHEAT FAMILY	
Eriogonum fasciculatum	California buckwheat
Eriogonum sp.	annual buckwheat
Persicaria lapathifolia [*Polygonum lapathifolium*]	willow weed
*Rumex crispus**	curly dock
*Rumex pulcher **	fiddle dock
RANUNCULACEAE – CROWFOOT FAMILY	
Clematis sp.	clematis
ROSACEAE – ROSE FAMILY	
Heteromeles arbutifolia	toyon/christmas berry
Rubus ursinus	California blackberry
SALICACEAE – WILLOW FAMILY	
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Salix gooddingii	Goodding's black willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
SIMAROUBACEAE – QUASSIA FAMILY	
*Ailanthus altissima**	tree of heaven
SOLANACEAE – NIGHTSHADE FAMILY	
Datura wrightii	jimson weed
*Nicotiana glauca**	tree tobacco
Nicotiana quadrivalvis [*Nicotiana bigelovii*]	Wallace's tobacco
Solanum americanum	white nightshade
TAMARICACEAE – TAMARISK FAMILY	
*Tamarix ramosissima**	Mediterranean tamarix
VITACEAE – GRAPE FAMILY	
Vitis sp. *	cultivated grape
ZYGOPHYLLACEAE – CALTROP FAMILY	
*Tribulus terrestris**	puncture vine
***MONOCOTYLEDONES* – MONOCOTS**	
ALLIACEAE – ONION OR GARLIC FAMILY	
*Allium cepa**	cultivated onion
ARECACEAE (PALMAE) – PALM FAMILY	
*Phoenix canariensis**	Canary Island palm
*Washingtonia robusta**	Mexican fan palm
CYPERACEAE – SEDGE FAMILY	
*Cyperus rotundus**	purple nutsedge
Eleocharis sp.	spike rush
JUNCACEAE – RUSH FAMILY	
Juncus balticus [*Juncus arcticus* var. *balticus*]	baltic rush
Juncus sp.	rush
POACEAE [*GRAMINEAE*] – GRASS FAMILY	
*Arundo donax**	giant reed
*Avena barbata**	slender wild oat
*Avena fatua**	wild oat
*Bromus catharticus**	rescue grass
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	foxtail chess
*Cynodon dactylon**	bermuda grass
Festuca microstachys [*Vulpia microstachys*]	fescue
Festuca myuros [*Vulpia myuros*]*	foxtail fescue
*Hordeum murinum**	barley
*Hordeum vulgare**	cultivated barley
*Lamarckia aurea**	goldentop
*Lolium perenne**	perennial ryegrass
*Paspalum dilatatum**	dallis grass
*Pennisetum setaceum**	crimson fountain grass
*Polypogon monspeliensis**	annual beard grass

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
*Schismus barbatus**	Mediterranean schismus
*Sorghum bicolor**	sorghum
TYPHACEAE – CATTAIL FAMILY	
Typha sp.	cattail
* non-native species	

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August 23, 2012

Ms. Adelina Muñoz
Southern California Edison
1218 South Fifth Avenue
Monrovia, California 91016

VIA EMAIL
Adelina.Munoz@sce.com

Subject: Results of Focused Plant Surveys for the Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project, Riverside and San Bernardino Counties, California

Dear Ms. Muñoz:

This Letter Report presents the findings of focused plant surveys conducted for Southern California Edison (SCE) for the Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project (hereafter referred to as "the Proposed Project") in Riverside and San Bernardino Counties, California (Figure 1).

Project Description and Location

The Proposed Project will construct a new 66/12-kilovolt (kV) distribution substation (i.e., the Circle City Substation) with four 66-kV source line segments, 6 new 12-kV distribution circuit getaways, and a new 66-kV subtransmission line (Mira Loma-Jefferson); upgrade the existing Mira Loma Substation; and install new fiber optic cable and communication equipment to connect the proposed Circle City Substation to Southern California Edison's (SCE's) existing telecommunication system. The purpose of the Proposed Project is to ensure the availability of safe and reliable electric service to meet customer electrical demand in the Electrical Needs Area. The Study Area for the Proposed Project consists of the following:

1. A 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, the proposed Circle City Substation site, and the alternative Circle City Substation site);

2. A 300-foot buffer on either side of the proposed Mira Loma-Jefferson 66-kV subtransmission line route, the two alternative Mira Loma-Jefferson 66-kV subtransmission line routes (i.e., Alternative 2 and Alternative 3), and the proposed and alternative source line routes; and

3. A 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.

The Proposed Project primarily runs west of Interstate (I) 15 and north of State Route (SR) 91, with the southern end of the Proposed Project extending south of SR-91 and east of I-5. It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Figure 2). Topography in the Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl).

Land uses in the immediate Proposed Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project. Soils in the Study Area consist of Arbuckle gravelly loam; Buchenau loam, slightly saline-alkali; Cajalco fine sandy loam; Chino silt loam; Chino silt loam, drained; Chualar clay loam; Cieneba rocky sandy loam; Cortina sandy loam; Cortina gravelly sandy loam; Delhi fine sand; Delhi loamy fine sand; Dello loamy sand, poorly drained; Dello loamy fine sand, gravelly substratum; Domino silt loam; gravel pits; Garretson gravelly very fine sandy loam; Grangeville loamy fine sand, drained; Grangeville fine sandy loam; Grangeville sandy loam, sandy substratum, drained, saline-alkali; Grangeville fine sandy loam, poorly drained, saline-alakali; Greenfield sandy loam; Hanford coarse sandy loam; Hilmar loamy sand; Hilmar loamy very fine sand; Hilmar loamy fine sand; Metz loamy fine sand, gravelly sand substratum; Pachappa fine sandy loam; Placentia fine sandy loam; Ramona sandy loam; Ramona very fine sandy loam; riverwash; rough broken land; San Emigdio fine sandy loam; San Emigdio fine sandy loam, deep; San Emigdio loam; Temescal rocky loam; terrace escarpments; and Waukena fine sandy loam, saline-alkali (Figures 3A–3H) (USDA NRCS 1980, 1974).

Sixteen vegetation types and other areas occur in the Study Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, freshwater marsh, open water, flood control channel, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost layer of vegetation.

METHODS

The 2012 special status plant Survey Area includes all suitable habitats within a 300-foot buffer of the existing substations, the proposed Circle City Substation site, the proposed Mira Loma-Jefferson subtransmission line route, the proposed source line routes, and all proposed material yards, access roads, guard structures, and pulling sites.

Botanical surveys were floristic in nature and conducted following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). A literature search was conducted to identify special status plants and habitats known to occur in the vicinity of the Survey Area. Sources reviewed include the USGS' Ontario, Guasti, Fontana, Prado Dam, Corona North, Riverside West, Corona South, and Lake Mathews 7.5-minute quadrangles in the California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012) and the California Department of Fish and Game's (CDFG's) California Natural Diversity Database (CNDDB) (CDFG 2012). In addition, the MSHCP was reviewed to determine if the Survey Area was within an "Additional Survey Needs Area" that indicates potential for specific criteria area or narrow endemic plant species. The Survey Area overlaps the "Additional Survey Needs" areas for San Diego ambrosia (*Ambrosia pumila*), Brand's star phacelia (*Phacelia stellaris*), and San Miguel savory (*Clinopodium chandleri* [*Satureja c.*]).

For many annual and perennial herb species, rainfall received in the winter and spring determines seed germination. According to the National Oceanic and Atmospheric Administration (NOAA), the region (data taken from Ontario International Airport and Ramona) received 8.91 inches of precipitation this season (i.e., between July 1, 2011 and June 30, 2012), which is 6.13 inches below average (NOAA 2012). In years of below average rainfall, monitoring of reference populations is important in order to interpret survey results.

Reference populations (Table 1) were monitored for annual and difficult-to-detect target species to ensure that the scheduled surveys were comprehensive and conducted during these species' appropriate blooming period. Based on the reference population monitoring, target plant species were observable at the time the Project surveys were conducted.

TABLE 1
SPECIAL STATUS PLANT SPECIES REFERENCE POPULATIONS CHECKED PRIOR TO FOCUSED SURVEYS

Species	Date Observed	Location
Ambrosia pumila San Diego ambrosia	April 20, 2012*	Lake Elsinore
Centromadia pungens ssp. *laevis* smooth tarplant	June 12, 2012	Lake Elsinore
Dodecahema leptoceras slender-horned spineflower	May 7, 2012	western Riverside County
Pseudognaphalium leucocephalum white rabbit-tobacco	August 11, 2012	Casper's Wilderness Park
* The species was not blooming on this date; however, it is identifiable in a vegetative state.		

All potentially suitable habitats for special status plant species within the Survey Area were systematically surveyed. Surveys were conducted by BonTerra Consulting Biologists Allison Rudalevige, Jennifer Pareti, and Robert Allen and Consulting Botanist Sandra Leatherman and David Bramlet (Table 2). A total of 36.3 person-hours were spent conducting all surveys. Photographs of the Survey Area were taken during surveys and are included as Attachment A. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they are a special status species. Plants were identified using taxonomic keys, descriptions, and illustrations in Baldwin et al. (2012), Munz (1974), Abrams (1923, 1944, 1951), and Abrams and Ferris (1960). Taxonomy and nomenclature follows Baldwin et al. (2012) and current scientific journals for scientific and common names. Any voucher specimens collected will be deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California. For each special status species population observed, data was collected on the number and phenology of individuals and microsite characteristics such as slope, aspect, soil texture, surrounding habitat, and associated species.

TABLE 2
2012 SURVEY SCHEDULE

Date	Surveyors	Number Person-hours
April 18	Allison Rudalevige, Jennifer Pareti	4.3
June 13	Sandra Leatherman, David Bramlet	14.5
June 18	Sandra Leatherman, David Bramlet	16
August 20	Robert Allen	1.5
	Total	**36.3**

SURVEY RESULTS

Table 3 identifies the special status plants known to occur in the vicinity of the Survey Area and the survey results.

TABLE 3
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Abronia villosa var. *aurita* chaparral sand-verbena	—	—	1B.1	—	No potential to occur; no suitable habitat.
Allium munzii Munz's onion	FE	ST	1B.1	Covered[a]	No potential to occur; no suitable habitat.
Ambrosia pumila San Diego ambrosia	FE	—	1B.1	Covered[b]	Limited marginal habitat. Not observed during focused surveys.
Arenaria paludicola marsh sandwort	FE	SE	1B.1	—	Suitable habitat. Not observed during focused surveys.
Atriplex coulteri Coulter's saltbush	—	—	1B.2	—	No potential to occur; no suitable habitat.
California macrophylla round-leaved filaree	—	—	1B.1	Covered[c]	No potential to occur; no suitable habitat.
Calochortus plummerae Plummer's mariposa lily	—	—	1B.2	Covered[d]	No potential to occur; no suitable habitat.
Calochortus weedii var. *intermedius* intermediate mariposa lily	—	—	1B.2	Covered	No potential to occur; no suitable habitat.
Calystegia sepium ssp. *binghamiae* Santa Barbara morning-glory	—	—	1B.1	—	Suitable habitat. Not observed during focused surveys.
Caulanthus simulans Payson's jewel-flower	—	—	4.2	Covered	No potential to occur; no suitable habitat.
Centromadia pungens ssp. *laevis* smooth tarplant	—	—	1B.1	Covered[c]	Suitable habitat. Not observed during focused surveys.
Chloropyron maritimum ssp. maritimum [*Cordylanthus maritimus* ssp. *maritimus*] salt marsh bird's-beak	FE	SE	1B.2	—	No potential to occur; no suitable habitat.
Chorizanthe parryi var. *parryi* Parry's spineflower	—	—	1B.1	Covered[d]	No potential to occur; no suitable habitat.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	—	—	1B.2	Covered	No potential to occur; no suitable habitat.
Chorizanthe xanti var. *leucotheca* white-bracted spineflower	—	—	1B.2	—	No potential to occur; no suitable habitat.
Cladium californicum California saw-grass	—	—	2.2	—	Suitable habitat. Not observed during focused surveys.
Clinopodium chandleri [*Satureja chandleri*] San Miguel savory	—	—	1B.2	Covered[b]	No potential to occur; no suitable habitat.
Dodecahema leptoceras slender-horned spineflower	FE	SE	1B.1	Covered[a]	Suitable habitat. Not observed during focused surveys.
Dudleya multicaulis many-stemmed dudleya	—	—	1B.2	Covered[a]	No potential to occur; no suitable habitat.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	FE	SE	1B.1	Covered	Suitable habitat. Not observed during focused surveys.

TABLE 3
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY
(Continued)

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		
Harpagonella palmeri Palmer's grapplinghook	—	—	4.2	Covered	No potential to occur; no suitable habitat.
Hesperocyparis [*Callitropsis*] *forbesii* Tecate cypress	—	—	1B.1	—	No potential to occur; no suitable habitat.
Horkelia cuneata ssp. *puberula* mesa horkelia	—	—	1B.1	—	No potential to occur; no suitable habitat.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	—	—	1B.1	Covered[c]	No potential to occur; no suitable habitat.
Lepechinia cardiophylla heart-leaved pitcher sage	—	—	1B.2	Covered[c]	No potential to occur; no suitable habitat.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	—	—	1B.2	—	No potential to occur; no suitable habitat.
Lycium parishii Parish's desert-thorn	—	—	2.3	—	No potential to occur; no suitable habitat.
Monardella australis ssp. *jokerstii* Jokerst's monardella	—	—	1B.1	—	No potential to occur; no suitable habitat.
Monardella pringlei Pringle's monardella	—	—	1A	—	No potential to occur; no suitable habitat.
Muhlenbergia californica California muhly	—	—	4.3	Covered[d]	Suitable habitat. Not observed during focused surveys.
Navarretia prostrata prostrate vernal pool navarretia	—	—	1B.1	Covered[c]	No potential to occur; no suitable habitat.
Nolina cismontana Peninsular nolina	—	—	1B.2	—	No potential to occur; no suitable habitat.
Phacelia keckii [*Phacelia suaveolens* ssp. *keckii*] Santiago Peak phacelia	—	—	1B.3	—	No potential to occur; no suitable habitat.
Phacelia stellaris Brand's star phacelia	FC	—	1B.1	Covered[b]	No potential to occur; no suitable habitat.
Pseudognaphalium leucocephalum white rabbit-tobacco	—	—	2.2	—	Suitable habitat. Not observed during focused surveys.
Senecio aphanactis chaparral ragwort	—	—	2.2	—	No potential to occur; no suitable habitat.
Sidalcea neomexicana salt spring checkerbloom	—	—	2.2	—	Suitable habitat. Not observed during focused surveys.
Symphyotrichum defoliatum San Bernardino aster	—	—	1B.2	—	Limited marginal habitat. Not observed during focused surveys.
Thysanocarpus rigidus [*Thysanocarpus laciniatus* var. *rigidus*] rigid fringepod	—	—	1B.2	—	No potential to occur; no suitable habitat.

TABLE 3
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE SURVEY AREA VICINITY
(Continued)

Species	Status			MSHCP Coverage	Potential to Occur in the Survey Area; Results of Focused Survey
	USFWS	CDFG	CNPS		

LEGEND:

Federal (USFWS)
FE Endangered
FC Candidate

State (CDFG)
SE Endangered
ST Threatened

California Rare Plant Rank (CRPR)
1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
4 Plants of Limited Distribution – A Watch List

California Rare Plant Rank (CRPR) Threat Code Extensions
None Plants lacking any threat information
.1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Fairly Endangered in California (20–80% of occurrences threatened)
.3 Not Very Threatened in California (low degree/immediacy of threat or no current threats known)

[a] These Narrow Endemic plant species are covered by the MSHCP, but the Proposed Project is outside the specific survey area for these particular species (Figure 6-1 of the MSHCP).
[b] These Narrow Endemic plant species are covered by the MSHCP and the Proposed Project is within the specific survey area for these particular species (Figure 6-1 of the MSHCP). Mitigation will be in accordance with procedures described in Section 6.1.3 of the MSHCP.
[c] These Criteria Area plant species are covered by the MSHCP, but the Proposed Project is outside the Additional Survey Needs area for these particular species (Figure 6-2 of the MSHCP).
[d] These species are Covered by the MSHCP and no additional mitigation is required. These species will be considered Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met. Species-specific conservation objectives for these species are presented in Section 9.0 of the MSHCP.

Note: A dash ("—") indicates that this is not applicable for the species.

Note that the 2012 Survey Area does not include any Project alternatives; therefore, species with potential to occur in vegetation types present in the larger Study Area but absent from the 2012 Survey Area are not expected to occur.

No special status plant species were observed during the 2012 focused surveys. A list of all plants observed within the Survey Area during focused surveys can be found in Attachment B. Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a site but may not be detectable at the time of the surveys.

If you have any comments or questions, please call Stacie Tennant at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager/Biologist

Allison D. Rudalevige
Biologist/Regulatory Technician

Enclosures: Figure 1 – Project Location
Figures 2A–2C – USGS Quadrangle
Figures 3A–3H – Soil Types
Attachment A – Site Photographs
Attachment B – Plant Compendium

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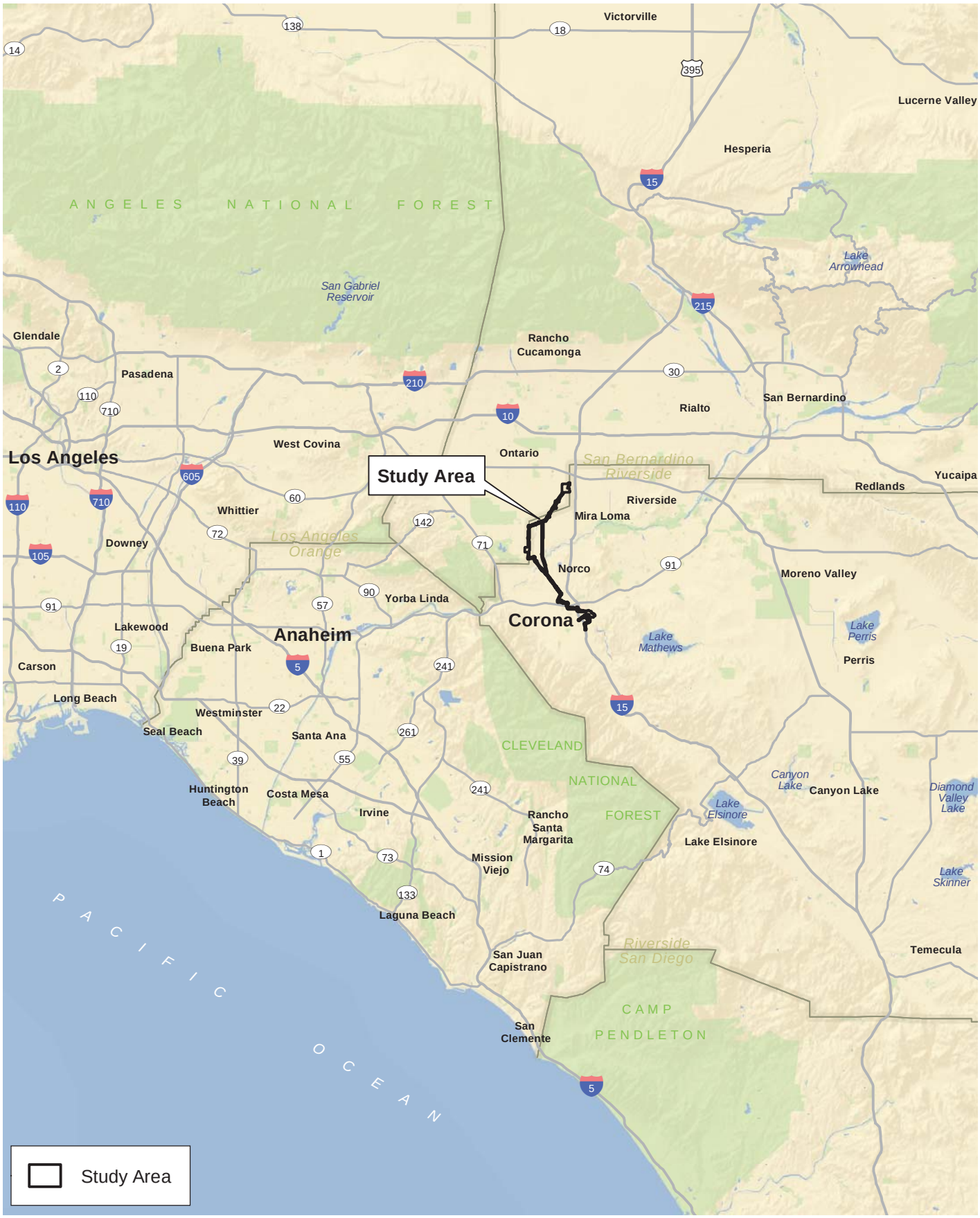

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Regional Location

Figure 1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

10 5 0 10 Miles

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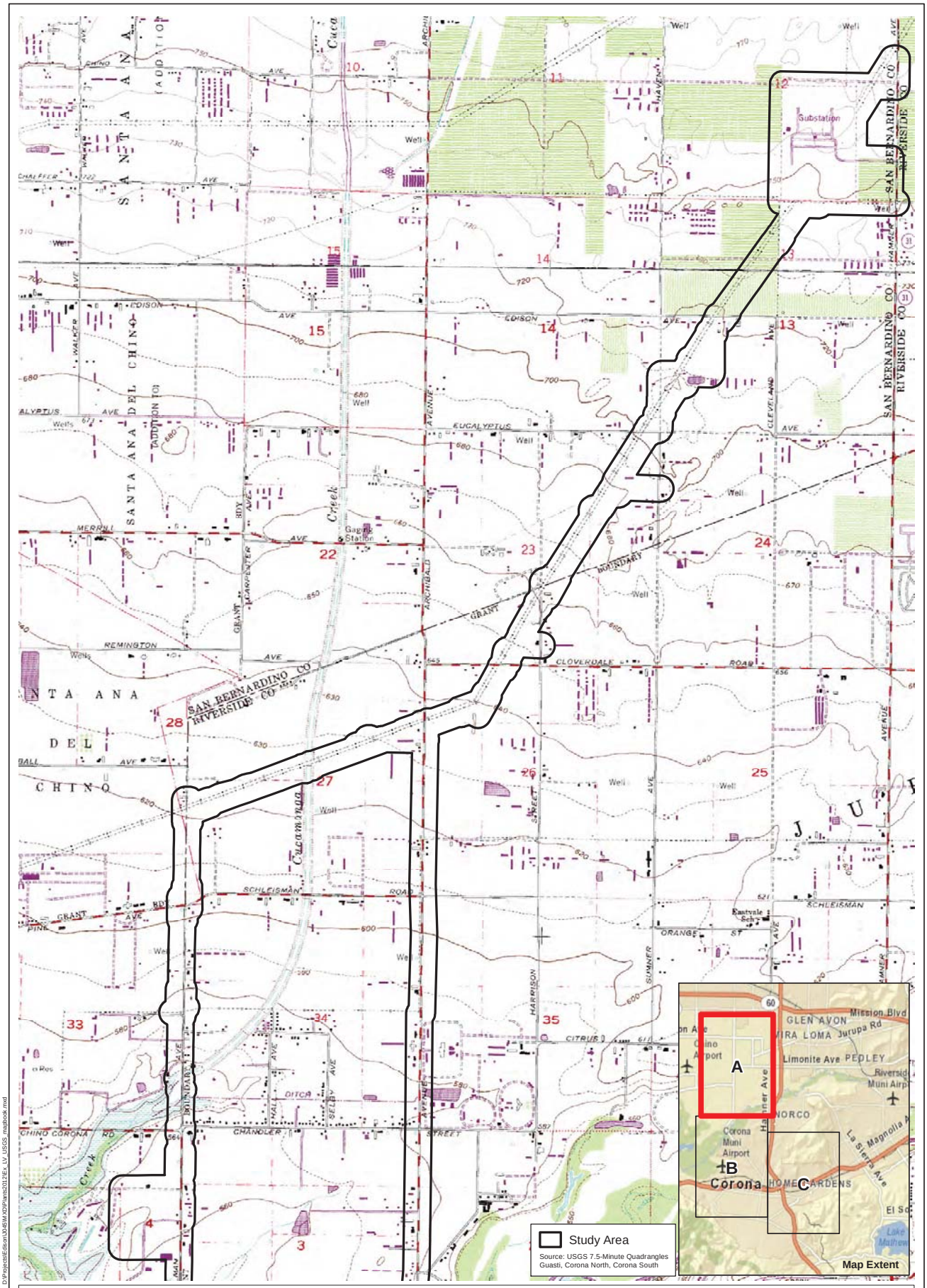

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USGS 7.5-Minute Quadrangle

Figure 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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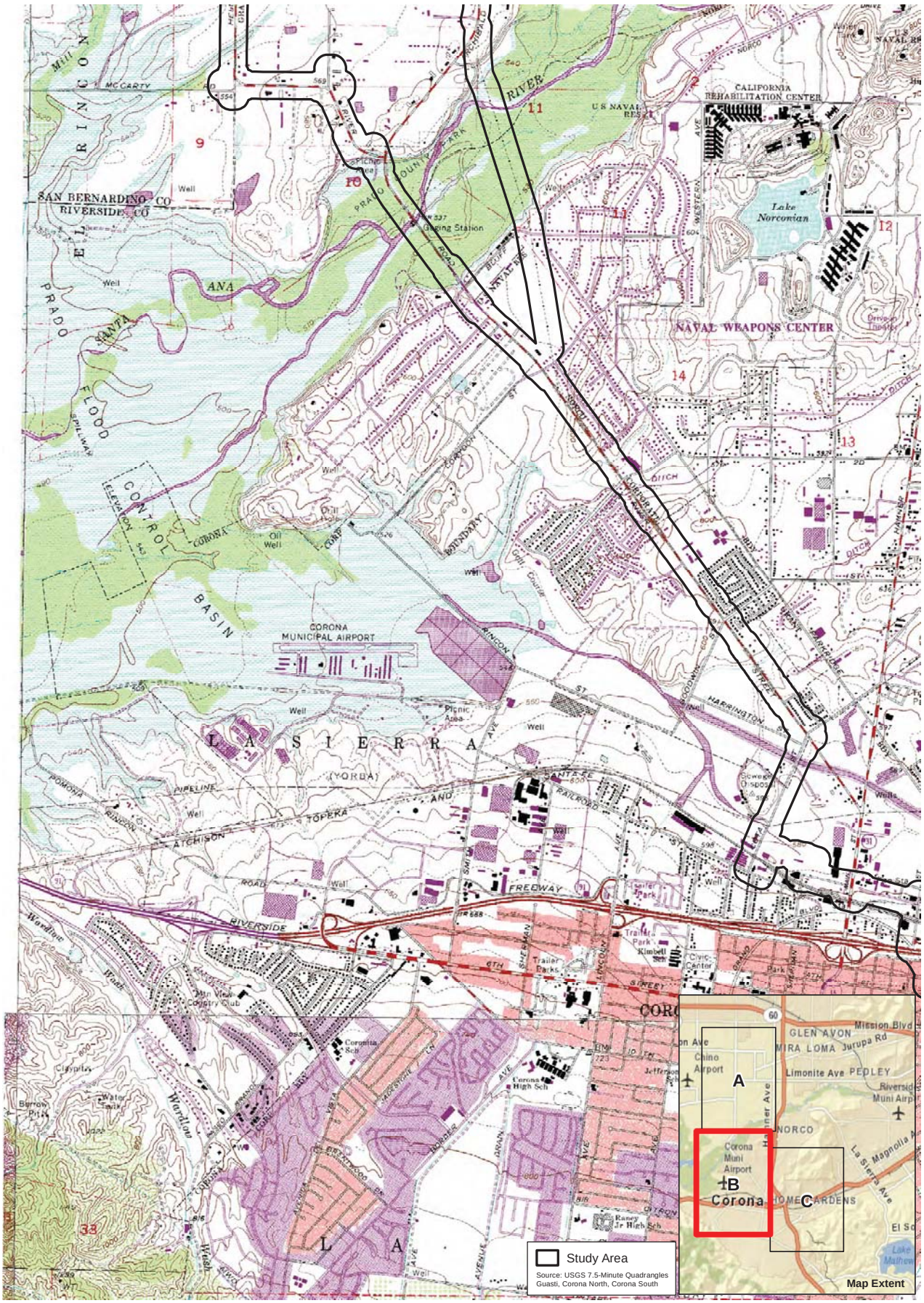

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USGS 7.5-Minute Quadrangle

Figure 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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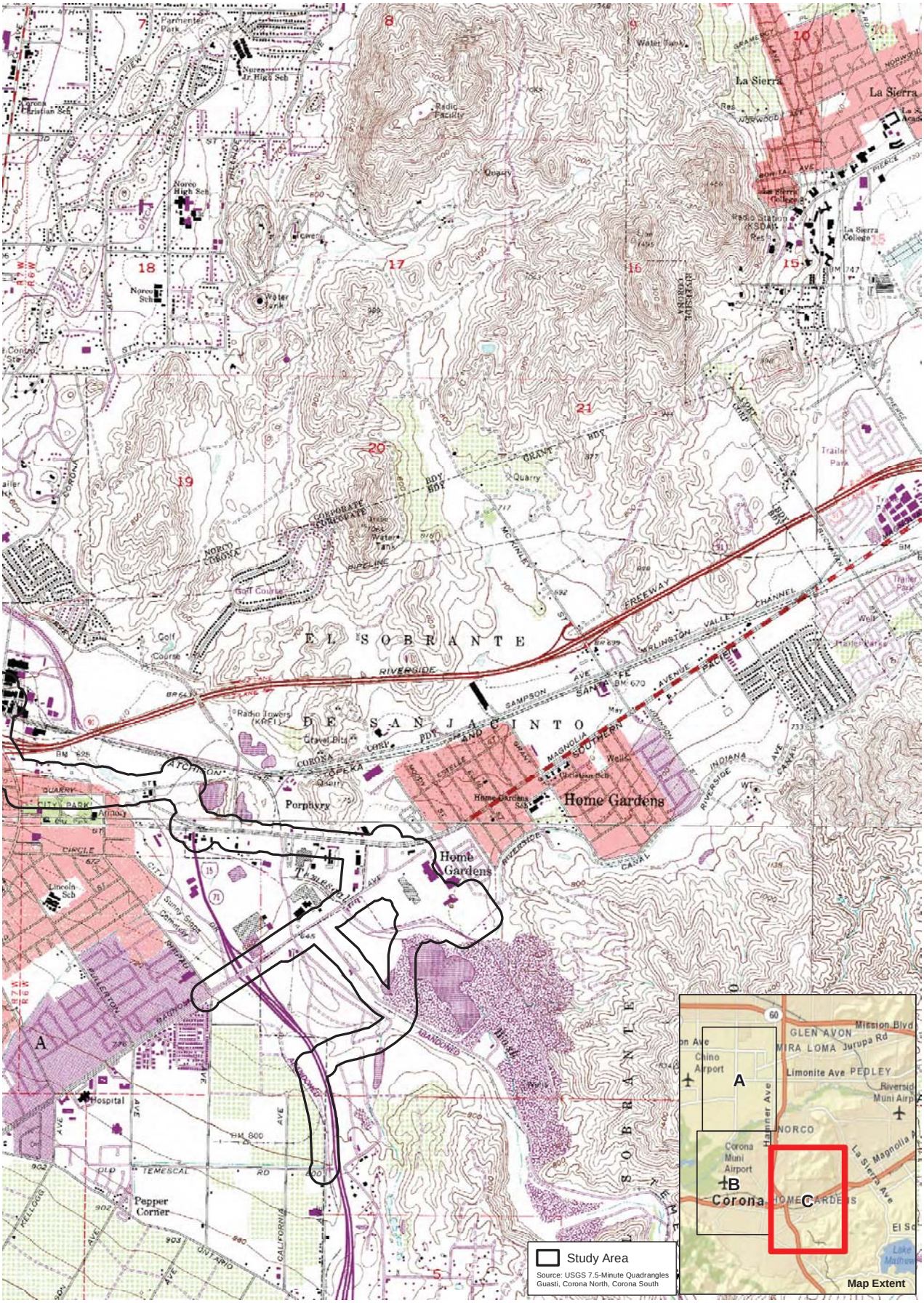

USGS 7.5-Minute Quadrangle

Figure 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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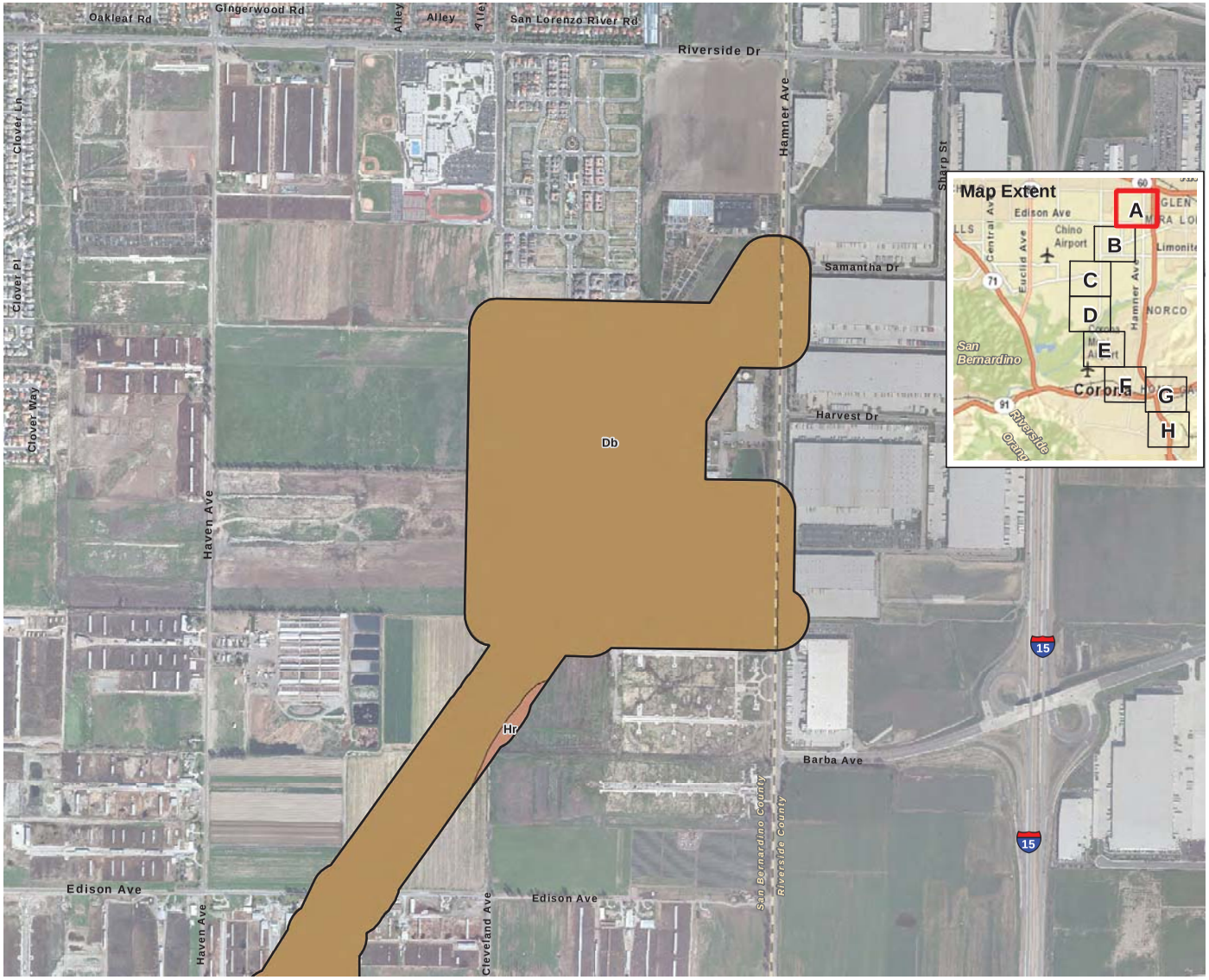

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percent lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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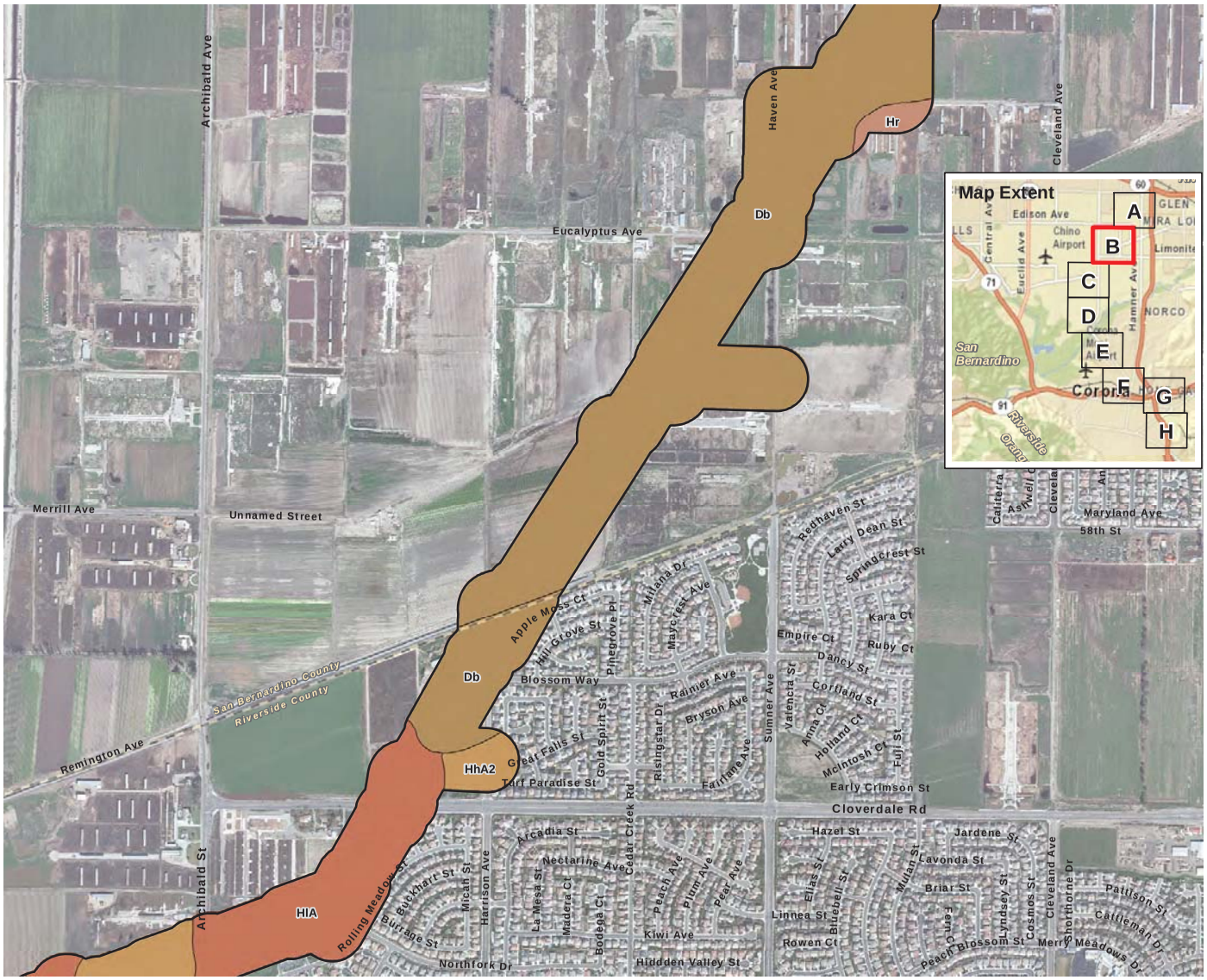

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PIB - Placentia fine sandy loam, 0 to 5 percent slopes
- PID - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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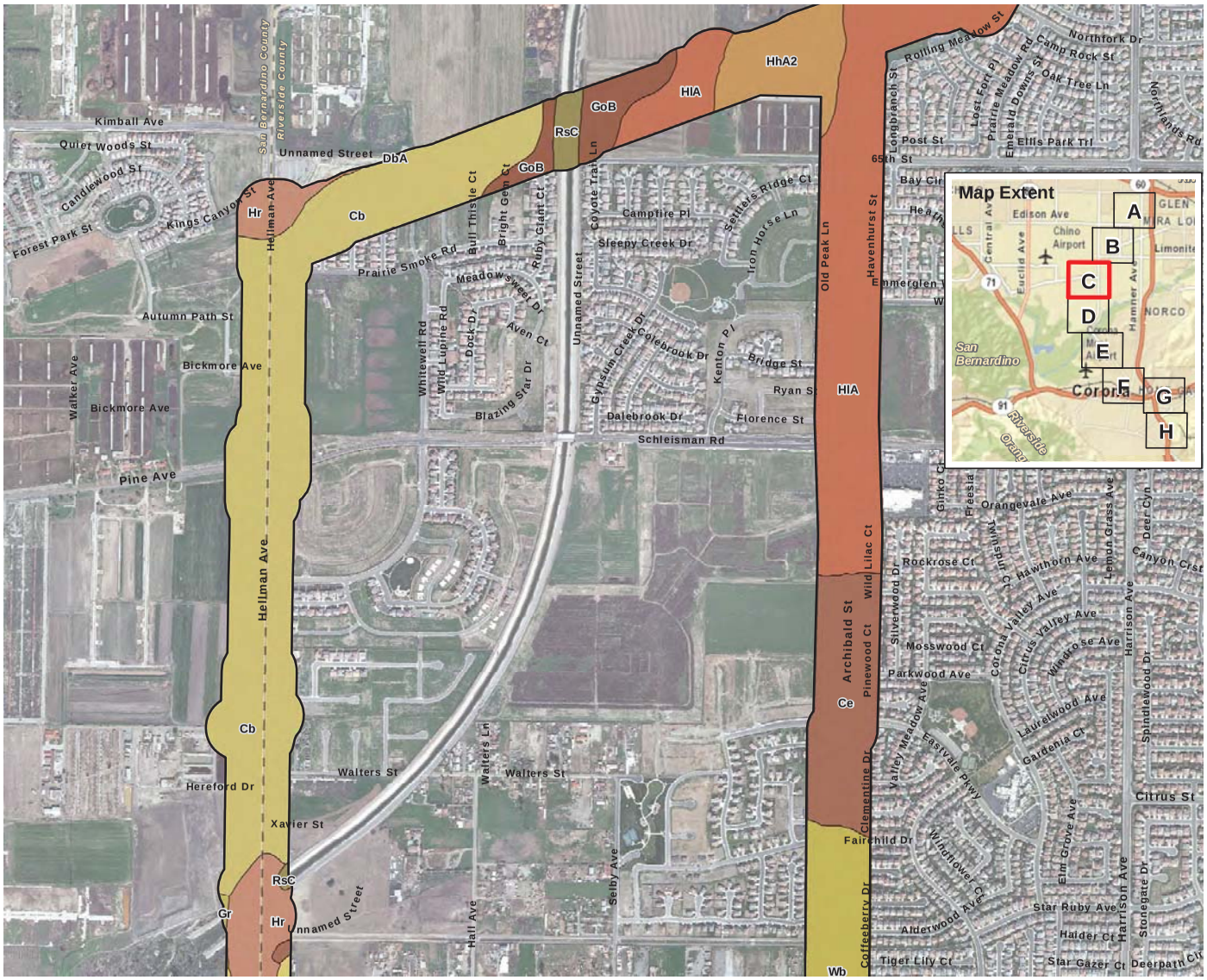

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3C

N W E S

1,000 500 0 1,000 Feet

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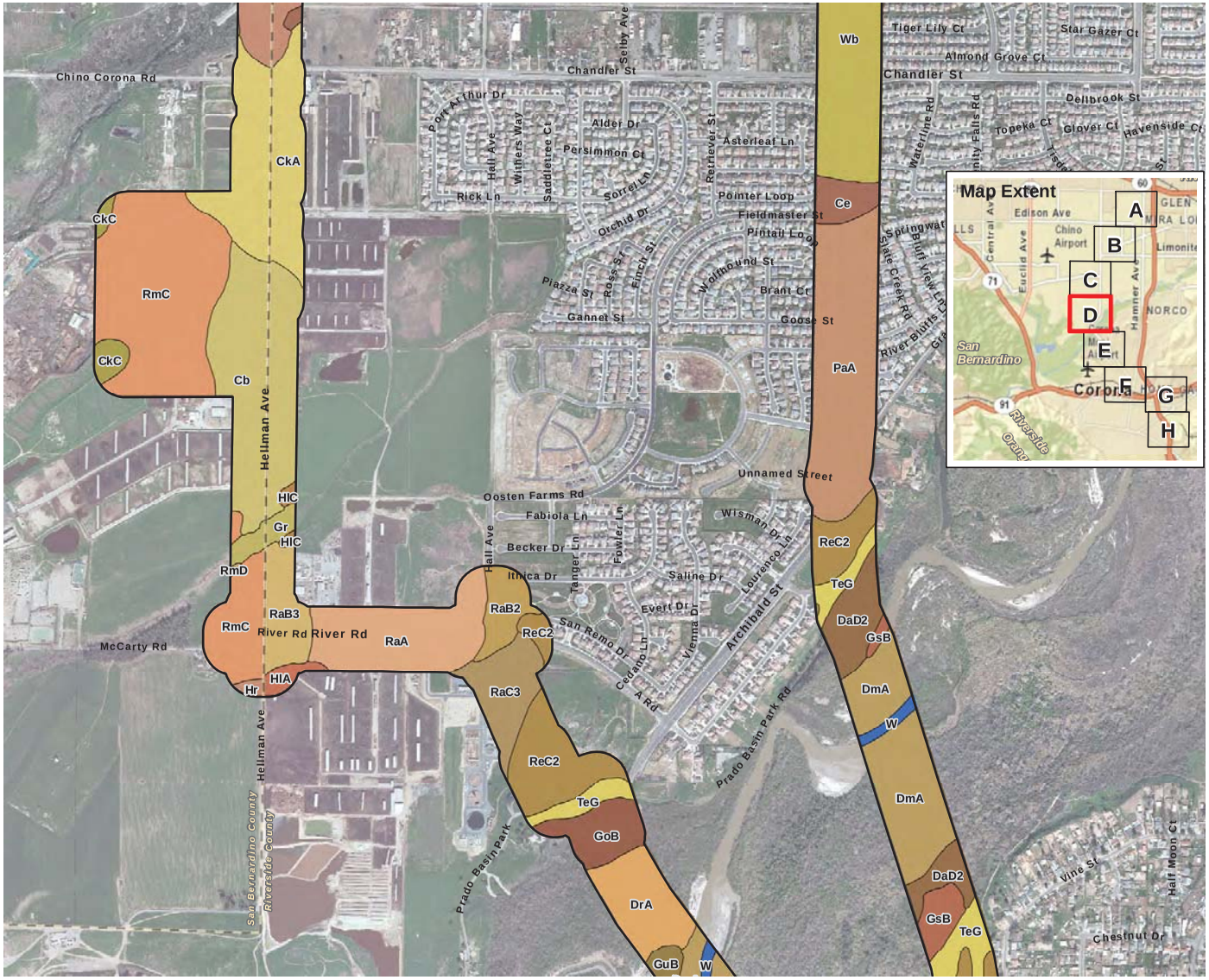

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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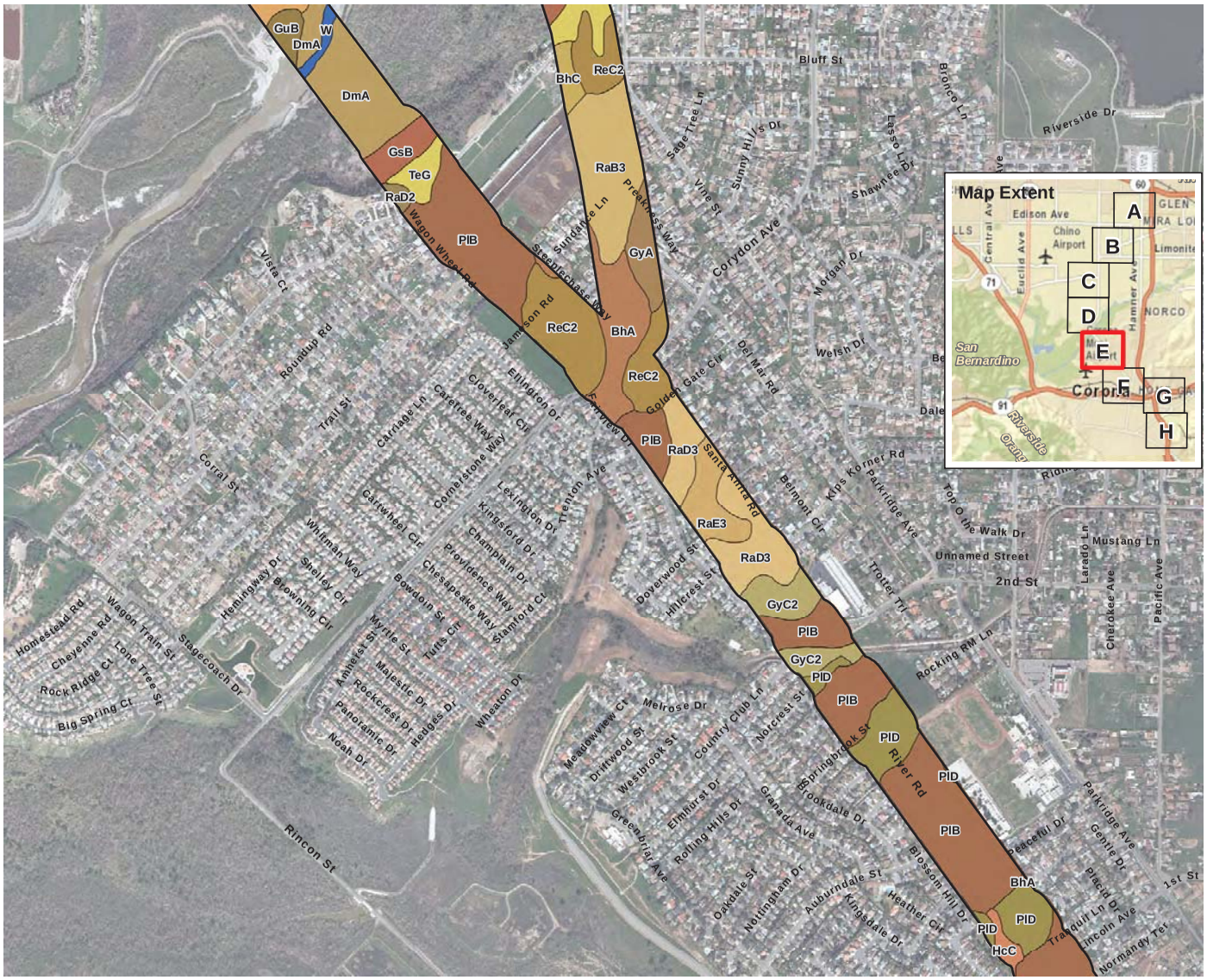

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percent lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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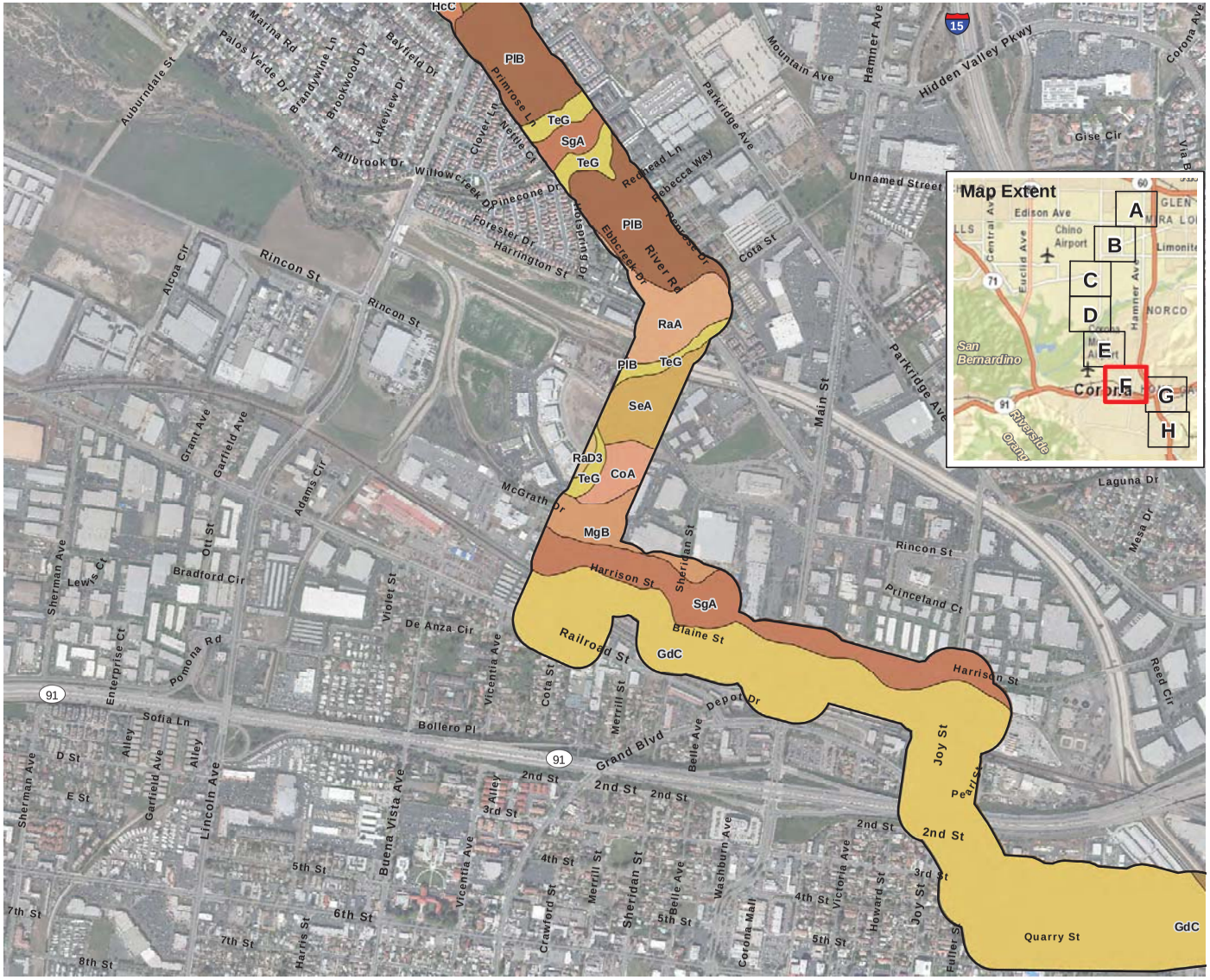

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3F

N W E S

1,000 500 0 1,000 Feet

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- Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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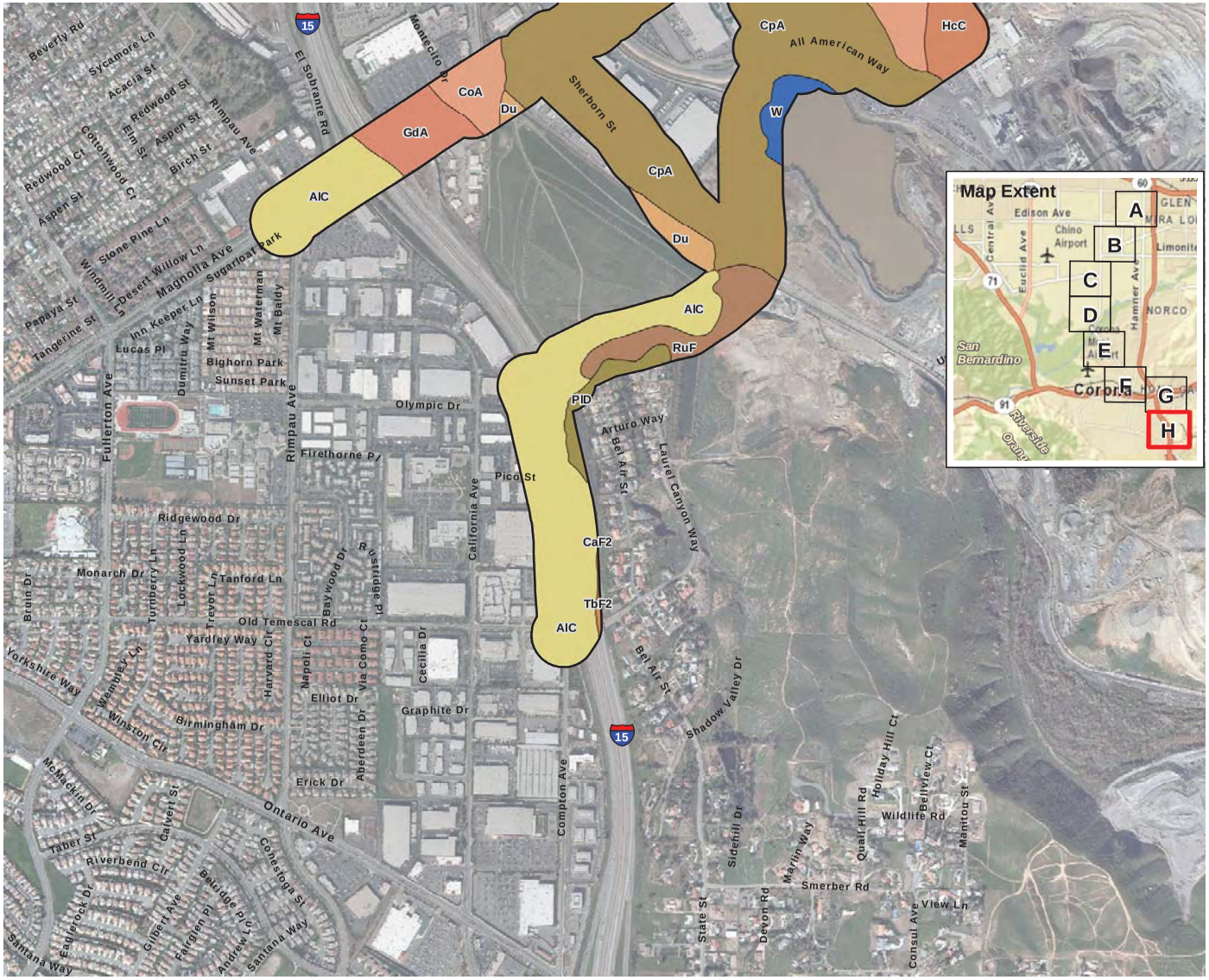

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

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ATTACHMENT A

SITE PHOTOGRAPHS

View from north, facing south. Proposed material yard at the northern end of the Study Area.

View from southeast, facing northwest. Impoundment near the middle of the Study Area.

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Site Photographs

Attachment A-1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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(08/21/12 KFD) R:\Projects\Edison\J045\Graphics\Plants2012\ExAttA1_sp.pdf

View from south, facing north. Ruderal vegetation south of the existing Mira Loma Substation.

View from southeast, facing northwest. The Santa Ana River on the south side of the River Road Bridge.

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Site Photographs

Attachment A-2

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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View from the southeast, facing northwest. The Santa Ana River on the north side of the River Road Bridge.

View from the north, facing south. Willow riparian forest adjacent to Hellman Avenue north of Chandler Street.

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Site Photographs

Attachment A-3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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ATTACHMENT B

PLANT COMPENDIUM

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS

Species	
***PTERIDOPHYTES* - FERNS AND ALLIES**	
AZOLLACEAE - MOSQUITO FERN FAMILY	
Azolla filiculoides	Pacific mosquito fern
SAURURACEAE - LIZARD'S-TAIL FAMILY	
Anemopsis californica	yerba mansa
EUDICOTS	
ADOXACEAE - MUSKROOT FAMILY	
Sambucus nigra ssp. c*aerulea* [*S. mexicana*]	blue elderberry
AIZOACEAE - FIG-MARIGOLD FAMILY	
*Mesembryanthemum nodiflorum**	slender-leaved iceplant
AMARANTHACEAE - AMARANTH FAMILY	
*Amaranthus albus**	tumbleweed
*Amaranthus retroflexus**	red-root pigweed
ANACARDIACEAE - SUMAC FAMILY	
*Schinus molle**	Peruvian pepper tree
*Schinus terebinthifolius**	Brazilian pepper tree
Toxicodendron diversilobum	western poison oak
APIACEAE - CARROT FAMILY	
*Apium graveolens**	common celery
*Conium maculatum**	poison hemlock
*Foeniculum vulgare**	sweet fennel
ASTERACEAE - SUNFLOWER FAMILY	
Ambrosia acanthicarpa	annual bur-sage
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Artemisia dracunculus	tarragon
Baccharis pilularis ssp. *consanguinea* [*B. pilularis*]	coyote brush
Baccharis salicifolia ssp. salicifolia [*B. salicifolia*]	mule fat
Bidens frondosa	sticktight
Bidens laevis	bur-marigold
*Bidens pilosa**	common beggar-ticks
*Carduus pycnocephalus ssp. pycnocephalus**	Italian thistle
*Centaurea melitensis**	tocalote, Malta star-thistle
*Cirsium vulgare**	bull thistle
*Cynara cardunculus**	cardoon, globe artichoke
Deinandra fasciculata [*Hemizonia f.*]	fascicled tarweed
Deinandra paniculata [*Hemizonia p.*]	San Diego, paniculate tarplant
Encelia californica	California brittlebush
Encelia farinosa	desert brittlebush
Ericameria palmeri var. *pachylepis*	grassland goldenbush
Ericameria pinifolia	pine-bush
Ericameria sp.	goldenbush
Erigeron bonariensis [*Conyza b.*]*	flax-leaved horseweed

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
Erigeron canadensis [*Conyza c.*]	common horseweed
Euthamia occidentalis	western goldenrod
Glebionis coronaria [*Chrysanthemum coronarium*]*	garland daisy
Helianthus annuus	western sunflower
Heterotheca grandiflora	telegraph weed
Isocoma menziesii	coastal goldenbush
*Lactuca serriola**	prickly lettuce
Laennecia coulteri [*Conyza c.*]	Coulter's horseweed
Lepidospartum squamatum	scale-broom
Malacothrix saxatilis	cliff malacothrix
Pseudognaphalium californicum [*Gnaphalium c.*]	California everlasting
Pseudognaphalium luteoalbum [*Gnaphalium l.*]*	weedy cudweed
*Pulicaria paludosa**	Spanish sunflower
*Senecio vulgaris**	common groundsel
*Silybum marianum**	milk thistle
Solidago sp.	goldenrod
Solidago velutina ssp. californica [*Solidago c.*]	California goldenrod
Sonchus asper ssp. *asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
Stephanomeria virgata ssp. *virgata*	tall wreath plant
*Tanacetum parthenium**	feverfew
Verbesina encelioides var. *exauriculata**	golden crownbeard
Xanthium spinosum	spiny cocklebur
Xanthium strumarium	cocklebur
BORAGINACEAE - BORAGE FAMILY	
Amsinckia menziesii [*Amsinckia m.* var. *m.*]	rigid fiddleneck
Heliotropium curassavicum var. *oculatum*	salt heliotrope / alkali heliotrope
Phacelia minor	wild canterbury-bell
Phacelia ramosissima	branching phacelia
BRASSICACEAE - MUSTARD FAMILY	
*Brassica nigra**	black mustard
*Hirschfeldia incana**	shortpod mustard
*Lepidium latifolium**	broad-leaved peppergrass
Lepidium nitidum	peppergrass / shining peppergrass
*Nasturtium officinale [Rorippa nasturtium-aquaticum]**	water cress
*Raphanus sativus**	radish
*Sisymbrium irio**	London rocket
*Sisymbrium orientale**	hare's ear cabbage
CACTACEAE - CACTUS FAMILY	
*Opuntia ficus-indica**	mission prickly-pear
Spergularia sp.	sand-spurrey
CHENOPODIACEAE - GOOSEFOOT FAMILY	
Atriplex prostrata [A. triangularis]	fat-hen
*Atriplex suberecta**	sprawling saltbush

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
Atriplex triangularis	Watson's saltbush
Bassia hyssopifolia *	five-hook bassia
*Chenopodium album**	lamb's quarters
*Chenopodium murale**	nettle-leaved goosefoot
*Dysphania ambrosioides [Chenopodium a.]**	Mexican tea
*Dysphania botrys [Chenopodium b.]**	Jerusalum oak
Dysphania pumilio [Chenopodium pumilio] *	Tasmanian goosefoot
*Kochia scoparia**	kochia
*Salsola tragus**	Russian thistle
CONVOLVULACEAE - MORNING-GLORY FAMILY	
Calystegia macrostegia	large-bracted morning-glory
CUCURBITACEAE - GOURD FAMILY	
Cucurbita foetidissima	coyote melon / calabazilla
Cucurbita cf. *palmata*	coyote melon
EUPHORBIACEAE - SPURGE FAMILY	
Chamaesyce albomarginata [Euphorbia a.]	rattlesnake weed
*Chamaesyce maculata [Euphorbia m.]**	spotted spurge
Chamaesyce polycarpa [Euphorbia p.]	golondrina / small-seed sandmat
Chamaesyce sp.*	spurge
Croton setigerus [Eremocarpus s.]	doveweed / turkey mullein
*Ricinus communis**	castor bean
FABACEAE - LEGUME FAMILY	
Acacia sp.*	acacia
Acmispon cf. *heermannii [Lotus h.]*	woolly lotus
Albizia julibrissin	mimosa
Cassia sp.*	ornamental senna
*Lotus corniculatus**	birdfoot trefoil
*Medicago sativa**	alfalfa
*Melilotus alba**	white sweetclover
*Melilotus indica**	sourclover
*Robinia pseudoacacia**	black locust
Trifolium sp.*	clover
FAGACEAE - OAK / BEECH FAMILY	
Quercus agrifolia	coast live oak
GERANIACEAE - GERANIUM FAMILY	
*Erodium cicutarium**	red-stemmed filaree
LAMIACEAE - MINT FAMILY	
*Marrubium vulgare**	common horehound
Stachys rigida	hedge-nettle
LYTHRACEAE - LOOSESTRIFE FAMILY	
Punica sp.*	pomegranate
MALVACEAE - MALLOW FAMILY	
*Abutilon theophrasti**	velvet-leaf
Hibiscus trionum (? Or Abutilon)*	flower-of-an-hour

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
*Malva nicaeensis**	bull mallow
*Malva parviflora**	cheeseweed
MELIACEAE - MAHOGANY FAMILY	
*Melia azedarach**	china berry
MORACEAE - FIG FAMILY	
*Morus alba**	white mulberry
MYRSINACEAE - MYRSINE FAMILY	
*Anagallis arvensis**	scarlet pimpernel
MYRTACEAE - MYRTLE FAMILY	
Eucalyptus sp.*	gum
*Eucalyptus camaldulensis**	river red gum
OLEACEAE - OLIVE FAMILY	
*Fraxinus uhdei**	evergreen ash
Fraxinus sp.*	ash
*Olea europaea**	olive
ONAGRACEAE - EVENING PRIMROSE FAMILY	
Camissonia sp.	suncup
Epilobium ciliatum	willow-herb
*Ludwigia peploides**	yellow waterweed
Oenothera elata ssp. *hookeri*	evening-primrose
Oenothera elata ssp. *hirsutissima*	evening-primrose
PAPAVERACEAE - POPPY FAMILY	
Eschscholzia caespitosa	tufted poppy
PHRYMACEAE - LOPSEED FAMILY	
Mimulus aurantiacus	bush monkeyflower
Mimulus cardinalis	scarlet monkeyflower
Mimulus guttatus	seep monkeyflower
PLANTAGINACEAE - PLANTAIN FAMILY	
Plantago ovata	woolly plantain
*Veronica anagallis-aquatica**	water speedwell
PLATANACEAE - SYCAMORE FAMILY	
Platanus racemosa	western sycamore
PLUMBAGINACEAE - LEADWORT FAMILY	
Limonium sp.*	statice
POLYGONACEAE - BUCKWHEAT FAMILY	
Eriogonum fasciculatum	California buckwheat
Persicaria lapathifolia [Polygonum lapathifolium]	willow weed
*Polygonum argyrocoleon**	Persian knotweed
*Polygonum aviculare ssp. depressum [Polygonum arenastrum]**	common knotweed
*Rumex crispus**	curly dock
Rumex salicifolius	willow dock
*Rumex pulcher**	fiddle dock
PORTULACACEAE - PURSLANE FAMILY	

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
*Portulaca oleracea**	common purslane
RANUNCULACEAE - CROWFOOT FAMILY	
Clematis sp.	clematis
ROSACEAE - ROSE FAMILY	
Heteromeles arbutifolia	toyon / christmas berry
Rosa californica	California rose
Rubus ursinus	California blackberry
SALICACEAE - WILLOW FAMILY	
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Salix exigua	narrow-leaved willow
Salix gooddingii	Goodding's black willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
SAPINDACEAE - SOAP BERRY FAMILY	
Koelreuteria bipinnata	Chinese flame tree
SCROPHULARIACEAE - FIGWORT FAMILY	
*Verbascum thapsus**	woolly mullein
SIMAROUBACEAE - QUASSIA FAMILY	
*Ailanthus altissima**	tree of heaven
SOLANACEAE - NIGHTSHADE FAMILY	
*Datura stramonium**	jimson weed
Datura wrightii	jimson weed
*Nicotiana glauca**	tree tobacco
Solanum americanum	white nightshade
Solanum rostratum	buffalo berry
Solanum sarrachoides	hairy nightshade
TAMARICACEAE - TAMARISK FAMILY	
*Tamarix ramosissima**	saltcedar
URTICACEAE - NETTLE FAMILY	
Urtica dioica ssp. *holosericea*	hoary nettle
*Urtica urens**	dwarf nettle
VERBENACEAE - VERVAIN FAMILY	
Verbena lasiostachys	vervain
VITACEAE - GRAPE FAMILY	
Vitis girdiana	desert wild grape
ZYGOPHYLLACEAE - CALTROP FAMILY	
*Tribulus terrestris**	puncture vine
***MONOCOTYLEDONES* - MONOCOTS**	
ARACEAE - ARUM FAMILY	
Lemna sp.	duckweed
Lemna minor	water lentil / lesser duckweed
ARECACEAE - PALM FAMILY	
Phoenix sp.*	date palm
*Washingtonia robusta**	Mexican fan palm

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
CYPERACEAE - SEDGE FAMILY	
Cyperus eragrostis	tall umbrella-sedge
*Cyperus involucratus**	African umbrella-sedge
Cyperus odoratus	fragrant umbrella-sedge
*Cyperus rotundus**	purple nutsedge
Cyperus sp.	umbrella-sedge
Eleocharis macrostachya	perennial spike rush
Schoenoplectus americanus [Scirpus a.]	Olney's bulrush
JUNCACEAE - RUSH FAMILY	
Juncus bufonius	toad rush
Juncus oxymeris	pointed rush
Juncus sp.	rush
POACEAE - GRASS FAMILY	
Agrostis sp.	bentgrass
*Arundo donax**	giant reed
*Avena barbata**	slender wild oat
*Avena fatua**	wild oat
*Avena sativa**	cultivated oat
*Bromus catharticus**	rescue grass
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	red brome
*Cynodon dactylon**	bermuda grass
Distichlis spicata	salt grass
*Echinochloa colona**	jungle rice
*Echinochloa crus-galli**	barnyard grass
Elymus condensatus [Leymus c.]	giant wild rye
Elymus glaucus	blue wild-rye
Elymus triticoides [Leymus t.]	beardless wild rye
*Festuca myuros [Vulpia m.]**	foxtail fescue
*Festuca perennis [Lolium perenne, L. multiflorum]**	perennial ryegrass
Hordeum murinum var. *leporinum**	hare barley
*Lamarckia aurea**	goldentop
Leptochloa fusca ssp. *uninervia [L.u.]*	Mexican sprangletop
*Pennisetum setaceum**	crimson fountain grass
*Phalaris minor**	little-seed canary grass
*Poa annua**	annual bluegrass
*Polypogon monspeliensis**	annual beard grass
Polypogon viridis [*Agrostis v.*]*	water beard grass
*Schismus barbatus**	Mediterranean schismus
Setaria sp.*	bristle grass
*Sorghum halepense**	Johnson grass
Stipa lepida [Nassella l.]	foothill needlegrass
*Stipa miliacea [Piptatherum miliacea]**	smilo grass
TYPHACEAE - CATTAIL FAMILY	

PLANT SPECIES OBSERVED WITHIN THE SURVEY AREA DURING FOCUSED SURVEYS (Continued)

Species	
Typha sp.	cattail
Typha domingensis	southern cattail
Typha latifolia	broad-leaved cattail
* non-native to the region it was found cf. appears similar to	

APPENDIX D

DELHI SANDS FLOWER-LOVING FLY REPORTS

BonTerra CONSULTING

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151 Kalmus Drive, Suite E-200
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October 20, 2010

Andrew Keller
Southern California Edison
2244 Walnut Grove Avenue, GO1 Quad 3A
Rosemead, California 91770

VIA EMAIL
Andrew.Keller@sce.com

Subject: Results of Delhi Sands Flower-loving Fly Surveys for the Circle City Substation and Transmission Line Project, San Bernardino and Riverside Counties, California

Dear Mr. Keller:

This attached Letter Report provides the results of the 2010 focused surveys for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) (DSF) conducted by Consulting Biologists Gilbert Goodlett (TE-005535-3) and Brian Drake (TE-006328-4) on a portion of the Circle City Substation and Transmission Line Project (hereafter referred to as the "Project site"), San Bernardino and Riverside Counties. The entire Project site extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino, and the City of Norco to the City of Corona. It includes the existing Mira Loma Substation, the existing Corona Substation, a Preferred and two Alternative Substation Sites, a Preferred and Alternative Mira Loma Route, a Preferred and Alternative Circle City Route, and a Preferred and two Alternative Substation Site Connections. The surveys focused on the determination of presence of the federally listed DSF on the portions of the Project site containing potential habitat for DSF. The methods and results of the surveys are discussed in the Letter Report attached.

Results

No DSF were observed within the survey area during the 2010 survey season. Surveys were conducting according to U.S. Fish and Wildlife Service (USFWS) protocols and a total of 44 surveys were conducted between July 1 to September 20, 2010. The USFWS requires two consecutive years of negative survey findings to establish absence of the fly on the Project site. The first of these has been completed. If you have any questions, please feel free to call Stacie Tennant at 714-444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

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Delhi Sands Flower-loving Fly
(*Rhaphiomidas terminatus abdominalis*)
2010 Focused Adult Survey at Southern California Edison's Circle City Project in San Bernardino and Riverside Counties, California

Submitted to:

BonTerra Consulting
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Attn: Stacie Tennant
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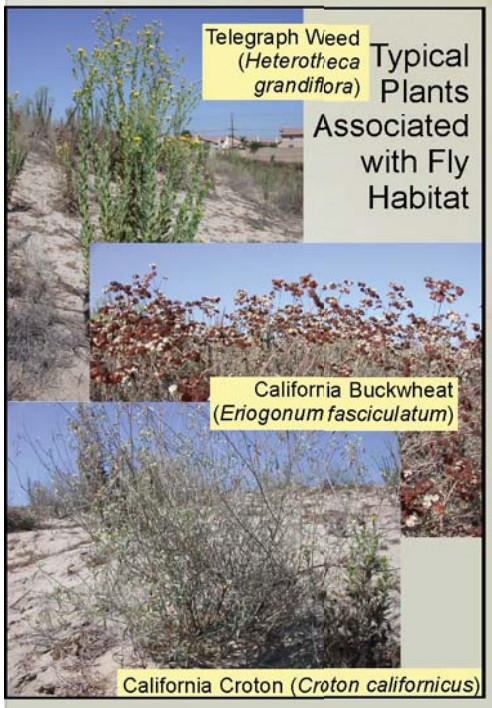
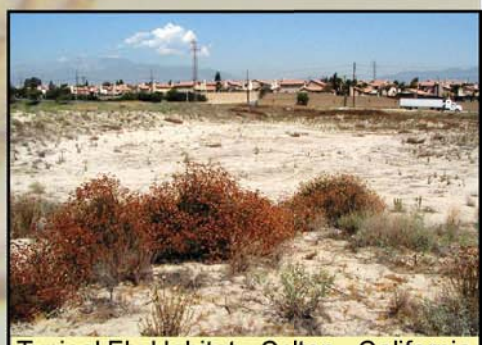
stennant@bonterraconsulting.com



Pupal case - Photograph by Ellen Schafhauser



Typical Fly Habitat - Colton, California

Prepared by:

Gilbert Goodlett
EnviroPlus Consulting
1660 West Franklin Avenue
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(760) 371-3592 phone & fax
email: torthunter@aol.com

Male Delhi Sands Flower-loving Fly on California Buckwheat

Mating - Photograph by Brian Drake

Female Delhi Sands Flower-loving Fly on telegraph weed

October 9, 2010

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CERTIFICATIONS

I, **Brian Drake**, having performed focused surveys for the Delhi Sands Flower-loving Fly at the location covered in this report, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made. A portion of this work was performed under U.S. Fish and Wildlife Service Permit number TE-006328-4, expiring 6/21/2013.

Signature _____ October 8, 2010 _____
Date

I, **Gilbert O. Goodlett** of EnviroPlus Consulting, having performed focused surveys for the Delhi Sands Flower-loving Fly and prepared the report for the location covered in this report have entirely read and reviewed the final report for the project and concur with the statements and conclusions made. A portion of this work was performed under U.S. Fish and Wildlife Service Permit number TE005535-3 expiring 7/29/2011.

Signature _____ October 8, 2010 _____
Date

EXECUTIVE SUMMARY

No Delhi Sands Flower-loving Fly observations were made at the on the Circle City Project during the 2010 survey season. U.S. Fish and Wildlife Service protocols were followed for conducting the surveys. Surveys were conducted on 44 days (22 days on each subsite) between July 1 and September 20, 2010 between 1000 and 1400 local time. This is the first year that surveys have been completed at the Circle City Project. The U.S. Fish and Wildlife Service requires two consecutive years of surveys of negative findings to establish absence of the species on the site. However, if development of site is not begun by the following season, the U.S. Fish and Wildlife Service may recommend additional surveys.

BACKGROUND

Delhi Sands Flower-loving Fly

The Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) (DSF) was listed as an endangered species by the U.S. Fish and Wildlife Service (Service) on September 23, 1993 (58 Federal Register 49881) and is protected under the provisions of the Endangered Species Act of 1973, as amended (ESA). The ESA prohibits anyone from "taking" a listed species. Take includes, but is not limited to, harming, harassing, or killing individuals of a listed species as well as destruction of habitat occupied by listed species.

The DSF is in the Dipteran (fly) family Mydidae (mydas flies). It is approximately one-inch long and orange-brown in color, with dark brown oval spots on the dorsal surface of the abdomen (inset cover photographs). This insect is a rapid flyer and its long proboscis is used to obtain nectar from flowers. The adult flight period lasts for several weeks in July, August, and September, making its observable presence on any site temporary and short.

The historic range of the DSF is estimated to have been approximately 40 square miles in northwestern Riverside and southwestern San Bernardino counties (USFWS, 1996). Habitat has been lost and fragmented by a variety of activities/circumstances including agriculture, manure dumping, urbanization, sand-mining, illegal dumping, off-road vehicles, and non-native plant invasion. It is estimated that the DSF's present distribution is less than 2% of its former range, and that the total adult population is on the order of only a few hundred individuals. Known current DSF populations occur in isolated pockets of habitat surrounded by urban development and invasive exotic vegetation (USFWS, 1997).

DSF habitat is limited to areas that include Delhi fine sand, an aeolian (wind-deposited) soil type. The Service has identified the presence of Delhi Sands as the baseline criterion for the determination of suitable or potentially suitable habitat for this species (USFWS, 1996). Fine unconsolidated soil is required for oviposition (egg laying) as females must insert their abdomens deep into the sand during this process (Rogers and Mattoni, 1993). The larval portion of the DSF's life cycle is largely unknown. Larval development apparently takes place in the sand and is presumed to take either one or two years. Soil disturbances associated with agricultural activities and urban development are primary causes of habitat loss and degradation.

Appropriate vegetative cover is typically sparse (0 to 50% cover) to absent (in blowout areas of dune formations and sand pits). The highest density of DSF have been found in habitat that includes a variety of plants including California buckwheat (*Eriogonum fasciculatum*), California croton (*Croton californicus*), and telegraph weed (*Heterotheca grandiflora;* see inset cover photographs).

Areas known to have been occupied by DSF or areas that contain restorable habitat for the fly have been divided into three recovery units (Colton, Jurupa, and Ontario Recovery Units). The recovery units (Figure 1) are defined as large geographic areas. However, the occupied and restorable habitat includes only those areas with Delhi Series soils and does not include residential or commercial development or other areas that have been permanently altered by human actions (USFWS, 1997).

Survey Protocols

The Service has developed specific standards for conducting DSF surveys with specific report requirements (1996), as amended. For DSF surveys these standards include the following:

1. Surveys must be conducted by a permitted biologist. Permits are acquired through a testing procedure administered by the Service.
2. Surveys must be conducted at least twice a week from July 1 to September 20 between the hours of 1000 and 1400 PDT. No more than 50 acres per day may be surveyed by an individual biologist.
3. Two consecutive years of surveys with no DSF observed are required to establish absence of the species.
4. Approval to conduct a DSF survey at a site must be obtained from the Service by submitting specific project information to the Service at least 10 working days prior to the anticipated start of the survey.
5. Surveys must be conducted at a relatively slow pace with care taken to avoid harassing any DSF that are located.
6. The Service must be notified within one working day if DSF are observed at a site.

For DSF reports the Service requires the following:

1. Submission of reports to the Service and the California Department of Fish and Game within 30 days of the completion of surveys.
2. A map delineating the boundaries of the site on a 7.5 minute U.S. Geological Survey topographic map.
3. Five color slides or similar photographic material of the site. Two of these are to portray the general landscape of the site and three are to show representative areas within the site that were surveyed for the animal.
4. A map at an adequate scale that indicates the precise location where DSF were located.
5. A qualitative description of the DSF community on the site and a list of plants, reptiles, birds, mammals, and invertebrates observed.
6. A description of methods utilized.

7. Dates and times of field visits, size of habitat surveyed, and weather conditions at the start and end of each survey.
8. Reporting any other significant observations relative to the survey.
9. Completing forms utilized by the Natural Diversity Data Base of the California Department of Fish and Game.
10. Photocopies of original field notes.

The Service standards allow for specific deviations from the protocols at the discretion of the Service. Provisions are also made for rejection of surveys if protocol methodology is not followed, the report is not completed within the time frame allocated, required information is not provided, or other information indicates that the survey is inadequate as determined by the Service.

SITE DESCRIPTION

The Circle City Project is a proposed new substation and a new transmission line segment to connect the substation to Southern California Edison's existing telecommunication system. Generally, the proposed project extends from the Mira Loma substation adjacent to Hamner Avenue and south of Riverside Drive in the City of Ontario southerly to the Corona, California area to the site of a proposed new substation. The project is divided into preferred and alternative routes. Only a portion of the Mira Loma Preferred Alternative route was found to contain potential habitat for DSF as discussed in the Methods section. This route includes the Mira Loma substation and a proposed transmission line route with a 50 ft buffer on either side of the centerline. The route initially proceeds southwest from the Mira Loma substation along an existing transmission line right-of-way. Just south of the intersection of Kimball Avenue and Hellman in the City of Chino, the route turns southerly along Hellman Avenue. After 2.3 miles, the route turns generally southeasterly along River Road and exits the Ontario Recovery Unit at the Santa Ana River.

Within the survey area the Mira Loma Preferred Alternative route traverses a mixture of land uses including vacant land, active and fallow agricultural fields, abandoned and active dairy farms, and road rights-of-way. Much of the soil is mapped as Delhi series fine sands and its presence was verified on the ground.

The vegetative component is highly diverse given the large scale of the project and the variety of habitats traversed. However, most of the vegetation along the route is ruderal. Species typically associated with DSF occupation including California buckwheat, California croton, and telegraph weed were only found in abundance around the Mira Loma substation. A comprehensive plant list is shown in Table 1.

A portion of the survey area extends into Riverside County. In compliance with Riverside County environmental specifications, the assessor's parcel number for each parcel in Riverside County within the Mira Loma Preferred Route is listed in Table 2.

METHODS

Site Selection

The entire project footprint was evaluated for suitability and reduced to the survey areas shown in Figure 2 through a series of steps to eliminate unsuitable areas. Initially, only that portion of the project that was within a Recovery Unit was considered. Then, by overlaying a map of the project with a soils map, only the remaining areas mapped as Delhi Series soils were further considered. Next, intensive land use areas that resulted in unsuitable habitat were eliminated. This included areas such as active agriculture but not fallow fields, active dairy farms, and residential and commercial development. Finally, the selected areas were ground checked to verify suitability.

The survey area that remained after elimination of unsuitable areas totaled 70.4 acres and was divided into five different survey areas identified as CC1 (1.6 acres), CC2 (16.6 acres), CC3 (6.8 acres), CC4 (12.4 acres) and CC5 (33.0 acres, Figure 2). Since the total survey area exceeded the limit of 50 acres per day that a biologist can survey according to U.S. Fish and Wildlife Service Protocols (1996), the survey areas were lumped into survey-day units to total as close as possible to 50 acres and close enough together to be capable of surveying in a single survey day. Sites CC1 to CC4 were lumped together as a single survey day (37.4 acres) and CC5 (33.0 acres) was treated as another survey day.

Each of the survey areas are mapped in Figure 2 and aerial oblique photographs are shown in Appendix 1. It may be noted that portions of survey areas within CC3 and CC4 appear to be active agriculture. At the beginning of the survey season in early July, these areas were fallow and selected as suitable for survey.

Field Methods

A total of 44 surveys were conducted on the Circle City Project, 22 on the CC1 to 4 areas, and 22 on the CC5 area, between July 1 and September 20, 2010. All surveys were conducted between 1000 and 1400 PDT. At the beginning and end of each field visit, the time (PDT) was noted and weather conditions were recorded. Weather conditions included the shaded air temperature at 1.5 meters high measured with a 0.1°C precision thermister, the ocularly estimated percentage of cloud cover and type of clouds, and wind speeds and direction. Winds speeds were measured with a Kestrel® brand electronic wind meter. Measurements were taken until average wind speeds stabilized. The average and maximum wind speeds were recorded. Wind direction was estimated by observing the drift direction of a handful of fine soil that was dropped. These data are listed in Tables 3a (Area CC 1-4) and 3b (Area CC5).

The site was walked slowly in generally meandering transects and along land features (i.e., dirt roads). The times that each area of the site was surveyed was shifted between surveys such that the entire site was covered during all of the survey period during the day.

Digital photographs of the site were taken during the survey season by Gilbert Goodlett. Aerial oblique photographs of the site (Appendix 1) were taken by Brian Drake and Gilbert Goodlett on August 16, 2010. Photography locations were selected to fulfill Service protocols (2 site overviews and 3 representative habitat photos) and to most accurately represent the site.

Plant species were noted throughout the survey period. Identification of plants followed The Jepson Manual: Higher Plants of California (Hickman, 1993) and plant communities followed A Manual of California Vegetation (Sawyer and Keeler-Wolf, 1995).

During the field survey, the biologist generally focused on the ground and vegetation in his immediate vicinity in order to increase the likelihood of observing DSF, a low-flying species that is sometimes associated with vegetation. All other species including birds, mammals, reptiles, and invertebrates were recorded. These data were recorded on a digital recorder or scrap paper and transferred to a spreadsheet to log daily species, survey times, and weather data; hence there are no original data sheets so none are attached to this report.

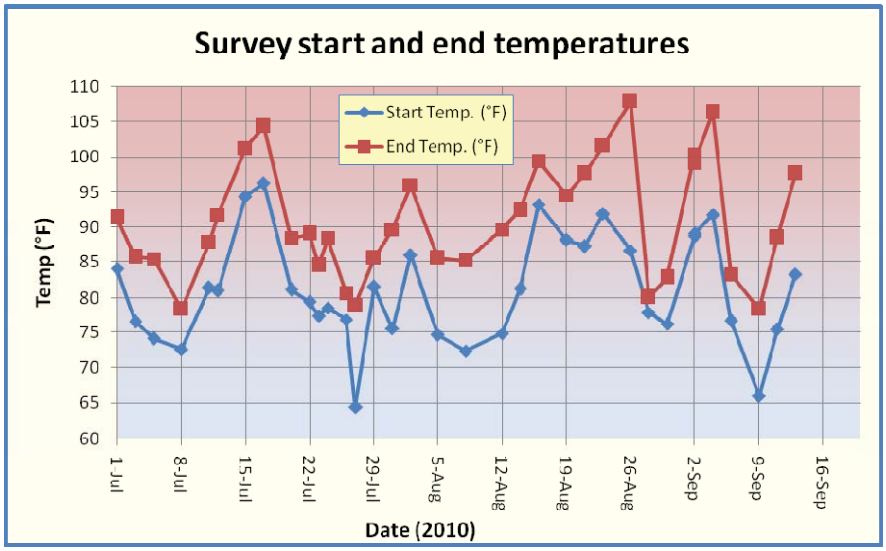
A global positioning system device accurate to 3 m was used to record corners and locations of features on the site. These points and polygons were later downloaded to a laptop computer to create an overlay of the points on a U.S. Geological Survey topographic map. These data were utilized to calculate the areas of features on the site and create an accurate map of the site.

Identification Resources

Bird identification resources included A Field Guide to Western Birds (Peterson, 1993), Field Guide to the Birds of North America (National Geographic Society, 1987), and Stokes Field Guide to Birds: Western Region (Stokes, 1996). Mammal identification resources included California Mammals (Jameson, 1988) and A Field Guide to the Mammals of North America North of Mexico (Burt and Grossenheider, 1980). Reptile identification resources included A Field Guide to Western Reptiles and Amphibians (Stebbins, 1985). Invertebrate identification resources included Insects of the Los Angeles Basin (Hogue, 1993), A Field Guide to Insects: America North of Mexico (Borror and White, 1970), California Insects (Powell and Hogue, 1979), How to Know the Insects (Bland and Jacques, 1978), Simon and Schuster's Guide to Insects (Arnett and Jacques, 1981), National Audubon Society Guide to North American Insects and Spiders (Milne, 1995), The Butterflies of Southern California (Emmel and Emmel, 1973), and California Butterflies (Garth and Tilden, 1986).

RESULTS

No DSF were observed during the 2010 survey season at the site. A total of 44 field visits were completed (22 at CC1 to 4; 22 at CC5). Approximately 176 hours were spent conducting surveys on the site.



The average temperature for surveys for both survey areas was 85.9 °F with an average survey start temperature of 81.0 °F and an average survey end temperature of 90.8 °F (figure at right). The minimum survey start

temperature encountered was 64.5 °F and the maximum ending temperature was 107.9 °F.

Survey start winds were highly variable while survey end winds were generally from the southwest to the west with westerly winds being most common. The average wind speed for the surveys was 2.7 mph with an average survey start wind speed of 1.2 mph and average survey end wind speed of 4.1 mph. The average maximum wind speed encountered at survey start was 1.9 mph while the average maximum wind speed encountered survey end was 6.5 mph. Maximum winds encountered were 14.0 mph on August 19. Dates and times of surveys and weather data are listed in Tables 3a (Areas CC 1-4) and 3b (Area CC 5).

Plant surveys were conducted by Bonterra Consulting and a detailed plant list for the site was developed. These data are listed in Table 1.

At Areas CC 1-4, a total of 57 species of invertebrates were detected on the site. Four additional invertebrates that were identified to family were also seen. Twenty species of birds, four species of mammals and three species of reptiles were also observed. At Area CC-5, a total of 49 species of invertebrates were detected on the site. Six additional invertebrates that were identified to family were also seen. Thirty-five species of birds plus an additional species identified only to family, three species of mammals and two species of reptiles were also observed. These are listed phylogenetically in Tables 4a (Areas CC 1-4) and 4b (Area CC5) by survey date.

Five annotated photographs of the site are included in Appendix 1. Appendix 2 is a Service-required field form for use by the California Fish and Game Department to enter biological observations into the California Natural Diversity Data Base.

CONCLUSIONS

Two consecutive years of negative surveys are required to demonstrate absence of DSF according to U.S. Fish and Wildlife Service protocol. However, if development of the site is not begun by the following season, the Service may recommend additional surveys. This is the first year of negative findings.

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TABLES

Table 1. List of Plants Observed During 2010 Survey Season

Species
FLOWERING PLANTS
CLASS DICOTYLEDONES (DICOTS)
***AIZOACEAE* - FIG-MARIGOLD FAMILY**
*Mesembryanthemum crystallinum** crystalline iceplant
***AMARANTHACEAE* - AMARANTH FAMILY**
*Amaranthus albus** tumbleweed
***ANACARDIACEAE* - SUMAC FAMILY**
*Schinus molle** Peruvian pepper tree
*Schinus terebinthifolius** Brazilian pepper tree
Toxicodendron diversilobum western poison oak
***ASTERACEAE (COMPOSITAE)* - SUNFLOWER FAMILY**
Ambrosia acanthicarpa annual bursage
Artemisia californica California sagebrush
Artemisia douglasiana mugwort
Baccharis pilularis coyote brush
Baccharis salicifolia mule fat
*Carduus pycnocephalus** Italian thistle
*Centaurea melitensis** tocalote
*Chamomilla suaveolens** common pineapple weed
Conyza canadensis common horseweed
Encelia farinosa brittlebush
Filago californica fluffweed
*Gazania linearis** gazania
Gnaphalium californicum California everlasting
Gnaphalium canescens everlasting
*Gnaphalium luteo-album** weedy cudweed
Helianthus annuus western sunflower
Heterotheca grandiflora telegraph weed
Heterotheca sessiliflora golden aster
*Hypochaeris glabra** smooth cat's ear
*Lactuca serriola** prickly lettuce
Lasthenia californica California goldfields
Layia platyglossa tidy-tips
Lessingia filaginifolia California aster
Malacothrix saxatilis cliff malacothrix
*Pulicaria paludosa** Spanish sunflower
*Senecio vulgaris** common groundsel
*Silybum marianum** milk thistle
*Sonchus asper** prickly sow-thistle
Stephanomeria sp. wreath plant
***BORAGINACEAE* - BORAGE FAMILY**
Amsinckia menziesii rancher's fiddleneck
*Echium candicans** pride of Madera
Heliotropium curassavicum salt heliotrope/alkali heliotrope
Pectocarya linearis comb-bur
Plagiobothrys sp. popcornflower
***BRASSICACEAE (CRUCIFERAE)* - MUSTARD FAMILY**
*Brassica nigra** black mustard
*Hirschfeldia incana** shortpod mustard
*Lepidium latifolium** broad-leaved peppergrass
Lepidium nitidum peppergrass/shining peppergrass
*Raphanus sativus** wild radish
*Rorippa nasturtium-aquaticum** white water cress
Rorippa palustris ssp. *occidentalis* Pacific yellow cress
*Sisymbrium irio** London rocket
***CACTACEAE* - CACTUS FAMILY**

Opuntia parryi Parry's cholla
***CAPRIFOLIACEAE* - HONEYSUCKLE FAMILY**
Sambucus mexicana blue elderberry
CARYOPHYLLACEAE - PINK FAMILY
Spergularia sp. sand spurrey
Spergularia marina salt-marsh sand spurrey
***CHENOPODIACEAE* - GOOSEFOOT FAMILY**
*Chenopodium album** lamb's quarters
*Chenopodium ambrosioides** Mexican tea
*Salsola tragus** Russian thistle
***CONVOLVULACEAE* - MORNING-GLORY FAMILY**
Calystegia macrostegia morning-glory
***CRASSULACEAE* - STONECROP FAMILY**
Crassula connata pigmy-weed
***EUPHORBIACEAE* - SPURGE FAMILY**
Eremocarpus setigerus doveweed/turkey mullein
*Ricinus communis** castor bean
***FABACEAE (LEGUMINOSAE)* - LEGUME FAMILY**
Lotus hamatus grab lotus/San Diego lotus
Lotus heermannii woolly lotus
Lotus scoparius deerweed/California broom
Lotus strigosus strigose lotus
Lupinus bicolor miniature lupine
Lupinus succulentus arroyo lupine
Lupinus truncatus truncate lupine/collar lupine
*Medicago polymorpha** California burclover
*Melilotus indica** sourclover
*Robinia psuedoacacia** black locust
GERANIACEAE - GERANIUM FAMILY
*Erodium botrys** long-beaked filaree
*Erodium cicutarium**

red-stemmed filaree
*Erodium moschatum** white-stemmed filaree
***LAMIACEAE (LABIATAE)* - MINT FAMILY**
*Marrubium vulgare** common horehound
***MALVACEAE* - MALLOW FAMILY**
*Malva parviflora** cheeseweed
Malvella leprosa alkali mallow
***MYRTACEAE* - MYRTLE FAMILY**
Eucalyptus sp.* gum
*Eucalyptus citronella** gum
***OLEACEAE* - OLIVE FAMILY**
Fraxinus sp. ash
*Olea europaea** olive
***ONAGRACEAE* - EVENING PRIMROSE FAMILY**
Epilobium sp. willow-herb
***OXALIDACEAE* - WOOD-SORREL FAMILY**
*Oxalis pes-caprae** Bermuda buttercup/sour grass
***POLYGONACEAE* - BUCKWHEAT FAMILY**
Eriogonum fasciculatum var. *fasciculatum* California buckwheat
*Rumex crispus** curly dock
***ROSACEAE* - ROSE FAMILY**
Heteromeles arbutifolia toyon/christmas berry
***SALICACEAE* - WILLOW FAMILY**
Populus fremontii ssp. *fremontii* Fremont cottonwood
Salix exigua narrow-leaved willow
Salix gooddingii black willow
Salix laevigata red willow
Salix lasiolepis arroyo willow
*Veronica anagallis-aquatica** great water speedwell
***SIMAROUBACEAE* - QUASSIA FAMILY**
*Ailanthus altissima** tree of heaven
***SOLANACEAE* - NIGHTSHADE FAMILY**
Datura wrightii

jimson weed
*Nicotiana glauca**   tree tobacco
Solanum americanum   white nightshade
***TAMARICACEAE* - TAMARISK FAMILY**
Tamarix sp.*   tamarisk
*Tamarix ramosissima**   Mediterranean tamarisk
***URTICACEAE* - NETTLE FAMILY**
*Urtica urens**   dwarf nettle
***ZYGOPHYLLACEAE* - CALTROP FAMILY**
*Tribulus terrestris**   puncture vine
CLASS MONOCOTYLEDONES (MONOCOTS)
***ARECACEAE (PALMAE)* - PALM FAMILY**
Phoenix sp.*   date palm
Washingtonia sp.*   fan palm
*Washingtonia robusta**   Mexican fan palm
***CYPERACEAE* - SEDGE FAMILY**
Cyperus sp.   umbrella-sedge
***POACEAE [GRAMINEAE]* - GRASS FAMILY**
*Arundo donax**   giant reed
*Avena barbata**   slender wild oat
*Avena fatua**

wild oat
*Bromus diandrus**   ripgut grass
Bromus madritensis ssp. *rubens**   foxtail chess
*Bromus tectorum**   cheat grass
*Hordeum murinum**   foxtail barley
*Hordeum vulgare**   cultivated barley
*Lamarckia aurea**   goldentop grass
*Lolium perenne**   perennial ryegrass
*Pennisetum setaceum**   African fountain grass
Piptatherum miliaceum*   smilo grass/millett ricegrass
*Poa annua**   annual bluegrass
*Schismus barbatus**   Mediterranean schismus
Sorghum sp.*   sorghum
*Stenotaphrum secundatum**   Saint Augustine grass
*Vulpia myuros**   foxtail fescue
***TYPHACEAE* - CATTAIL FAMILY**
Typha sp.   cattail

Table 2. Accessor's Parcel Numbers for Land Parcels Within Riverside County Along Mira Loma Preferred Route

144010013	119081009	119250019	117020002	121291001	119041015	119290027
121250004	119041017	121271011	121262002	119400006	119081005	144030014
144020044	130040002	119041016	121262005	119041024	121310005	121262006
130040001	121262004	119041019	119051002	119290021	121310005	117020002
121291002	119041018	119041021	121291011	164570001	121291003	117020002
119081007	121310013	119051005	119020007	121291007	119020006	121262002
164570026	121310086	119041014	119060024	119290040	119041022	121262005
119043003	121262011	144030028	119081002	117020001	119043005	119051002
121262010	119043001	121310087	119020011	121250003	119081011	121291011
121262001	119081012	119051003	119051001	119070015	119250019	119020007
101030006	119502011	119081006	119041013	144010001	121271011	119060024
119041020	119290032	144080016	119051006	119020002	119041016	119081002
130020008	121262009	119250017	144080015	119043002	119041019	119020011
119060018	121250033	121291008	121262007	121291005	119041021	119051001
121291001	121250034	119043004	119060020	119250002	119051005	119041013
119400006	130040005	119070014	119081008	119070008	119041014	119051006
121310011	121310007	119070013	121291009	130030001	144030028	121262007
121310012	119020013	119060031	117020003	130030001	119051003	119060020
119041024	119250022	119070010	144010007	119081004	119081006	119081008
119290021	121040002	130050002	121262013	119081009	119250017	121291009
164570001	119081001	121262003	119230010	119041017	121291008	117020003
121291007	119400010	119400001	144010009	121262004	121293001	117020003
119290040	119501001	130040004	121291004	119041018	121293001	121543004
117020001	144030012	130030004	121310010	121262011	119043004	121262013
121310014	119020009	121291006	119043006	119043001	119070014	121291004
121310009	119190011	121050005	119051004	119081012	119070013	119043006
121250003	130030022	121291010	121310090	119290032	119060031	119051004
119070015	121262008	119081010	119400007	121262009	119070010	119400007
144010010	119041015	164010017	121250004	121250033	121262003	119290032
144010001	119081005	119081003	121291002	121250034	119400001	121293001
119020002	121180014	119250008	119081007	119020013	121291006	121293001
119043002	121291003	121040001	164570026	119250022	121291010	117020002
121291005	119020006	121310006	119043003	119081001	119081010	117020003
119250002	119041022	121262012	121262010	119400010	164010017	119290021
119070008	119043005	119290027	121262001	144030012	119081003	117020001
121310008	130030020	144030014	119041020	119020009	119250008	119290032
119081004	119081011	121262006	119060018	121262008	121262012	117020002

117020003
117020002

Table 3a. Survey Times and Weather Data – Areas CC 1 to 4

Date (2010)	Biologist	Start time	End time	Start Temp. (°F)	End Temp. (°F)	Start Cloud Cover (%)	End Cloud Cover (%)	Start Average Wind Speed (mph)	End Average Wind Speed (mph)	Start Maximum Wind Speed (mph)	End Maximum Wind Speed (mph)	Start Wind Direction	End Wind Direction
1-Jul	Brian Drake	10:00	14:00	87.9	90.2	0%	0%	2.2	5.8	3.2	8.5	W	W
3-Jul	Gilbert Goodlett	10:00	14:00	76.6	85.7	100% haze	0%	0.0	3.9	0.0	6.5		NW
8-Jul	Brian Drake	10:00	14:00	70.1	80.2	100%	0%	0.0	3.3	0.0	4.3		SW
11-Jul	Gilbert Goodlett	10:00	14:00	81.4	87.8	70% stratocumulus	15% cumulus	1.4	4.2	3.1	5.8	N	W
15-Jul	Brian Drake	10:00	14:00	94.4	102.7	10%	10%	1.1	5.1	2.0	6.6	SW	W
17-Jul	Gilbert Goodlett	10:00	14:00	96.3	104.4	1% cumulus	10% cumulus	0.0	6.0	0.0	10.9		W
22-Jul	Brian Drake	10:00	14:00	79.4	89.1	0%	0%	2.6	2.5	3.9	4.5	SE	SW
24-Jul	Gilbert Goodlett	10:00	14:00	78.6	88.3	clear	10% cumulus	2.5	8.3	4.5	11.9	W	W
29-Jul	Brian Drake	10:00	14:00	81.5	85.6	10%	10%	0.0	1.8	0.0	4.6		W
5-Aug	Brian Drake	10:00	14:00	82.8	89.2	0%	0%	0.0	2.2	0	3.3		W
8-Aug	Gilbert Goodlett	10:00	14:00	72.3	85.2	100% haze	0%	2.1	4.6	4.3	7.1	W	W
12-Aug	Brian Drake	10:00	14:00	80.9	88.5	0%	0%	0.0	0.0	0	0.0		
14-Aug	Gilbert Goodlett	10:00	14:00	81.3	92.4	0%	0%	0.0	4.8	0.0	7.3		W
19-Aug	Brian Drake	10:00	14:00	88.9	101.3	0%	10%	0	3.6	0	3.6		W
21-Aug	Gilbert Goodlett	10:00	14:00	87.3	97.7	0%	1% cumulus	3.7	4.6	5.8	8.0	S	W
26-Aug	Brian Drake	10:00	12:00	96.4	100.7	0	0%	0	2.4	0	3.2		SW
28-Aug	Gilbert Goodlett	10:00	14:00	77.9	80.1	40% cumulus	0%	0.0	3.1	0.0	4.4	SW	W
2-Sep	Brian Drake	10:00	14:00	88.7	100.4	0%	0%	0.0	1.5	0.0	2.4		SW
4-Sep	Gilbert Goodlett	10:00	14:00	91.8	106.3	0%	0%	2.6	2.9	3.7	6.7	S	S
9-Sep	Brian Drake	10:00	14:00	78.6	87.0	60%	30%	0.0	0.0	0.0	0.0		
11-Sep	Gilbert Goodlett	10:00	14:00	75.4	88.6	0%	0%	2.7	4.8	4.0	7.9	W	W
13-Sep	Brian Drake	10:00	14:00	83.3	97.7	0%	0%	1.5	1.0	1.8	2.4	NW	NW

Table 3b. Survey Times and Weather Data – Areas CC 5

Date (2010)	Biologist	Start time	End time	Start Temp. (°F)	End Temp. (°F)	Start Cloud Cover (%)	End Cloud Cover (%)	Start Average Wind Speed (mph)	End Average Wind Speed (mph)	Start Maximum Wind Speed (mph)	End Maximum Wind Speed (mph)	Start Wind Direction	End Wind Direction
1-Jul	Gilbert Goodlett	10:00	14:00	84.0	91.3	0%	0%	0.0	6.8	0.0	9.5		W
5-Jul	Brian Drake	10:00	14:00	74.1	85.5	100%	0%	0.0	2.5	0.0	3.0	SE	W
8-Jul	Gilbert Goodlett	10:00	14:00	72.6	78.4	100% haze	0%	0.0	3.3	0.0	5.0		W
12-Jul	Brian Drake	12:00	14:00	81.0	91.8	0%	5%	0.0	5.7	0.0	8.2		W
15-Jul	Gilbert Goodlett	10:00	14:00	94.4	101.3	10% cumulus	10% cumulus	1.1	6.6	2.0	8.8	SW	W
20-Jul	Brian Drake	10:00	14:00	81.1	88.3	30%	20%	3.3	2.8	4.7	1.8	SW	W
23-Jul	Gilbert Goodlett	10:00	14:00	77.4	84.5	clear	5% cumulus	3.1	6.3	6.6	8.5	W	W
26-Jul	Brian Drake	10:00	14:00	76.9	80.7	70%	20%	0.0	2.4	0.0	4.8		SW
27-Jul	Gilbert Goodlett	10:00	14:00	64.5	79.0	100% haze	5% cumulus	2.1	5.1	2.8	7.4	W	W
31-Jul	Gilbert Goodlett	10:00	14:00	75.5	89.7	10% thin cirrus	10% thin cirrus	2.8	4.4	4.6	8.1	N	W
2-Aug	Brian Drake	10:00	14:00	86.0	95.9	30%	40%	0.0	0.0	0	0.0		
5-Aug	Gilbert Goodlett	10:00	14:00	74.6	65.6	0%	0%	2.3	5.5	3.1	8.9	N	W
8-Aug	Brian Drake	10:00	14:00	76.6	83.2	0	0%	1.5	1.6	2.2	2.5	SW	SW
12-Aug	Gilbert Goodlett	10:00	14:00	74.8	89.7	0%	0%	0.0	5.0	0.0	7.2		SW
16-Aug	Brian Drake	10:00	14:00	93.2	99.5	10	10%	0	2.2	0	3.2		SW
19-Aug	Gilbert Goodlett	10:00	14:00	88.2	94.5	0%	2% cumulus	2.9	6.5	4.1	14.1	W	SW
23-Aug	Brian Drake	10:00	14:00	91.9	101.6	0%	0%	0	3.6	0	4.9		W
26-Aug	Gilbert Goodlett	10:00	14:00	86.7	107.9	10% cumulus	10% cumulus	2.3	3.9	4.4	7.6	S	W
30-Aug	Brian Drake	10:00	14:00	76.2	82.8	30%	10%	0	2.6	0	4.4		SW
2-Sep	Gilbert Goodlett	10:00	14:00	89.1	99.2	0%	0%	0.0	5.4	0.0	7.9		W
6-Sep	Brian Drake	10:00	14:00	76.7	83.3	0%	0%	0.0	6.4	0.0	8.4		NW
9-Sep	Gilbert Goodlett	10:00	14:00	66.0	78.4	80% cumulus	25% cumulus	2.0	3.7	2.9	6.9	W	W

Table 4a. List of Invertebrates, Birds, Mammals, and Reptiles Observed During 2010 Survey Season Listed Phylogenetically – Areas CC1 to 4

		July									August								September				
Scientific Name	**Common Name**	1	3	8	11	15	17	22	24	29	5	8	12	14	19	21	26	28	2	4	9	11	13
INVERTEBRATES																							
ORDER: ODONATA	**DRAGONFLIES AND DAMSELFLIES**		X		X			X	X		X	X	X	X		X					X	X	X
Aeshnidae	**Darners**				X				X			X										X	
Aeshna multicolor	Blue-eyed Darner				X				X			X										X	
Lestidae	**Damselfly**							X			X												
Libellulidae	**Common Skimmers**		X						X			X		X								X	
Pachydiplax longipennis	Blue Dasher													X									
Perithemis intensa	Mexican Amberwing		X						X			X		X									
Coenagrionidae	**Common Damselflies**															X							
Argia sp.	Damselfly															X							
ORDER: ORTHOPTERA	**GRASSHOPPERS, KATYDIDS & CRICKETS**	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Acrididae	**Short-horned Grasshoppers**	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Schistocerca nitens	Gray Bird Grasshopper															X		X				X	
Trimerotropis pallidipennis	Pallid Band-winged Grasshopper		X		X				X			X		X						X			
Trimerotropis sp.	Short-horned Grasshopper	X	X	X		X		X		X	X		X		X	X	X	X	X	X	X	X	X
Subfamily: Gryllinae	House and Field Crickets							X		X	X		X								X		
ORDER: HEMIPTERA	**TRUE BUGS**		X								X		X	X		X		X	X		X	X	
Lygaeidae	**Seed Bugs**		X											X									
Lygaeus kalmii	Small Milkweed Bug		X											X									
Pentatomidae	**Stink Bugs**										X		X			X		X	X		X	X	
Chlorochroa sayi	Say's Stink Bug										X		X			X		X	X		X	X	
ORDER: NEUROPTERA	**NERVE-WINGED INSECTS**						X									X		X	X				
Myrmeleontidae	**Antlions**						X									X		X	X				
Brachynemerus sp.	Antlion						X									X		X	X				
ORDER:LEPIDOPTERA	**MOTHS AND BUTTERFLIES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pyralidae	**Pyralid Moths**		X																				
Pyralis sp.	Pyralid Moth		X																				
Hesperiidae	**Skippers**												X								X		
Atalopedes campestris	Field Skipper												X								X		
Lycaenidae	**Blues**	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X
Brephidium exilis	Pigmy Blue	X	X		X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	
Icaricia acmon	Acmon Blue	X	X	X	X	X								X				X					X
Strymon melinus	Common Hairstreak														X	X	X						X

		July									August								September				
Scientific Name	**Common Name**	1	3	8	11	15	17	22	24	29	5	8	12	14	19	21	26	28	2	4	9	11	13
Nymphalidae	**Brush-footed Butterflies**	**X**	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**	**X**	**X**	
Vanesa atalanta	Red Admiral									X													
Precis coenia	Buckeye	X							X			X							X				
Vanessa cardui	Painted Lady		X		X				X			X		X						X		X	
Vanessa sp.	Unidentified Lady			X		X		X		X	X		X		X		X				X		
Pieridae	**Whites and Sulfurs**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
Colias eurytheme	Alfalfa Sulphur						X		X			X	X							X	X	X	
Eurema nicippe	Sleepy Orange		X											X									
Pieris protodice	Common White	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	
ORDER: COLEOPTERA	**BEETLES**		**X**					**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Coccinellidae	**Ladybird Beetles**		**X**																			**X**	**X**
Coccinella sp.	Ladybird Beetle		X																				X
Hippodamia convergens	Convergent Ladybird Beetle																					X	
Scarabaeidae	**Scarab Beetles**							**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
Cotinus mutabilis	Green Fruit Beetle							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Chrysomelidae	**Leaf Beetles**					**X**			**X**			**X**											
Lema trilineata	Three-lined Potato Beetle								X			X											
ORDER: DIPTERA	**FLIES**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Apioceridae	**Flower-loving Flies**				**X**		**X**		**X**			**X**							**X**				
Apiocera sp.	Flower Fly				X		X		X			X							X				
Asilidae	**Robber Flies**		**X**			**X**		**X**		**X**	**X**			**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**
Mallophora fautrix	Bumble bee robber fly									X	X					X							
Promachus aldrichii	Robber Fly					X		X						X		X		X				X	
Protocanthus sp.	Giant Robber Fly		X																	X			
Mydidae	**Mydas Flies**		**X**					**X**						**X**									
Nemomydas pantherinus	Mydas Fly		X					X						X									
Bombyliidae	**Bee Flies**	**X**			**X**	**X**			**X**			**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
Exoprosopa sp.	Bee Fly								X			X											
Poecilanthrax sp.	Bee Fly																			X		X	
Villa sp.	Bee Fly	X			X	X									X	X	X	X	X		X		
Syrphidae	**Syrphid Flies**	**X**						**X**															
Eristalis sp.	Drone Fly	X						X															
Tephritidae	**Fruit Flies**								**X**			**X**											
Muscidae	**Muscid Flies**		**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**		**X**	**X**	**X**	**X**
Musca domestica	House Fly		X	X	X		X	X	X	X	X	X	X	X		X		X		X	X	X	X
Sarcophagidae	**Flesh Flies**		**X**	**X**										**X**									**X**
Sarcophaga sp	Flesh Fly		X	X										X									X

		July									August								September				
Scientific Name	**Common Name**	1	3	8	11	15	17	22	24	29	5	8	12	14	19	21	26	28	2	4	9	11	13
ORDER: HYMENOPTERA	**SAWFLIES, ICHNEUMONS, CHALCIDS, ANTS, WASPS, AND BEES**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Scoliidae	**Scoliid Wasps**	**X**																			**X**		
Campsomeris tolteca	Scoliid Wasp	X																			X		
Mutillidae	**Velvet Ants**																				**X**		
Dasymutilla sp.	Velvet Ant																				X		
Formicidae	**Ants**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**		**X**	**X**	**X**		**X**		**X**	**X**	**X**	**X**	**X**	
Iridomyrmex humilis	Argentine Ant		X											X									
Pogonomyrmex californicus	California Harvester Ant		X		X		X		X			X		X		X		X		X		X	
Pompilidae	**Spider Wasps**			**X**	**X**	**X**				**X**													**X**
Sphecidae	**Sphecid Wasps**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**
Ammophila aberti	Thread-waisted Wasp																					X	
Ammophila azteca	Thread-waisted Wasp		X				X		X			X		X		X		X				X	
Bembix comata	Western Sand Wasp	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X
Cerceris sp.	Sphecid Wasp			X		X																X	X
Chlorion aerarium	Steel Blue Cricket Hunter				X			X	X		X	X	X										X
Microbembix californica	Sphecid Wasp				X				X			X											
Philanthus multimaculatus	Sphecid Wasp															X		X		X			
Philanthus sp.	Sphecid Wasp				X		X									X		X		X			
Sceliphron caementarium	Mud Dauber								X			X											
Halictidae	**Halictid Bees**						**X**	**X**															
Agapostemon sp.	Metallic Sweat Bee						X																
Dieunomia nevadensis	Sweat Bee							X															
Megachilidae	**Leafcutting Bees**		**X**		**X**		**X**		**X**			**X**		**X**								**X**	
Anthidellum sp.	Mason Bee						X																
Megachile sp.	Common Leaf-cutter		X		X				X			X		X								X	
Anthophoridae	**Carpenter Bees**																				**X**		
Melissodes sp.	Anthophorid Bee																				X		
Apidae	**Honey Bees and Bumble Bees**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**
Apis mellifera	Honey Bee	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
ORDER: ARANEAE	**SPIDERS**	**X**	**X**		**X**		**X**		**X**			**X**		**X**		**X**		**X**		**X**		**X**	
Agelinidae	**Funnel Web Spiders**	**X**	**X**		**X**		**X**		**X**			**X**		**X**		**X**		**X**		**X**		**X**	
							BIRDS																
ORDER:CICONIIFORMES	**FLAMINGOS, HERONS AND STORKS**		**X**											**X**						**X**			
Threskiornithidae	**Ibises, Spoonbills**		**X**											**X**						**X**			
Plegadis chihi	White-faced Ibis		X											X						X			
ORDER: ANSERIFORMES	**DUCKS, GEESE, AND SWANS**								**X**			**X**				**X**		**X**		**X**			
Anatinae	**Ducks**								**X**			**X**				**X**		**X**		**X**			
Anas platyrhynchos	Mallard								X			X				X		X		X			

		July									August								September				
Scientific Name	**Common Name**	1	3	8	11	15	17	22	24	29	5	8	12	14	19	21	26	28	2	4	9	11	13
ORDER: FALCONIFORMES	**HAWKS AND VULTURES**	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X
Cathartidae	**American Vultures**			X		X			X		X	X	X			X		X			X	X	X
Cathartes aura	Turkey Vulture			X		X			X		X	X	X			X		X			X	X	X
Accipitiridae	**Hawks**	X	X	X	X	X	X	X	X	X	X	X		X				X	X	X			X
Accipiter cooperii	Cooper's Hawk										X												
Buteo jamaicensis	Red-tailed Hawk	X	X	X	X	X	X	X	X	X		X		X				X	X	X			X
Falconidae	**Falcons**			X	X		X			X			X									X	
Falco mexicanus	Prairie Falcon												X										
Falco sparverius	American Kestrel			X	X		X			X												X	
ORDER: CHARADRIIFORMES	**GULLS AND SHOREBIRDS**				X	X	X	X	X		X	X				X		X		X			
Charadriidae	**Plovers**				X	X	X	X	X		X	X				X		X		X			
Charadrius vociferus	Killdeer				X	X	X	X	X		X	X				X		X		X			
Recurvirostridae	**Stilts and Avocets**				X		X		X		X	X											
Himantopus mexicanus	Black-necked Stilt				X		X		X		X	X											
ORDER: COLUMBIFORMES	**DOVES AND PIGEONS**	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columbidae	**Pigeons and Doves**	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columba livia	Rock Dove		X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Streptopelia chinensis	Spotted Dove			X		X		X		X	X		X										X
Zenaida macroura	Mourning Dove	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ORDER: APODIFORMES	**HUMMINGBIRDS AND SWIFTS**							X															
Trochidae	**Hummingbirds**							X															
ORDER: PASSERIIFORMES	**PASSERINES AND PERCHING BIRDS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tyranidae	**Flycatchers**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sayornis nigricans	Black Phoebe	X		X	X					X	X		X		X		X		X	X	X	X	X
Tyrannus verticalis	Western Kingbird		X	X	X	X	X	X	X	X		X	X	X		X		X					
Hirundinidae	**Swallows**	X	X	X	X						X			X				X				X	
Hirundo rustica	Barn Swallow	X		X	X						X							X					
Riparia riparia	Bank Swallow		X											X									
Tachycineta thalassina	Violet-green Swallow																					X	
Corvidae	**Jays, Magpies, and Crows**	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Corvus brachyrhynchos	American Crow	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Paridae	**Chicadees, Titmice**							X															
Psaltriparus minimus	Bushtit					X		X															
Mimidae	**Mimic Thrashers**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
Mimus polyglottos	Northern Mockingbird	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
Laniidae	**Shrikes**				X																		
Lanius ludovicianus	Loggerhead Shrike				X																		
Sturnidae	**Starlings**			X				X			X		X		X		X		X	X		X	X
Sturnus vulgaris	European Starling			X				X			X		X		X		X		X	X		X	X

		July									August								September				
Scientific Name	**Common Name**	1	3	8	11	15	17	22	24	29	5	8	12	14	19	21	26	28	2	4	9	11	13
Emberizidae	**Emberizids**	**X**		**X**	**X**	**X**	**X**		**X**		**X**	**X**								**X**		**X**	
Amphispiza bilineata	Black-throated Sparrow				X		X		X			X										X	
Agelaius phoeniceus	Red-winged Blackbird										X												
Euphagus cyanocephalus	Brewer's Blackbird			X	X				X			X								X			
Quiscalus quiscula	Common Grackle	X				X																	
Sturnela magna	Western Meadowlark				X																		
Fringillidae	**Finches**				**X**	**X**	**X**	**X**	**X**			**X**	**X**						**X**		**X**		**X**
Carpodacus mexicanus	House Finch				X	X	X	X	X			X	X						X		X		X
Passeridae	**Weaver Finches**	**X**		**X**		**X**		**X**		**X**	**X**		**X**		**X**		**X**						
Passer domesticus	House Sparrow	X		X		X		X		X	X		X		X		X						
MAMMALS																							
ORDER: CARNIVORA	**FLESH-EATERS**							**X**					**X**						**X**		**X**		
Canidae	**Dogs, wolves, and foxes**							**X**					**X**						**X**		**X**		
Canis latrans	Coyote							X					X						X		X		
ORDER: RODENTIA	**GNAWING MAMMALS**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Sciuridae	**Squirrels**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Spermophilus beecheyi	California Ground Squirrel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ORDER: LAGOMORPHA	**PIKAS, HARES, AND RABBITS**	**X**	**X**	**X**	**X**		**X**	**X**						**X**	**X**	**X**	**X**	**X**	**X**			**X**	
Leporidae	**Hares and Rabbits**	**X**	**X**	**X**	**X**		**X**	**X**						**X**	**X**	**X**	**X**	**X**	**X**			**X**	
Lepus californicus	Black-tailed Jackrabbit	X																					
Sylvilagus auduboni	Audubon's Cottontail	X	X	X	X		X	X						X	X	X	X	X	X			X	
REPTILES																							
ORDER:SQUAMATA	**LIZARDS AND SNAKES**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Iguanidae	**Iguanids**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Sceloporus occidentalis	Western Fence Lizard			X	X					X											X	X	X
Uta stansburiana	Side-blotched Lizard	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Colubridae	**Colubrids**								**X**														
Pituophis melanoleucus	Gopher Snake								X														

Table 4b. List of Invertebrates, Birds, Mammals, and Reptiles Observed During 2010 Survey Season Listed Phylogenetically – Area CC5

		July										August									Sept		
Scientific Name	**Common Name**	1	5	8	12	15	20	23	26	27	31	2	5	8	12	16	19	23	26	30	2	6	9
INVERTEBRATES																							
ORDER: ODONATA	**DRAGONFLIES AND DAMSELFLIES**	X	X	X	X		X			X	X	X	X	X	X	X		X	X	X	X	X	X
Aeshnidae	**Darners**			X						X	X		X						X				X
Aeshna multicolor	Blue-eyed Darner			X						X			X						X				X
Anax junius	Common Green Darner										X												X
Libellulidae	**Common Skimmers**	X								X	X		X		X						X		X
Libellula saturata	Big Red Skimmer	X									X												
Pachydiplax longipennis	Blue Dasher														X								
Perithemis intensa	Mexican Amberwing												X										
Tramea lacerata	Black Saddlebags												X										
Coenagrionidae	**Common Damselflies**	X													X						X		
Argia sp.	Damselfly																				X		
Argia vivida	Violet Dancer	X													X								
ORDER: ORTHOPTERA	**GRASSHOPPERS, KATYDIDS & CRICKETS**				X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X
Acrididae	**Short-horned Grasshoppers**				X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Trimerotropis pallidipennis	Pallid Band-winged Grasshopper					X		X		X	X				X		X						
Trimerotropis sp.	Short-horned Grasshopper				X		X		X			X	X	X						X	X		X
Subfamily: Gryllinae	House and Field Crickets				X		X		X			X		X		X		X				X	
ORDER: HEMIPTERA	**TRUE BUGS**	X		X				X		X			X		X				X		X		X
Reduviidae	**Assassin Bugs**												X										
Apiomerus sp.	Robust Assassin Bug												X										
Lygaeidae	**Seed Bugs**	X		X				X		X			X		X				X				X
Lygaeus kalmii	Small Milkweed Bug	X		X				X		X			X		X				X				X
Pentatomidae	**Stink Bugs**																				X		
Chlorochroa sayi	Say's Stink Bug																				X		
ORDER:LEPIDOPTERA	**MOTHS AND BUTTERFLIES**	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X
Hesperiidae	**Skippers**		X		X		X	X			X		X										X
Hylephila phyleus	Fiery Skipper							X			X		X										X
Pyrgus albescens	Common Checkered Skipper		X																				X
Lycaenidae	**Blues**	X	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X		X
Brephidium exilis	Pigmy Blue	X	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X		X
Icaricia acmon	Acmon Blue		X		X		X																
Strymon melinus	Common Hairstreak									X	X												

		July										August									Sept		
Scientific Name	**Common Name**	1	5	8	12	15	20	23	26	27	31	2	5	8	12	16	19	23	26	30	2	6	9
Nymphalidae	**Brush-footed Butterflies**	**X**		**X**	**X**		**X**	**X**							**X**				**X**	**X**	**X**		**X**
Limenitis lorquini	Mourning Cloak			X																			
Precis coenia	Buckeye				X		X																
Vanessa cardui	Painted Lady			X				X											X		X		X
Vanessa sp.	Unidentified Lady	X			X		X								X					X			
Pieridae	**Whites and Sulfurs**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		
Colias eurytheme	Alfalfa Sulphur									X			X								X		
Pieris protodice	Common White	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
Papilionidae	**Swallowtails and Parnassians**									**X**					**X**								
Papilio rutulus	Western Tiger Swallowtail									X					X								
ORDER: COLEOPTERA	**BEETLES**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**
Coccinellidae	**Ladybird Beetles**							**X**															
Scarabaeidae	**Scarab Beetles**			**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**
Cotinus mutabilis	Green Fruit Beetle			X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X
Chrysomelidae	**Leaf Beetles**			**X**						**X**	**X**				**X**				**X**		**X**		**X**
Diabrotica undecimpunctata	Western Spotted Cucumber Beetle			X																			X
Lema trilineata	Three-lined Potato Beetle									X	X				X				X		X		X
ORDER: DIPTERA	**FLIES**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**	**X**		**X**
Apioceridae	**Flower-loving Flies**																**X**						
Apiocera sp.	Flower Fly																X						
Asilidae	**Robber Flies**										**X**												
Promachus aldrichii	Robber Fly										X												
Mydidae	**Mydas Flies**					**X**																	
Nemomydas pantherinus	Mydas Fly					X																	
Bombyliidae	**Bee Flies**	**X**								**X**		**X**		**X**	**X**								
Exoprosopa sp.	Bee Fly	X																					
Poecilanthrax sp.	Bee Fly									X													
Villa sp.	Bee Fly											X		X	X								
Syrphidae	**Syrphid Flies**								**X**														
Conopidae	**Thick-headed Flies**										**X**												
Physocephala texana	Thread-waisted Conopid										X												
Muscidae	**Muscid Flies**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**		**X**		**X**		**X**		**X**	**X**	**X**		**X**
Musca domestica	House Fly	X	X	X	X	X	X	X		X	X		X		X		X		X	X	X		X
Sarcophagidae	**Flesh Flies**					**X**																	
Sarcophaga sp	Flesh Fly					X																	

		July										August									Sept		
Scientific Name	**Common Name**	1	5	8	12	15	20	23	26	27	31	2	5	8	12	16	19	23	26	30	2	6	9
ORDER: HYMENOPTERA	**SAWFLIES, ICHNEUMONS, CHALCIDS, ANTS, WASPS, AND BEES**		X	X	X	X	X	X	X	X	X		X		X		X		X	X	X	X	X
Scoliidae	**Scoliid Wasps**										X												
Campsomeris tolteca	Scoliid Wasp										X												
Formicidae	**Ants**		X	X	X	X	X	X	X		X		X		X		X		X	X	X	X	X
Iridomyrmex humilis	Argentine Ant												X		X								X
Pogonomyrmex californicus	California Harvester Ant			X		X		X			X				X		X		X		X		X
Pompilidae	**Spider Wasps**														X								
Vespidae	**Vespid Wasps**																X						
Polistes sp.	Paper Wasp																X						
Sphecidae	**Sphecid Wasps**				X		X	X		X	X				X								X
Ammophila azteca	Thread-waisted Wasp							X		X													
Bembix comata	Western Sand Wasp				X		X				X												X
Chlorion aerarium	Steel Blue Cricket Hunter				X		X				X												
Microbembix californica	Sphecid Wasp							X			X				X								
Philanthus multimaculatus	Sphecid Wasp										X												
Anthophoridae	**Carpenter Bees**			X													X		X				
Xylocopa varipuncta	Valley Carpenter Bee			X													X		X				
Apidae	**Honey Bees and Bumble Bees**		X	X		X					X				X				X			X	
Apis mellifera	Honey Bee		X	X		X					X				X				X			X	
ORDER: ARANEAE	**SPIDERS**			X		X				X	X		X				X		X		X		X
Salticidae	**Jumping Spiders**																X						
Thomisiidae	**Crab Spiders**										X		X										
Agelinidae	**Funnel Web Spiders**			X		X				X	X						X		X		X		X
						BIRDS																	
ORDER:CICONIIFORMES	**FLAMINGOS, HERONS AND STORKS**	X		X		X		X		X			X		X	X	X	X	X	X	X	X	X
Ardeidae	**Herons**			X									X		X				X			X	
Ardea alba	Great Egret			X											X				X				
Egretta thula	Snowy Egret												X									X	
Threskiornithidae	**Ibises, Spoonbills**	X		X		X		X		X			X			X	X	X	X	X	X	X	X
Plegadis chihi	White-faced Ibis	X		X		X		X		X			X			X	X	X	X	X	X	X	X
ORDER: ANSERIFORMES	**DUCKS, GEESE, AND SWANS**			X		X		X									X		X				
Anatinae	**Ducks**			X		X		X									X		X				
Anas platyrhynchos	Mallard			X		X		X									X		X				
ORDER: FALCONIFORMES	**HAWKS AND VULTURES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X
Cathartidae	**American Vultures**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cathartes aura	Turkey Vulture	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Accipitiridae	**Hawks**		X	X		X		X		X	X	X	X	X	X		X		X	X	X	X	X
Accipiter cooperii	Cooper's Hawk																					X	
Buteo jamaicensis	Red-tailed Hawk		X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X	X	X

		July										August									Sept		
Scientific Name	**Common Name**	1	5	8	12	15	20	23	26	27	31	2	5	8	12	16	19	23	26	30	2	6	9
Falconidae	**Falcons**				X		X				X				X							X	X
Falco sparverius	American Kestrel				X		X				X				X							X	X
ORDER: CHARADRIIFORMES	**GULLS AND SHOREBIRDS**	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Charadriidae	**Plovers**	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X	X		
Charadrius vociferus	Killdeer	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X	X		
Recurvirostridae	**Stilts and Avocets**	X		X		X		X		X	X		X		X		X		X		X	X	X
Himantopus mexicanus	Black-necked Stilt	X		X		X		X		X	X		X		X		X		X		X	X	X
Recurvirostra americana	American Avocet	X																					
Scolopacidae	**Sandpipers and Phalaropes**			X		X		X		X					X		X		X		X		X
Calidris minutilla	Least Sandpiper																				X		X
Tringa favipes	Lesser Yellowlegs			X		X													X				
Tringa melanoleuca	Greater Yellowlegs							X		X					X		X				X		X
ORDER: COLUMBIFORMES	**DOVES AND PIGEONS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columbidae	**Pigeons and Doves**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columba livia	Rock Dove	X		X		X			X	X	X	X	X	X	X	X	X	X	X		X	X	X
Streptopelia chinensis	Spotted Dove								X			X						X		X		X	
Zenaida macroura	Mourning Dove	X	X	X	X	X	X	X		X	X		X		X		X		X	X	X		X
ORDER: APODIFORMES	**HUMMINGBIRDS AND SWIFTS**																			X			
Trochidae	**Hummingbirds**																			X			
ORDER: PASSERIIFORMES	**PASSERINES AND PERCHING BIRDS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tyranidae	**Flycatchers**		X				X	X			X				X							X	X
Sayornis nigricans	Black Phoebe		X					X			X											X	X
Tyrannus verticalis	Western Kingbird				X		X				X				X								
Hirundinidae	**Swallows**	X		X		X		X					X		X		X		X				X
Hirundo pyrrhonota	Cliff Swallow	X						X															
Hirundo rustica	Barn Swallow		X					X					X		X		X		X				X
Riparia riparia	Bank Swallow	X				X																	
Tachycineta thalassina	Violet-green Swallow			X		X																	
Corvidae	**Jays, Magpies, and Crows**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Corvus brachyrhynchos	American Crow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paridae	**Chicadees, Titmice**		X		X		X																
Psaltriparus minimus	Bushtit		X		X		X																
Mimidae	**Mimic Thrashers**		X		X		X	X	X	X													
Mimus polyglottos	Northern Mockingbird		X		X		X	X	X	X													
Sturnidae	**Starlings**		X		X		X					X		X		X		X		X		X	
Sturnus vulgaris	European Starling		X		X		X					X		X		X		X		X		X	

		July										August									Sept		
Scientific Name	**Common Name**	1	5	8	12	15	20	23	26	27	31	2	5	8	12	16	19	23	26	30	2	6	9
Emberizidae	**Emberizids**	**X**		**X**	**X**	**X**	**X**	**X**		**X**	**X**		**X**		**X**		**X**		**X**		**X**		**X**
Amphispiza bilineata	Black-throated Sparrow	X		X		X		X		X			X		X		X		X				X
Melospiza melodia	Song Sparrow	X		X		X													X		X		
Euphagus cyanocephalus	Brewer's Blackbird				X	X	X				X										X		
Molothrus ater	Brown-headed Cowbird	X																					
Sturnela magna	Western Meadowlark	X		X															X			X	
Fringillidae	**Finches**	**X**	**X**	**X**				**X**		**X**									**X**			**X**	
Carduelis psaltria	Lesser Goldfinch							X															
Carpodacus mexicanus	House Finch	X	**X**	X						**X**									X			X	
Passeridae	**Weaver Finches**		**X**		**X**		**X**		**X**			**X**		**X**		**X**		**X**		**X**		**X**	
Passer domesticus	House Sparrow		X		X		X		X			X		X		X		X		X		X	
MAMMALS																							
ORDER: RODENTIA	**GNAWING MAMMALS**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**	**X**		**X**
Sciuridae	**Squirrels**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**	**X**		**X**
Spermophilus beecheyi	California Ground Squirrel	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X		X
Geomyidae	**Pocket Gophers**									**X**													
Thomomys bottae	Botta's Pocket Gopher									X													
ORDER: LAGOMORPHA	**PIKAS, HARES, AND RABBITS**										**X**		**X**										
Leporidae	**Hares and Rabbits**										**X**		**X**										
Sylvilagus auduboni	Audubon's Cottontail										X		X										
REPTILES																							
ORDER:SQUAMATA	**LIZARDS AND SNAKES**		**X**		**X**		**X**				**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**			**X**	**X**
Iguanidae	**Iguanids**		**X**		**X**		**X**				**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**			**X**	**X**
Sceloporus occidentalis	Western Fence Lizard		X		X		X				X		X		X								
Uta stansburiana	Side-blotched Lizard										X	X	X	X	X	X		X	X			X	X

FIGURES

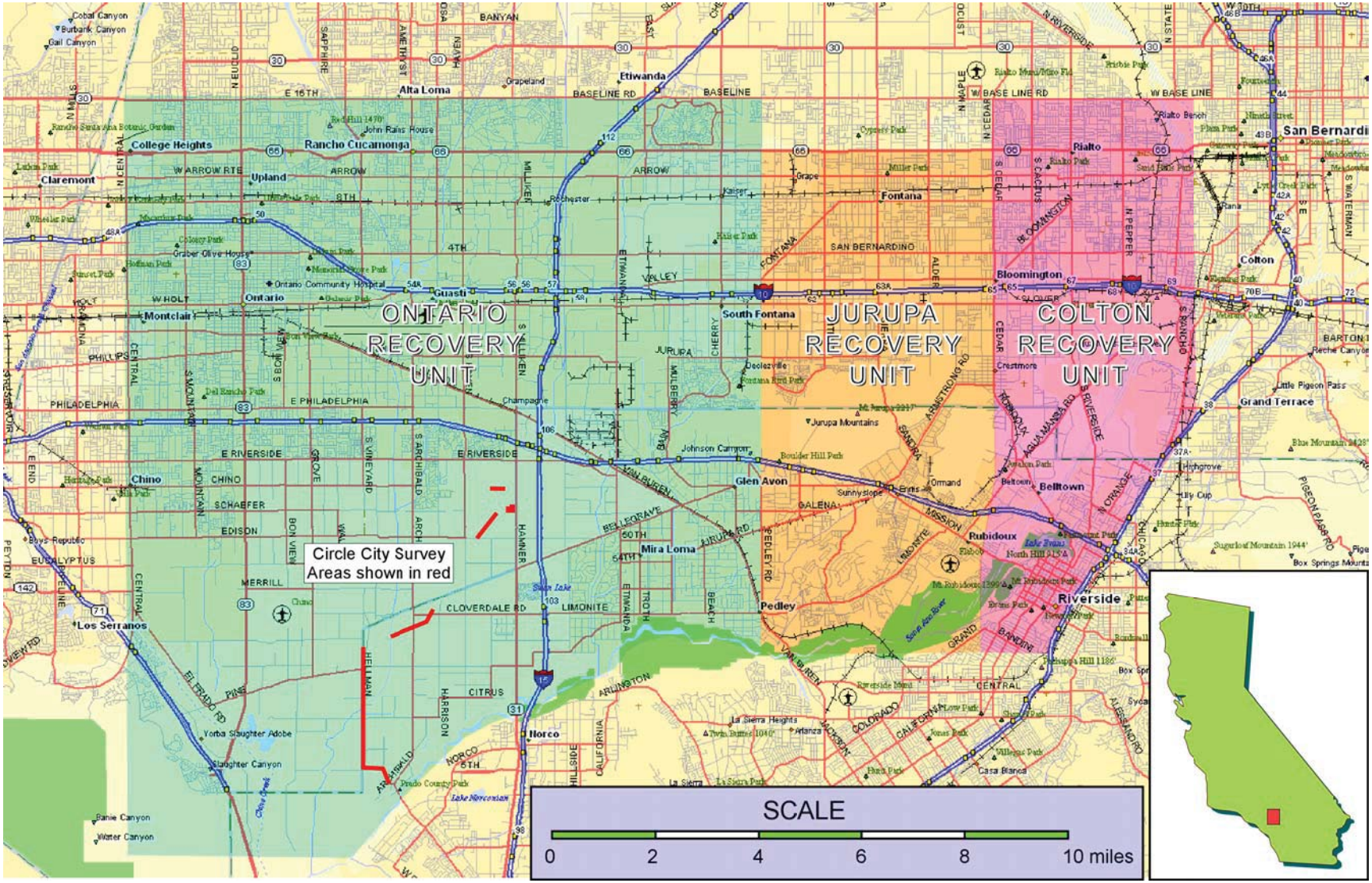


Figure 1. Project Vicinity and Recovery Unit Map

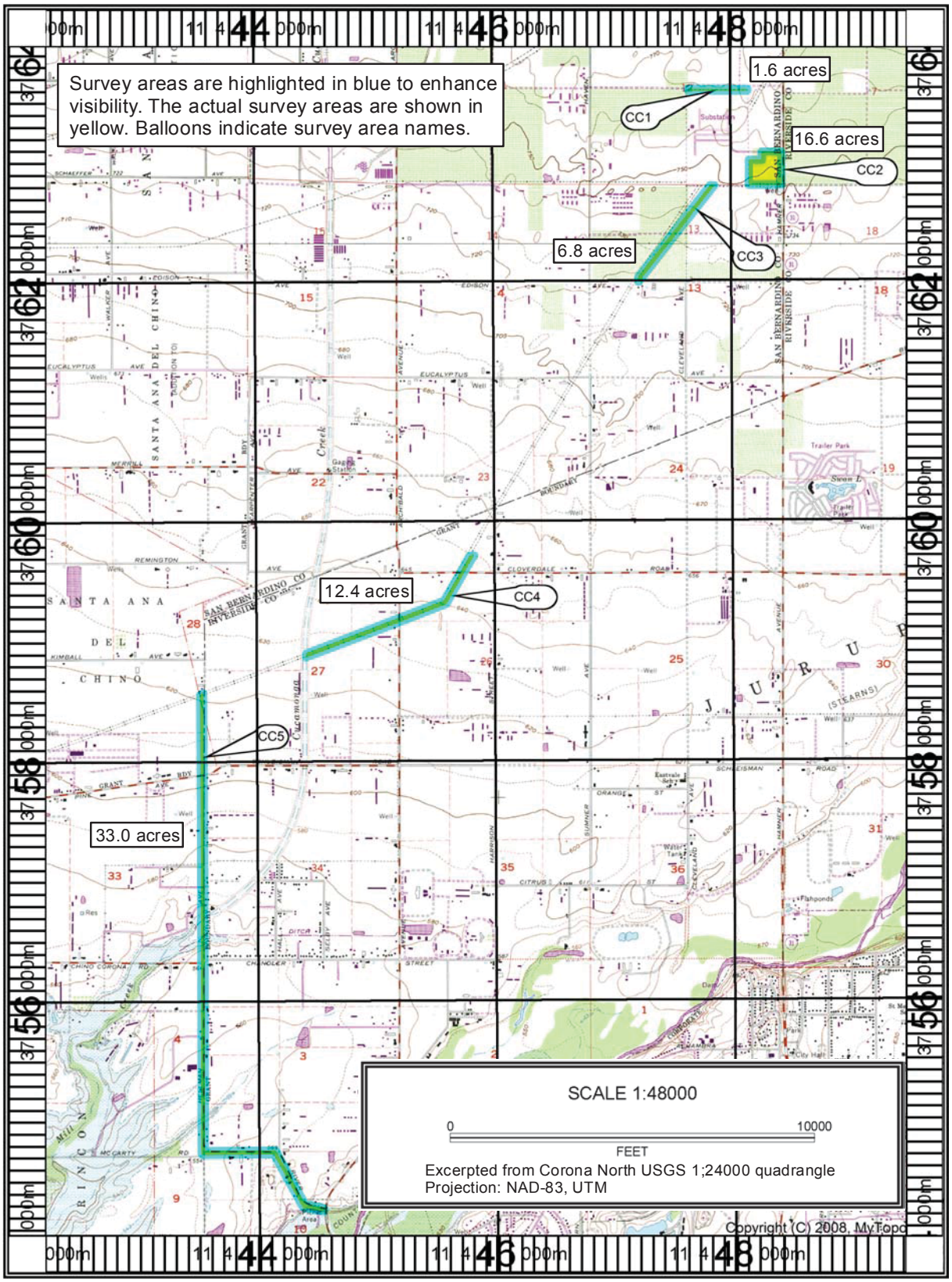


Figure 2. Site Map Showing Survey Areas

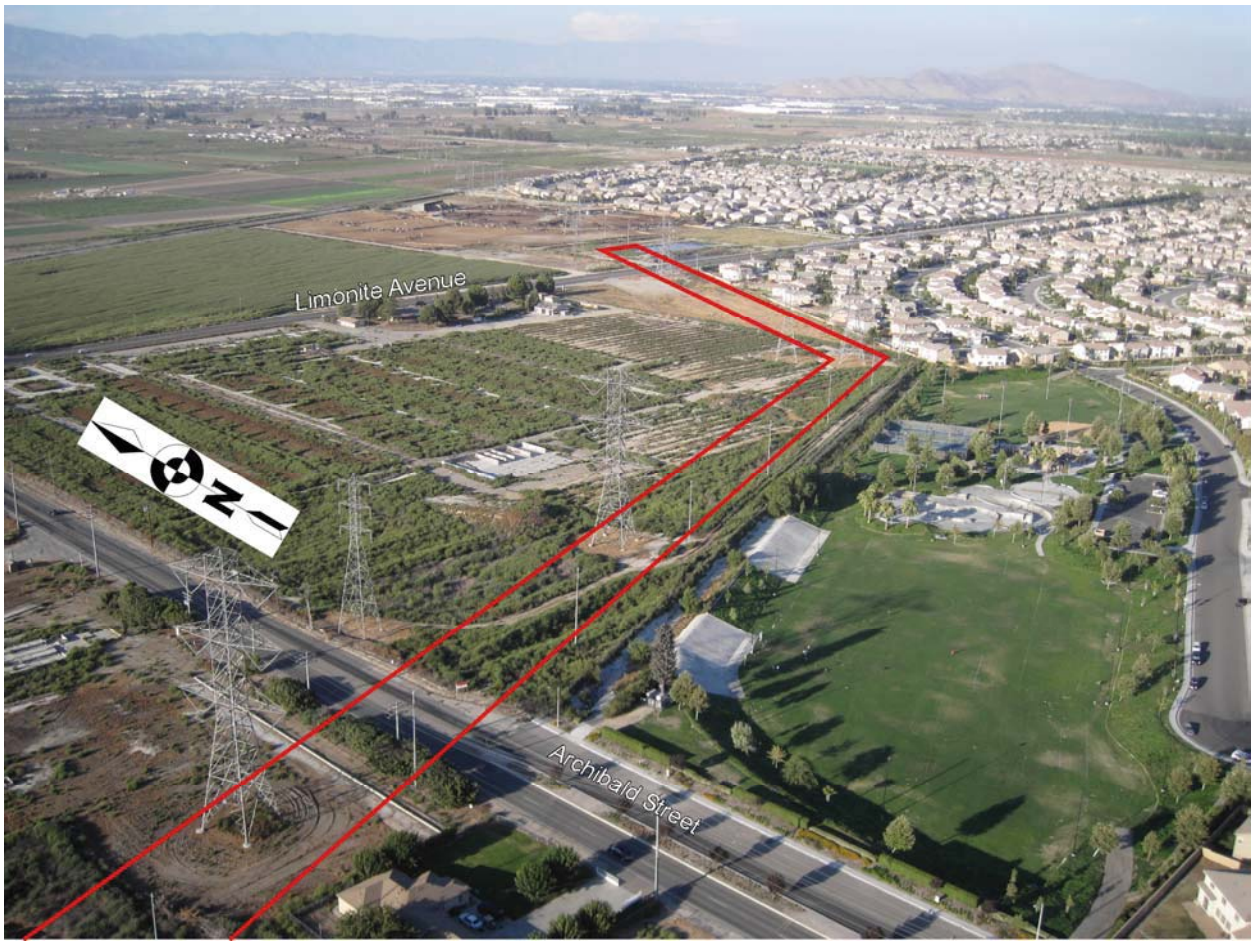
APPENDICES

APPENDIX 1. SITE PHOTOGRAPHS

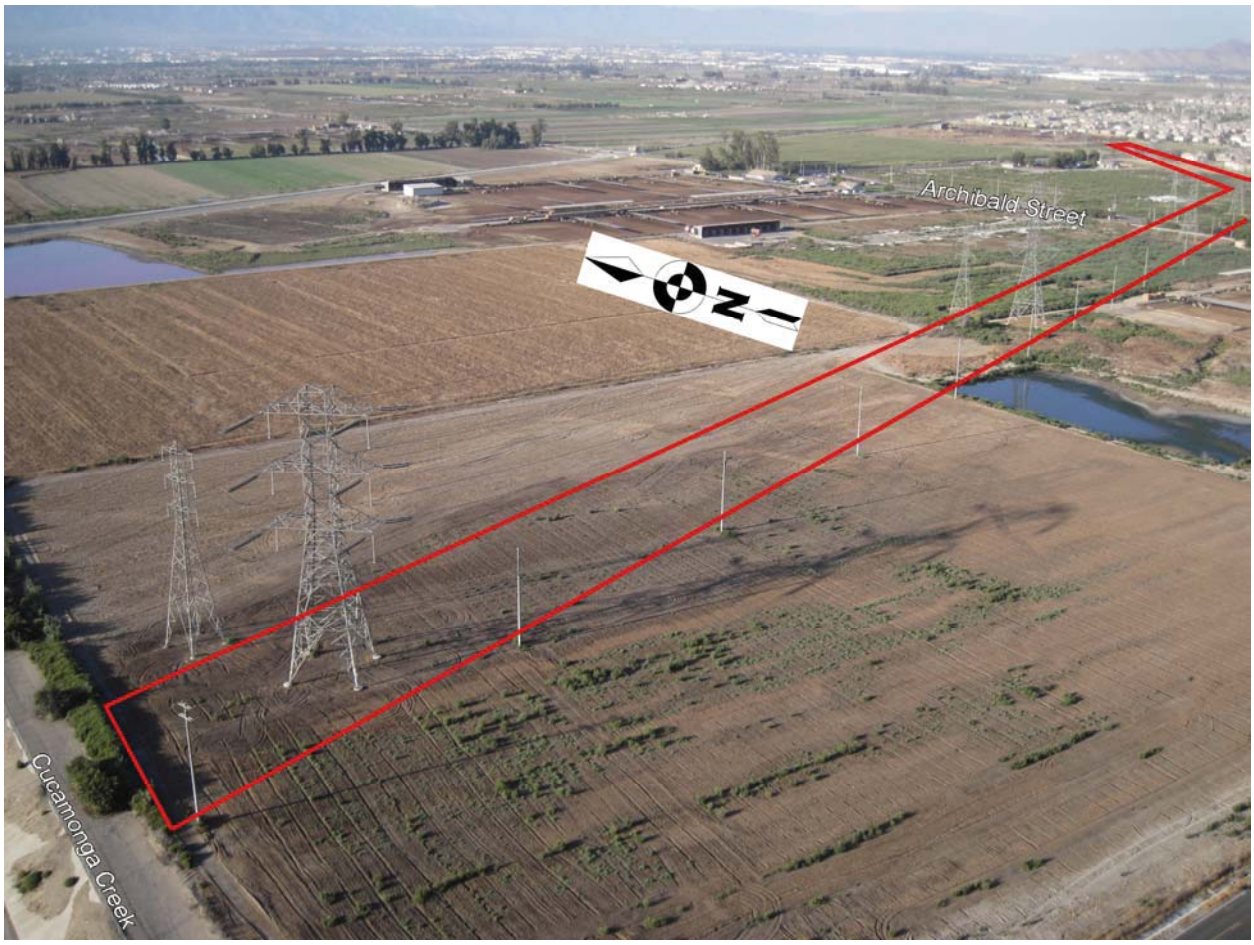
Photograph 1. CC1 survey area (1.6 acres)

Photograph 2. CC2 survey area (16.6 acres)

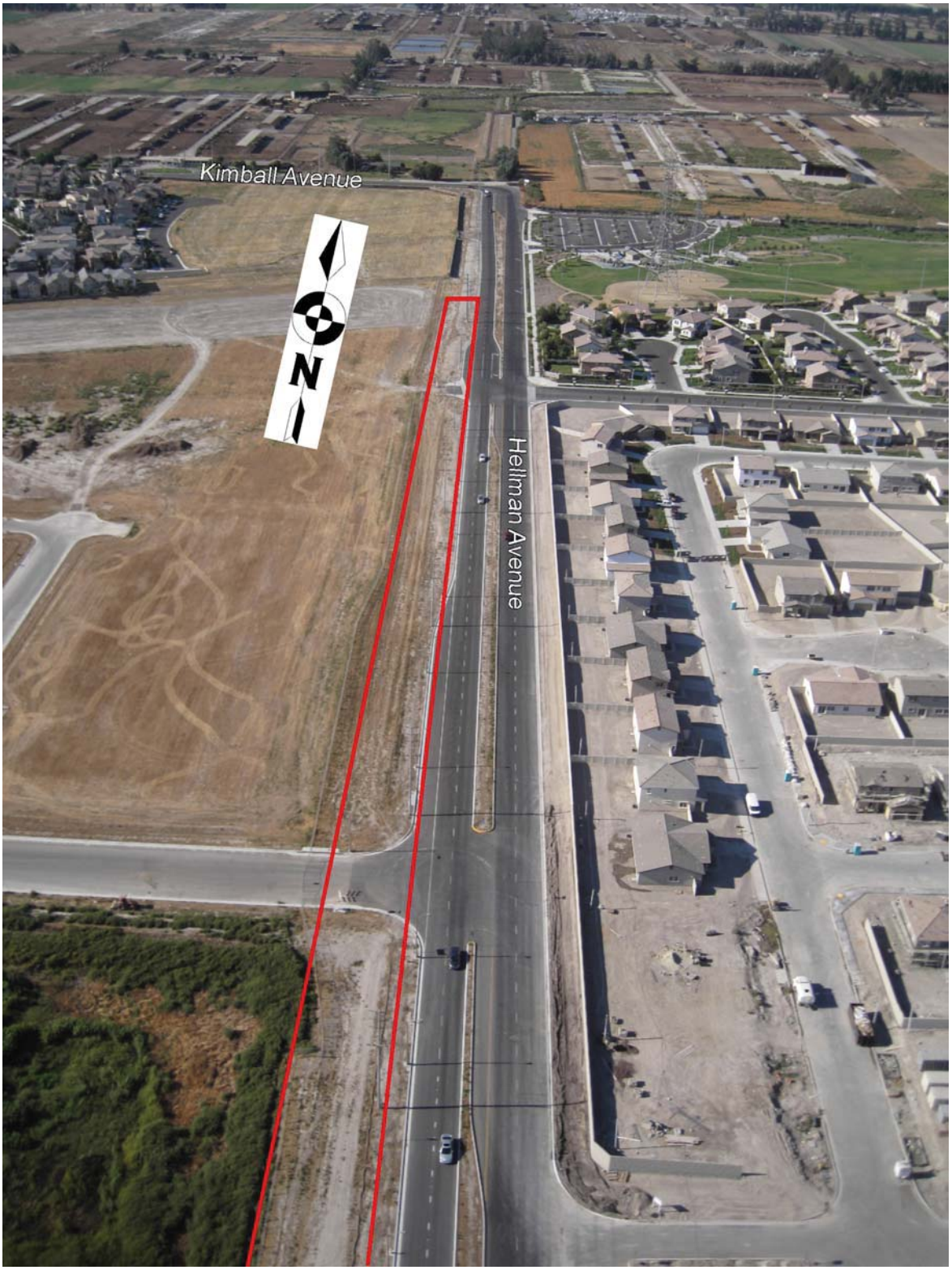
Photograph 3. CC3 survey area (6.8 acres)



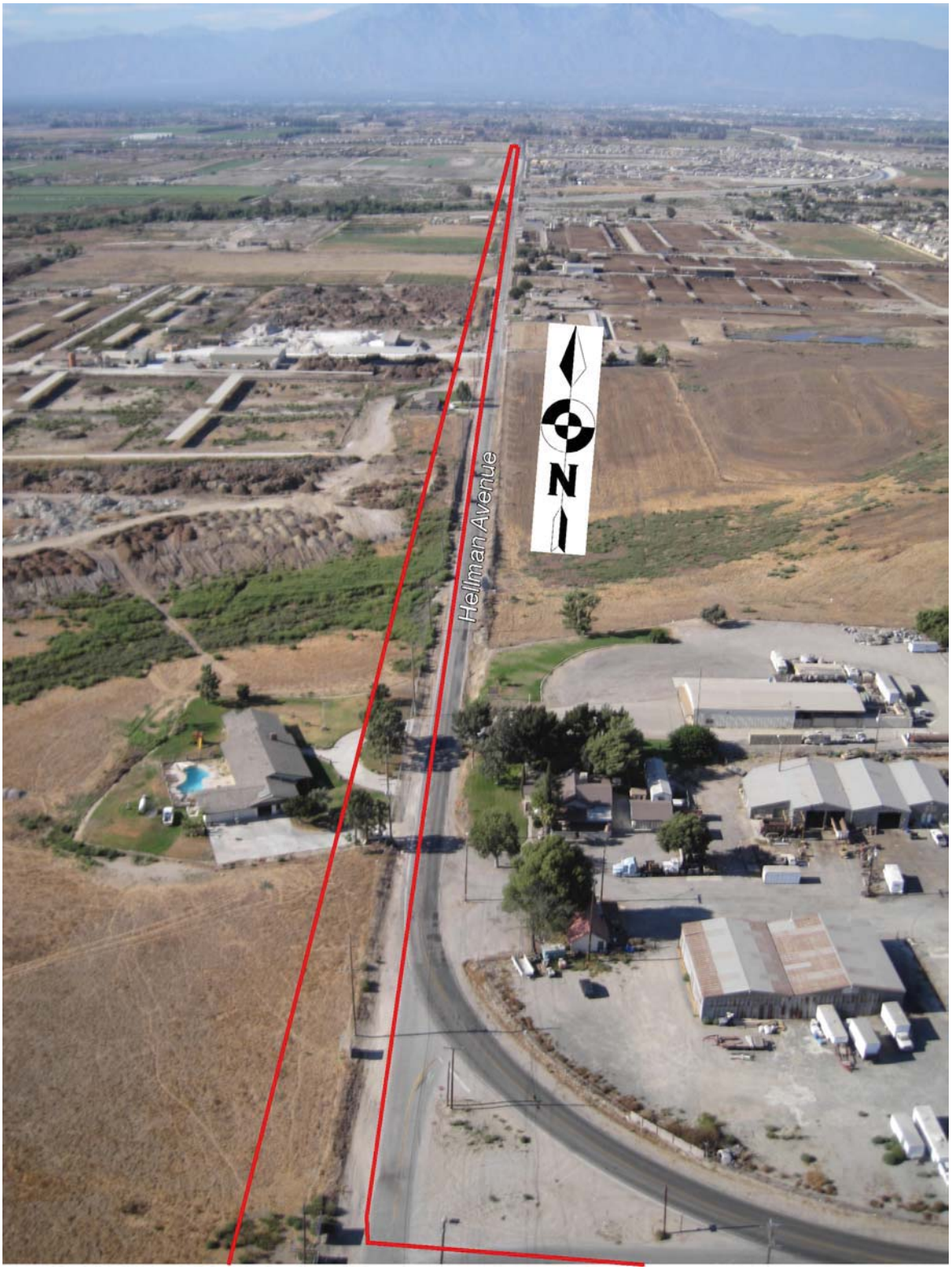
Photograph 4. Northern portion of CC4 survey area (12.4 acres)



Photograph 5. Southern portion of CC4 survey area (12.4 acres)



Photograph 6. Northern portion of CC5 survey area (33.0 acres)



Photograph 7. Central portion of CC5 survey area (33.0 acres)

Photograph 8. Southern portion of CC5 survey area (33.0 acres)

APPENDIX 2. CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

California Native Species Field Survey Form

Mailto:
Natural Diversity Database
California Dept. of Fish and Game
180713th Street, Suite 202
Sacramento, CA 95814

For Office Use Only
Source Code_____ Quad Code_____
Elm Code _____ Occ. No. _____
EO Index No._____ Map Index No._____

Date of Field Work: 7/1 to 9/20 - 2010
month (mm) date (dd) year (yyyy)

Scientific Name: *Rhaphiomidas terminatus abdominalis*

Common Name: Delhi Sands Flower-loving Fly

Species Found? ☐ ☒ _____
yes no If not, why? 44 total

Total No. Individuals 0 Subsequent Visit? ☒ yes ☐ no

Is this an existing NDDB occurrence?_____ ☐ no ☒ unk.
Yes, Occ. #

Collection? If yes: _____
Number Museum / Herbarium

Reporter: Gilbert Goodlett
Address: 1660 West Franklin Avenue
Ridgecrest, California 93555

Email Address: torthunter@aol.com
Phone: (760) 371-3592

Plant Information

Phenology: 60 % vegetative, 40 % flowering, 20 % fruiting

Phenology data was not collected and these data are speculative

Animal Information

Age Structure: 0 # adults, 0 # juveniles, 0 # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: San Bernardino and Riverside Landowner/Mgr.: Southern California Edison
Quad Name: Corona North 1:24000 _____ Elevation: 662 ft.
T 2S R 7W _____1/4 of __ 1/4 of Section several T _____ R _____ _____1/4 of ____ 1/4 of Section _____
UTM Zone: 11 (10, 11) Datum: NAD83 (NAD83, NAD27, WGS84, other)
Source: GPS (GPS, map & type, etc.) Point Accuracy: 10 Meters
UTM Coordinates 04 47 073E, 37 59 793N

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*
Ruderal area located on Delhi Series fine soils.

Other rare species? None observed

Site Information Overall site quality ☐ Excellent ☐ Good ☐ Fair ☒ Poor

Current/surrounding land use: commercial development, residential development, utility corridor, agriculture, dairy farming

Visible disturbances/ possible threats: Development

Comments: This form submitted as per U.S. Fish and Wildlife Service protocols for Delhi Sands Flower-loving Fly surveys

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☒ Other: Extensive field experience in ID of species

Photographs: *(check one or more)*

	Slide	Print
Plant / animal	☐	☐
Habitat (Digital format)	☐	☒
Diagnostic feature	☐	☐

May we obtain duplicates at our expense? ☒ yes ☐ no

FG/WHDAB /1747 Rev.11/99

BonTerra CONSULTING

PASADENA COSTA MESA

T: (714) 444-9199 F: (714) 444-9599 | 151 Kalmus Drive, Suite E-200
www.BonTerraConsulting.com | Costa Mesa, CA 92626

November 1, 2011

Ms. Adelina Muñoz
Southern California Edison
1218 South Fifth Avenue
Monrovia, California 91016

VIA EMAIL
Adelina.Munoz@sce.com

Subject: Results of Delhi Sands Flower-loving Fly Surveys for the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. Muñoz:

This attached Letter Report provides the results of the 2011 focused surveys for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) (DSF) conducted by Consulting Biologists Gilbert Goodlett (TE-005535-4) and Ellen Schafhauser (TE-084-254-1) in a portion of the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereafter referred to as the "Project site"), San Bernardino and Riverside Counties. The entire Project site extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino (San Bernardino County; Mira Loma Preferred Route and Mira Loma Alternative Route 1 only), and the City of Norco to the City of Corona, California. The surveys focused on the determination of presence of the federally listed DSF on the portions of the Project site containing potential habitat for DSF. The methods and results of the surveys are discussed in the Letter Report attached.

Results

No DSF were observed within the survey area during the 2011 survey season. Surveys were conducting according to U.S. Fish and Wildlife Service (USFWS) protocols and a total of 44 surveys were conducted between July 1 and September 20, 2011. Two consecutive years of negative surveys are required to demonstrate absence of the DSF according to USFWS protocol. This is the second year of negative surveys for the Project site. However, if Project construction has not begun by the following season, the USFWS may recommend additional surveys. If you have any questions, please call me at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

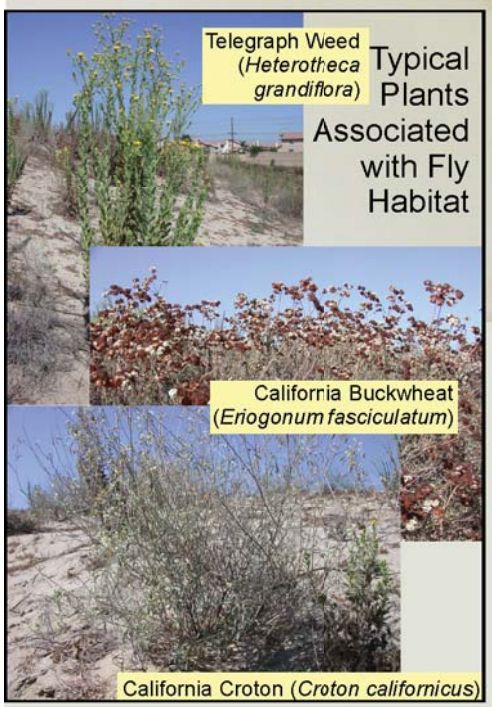
Attachment: Letter Report

R:\Projects\Edison\J045\Fly\Fly report cover Circle City-110111.doc

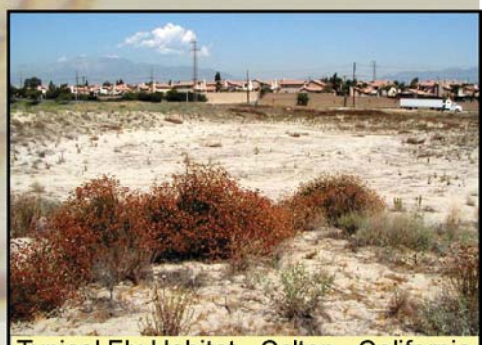
Delhi Sands Flower-loving Fly
(*Rhaphiomidas terminatus abdominalis*)
2011 Focused Adult Survey at Southern California Edison's Circle City Project in San Bernardino and Riverside Counties, California

Submitted to:

BonTerra Consulting
151 Kalmus Drive, Suite E-200
Costa Mesa, CA 92626
Attn: Stacie Tennant
(714) 444-9199
stennant@bonterraconsulting.com



Pupal case - Photograph by Ellen Schafhauser



Typical Fly Habitat - Colton, California

Prepared by:

Gilbert Goodlett
EnviroPlus Consulting
1660 West Franklin Avenue
Ridgecrest, California 93555
(760) 371-3592 phone & fax
email: torthunter@aol.com

Male Delhi Sands Flower-loving Fly on California Buckwheat

Mating - Photograph by Brian Drake

Female Delhi Sands Flower-loving Fly on telegraph weed

October 7, 2011

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CERTIFICATIONS

I, **Ellen Schafhauser**, having performed focused surveys for the Delhi Sands Flower-loving Fly at the location covered in this report, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made A portion of this was performed under U.S. Fish and Wildlife Service Permit number TE-084-254-1, expiring 6/30/2013.

Signature _____ October 7, 2011 _____
Date

I, **Gilbert O. Goodlett** of EnviroPlus Consulting, having performed focused surveys for the Delhi Sands Flower-loving Fly and prepared the report for the location covered in this report have entirely read and reviewed the final report for the project and concur with the statements and conclusions made. A portion of this work was performed under U.S. Fish and Wildlife Service Permit number TE005535-4 expiring 7/29/2013.

Signature _____ October 7, 2011 _____
Date

EXECUTIVE SUMMARY

No Delhi Sands Flower-loving Fly observations were made at the Circle City Project during the 2011 survey season. U.S. Fish and Wildlife Service protocols were followed for conducting the surveys. Surveys were conducted on 44 days (22 days on each subsite) between July 1 and September 20, 2011 between 1000 and 1400 local time. This is the second consecutive year that surveys have been completed at the Circle City Project with negative results. The U.S. Fish and Wildlife Service requires two consecutive years of surveys of negative findings to establish absence of the species on the site. However, if development of site is not begun by the following season, the U.S. Fish and Wildlife Service may recommend additional surveys.

BACKGROUND

Delhi Sands Flower-loving Fly

The Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) (DSF) was listed as an endangered species by the U.S. Fish and Wildlife Service (Service) on September 23, 1993 (58 Federal Register 49881) and is protected under the provisions of the Endangered Species Act of 1973, as amended (ESA). The ESA prohibits anyone from "taking" a listed species. Take includes, but is not limited to, harming, harassing, or killing individuals of a listed species as well as destruction of habitat occupied by listed species.

The DSF is in the Dipteran (fly) family Mydidae (mydas flies). It is approximately one-inch long and orange-brown in color, with dark brown oval spots on the dorsal surface of the abdomen (inset cover photographs). This insect is a rapid flyer and its long proboscis is used to obtain nectar from flowers. The adult flight period lasts for several weeks in July, August, and September, making its observable presence on any site temporary and short.

The historic range of the DSF is estimated to have been approximately 40 square miles in northwestern Riverside and southwestern San Bernardino counties (USFWS, 1996). Habitat has been lost and fragmented by a variety of activities/circumstances including agriculture, manure dumping, urbanization, sand-mining, illegal dumping, off-road vehicles, and non-native plant invasion. It is estimated that the DSF's present distribution is less than 2% of its former range, and that the total adult population is on the order of only a few hundred individuals. Known current DSF populations occur in isolated pockets of habitat surrounded by urban development and invasive exotic vegetation (USFWS, 1997).

DSF habitat is limited to areas that include Delhi fine sand, an aeolian (wind-deposited) soil type. The Service has identified the presence of Delhi Sands as the baseline criterion for the determination of suitable or potentially suitable habitat for this species (USFWS, 1996). Fine unconsolidated soil is required for oviposition (egg laying) as females must insert their abdomens deep into the sand during this process (Rogers and Mattoni, 1993). The larval portion of the DSF's life cycle is largely unknown. Larval development apparently takes place in the sand and is presumed to take either one or two years. Soil disturbances associated with agricultural activities and urban development are primary causes of habitat loss and degradation.

Appropriate vegetative cover is typically sparse (0 to 50% cover) to absent (in blowout areas of dune formations and sand pits). The highest density of DSF have been found in habitat that includes a variety of plants including California buckwheat (*Eriogonum fasciculatum*), California croton (*Croton californicus*), and telegraph weed (*Heterotheca grandiflora;* see inset cover photographs).

Areas known to have been occupied by DSF or areas that contain restorable habitat for the fly have been divided into three recovery units (Colton, Jurupa, and Ontario Recovery Units). The recovery units (Figure 1) are defined as large geographic areas. However, the occupied and restorable habitat includes only those areas with Delhi Series soils and does not include residential or commercial development or other areas that have been permanently altered by human actions (USFWS, 1997).

Survey Protocols

The Service has developed specific standards for conducting DSF surveys with specific report requirements (1996), as amended. For DSF surveys these standards include the following:

1. Surveys must be conducted by a permitted biologist. Permits are acquired through a testing procedure administered by the Service.
2. Surveys must be conducted at least twice a week from July 1 to September 20 between the hours of 1000 and 1400 PDT. No more than 50 acres per day may be surveyed by an individual biologist.
3. Two consecutive years of surveys with no DSF observed are required to establish absence of the species.
4. Approval to conduct a DSF survey at a site must be obtained from the Service by submitting specific project information to the Service at least 10 working days prior to the anticipated start of the survey.
5. Surveys must be conducted at a relatively slow pace with care taken to avoid harassing any DSF that are located.
6. The Service must be notified within one working day if DSF are observed at a site.

For DSF reports the Service requires the following:

1. Submission of reports to the Service and the California Department of Fish and Game within 30 days of the completion of surveys.
2. A map delineating the boundaries of the site on a 7.5 minute U.S. Geological Survey topographic map.
3. Five color slides or similar photographic material of the site. Two of these are to portray the general landscape of the site and three are to show representative areas within the site that were surveyed for the animal.
4. A map at an adequate scale that indicates the precise location where DSF were located.
5. A qualitative description of the DSF community on the site and a list of plants, reptiles, birds, mammals, and invertebrates observed.
6. A description of methods utilized.

7. Dates and times of field visits, size of habitat surveyed, and weather conditions at the start and end of each survey.
8. Reporting any other significant observations relative to the survey.
9. Completing forms utilized by the Natural Diversity Data Base of the California Department of Fish and Game.
10. Photocopies of original field notes.

The Service standards allow for specific deviations from the protocols at the discretion of the Service. Provisions are also made for rejection of surveys if protocol methodology is not followed, the report is not completed within the time frame allocated, required information is not provided, or other information indicates that the survey is inadequate as determined by the Service.

SITE DESCRIPTION

The Circle City Project is a proposed new substation and a new transmission line segment to connect the substation to Southern California Edison's existing telecommunication system. Generally, the proposed project extends from the Mira Loma substation adjacent to Hamner Avenue and south of Riverside Drive in the City of Ontario southerly to the Corona, California area to the site of a proposed new substation. The project is divided into preferred and alternative routes. Only a portion of the Mira Loma Preferred Alternative route was found to contain potential habitat for DSF as discussed in the Methods section. This route includes the Mira Loma substation and a proposed transmission line route with a 50 ft buffer on either side of the centerline. The route initially proceeds southwest from the Mira Loma substation along an existing transmission line right-of-way. Just south of the intersection of Kimball Avenue and Hellman in the City of Chino, the route turns southerly along Hellman Avenue. After 2.3 miles, the route turns generally southeasterly along River Road and exits the Ontario Recovery Unit at the Santa Ana River.

Within the survey area, the Mira Loma Preferred Alternative route traverses a mixture of land uses including vacant land, active and fallow agricultural fields, abandoned and active dairy farms, and road rights-of-way. Much of the soil is mapped as Delhi Series fine sands and its presence was verified on the ground.

The vegetative component is highly diverse given the large scale of the project and the variety of habitats traversed. However, most of the vegetation along the route is ruderal. Species typically associated with DSF occupation including California buckwheat, California croton, and telegraph weed were only found in abundance around the Mira Loma substation. A comprehensive plant list is shown in Table 1.

A portion of the survey area extends into Riverside County. In compliance with Riverside County environmental specifications, the assessor's parcel number for each parcel in Riverside County within the Mira Loma Preferred Route is listed in Table 2.

METHODS

Site Selection

In 2010, the first year of focused surveys, the entire project footprint was evaluated for suitability and reduced to the survey areas shown in Figure 2 through a series of steps to eliminate unsuitable areas. Initially, only that portion of the project that was within a Recovery Unit was considered. Then, by overlaying a map of the project with a soils map, only the remaining areas mapped as Delhi Series soils were further considered. Next, intensive land use areas that resulted in unsuitable habitat were eliminated. This included areas such as active agriculture but not fallow fields, active dairy farms, and residential and commercial development. Finally, the selected areas were ground checked to verify suitability.

The survey area that remained after elimination of unsuitable areas totaled 70.4 acres and was divided into five different survey areas identified as CC1 (1.6 acres), CC2 (16.6 acres), CC3 (6.8 acres), CC4 (12.4 acres) and CC5 (33.0 acres, Figure 2). Since the total survey area exceeded the limit of 50 acres per day that a biologist can survey according to U.S. Fish and Wildlife Service Protocols (1996), the survey areas were lumped into survey-day units to total as close as possible to 50 acres and close enough together to be capable of surveying in a single survey day. Sites CC1 to CC4 were lumped together as a single survey day (37.4 acres) and CC5 (33.0 acres) was treated as another survey day.

Each of the survey areas are mapped in Figure 2 and aerial oblique photographs are shown in Appendix 1. It may be noted that portions of survey areas within CC3 and CC4 appear to be active agriculture. At the beginning of the survey season in early July of 2010, these areas were fallow and selected as suitable for survey.

Field Methods

A total of 44 surveys were conducted on the Circle City Project, 22 on the CC1 to 4 areas, and 22 on the CC5 area, between July 1 and September 20, 2011. All surveys were conducted between 1000 and 1400 PDT. At the beginning and end of each field visit, the time (PDT) was noted and weather conditions were recorded. Weather conditions included the shaded air temperature at 1.5 meters high measured with a 0.1°C precision thermister, the ocularly estimated percentage of cloud cover and type of clouds, and wind speeds and direction. Winds speeds were measured with a Kestrel® brand electronic wind meter. Measurements were taken until average wind speeds stabilized. The average and maximum wind speeds were recorded. Wind direction was estimated by observing the drift direction of a handful of fine soil that was dropped. These data are listed in Tables 3a (Area CC 1-4) and 3b (Area CC5).

The site was walked slowly in generally meandering transects and along land features (i.e., dirt roads). The times that each area of the site was surveyed was shifted between surveys such that the entire site was covered during all of the survey period during the day.

Digital photographs of the site were taken during the survey season by Gilbert Goodlett. Aerial oblique photographs of the site (Appendix 1) were taken by Brian Drake and Gilbert Goodlett on August 16, 2010. Photography locations were selected to fulfill Service protocols (2 site overviews and 3 representative habitat photos) and to most accurately represent the site.

Plant species were noted throughout the survey period. Identification of plants followed The Jepson Manual: Higher Plants of California (Hickman, 1993) and plant communities followed A Manual of California Vegetation (Sawyer and Keeler-Wolf, 1995).

During the field survey, the biologist generally focused on the ground and vegetation in his immediate vicinity in order to increase the likelihood of observing DSF, a low-flying species that is sometimes associated with vegetation. All other species including birds, mammals, reptiles, and invertebrates were recorded. These data were recorded on a digital recorder or scrap paper and transferred to a spreadsheet to log daily species, survey times, and weather data; hence there are no original data sheets so none are attached to this report.

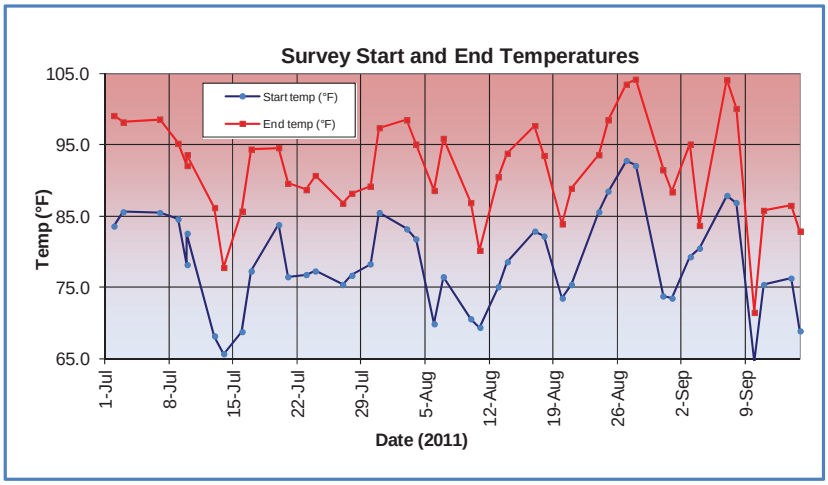
A global positioning system device accurate to 3 m was used to record corners and locations of features on the site. These points and polygons were later downloaded to a laptop computer to create an overlay of the points on a U.S. Geological Survey topographic map. These data were utilized to calculate the areas of features on the site and create an accurate map of the site.

Identification Resources

Bird identification resources included A Field Guide to Western Birds (Peterson, 1993), Field Guide to the Birds of North America (National Geographic Society, 1987), and Stokes Field Guide to Birds: Western Region (Stokes, 1996). Mammal identification resources included California Mammals (Jameson, 1988) and A Field Guide to the Mammals of North America North of Mexico (Burt and Grossenheider, 1980). Reptile identification resources included A Field Guide to Western Reptiles and Amphibians (Stebbins, 1985). Invertebrate identification resources included Insects of the Los Angeles Basin (Hogue, 1993), A Field Guide to Insects: America North of Mexico (Borror and White, 1970), California Insects (Powell and Hogue, 1979), How to Know the Insects (Bland and Jacques, 1978), Simon and Schuster's Guide to Insects (Arnett and Jacques, 1981), National Audubon Society Guide to North American Insects and Spiders (Milne, 1995), The Butterflies of Southern California (Emmel and Emmel, 1973), and California Butterflies (Garth and Tilden, 1986).

RESULTS

No DSF were observed during the 2011 survey season at the site. A total of 44 field visits were completed (22 at CC1 to 4; 22 at CC5). Approximately 176 hours were spent conducting surveys on the site.



The average temperature for surveys for both survey areas was 85.1 °F with an average survey start temperature of 78.5 °F and an average survey end temperature of 91.6 °F (figure at right). The minimum survey start temperature encountered was 64.6 °F and the maximum ending temperature was 104.2 °F.

Survey start winds were highly

variable while survey end winds were generally from the southwest to the west with westerly winds being most common. The average wind speed for the surveys was 3.0 mph with an average survey start wind speed of 1.5 mph and average survey end wind speed of 4.4 mph. The average maximum wind speed encountered at survey start was 3.0 mph while the average maximum wind speed encountered survey end was 7.6 mph. Maximum winds encountered were 15.1 mph on July 30. Dates and times of surveys and weather data are listed in Tables 3a (Areas CC 1-4) and 3b (Area CC 5).

Plant surveys were conducted by Bonterra Consulting and a detailed plant list for the site was developed. These data are listed in Table 1.

A total of 76 species of invertebrates were detected on the Circle City Project site. Seven additional invertebrates that were identified to family were also seen. Thirty-nine species of birds, four species of mammals and three species of reptiles were also observed. These are listed phylogenetically in Tables 4a (Areas CC 1-4) and 4b (Area CC5) by survey date.

Five annotated photographs of the site are included in Appendix 1. Appendix 2 is a Service-required field form for use by the California Fish and Game Department to enter biological observations into the California Natural Diversity Data Base.

CONCLUSIONS

This is the second consecutive year of negative surveys at the Circle City Project site. Two consecutive years of negative surveys are required to demonstrate absence of DSF according to U.S. Fish and Wildlife Service protocol. However, if development of the site is not begun by the following season, the Service may recommend additional surveys. This is the second consecutive year of negative findings.

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TABLES

Table 1. List of Plants Observed at the Circle City Project Site

Species
FLOWERING PLANTS
CLASS DICOTYLEDONES (DICOTS)
***AIZOACEAE* - FIG-MARIGOLD FAMILY**
*Mesembryanthemum crystallinum** crystalline iceplant
***AMARANTHACEAE* - AMARANTH FAMILY**
*Amaranthus albus** tumbleweed
***ANACARDIACEAE* - SUMAC FAMILY**
*Schinus molle** Peruvian pepper tree
*Schinus terebinthifolius** Brazilian pepper tree
Toxicodendron diversilobum western poison oak
***ASTERACEAE (COMPOSITAE)* - SUNFLOWER FAMILY**
Ambrosia acanthicarpa annual bursage
Artemisia californica California sagebrush
Artemisia douglasiana mugwort
Baccharis pilularis coyote brush
Baccharis salicifolia mule fat
*Carduus pycnocephalus** Italian thistle
*Centaurea melitensis** tocalote
*Chamomilla suaveolens** common pineapple weed
Conyza canadensis common horseweed
Encelia farinosa brittlebush
Filago californica fluffweed
*Gazania linearis** gazania
Gnaphalium californicum California everlasting
Gnaphalium canescens everlasting
*Gnaphalium luteo-album** weedy cudweed
Helianthus annuus western sunflower
Heterotheca grandiflora telegraph weed
Heterotheca sessiliflora golden aster
*Hypochaeris glabra** smooth cat's ear
*Lactuca serriola** prickly lettuce
Lasthenia californica California goldfields
Layia platyglossa tidy-tips
Lessingia filaginifolia California aster
Malacothrix saxatilis cliff malacothrix
*Pulicaria paludosa** Spanish sunflower
*Senecio vulgaris** common groundsel
*Silybum marianum** milk thistle
*Sonchus asper** prickly sow-thistle
Stephanomeria sp. wreath plant
***BORAGINACEAE* - BORAGE FAMILY**
Amsinckia menziesii rancher's fiddleneck
*Echium candicans** pride of Madera
Heliotropium curassavicum salt heliotrope/alkali heliotrope
Pectocarya linearis comb-bur
Plagiobothrys sp. popcornflower
***BRASSICACEAE (CRUCIFERAE)* - MUSTARD FAMILY**
*Brassica nigra** black mustard
*Hirschfeldia incana** shortpod mustard
*Lepidium latifolium** broad-leaved peppergrass
Lepidium nitidum peppergrass/shining peppergrass
*Raphanus sativus** wild radish
*Rorippa nasturtium-aquaticum** white water cress
Rorippa palustris ssp. *occidentalis* Pacific yellow cress
*Sisymbrium irio** London rocket
***CACTACEAE* - CACTUS FAMILY**

Opuntia parryi Parry's cholla
***CAPRIFOLIACEAE* - HONEYSUCKLE FAMILY**
Sambucus mexicana blue elderberry
CARYOPHYLLACEAE - PINK FAMILY
Spergularia sp. sand spurrey
Spergularia marina salt-marsh sand spurrey
***CHENOPODIACEAE* - GOOSEFOOT FAMILY**
*Chenopodium album** lamb's quarters
*Chenopodium ambrosioides** Mexican tea
*Salsola tragus** Russian thistle
***CONVOLVULACEAE* - MORNING-GLORY FAMILY**
Calystegia macrostegia morning-glory
***CRASSULACEAE* - STONECROP FAMILY**
Crassula connata pigmy-weed
***EUPHORBIACEAE* - SPURGE FAMILY**
Eremocarpus setigerus doveweed/turkey mullein
*Ricinus communis** castor bean
***FABACEAE (LEGUMINOSAE)* - LEGUME FAMILY**
Lotus hamatus grab lotus/San Diego lotus
Lotus heermannii woolly lotus
Lotus scoparius deerweed/California broom
Lotus strigosus strigose lotus
Lupinus bicolor miniature lupine
Lupinus succulentus arroyo lupine
Lupinus truncatus truncate lupine/collar lupine
*Medicago polymorpha** California burclover
*Melilotus indica** sourclover
*Robinia psuedoacacia** black locust
GERANIACEAE - GERANIUM FAMILY
*Erodium botrys** long-beaked filaree
*Erodium cicutarium**

red-stemmed filaree
*Erodium moschatum** white-stemmed filaree
***LAMIACEAE (LABIATAE)* - MINT FAMILY**
*Marrubium vulgare** common horehound
***MALVACEAE* - MALLOW FAMILY**
*Malva parviflora** cheeseweed
Malvella leprosa alkali mallow
***MYRTACEAE* - MYRTLE FAMILY**
Eucalyptus sp.* gum
*Eucalyptus citronella** gum
***OLEACEAE* - OLIVE FAMILY**
Fraxinus sp. ash
*Olea europaea** olive
***ONAGRACEAE* - EVENING PRIMROSE FAMILY**
Epilobium sp. willow-herb
***OXALIDACEAE* - WOOD-SORREL FAMILY**
*Oxalis pes-caprae** Bermuda buttercup/sour grass
***POLYGONACEAE* - BUCKWHEAT FAMILY**
Eriogonum fasciculatum var. *fasciculatum* California buckwheat
*Rumex crispus** curly dock
***ROSACEAE* - ROSE FAMILY**
Heteromeles arbutifolia toyon/christmas berry
***SALICACEAE* - WILLOW FAMILY**
Populus fremontii ssp. *fremontii* Fremont cottonwood
Salix exigua narrow-leaved willow
Salix gooddingii black willow
Salix laevigata red willow
Salix lasiolepis arroyo willow
*Veronica anagallis-aquatica** great water speedwell
***SIMAROUBACEAE* - QUASSIA FAMILY**
*Ailanthus altissima** tree of heaven
***SOLANACEAE* - NIGHTSHADE FAMILY**
Datura wrightii

jimson weed
*Nicotiana glauca**   tree tobacco
Solanum americanum   white nightshade
***TAMARICACEAE* - TAMARISK FAMILY**
Tamarix sp.*   tamarisk
*Tamarix ramosissima**   Mediterranean tamarisk
***URTICACEAE* - NETTLE FAMILY**
*Urtica urens**   dwarf nettle
***ZYGOPHYLLACEAE* - CALTROP FAMILY**
*Tribulus terrestris**   puncture vine
CLASS MONOCOTYLEDONES (MONOCOTS)
***ARECACEAE (PALMAE)* - PALM FAMILY**
Phoenix sp.*   date palm
Washingtonia sp.*   fan palm
*Washingtonia robusta**   Mexican fan palm
***CYPERACEAE* - SEDGE FAMILY**
Cyperus sp.   umbrella-sedge
***POACEAE [GRAMINEAE]* - GRASS FAMILY**
*Arundo donax**   giant reed
*Avena barbata**   slender wild oat
*Avena fatua**

wild oat
*Bromus diandrus**   ripgut grass
Bromus madritensis ssp. *rubens**   foxtail chess
*Bromus tectorum**   cheat grass
*Hordeum murinum**   foxtail barley
*Hordeum vulgare**   cultivated barley
*Lamarckia aurea**   goldentop grass
*Lolium perenne**   perennial ryegrass
*Pennisetum setaceum**   African fountain grass
Piptatherum miliaceum*   smilo grass/millett ricegrass
*Poa annua**   annual bluegrass
*Schismus barbatus**   Mediterranean schismus
Sorghum sp.*   sorghum
*Stenotaphrum secundatum**   Saint Augustine grass
*Vulpia myuros**   foxtail fescue
***TYPHACEAE* - CATTAIL FAMILY**
Typha sp.   cattail

Table 2. Accessor's Parcel Numbers for Land Parcels Within Riverside County Along Mira Loma Preferred Route

144010013	119041017	119041016	119051002	164570001	119020006	121262005
121250004	130040002	119041019	121291011	121291007	119041022	119051002
144020044	121262004	119041021	119020007	119290040	119043005	121291011
130040001	119041018	119051005	119060024	117020001	119081011	119020007
121291002	121310013	119041014	119081002	121250003	119250019	119060024
119081007	121310086	144030028	119020011	119070015	121271011	119081002
164570026	121262011	121310087	119051001	144010001	119041016	119020011
119043003	119043001	119051003	119041013	119020002	119041019	119051001
121262011	119081012	119081006	119051006	119043002	119041021	119041013
121262001	119502011	144080016	144080015	121291005	119051005	119051006
101030006	119290032	119250017	121262007	119250002	119041014	121262007
119041020	121262009	121291008	119060020	119070008	144030028	119060020
130020008	121250033	119043004	119081008	130030001	119051003	119081008
119060018	121250034	119070014	121291009	130030001	119081006	121291009
121291001	130040005	119070013	117020003	119081004	119250017	117020003
119400006	121310007	119060031	144010007	119081009	121291008	117020003
121310011	119020013	119070010	121262013	119041017	121293001	121543004
121310012	119250022	130050002	119230010	121262004	121293001	121262013
119041024	121040002	121262003	144010009	119041018	119043004	121291004
119290021	119081001	119400001	121291004	121262011	119070014	119043006
164570001	119400010	130040004	121310010	119043001	119070013	119051004
121291007	119501001	130030004	119043006	119081012	119060031	119400007
119290040	144030012	121291006	119051004	119290032	119070010	119290032
117020001	119020009	121050005	121310090	121262009	121262003	121293001
121310014	119190011	121291010	119400007	121250033	119400001	121293001
121310009	130030022	119081010	121250004	121250034	121291006	117020002
121250003	121262008	164010017	121291002	119020013	121291010	117020003
119070015	119041015	119081003	119081007	119250022	119081010	119290021
144010010	119081005	119250008	164570026	119081001	164010017	117020001
144010001	121180014	121040001	119043003	119400010	119081003	119290032
119020002	121291003	121310006	121262011	144030012	119250008	117020002
119043002	119020006	121262012	121262001	119020009	121262012	117020003
121291005	119041022	119290027	119041020	121262008	119290027	117020002
119250002	119043005	144030014	119060018	119041015	144030014	
119070008	130030020	121262006	121291001	119081005	121262006	
121310008	119081011	117020002	119400006	121310005	117020002	
119081004	119250019	121262002	119041024	121310005	117020002	
119081009	121271011	121262005	119290021	121291003	121262002	

Table 3a. Survey Times and Weather Data – Areas CC 1 to 4

Date (2011)	Biologist	Start time	End time	Start Temp. (°F)	End Temp. (°F)	Start Cloud Cover (%)	End Cloud Cover (%)	Start Average Wind Speed (mph)	End Average Wind Speed (mph)	Start Maximum Wind Speed (mph)	End Maximum Wind Speed (mph)	Start Wind Direction	End Wind Direction
2-Jul	Gilbert Goodlett	10:00	14:00	83.6	99.1	0%	0%	3.2	7.5	4.1	11.3	SW	W
9-Jul	Gilbert Goodlett	10:00	14:00	84.6	95.2	0%	0%	1.1	2.9	5.1	6.2	NW	NW
10-Jul	Ellen Schafhauser	10:00	14:00	78.2	92.1	0% haze	0%	2.6	0.8	1.8	1.0	SE	SE
13-Jul	Gilbert Goodlett	10:00	14:00	68.2	86.2	100% stratocumulus	0% and hazy	2.2	1.0	4.8	3.1	N	SW
16-Jul	Gilbert Goodlett	10:00	14:00	68.8	85.7	80% stratocumulus	0%	1.5	1.4	4.8	8.7	NW	W
20-Jul	Gilbert Goodlett	10:00	14:00	83.8	94.6	0%	0%	1.2	1.2	4.0	4.4	SW	W
23-Jul	Gilbert Goodlett	10:00	14:00	76.8	88.7	0%	0%	2.3	2.0	6.2	7.0	S	SW
27-Jul	Gilbert Goodlett	10:00	14:00	75.4	86.8	0%	0%	1.5	2.2	5.9	6.3	SW	W
30-Jul	Gilbert Goodlett	10:00	14:00	78.3	89.2	0%	0%	1.0	8.2	3.9	15.1	S	W
3-Aug	Gilbert Goodlett	10:00	14:00	83.2	98.5	0%	0%	1.8	5.9	2.3	8.8	VAR	W
6-Aug	Gilbert Goodlett	10:00	14:00	69.9	88.6	0% hazy	0% hazy	2.2	3.6	3.3	6.1	S	W
10-Aug	Gilbert Goodlett	10:00	14:00	70.6	86.9	100% stratocumulus	0% hazy	2.0	5.6	3.1	10.1	VAR	SW
13-Aug	Gilbert Goodlett	10:00	14:00	75.1	90.5	10% cumulus	10% cumulus	3	3.9	5.2	5.7	VAR	W
17-Aug	Gilbert Goodlett	10:00	14:00	82.9	97.7	1% cumulus	5% cumulus	1.7	7.3	2.7	11.1	VAR	W
20-Aug	Gilbert Goodlett	10:00	14:00	73.5	83.9	0% hazy	0% hazy	0.0	5.4	0.0	8.9		W
24-Aug	Gilbert Goodlett	10:00	14:00	85.6	93.6	10% cumulus	10% cumulus	2.3	7.0	5.9	9.6	SW	W
27-Aug	Gilbert Goodlett	10:00	14:00	92.8	103.5	5% cumulus	5% cumulus	0.0	5.8	0.0	8.0		W
31-Aug	Gilbert Goodlett	10:00	14:00	73.8	91.5	0% hazy	0% hazy	0.0	2.8	0.0	4.5		W
3-Sep	Gilbert Goodlett	10:00	14:00	79.3	95.1	0% hazy	2% cumuluse	3.5	8.5	5.1	12.4	SW	W
7-Sep	Gilbert Goodlett	10:00	14:00	87.9	104.1	2% cumulus	5% cumulus	0.0	8.0	0.0	11.6		W
10-Sep	Gilbert Goodlett	10:00	14:00	64.6	71.5	100% stratocumulus	10% cumulus	2.5	6.9	3.2	8.5	W	W
14-Sep	Gilbert Goodlett	10:00	14:00	76.3	86.5	10% cumulus and hazy	25% cumulus and hazy	3.2	9.0	5.7	13.3	SW	W

Table 3b. Survey Times and Weather Data – Area CC 5

Date (2011)	Biologist	Start time	End time	Start Temp. (°F)	End Temp. (°F)	Start Cloud Cover (%)	End Cloud Cover (%)	Start Average Wind Speed (mph)	End Average Wind Speed (mph)	Start Maximum Wind Speed (mph)	End Maximum Wind Speed (mph)	Start Wind Direction	End Wind Direction
3-Jul	Gilbert Goodlett	10:00	14:00	85.6	98.2	0%	30% cumulus and cirrus	0.0	5.7	0.0	9.1		W
7-Jul	Gilbert Goodlett	10:00	14:00	85.5	98.6	10% cirrus	10% cirrus	1.5	2.6	3.9	5.9	NW	W
10-Jul	Gilbert Goodlett	10:00	14:00	82.6	93.6	0%	0%	1.2	1.5	2.8	5.1	SW	S
14-Jul	Gilbert Goodlett	10:00	14:00	65.7	77.8	100% stratocumulus	50% stratocumulus	1.1	2.4	3.8	4.4	N	N
17-Jul	Gilbert Goodlett	10:00	14:00	77.3	94.4	0%	0%	1.7	2.6	4.7	7.3	E	S
21-Jul	Gilbert Goodlett	10:00	14:00	76.5	89.6	0% and hazy	0%	2.5	3.1	5.0	5.6	SW	W
24-Jul	Gilbert Goodlett	10:00	14:00	77.3	90.7	0% and hazy	0%	1.7	1.6	3.0	6.3	S	SW
28-Jul	Gilbert Goodlett	10:00	14:00	76.7	88.2	0%	0%	1.3	2.5	4.2	7.5	S	SW
31-Jul	Gilbert Goodlett	10:00	14:00	85.5	97.4	0%	0%	1.2	2.8	3.4	6.7	S	SW
4-Aug	Gilbert Goodlett	10:00	14:00	81.8	95.1	0%	0%	0.0	4.8	0.0	8.6		W
7-Aug	Gilbert Goodlett	10:00	14:00	76.5	95.9	0% hazy	0% hazy	0.0	2.3	0.0	5.4		W
11-Aug	Gilbert Goodlett	10:00	14:00	69.4	80.2	90% stratocumulus	0% hazy	2.7	4.2	4.3	7.0	SE	WNW
14-Aug	Gilbert Goodlett	10:00	14:00	78.6	93.8	0% hazy	0% hazy	3.4	7.6	6.7	11.2	N	SW
18-Aug	Gilbert Goodlett	10:00	14:00	82.2	93.5	0% hazy	0% hazy	0.0	4.3	0.0	6.7		W
21-Aug	Gilbert Goodlett	10:00	14:00	75.4	88.9	10% altocumulus	10% cumulus and cirrus	3.1	4.0	3.8	5.7	W	W
25-Aug	Gilbert Goodlett	10:00	14:00	88.5	98.5	5% altocumulus	5% cumulus	0.0	6.2	0.0	9.7		W
28-Aug	Gilbert Goodlett	10:00	14:00	92.1	104.2	1% cumulus	10% cumulus	2.6	4.6	5.3	6.1	E	SW
1-Sep	Gilbert Goodlett	10:00	14:00	73.5	88.4	0% hazy	0%	0.0	4.2	0.0	7.2		W
4-Sep	Gilbert Goodlett	10:00	14:00	80.5	83.7	5% cumulus	80% altocumulus	0.0	3.9	0.0	5.4		W
8-Sep	Gilbert Goodlett	10:00	14:00	86.9	100.1	0% hazy	5% cumulus	0.0	6.4	0.0	8.7		W
11-Sep	Gilbert Goodlett	10:00	14:00	75.4	85.8	0%	10% cumulus	0.0	3.6	0.0	5.1		SE
15-Sep	Gilbert Goodlett	10:00	14:00	68.9	82.9	100% haze	10% cumulus and cirrus	2.3	7.3	4.5	9.3	W	W

Table 4a. List of Invertebrates, Birds, Mammals, and Reptiles Observed During 2011 Survey Season Listed Phylogenetically – Areas CC1 to 4

		July									August									September			
Scientific Name	**Common Name**	2	9	10	13	16	20	23	27	30	3	6	10	13	17	20	24	27	31	3	7	10	14
INVERTEBRATES																							
ORDER: ODONATA	**DRAGONFLIES AND DAMSELFLIES**	X	X		X		X	X	X	X		X	X			X	X	X	X	X		X	X
Aeshnidae	**Darners**				X		X	X				X	X			X			X	X		X	X
Aeshna multicolor	Blue-eyed Darner				X		X	X				X	X			X			X	X		X	X
Anax junius	Common Green Darner											X				X							X
Libellulidae	**Common Skimmers**	X	X				X	X	X				X				X	X					X
Libellula saturata	Big Red Skimmer	X															X	X					
Pachydiplax longipennis	Blue Dasher								X														
Perithemis intensa	Mexican Amberwing		X				X	X	X									X					X
Coenagrionidae	**Common Damselflies**									X						X			X				
Argia sp.	Damselfly									X									X				
Argia vivida	Violet Dancer															X							
ORDER: ORTHOPTERA	**GRASSHOPPERS, KATYDIDS & CRICKETS**	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Acrididae	**Short-horned Grasshoppers**	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Schistocerca nitens	Gray Bird Grasshopper									X				X									
Trimerotropis pallidipennis	Pallid Band-winged Grasshopper	X	X		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Trimerotropis sp.	Short-horned Grasshopper		X							X													
ORDER: NEUROPTERA	**NERVE-WINGED INSECTS**					X				X													
Myrmeleontidae	**Antlions**					X				X													
Brachynemerus sp.	Antlion					X				X													
ORDER: HEMIPTERA	**TRUE BUGS**		X						X	X											X		X
Lygaeidae	**Seed Bugs**		X						X														
Lygaeus kalmii	Small Milkweed Bug		X						X														
Pentatomidae	**Stink Bugs**									X											X		X
Bagrada hilaris	Bagrada Bug																				X		
Chlorochroa sayi	Say's Stink Bug									X													
Chlorochroa sp.	Stink Bug																						X
ORDER: COLEOPTERA	**BEETLES**		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Coccinellidae	**Ladybird Beetles**		X										X										
Coccinella sp.	Ladybird Beetle		X																				
Tenebrionidae	**Darkling Beetles**			X																			
Eleodes gracilis	Darkling Beetle			X																			
Scarabaeidae	**Scarab Beetles**						X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Cotinus mutabilis	Green Fruit Beetle						X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Chrysomelidae	**Leaf Beetles**						X	X				X	X	X									
Diabrotica undecimpunctata	Western Spotted Cucumber Beetle											X		X									
Lema trilineata	Three-lined Potato Beetle						X	X					X										
		July									August									September			

Scientific Name	Common Name	2	9	10	13	16	20	23	27	30	3	6	10	13	17	20	24	27	31	3	7	10	14
ORDER:LEPIDOPTERA	**MOTHS AND BUTTERFLIES**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Pyralidae	**Pyralid Moths**		**X**										**X**	**X**	**X**								
Pyralis sp.	Pyralid Moth		X										X	X	X								
Noctuidae	**Millers and Cutworms**																			**X**			
Hesperiidae	**Skippers**			**X**									**X**	**X**	**X**	**X**							**X**
Atalopedes campestris	Field Skipper			X																			
Hylephila phyleus	Fiery Skipper												X	X	X	X							X
Lycaenidae	**Blues**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Brephidium exilis	Pigmy Blue		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Icaricia acmon	Acmon Blue		X		X				X		X										X		X
Strymon melinus	Common Hairstreak									X				X		X							X
Nymphalidae	**Brush-footed Butterflies**	**X**	**X**	**X**	**X**		**X**	**X**	**X**			**X**	**X**	**X**							**X**	**X**	**X**
Agraulis vanillae incarnata	Gulf Fritillary																				X	X	
Precis coenia	Buckeye						X	X					X										X
Vanessa cardui	Painted Lady		X		X		X	X	X														
Vanessa sp.	Unidentified Lady	X		X								X	X	X									
Danaidae	**Milkweed Butterflies**																**X**						
Danaus gillipus	Queen																X						
Pieridae	**Whites and Sulfurs**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**			**X**
Colias eurytheme	Alfalfa Sulphur	X				X	X	X			X	X	X	X	X	X	X	X	X				X
Eurema nicippe	Sleepy Orange		X						X														
Pieris protodice	Common White	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X
ORDER: DIPTERA	**FLIES**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Apioceridae	**Flower Fly**	**X**			**X**	**X**	**X**	**X**				**X**	**X**	**X**									
Apiocera convergens	Flower Fly											X	X	X									
Apiocera sp.	Flower Fly	X			X	X	X	X															
Asilidae	**Robber Flies**		**X**						**X**	**X**													
Mallophora fautrix	Bumble Bee Robber Fly									X													
Promachus aldrichii	Robber Fly								X	X													
Protocanthus sp.	Giant Robber Fly		X																				
Mydidae	**Mydas Flies**		**X**						**X**			**X**	**X**	**X**	**X**				**X**				
Nemomydas pantherinus	Mydas Fly		X						X			X	X	X	X				X				
Bombyliidae	**Bee Flies**			**X**	**X**		**X**	**X**		**X**				**X**		**X**	**X**	**X**	**X**	**X**			
Exoprosopa sp.	Bee Fly						X	X											X				
Poecilanthrax sp.	Bee Fly															X	X	X		X			
Villa sp.	Bee Fly			X	X					X				X									
Syrphidae	**Syrphid Flies**											**X**							**X**				
Syritta pipiens	Hover Fly																		X				
Volucella mexicana	Cactus Fly											X											
Tephritidae	**Fruit Flies**						**X**	**X**															
Muscidae	**Muscid Flies**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Musca domestica	House Fly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sarcophagidae	**Flesh Flies**		**X**						**X**							**X**							
Sarcophaga sp	Flesh Fly		X						X							X							

		July									August									September			
Scientific Name	**Common Name**	2	9	10	13	16	20	23	27	30	3	6	10	13	17	20	24	27	31	3	7	10	14
ORDER: HYMENOPTERA	**SAWFLIES, ICHNEUMONS, CHALCIDS, ANTS, WASPS, AND BEES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chrysididae	**Cuckoo Wasps**																		X		X	X	X
Parnopes edwardsii	Cuckoo Wasp																		X		X	X	X
Formicidae	**Ants**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X
Iridomyrmex humilis	Argentine Ant		X						X				X										X
Pogonomyrmex californicus	California Harvester Ant	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X
Pompilidae	**Spider Wasps**				X						X								X				
Vespidae	**Vespid Wasps**													X								X	
Polistes sp.	Paper Wasp													X								X	
Crabonidae	**Crabonid Wasps**	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Bembix comata	Western Sand Wasp	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Cerceris sp.	Sphecid Wasp															X							
Microbembix californica	Sphecid Wasp		X			X	X							X					X	X	X		
Philanthus multimaculatus	Sphecid Wasp								X				X		X	X	X					X	
Philanthus sp.	Sphecid Wasp		X		X				X			X						X					
Sphecidae	**Sphecid Wasps**	X	X		X	X	X	X	X			X								X			
Ammophila azteca	Thread-waisted Wasp	X			X	X	X	X	X														
Chlorion aerarium	Steel Blue Cricket Hunter		X			X	X					X											
Sceliphron caementarium	Mud Dauber	X					X	X												X			
Halictidae	**Halictid Bees**					X							X	X		X							
Agapostemon sp.	Metallic Sweat Bee					X							X	X		X							
Megachilidae	**Leafcutting Bees**		X		X	X	X	X	X										X				X
Anthidellum sp.	Mason Bee					X																	
Megachile sp.	Common Leaf-cutter		X		X		X	X	X										X				X
Apidae	**Honey Bees, Bumble Bees, and Carpenter Bees**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Apis mellifera	Honey Bee	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
ORDER: ARANEAE	**SPIDERS**	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Agelinidae	**Funnel Web Spiders**	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
								BIRDS															
ORDER:CICONIIFORMES	**FLAMINGOS, HERONS AND STORKS**		X						X					X									
Ardeidae	**Herons**													X									
Ardea alba	Great Egret													X									
Threskiornithidae	**Ibises, Spoonbills**		X						X														
Plegadis chihi	White-faced Ibis		X						X														
ORDER: ANSERIFORMES	**DUCKS, GEESE, AND SWANS**	X					X	X		X													
Anatinae	**Ducks**	X					X	X		X													
Anas platyrhynchos	Mallard	X					X	X		X													

		July									August									September			
Scientific Name	**Common Name**	2	9	10	13	16	20	23	27	30	3	6	10	13	17	20	24	27	31	3	7	10	14
ORDER: FALCONIFORMES	**HAWKS AND VULTURES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cathartidae	**American Vultures**	X					X	X		X	X	X	X	X		X	X	X	X	X	X	X	
Cathartes aura	Turkey Vulture	X					X	X		X	X	X	X	X		X	X	X	X	X	X	X	
Accipitiridae	**Hawks**	X	X	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X
Accipiter cooperii	Cooper's Hawk															X					X	X	
Buteo jamaicensis	Red-tailed Hawk	X	X	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X
Falconidae	**Falcons**				X	X					X	X	X	X		X				X	X	X	X
Falco sparverius	American Kestrel				X	X					X	X	X	X		X				X	X	X	X
ORDER: CHARADRIIFORMES	**GULLS AND SHOREBIRDS**	X		X	X	X	X	X		X						X	X	X		X	X	X	X
Charadriidae	**Plovers**	X			X	X	X	X		X						X	X	X		X	X	X	X
Charadrius vociferus	Killdeer	X			X	X	X	X		X						X	X	X		X	X	X	X
Recurvirostridae	**Stilts and Avocets**	X		X	X	X	X	X															
Himantopus mexicanus	Black-necked Stilt	X		X	X	X	X	X															
ORDER: COLUMBIFORMES	**DOVES AND PIGEONS**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columbidae	**Pigeons and Doves**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columba livia	Rock Dove	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Zenaida macroura	Mourning Dove	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ORDER: APODIFORMES	**HUMMINGBIRDS AND SWIFTS**	X										X				X							
Trochidae	**Hummingbirds**	X										X				X							
Archilochus alexandri	Black-chinned Hummingbird															X							
ORDER: PASSERIIFORMES	**PASSERINES AND PERCHING BIRDS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tyranidae	**Flycatchers**	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Sayornis nigricans	Black Phoebe			X	X							X	X	X		X	X	X	X	X	X	X	X
Sayornis saya	Say's Phoebe																						X
Tyrannus verticalis	Western Kingbird	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
Hirundinidae	**Swallows**		X	X	X				X		X	X	X	X		X	X	X	X				X
Hirundo rustica	Barn Swallow			X	X						X	X	X	X		X	X	X	X				X
Riparia riparia	Bank Swallow		X						X														
Corvidae	**Jays, Magpies, and Crows**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Corvus brachyrhynchos	American Crow	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mimidae	**Mimic Thrashers**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mimus polyglottos	Northern Mockingbird	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Laniidae	**Shrikes**				X											X				X			
Lanius ludovicianus	Loggerhead Shrike				X											X				X			
Sturnidae	**Starlings**										X	X	X	X	X	X	X	X	X	X	X	X	X
Sturnus vulgaris	European Starling										X	X	X	X	X	X	X	X	X	X	X	X	X

		July									August									September			
Scientific Name	**Common Name**	2	9	10	13	16	20	23	27	30	3	6	10	13	17	20	24	27	31	3	7	10	14
Emberizidae	**Emberizids**	**X**			**X**	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Agelaius phoeniceus	Red-winged Blackbird												X		X								
Amphispiza bilineata	Black-throated Sparrow	X			X	X	X	X															
Euphagus cyanocephalus	Brewer's Blackbird	X			X		X	X						X	X		X	X	X	X			X
Molothrus ater	Brown-headed Cowbird										X	X	X	X	X	X	X	X	X		X	X	X
Sturnela magna	Western Meadowlark	X			X						X												
Fringillidae	**Finches**	**X**		**X**	**X**	**X**	**X**	**X**			**X**												
Carpodacus mexicanus	House Finch	X		X	X	X	X	X			X												
Passeridae	**Weaver Finches**										**X**	**X**	**X**							**X**	**X**	**X**	
Passer domesticus	House Sparrow										X	X	X							X	X	X	
MAMMALS																							
ORDER: RODENTIA	**GNAWING MAMMALS**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**
Sciuridae	**Squirrels**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**
Spermophilus beecheyi	California Ground Squirrel	X	X		X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X
ORDER: LAGOMORPHA	**PIKAS, HARES, AND RABBITS**	**X**	**X**	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**
Leporidae	**Hares and Rabbits**	**X**	**X**	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**
Sylvilagus auduboni	Audubon's Cottontail	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X		X	X	X
REPTILES																							
ORDER:SQUAMATA	**LIZARDS AND SNAKES**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Iguanidae	**Iguanids**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Sceloporus occidentalis	Western Fence Lizard				X							X	X	X		X	X	X		X			X
Uta stansburiana	Side-blotched Lizard	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Colubridae	**Colubrids**						**X**																
Pituophis melanoleucus	Gopher Snake						X																

Table 4b. List of Invertebrates, Birds, Mammals, and Reptiles Observed During 2011 Survey Season Listed Phylogenetically – Area CC5

		July									August								September				
Scientific Name	**Common Name**	3	7	10	14	17	21	24	28	31	4	7	11	14	18	21	25	28	1	4	8	11	15
INVERTEBRATES																							
ORDER: ODONATA	**DRAGONFLIES AND DAMSELFLIES**			X	X			X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Aeshnidae	**Darners**				X			X	X	X		X	X	X	X	X	X		X	X	X	X	X
Aeshna multicolor	Blue-eyed Darner				X			X		X		X	X	X	X	X	X		X	X	X	X	X
Anax junius	Common Green Darner								X			X		X		X					X	X	
Libellulidae	**Common Skimmers**			X				X	X	X	X			X							X	X	X
Libellula saturata	Big Red Skimmer			X					X					X									
Pachydiplax longipennis	Blue Dasher										X										X		
Perithemis intensa	Mexican Amberwing									X											X	X	X
Tramea lacerata	Black Saddlebags									X													
Coenagrionidae	**Common Damselflies**			X							X				X					X		X	
Argia sp.	Damselfly														X					X		X	
Argia vivida	Violet Dancer			X							X												
ORDER: ORTHOPTERA	**GRASSHOPPERS, KATYDIDS & CRICKETS**	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Acrididae	**Short-horned Grasshoppers**	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Schistocerca nitens	Gray Bird Grasshopper	X	X																		X		
Trimerotropis pallidipennis	Pallid Band-winged Grasshopper					X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Trimerotropis sp.	Short-horned Grasshopper		X							X													
ORDER: MANTODEA	**MANTIDS**																		X				
Mantidae	**Mantids**																		X				
Iris oratoria	Mediterranean Mantid																		X				
ORDER: NEUROPTERA	**NERVE-WINGED INSECTS**		X																				
Myrmeleontidae	**Antlions**		X																				
Brachynemerus sp.	Antlion		X																				
ORDER: HEMIPTERA	**TRUE BUGS**		X	X	X		X	X		X	X	X	X	X						X	X	X	X
Reduviidae	**Assassin Bugs**									X													
Apiomerus sp.	Robust Assassin Bug									X													
Lygaeidae	**Seed Bugs**			X	X		X	X		X	X	X	X	X						X	X	X	X
Lygaeus kalmii	Small Milkweed Bug			X	X		X	X		X	X	X	X	X						X	X	X	X
Pentatomidae	**Stink Bugs**		X																				
Chlorochroa sayi	Say's Stink Bug		X																				
ORDER: COLEOPTERA	**BEETLES**		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Coccinellidae	**Ladybird Beetles**						X															X	
Hippodamia convergens	Convergent Ladybird Beetle																					X	
Scarabaeidae	**Scarab Beetles**		X		X	X		X	X	X	X	X	X	X	X	X	X	X	X				
Cotinus mutabilis	Green Fruit Beetle		X		X	X		X	X	X		X	X	X	X	X	X	X	X				

		July									August								September				
Scientific Name	**Common Name**	3	7	10	14	17	21	24	28	31	4	7	11	14	18	21	25	28	1	4	8	11	15
Chrysomelidae	**Leaf Beetles**				X			X	X		X	X	X	X	X	X	X	X	X		X	X	X
Diabrotica undecimpunctata	Western Spotted Cucumber Beetle				X							X	X	X	X	X	X	X	X				
Lema trilineata	Three-lined Potato Beetle							X	X		X										X	X	X
Curculionidae	**Snout Beetles**														X								
ORDER:LEPIDOPTERA	**MOTHS AND BUTTERFLIES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pyralidae	**Pyralid Moths**													X			X	X					
Pyralis sp.	Pyralid Moth													X			X	X					
Hesperiidae	**Skippers**						X		X	X		X	X	X	X	X							
Hylephila phyleus	Fiery Skipper						X		X	X		X	X	X	X	X							
Lycaenidae	**Blues**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brephidium exilis	Pigmy Blue	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Icaricia acmon	Acmon Blue		X																				
Strymon melinus	Common Hairstreak							X	X								X						
Nymphalidae	**Brush-footed Butterflies**			X	X		X				X			X	X			X	X				
Limenitis lorquini	Mourning Cloak				X																		
Precis coenia	Buckeye																		X				
Vanessa cardui	Painted Lady				X		X											X					
Vanessa sp.	Unidentified Lady			X							X			X	X								
Danaidae	**Milkweed Butterflies**																				X		
Danaus plexippus	Monarch																				X		
Pieridae	**Whites and Sulfurs**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Colias eurytheme	Alfalfa Sulphur							X		X		X	X		X	X							
Pieris protodice	Common White	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Papilionidae	**Swallowtails and Parnassians**							X			X					X			X				
Papilio rutulus	Western Tiger Swallowtail							X			X					X			X				
ORDER: DIPTERA	**FLIES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Apioceridae	**Flower Fly**														X		X				X		
Apiocera convergens	Flower Fly																				X		
Apiocera sp.	Flower Fly														X								
Asilidae	**Robber Flies**		X						X														
Promachus aldrichii	Robber Fly		X						X														
Mydidae	**Mydas Flies**					X																	
Nemomydas pantherinus	Mydas Fly					X																	
Bombyliidae	**Bee Flies**		X	X				X			X			X			X	X					
Exoprosopa sp.	Bee Fly			X										X									
Poecilanthrax sp.	Bee Fly							X									X	X					
Villa sp.	Bee Fly		X								X												
Syrphidae	**Syrphid Flies**																X	X		X		X	X
Eristalis tenax	Drone Fly																X	X					
Syritta pipiens	Hover Fly																			X		X	X
Toxomerus sp.	Flower Fly														X								

		July									August								September				
Scientific Name	**Common Name**	3	7	10	14	17	21	24	28	31	4	7	11	14	18	21	25	28	1	4	8	11	15
Conopidae	**Thick-headed Flies**								X														
Physocephala texana	Thread-waisted Conopid								X														
Muscidae	**Muscid Flies**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Musca domestica	House Fly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sarcophagidae	**Flesh Flies**					X																	
Sarcophaga sp	Flesh Fly					X																	
ORDER: HYMENOPTERA	**SAWFLIES, ICHNEUMONS, CHALCIDS, ANTS, WASPS, AND BEES**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chrysididae	**Cuckoo Wasps**													X		X			X				
Parnopes edwardsii	Cuckoo Wasp													X		X			X				
Scoliidae	**Scoliid Wasps**								X														
Campsomeris tolteca	Scoliid Wasp								X														
Formicidae	**Ants**		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Iridomyrmex humilis	Argentine Ant									X	X		X										
Pogonomyrmex californicus	California Harvester Ant		X		X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X
Pompilidae	**Spider Wasps**										X			X									
Vespidae	**Vespid Wasps**										X												X
Polistes sp.	Paper Wasp										X												X
Crabonidae	**Crabonid Wasps**	X				X		X		X			X	X	X	X	X	X	X	X	X	X	X
Bembix comata	Western Sand Wasp	X						X					X	X	X	X	X	X	X	X	X	X	
Microbembix californica	Sphecid Wasp					X		X		X				X					X				X
Philanthus multimaculatus	Sphecid Wasp	X						X															
Philanthus sp.	Sphecid Wasp	X											X										
Sphecidae	**Sphecid Wasps**	X				X	X	X							X	X							X
Ammophila azteca	Thread-waisted Wasp	X				X	X									X							
Chlorion aerarium	Steel Blue Cricket Hunter							X							X								X
Sceliphron caementarium	Mud Dauber														X								
Apidae	**Honey Bees, Bumble Bees, and Carpenter Bees**	X	X		X	X			X		X	X	X	X	X	X	X	X	X	X	X	X	X
Apis mellifera	Honey Bee	X	X		X	X			X		X	X	X	X	X	X	X	X	X	X	X	X	X
Bombus californicus	Bumble Bee												X										
Xylocopa varipuncta	Valley Carpenter Bee				X							X											
ORDER: ARANEAE	**SPIDERS**	X	X		X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Salticidae	**Jumping Spiders**														X				X				
Thomisiidae	**Crab Spiders**								X	X													
Agelinidae	**Funnel Web Spiders**	X	X		X	X		X	X			X	X	X	X	X	X	X	X	X	X	X	X

		July									August								September				
Scientific Name	**Common Name**	3	7	10	14	17	21	24	28	31	4	7	11	14	18	21	25	28	1	4	8	11	15
BIRDS																							
ORDER:CICONIIFORMES	**FLAMINGOS, HERONS AND STORKS**	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ardeidae	**Herons**				X					X	X	X	X	X	X	X	X	X	X		X	X	X
Ardea alba	Great Egret				X						X		X			X	X	X	X		X	X	X
Ardea herodias	Great Blue Heron											X	X										
Bubulcus ibis	Cattle Egret											X		X	X								
Egretta thula	Snowy Egret									X				X	X	X							
Threskiornithidae	**Ibises, Spoonbills**	X		X	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X
Plegadis chihi	White-faced Ibis	X		X	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X
ORDER: ANSERIFORMES	**DUCKS, GEESE, AND SWANS**		X		X	X	X					X	X	X	X	X	X	X		X			
Anatinae	**Ducks**		X		X	X	X					X	X	X	X	X	X	X		X			
Anas platyrhynchos	Mallard		X		X	X	X					X	X	X	X	X	X	X		X			
ORDER: FALCONIFORMES	**HAWKS AND VULTURES**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cathartidae	**American Vultures**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cathartes aura	Turkey Vulture	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Accipitiridae	**Hawks**		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Accipiter cooperii	Cooper's Hawk																X						
Buteo jamaicensis	Red-tailed Hawk		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Falconidae	**Falcons**								X		X	X									X	X	X
Falco sparverius	American Kestrel								X		X	X									X	X	X
ORDER: CHARADRIIFORMES	**GULLS AND SHOREBIRDS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Charadriidae	**Plovers**	X	X	X	X	X		X	X	X			X		X		X	X	X	X			
Charadrius vociferus	Killdeer	X	X	X	X	X		X	X	X			X		X		X	X	X	X			
Recurvirostridae	**Stilts and Avocets**	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Himantopus mexicanus	Black-necked Stilt	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Recurvirostra americana	American Avocet			X																			
Scolopacidae	**Sandpipers and Phalaropes**				X	X	X	X			X			X		X			X	X	X	X	X
Calidris mauri	Western Sandpiper															X					X		
Tringa favipes	Lesser Yellowlegs				X	X								X					X	X	X	X	X
Tringa melanoleuca	Greater Yellowlegs						X	X			X							X					
ORDER: COLUMBIFORMES	**DOVES AND PIGEONS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columbidae	**Pigeons and Doves**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Columba livia	Rock Dove	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Zenaida macroura	Mourning Dove	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X
ORDER: PASSERIIFORMES	**PASSERINES AND PERCHING BIRDS**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tyranidae	**Flycatchers**	X	X				X		X		X	X	X	X	X	X	X	X	X	X		X	X
Sayornis nigricans	Black Phoebe						X		X			X	X	X		X	X	X	X	X		X	
Sayornis saya	Say's Phoebe											X		X	X				X	X			
Tyrannus verticalis	Western Kingbird	X	X						X		X		X	X			X	X				X	X

		July									August								September				
Scientific Name	**Common Name**	3	7	10	14	17	21	24	28	31	4	7	11	14	18	21	25	28	1	4	8	11	15
Hirundinidae	**Swallows**	**X**	**X**	**X**	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	**X**
Hirundo pyrrhonota	Cliff Swallow	X		X			X					X											
Hirundo rustica	Barn Swallow		X				X			X	X	X	X	X	X	X	X	X	X	X		X	X
Riparia riparia	Bank Swallow			X		X																	
Tachycineta thalassina	Violet-green Swallow				X	X																	
Corvidae	**Jays, Magpies, and Crows**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Corvus brachyrhynchos	American Crow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mimidae	**Mimic Thrashers**	**X**	**X**				**X**	**X**				**X**		**X**	**X**	**X**	**X**	**X**	**X**				**X**
Mimus polyglottos	Northern Mockingbird	X	X				X	X				X		X	X	X	X	X	X				X
Sturnidae	**Starlings**																	**X**	**X**	**X**			
Sturnus vulgaris	European Starling																	X	X	X			
Emberizidae	**Emberizids**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**				**X**	**X**	**X**	**X**		**X**			
Agelaius phoeniceus	Red-winged Blackbird																			X			
Amphispiza bilineata	Black-throated Sparrow	X		X	X	X	X	X		X	X												
Euphagus cyanocephalus	Brewer's Blackbird					X			X								X	X					
Melospiza melodia	Song Sparrow			X	X	X																	
Molothrus ater	Brown-headed Cowbird			X												X	X	X					
Sturnela magna	Western Meadowlark	X		X	X										X								
Fringillidae	**Finches**			**X**	**X**		**X**	**X**					**X**										
Carduelis psaltria	Lesser Goldfinch						X																
Carpodacus mexicanus	House Finch			X	X			X					X										
Passeridae	**Weaver Finches**											**X**							**X**				
Passer domesticus	House Sparrow											X							X				
								MAMMALS															
ORDER: RODENTIA	**GNAWING MAMMALS**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Sciuridae	**Squirrels**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Spermophilus beecheyi	California Ground Squirrel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geomyidae	**Pocket Gophers**							**X**															
Thomomys bottae	Botta's Pocket Gopher							X															
ORDER: LAGOMORPHA	**PIKAS, HARES, AND RABBITS**	**X**	**X**						**X**	**X**				**X**	**X**	**X**				**X**			
Leporidae	**Hares and Rabbits**	**X**	**X**						**X**	**X**				**X**	**X**	**X**							
Sylvilagus auduboni	Audubon's Cottontail	X	X						X	X				X	X	X							
Suidae	**Old World Swine**																			**X**			
Sus scrofa	Wild Boar																			X			
								REPTILES															
ORDER:SQUAMATA	**LIZARDS AND SNAKES**	**X**	**X**						**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Iguanidae	**Iguanids**	**X**	**X**						**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Sceloporus occidentalis	Western Fence Lizard								X	X	X				X	X							
Uta stansburiana	Side-blotched Lizard	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

FIGURES

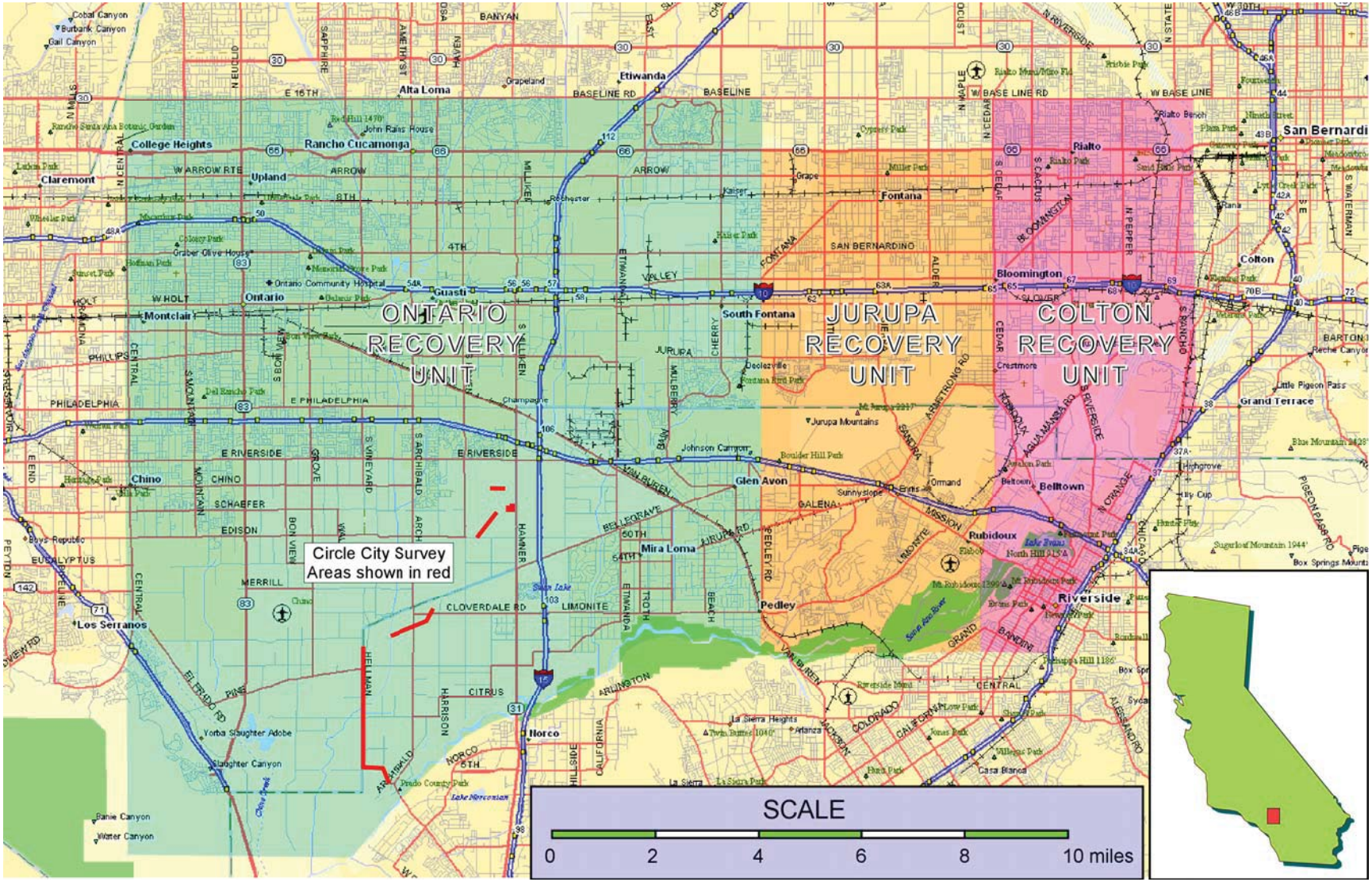


Figure 1. Project Vicinity and Recovery Unit Map

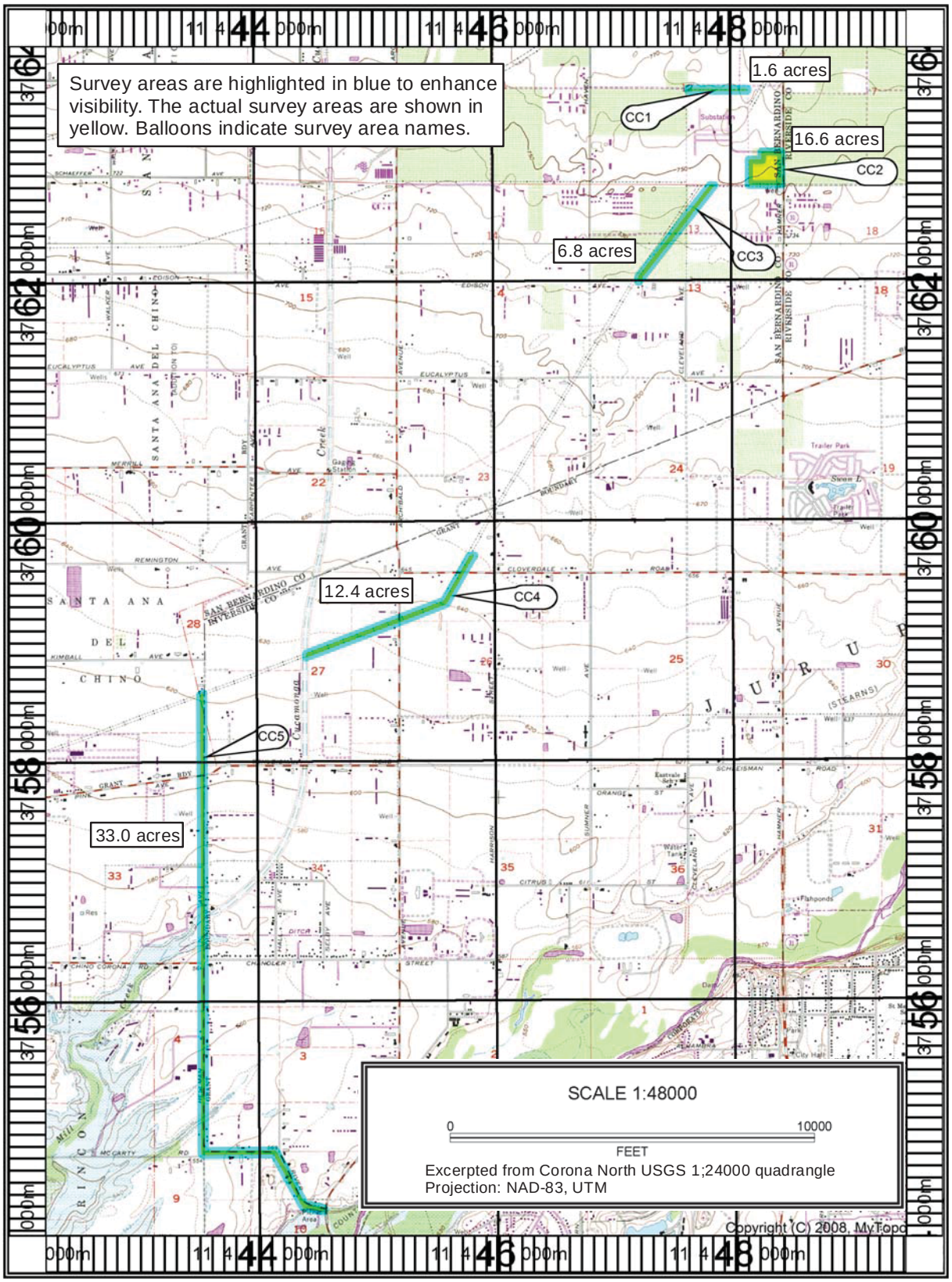


Figure 2. Site Map Showing Survey Areas

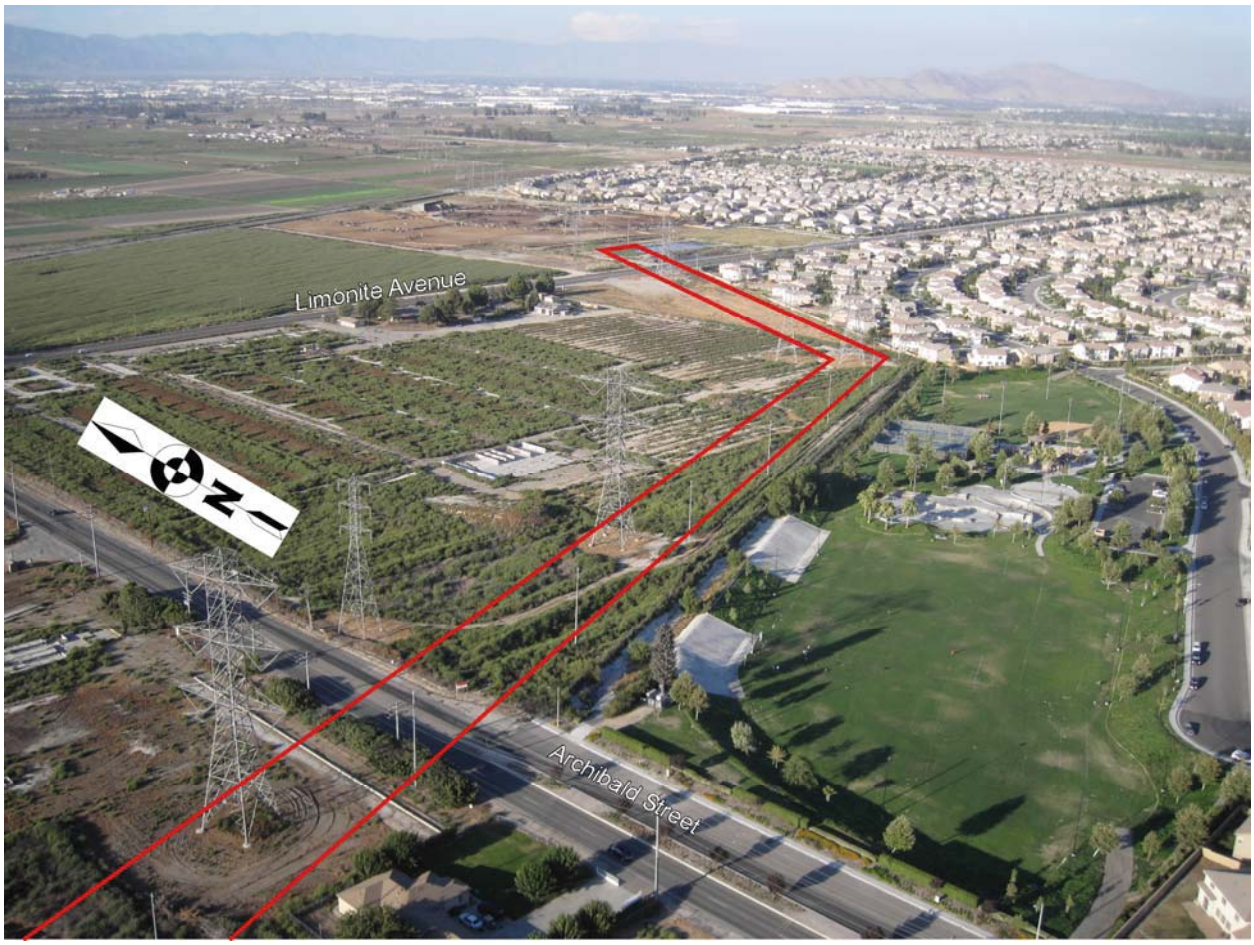
APPENDICES

APPENDIX 1. SITE PHOTOGRAPHS

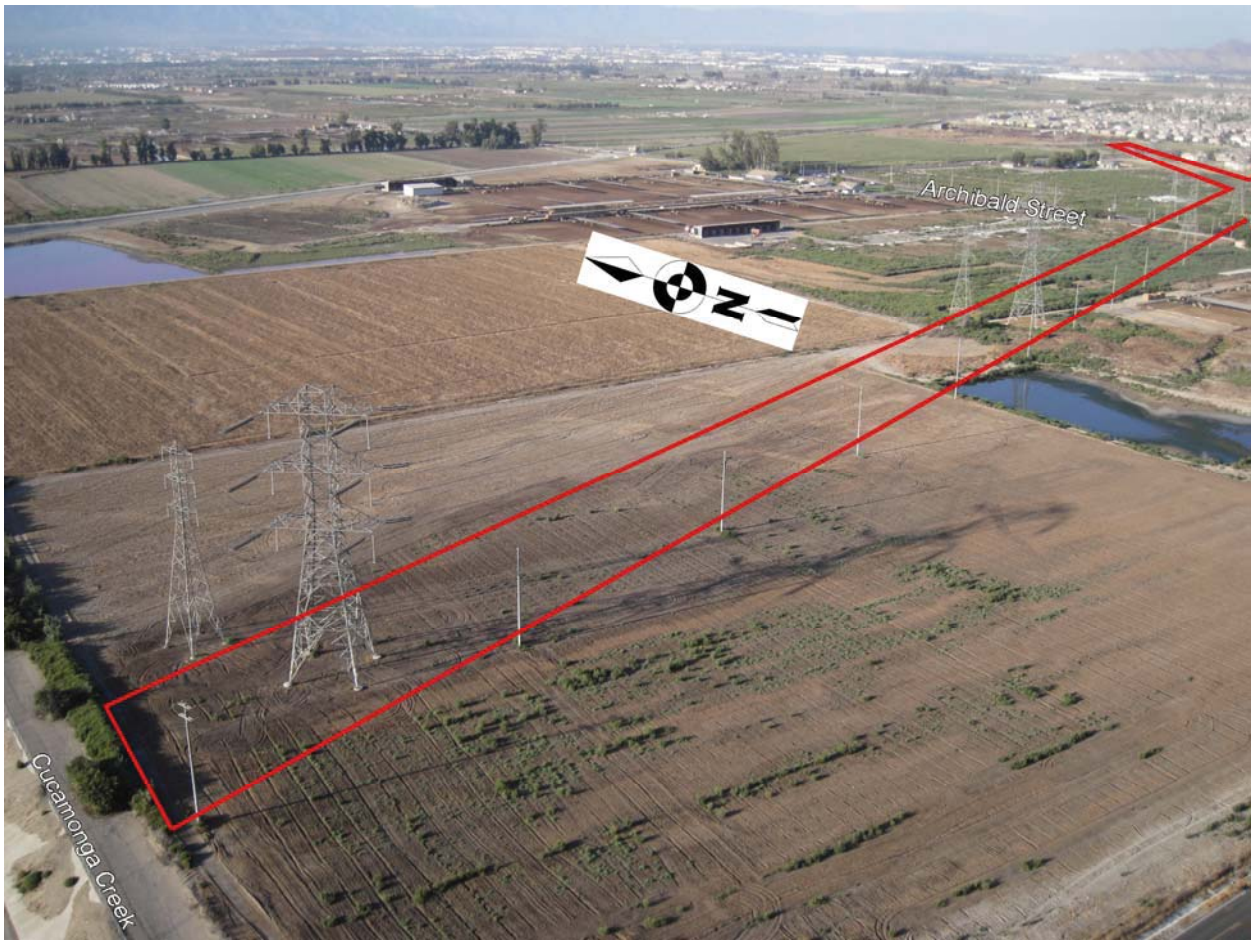
Photograph 1. CC1 survey area (1.6 acres)

Photograph 2. CC2 survey area (16.6 acres)

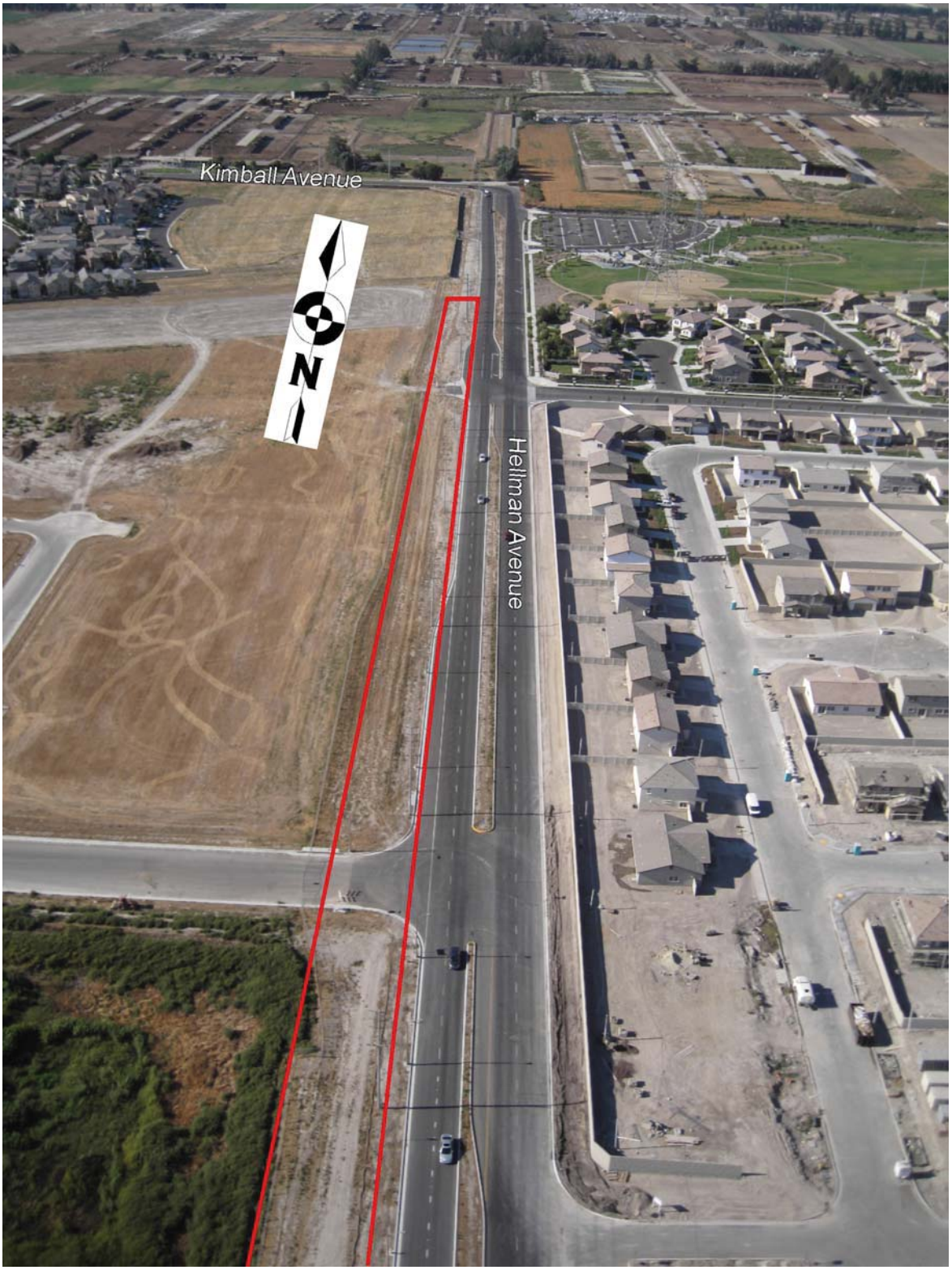
Photograph 3. CC3 survey area (6.8 acres)



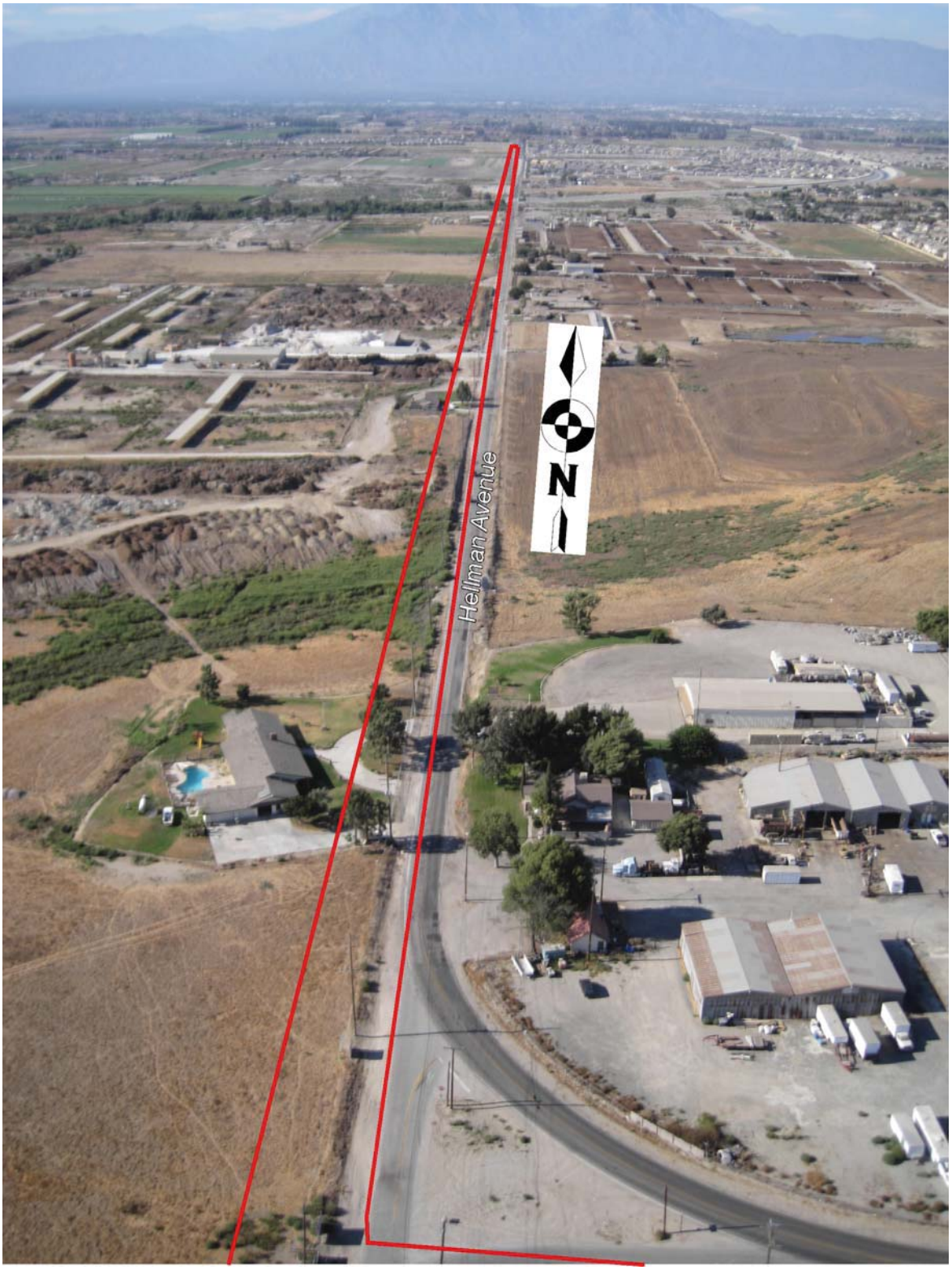
Photograph 4. Northern portion of CC4 survey area (12.4 acres)



Photograph 5. Southern portion of CC4 survey area (12.4 acres)



Photograph 6. Northern portion of CC5 survey area (33.0 acres)



Photograph 7. Central portion of CC5 survey area (33.0 acres)

Photograph 8. Southern portion of CC5 survey area (33.0 acres)

APPENDIX 2. CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

California Native Species Field Survey Form

Mailto:
Natural Diversity Database
California Dept. of Fish and Game
180713th Street, Suite 202
Sacramento, CA 95814

For Office Use Only
Source Code_____ Quad Code_____
Elm Code _____ Occ. No. _____
EO Index No._____ Map Index No._____

Date of Field Work: 7/1 to 9/20 - 2011
month (mm) date (dd) year (yyyy)

Scientific Name: *Rhaphiomidas terminatus abdominalis*

Common Name: Delhi Sands Flower-loving Fly

Species Found? ☐ yes ☒ no _____ If not, why?

Total No. Individuals 0 Subsequent Visit? ☒ yes ☐ no 44 total

Is this an existing NDDB occurrence?_____ ☐ no ☒ unk.
Yes, Occ. #

Collection? If yes: _____
Number Museum / Herbarium

Reporter: Gilbert Goodlett
Address: 1660 West Franklin Avenue
Ridgecrest, California 93555

Email Address: torthunter@aol.com
Phone: (760) 371-3592

Plant Information

Phenology: 60 % vegetative, 40 % flowering, 20 % fruiting

Phenology data was not collected and these data are speculative

Animal Information

Age Structure: 0 # adults, 0 # juveniles, 0 # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: San Bernardino and Riverside Landowner/Mgr.: Southern California Edison
Quad Name: Corona North 1:24000 _____ Elevation: 662 ft.
T 2S R 7W _____1/4 of __ 1/4 of Section several T _____ R _____ _____1/4 of ____ 1/4 of Section _____
UTM Zone: 11 (10, 11) Datum: NAD83 (NAD83, NAD27, WGS84, other)
Source: GPS (GPS, map & type, etc.) Point Accuracy: 10 Meters
UTM Coordinates 04 47 073E, 37 59 793N

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*
Ruderal area located on Delhi Series fine soils.

Other rare species? None observed

Site Information Overall site quality ☐ Excellent ☐ Good ☐ Fair ☒ Poor

Current/surrounding land use: commercial development, residential development, utility corridor, agriculture, dairy farming

Visible disturbances/ possible threats: Development

Comments: This form submitted as per U.S. Fish and Wildlife Service protocols for Delhi Sands Flower-loving Fly surveys

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☒ Other: Extensive field experience in ID of species

Photographs: *(check one or more)*

	Slide	Print
Plant / animal	☐	☐
Habitat (Digital format)	☐	☒
Diagnostic feature	☐	☐

May we obtain duplicates at our expense? ☒ yes ☐ no

FG/WHDAB /1747 Rev.11/99

APPENDIX E

FAIRY SHRIMP REPORTS

BonTerra CONSULTING

PASADENA COSTA MESA

T: (714) 444-9199 F: (714) 444-9599
www.BonTerraConsulting.com

151 Kalmus Drive, Suite E-200
Costa Mesa, CA 92626

May 11, 2011

Ms. Adelina Muñoz
Southern California Edison
265A
1218 South Fifth Avenue
Monrovia, California 91016

VIA EMAIL AND MAIL
Adelina.Munoz@sce.com

Subject: Results of a Fairy Shrimp Habitat Assessment for Substation Site 34S on the Circle City Substation Project Site in the City of Corona, Riverside County, California

Dear Ms. Muñoz:

This Letter Report presents the findings of the Riverside fairy shrimp (*Streptocephalus woottoni*) habitat assessment for Substation Site 34S (hereafter referred to as "the project site") on the Circle City Substation Project in Riverside County, California (Exhibit 1). The project site is located north of All American Way and southeast of Leeson Lane in the City of Corona (Exhibit 2). The site is adjacent to industrial parks on its southeastern and northwestern borders and a heavily disturbed open field to the southeast (Exhibit 2).

Background

Riverside Fairy Shrimp (*Stretocephalus woottoni*)

The Riverside fairy shrimp was listed as an Endangered species on August 3, 1993 (USFWS 1993). This species' distribution is among the most restricted ranges for any of the fairy shrimp on the west coast; it is known only from Orange County, western San Diego County, Riverside County, and immediately south of the international border in Baja California, Mexico (Ericksen and Belk 1999). Riverside fairy shrimp are found only in pools that are inundated for a longer duration and that are generally deep (greater than 30 centimeters) (Hathaway and Simovich 1996). Development and maturation are much slower in this species than other fairy shrimp, with an average of seven to eight weeks to fully mature (Hathaway and Simovich 1996). Due to this slow development, the minimum duration for inundation of a vernal pool that can support the Riverside fairy shrimp is nine to ten weeks (Gonzalez et al. 1996; Hathaway and Simovich 1996).

Critical habitat was designated for the Riverside fairy shrimp on April 12, 2005, and includes 306 acres in Ventura, Orange, and San Diego Counties (USFWS 2005). The project site is not located within the designated critical habitat.

Methods

BonTerra Consulting Biologist Jeff Crain (TE-047998-1) surveyed the project site on June 23, 2010. The survey included a walkthrough of the site to identify potential ponding areas that may require future surveys. In addition, Mr. Crain did a visual inspection of the project site on May 4, 2011.

Site Description

The project site is heavily disturbed and has been previously graded. Vegetation types present include annual grassland/ruderal, disturbed coastal sage scrub, ruderal, disturbed, and developed.

Survey Results

Some evidence of short-term ponding was observed on the project site in 2010 and 2011; however, these areas appeared unlikely to sustain water for periods longer than a few days or a week following heavy rains. No potential habitat for the Riverside fairy shrimp was identified on the project site.

Recommendations

Based on the results of the habitat assessment, there is not suitable habitat on the project site to support the Riverside fairy shrimp. Protocol surveys are not be recommended.

If you have any comments or questions, please call Stacie Tennant at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

Jeffrey S. Crain
Botanist/Restoration Ecologist

Attachments – Exhibits 1 and 2

R:\Projects\Edison\J045\HA FShrimp-051111.docx

References

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

Gonzalez, R.J., J. Drazen, S. Hathaway, B.Bauer and M. Simovich. 1996. Physiological Correlates of Water Chemistry Requirements in Fairy Shrimps (Anostraca) from Southern California. *Journal of Crustacean Biology* 16: 286-293. Lawrence, KS: The Crustacean Society.

Hathaway, S.A. and M.A. Simovich. 1996. Factors Affecting the Distribution and Co-Occurrence of Two Southern Californian Anostracans (Branchiopoda), *Branchinecta sandiegonensis* and *Streptocephalus woottoni. Journal of Crustacean Biology* 16: 669-677. Lawrence, KS: The Crustacean Society.

U.S. Fish and Wildlife Service (USFWS). 2005 (April 12). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Riverside Fairy Shrimp (*Streptocephalus woottoni*); Final Rule. *Federal Register* 70(69): 19153–19204. Washington, D.C.: USFWS.

———. 1993 (August 3). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Three Vernal Pool Plants and the Riverside Fairy Shrimp. *Federal Register* 58(147): 41384–41392. Washington, D.C.: USFWS.

Regional Location

Exhibit 1

Circle City Substation Project

N W E S

10 5 0 10 Miles

BonTerra CONSULTING

(Rev 051111 JFG) Projects\Edison\J045\Graphics\FshrimpLetter\ex1_RL.pdf

Path: D:\Projects\Edison\J045\MXD\Ex_RL_fshrimp.mxd

D:\Projects\Edison\J045\MXD\substation34S.mxd

Substation Site 34S

Exhibit 2

Circle City Substation Project

N W E S

300 150 0 300 Feet

BonTerra CONSULTING

(Rev: 5-10-2011 JFG) Projects\Edison\J045\Graphics\FshrimpLetter\ex2_sub34S.pdf

BonTerra CONSULTING
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www.BonTerraConsulting.com | Costa Mesa, CA 92626

August 29, 2011

Ms. Erin McCarthy
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

VIA EMAIL
erin_mccarthy@fws.gov

Subject: 90-Day Report for the Wet Season Presence/Absence Survey for Vernal Pool Branchiopods conducted on the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project, San Bernardino and Riverside Counties, California

This Letter Report presents the results of a habitat assessment and wet season surveys for vernal pool branchiopods (i.e., fairy shrimp) within the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereafter referred to as the "Project site") located in the cities of Ontario, Chino, Norco, Corona, and the surrounding communities of unincorporated Riverside County, California. The survey focused on the determination of presence of the Riverside fairy shrimp (*Streptocephalus woottoni*), a federally listed Endangered species along the subtransmission line portion of the Project site. A biological constraints survey performed in March 2010 determined that there is potentially suitable habitat for the Riverside fairy shrimp within the Project site. A Biologist holding the necessary Federal Endangered Species Act (FESA) survey permit conducted the focused surveys according to guidelines established by the U.S. Fish and Wildlife Service (USFWS).

PROJECT LOCATION AND DESCRIPTION

The Project site extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino (San Bernardino County), and the City of Norco (Riverside County) to the City of Corona (Riverside County), California (Exhibit 1). It generally runs west of Interstate (I) 15 with the Mira Loma-Jefferson Subtransmission Line north of State Route (SR) 91. It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Exhibit 2). Land uses in the immediate Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Project site. Topography in the Project vicinity is generally flat, with an approximate range in elevation from 640 to 790 feet above mean sea level (msl).

Southern California Edison Company (SCE) proposes to construct the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project to serve current and projected demand for electricity, and to maintain electric system reliability in portions of northwestern Riverside County, including the cities of Corona, Norco, and the surrounding communities of unincorporated Riverside County (Electrical Needs Area). The Project would include the following major components:

- Construction of a new 66/12 kilovolt (kV) distribution substation (Circle City Substation). The proposed Circle City Substation would be an unattended, automated, 56 megavolt-ampere (MVA) 66/12 kV low-profile substation.

- Construction of four new 66 kV source line segments:
    - Two source line segments, in a double-circuit configuration, that would be a combination of overhead and underground construction. Each would be approximately 1.3 miles in length and would be created by connecting to the existing Chase-Corona-Databank 66-kV subtransmission line to form the new Circle City-Corona No. 2 66-kV subtransmission line and the new Chase-Circle City-Databank 66-kV subtransmission line.
    - Two source line segments, in a double-circuit configuration, that would be constructed overhead. Each would be approximately 3.6 miles in length and would be created by connecting to the existing Mira Loma-Corona-Pedley 66-kV subtransmission line to form the Mira Loma-Circle City-Pedley 66-kV and the Circle City-Corona No. 1 66-kV subtransmission lines.
- Construction of three new 12-kV distribution circuit getaways.
- Construction of a new 66-kV subtransmission line (Mira Loma-Jefferson) that would be a combination of both overhead and underground construction. The Mira Loma-Jefferson 66-kV subtransmission line would be approximately 11 miles in length and would be constructed from the existing Mira Loma Substation to a location adjacent to the existing Corona Substation.
- Upgrade Mira Loma Substation to accommodate the new Mira Loma-Jefferson 66-kV subtransmission line.
- Installation of new fiber optic cable and communication equipment to connect the proposed Circle City Substation to SCE's existing telecommunication system.

BACKGROUND

Fairy shrimp are members of the Order Anostraca that are restricted to inland (i.e., non-marine), non-flowing, primarily ephemeral waters (Eriksen and Belk 1999). They produce embryonated resting eggs called "cysts" that allow them to persist in ephemeral waters. These cysts are viable in conditions such as drying, freezing, or digestion by animals. This characteristic allows them to be distributed between pools over great distances. The cysts hatch under appropriate environmental conditions for a particular species.

Riverside Fairy Shrimp (*Streptocephalus woottoni*)

The Riverside fairy shrimp was listed as an Endangered species on August 3, 1993 (USFWS 1993). The distribution of this species is among the most restricted ranges for any of the fairy shrimp on the west coast. They are known from Ventura, Los Angeles, Orange, western San Diego, and Riverside counties and immediately south of the international border in Baja California, Mexico (USFWS 2005). They are found only in pools that are generally deep (greater than 30 centimeters) (Hathaway and Simovich 1996). Development and maturation are much slower in this species than other fairy shrimp, with an average of seven to eight weeks to fully mature (Hathaway and Simovich 1996). Due to this slow development, the minimum duration for inundation of a vernal pool that can support Riverside fairy shrimp is nine to ten weeks (Gonzalez et al. 1996; Hathaway and Simovich 1996).

Critical habitat was designated for the Riverside fairy shrimp on April 12, 2005, and includes 306 acres in Ventura, Orange, and San Diego counties (USFWS 2005). However, the Project site is not within the designated critical habitat for this species.

METHODS

A habitat assessment was conducted on November 26, 2010, by BonTerra Consulting Biologist Jeff Crain for the entire Project site. Sites that showed signs of ponding or were currently inundated from recent rain were mapped and considered for further study. Only two areas were identified as potential habitat for Riverside fairy shrimp and required Protocol surveys (Exhibits 1 and 2).

Notification of wet season survey commencement for the Project site was provided on November 30, 2010, to Sandy Marquez of the USFWS, Carlsbad Office. Surveys for vernal pool branchiopods were conducted to comply with the USFWS' *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996). Mr. Crain (Permit No. TE-047998-1) performed focused surveys on December 10 and 24, and January 7 and 21, 2011.

The location of each ponded depression was recorded with a Garmin Etrex Legend Global Positioning System (GPS) receiver. During each survey visit, air temperature, wind speed, and other weather conditions were recorded on USFWS vernal pool data sheets. The surface area, water depth, and surface water temperature were also recorded for each ponded depression. Sampling of branchiopod species was performed with the aid of a dip net, which was passed through all depressions that retained water at least three centimeters deep at the time of the survey. Sampling occurred randomly through all portions of each of the ponded depressions from the bottom to the surface. Fairy shrimp were identified to species in the field. Estimates of fairy shrimp population densities for each ponded depression were recorded as 10s, 100s, or 1,000s of immatures and reproductive adults. All information was recorded on a USFWS vernal pool data sheet, which was completed for every ponded depression that met the inundation requirement at the time of the survey (Attachment A).

RESULTS

Pond 1 was located in a depression on the west side of Cota Street (Exhibit 2). Vegetation in this pond consisted of Mediterranean tamarisk (*Tamarix ramosissima*), salt heliotrope (*Heliotropium curassavicum*), and western sunflower (*Helianthus annuus*). Pond 1 was inundated during the habitat assessment conducted on November 26, 2010; however, this site was graded and covered in gravel for use as an equipment storage yard, prior to the first survey on December 10. Therefore, no further surveys were conducted.

Pond 2 was located in an open disturbed field on the north side of East Blaine Street (Exhibit 2). The pond was unvegetated. The depth of water in Pond 2 exceeded three centimeters during the December 10 and 24, and the January 7, 2011, surveys. Since the pond was dry at the time of the January 21, 2011, survey, no further surveys were conducted. No brachiopod species were identified within Pond 2. Table 1 summarizes the findings of the 2010–2011 vernal pool branchiopod wet season survey.

TABLE 1
RESULTS OF THE VERNAL POOL BRANCHIOPOD SURVEY

Date	Site Visit	Pond No.	Pool Size (square meters)	Branchiopod Species Detected	Species Density
12/10/10	1	2	150	none	–
12/24/10	2	2	100	none	–
1/7/11	3	2	37.5	none	–
1/21/11	4	2	dry	–	–

CONCLUSIONS/RECOMMENDATIONS

In conclusion, the results of the wet season surveys conducted for the Project site during the 2010–2011 rainy season were negative for brachiopods. No federally listed fairy shrimp were observed on the Project site. According to USFWS protocol guidelines, a complete branchiopod survey consists of sampling for either two full wet season surveys or two consecutive surveys of one wet season and one dry season. A 2011 dry season survey or a 2011–2012 wet season survey will be conducted for the Project site; results of the selected survey will be submitted in a separate Letter Report.

If you have any questions regarding the content of this letter, please contact Jeff Crain or Stacie Tennant at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

Jeff S. Crain
Biologist

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

Jeff S. Crain (TE-047998-1)
Biologist

cc: Ms. Adelina Munoz, Southern California Edison

Attachments: Exhibits 1 and 2
Attachment A – Vernal Pool Data Sheets

REFERENCES

California Department of Fish and Game (CDFG). 2010. *Special Animals.* Sacramento, CA: CDFG, Natural Heritage Division.

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

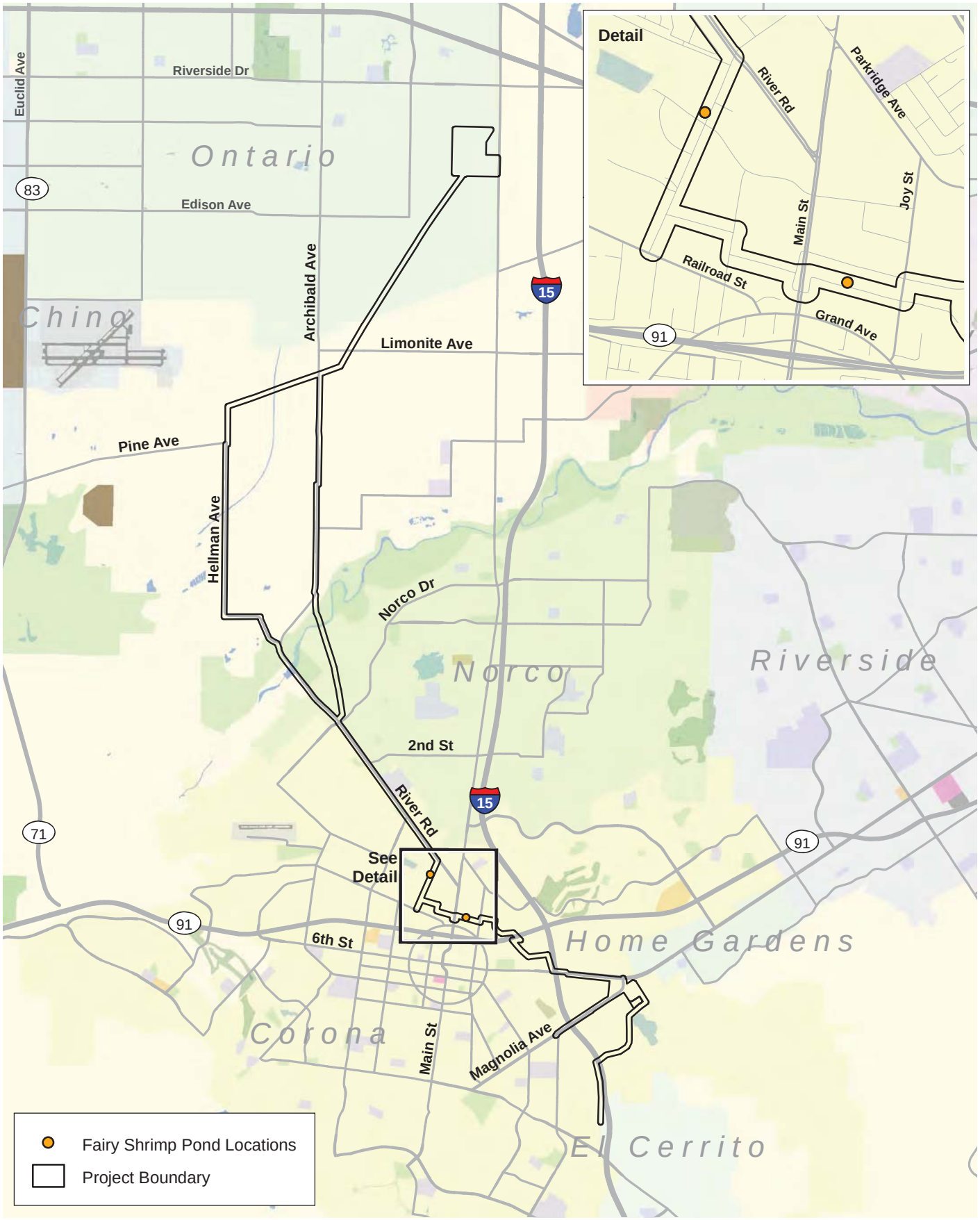
Gonzalez, R.J., J. Drazen, S. Hathaway, B. Bauer, and M. Simovich. 1996. Physiological Correlates of Water Chemistry Requirements in Fairy Shrimps (Anostraca) from Southern California. *Journal of Crustacean Biology* 16: 286–293. Lawrence, KS: The Crustacean Society.

Hathaway, S.A. and M.A. Simovich. 1996. Factors Affecting the Distribution and Co-Occurrence of Two Southern Californian Anostracans (Branchiopoda), *Branchinecta sandiegonensis* and *Streptocephalus woottoni*. *Journal of Crustacean Biology* 16: 669–677. Lawrence, KS: The Crustacean Society.

U.S. Fish and Wildlife Service (USFWS). 2005 (April 12). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Riverside Fairy Shrimp (*Streptocephalus woottoni*); Final Rule. *Federal Register* 70(69): 19153–19204. Washington, D.C.: USFWS.

———. 1996 (April 19)*. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods.* Washington, D.C: USFWS.

———. 1993 (August 3). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Three Vernal Pool Plants and the Riverside Fairy Shrimp. *Federal Register* 58(147): 41384–41392. Washington, D.C.: USFWS



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Regional Location

Exhibit 1

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1.5 0.75 0 1.5 Miles

BonTerra CONSULTING

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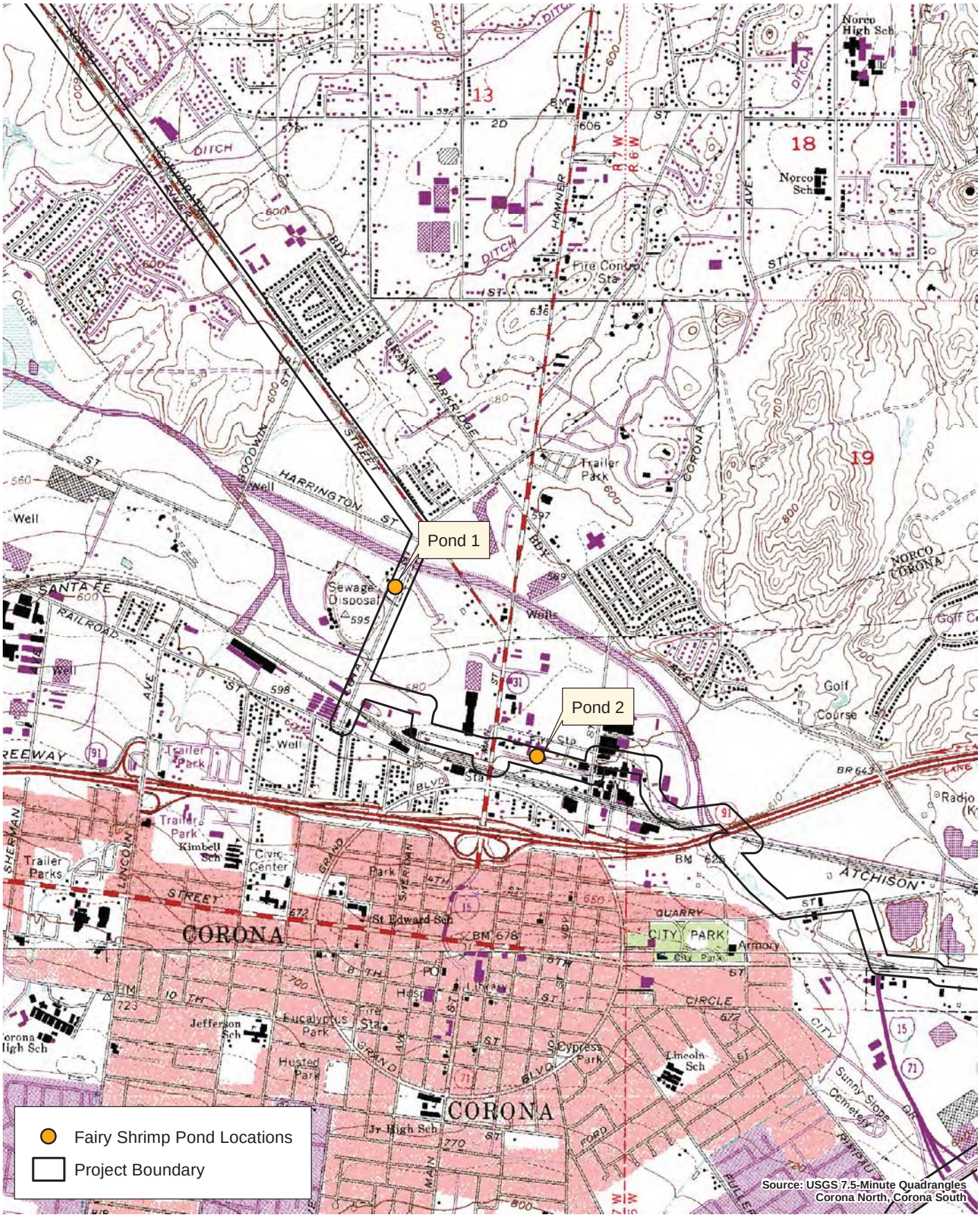

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Local Vicinity

Exhibit 2

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

BonTerra CONSULTING

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ATTACHMENT A

U.S. FISH AND WILDLIFE SERVICE
VERNAL POOL DATA SHEETS

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

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

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

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

Date: 12/10/10 Time: 0930 County: Riverside Quad: Corona North

Collector(s): Jeffrey Crain Permit #: TE-047998-1

Site/Project Name: Circle City Pool #: 2

Township: 15 °C Range: 15 °C Section: _____ _____lat._____long.

Temperature: Water: 15 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 5 cm at time of sampling: 25 m x 6 m

estimated maximum: 5 cm estimated maximum: 25 m x 6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Unpaved parking lot for adjacent Automotive Repair shop

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Ø

Notostracans: (note reproductive status) Ø

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12/24/10 Time: 0930 County: Riverside Quad: Corona North

Collector(s): Jeffrey Crain Permit #: TE-047998-1

Site/Project Name: Circle City Pool #: 2

Township: _____ Range: _____ Section: _____ _____lat._____long.

Temperature: Water: 13 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 4 cm at time of sampling: 20 m x 5 m

estimated maximum: 5 cm estimated maximum: 25 m x 6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Unpaved parking lot for adjacent Automotive Repair shop

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Ø

Notostracans: (note reproductive status) Ø

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 7 / 11 Time: 0845 County: Riverside Quad: Corona North

Collector(s): Jeffrey Crain Permit #: TE-047948-1

Site/Project Name: Circle City Pool #: 2

Township: _____ Range: _____ Section: _____ _____lat._____long.

Temperature: Water: 15 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 3 cm at time of sampling: 15 m x 2.5 m

estimated maximum: 5 cm estimated maximum: 25 m x 6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Unpaved parking lot for adjacent Automotive Repair shop

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Ø

Notostracans: (note reproductive status) Ø

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 21 / 11 Time: 1030 County: Riverside Quad: Corona North

Collector(s): Jeffrey Crain Permit #: TE-047998-1

Site/Project Name: Circle City Pool #: 2

Township: _____ Range: _____ Section: _____ _____lat._____long.

Temperature: Water: 22 oC Air: NA oC

Pool Depth: Surface Area: Dry

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

estimated maximum: 5 cm estimated maximum: 25 m x 6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Unpaved parking lot for adjacent Automotive Repair Shop

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Ø

Notostracans: (note reproductive status) Ø

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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August 22, 2012

Ms. Susie Tharratt
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

Subject: 90-Day Report for the Wet Season Presence/Absence Survey for Vernal Pool Branchiopods Conducted on the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. Tharratt:

This Letter Report presents the results of wet season surveys for vernal pool branchiopods (i.e., fairy shrimp) for the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereinafter referred to as the "Proposed Project") located in the City of Ontario in San Bernardino County and the City of Eastvale, the City of Norco, and the City of Corona in Riverside County, California; an alternative to the Proposed Project also runs through the City of Chino in San Bernardino County (Figure 1). A portion of the Proposed Project occurs within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area, which requires surveys for species associated with riparian/riverine areas and vernal pools. Section 6.1.2 of the MSHCP addresses Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), and Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*) (Dudek 2003).

PROJECT LOCATION AND DESCRIPTION

The Proposed Project will construct a new 66/12-kilovolt (kV) distribution substation (i.e., the Circle City Substation) with four 66-kV source line segments, 6 new 12-kV distribution circuit getaways, and a new 66-kV subtransmission line (Mira Loma-Jefferson); upgrade the existing Mira Loma Substation; and install new fiber optic cable and communication equipment to connect the proposed Circle City Substation to Southern California Edison's (SCE's) existing telecommunication system. The purpose of the Proposed Project is to ensure the availability of safe and reliable electric service to meet customer electrical demand in the Electrical Needs Area. The Study Area for the Proposed Project consists of the following:

1. A 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, the proposed Circle City Substation site, and the alternative Circle City Substation site);

2. A 300-foot buffer on either side of the proposed Mira Loma-Jefferson 66-kV subtransmission line route, the two alternative Mira Loma-Jefferson 66-kV subtransmission line routes (i.e., Alternative 2 and Alternative 3), and the proposed and alternative source line routes; and

3. A 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.

The Proposed Project primarily runs west of Interstate (I) 15 and north of State Route (SR) 91, with the southern end of the Proposed Project extending south of SR-91 and east of I-5. It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Figure 2). Topography in the Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl). Land uses in the immediate Proposed Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project. Soils in the Study Area consist of Arbuckle gravelly loam; Buchenau loam, slightly saline-alkali; Cajalco fine sandy loam; Chino silt loam; Chino silt loam, drained; Chualar clay loam; Cieneba rocky sandy loam; Cortina sandy loam; Cortina gravelly sandy loam; Delhi fine sand; Delhi loamy fine sand; Dello loamy sand, poorly drained; Dello loamy fine sand, gravelly substratum; Domino silt loam; gravel pits; Garretson gravelly very fine sandy loam; Grangeville loamy fine sand, drained; Grangeville fine sandy loam; Grangeville sandy loam, sandy substratum, drained, saline-alkali; Grangeville fine sandy loam, poorly drained, saline-alakali; Greenfield sandy loam; Hanford coarse sandy loam; Hilmar loamy sand; Hilmar loamy very fine sand; Hilmar loamy fine sand; Metz loamy fine sand, gravelly sand substratum; Pachappa fine sandy loam; Placentia fine sandy loam; Ramona sandy loam; Ramona very fine sandy loam; riverwash; rough broken land; San Emigdio fine sandy loam; San Emigdio fine sandy loam, deep; San Emigdio loam; Temescal rocky loam; terrace escarpments; and Waukena fine sandy loam, saline-alkali (USDA NRCS 1980, 1974).

BACKGROUND

Fairy shrimp are members of the Order Anostraca that are restricted to inland (i.e., non-marine), non-flowing, primarily ephemeral waters (Eriksen and Belk 1999). They produce embryonated resting eggs called "cysts" that allow them to persist in ephemeral waters. These cysts are viable in conditions such as drying, freezing, or digestion by animals. This characteristic allows them to be distributed between pools over great distances either in the digestive tract or via mud on the bodies of other animals such as waterfowl or cattle. The cysts hatch under appropriate environmental conditions for a particular species.

<u>Riverside Fairy Shrimp</u>

The Riverside fairy shrimp was listed by the U.S. Fish and Wildlife Service (USFWS) as an Endangered species on August 3, 1993 (USFWS 1993). It is an MSHCP Covered species. The distribution of this species is among the most restricted ranges for any of the fairy shrimp on the west coast. They are known from Ventura, Los Angeles, Orange, western San Diego, and Riverside Counties and immediately south of the international border in Baja California, Mexico (USFWS 2005a). They are found only in pools that are generally deep (greater than 30 centimeters) (Hathaway and Simovich 1996). Development and maturation are much slower in this species than other fairy shrimp, with an average of seven to eight weeks to fully mature (Hathaway and Simovich 1996). Due to this slow development, the minimum duration for inundation of a vernal pool that can support Riverside fairy shrimp is nine to ten weeks (Gonzalez et al. 1996; Hathaway and Simovich 1996).

On May 30, 2001, the USFWS published a Final Rule designating 6,870 acres of land as critical habitat for the Riverside fairy shrimp in Los Angeles, Orange, Riverside, San Diego, and Ventura Counties (USFWS 2001). Following lawsuits, the USFWS proposed a revised critical habitat designation on April 27, 2004. This Proposed Rule was finalized on April 12, 2005. The

current final critical habitat designation covers 306 acres of land in Orange, San Diego, and Ventura Counties (USFWS 2005a). On June 1, 2011, the USFWS proposed to revise the critical habitat boundaries again. This new Proposed Rule would designate 2,984 acres of land in Ventura, Orange, Riverside, and San Diego Counties (USFWS 2011). The Study Area is not located in final or newly proposed critical habitat for Riverside fairy shrimp.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp was listed by the USFWS as a Threatened species on September 19, 1994 (USFWS 1994). It is an MSHCP Covered species. It is found primarily in the Central Valley and the foothills of the Sierra Nevada Mountains in Northern California north to Oregon (Eriksen and Belk 1999; USFWS 2005b). In Southern California, the species is known only from Western Riverside County (Dudek 2003). The species is usually found in small and shallow vernal pools, although they are sometimes found in a range of natural and artificially created ephemeral habitats such as alkali pools, seasonal drainages, stock ponds, vernal swales, and rock outcrops (USFWS 2005b). They occur in alluvial fans, bedrock, bedrock escarpments, basin rim, floodplain, high terrace, stream terrace, volcanic mudflow, and low terrace formations (USFWS 2005b). Vernal pool fairy shrimp have been known to reach maturation in as little as 18 days, though 41 days is more typical when water temperature is cooler (Eriksen and Belk 1999). This allows the species to exist in pools that persist for only six to seven weeks in the winter and less in the spring.

On August 6, 2003, the USFWS published a Final Rule designating 839,460 acres of land as critical habitat for the vernal pool fairy shrimp in Oregon south to Ventura County, California (USFWS 2003). Following lawsuits, the USFWS proposed a revised critical habitat designation on December 28, 2004. This Proposed Rule was finalized on August 11, 2005. The current final critical habitat designation covers 597,821 acres from Oregon south to Ventura County, California (USFWS 2005b). The Study Area is not located in final critical habitat for the vernal pool fairy shrimp.

Santa Rosa Plateau Fairy Shrimp

The Santa Rosa Plateau fairy shrimp is not formally listed by the resource agencies; however, it is tracked by the California Department of Fish and Game (CDFG) and is an MSHCP Covered species. It is restricted to the grassland pools of the Santa Rosa Plateau in Riverside County, California (Eriksen and Belk 1999). This species occurs in southern basalt flow vernal pools ranging in size from 25 to just over 100,000 square meters (Eriksen and Belk 1999).

The known habitat for this species is protected on the Santa Rosa Plateau Ecological Reserve, approximately 27 miles southeast of the Study Area.

PREVIOUS SURVEYS

A biological constraints survey performed in March 2010 determined that there is potentially suitable habitat for listed fairy shrimp within the Study Area. A habitat assessment for Riverside fairy shrimp was initially conducted on June 23, 2010, by BonTerra Consulting Biologist Jeff Crain (TE-047998-1) for the proposed Circle City Substation site. A second habitat assessment was conducted by Mr. Crain on November 26, 2010, following a rainfall event between November 20 and November 27, 2010. This habitat assessment included the Mira Loma Substation, the proposed Circle City Substation site, the alternative Circle City Substation site, the proposed Mira Loma-Jefferson 66 kV subtransmission line route, Alternative 2, Alternative 3, the proposed source line route, and portions of the alternative source line routes.

Sites that showed signs of ponding or were inundated on November 26, 2010, were mapped and considered for further study. At that time, Mr. Crain identified two areas (Pond 1 and Pond 2) as potential habitat for Riverside fairy shrimp, and the first year of wet season protocol surveys was initiated on December 10, 2010. Following the habitat assessment and prior to the first survey, Pond 1 was graded and covered in gravel for use as an equipment storage yard; no further surveys were conducted in this area. Surveys continued at Pond 2 on December 24, 2010 and January 7, 2011. The pond was dry at the time of the January 21, 2011 survey, and no further surveys were conducted for the season. Pond 2 experienced between 48 and 62 days of continuous inundation during the 2010/2011 wet season, depending upon when the pond dried between the January 7 and January 21 surveys. No fairy shrimp species were observed during the first year of wet season surveys at Pond 2 (BonTerra Consulting 2011).

METHODS

In anticipation of an upcoming storm event, notification of commencement of the second year of wet season surveys for Pond 2 in the Study Area was provided on November 17, 2011, to Erin McCarthy of the USFWS, Carlsbad Office. The region received 0.19 inch of rain on November 20, 2011 (NOAA 2011; data taken from Ontario) and wet season surveys were initiated. On November 21, 2011, Ponds 1 and 2 were checked for inundation by BonTerra Consulting Biologist/Regulatory Technician Allison Rudalevige (TE-177979-0) and Senior Biologist Stacie Tennant. It was confirmed that Pond 1 had been graded and no further surveys were conducted in this area. Inundation greater than 3 centimeters in depth was confirmed in Pond 2, and wet season surveys continued throughout the 2011/2012 wet season.

While performing vegetation mapping in other portions of the Study Area on November 29, 2011, Ms. Rudalevige and BonTerra Consulting Biologist Jason Mintzer incidentally observed additional inundated areas (Ponds 3 through 8). An unidentified fairy shrimp species was detected in these ponds. On November 30, 2011, the first year of wet season surveys were initiated for Ponds 3 through 8. This Letter Report presents the findings of the second year of wet season surveys at Pond 2 and the first year of wet season surveys at Ponds 3 through 8.

Surveys for vernal pool branchiopods were conducted to comply with the USFWS' *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996). Surveys were initiated after storm events, and ponds were considered inundated when they held greater than 3 centimeters of standing water 24 hours after a rain event. Ponds were sampled once every two weeks beginning no later than two weeks after inundation. Surveys continued until ponds were no longer inundated or until they experienced 120 days of continuous inundation. In the event that ponds dried and refilled, sampling was reinitiated within eight days of refilling.

The location of each ponded depression was recorded with a Garmin Etrex Legend Global Positioning System (GPS) receiver. During each survey visit, pond surface area, water depth, water temperature, air temperature, and habitat condition were recorded for each pond on USFWS vernal pool data sheets. Photographs of each ponded depression are included in Attachment A. Sampling of branchiopod species was performed with the aid of a dip net; this dip net was passed through all depressions that retained water at least three centimeters deep at the time of the survey. Sampling occurred randomly through all portions of each of the ponded depressions from the bottom to the surface. Fairy shrimp were identified to species in the field. Estimates of fairy shrimp population densities for each ponded depression were recorded as 10s, 100s, or 1,000s of immatures and reproductive adults. All information was recorded on a USFWS vernal pool data sheet, which was completed for every ponded depression that met the inundation requirement at the time of the survey (Attachment B). Specimens were collected for

the purpose of confirming species identification. Specimens were stored in glass vials labeled with the pond numbers. Within 24 hours, specimens were placed in an alcohol solution. Species identification was confirmed using a 7.5X-35X zoom microscope and dichotomous key from Eriksen and Belk (1999).

RESULTS

Table 1 summarizes the results of the 2011/2012 wet season vernal pool branchiopod surveys. The location of each pond is shown in Figure 2. Ponds were initially inundated on November 21, 2011; these ponds dried and filled again multiple times over the course of the surveys. Ponds were dry following the May 3, 2012, survey visit and there has been no recorded rainfall after that date. Therefore, May 3, 2012, represents the conclusion of the 2011/2012 wet season survey period.

TABLE 1
RESULTS OF THE VERNAL POOL BRANCHIOPOD SURVEY

Date	Site Visit	Pond No.	Pond Depth (centimeters)	Pond Size (square meters)	Branchiopod Species Detected	Species Density
11/21/2011	Check	2	11	36	–	–
11/29/2011	1	2	3	5	–	–
11/30/2011	1	3	17	226	*Branchinecta lindahli* (adult)	1,000s
		4	10	36	*Branchinecta lindahli* (adult)	1,000s
		5	16	135	*Branchinecta lindahli* (adult)	100s
		6	9	24	*Branchinecta lindahli* (adult)	100s
		7	9	60	*Branchinecta lindahli* (adult)	10s
		8	8	34	*Branchinecta lindahli* (adult)	100s
12/14/2011	2	2	5	17	–	–
		3	12	274	*Branchinecta lindahli* (adult)	100s
		4	10	23	*Branchinecta lindahli* (adult)	10s
		5	15	43	*Branchinecta lindahli* (adult)	10s-100s
		6	10	17	–	–
		7	11	61	–	–
		8	9	35	–	–
12/29/2011	3	2	0	dry	–	–
		3	5	6	*Branchinecta lindahli* (adult)	10s-100s
		4	0	dry	–	–
		5	8	30	*Branchinecta lindahli* (adult)	10s-100s
		6	0	dry	–	–
		7	0	dry	–	–
		8	5	12	–	–
1/6/2012	incidental observation	2	0	dry	–	–
		3	0	dry	–	–
		4	0	dry	–	–
		5	0	dry	–	–
		6	0	dry	–	–
		7	0	dry	–	–
		8	0	dry	–	–
Rainfall event on 1/21/2012 (0.54 inch) and 1/23/2012 (0.33 inch)[a]						
1/25/2012	1b	2	10	49	–	–
		3	16	377	–	–
		4	17	31	–	–
		5	25	130	–	–
		6	12	56	–	–
		7	13	153	–	–
		8	20	71	–	–

TABLE 1 (Continued)
RESULTS OF THE VERNAL POOL BRANCHIOPOD SURVEY

Date	Site Visit	Pond No.	Pond Depth (centimeters)	Pond Size (square meters)	Branchiopod Species Detected	Species Density
2/8/2012	2b	2	0	dry	–	–
		3	dnr	dnr	–	–
		4	0	dry	–	–
		5	dnr	dnr	–	–
		6	0	dry	–	–
		7	0	dry	–	–
		8	0	dry	–	–
Rainfall event on 2/15/2012 (0.48 inch)[a]						
2/23/2012	1c	2	3	7	–	–
		3	15	369	*Branchinecta lindahli* (immatures)	10,000s
		4	10	42	*Branchinecta lindahli* (immatures)	100s–1,000s
		5	14	62	*Branchinecta lindahli* (adult)	1,000s
		6	10	17	immatures and nauplii	1,000s
		7	4	39	*Branchinecta lindahli* (adult/immatures)	100s–1,000s
		8	7	13	immatures	10s/100s
						10s
3/7/2012	2c	2	0	dry	–	–
		3	0	dry	–	–
		4	0	dry	–	–
		5	6	5	*Branchinecta lindahli* (adult)	10s–100s
		6	0	dry	–	–
		7	0	dry	–	–
		8	0	dry	–	–
Rainfall event on 3/17/2012 (0.91 inch) and 3/18/2012 (0.29 inch)[a]						
3/21/2012	1d	2	5	52	–	–
		3	22	483	nauplii	10,000s
		4	11	30	nauplii	1,000s
		5	9	281	nauplii	100s
		6	10	14	nauplii	100s
		7	7	83	–	–
		8	8	66	–	–
4/5/2012	2d	2	0	dry	–	–
		3	9	131	*Branchinecta lindahli* (adult/nauplii)	10,000s
		4	0	dry	–	–
		5	5	46	*Branchinecta lindahli* (adult)	10s
		6	0	dry	–	–
		7	0	dry	–	–
		8	3	1	*Branchinecta lindahli* (adult)	100s
Rainfall event on 4/11/2012 (0.17 inch) and 4/13/2012 (0.0.55 inch)[a]						
4/18/2012	1e	2	4	38	–	–
		3	21	570	*Branchinecta lindahli* (adult)	10s
		4	18	34	–	–
		5	10	259	*Branchinecta lindahli* (adult/immatures)	100s
		6	10	19	*Branchinecta lindahli* (adult)	100s
		7	10	96	*Branchinecta lindahli* (adult/immatures)	100s
		8	6	26	*Branchinecta lindahli* (adult)	100s

TABLE 1 (Continued)
RESULTS OF THE VERNAL POOL BRANCHIOPOD SURVEY

Date	Site Visit	Pond No.	Pond Depth (centimeters)	Pond Size (square meters)	Branchiopod Species Detected	Species Density
5/3/2012	2e	2	0	dry	–	–
		3	6	24	–	–
		4	0	dry	–	–
		5	0	dry	–	–
		6	0	dry	–	–
		7	0	dry	–	–
		8	0	dry	–	–

[a] Data taken from Ontario (NOAA 2012). Sampling was reinitiated within 8 days following refilling and continued until ponds dried or 120 days had passed.

"–" indicates that no fairy shrimp species were observed.

"dnr" indicates that data was not recorded on pond dimensions that survey period; water levels were low and ponds were drying.

Pond 2 is located in an open lot used for vehicle parking on the north side of East Blaine Street (Figure 2). The pond was unvegetated and heavily disturbed by tire tracks and garbage. The maximum observed pond depth and surface area was 11 centimeters and 52 square meters, respectively. No branchiopod species were identified within Pond 2.

Pond 3 is located in a roadside ditch adjacent to a fallow agricultural field at River Road west of Hall Avenue (Figure 2). The pond was heavily disturbed by tire tracks and garbage. The maximum observed pond depth and area was 22 centimeters and 570 square meters, respectively. The non-listed versatile fairy shrimp (*Branchinecta lindahli*) or immatures likely to be that species were observed during seven survey visits to Pond 3.

Pond 4 is located in a roadside ditch adjacent to a dairy and fallow agricultural field on River Road, west of Hall Avenue. The pond was moderately disturbed by tire tracks and garbage. The maximum observed pond depth and area was 18 centimeters and 42 square meters, respectively. The non-listed versatile fairy shrimp or immatures likely to be that species were observed during four survey visits to Pond 4.

Pond 5 is located at the intersection of River Road and Hellman Avenue in a dirt area between the roads. The pond was heavily disturbed by tire tracks. Prior to the March 21, 2012 survey visit, vehicle traffic changed the microtopography of the area; two pools formed after this disturbance. The maximum observed pond depth and area was 25 centimeters and 259 square meters, respectively. The non-listed versatile fairy shrimp or immatures likely to be that species were observed during eight survey visits to Pond 5.

Pond 6 is located in a depression adjacent to Hellman Avenue at the terminus of River Road. The pond was heavily disturbed by tire tracks and garbage. The maximum observed pond depth and area was 12 centimeters and 56 square meters, respectively. The non-listed versatile fairy shrimp or immatures likely to be that species were observed during four survey visits to Pond 6.

Pond 7 is located in a depression at the northwest corner of Hellman Avenue and McCarty Road. The pond extends into the road asphalt and was heavily disturbed by tire tracks and garbage. The maximum observed pond depth and area was 13 centimeters and 153 square meters, respectively. The non-listed versatile fairy shrimp or immatures likely to be that species were observed during three survey visits to Pond 7.

Pond 8 is located in a depression at the southwest corner of Hellman Avenue and Chino Corona Road. The pond was heavily disturbed by tire tracks and garbage. The maximum observed pond depth and area was 20 centimeters and 70 square meters, respectively. The non-listed versatile fairy shrimp or immatures likely to be that species were observed during four survey visits to Pond 8.

CONCLUSIONS/RECOMMENDATIONS

In conclusion, the results of the wet season surveys conducted for the Study Area during the 2011/2012 wet season were negative for listed fairy shrimp. No fairy shrimp were observed in Pond 2. One non-listed species, the versatile fairy shrimp, was observed in Ponds 3 through 8. According to USFWS protocol, a complete branchiopod survey consists of sampling for either two full wet seasons or two consecutive surveys of one wet season and one dry season. This report represents the findings of a second year of wet season surveys for Pond 2. A 2012/2013 wet or dry season survey of Ponds 3 through 8 is recommended to comply with USFWS protocol. Given that neither the 2010/2011 nor the 2011/2012 wet season resulted in continuous inundation of at least 120 days, it is advised that another year of wet season surveys be conducted for all ponds.

If you have any questions regarding the content of this letter, please contact Allison Rudalevige or Stacie Tennant at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

Allison D. Rudalevige
Biologist/Regulatory Technician

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

Allison D. Rudalevige (TE-177979-0)
Biologist/Regulatory Technician

cc: Ms. Adelina Muñoz, Southern California Edison

Attachments: Figures 1 and 2
Attachment A – Site Photographs
Attachment B – Vernal Pool Data Sheets

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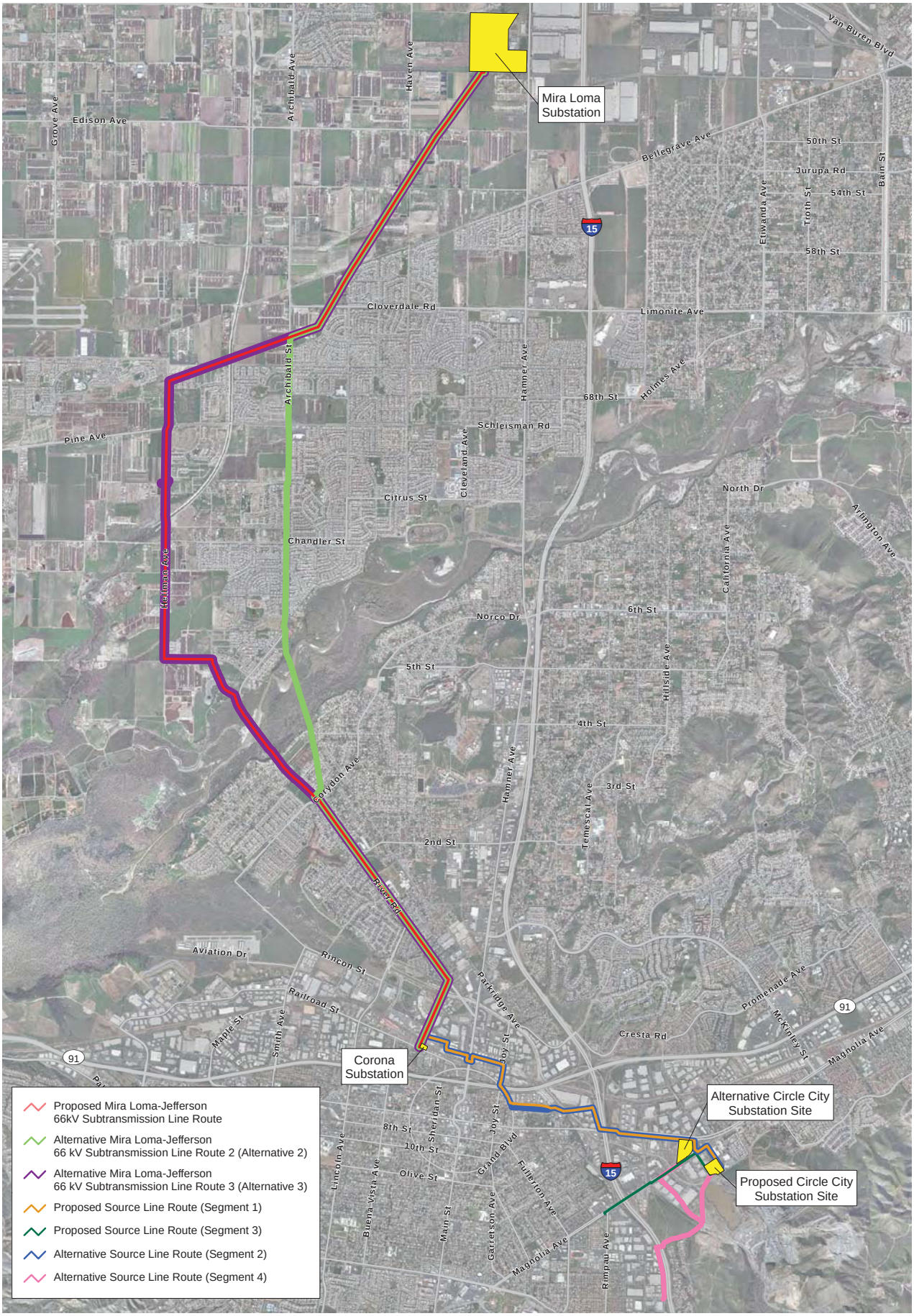

Project Overview

Figure 1

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

4,000 2,000 0 4,000 Feet

BonTerra CONSULTING

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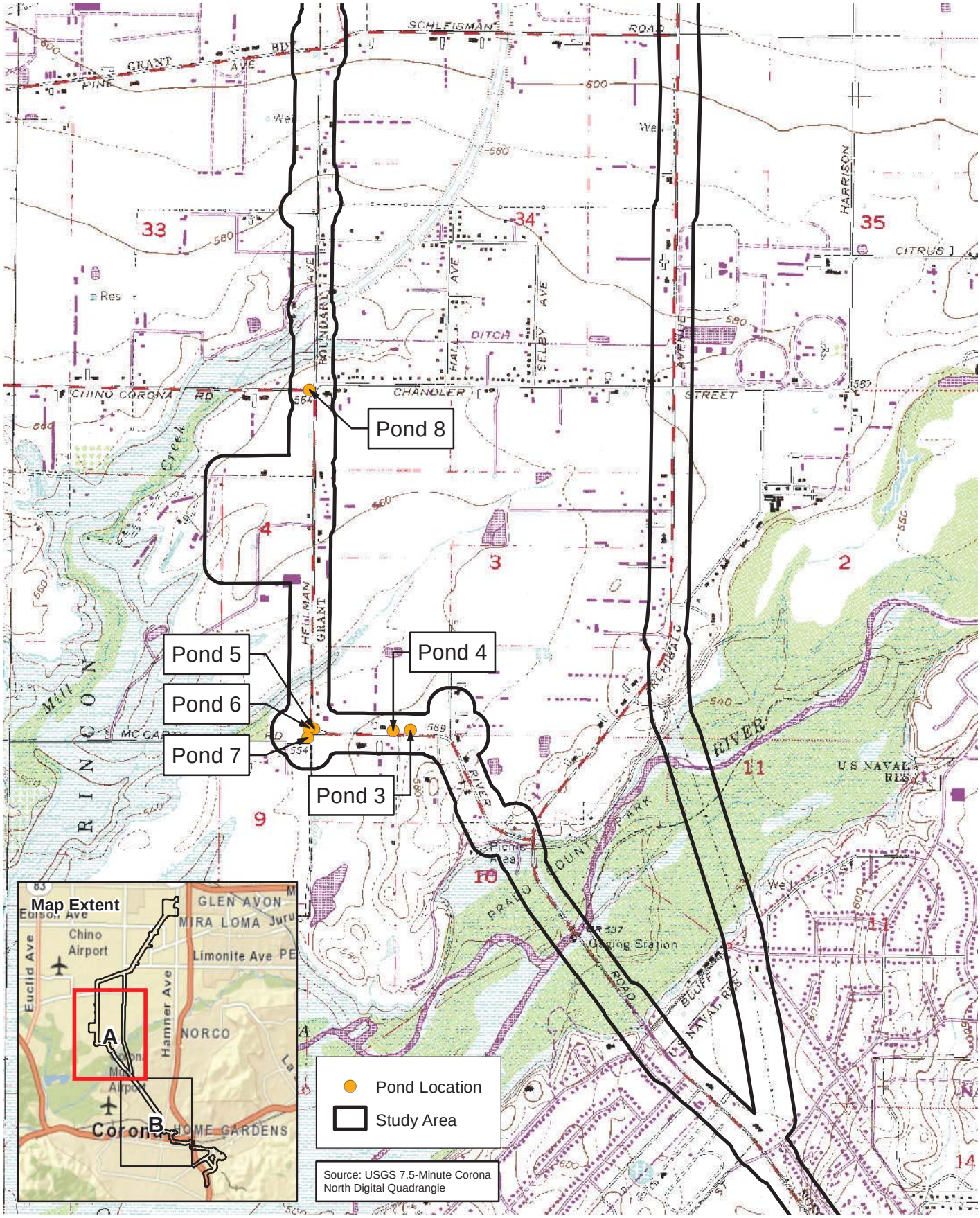

USGS 7.5-Minute Quadrangle

Figure 2A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

N W E S

2,000 1,000 0 2,000 Feet

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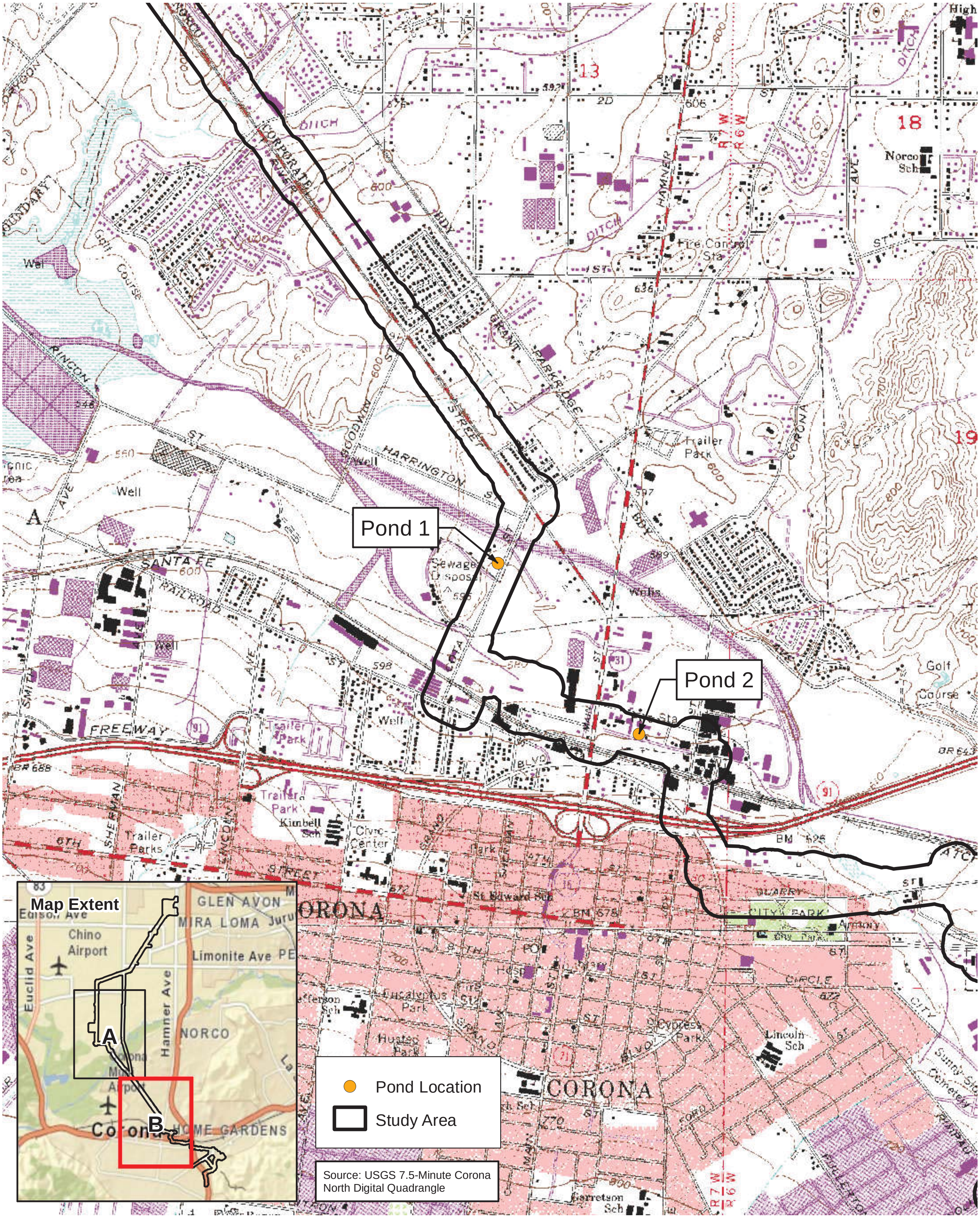

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USGS 7.5-Minute Quadrangle

Figure 2B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

N S E W

2,000 1,000 0 2,000 Feet

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(Rev: 8-22-2012 CJS) Projects\Edison\J045\Graphics\FShrimp2012\Ex2_LV_USGS_FShrimp.pdf

ATTACHMENT A

SITE PHOTOGRAPHS

November 30, 2011. Pond 3, facing east.

November 30, 2011. Pond 3, facing west.

November 30, 2011. Pond 4, facing east.

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Site Photographs

Attachment A-1

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

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November 30, 2011. Pond 5, facing west.

November 30, 2011. Pond 5, facing east.

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Site Photographs

Attachment A-2

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

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(07/11/12 KFD) R: Projects\Edison\J045\Graphics\FShrimp2012\ExAttA-2_SP2.pdf

November 30, 2011. Pond 6, facing south.

November 30, 2011. Pond 6, facing west.

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Site Photographs

Attachment A-3

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

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(07/11/12 KFD) R: Projects\Edison\J045\Graphics\FShrimp2012\ExAttA-3_SP3.pdf

November 30, 2011. Pond 7, facing south.

November 30, 2011. Pond 7, facing north.

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Site Photographs

Attachment A-4

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

BonTerra CONSULTING

(07/11/12 KFD) R: Projects\Edison\J045\Graphics\FShrimp2012\ExAttA-4_SP4.pdf

November 30, 2011. Pond 8, facing east.

November 30, 2011. Pond 8, facing west.

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Site Photographs

Attachment A-5

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Route

BonTerra CONSULTING

(07/11/12 KFD) R: Projects\Edison\J045\Graphics\FShrimp2012\ExAttA-5_SP5.pdf

ATTACHMENT B

U.S. FISH AND WILDLIFE SERVICE
VERNAL POOL DATA SHEETS

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

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

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

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

Date: 11 / 21 / 11 Time: ~noon County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88309 lat: -117.56293 long.

Temperature: Water: 16 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 11 cm at time of sampling: 9 m x 4 m

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Data taken one day after rain event. This area surveyed in 2010-2011 season; this is year 2 of wet season surveys.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 29 / 11 Time: ~1500 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. -117.56293 long.

Temperature: Water: did not record oC Air: 20 oC

Pool Depth: Surface Area:

at time of sampling: 3 cm at time of sampling: 5 m x 1 m

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 30 / 11 Time: 0855 County: Riverside Quad: Corona North

Collector(s): Allison Rudderige Permit #: 177979-0

Site/Project Name: Edison J045 Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 lat. -117.60511 long.

Temperature: Water: 18 oC Air: 20 oC

Pool Depth: Surface Area:

at time of sampling: 17 cm at time of sampling: 151 m x 1.5 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Roadside ditch adjacent to fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 1,000s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 30 / 11 Time: 0855 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: 20 oC Air: 20 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 15 m x 2.4 m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Roadside ditch adjacent to dairy and fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 1,000s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 30 / 11 Time: 0930 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 10.5 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 16 cm at time of sampling: 15 m x 9 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression at intersection of two roads

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults, 100s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 30 / 11 Time: 0950 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-1

Site/Project Name: Edison J045 - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 -117.61102 lat. long.

Temperature: Water: 11.5 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 9 cm at time of sampling: 8 m x 3 m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 100s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 30/ 11 Time: 1003 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 -117.61105 lat. long.

Temperature: Water: 11.5 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 9 cm at time of sampling: 20 m x 3 m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road; extends onto asphalt of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 10s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 11 / 30 / 11 Time: 1100 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: 13 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 8 cm at time of sampling: 17 m x 2 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 100s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 14 / 11 Time: 0924 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. -117.56293 long.

Temperature: Water: 11 oC Air: 9.5 oC

Pool Depth: Surface Area:

at time of sampling: 5 cm at time of sampling: 6.5 m x 2.6 m

estimated maximum: ~22 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 14 / 11 Time: 0952 County: Riverside Quad: Corona North

Collector(s): Allison Rudakevige Permit #: 177979-0

Site/Project Name: Edison Jo/5 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 lat. -117.60511 long.

Temperature: Water: 9.5 oC Air: 9.5 oC

Pool Depth: Surface Area:

at time of sampling: 12 cm at time of sampling: 152.4 m x 1.8 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults ; 100s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 14 / 11 Time: 1030 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: 11 oC Air: 9.5 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 11.4 m x 2.0 m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to dairy and fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli

Notostracans: (note reproductive status) adults; 10s

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 14 / 11 Time: 1034 County: Riverside Quad: Corona North

Collector(s): Allison Rudalenge Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 11 oC Air: 10 oC

Pool Depth: Surface Area:

at time of sampling: 15 cm at time of sampling: 13.4 m x 3.2 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults ; high 10s to low 100s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12/14/11 Time: 1107 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison Jo45 - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 lat. -117.61102 long.

Temperature: Water: 12.5 oC Air: 10 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 6.9 m x 2.4 m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on Side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 14 / 11 Time: 1107 County: SanBernardino Quad: CoronaNorth

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: 9.5 oC Air: 10 oC

Pool Depth: Surface Area:

at time of sampling: 11 cm at time of sampling: 20.3 m x 3.0 m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 14 / 11 Time: 1110 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: 14 oC Air: 12.5 oC

Pool Depth: Surface Area:

at time of sampling: 9 cm at time of sampling: 16.9 m x 2.1 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 29 / 11 Time: 0930 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. -117.56293 long.

Temperature: Water: N/A oC Air: N/A oC

Pool Depth: Surface Area: Dry

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

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12/29/11 Time: 0950 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 lat. -117.60511 long.

Temperature: Water: 11 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 5 cm at time of sampling: 6.9 m x 0.8 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Roadside ditch adjacent to fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults high 10s to low 100s.

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 29 / 11 Time: 1000 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 18 33.93182 lat. -117.60680 long.

Temperature: Water: N/A oC Air: 12 oC

Pool Depth: Surface Area: Dry

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

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Roadside ditch adjacent to dairy and fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 29 / 11 Time: 1030 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 11 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 8 cm at time of sampling: 10.8 m x 2.8 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults high 10s to low 100s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12/29/11 Time: 1045 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 – Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 lat. -117.61102 long.

Temperature: Water: N/A oC Air: 12 oC

Pool Depth: Surface Area: Dry

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

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 29 / 11 Time: 1045 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: N/A oC Air: 12 oC

Pool Depth: Surface Area: Dry

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

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 12 / 27 / 11 Time: 1100 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison 1045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 9 33.94593 lat. -117.61133 long.

Temperature: Water: 11 oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: 5 cm at time of sampling: 7.3 m x 1.6 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 25 / 12 Time: 0915 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045- Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 -117.56293 lat. long.

Temperature: Water: 22 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 10.7 m x 4.6 m

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond refilled following rain event.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 25/12 Time: 0945 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.931866 lat. -117.60511 long.

Temperature: Water: 11.5 oC Air: 22 oC

Pool Depth: Surface Area:

at time of sampling: 16 cm at time of sampling: 125.6 m x 3 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond refilled after rain event

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 25 / 12 Time: 1000 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: 12.5 oC Air: 22 oC

Pool Depth: Surface Area:

at time of sampling: 17 cm at time of sampling: 15.4 m x 2 m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to dairy and fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:
Pond refilled following rain event.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: __1__/__25__/__12__ Time: __1017__ County: __Riverside__ Quad: __Corona North__

Collector(s): __Allison Rudalevige__ Permit #: __177979-0__

Site/Project Name: __Edison J045-Circle City__ Pool #: __5__

Township: __3S__ Range: __7W__ Section: __9__ __33.93183__ lat. __-117.61085__ long.

Temperature: Water: __13__ oC Air: __22__ oC

Pool Depth: Surface Area:

at time of sampling: __25__ cm at time of sampling: __18.5__ m x __7__ m

estimated maximum: __~25__ cm estimated maximum: __~21__ m x __~10__ m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond refilled following rain event.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 25 / 12 Time: 1030 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 -117.61102 lat. long.

Temperature: Water: 13.5 oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: 12 cm at time of sampling: 15.2 m x 3.7 m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond refilled following rain event.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 25 / 12 Time: 1025 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177971-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: 13 oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: 13 cm at time of sampling: 5 m x 30.5 m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond refilled following rain event.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 1 / 25/12 Time: 1030 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 -117.61133 lat. long.

Temperature: Water: 14 oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: 20 cm at time of sampling: 23.5 m x 3 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond refilled following rain event

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 8 / 12 Time: 1300 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.883006 lat. -117.56293 long.

Temperature: Water: N/A oC Air: 24 oC recorded hi (Ontario)

Pool Depth: Surface Area:

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

estimated maximum: ~22 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

Insects: (adult or larvae)

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 8 / 12 Time: 1315 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 lat. -117.60511 long.

Temperature: Water: did not record oC Air: 24 oC

Pool Depth: Surface Area:

at time of sampling: did not record cm at time of sampling: _____m x _____m water levels low

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l

Dissolved NH4:_____ppt or ppm

pH:_____

Salinity :_____ppt or ppm

Conductivity:_____uMHO

Dissolved Oxygen:_____ppm or mg/l

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

Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 8 / 12 Time: 1315 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison Jo45-Circle City Pool #: 4

Township: 3S Range: 7W Section: 9 33.93182 -117.606080 lat. long.

Temperature: Water: N/A oC Air: 24 oC (recorded hi (Ontario))

Pool Depth: Surface Area:

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

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Roadside ditch adjacent to dairy & fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 8 / 12 Time: 1340 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 -117.61085 lat. long.

Temperature: Water: did not record oC Air: 24 oC (recorded hi (Ontario))

Pool Depth: Surface Area:

at time of sampling: did not record cm at time of sampling: ____ m x ____ m water levels low

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads

(Optional) Water Chemistry Data

Alkalinity (total): ____ ppm or mg/l
Dissolved NH4: ____ ppt or ppm
pH: ____
Salinity : ____ ppt or ppm

Conductivity: ____ uMHO
Dissolved Oxygen: ____ ppm or mg/l
Turbidity: (secchi disc depth) ____ cm or: clear to bottom ____
Total Dissolved Solids (TDS): ____ ppm

Notes:

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 8 / 12 Time: 1345 County: Riverside Quad: Corona North

Collector(s): Allison Rudolenig Permit #: 177979-0

Site/Project Name: Edison T045-Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 -117.61102 lat. long.

Temperature: Water: N/A oC Air: 24 oC (recorded at Ontario)

Pool Depth: Surface Area:

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

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 8 / 12 Time: 1345 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 -117.61105 lat. long.
recorded in (ontario)

Temperature: Water: NA oC Air: 24 oC

Pool Depth: Surface Area:

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

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2/8/12 Time: 1410 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: N/A oC Air: 24 oC (recorded hi (Ontario))

Pool Depth: Surface Area:

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

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 23 / 12 Time: 0837 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 -117.56293 lat. long.

Temperature: Water: 12.5 oC Air: 11 oC

Pool Depth: Surface Area:

at time of sampling: 3 cm at time of sampling: 4.8 m x 1.5 m

estimated maximum: ~22 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 23 / 12 Time: 0856 County: Riverside Quad: Corona North

Collector(s): Allison Rudaleuge Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 -117.60511 lat. long.

Temperature: Water: 12 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 15 cm at time of sampling: 136.6 m x 2.7 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli immatures and nauplii ; 10,000s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

Insects: (adult or larvae)

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 23 / 12 Time: 0930 County: Riverside Quad: Corona North

Collector(s): Allison Rudaleviga Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 9 33.93182 lat. -117.60680 long.

Temperature: Water: 13 oC Air: 12 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 12.5 m x 3.4 m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to dairy + fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta ?
immature ; high 100's to low 1,000s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 23 / 12 Time: 0945 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison JD45-Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 15.5 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 14 cm at time of sampling: 15.5 m x 4.0 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 1,000's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

Insects: (adult or larvae)

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 23 / 12 Time: 1010 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison JOTS - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 lat. -117.61102 long.

Temperature: Water: 17 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 6.4 m x 2.7 m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Unidentified immatures + nauplii

Notostracans: (note reproductive status) high 100's to low 1,000's.

(Optional) Species Observations:

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

Insects: (adult or larvae)

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2/23/12 Time: 1020 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: 19 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 4 cm at time of sampling: 16.2 m x 2.4 m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 10's immatures; 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 2 / 23 / 12 Time: 1035 County: San Bernadino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 17979-0

Site/Project Name: Edison J045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.611.33 long.

Temperature: Water: 22 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 7 cm at time of sampling: 14.6 m x 0.9 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) unidentified immatures; 10's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 5 / 7 / 12 Time: 1330 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. -117.56293 long.

Temperature: Water: N/A oC Air: 21 oC

Pool Depth: Surface Area:

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

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3/7/12 Time: 1335 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 -117.60511 lat. long.

Temperature: Water: N/A oC Air: 21 oC

Pool Depth: Surface Area:

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

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at the time of survey.

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3/7/12 Time: 1335 County: Riverside. Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045- Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: N/A oC Air: 21 oC

Pool Depth: Surface Area:

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

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Roadside ditch adjacent to dairy & fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

Pond dry at time of survey

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 7 / 12 Time: 1343 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 -117.16085 lat. long.

Temperature: Water: 22.5 oC Air: 21 oC

Pool Depth: Surface Area:

at time of sampling: 6 cm at time of sampling: 9 m x 0.6 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Depression at intersection of two roads

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; high 10's to low 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 7 / 12 Time: 1400 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 -117.61102 lat. long.

Temperature: Water: N/A oC Air: 21 oC

Pool Depth: Surface Area:

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

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey,

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 7 / 12 Time: 1400 County: SanBernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 -117.61105 lat. long.

Temperature: Water: N/A oC Air: 21 oC

Pool Depth: Surface Area:

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

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of Survey.

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3/7/12 Time: 1410 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: N/A oC Air: 21 oC

Pool Depth: Surface Area:

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

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey.

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

Required color slides and/or photographs for the project site are included: __(no)__ __X__ yes

Date: 3 / 21 / 12 Time: 0900 County: Riverside Quad: Corona North

Collector(s): Allison Rudderige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. 117.56293 long.

Temperature: Water: 12°C N/A oC Air: 13 oC

Pool Depth: Surface Area:

at time of sampling: 5 cm at time of sampling: 4.6 m x 11.3 m

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 5 / 21 / 12 Time: 0928 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 -117.60511 lat. long.

Temperature: Water: 13 oC Air: 13 oC

Pool Depth: Surface Area:

at time of sampling: 22 cm at time of sampling: 161 m x 3.0 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta? nauplii only 10,000s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 21 / 12 Time: 0950 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: 14 oC Air: 13 oC

Pool Depth: Surface Area:

at time of sampling: 11 cm at time of sampling: 11.3 m x 2.7 m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to dairy and fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta? nauplii 1,000s

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 /21 /12 Time: 1000 County: Riverside Quad: Corona North

Collector(s): Allison Rudolevige Permit #: 17979-0

Site/Project Name: Edison 3045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 15 oC Air: 13 oC

Pool Depth: Surface Area:

at time of sampling: 8/10 cm at time of sampling: 11.3/16 m x 3.6/15 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Vehicle traffic has changed the microtopography of this area. There are two separate ponds now in this area. Data are given for both above. Pond surface area (square meters) would be the summation of both ponds.

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

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

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

Anostracans: (note reproductive status) Unidentified nauplii observed; 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 21 / 12 Time: 1019 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison JD#5 - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 lat. -117.61102 long.

Temperature: Water: 16 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 6 m x 2.4 m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat: Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

unidentified nauplii ; 100's

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 21 / 12 Time: 1026 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 17979-0

Site/Project Name: Edison 1045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 -117.61105 lat. long.

Temperature: Water: 16 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 7 cm at time of sampling: 23 m x 3.6 m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road; extends onto asphalt of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 3 / 21 / 12 Time: 1040 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison Jots - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: 20 oC Air: 14 oC

Pool Depth: Surface Area:

at time of sampling: 8 cm at time of sampling: 22 m x 3 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 5 /12 Time: 1130 County: Riverside Quad: Corona North

Collector(s): Allison Rudaleviz Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. -117.56293 long.

Temperature: Water: N/A oC Air: 17 oC

Pool Depth: Surface Area:

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

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Dry at the time of survey

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 5 / 12 Time: 1140 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison 5045 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 lat. -117.60511 long.

Temperature: Water: 25 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 9 cm at time of sampling: 62.2 m x 2.1 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli

Notostracans: (note reproductive status) adults + nauplii 10,000s

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4/5/12 Time: 1215 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045- Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: N/A oC Air: 17 oC

Pool Depth: Surface Area:

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

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to dairy + fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Dry at time of Survey

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 5 / 12 Time: 1216 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 26 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 5 cm at time of sampling: 10 m x 4.6 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression at intersection of two roads.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 10's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 5 / 12 Time: 1228 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudaleuge Permit #: 177979-0

Site/Project Name: Edison J045- Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 -117.61102 lat. long.

Temperature: Water: N/A oC Air: 17 oC

Pool Depth: Surface Area:

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

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

Pond dry at the time of survey.

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 5 / 12 Time: 1228 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: N/A oC Air: 17 oC

Pool Depth: Surface Area:

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

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

Pond dry at the time of survey

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

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

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

Anostracans: (note reproductive status) none

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 5 / 12 Time: 1230 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison 5045- Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: 25 oC Air: 17 oC

Pool Depth: Surface Area:

at time of sampling: 3 cm at time of sampling: 1.8 m x 0.6 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond almost dry.

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli adults; 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 18 / 12 Time: 1235 County: Riverside Quad: Corona North

Collector(s): Allison Rudolevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.88306 lat. -117.56293 long.

Temperature: Water: 30 oC Air: 33 oC

Pool Depth: Surface Area:

at time of sampling: 4 ~~21~~ cm at time of sampling: 11.3 m x 3.4 m

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:

Dirt lot used for parking.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 18 / 12 Time: 1309 County: Riverside Quad: Corona North

Collector(s): Allison Rudderige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 -117.6054 lat. long.

Temperature: Water: 29 oC Air: 28 oC

Pool Depth: Surface Area:

at time of sampling: 21 cm at time of sampling: 158.2 m x 3.6 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

Anostracans: (note reproductive status) Branchinecta lindahli

Notostracans: (note reproductive status) adults, 10s

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

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

Date: 4 / 18 / 12 Time: 1345 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J645 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: 31 oC Air: 28 oC

Pool Depth: Surface Area:

at time of sampling: 18 cm at time of sampling: 11.6 m x 2.9 m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

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

- land use of habitat:
Roadside ditch adjacent to dairy + fallow agricultural field.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

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

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

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

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

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

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

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

Species	# Individuals	Accession/Catalog #	Pool #

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

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

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

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 4 / 18 / 12 Time: 1355 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: 31 oC Air: 28 oC

Pool Depth: Surface Area:

at time of sampling: 8/11 cm at time of sampling: 9.7/15 m x 3.5/15 m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Depression at intersection of two roads.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Vehicle disturbance split ponding area into separate pools. Data for both pools are provided above. Pond area (square footage) considered to be the summation of both pools.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) Branchinecta lindahli adults + immatures; 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 4 / 18 / 12 Time: 1417 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 -117.61102 lat. long.

Temperature: Water: 33 oC Air: 28 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 9 m x 2.1 m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) Branchinecta lindahli adults; 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 4 / 18 / 12 Time: 1425 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 77979-0

Site/Project Name: Edison JO45 - Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: 33 oC Air: 28 oC

Pool Depth: Surface Area:

at time of sampling: 10 cm at time of sampling: 26.8 m x 3.6 m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat: Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) Branchinecta lindahli adults + immatures ; 100's

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 4 / 18 / 12 Time: 1440 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94543 lat. -117.61133 long.

Temperature: Water: 32 oC Air: 28 oC

Pool Depth: Surface Area:

at time of sampling: 6 cm at time of sampling: 10.7 m x 2.4 m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) Branchinecta lindahli

Notostracans: (note reproductive status) adults; 100's

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: (no) X yes

Date: 5 / 3 / 12 Time: 0815 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 2

Township: 3S Range: 7W Section: 25 33.883016 lat. -117.562293 long.

Temperature: Water: N/A oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: Ø cm at time of sampling: Ø m x Ø m

estimated maximum: ~12 cm estimated maximum: ~12 m x ~5 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	(tire tracks)	garbage	discing/plowing	
(- ungrazed)	grazed:	cattle	horses	sheep	other_____
			light	moderate	(heavy)

- land use of habitat:
dirt lot used for parking

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 5 / 3 / 12 Time: 0825 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 3

Township: 3S Range: 7W Section: 10 33.93186 -117.60511 lat. long.

Temperature: Water: 16 oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: 6 cm at time of sampling: 16.2 m x 1.5 m

estimated maximum: ~25 cm estimated maximum: ~160 m x ~5 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Roadside ditch adjacent to fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 5 / 3 / 12 Time: 0830 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 4

Township: 3S Range: 7W Section: 10 33.93182 lat. -117.60680 long.

Temperature: Water: N/A oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: Ø cm at time of sampling: Ø m x Ø m

estimated maximum: ~20 cm estimated maximum: ~16 m x ~3.6 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Roadside ditch adjacent to dairy and fallow agricultural field

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's) none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 5 / 3 / 12 Time: 0845 County: Riverside Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 5

Township: 3S Range: 7W Section: 9 33.93183 lat. -117.61085 long.

Temperature: Water: N/A oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: Ø cm at time of sampling: Ø m x Ø m

estimated maximum: ~25 cm estimated maximum: ~21 m x ~10 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Depression at intersection of two roads.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 5 / 3 / 12 Time: 0845 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 6

Township: 3S Range: 7W Section: 9 33.93186 lat. -117.61102 long.

Temperature: Water: N/A oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: Ø cm at time of sampling: Ø m x Ø m

estimated maximum: ~12 cm estimated maximum: ~17 m x ~4 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:
Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of Survey.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 5 / 3 / 12 Time: 0845 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045-Circle City Pool #: 7

Township: 3S Range: 7W Section: 9 33.93158 lat. -117.61105 long.

Temperature: Water: N/A oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: Ø cm at time of sampling: Ø m x Ø m

estimated maximum: ~13 cm estimated maximum: ~30 m x ~5 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:

Depression on side of road; extends onto asphalt of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no X yes

Required color slides and/or photographs for the project site are included: ____ no X yes

Date: 5 / 3 / 12 Time: 0850 County: San Bernardino Quad: Corona North

Collector(s): Allison Rudalevige Permit #: 177979-0

Site/Project Name: Edison J045 - Circle City Pool #: 8

Township: 3S Range: 7W Section: 4 33.94593 lat. -117.61133 long.

Temperature: Water: N/A oC Air: 18 oC

Pool Depth: Surface Area:

at time of sampling: Ø cm at time of sampling: Ø m x Ø m

estimated maximum: ~20 cm estimated maximum: ~25 m x ~3 m

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
- ungrazed	grazed:	cattle	horses	sheep	other_____
			light	moderate	heavy

- land use of habitat:
Depression on side of road.

(Optional) Water Chemistry Data

Alkalinity (total):_____ppm or mg/l
Dissolved NH4:_____ppt or ppm
pH:_____
Salinity :_____ppt or ppm

Conductivity:_____uMHO
Dissolved Oxygen:_____ppm or mg/l
Turbidity: (secchi disc depth)_____cm or: clear to bottom _____
Total Dissolved Solids (TDS):_____ppm

Notes: Pond dry at time of survey.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

none

Anostracans: (note reproductive status)

Notostracans: (note reproductive status)

(Optional) Species Observations:

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)		
Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

APPENDIX F

BURROWING OWL REPORTS

BonTerra CONSULTING

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151 Kalmus Drive, Suite E-200
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October 20, 2010

Ms. Adelina Muñoz
Southern California Edison
G.O.3, 340F
2131 Walnut Grove Avenue
Rosemead, California 91770

VIA EMAIL AND OVERNITE EXPRESS
Adelina.Munoz@sce.com

Subject: Results of Focused Presence/Absence Surveys for the Western Burrowing Owl on a Portion of the Circle City Substation and Transmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. Muñoz:

This Letter Report presents the results of focused surveys for the western burrowing owl (*Athene cunicularia hypugaea*) on a portion of the Circle City Substation and Transmission Line Project (hereafter referred to as "the Project site"). The entire Project site extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino, and the City of Norco to the City of Corona (Exhibit 1). It includes the existing Mira Loma Substation, the existing Corona Substation, a Preferred and two Alternative Substation Sites, a Preferred and Alternative Mira Loma Route, a Preferred and Alternative Circle City Route, and a Preferred and two Alternative Substation Site Connections. The focused surveys for burrowing owl were conducted within the Circle City portion of the Project site (Exhibit 2). The purpose of the surveys was to determine the presence or absence of this species during its nesting period (generally March 1 to August 31) on or immediately adjacent to this portion of the Project site. The surveys were completed in accordance with guidelines provided in the California Burrowing Owl Consortium (CBOC) survey protocol for this species (CBOC 1993) and in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Areas which contain suitable habitat for the burrowing owl within the remaining portions of the Project site will be surveyed in 2011.

The survey area is located southwest of the Interstate 15 (I-15)/State Route 91 (SR-91) interchange. It is located on the U.S. Geological Survey's (USGS's) 7.5-minute Corona North and Corona South quadrangles (Exhibit 2). Elevations in the survey area range from approximately 600 to 780 feet above mean sea level (msl). Surrounding land uses include residential subdivisions, commercial development, public facilities, and open space. Vegetation types in the survey area consists of Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, agricultural field, and ornamental. Open water, flood-control channels, developed, ornamental/developed, and disturbed areas also occur in the survey area. The focused surveys for burrowing owl were conducted throughout the survey area within all suitable habitats (i.e., non-native grassland, ruderal, and disturbed areas).

Background

The western burrowing owl is a grassland specialist distributed throughout western North America, where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments, with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug et al. 1993; Dechant et al. 2003). Burrowing owls in Florida excavate their own burrows, but western burrowing owls are dependant upon the presence of burrowing mammals, whose burrows are used for roosting and nesting (Haug et al. 1993). The presence or absence of colonial mammal burrows (e.g., California · ground squirrels [*Spermophilus beecheyi*]) is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. Burrowing mammals may burrow beneath rocks; debris; or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. Large, hard objects at burrow entrances stabilize the entrance from collapse, and may inhibit excavation by predators.

Burrowing owls often use "satellite", or non-nesting burrows, moving chicks into them from the nesting burrow presumably to reduce the risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 2003). One pair may use up to ten satellite burrows (James and Seabloom 1968). Individual burrowing owls have a moderate to high site fidelity to previously used burrow complexes and often use the same burrows for nesting year after year.

The western burrowing owl was once abundant and widely distributed within coastal Southern California, but it has declined precipitously in Los Angeles, Orange, San Diego, Riverside, and San Bernardino Counties. A recent petition was submitted to list the California population of the western burrowing owl as an Endangered or Threatened species (CBD et al. 2003). The California Department of Fish and Game (CDFG) declined to list the burrowing owl as either Threatened or Endangered in consideration of its overall population throughout the state. The western burrowing owl is considered locally rare in Southern California and is considered a California Species of Special Concern.

Survey Methodology

Surveys followed a methodology based on guidelines provided in the CBOC survey protocol for this species and in the Western Riverside County MSHCP (Riverside County 2006). The Western Riverside County MSHCP survey instructions are the most current protocol described for the species. The guidelines outline a survey methodology that has been officially approved by the CDFG and the U.S. Fish and Wildlife Service (USFWS). Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys.

Habitat Assessment

The first step, habitat assessment, identifies whether the survey area provides potential habitat for the species. This determination is made by a Biologist that is knowledgeable in burrowing owl habitat, ecology, and identification. The Biologist conducts the assessment by walking the survey area, and an approximate 500-foot buffer area around the site (if it is accessible), to visually inspect the survey area and assess its potential for burrowing owls.

The habitat assessment was conducted concurrently with general plant and wildlife surveys on March 2, 2010, by BonTerra Consulting Senior Biologist Stacie Tennant and Senior Botanist Sandra Leatherman and on March 23, 2010, by Ms. Leatherman and BonTerra Consulting Biologist Lindsay Messett. The assessment was conducted by walking and/or driving the survey area to visually inspect it and assess its potential for burrowing owls.

Burrow Survey

The second step, burrow survey, identifies suitable burrow(s) and location(s) of occupied burrow(s). A qualified Biologist conducts the burrow survey by walking through suitable habitat within the survey area via transects spaced no more than approximately 100 feet apart in order to ensure 100 percent visual coverage of the ground surface. If no potentially active burrows are detected, then no focused owl surveys are required. Ms. Messett and BonTerra Consulting Biologist Jennifer Pareti conducted the burrow survey on July 5, 2010. Transects were walked at regularly spaced intervals to achieve 100 percent visual coverage of all potential habitat within the survey area. Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was not conducted within five days of rain, which could have washed away potential sign. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained.

Focused Burrowing Owl Surveys

If owls or potentially occupied burrows or cavities are located during the burrow survey, then crepuscular (dawn or dusk) focused burrowing owl surveys are required. Focused surveys were conducted within several portions of the survey area where burrowing owls had a potential to occur based on the results of the habitat assessment and burrow survey. These surveys were conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. These surveys are conducted only with sufficient light to follow burrowing owl flights. Ms. Messett and Ms. Pareti conducted focused crepuscular surveys on July 6, 7, 15, and 20, 2010. All potential habitat within the survey area was surveyed to achieve 100 percent visual coverage of the area. Binoculars were used to inspect holes; crevices; and potential perches such as rocks, fence posts, and other elevated structures for the presence of owls while listening for owl calls.

Survey Results

Suitable habitat for burrowing owl is present within the non-native grassland, ruderal, and disturbed areas of the survey area. Vegetation in these areas was low in stature at the time of the surveys. California ground squirrel burrows were observed scattered throughout these areas. Burrows were scattered in open, flat areas and along bluffs and berms. Rock and debris piles were also located in the survey area and surveyed.

No burrowing owls or owl sign (e.g., cast pellets, white-wash, feathers, prey remains) were observed in the survey area during the focused surveys. A list of wildlife species observed during the owl surveys is provided in Attachment A of this Letter Report. Survey times and weather conditions are summarized in Table 1 below.

TABLE 1
SUMMARY OF BURROWING OWL SURVEYS

Survey Number	Date	Time (Start/End)	Surveyor(s)	Weather Conditions			Results
				Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)	
Burrow Survey	July 5, 2010	1800/2145	Messett, Pareti	72/63	0–2/0–3	Clear/Clear	Suitable burrows and areas with white-wash observed
Crepuscular Survey 1	July 6, 2010	1830/2130	Messett	71/62	0–1/0–4	Clear/Clear	No burrowing owls observed
Crepuscular Survey 2	July 7, 2010	0540/0810	Messett	60/63	0–3/0–2	25/10	No burrowing owls observed
Crepuscular Survey 3	July 15, 2010	0515/0830	Messett	68/80	0–1/0–2	Clear/Clear	No burrowing owls observed
Crepuscular Survey 4	July 20, 2010	1845/2140	Messett, Pareti	74/65	0–4/0–3	Clear/Clear	No burrowing owls observed

°F: degrees Fahrenheit; mph: miles per hour

Recommendations

The County of Riverside requires pre-construction surveys prior to any ground disturbance for development on the Project site. As stated in the County of Riverside's Burrowing Owl Survey Instructions, "All project sites containing burrows or suitable habitat... require pre-construction surveys that shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls" (County of Riverside 2006). Pre-construction surveys can be conducted at any time of year. Although the burrowing owl was not observed or detected in the survey area during the surveys, suitable habitat for this species exists throughout the survey area and there is potential for burrowing owls to occupy the survey area in the future. Therefore, a qualified Biologist should conduct a pre-construction survey within 30 days prior to any ground-disturbing activity.

If an active burrow is observed during the non-nesting season, a qualified Biologist will monitor the nest site. When the owl is away from the nest, the Biologist will exclude the owl from the burrow and then remove the burrow so the burrowing owl cannot return to the burrow.

If nesting activity is present at an active burrow, the active site will be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the *California Fish and Game Code.* Peak nesting activity for the burrowing owl normally occurs between April and July. To protect the active burrow, the following restrictions to construction activities will be required until the burrow is no longer active (as determined by a qualified Biologist): (1) Clearing limits will be established within a 500-foot buffer around any active burrow, unless otherwise determined by a qualified Biologist and (2) access and surveying will be restricted within 300 feet of any active burrow, unless otherwise determined by a qualified Biologist. Any encroachment into the buffer area around the active burrow will only be allowed if the Biologist determines that the proposed

activity will not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest.

BonTerra Consulting appreciates the opportunity to assist with this Project. Please contact Stacie Tennant at (714) 444-9199 if you have questions or comments.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager/Biologist

Lindsay A. Messett
Biologist

Attachments: Exhibits 1 and 2
Attachment A – Wildlife Compendium

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References

California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines.* Alviso, CA: CBOC. http://www.dfg.ca.gov/hcpb/species/stds_gdl/bird_sg/boconsortium.pdf.

Center for Biological Diversity, Defenders of Wildlife, California State Park Rangers Association, Santa Clara Valley Audubon Society, San Bernardino Valley Audubon Society, and Tri-county Conservation League (Center for Biological Diversity et al.). 2003. *Petition to the State of California Fish and Game Commission and Supporting Information for Listing the California Population of the Western Burrowing Owl (*Athene cunicularia hypugaea*) as an Endangered or Threatened Species under the California Endangered Species Act.* Oakland, CA: Center for Biological Diversity et al. http://www.biologicaldiversity.org/swcbd/species/b-owl/petition.pdf.

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Desmond, M.J. and J.A. Savidge. 1998. Burrowing Owl Conservation in the Great Plains (page 9). Abstracts of the Second International Burrowing Owl Symposium. Ogden, Utah.

Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia). The Birds of North America, No. 61.* (A. Poole and F. Gill, Eds.). Philadelphia, PA and Washington, D.C.: The Academy of Natural Sciences and the AOU (respectively).

James, T.R. and R.W. Seabloom. 1968. Notes on the Burrow Ecology and Food Habits of the Burrowing Owl in Southwestern North Dakota. *Blue Jay.* 26: 83–84.

Riverside, County of. 2006 (as amended). *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*. Riverside, CA: the County. http://www.tlma.co.riverside.ca.us/epd/documents/Burrowing_Owl_Survey_Instructions.pdf.

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Regional Location

Exhibit 1

Circle City Substation and Transmission Line Project

N W E S

10 5 0 10 Miles

BonTerra CONSULTING

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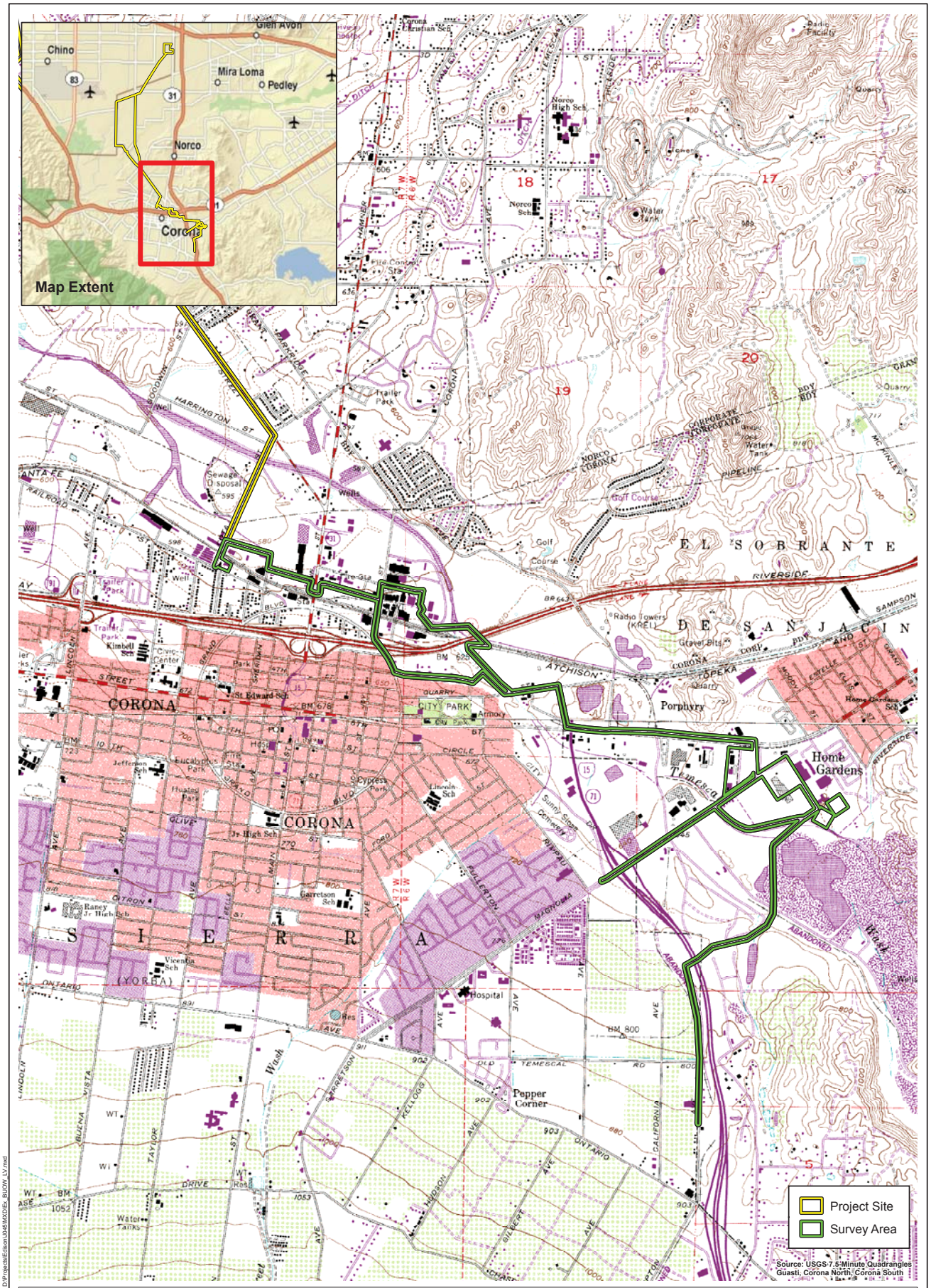

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Local Vicinity

Exhibit 2

Circle City Substation and Transmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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ATTACHMENT A

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species
Birds
CATHARTIDAE - NEW WORLD VULTURES
Cathartes aura turkey vulture
FALCONIDAE - FALCONS
Falco sparverius American kestrel
COLUMBIDAE - PIGEONS & DOVES
Columba livia * rock pigeon
Zenaida macroura mourning dove
TYTONIDAE - BARN OWLS
Tyto alba barn owl
APODIDAE - SWIFTS
Aeronautes saxatalis white-throated swift
TROCHILIDAE - HUMMINGBIRDS
Calypte anna Anna's hummingbird
TYRANNIDAE - TYRANT FLYCATCHERS
Sayornis nigricans black phoebe
Sayornis saya Say's phoebe
Tyrannus vociferans Cassin's kingbird
Tyrannus verticalis western kingbird
CORVIDAE - CROWS & JAYS
Corvus brachyrhynchos American crow
ALAUDIDAE - LARKS
Eremophila alpestris horned lark
MIMIDAE - THRASHERS
Mimus polyglottos northern mockingbird
STURNIDAE - STARLINGS
Sturnus vulgaris * European starling
EMBERIZIDAE - SPARROWS & JUNCOS
Melozone [*Pipilo*] *crissalis* California towhee
ICTERIDAE - BLACKBIRDS
Sturnella neglecta western meadowlark
Euphagus cyanocephalus Brewer's blackbird

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species
FRINGILLIDAE - FINCHES
Carpodacus mexicanus house finch
Spinus [Carduelis] psaltria lesser goldfinch
PASSERIDAE - OLD WORLD SPARROWS
Passer domesticus house sparrow *
Mammals
LEPORIDAE - HARES & RABBITS
Sylvilagus audubonii desert cottontail
SCIURIDAE - SQUIRRELS
Spermophilus beecheyi California ground squirrel
* introduced species

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October 25, 2011

Ms. Adelina Muñoz
Southern California Edison
1218 S. Fifth Avenue
Monrovia, California 91016

VIA EMAIL
Adelina.Munoz@sce.com

Subject: Results of Focused Presence/Absence Surveys for the Western Burrowing Owl on the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. Muñoz:

This Letter Report presents the results of focused surveys for the western burrowing owl (*Athene cunicularia hypugaea*) on the Circle City Substation and Mira-Loma Jefferson Subtransmission Line Project (hereafter referred to as the "Proposed Project") in Riverside and San Bernardino Counties, California (Exhibit 1). The purpose of the surveys was to determine the presence or absence of this species during its nesting period (generally March 1 to August 31) on or immediately adjacent to the Project site. The surveys were completed in accordance with guidelines provided in the California Burrowing Owl Consortium (CBOC) survey protocol for this species (CBOC 1993) and in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

Project Location and Description

The Proposed Project would construct a new substation and a new transmission line segment to connect the new substation to Southern California Edison's (SCE's) existing telecommunication system. The Project site includes the existing Mira Loma Substation; the existing Corona 66-kilovolt (kV) Substation; the substation site alternatives (the Preferred Substation Site, Site 34S, the Substation 2nd Alternative Site); and the transmission line route alternatives (the Mira Loma Preferred Route, the Mira Loma Alternative Route 1, the Mira Loma Alternative Route 2, the Circle City Preferred Route, and the Circle City Alternate Route). The Project site extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino (San Bernardino County; Mira Loma Preferred Route and Mira Loma Alternative Route 1 only), and the City of Norco to the City of Corona, California (Exhibit 1). It generally runs west of Interstate (I) 15 with the Mira Loma Source Line north of State Route (SR) 91. The Project site is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangles (Exhibits 2A-2C). Topography on the Project site is relatively flat with elevations ranging from approximately 630 to 790 feet above mean sea level (msl).

Fourteen vegetation types and other areas occur on the Project site: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, open water, flood-control channel, agricultural field, dairy, developed, ornamental,

ornamental/developed, and disturbed. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost layer of vegetation.

The focused surveys for burrowing owl were conducted throughout the Project site within all suitable habitats (i.e., non-native grassland, ruderal, and disturbed areas). When possible, areas containing suitable habitat within 500 feet of the Project site were also surveyed (Exhibit 3).

Background

The western burrowing owl is a grassland specialist distributed throughout western North America, where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments, with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug et al. 1993; Dechant et al. 2003). Burrowing owls in Florida excavate their own burrows, but western burrowing owls depend upon the presence of burrowing mammals whose burrows are used for roosting and nesting (Haug et al. 1993). The presence or absence of colonial mammal burrows (e.g., California ground squirrels [*Spermophilus beecheyi*]) is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. Burrowing mammals may burrow beneath rocks; debris; or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. Large, hard objects at burrow entrances stabilize the entrance from collapse, and may inhibit excavation by predators.

Burrowing owls often use “satellite”, or non-nesting burrows, moving chicks into them from the nesting burrow presumably to reduce the risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 2003). One pair may use up to ten satellite burrows (James and Seabloom 1968). Individual burrowing owls have a moderate to high site fidelity to previously used burrow complexes and often use the same burrows for nesting year after year.

The western burrowing owl was once abundant and widely distributed within coastal Southern California, but it has declined precipitously in Los Angeles, Orange, San Diego, Riverside, and San Bernardino Counties. A recent petition was submitted to list the California population of the western burrowing owl as an Endangered or Threatened species (CBD et al. 2003). The California Department of Fish and Game (CDFG) declined to list the burrowing owl as either Threatened or Endangered in consideration of its overall population throughout the state. The western burrowing owl is considered locally rare in Southern California and is considered a California Species of Special Concern.

Survey Methodology

Surveys followed a methodology based on guidelines provided in the CBOC survey protocol for this species and in the Western Riverside County MSHCP (Riverside County 2006). The Western Riverside County MSHCP survey instructions are the most current protocol described for the species. The guidelines outline a survey methodology that has been officially approved by the CDFG and the U.S. Fish and Wildlife Service (USFWS). Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys.

Habitat Assessment

The first step, habitat assessment, identifies whether the Project site provides potential habitat for the species. This determination is made by a Biologist that is knowledgeable in burrowing owl habitat, ecology, and identification. The Biologist conducts the assessment by walking the Project site and an approximate 500-foot buffer area around the site (if it is accessible) to visually inspect the Project site and assess its potential for burrowing owls.

The habitat assessment was conducted concurrently with focused plant surveys on April 14 and 29, 2011, by BonTerra Consulting Biologists Allison Rudalevige and Jennifer Pareti and Consulting Botanist Sandra Leatherman. The assessment was conducted by walking and/or driving the Project site to visually inspect it and assess its potential for burrowing owls.

Burrow Survey

The second step, burrow survey, identifies suitable burrow(s) and location(s) of occupied burrow(s). A qualified Biologist conducts the burrow survey by walking through suitable habitat within the Project site as well as areas within approximately 500 feet of the Project site (if it is accessible) via transects spaced no more than approximately 100 feet apart in order to ensure 100 percent visual coverage of the ground surface. If no potentially active burrows are detected, then no focused owl surveys are required. BonTerra Consulting Biologists Lindsay Messett and Christhian Mace conducted the burrow survey on August 8, 2011. Transects were walked at regularly spaced intervals to achieve 100 percent visual coverage of all potential habitat within the Project site. Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was not conducted within five days of rain, which could have washed away potential sign. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained. These inaccessible areas will need to be re-visited once authorization is obtained in order to have 100 percent visual coverage of the Project site.

Focused Burrowing Owl Surveys

If owls or potentially occupied burrows or cavities are located during the burrow survey, then crepuscular (dawn or dusk) focused burrowing owl surveys are required. Focused surveys were conducted within several portions of the Project site where burrowing owls had a potential to occur based on the results of the habitat assessment and the burrow survey. These surveys were conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. These surveys are conducted only with sufficient light to follow burrowing owl flights. Ms. Messett and BonTerra Consulting Biologist Jonathan Aguayo conducted the crepuscular surveys on August 9, 10, 11, and 12, 2011. All potential habitats within the Project site were surveyed to achieve 100 percent visual coverage of the area. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained. These inaccessible areas will need to be re-visited once authorization is obtained in order to have 100 percent visual coverage of the Project site. Binoculars were also used to inspect holes; crevices; and potential perches such as rocks, fence posts, and other elevated structures for the presence of owls while listening for owl calls.

Survey Results

Suitable habitat for burrowing owl is present within the non-native grassland, ruderal, and disturbed areas of the Project site. Vegetation in these areas was low in stature at the time of the surveys. California ground squirrel burrows were observed scattered throughout these areas. Burrows were scattered in open, flat areas and along bluffs and berms. Rock and debris piles located in abandoned dairies were also located on the Project site and surveyed.

A total of eight individual burrowing owls were observed adjacent to the Mira Loma Transmission Line Route, north of SR-91 near the Mira Loma 500-kV Substation in areas within approximately 500 feet of the Project site during the focused surveys. Two individual owls were observed at one location just south of Edison Avenue (Exhibit 3). A list of wildlife species observed during the owl surveys is provided in Attachment A of this Letter Report. Survey times and weather conditions are summarized in Table 1 below.

TABLE 1
SUMMARY OF BURROWING OWL SURVEYS

Survey Number	Date	Time (Start/End)	Surveyor(s)	Weather Conditions			Results
				Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)	
Burrow Survey	8/8/2011	0800/0415	Messett, Mace	60/87	0–3/0–8	30/Clear	Suitable burrows observed. 2 BUOW observed within the 500-ft Project buffer.
Crepuscular Survey 1	8/9/2011	0600/1100	Messett, Aguayo	60/73	0–1/0–1	10/Clear	No BUOW observed.
Crepuscular Survey 2	8/10/2011	0545/1100	Messett, Aguayo	58/73	0–1/0–1	100/Clear	2 BUOW observed within the 500-ft Project buffer.
Crepuscular Survey 3	8/11/2011	0555/1105	Messett, Aguayo	64/73	0–4/0–5	Hazy/Hazy	3 BUOW observed within the 500-ft Project buffer.
Crepuscular Survey 4	8/12/2011	0555/1045	Messett, Aguayo	64/74	0–1/0–1	Hazy/Hazy	4 BUOW observed within the 500-ft Project buffer.

°F: degrees Fahrenheit; mph: miles per hour; BUOW: Burrowing owl; ft: foot
Note: The same owl could have been seen twice in one day.

Recommendations

The County of Riverside requires pre-construction surveys prior to any ground disturbance for development on the Project site. As stated in the County of Riverside's Burrowing Owl Survey Instructions, "All project sites containing burrows or suitable habitat… require pre-construction

surveys that shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls" (Riverside County 2006). Pre-construction surveys can be conducted at any time of year. Although the burrowing owl was not observed or detected on the Project site during the surveys (it was observed adjacent to the Project site), suitable habitat for this species exists throughout the Project site and there is potential for burrowing owls to occupy the Project site in the future. Therefore, a qualified Biologist should conduct a pre-construction survey within 30 days prior to any ground-disturbing activity.

If an active burrow is observed during the non-nesting season, a qualified Biologist will monitor the burrow site. When the owl is away from the nest, the Biologist will exclude the owl from the burrow and then remove the burrow so the burrowing owl cannot return to the burrow.

If nesting activity is present at an active burrow, the active site will be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the *California Fish and Game Code.* Peak nesting activity for the burrowing owl normally occurs between April and July. To protect the active burrow, the following restrictions to construction activities will be required until the burrow is no longer active (as determined by a qualified Biologist): (1) Clearing limits will be established within a 500-foot buffer around any active burrow, unless otherwise determined by a qualified Biologist and (2) access and surveying will be restricted within 300 feet of any active burrow, unless otherwise determined by a qualified Biologist. Any encroachment into the buffer area around the active burrow will only be allowed if the Biologist determines that the proposed activity will not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest.

Additionally, there were several areas of the Project site that were inaccessable during the focused burrow survey and crepuscular surveys. These areas were on private property, behind locked gates and lacked authorization for access. In order to achieve 100 percent visual coverage of the Project site, these inaccessable areas will need to be re-visited.

BonTerra Consulting appreciates the opportunity to assist with this Project. Please contact Stacie Tennant at (714) 444-9199 if you have questions or comments.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager/Biologist

Lindsay A. Messett
Biologist

Attachments: Exhibits 1, 2A–2C, and 3
Attachment A – Wildlife Compendium

References

California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*. Alviso, CA: CBOC. http://www.dfg.ca.gov/hcpb/species/stds_gdl/bird_sg/boconsortium.pdf.

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Regional Location

Exhibit 1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

10 5 0 10 Miles

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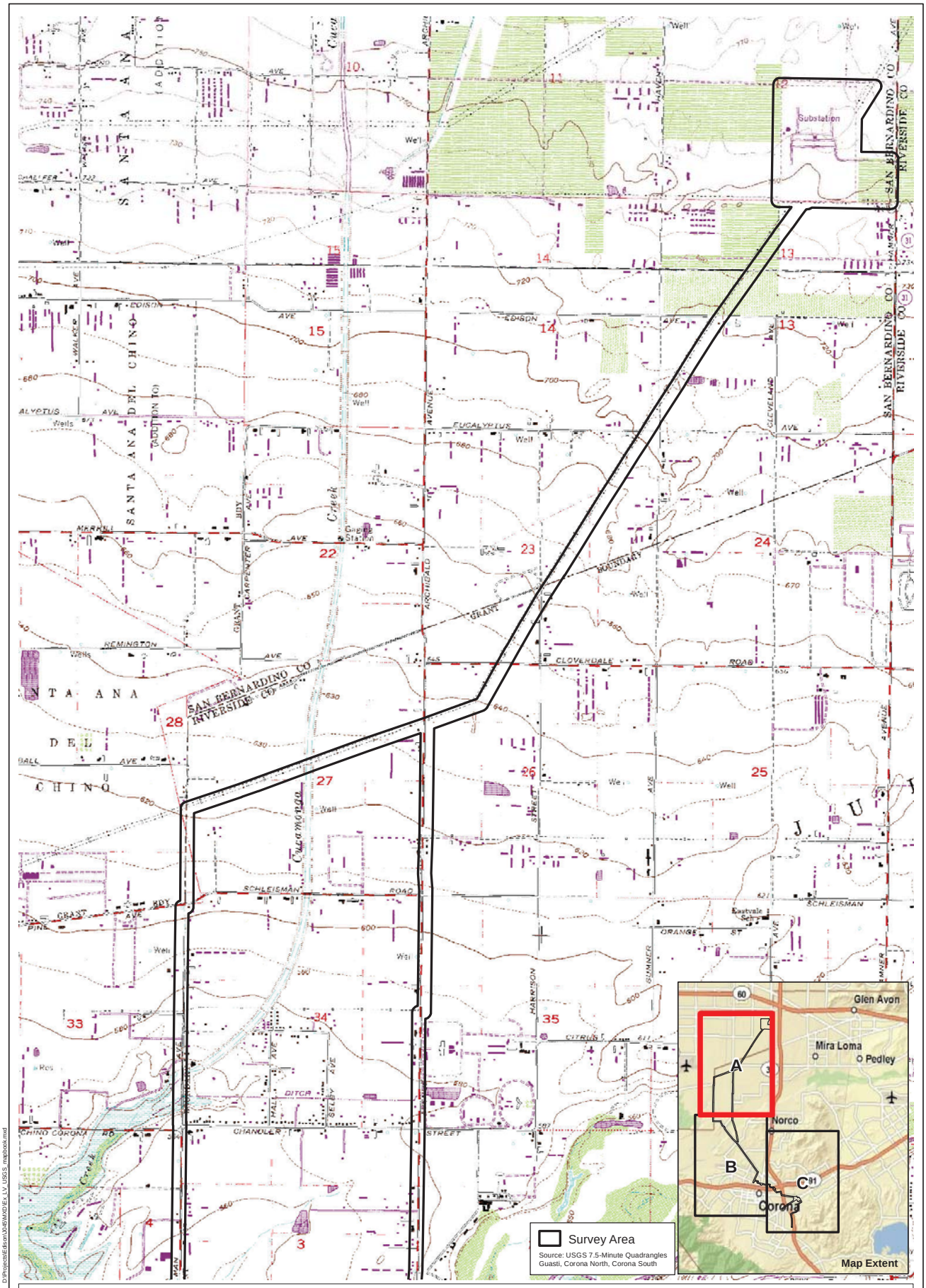

USGS Quadrangle

Exhibit 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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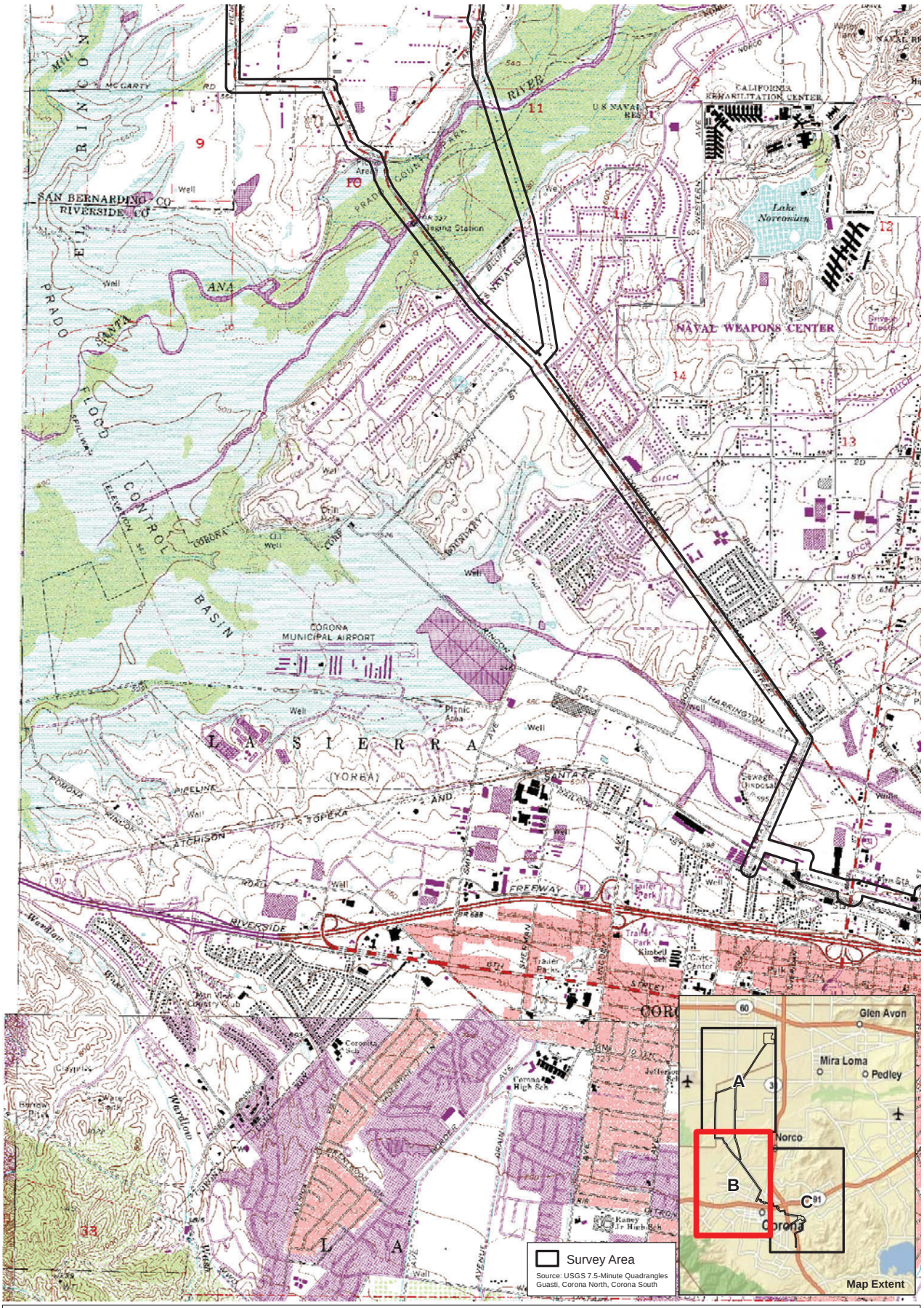

USGS Quadrangle

Exhibit 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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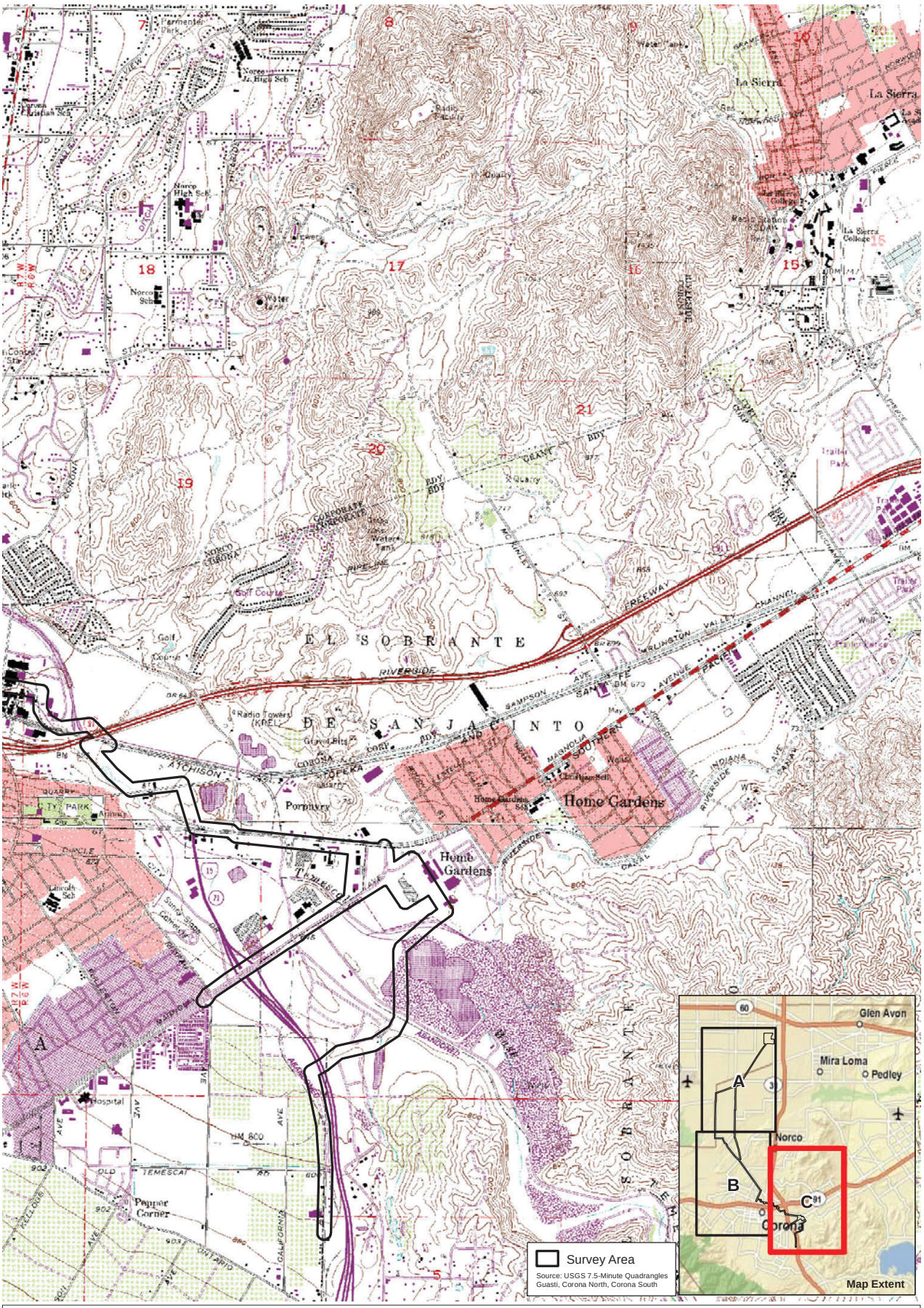

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USGS Quadrangle

Exhibit 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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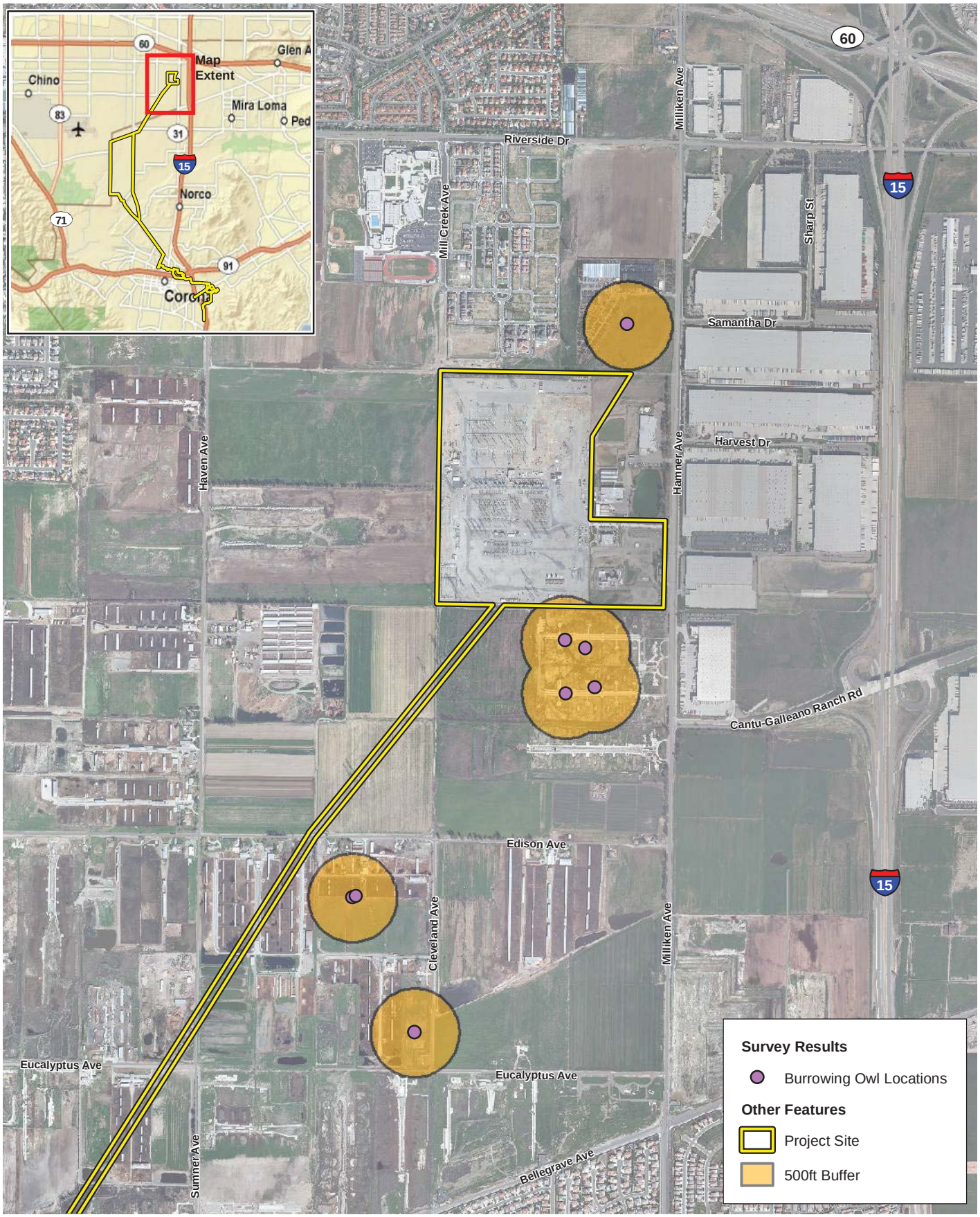

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Burrowing Owl Locations

Exhibit 3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

1,500 750 0 1,500 Feet

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ATTACHMENT A

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species	
Reptiles	
PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, & HORNED LIZARDS	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Birds	
ARDEIDAE - HERONS, BITTERNS, & ALLIES	
Ardea alba	great egret
Egretta thula	snowy egret
THRESKIORNITHIDAE - IBIS	
Plegadis chihi	white-faced ibis
CATHARTIDAE - NEW WORLD VULTURES	
Cathartes aura	turkey vulture
ACCIPITRIDAE - HAWKS, KITES, EAGLES, & ALLIES	
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
FALCONIDAE - FALCONS	
Falco sparverius	American kestrel
Falco peregrinus	peregrine falcon
CHARADRIIDAE - PLOVERS	
Charadrius vociferus	killdeer
RECURVIROSTRIDAE - STILTS & AVOCETS	
Himantopus mexicanus	black-necked stilt
COLUMBIDAE - PIGEONS & DOVES	
Columba livia *	rock pigeon
Streptopelia chinensis *	spotted dove
Zenaida macroura	mourning dove
STRIGIDAE - TRUE OWLS	
Athene cunicularia	burrowing owl
TROCHILIDAE - HUMMINGBIRDS	
Calypte anna	Anna's hummingbird
TYRANNIDAE - TYRANT FLYCATCHERS	
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus vociferans	Cassin's kingbird
LANIIDAE - SHRIKES	
Lanius ludovicianus	loggerhead shrike
CORVIDAE - CROWS & JAYS	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE - SWALLOWS	
Stelgidopteryx serripennis	northern rough-winged swallow
Hirundo rustica	barn swallow

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species	
MIMIDAE - THRASHERS	
Mimus polyglottos	northern mockingbird
STURNIDAE - STARLINGS	
Sturnus vulgaris *	European starling
EMBERIZIDAE - SPARROWS & JUNCOS	
Melozone [*Pipilo*] *crissalis*	California towhee
Melospiza melodia	song sparrow
CARDINALIDAE - CARDINALS & ALLIES	
Pheucticus melanocephalus	black-headed grosbeak
ICTERIDAE - BLACKBIRDS	
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Molothrus ater	brown-headed cowbird
FRINGILLIDAE - FINCHES	
Carpodacus mexicanus	house finch
Spinus [Carduelis] psaltria	lesser goldfinch
PASSERIDAE - OLD WORLD SPARROWS	
Passer domesticus *	house sparrow
Mammals	
LEPORIDAE - HARES & RABBITS	
Sylvilagus audubonii	desert cottontail
Lepus californicus	black-tailed jackrabbit
SCIURIDAE - SQUIRRELS	
Spermophilus beecheyi	California ground squirrel
GEOMYIDAE - POCKET GOPHERS	
Thomomys bottae	Botta's pocket gopher
CANIDAE - WOLVES & FOXES	
Canis latrans	coyote
MUSTELIDAE - WEASELS, SKUNKS & OTTERS	
Mephitis mephitis	striped skunk
* introduced species	

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August 23, 2012

Ms. Adelina Muñoz
Southern California Edison
1218 South Fifth Avenue
Monrovia, California 91016

VIA EMAIL
Adelina.Munoz@sce.com

Subject: Results of Focused Presence/Absence Surveys for the Western Burrowing Owl on the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. Muñoz:

This Letter Report presents the results of focused surveys for the western burrowing owl (*Athene cunicularia hypugaea*) on the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereafter referred to as the "Proposed Project") in Riverside and San Bernardino Counties, California (Figure 1). The purpose of the surveys was to determine the presence or absence of this species during its nesting period (generally March 1 to August 31) on or immediately adjacent to the Study Area. The surveys were completed in accordance with guidelines provided in the California Burrowing Owl Consortium (CBOC) survey protocol for this species (CBOC 1993) and per the survey instructions provided in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) (County of Riverside 2006).

Project Description and Location

The Proposed Project will construct a new 66/12-kilovolt (kV) distribution substation (i.e., the Circle City Substation) with four 66-kV source line segments, 6 new 12-kV distribution circuit getaways, and a new 66-kV subtransmission line (Mira Loma-Jefferson); upgrade the existing Mira Loma Substation; and install new fiber optic cable and communication equipment to connect the proposed Circle City Substation to Southern California Edison's (SCE's) existing telecommunication system. The purpose of the Proposed Project is to ensure the availability of safe and reliable electric service to meet customer electrical demand in the Electrical Needs Area. The Study Area for the Proposed Project consists of the following:

1. A 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, the proposed Circle City Substation site, and the alternative Circle City Substation site);

2. A 300-foot buffer on either side of the proposed Mira Loma-Jefferson 66-kV subtransmission line route, the two alternative Mira Loma-Jefferson 66-kV subtransmission line routes (i.e., Alternative 2 and Alternative 3), and the proposed and alternative source line routes; and

3. A 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.

The Proposed Project primarily runs west of Interstate (I) 15 and north of State Route (SR) 91, with the southern end of the Proposed Project extending south of SR-91 and east of I-15. It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Figures 2A–2C). Topography in the Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl). Land uses in the immediate Proposed Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project.

Sixteen vegetation types and other areas occur in the Study Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, freshwater marsh, open water, flood control channel, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost layer of vegetation.

Background

The western burrowing owl is a grassland specialist distributed throughout western North America, where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments, with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug et al. 1993; Dechant et al. 2003). Burrowing owls in Florida excavate their own burrows, but western burrowing owls depend upon the presence of burrowing mammals whose burrows are used for roosting and nesting (Haug et al. 1993). The presence or absence of colonial mammal burrows (e.g., California ground squirrels [*Spermophilus beecheyi*]) is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. Burrowing mammals may burrow beneath rocks; debris; or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. Large, hard objects at burrow entrances stabilize the entrance from collapse, and may inhibit excavation by predators.

Burrowing owls often use "satellite", or non-nesting burrows, moving chicks into them from the nesting burrow presumably to reduce the risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 2003). One pair may use up to ten satellite burrows (James and Seabloom 1968). Individual burrowing owls have a moderate to high site fidelity to previously used burrow complexes and often use the same burrows for nesting year after year.

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Survey Methodology

The 2012 Survey Area included all suitable habitats within a 500-foot buffer of the existing substations, the proposed Circle City Substation site, the proposed Mira Loma-Jefferson subtransmission line route, the proposed source line routes, and all proposed material yards, access roads, guard structures, and pulling sites (Figures 3A−3H).

Surveys followed a methodology based on guidelines provided in the CBOC survey protocol for this species and per the survey instructions in the Western Riverside County MSHCP (Riverside County 2006). The Western Riverside County MSHCP survey instructions are the most current protocol described for the species. The guidelines outline a survey methodology that has been officially approved by the CDFG and the U.S. Fish and Wildlife Service (USFWS). Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys.

Habitat Assessment

The first step, habitat assessment, identifies whether the Study Area provides potential habitat for the species. This determination is made by a Biologist that is knowledgeable in burrowing owl habitat, ecology, and identification. The Biologist conducts the assessment by walking the Study Area and an approximate 500-foot buffer area around the site (if it is accessible) to visually inspect the Study Area and assess its potential for burrowing owls.

The habitat assessment was conducted concurrently with focused plant surveys on April 14 and 29, 2012, by BonTerra Consulting Biologists Allison Rudalevige and Jennifer Pareti and Consulting Botanist Sandra Leatherman. The assessment was conducted by walking and/or driving the Study Area to visually inspect it and assess its potential for burrowing owls.

Burrow Survey

The second step, burrow survey, identifies suitable burrow(s) and location(s) of occupied burrow(s). A qualified Biologist conducts the burrow survey by walking through suitable habitat within the Study Area as well as areas within approximately 500 feet of the Study Area (if it is accessible) via transects spaced no more than approximately 100 feet apart in order to ensure 100 percent visual coverage of the ground surface. If no potentially active burrows are detected, then no focused owl surveys are required. BonTerra Consulting Biologists Lindsay Messett and Jonathan Aguayo conducted the burrow survey on July 9, 2012. The Survey Area for the burrowing owl surveys included all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy and disturbed areas) within the existing substations, the proposed Circle City Substation site, the proposed Mira Loma-Jefferson subtransmission line route, the proposed source line routes, and all proposed material yards, access roads, guard structures, and pulling sites (Figures 3A-3H). Transects were walked at regularly spaced intervals to achieve 100 percent visual coverage of all potential habitat within the Survey Area. Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was not conducted within five days of rain, which could have washed away potential sign. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained.

Focused Burrowing Owl Surveys

If owls or potentially occupied burrows or cavities are located during the burrow survey, then crepuscular (dawn or dusk) focused burrowing owl surveys are required. Focused surveys were conducted within all portions of the Survey Area where burrowing owls had a potential to occur based on the results of the habitat assessment and the burrow survey. These surveys were generally conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. These surveys are conducted only with sufficient light to follow burrowing owl flights. Ms. Messett and Mr. Aguayo conducted the crepuscular surveys on July 9, 31, and August 2, and 7, 2012. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained. Binoculars were also used to inspect holes; crevices; and potential perches such as rocks, fence posts, and other elevated structures for the presence of owls while listening for owl calls.

Survey Results

Suitable habitat for burrowing owl is present in the Survey Area within non-native grassland, ruderal, agricultural field, dairy and disturbed areas. Vegetation in these areas was low in stature at the time of the surveys. These areas supported scattered California ground squirrel (*Spermophilus beecheyi*) burrows. Abandoned equipment, fence posts, abandoned irrigation pipes, rock and debris piles, and other objects that could be utilized by the burrowing owl existed in the Survey Area.

A total of 11 burrowing owls were observed during the focused surveys; six individuals were within approximately 500 feet of the Survey Area and five owls were incidentally observed nearby. A family of 4 owls was observed at one location just southwest of Edison Avenue and Cleveland Avenue intersection, a family of 5 owls was observed just northwest of Eucalyptus Avenue and Cleveland Avenue intersection, and a pair of owls was observed at one location just west of Hellman Avenue (Figure 4). A list of wildlife species observed during the owl surveys is provided in Attachment A of this Letter Report. Representative site photographs are included as Figure 5. California Natural Diversity Database (CNDDB) forms will be submitted to the CDFG for all special status species observed during the focused surveys (Attachment B). Survey times and weather conditions are summarized in Table 1 below.

TABLE 1
SUMMARY OF BURROWING OWL SURVEYS

Survey Number	Date	Time (Start/End)	Surveyor(s)	Weather Conditions			Results
				Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)	
Burrow Survey	7/9/2012	0530/1130	Messett, Aguayo	63/93	0–1/0–1	Clear/Clear	Suitable burrows observed. Total of 9 BUOW observed.
Crepuscular Survey 1	7/9/2012	0530/1130	Messett, Aguayo	63/93	0–1/0–1	Clear/Clear	Total of 9 BUOW observed.
Crepuscular Survey 2	7/31/2012	0630/1100	Messett, Aguayo	67/82	0–1/0–1	50/Clear	Total of 11 BUOW observed.
Crepuscular Survey 3	8/2/2012	0615/1030	Messett, Aguayo	68/81	0–1/0–1	Clear/Clear	Total of 11 BUOW observed.
Crepuscular Survey 4	8/7/2012	0615/1030	Messett, Aguayo	64/87	0–1/0–1	Clear/Clear	Total of 9 BUOW observed.

°F: degrees Fahrenheit; mph: miles per hour; BUOW: burrowing owl; ft: foot
Note: The same owl could have been seen twice in one day.

Conclusions

The County of Riverside requires pre-construction surveys prior to any ground disturbance for development on the Study Area. As stated in the County of Riverside's Burrowing Owl Survey Instructions, "All project sites containing burrows or suitable habitat… require pre-construction surveys that shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls" (Riverside County 2006). Pre-construction surveys can be conducted at any time of year. Burrowing owls were observed in the Study Area during the surveys and suitable habitat for this species exists throughout the Study Area. Therefore, a qualified Biologist should conduct a pre-construction survey within 30 days prior to any ground-disturbing activity.

If an active burrow is observed during the non-nesting season, a qualified Biologist will monitor the burrow site. When the owl is away from the nest, the Biologist will exclude the owl from the burrow and then remove the burrow so the burrowing owl cannot return to the burrow.

If nesting activity is present at an active burrow, the active site will be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the *California Fish and Game Code.* Peak nesting activity for the burrowing owl normally occurs between April and July. To protect the active burrow, the following restrictions to construction activities will be required until the burrow is no longer active (as determined by a qualified Biologist): (1) Clearing limits will be established within a 500-foot buffer around any active burrow, unless otherwise determined by a qualified Biologist and (2) access and surveying will be restricted within 300 feet of any active burrow, unless otherwise determined by a qualified Biologist. Any encroachment into the buffer area around the active burrow will only be allowed if the Biologist determines that the proposed activity will not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest.

BonTerra Consulting appreciates the opportunity to assist with this Project. Please contact Stacie Tennant at (714) 444-9199 if you have questions or comments.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager/Biologist

Lindsay A. Messett
Biologist

Attachments: Figures 1, 2, 3, 4, and 5
Attachment A – Wildlife Compendium
Attachment B – CNDDB Forms

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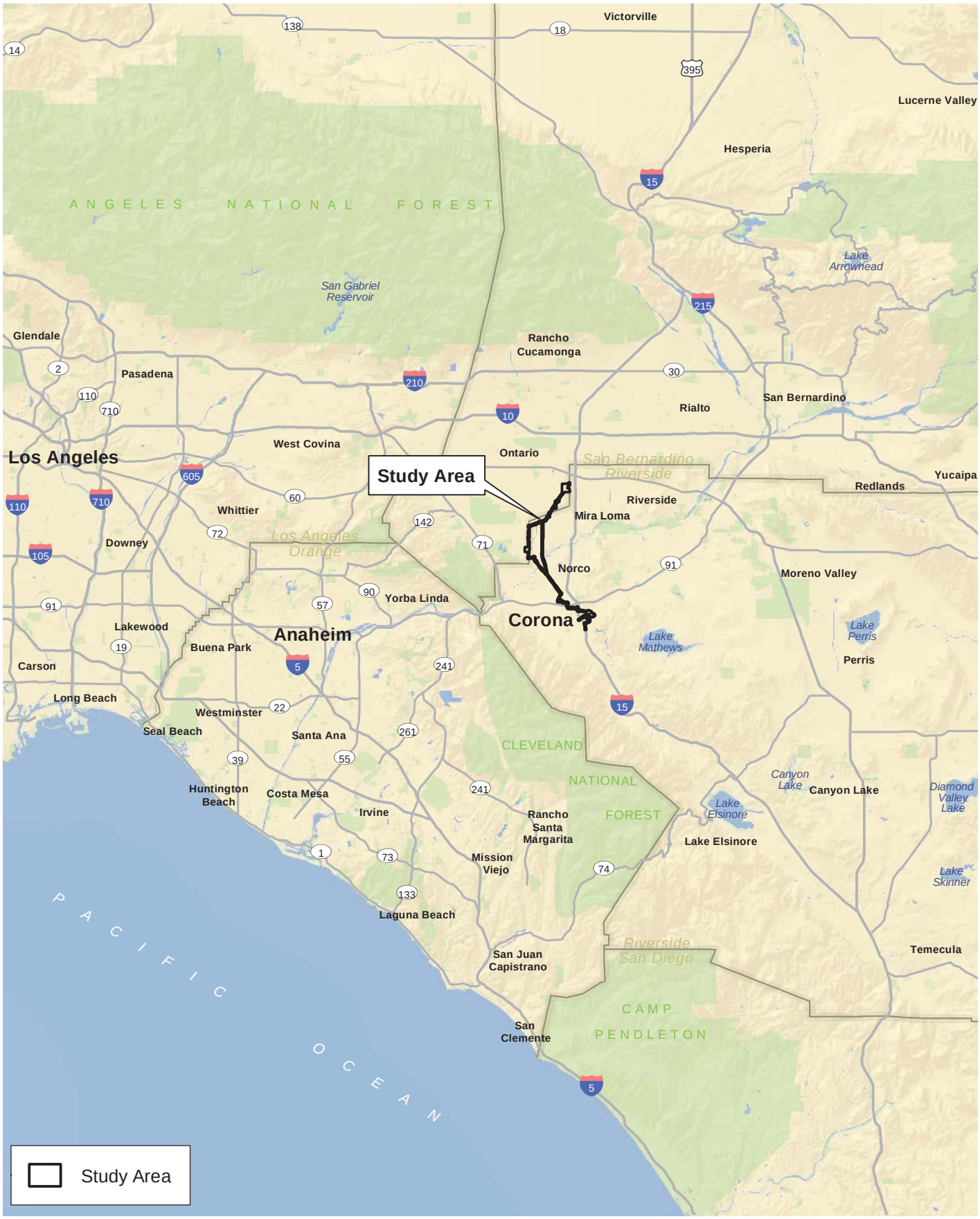

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Regional Location

Figure 1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

10 5 0 10 Miles

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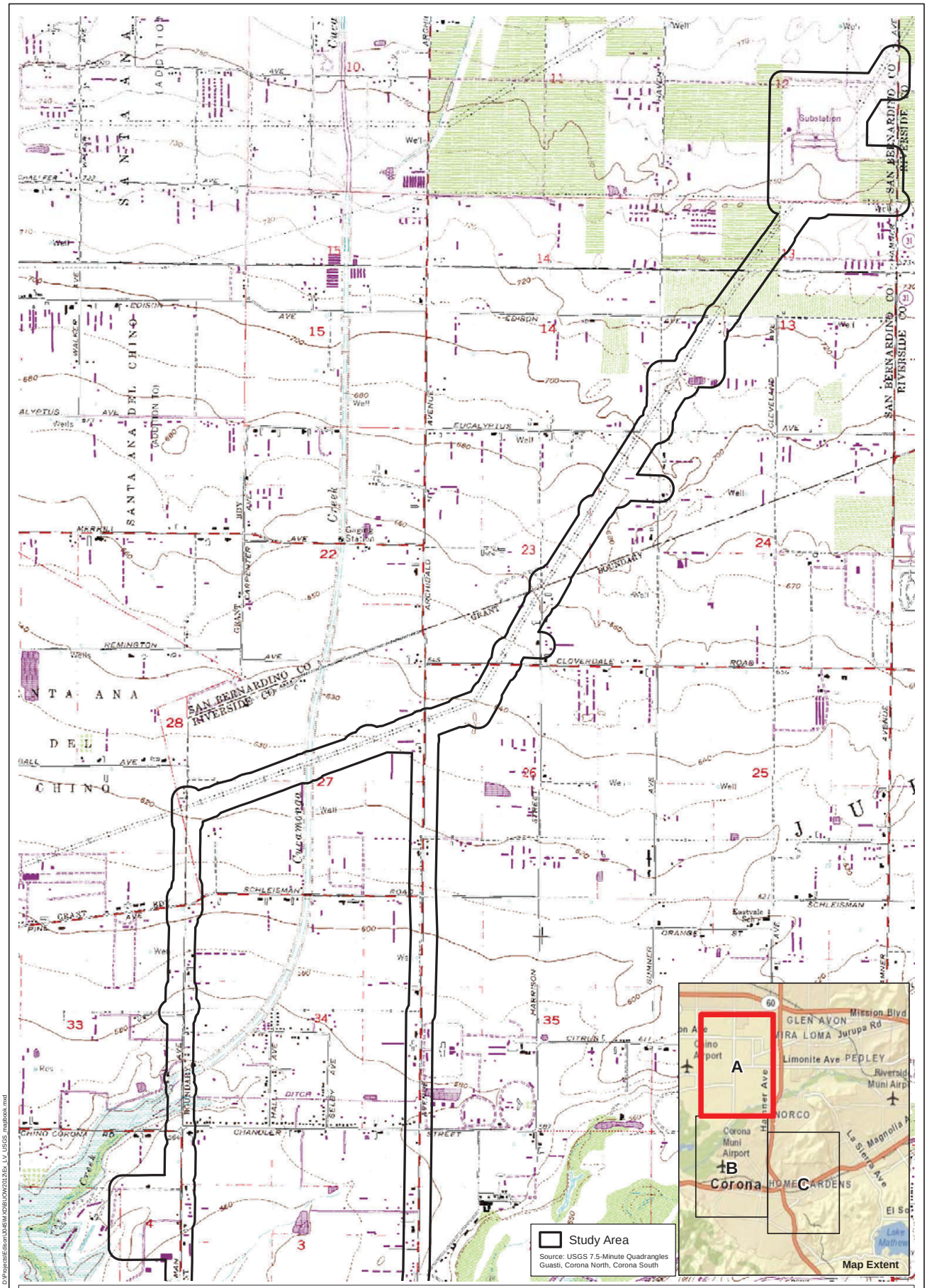

USGS 7.5-Minute Quadrangle

Figure 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

BonTerra CONSULTING

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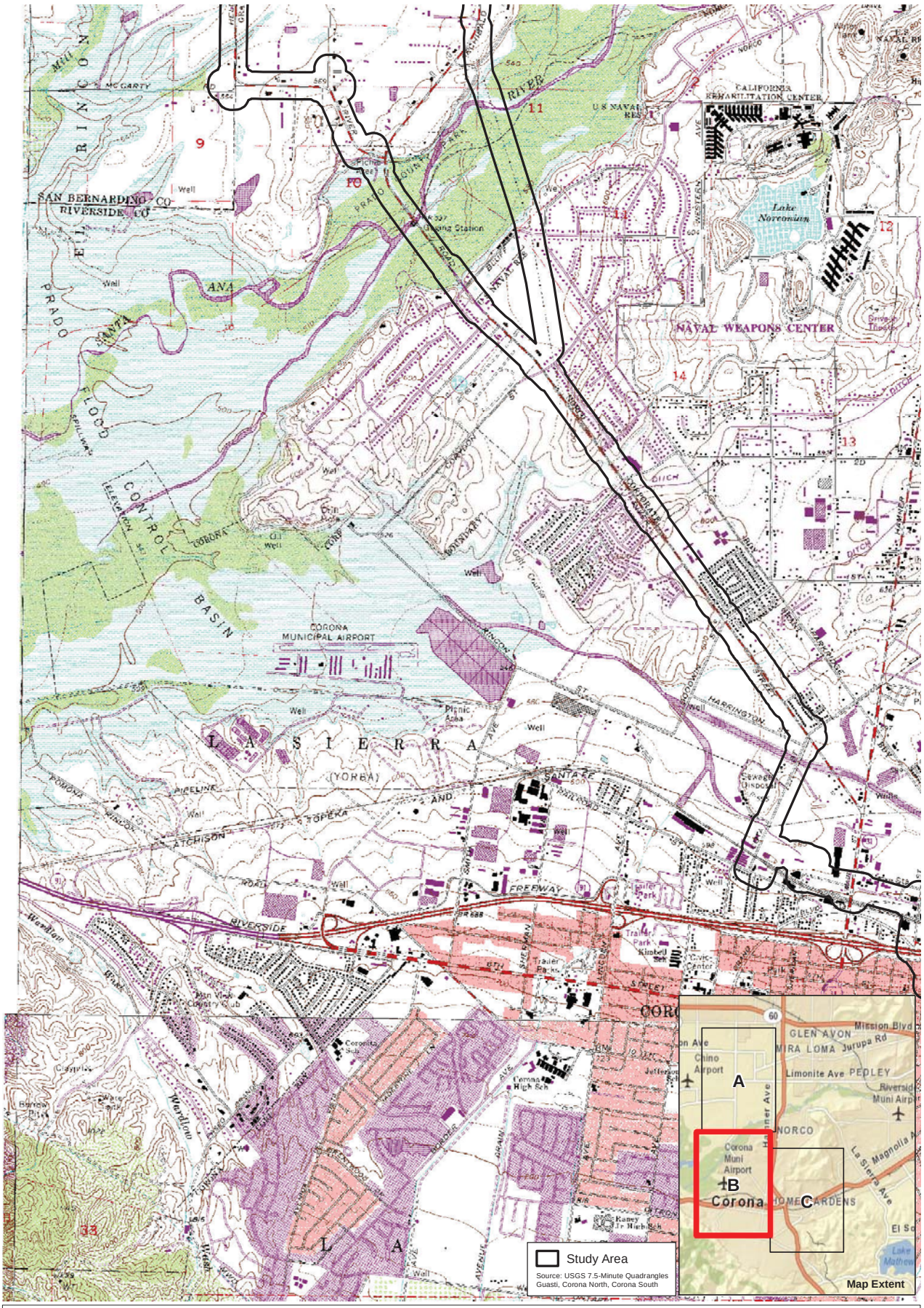

USGS 7.5-Minute Quadrangle

Figure 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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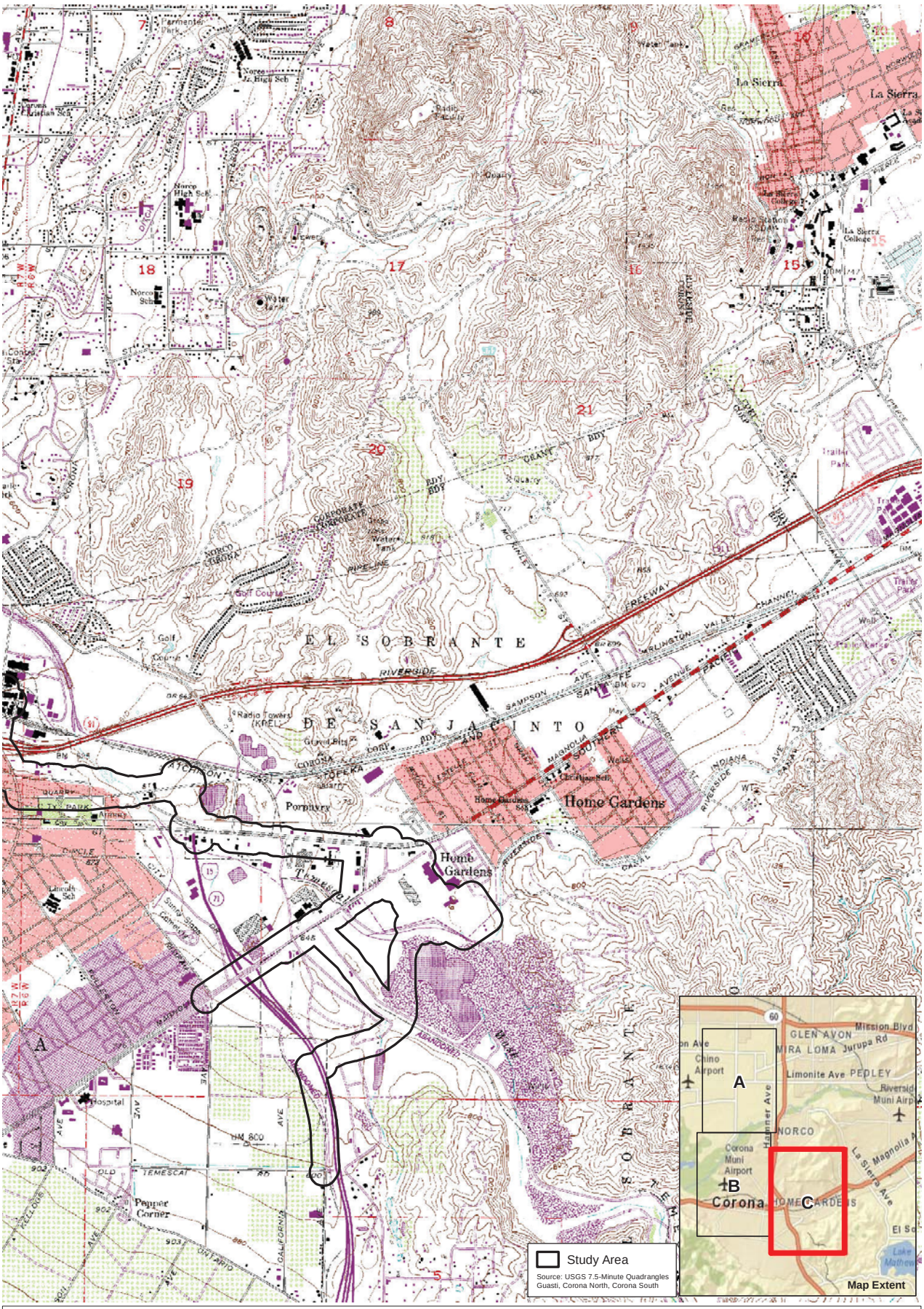

USGS 7.5-Minute Quadrangle

Figure 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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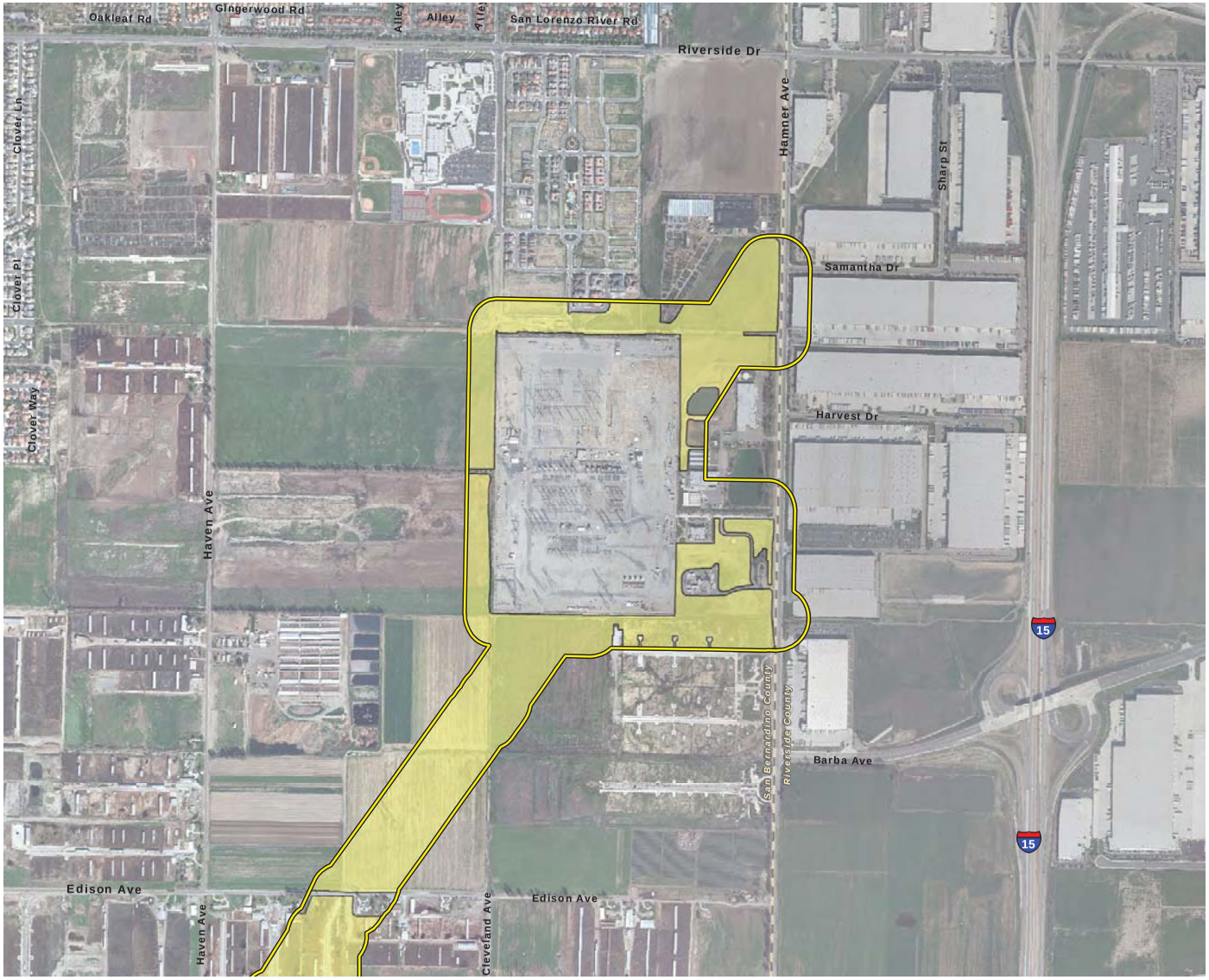
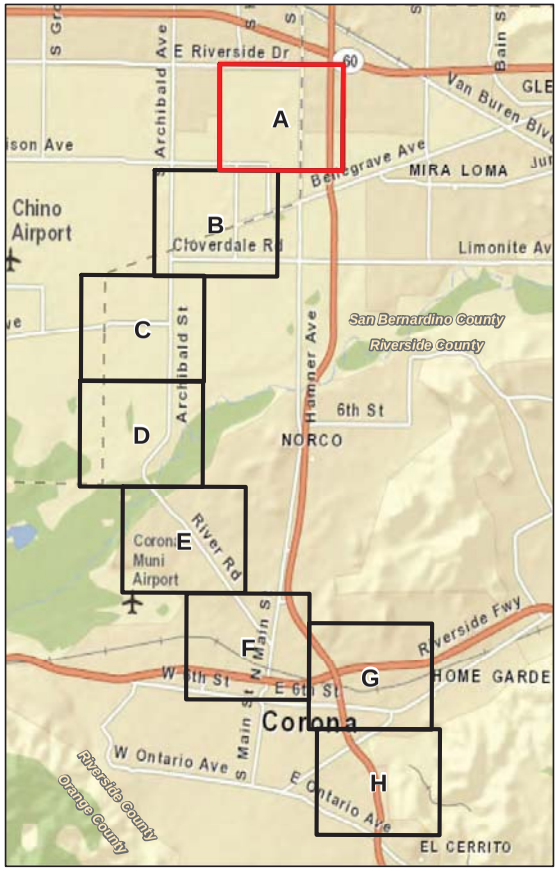


Study Area

Survey Area

Note: The 2012 Survey Area includes all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy, and disturbed areas) along the existing substations; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson subtransmission line route; the proposed source line routes; and all proposed material yards, access roads, guard structures, and pulling sites.



Survey Area

Figure 3A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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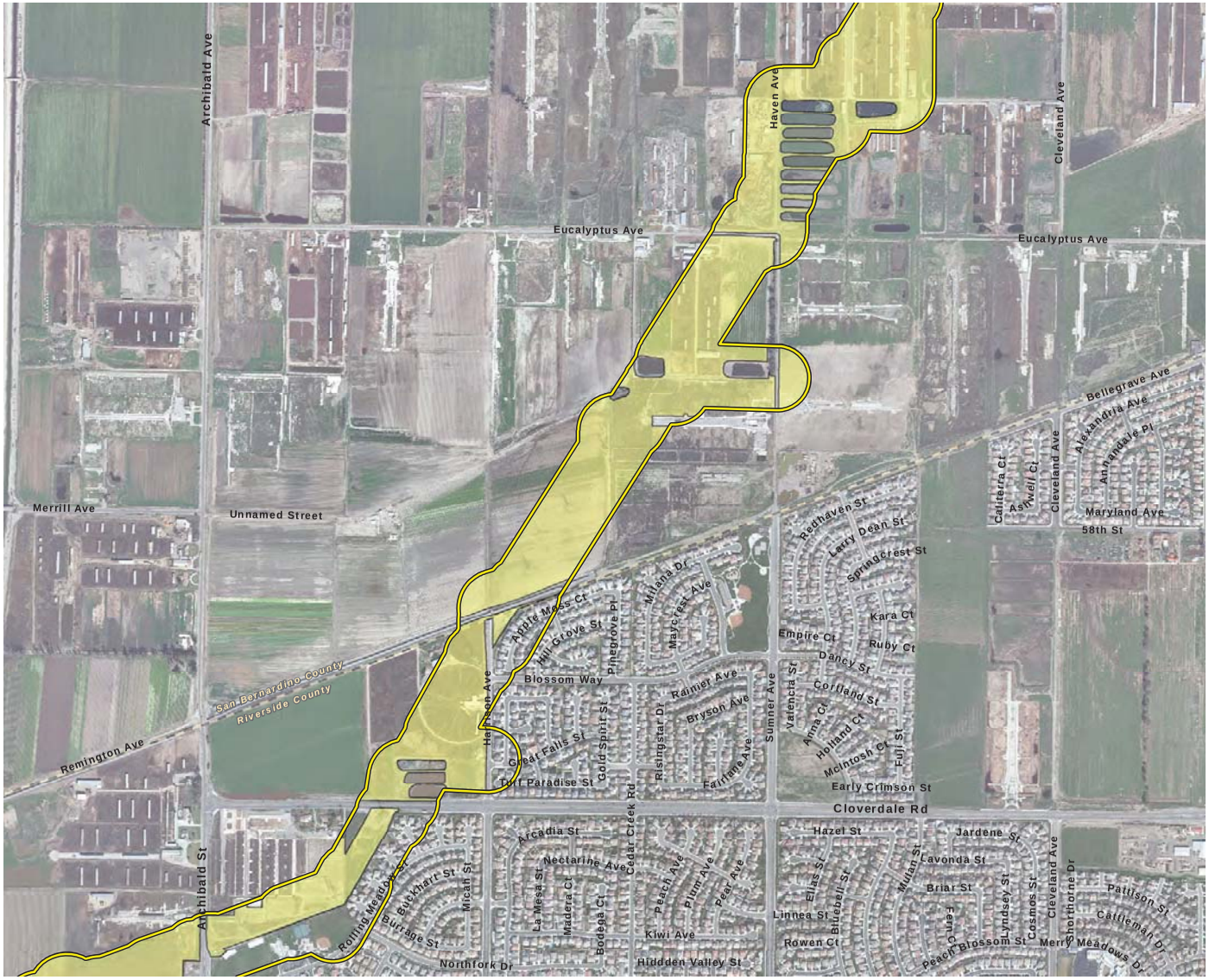

Study Area

Survey Area

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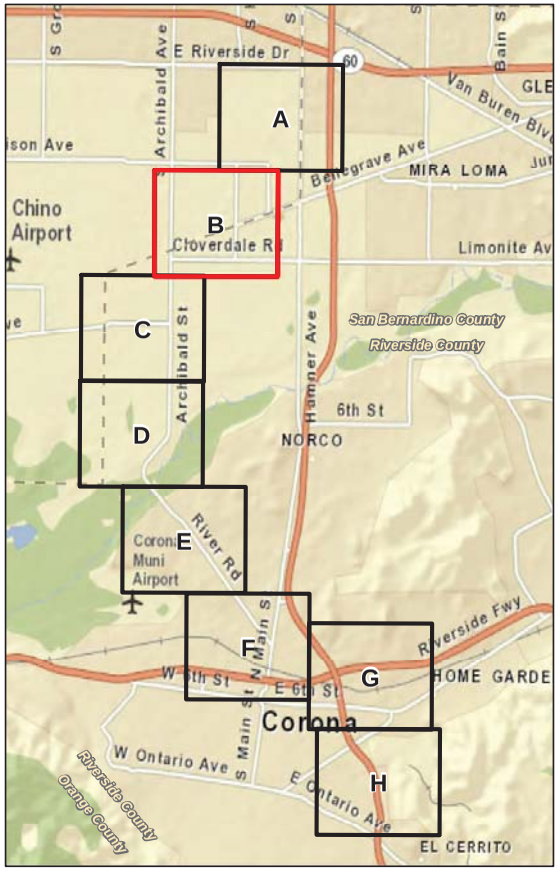

Survey Area

Figure 3B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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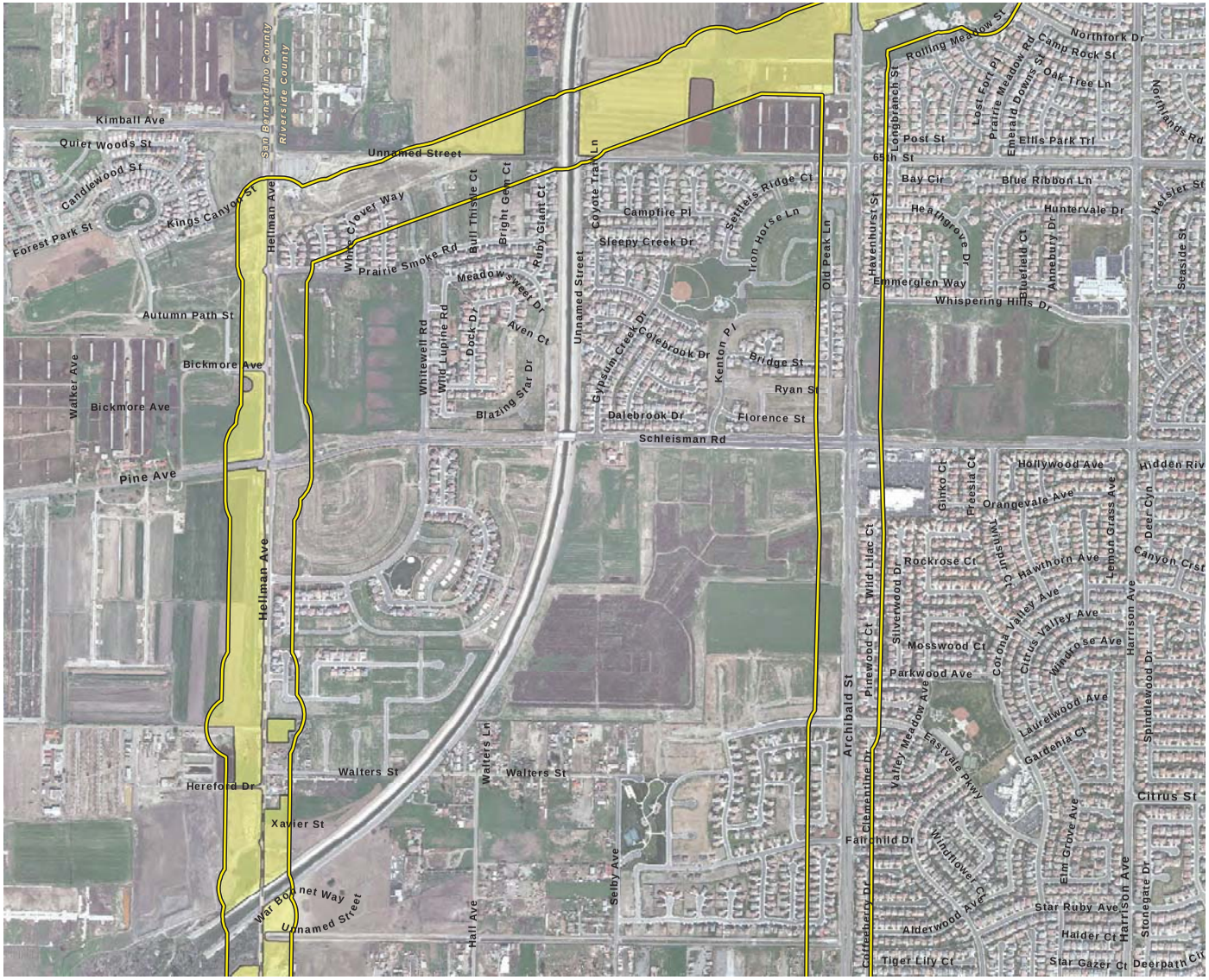

Study Area

Survey Area

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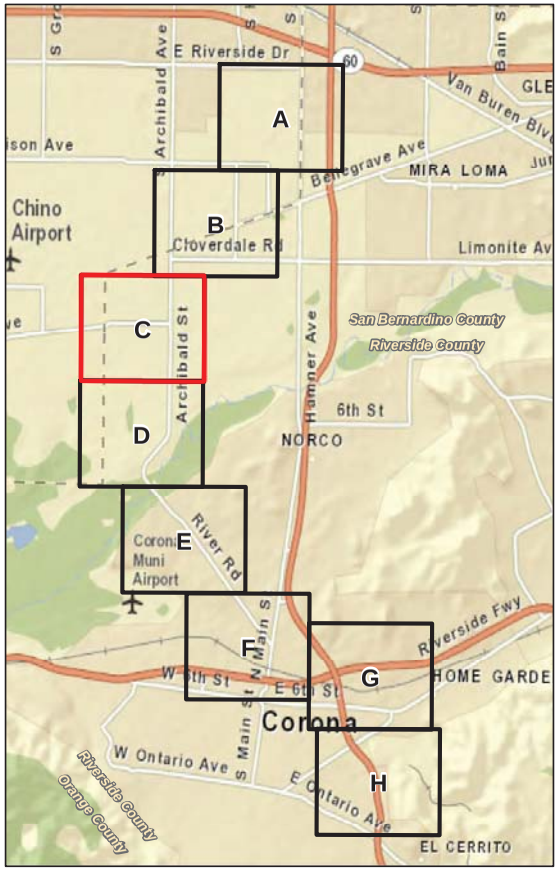

Survey Area

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3C

N W E S

1,000 500 0 1,000 Feet

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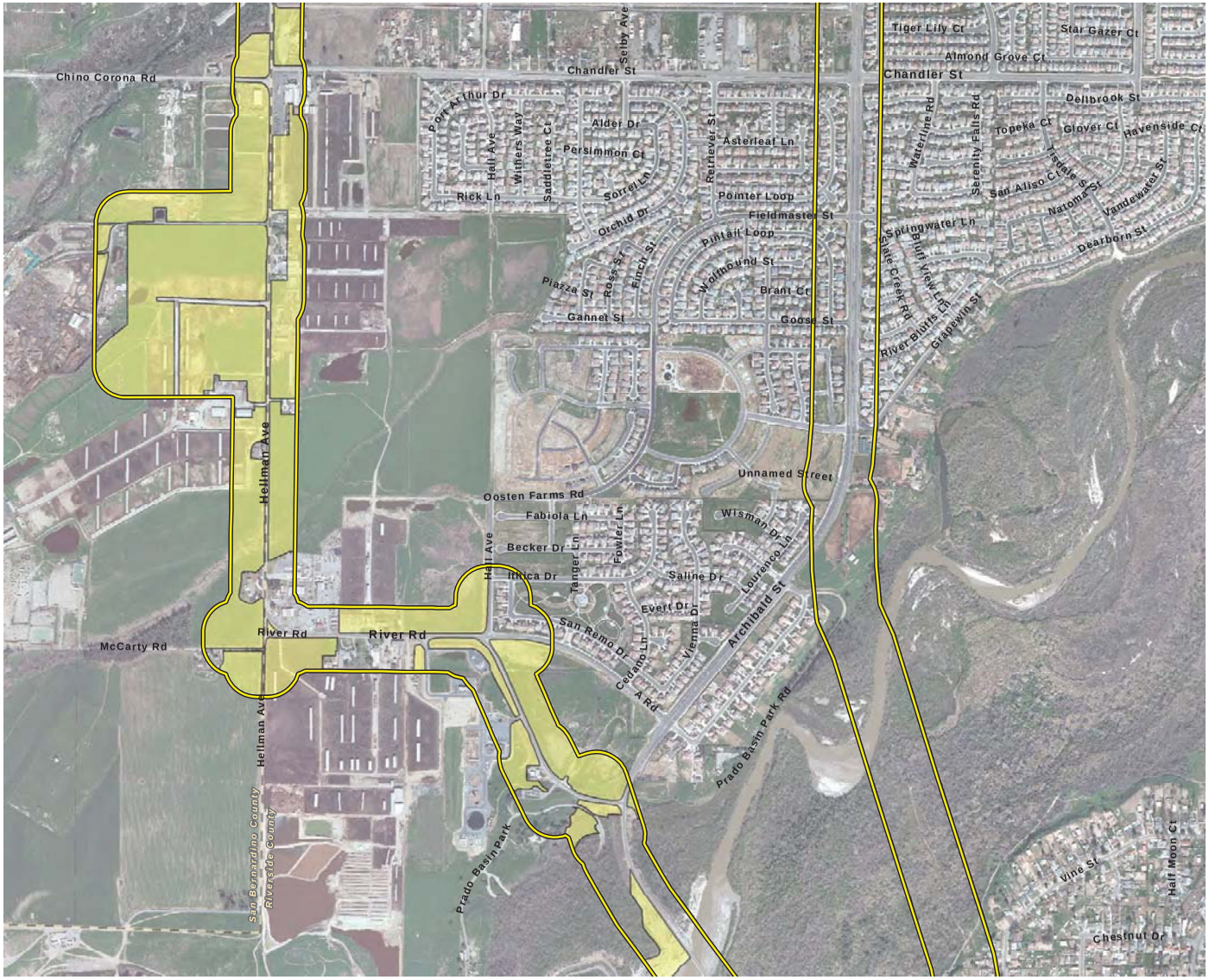
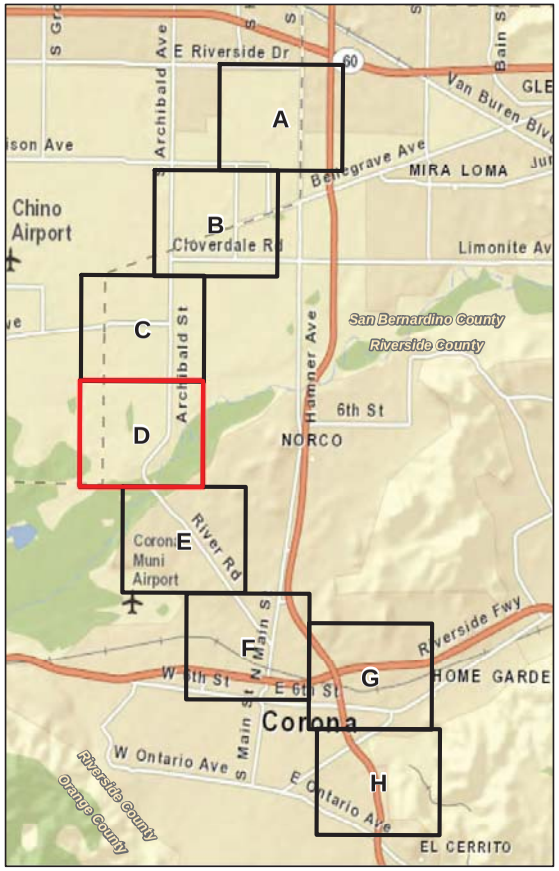


Study Area

Survey Area

Note: The 2012 Survey Area includes all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy, and disturbed areas) along the existing substations; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson subtransmission line route; the proposed source line routes; and all proposed material yards, access roads, guard structures, and pulling sites.



Survey Area

Figure 3D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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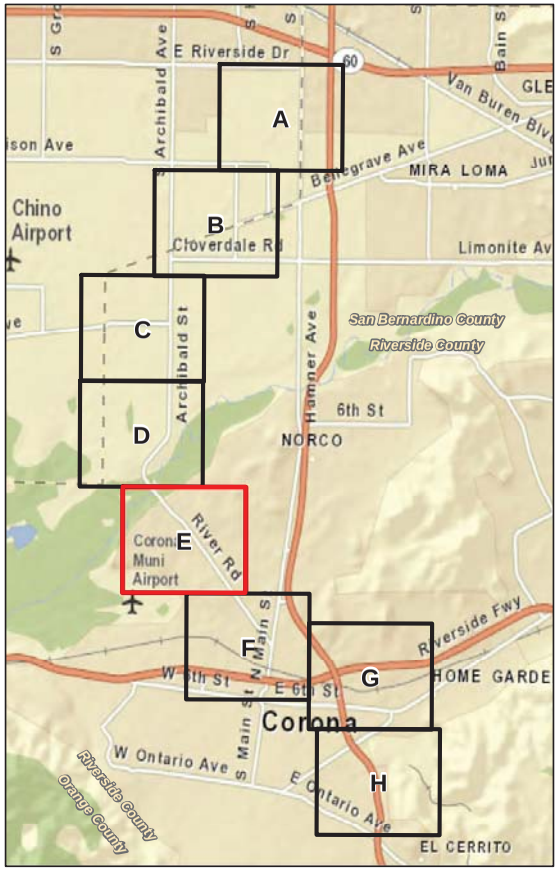
Study Area

Survey Area

Note: The 2012 Survey Area includes all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy, and disturbed areas) along the existing substations; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson subtransmission line route; the proposed source line routes; and all proposed material yards, access roads, guard structures, and pulling sites.



Survey Area

Figure 3E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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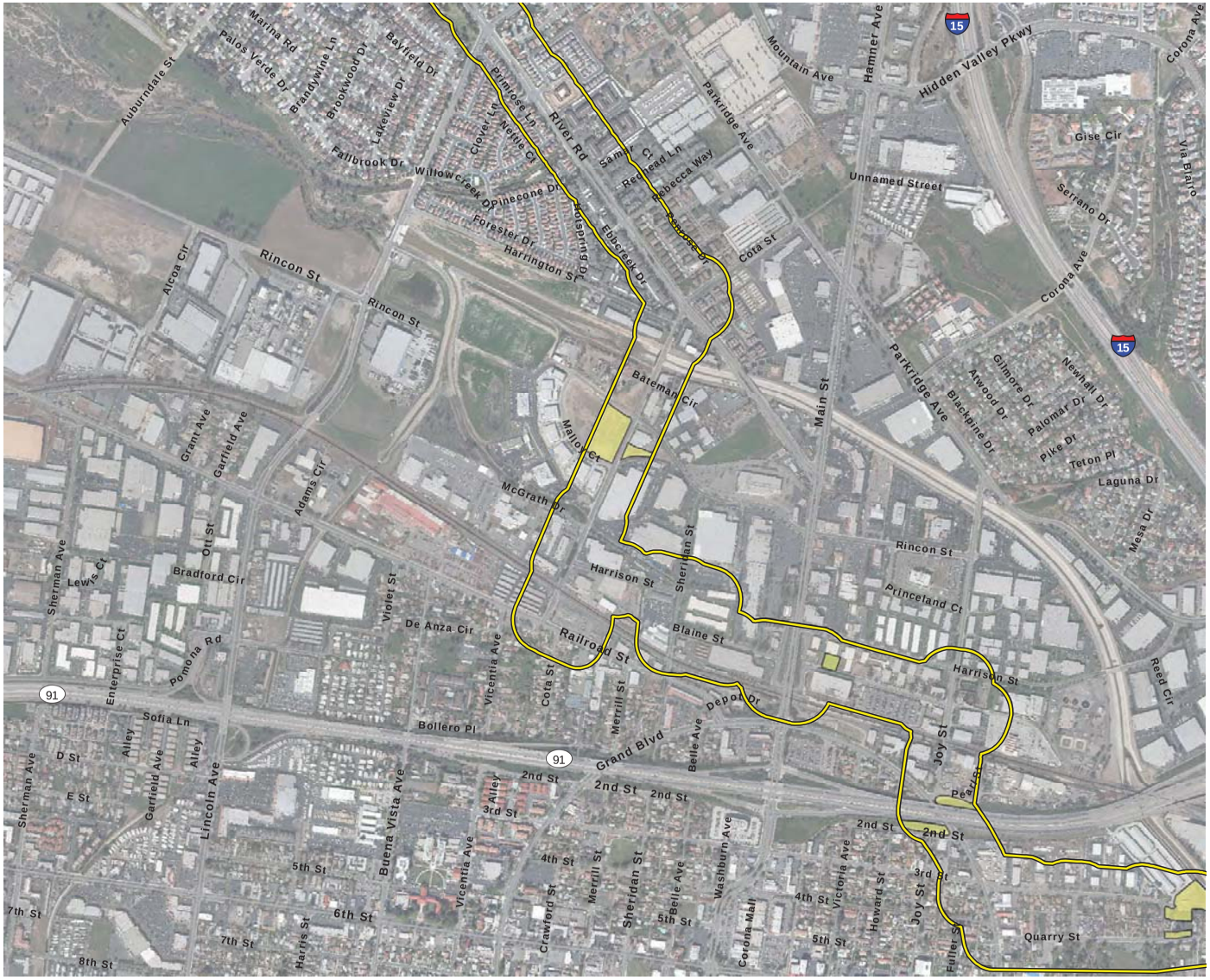
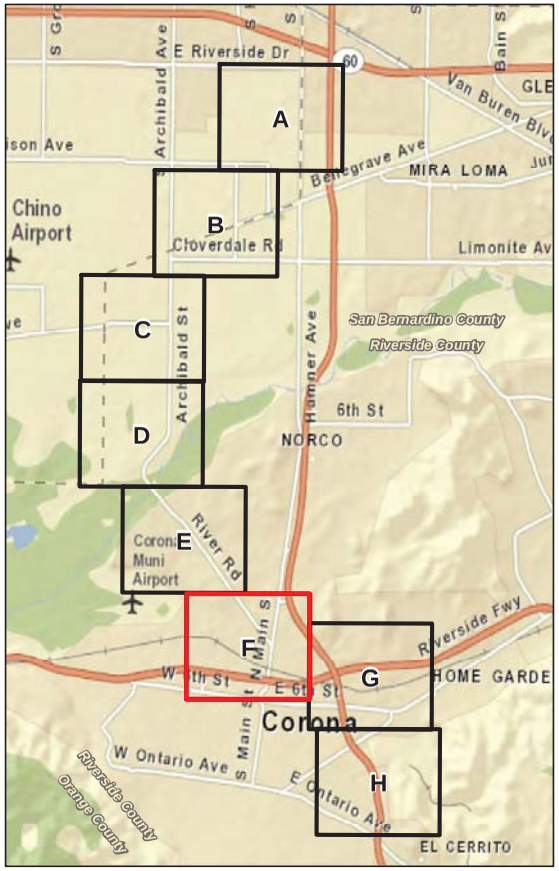


Study Area

Survey Area

Note: The 2012 Survey Area includes all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy, and disturbed areas) along the existing substations; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson subtransmission line route; the proposed source line routes; and all proposed material yards, access roads, guard structures, and pulling sites.



Survey Area

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3F

N W E S

1,000 500 0 1,000 Feet

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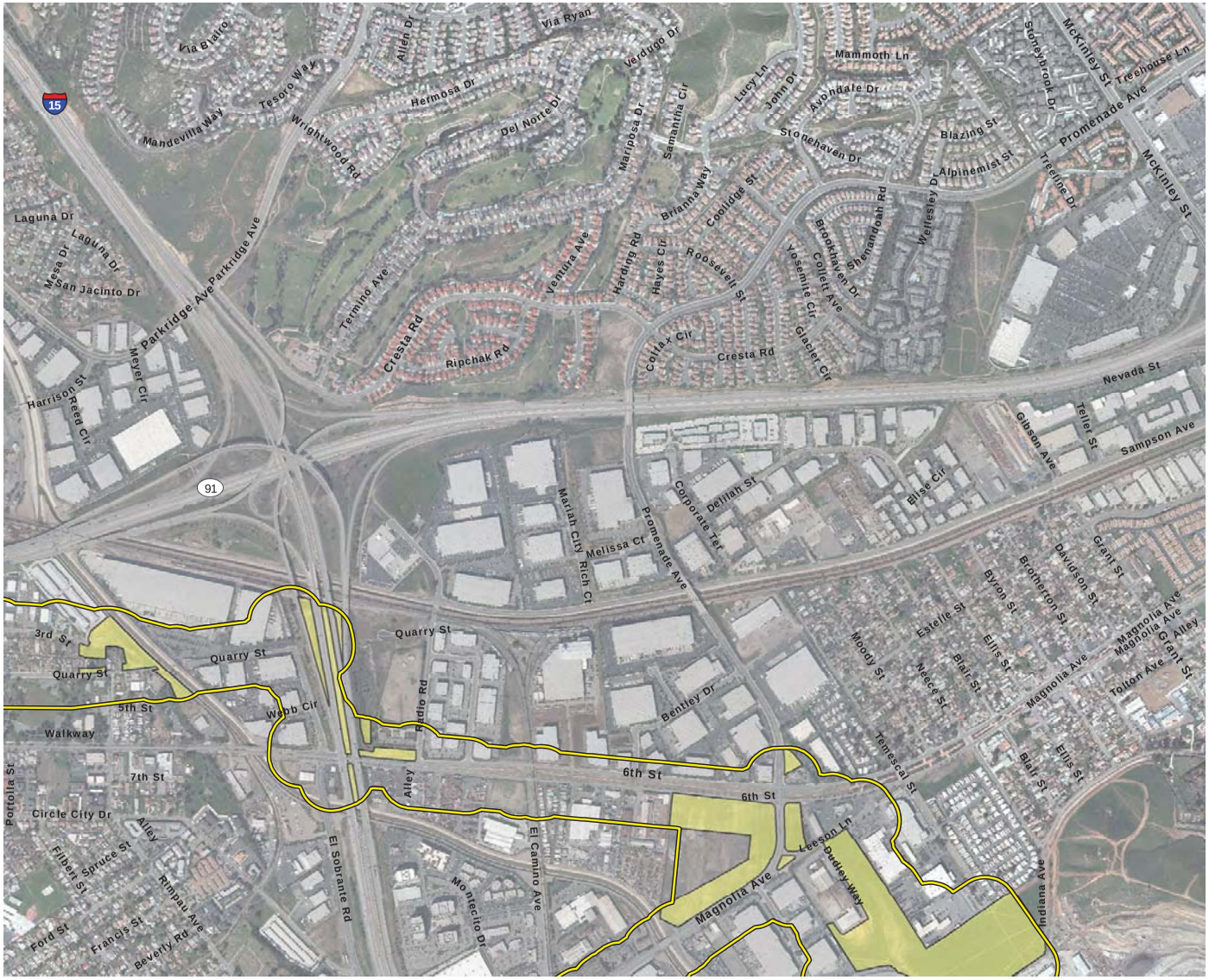
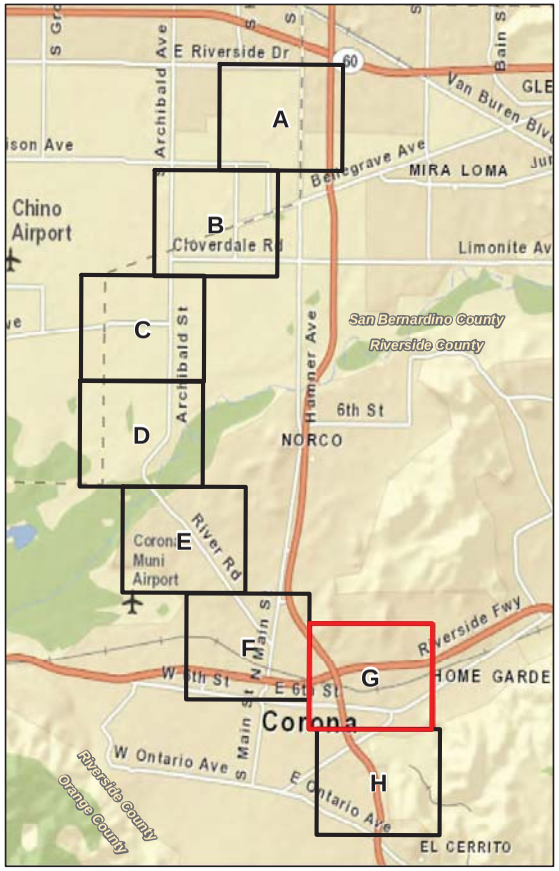


Study Area

Survey Area

Note: The 2012 Survey Area includes all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy, and disturbed areas) along the existing substations; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson subtransmission line route; the proposed source line routes; and all proposed material yards, access roads, guard structures, and pulling sites.



Survey Area

Figure 3G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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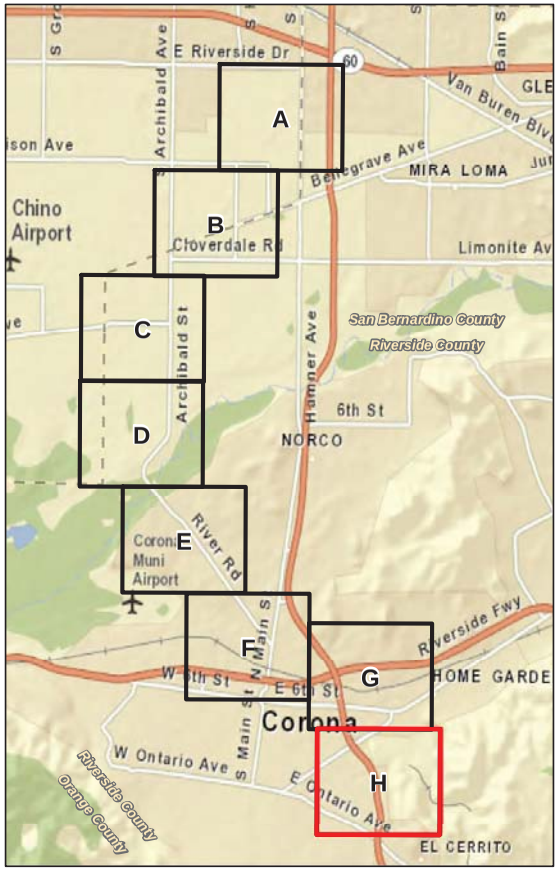
Study Area

Survey Area

Note: The 2012 Survey Area includes all suitable habitats (i.e., non-native grassland, ruderal, agricultural field, dairy, and disturbed areas) along the existing substations; the proposed Circle City Substation site; the proposed Mira Loma-Jefferson subtransmission line route; the proposed source line routes; and all proposed material yards, access roads, guard structures, and pulling sites.



Survey Area

Figure 3H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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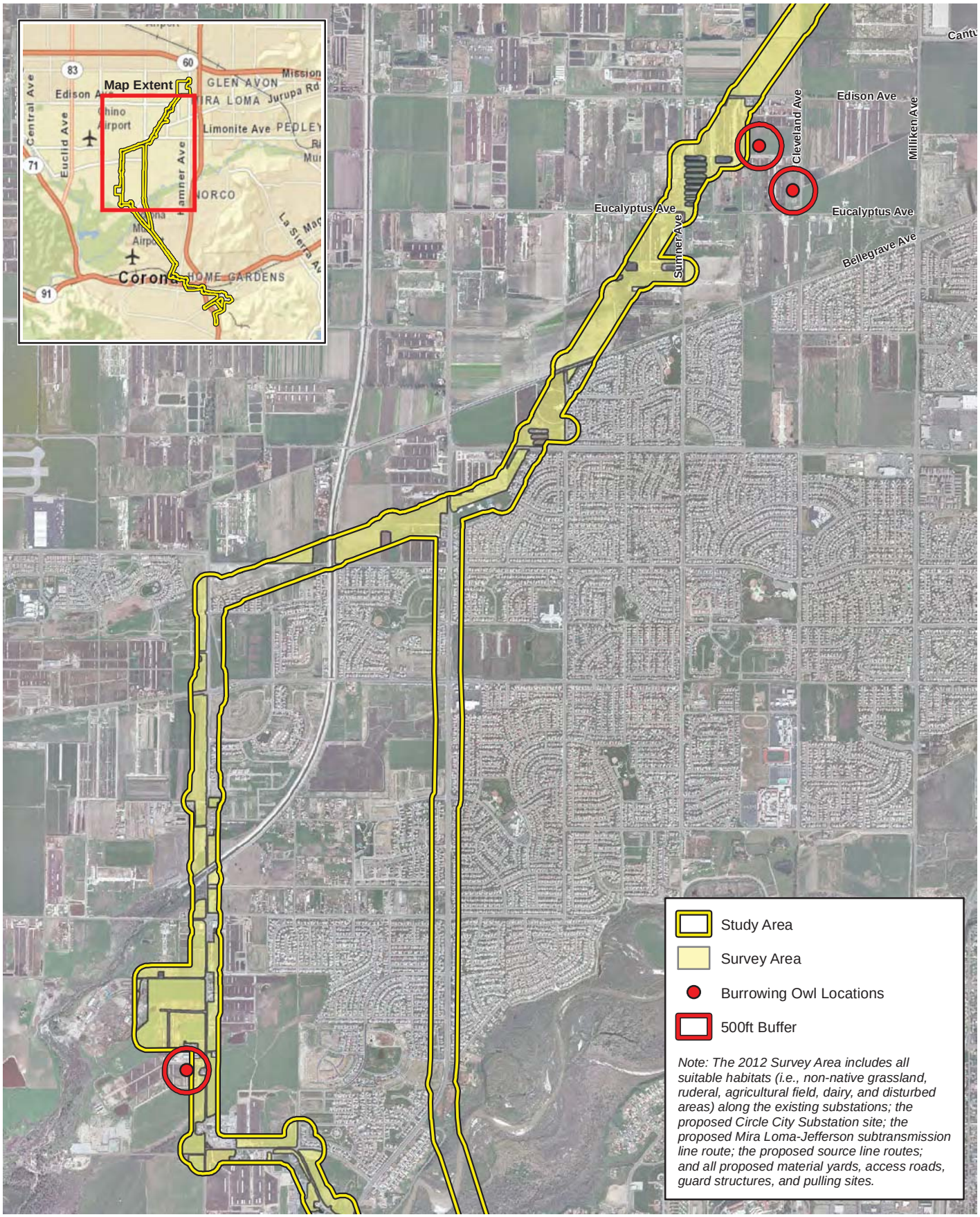

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Burrowing Owl Locations

Figure 4

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

3,000 1,500 0 3,000 Feet

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Looking west. Burrowing owl location northwest of Eucalyptus Avenue and Cleveland Avenue intersection.

Looking west. Burrowing owl location west of Hellman Avenue.

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Site Photographs

Figure 5

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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ATTACHMENT A

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species	
Reptiles	
PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, & HORNED LIZARDS	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Birds	
ANATIDAE – WATERFOWL	
Branta Canadensis	Canada goose
Anas platyrhynchos	Mallard
PHASIANIDAE - PHEASANTS & UPLAND GAME BIRDS	
Pavo cristatus	common peafowl
PHALACROCORACIDAE – CORMORANTS	
Phalacrocorax auritus	double-crested cormorant
ARDEIDAE - HERONS, BITTERNS, & ALLIES	
Ardea alba	great egret
Egretta thula	snowy egret
THRESKIORNITHIDAE - IBIS	
Plegadis chihi	white-faced ibis
CATHARTIDAE - NEW WORLD VULTURES	
Cathartes aura	turkey vulture
ACCIPITRIDAE - HAWKS, KITES, EAGLES, & ALLIES	
Elanus leucurus	white-tailed kite
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	red-tailed hawk
FALCONIDAE - FALCONS	
Falco sparverius	American kestrel
Falco peregrinus	peregrine falcon
CHARADRIIDAE - PLOVERS	
Charadrius vociferus	killdeer
RECURVIROSTRIDAE - STILTS & AVOCETS	
Himantopus mexicanus	black-necked stilt
SCOLOPACIDAE - SANDPIPERS & PHALAROPES	
Limnodromus scolopaceus	long-billed dowitcher
COLUMBIDAE - PIGEONS & DOVES	
*Columba livia**	rock pigeon
*Streptopelia decaocto**	Eurasian collared-dove
Zenaida macroura	mourning dove
STRIGIDAE - TRUE OWLS	
Athene cunicularia	burrowing owl
TROCHILIDAE - HUMMINGBIRDS	
Calypte anna	Anna's hummingbird
TYRANNIDAE - TYRANT FLYCATCHERS	
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus vociferans	Cassin's kingbird

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species	
Tyrannus verticalis	western kingbird
LANIIDAE - SHRIKES	
Lanius ludovicianus	loggerhead shrike
CORVIDAE - CROWS & JAYS	
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE - SWALLOWS	
Petrochelidon pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
MIMIDAE - THRASHERS	
Mimus polyglottos	northern mockingbird
STURNIDAE - STARLINGS	
*Sturnus vulgaris**	European starling
EMBERIZIDAE - SPARROWS & JUNCOS	
Melozone [*Pipilo*] *crissalis*	California towhee
Chondestes grammacus	lark sparrow
Melospiza melodia	song sparrow
ICTERIDAE - BLACKBIRDS	
Euphagus cyanocephalus	Brewer's blackbird
Quiscalis mexicanus	great-tailed grackle
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
FRINGILLIDAE - FINCHES	
Carpodacus mexicanus	house finch
Spinus [Carduelis] psaltria	lesser goldfinch
Spinus [Carduelis] lawrencei	Lawrence's goldfinch
Spinus [Carduelis] tristis	American goldfinch
PASSERIDAE - OLD WORLD SPARROWS	
*Passer domesticus**	house sparrow
Mammals	
LEPORIDAE - HARES & RABBITS	
Sylvilagus audubonii	desert cottontail
Lepus californicus	black-tailed jackrabbit
SCIURIDAE - SQUIRRELS	
Spermophilus beecheyi	California ground squirrel
GEOMYIDAE - POCKET GOPHERS	
Thomomys bottae	Botta's pocket gopher
* introduced species	

ATTACHMENT B

CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 07/31/2012

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Athene cunicularia*

Common Name: burrowing owl

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 11 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Jonathan Aguayo BonTerra Consulting
Address: 2 Executive Circle, Suite 175
Irvine, CA 92614
E-mail Address: JAguayo@bonterraconsulting.com
Phone: (714) 444-9199

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
6	5			

☑ breeding ☐ wintering ☑ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

The Proposed Project primarily runs west of Interstate (I) 15 and north of State Route (SR) 91, with the southern end of the Proposed Project extending south of SR-91 and east of I-5.

County: Riverside County Landowner / Mgr.: various

Quad Name: Guasti, Corona North, Corona South Elevation: 630-790 ft

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 60CSx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy ~ 9 feet meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: Family of 4 = 11S E447345 N3761653; family of 5 = 11S E447578 N3761348; pair = 11S E443403 N3755294

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Sixteen vegetation types and other areas occur on the Project site: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, freshwater marsh, open water, flood control channel, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed.

Other rare taxa seen at THIS site on THIS date: Flyover occurrences: white-faced ibis, Cooper's hawk, and peregrine falcon.
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: roadway, dairy, residential, commercial

Visible disturbances:

Threats: Coyotes, raptors, cattle, domestic dogs, and nearby dairies activities

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Familiarity with species, visually and aurally

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

APPENDIX G

LEAST BELL'S VIREO/SOUTHWESTERN WILLOW FLYCATCHER REPORTS

BonTerra CONSULTING

PASADENA COSTA MESA

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www.BonTerraConsulting.com

151 Kalmus Drive, Suite E-200
Costa Mesa, CA 92626

October 20, 2010

Ms. Adelina Muñoz
Southern California Edison
G.O.3, 340F
2131 Walnut Grove Avenue
Rosemead, California 91770

VIA EMAIL AND OVERNITE EXPRESS
Adelina.Munoz@sce.com

Subject: Results of Focused Presence/Absence Surveys for the Least Bell's Vireo on a Portion of the Circle City Substation and Transmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. Muñoz:

This Letter Report presents the results of focused surveys conducted in 2010 for the least Bell's vireo (*Vireo bellii pusillus*) on a portion of the Circle City Substation and Transmission Line Project (hereafter referred to as "the Project site"). The entire Project site extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino, and the City of Norco to the City of Corona (Exhibit 1). It includes the existing Mira Loma Substation, the existing Corona Substation, a Preferred and two Alternative Substation Sites, a Preferred and Alternative Mira Loma Route, a Preferred and Alternative Circle City Route, and a Preferred and two Alternative Substation Site Connections. The focused surveys for the least Bell's vireo were conducted in the southern portion of the Project site along Segment P of the Circle City Alternative Route (Exhibit 2). The purpose of the surveys was to determine the presence or absence of this species in this portion of the Project site. A qualified Biologist conducted the surveys according to guidelines established by the U.S. Fish and Wildlife Service (USFWS). Areas that contain suitable habitat for the vireo within the remaining portions of the Project site will be surveyed in 2011.

The survey area is located along a flood-control channel east of Interstate 15 (I-15) near the terminus of Laurel Canyon Circle in the City of Corona (Exhibit 2). This represents the only suitable vireo habitat in the Circle City portion of the Project site. The survey area is located on the U.S. Geological Survey's (USGS's) Corona South 7.5-minute quadrangle at Township 3 South, Range 6 West, Section 32 (Exhibit 2). Elevations in the survey area range from approximately 670 to 740 feet above mean sea level (msl). Vegetation within the survey area consists of willow riparian forest (Exhibit 3).

BACKGROUND

The least Bell's vireo was formerly more common and widespread, but is now a rare, local summer resident of Southern California's lowland riparian woodlands (Grinnell and Miller 1986; Garrett and Dunn 1981). The substantial population declines of this avian species over the latter half of the twentieth century is attributable to the loss and degradation

of riparian habitats and brood parasitism by the brown-headed cowbird (*Molothrus ater*). As a result, the least Bell's vireo was listed by the California Department of Fish and Game (CDFG) as Endangered on October 2, 1980, and by the USFWS as Endangered on May 2, 1986.

Bell's vireo is a neotropical migrant that breeds in central and southwestern North America from northern Mexico to Southern California, Nevada, and Utah; east to Louisiana; and north to North Dakota, Wisconsin, and Indiana in the central United States (AOU 1998). Although not well known, the winter range of the Bell's vireo is believed to be the western coast of Central America from southern Sonora south to northwestern Nicaragua, including the cape region of Baja California, Mexico (Brown 1993). Of the four Bell's vireo subspecies, only two breed in California: the least Bell's vireo and the Arizona Bell's vireo (*V. b. arizonae*), which breeds in the Colorado River Valley (Garrett and Dunn 1981; Rosenberg et al. 1991). Though the least Bell's vireo was formerly considered a common breeder in riparian habitats throughout the Central Valley and other low-elevation riverine systems in California and Baja California, Mexico (Franzreb 1989), presently, the least Bell's vireo has been eliminated from much of its historical range (Franzreb 1989; Brown 1993).

The breeding habitat of the least Bell's vireo is primarily riparian dominated by willows (*Salix* sp.) with dense understory vegetation; shrubs such as mule fat (*Baccharis salicifolia*) and California rose (*Rosa californica*) are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often found in areas that include trees such as willow (*Salix* sp.), western sycamore (*Platanus racemosa*) or cottonwood (*Populus* sp.), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). The least Bell's vireo generally nests in early successional stages of riparian habitats, with nest sites frequently located in willows that are between four and ten feet high (RECON 1988; Franzreb 1989). The most critical factor in habitat structure is the presence of a dense understory shrub layer from approximately two to ten feet above ground (Goldwasser 1981; Salata 1983; Franzreb 1989).

On February 2, 1994, the USFWS issued their final determination of critical habitat for the least Bell's vireo (USFWS 1994), identifying approximately 37,560 acres as critical habitat in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties. The survey area is not located in the designated critical habitat area for this species.

SURVEY METHODOLOGY

A total of eight surveys for the least Bell's vireo were conducted on May 13 and 24; June 5, 17, and 28; and July 8, 19, and 29, 2010. BonTerra Consulting Biologist Lindsay Messett conducted all surveys following the updated guidelines for least Bell's vireo surveys issued by the USFWS on January 19, 2001. These guidelines require that at least eight surveys be conducted from April 10 to July 31 with a ten-day interval between each site visit. The survey guidelines do not require the surveying Biologist to hold a Section 10(a)(1)(A) permit to conduct presence/absence surveys, as long as the USFWS protocol is utilized and vocalization tapes are not used.

The riparian habitat in the vireo survey area was systematically surveyed by walking slowly and methodically along its margins. As the least Bell's vireo survey protocol does not require the playback of least Bell's vireo vocalizations, no taped vocalizations of least Bell's vireo were used during these surveys. All surveys were conducted under optimal weather conditions and during early morning hours when bird activity is at a peak. Numbers were recorded for all bird species detected during the survey, including any notable observations of special status species or other birds, such as brown-headed cowbird.

SURVEY RESULTS

One pair of least Bell's vireo was present in the survey area during the 2010 focused surveys. The pair was first observed together during the third survey on June 5, 2010. The pair was observed foraging within the willow riparian forest vegetation located along the flood-control channel south of Sherborn Street (Exhibit 3). The male of this pair was observed calling and foraging in the survey area during the first survey on May 13, 2010. The pair was observed foraging and collecting nesting material in the survey area during the fourth survey on June 17, 2010. However, no active nest was found within the boundaries of the survey area. The pair was observed carrying nesting material into dense riparian vegetation located around an open water basin just south of the survey area. Therefore, it was determined that the pair was nesting off site, but was utilizing the riparian vegetation within the survey area for foraging. Representative site photos are included as Exhibit 4. Survey dates, times, and weather data for the focused least Bell's vireo surveys are shown in Table 1 below.

TABLE 1
SUMMARY OF LEAST BELL'S VIREO SURVEYS

Survey Number	Date	Time (Start/End)	Surveyors	Weather Conditions			Vireos Observed and/or Detected
				Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)	
1	May 13, 2010	0650/1100	Messett	67/74	0–1/0–1	Clear/Clear	1–2 individuals detected off site, 1 male observed singing and foraging on site
2	May 24, 2010	0700/1105	Messett	55/64	0–2/0–3	Clear/Clear	1 male detected off site, 1 individual observed foraging on site
3	June 5, 2010	0700/1115	Messett	65/79	0–2/0–3	Clear/Clear	1 pair observed foraging on site
4	June 17, 2010	0645/1050	Messett	60/70	0–1/0–1	90/40	1 pair observed foraging and collecting nesting material on site
5	June 28, 2010	0730/1100	Messett	62/73	0–0/0–1	30/15	1 individual observed foraging on site, 1 male detected off site
6	July 8, 2010	0655/1040	Messett	59/65	0–0/0–2	90/Haze	1 individual detected off site
7	July 19, 2010	0700/1110	Messett	64/81	0–0/0–4	Clear/Clear	No least Bell's vireo observed or detected
8	July 29, 2010	0730/1100	Messett	65/76	0–1/0–1	Clear/Clear	No least Bell's vireo observed or detected

°F: degrees Fahrenheit; mph: miles per hour

A list of all wildlife species recorded during the 2010 least Bell's vireo surveys is included in Appendix A. The list includes one species listed by the CDFG as a Species of Special Concern

(Shuford and Gardali 2008) that showed evidence of breeding in the vicinity of the vireo survey area: the yellow warbler (*Dendroica petechia brewsteri*).

The yellow warbler is a California Species of Special Concern. It is the subspecies that breeds in Southern California (Dunn and Garrett 1997); most yellow warblers are migrants. This subspecies occurs in coastal areas from northwestern Washington south to western Baja California, Mexico (Dunn and Garrett 1997). In Southern California, yellow warblers breed locally in riparian woodlands but during migration they can forage in a variety of different habitat types. This species is threatened by loss of habitat and nest parasitism by brown-headed cowbirds (Remsen 1978). Suitable foraging and nesting habitat for this species is present within the survey area in the willow riparian forest vegetation. This species was observed and/or detected within the survey area during the vireo surveys on May 13 and 24; June 5, 17, and 28; and July 19, 2010.

Please contact Stacie Tennant at (714) 444-9199 if you have questions or comments.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager/Biologist

Lindsay A. Messett
Biologist

cc: Ms. Sandy Marquez, USFWS

Attachments: Exhibits 1, 2, 3, and 4
Appendix A – Wildlife Compendium

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Regional Location

Exhibit 1

Circle City Substation and Transmission Line Project

N W E S

10 5 0 10 Miles

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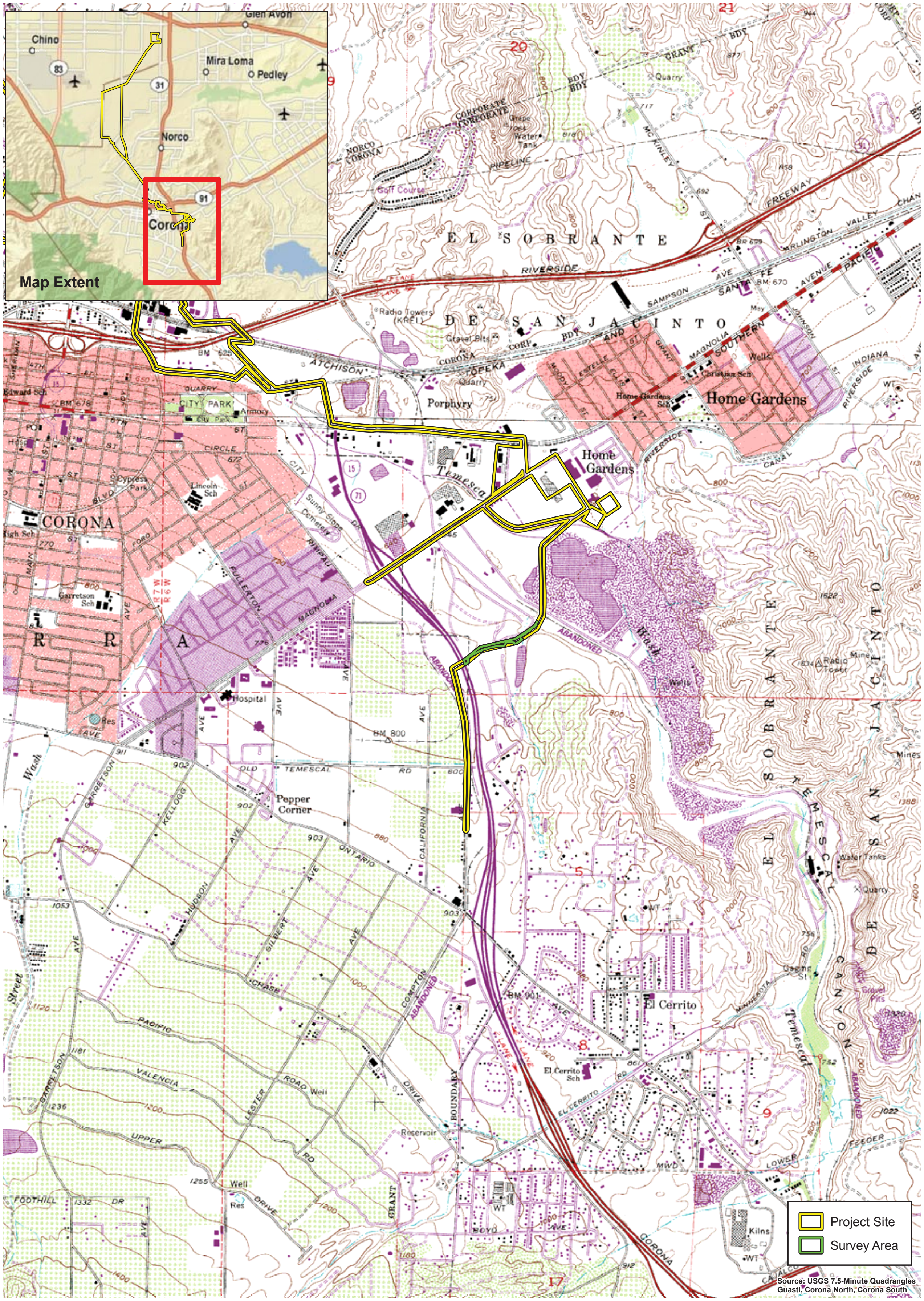
(Rev 10-20-10 sje) R:\Projects\Edison\J045\Graphics\LBV\Ex1_RL.pdf



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Local Vicinity

Exhibit 2

Circle City Substation and Transmission Line Project

2,000 1,000 0 2,000
Feet

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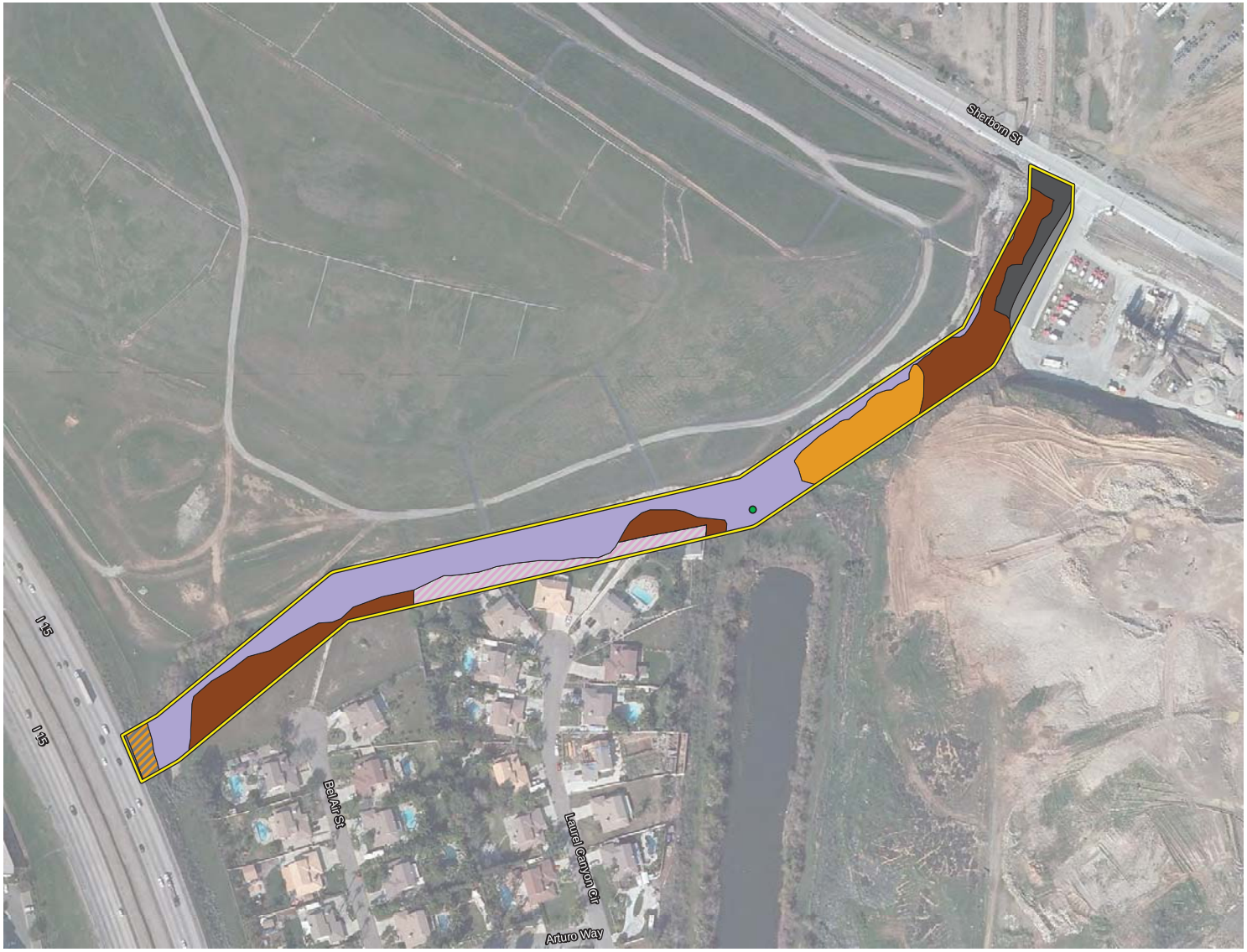

- Least Bell's Vireo Location
- Survey Area

Vegetation Types and Other Areas

- Riversidian Sage Scrub
- Disturbed Riversidian Sage Scrub
- Ruderal
- Willow Riparian Forest
- Developed
- Ornamental/Developed
- Disturbed

Biological Resources

Exhibit 3

Circle City Substation and Transmission Line Project

N W E S 200 100 0 200 Feet

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Representative site photograph of the least Bell's vireo survey area looking east.

Representative site photograph of the least Bell's vireo survey area looking west.

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Site Photographs

Exhibit 4

Circle City Substation and Transmission Line Project

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APPENDIX A

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species
Amphibians
BUFONIDAE - TRUE TOADS
Bufo boreas western toad
Reptiles
Trachemys scripta elegans * red-eared slider
PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, & HORNED LIZARDS
Sceloporus orcutti granite spiny lizard
Sceloporus occidentalis western fence lizard
Uta stansburiana side-blotched lizard
TEIIDAE - WHIPTAIL LIZARDS
Aspidoscelis [Cnemidophorus] tigris stejnegeri coastal western whiptail
Lampropeltis getula common kingsnake
Birds
ODONTOPHORIDAE - QUAILS
Callipepla californica California quail
ARDEIDAE - HERONS, BITTERNS, & ALLIES
Egretta thula snowy egret
Nycticorax nycticorax black-crowned night-heron
CATHARTIDAE - NEW WORLD VULTURES
Cathartes aura turkey vulture
ACCIPITRIDAE - HAWKS, KITES, EAGLES, & ALLIES
Buteo jamaicensis red-tailed hawk
FALCONIDAE - FALCONS
Falco sparverius American kestrel
CHARADRIIDAE - PLOVERS
Charadrius vociferus killdeer
COLUMBIDAE - PIGEONS & DOVES
Zenaida macroura mourning dove
APODIDAE - SWIFTS
Aeronautes saxatalis white-throated swift
TROCHILIDAE - HUMMINGBIRDS
Calypte anna Anna's hummingbird

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species
PICIDAE - WOODPECKERS
Picoides nuttallii Nuttall's woodpecker
TYRANNIDAE - TYRANT FLYCATCHERS
Sayornis nigricans black phoebe
Myiarchus cinerascens ash-throated flycatcher
Tyrannus vociferans Cassin's kingbird
VIREONIDAE - VIREOS
Vireo bellii pusillus least Bell's vireo
CORVIDAE - CROWS & JAYS
Corvus brachyrhynchos American crow
Corvus corax common raven
HIRUNDINIDAE - SWALLOWS
Stelgidopteryx serripennis northern rough-winged swallow
Petrochelidon pyrrhonota cliff swallow
Hirundo rustica barn swallow
AEGITHALIDAE - BUSHTITS
Psaltriparus minimus bushtit
TROGLODYTIDAE - WRENS
Thryomanes bewickii Bewick's wren
MIMIDAE - THRASHERS
Mimus polyglottos northern mockingbird
STURNIDAE - STARLINGS
Sturnus vulgaris * European starling
PARULIDAE - WARBLERS
Dendroica petechia yellow warbler
Geothlypis trichas common yellowthroat
EMBERIZIDAE - SPARROWS & JUNCOS
Melozone [*Pipilo*] *crissalis* California towhee
Melospiza melodia song sparrow
CARDINALIDAE - CARDINALS & ALLIES
Pheucticus melanocephalus black-headed grosbeak

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species
ICTERIDAE - BLACKBIRDS
Agelaius phoeniceus red-winged blackbird
Icterus bullockii Bullock's oriole
FRINGILLIDAE - FINCHES
Carpodacus mexicanus house finch
Spinus [Carduelis] psaltria lesser goldfinch
PASSERIDAE - OLD WORLD SPARROWS
Passer domesticus house sparrow *
Mammals
LEPORIDAE - HARES & RABBITS
Sylvilagus audubonii desert cottontail
SCIURIDAE - SQUIRRELS
Spermophilus beecheyi California ground squirrel
CANIDAE - WOLVES & FOXES
Canis latrans coyote
Invertebrates
PIERIDAE - WHITES, SULFURS, & ORANGETIPS
Pontia protodice common (checkered) white
RIODINIDAE - METALMARKS
Apodemia mormo virgulti Behr's (Mormon) metalmark
LYCAENIDAE - BLUES, HAIRSTREAKS, & COPPERS
Icaricia acmon acmon blue
* introduced species

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November 14, 2011

Ms. Erin M. McCarthy
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

VIA EMAIL
erin_mccarthy@fws.gov

Subject: Results of the Least Bell's Vireo and Southwestern Willow Flycatcher Surveys for the Circle City Substation and Mira Loma − Jefferson Subtransmission Line Project, San Bernardino and Riverside Counties, California

Dear Ms. McCarthy:

This Letter Report presents the results of focused surveys to determine the presence or absence of the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) on the Circle City Substation and Mira Loma − Jefferson Subtransmission Line Project Site (hereafter referred to as the "Proposed Project"). A Biologist with the necessary experience and the Federal Endangered Species Act 10(a) survey permit conducted the surveys according to U.S. Fish and Wildlife Service (USFWS) protocol for these species.

Project Location and Description

The Proposed Project would construct a new substation, a new telecommunication line, and a new transmission line segment to connect the new substation to Southern California Edison's (SCE's) existing subtransmission system. The Proposed Project generally runs west of Interstate (I) 15 with the Mira Loma Source Line north of State Route (SR) 91. The Proposed Project extends from the Mira Loma 500 kilovolt (kV) Substation (west of Hamner Avenue) in the City of Ontario in San Bernardino County, south to the Corona 66-kV Substation in the City of Corona in Riverside County (Exhibit 1). A portion of the Proposed Project was surveyed for least Bell's vireo in 2010; the current survey includes only riparian habitat in newly added areas (i.e., Mira Loma Route). From the Mira Loma Substation south to 65th Street, the Preferred Alternative, Alternative Route 1, and Alternative Route 2 of the Mira Loma Alignment generally overlap.[1] From 65th Street to Corydon Avenue, the proposed alternatives split; the Preferred Alternative and Alternative Route 1 of the Mira Loma Alignment generally follow Hellman Avenue/River Road and Alternative Route 2 of the Mira Loma Alignment generally follows Archibald Street. South of Corydon Avenue, the Preferred Alternative, Alternative Route 1, and Alternative Route 2 of the Mira Loma Alignment again generally overlap.[2]

[1] The Alternative Routes do not entirely overlap, they are immediately adjacent to each other. However, for the purposes of the biological surveys, they are close enough to combine into one survey area.

[2] The Alternative Routes do not entirely overlap, they are immediately adjacent to each other. However, for the purposes of the biological surveys, they are close enough to combine into one survey area.

Land uses in the Proposed Project vicinity are primarily agricultural (croplands and dairies) in the northern portion and residential/commercial in the southern portion. Open space is present in Prado Basin near the center of the Proposed Project. Topography in the Proposed Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl). The Proposed Project is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Exhibit 2).

The 2011 survey area includes four areas that will be referenced throughout this report (Exhibit 3):

1. ***River Road Bridge:*** The Preferred Alternative/Alternative Route 1 follows the River Road Bridge over the Santa Ana River. The bridge is located approximately 2,000 feet east of Prado Basin. This portion of the survey area will be further subdivided and discussed as riparian habitat southwest, northwest, northeast, and southeast of the River Road Bridge.

2. ***Edison Trail:*** Alternative Route 2 follows an existing transmission line over the Santa Ana River. This existing transmission line is approximately 2,500 feet east of the River Road Bridge and 4,500 feet east of Prado Basin. The existing transmission line follows a horse trail called the Edison Trail.

3. ***Hellman and Chandler:*** The Preferred Alternative/Alternative Route 1 crosses the Mill Creek Flood-Control Channel (a tributary to Prado Basin), northwest of the intersection of Hellman Avenue and Chandler Street.

4. ***2nd Street:*** South of 2nd Street, the Preferred Alternative/Alternative Route 1/Alternative Route 2 are located along River Road. A flood-control channel is located southeast of the intersection of River Road and 2nd Street; this feature is not a blueline stream.

Habitat Description

Riparian habitat in each survey area is described below. Representative site photos are included in Attachment A.

River Road Bridge

The River Road Bridge extends across the Santa Ana River, which is approximately 3,500 feet wide at this location. The bridge was under construction (bridge widening of River Road) throughout the duration of the surveys. The area immediately surrounding the bridge had been disturbed by grading and construction activities, and the river was routed through large culverts under the construction site. Orange snow fencing had been placed along the edges of riparian habitat adjacent to the survey area. During most of the surveys, heavy equipment was used to place riprap and to construct the bridge widening. Later in the surveys (July), bridge construction was nearing completion and heavy equipment was minimal, although work continued throughout the duration of the surveys.

Habitat on the southeast side of the bridge consists of dense willow riparian forest dominated by black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and Fremont cottonwood (*Populus fremontii*). The understory consists of mule fat (*Baccharis salicifolia*) and cattails (*Typha* sp.) along the periphery of the forest. The understory appears limited in the interior of this area due to the dense willow canopy. This willow forest area was inundated throughout the duration of the surveys. Giant reed (*Arundo donax*) and gum trees (*Eucalyptus* sp.) are located along the northern periphery of this area near the open channel of the Santa Ana River.

Habitat on the northeast side of the bridge consists of dense willow riparian forest dominated by black willow and arroyo willow. The understory of this area also consists of mule fat scrub around the periphery, with a thin layer of mule fat within the interior of the forest. This willow forest area was inundated during the first portion of the surveys, but dried as the surveys progressed. Giant reed is

located along the southern periphery of this area near the open channel of the Santa Ana River, and also is located along the northern periphery of this area.

Habitat on the northwest side of the bridge consists primarily of willow riparian forest and scrub, with riparian herb closer to the roadway. Willow riparian forest in this area is dominated by arroyo willow and black willow with smaller stature willow scrub along the periphery of the forest. The understory of this area is dominated by broad-leaved peppergrass (*Lepidium latifolium*) and mule fat. A cleared area (end of a dirt road) is present towards the northern portion of this area. There was a cowbird trap located here throughout the duration of surveys. This cleared area ponded water and was drying over the course of the surveys; riparian herb vegetation grew in this area over the course of the surveys. Riparian herb is also present between the roadway and the willow riparian forest. Riparian herb vegetation consists of white sweet clover (*Melilotus alba*) and cattails, which grew larger over the course of the surveys. Giant reed is present in the southern portion of this area adjacent to the bridge construction staging area.

Habitat on the southwest side of the bridge is a mosaic of willow riparian forest, willow scrub, and riparian herb, with cleared/open pathways winding through the habitat. Willow riparian forest in this area is dominated by very large Fremont cottonwood, arroyo willow, and black willow, while willow scrub is composed of smaller-stature willows and mule fat. The understory in this area is well-developed, given the open nature of the canopy, and dominated by poison hemlock (*Conium maculatum*), nettle (*Urtica* sp.), broad-leaved peppergrass, and California rose (*Rosa californica*). Riparian herb vegetation consists of white sweet clover and cattails.

Edison Trail

Habitat along the Edison Trail consists of a mix of willow riparian forest and willow scrub. Willow riparian forest in this area is dominated by arroyo willow and black willow, while willow scrub is composed of smaller-stature willows and mule fat. Patches of giant reed and scattered tamarisk (*Tamarisk* sp.) are periodically mixed into the willow riparian forest. In many areas, the understory of the Edison Trail is dominated by monotypic stands of broad-leaved pepperweed. In other areas, the understory consists of a mix of desert wild grape (*Vitis girdiana*), poison hemlock, nettle, and broad-leaved pepperweed. There are a few other horse trails that connect with the Edison Trail that wind through the willow riparian forest and along the edge of the river, and several horseback riders were observed over the course of the surveys. There was also a cowbird trap located at the southern end of the Edison Trail throughout the duration of surveys.

Hellman and Chandler

Mill Creek is a tributary to Prado Basin and is located approximately 7,200 feet (1.3 miles) northwest of the Santa Ana River. Mill Creek is a concrete trapezoidal channel east of Hellman Avenue to 100 feet west of Hellman Avenue and contains no vegetation. Mill Creek is an earth-bottom channel with riprap banks from approximately 100 feet to 500 feet west of Hellman Avenue; west of this, it is a more natural drainage with willow riparian forest. Willow riparian scrub surrounds the access road adjacent to the south side of the channel and extends to Hellman Avenue. This willow riparian scrub is dominated by black willow and arroyo willow with very dense mule fat scrub in the understory.

2nd Street

A small incised channel occurs southeast of River Road and 2nd Street. This approximate 670-foot segment of the drainage is unimproved; however, the drainage is an earth-bottom flood-control channel both west of River Road and east of this parcel. The channel itself is about four feet deep and contains black willows with a limited understory of cattails. The banks of the channel consist of an undeveloped parcel that was cleared of ruderal vegetation following the first survey. This parcel is completely surrounded by commercial and residential development.

Background

The southwestern willow flycatcher and least Bell's vireo were formerly more common and widespread, but are now rare, local summer residents of Southern California's lowland riparian woodlands (Grinnell and Miller 1944; Garrett and Dunn 1981). The substantial population declines of these two avian species over the latter half of the twentieth century is attributable to the loss and degradation of riparian habitats and brood parasitism by the brown-headed cowbird (*Molothrus ater*). As a result, the least Bell's vireo was listed by the California Department of Fish and Game (CDFG) as Endangered on October 2, 1980, and by the USFWS as Endangered on May 2, 1986. The CDFG listed all three subspecies of willow flycatcher that breed in California (*E. t. brewsteri*, *E. t. extimus,* and *E. t. adastus*) as Endangered on January 3, 1991. The USFWS listed the southwestern willow flycatcher as Endangered on February 7, 1995.

Least Bell's Vireo

Bell's vireo is a Neotropical migrant that breeds in central and southwestern North America from northern Mexico to Southern California, Nevada, and Utah; east to Louisiana; and north to North Dakota, Wisconsin, and Indiana in the central U.S. (AOU 1998). Although not well known, the winter range of the Bell's vireo is believed to be the west coast of Central America from southern Sonora south to northwestern Nicaragua, including the cape region of Baja California, Mexico (Brown 1993). Of the four Bell's vireo subspecies, only two breed in California: the least Bell's vireo and the Arizona Bell's vireo (*V. b. arizonae*); the latter breeds in the Colorado River Valley (Garrett and Dunn 1981; Rosenberg et al. 1991). Though the least Bell's vireo was formerly considered a common breeder in riparian habitats throughout the Central Valley and other low-elevation riverine systems in California and Baja California, Mexico (Franzreb 1989), the least Bell's vireo had been eliminated from much of its historical range at the time of listing (Franzreb 1989; Brown 1993). The least Bell's vireo has increased 10-fold since its listing to 2,968 territories and it has begun to recolonize portions of its former range where it had been extirpated (USFWS 2006). The increase is credited to improvements in habitat abundance and quality and effective cowbird control. Continued cowbird control and exotic plant removal in riparian areas are considered necessary for the foreseeable future in order to continue this trend (USFWS 2006).

The breeding habitat of the least Bell's vireo is primarily riparian dominated by willows with dense understory vegetation; shrubs such as mule fat and California rose are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often found in areas that include trees such as willow, western sycamore (*Platanus racemosa*), or cottonwood (*Populus* sp.), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). The least Bell's vireo generally nests in early successional stages of riparian habitats, with nest sites frequently located in willows that are between four and ten years of age (RECON 1988; Franzreb 1989). The most critical factor in habitat structure is the presence of a dense understory shrub layer from approximately two to ten feet above ground (Goldwasser 1981; Salata 1983; Franzreb 1989).

On February 2, 1994, the USFWS issued their final determination of critical habitat for the least Bell's vireo (USFWS 1994), identifying approximately 37,560 acres as critical habitat in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties. The survey area is located within designated critical habitat for this species along the Santa Ana River upstream of Prado Basin (Exhibit 4).

Southwestern Willow Flycatcher

The willow flycatcher is a Neotropical migrant that breeds in the west from northern Baja California, Mexico, to central British Colombia, and generally east through the northern half of the U.S. to the Atlantic coast (AOU 1998). Depending on the authority, there are four or five recognized subspecies of willow flycatcher (Sedgwick 2000). The breeding range of southwestern willow flycatcher includes Southern California, Arizona, New Mexico, western Texas, and the extreme southern parts of Nevada and Utah (USFWS 1993). In California, the southwestern willow flycatcher breeds along the

coast south of the San Fernando Valley, and north in the interior to about Independence, Inyo County (Unitt 1987). The largest breeding populations of southwestern willow flycatcher in California are located at the South Fork of the Kern River in Kern County and on the Santa Margarita River in Camp Pendleton in San Diego County (Unitt 1987). The range-wide population of southwestern willow flycatcher is estimated at 1,299 territories at 288 sites (Durst et. al. 2008). The population of southwestern willow flycatcher in California is estimated to be about 172 territories at 96 sites (Durst et al. 2008). Within the Coastal California Recovery Unit, the population is estimated at 120 territories at 73 sites (Durst et al. 2008). The southwestern willow flycatcher population has not shown the same recovery that the least Bell's vireo has shown in response to riparian habitat restoration and cowbird control (Kus 2011).

The southwestern willow flycatcher breeds in willow-dominated riparian habitats that are similar to least Bell's vireo nesting habitats. The southwestern willow flycatcher differs from least Bell's vireo in that it shows a stronger dependency on willow thickets for all its requirements (Grinnell and Miller 1944). In addition, the southwestern willow flycatcher appears to have a preference for sites with surface water in the vicinity, such as along streams, on the margins of a pond or lake, and at wet mountain meadows (Grinnell and Miller 1944; Flett and Sanders 1987; Harris et al. 1987). In Arizona, the southwestern willow flycatcher invariably nests near surface water (Phillips et al. 1964). Recently, the southwestern willow flycatcher has adapted to introduced vegetation present in riparian communities, such as tamarisk (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*) (USFWS 1993).

The willow flycatcher is a common migrant in the interior of California and a rare-to-uncommon migrant along the coastal slope, with most birds moving through Southern California between May 15 and June 20 (Garrett and Dunn 1981; Unitt 1987). The spring southwestern willow flycatcher migration is earlier than that of the northern subspecies (Unitt 1984; USFWS 1993). As a result, the presence of more abundant subspecies that migrate through the range of the southwestern willow flycatcher during its breeding season complicates surveys for nesting southwestern willow flycatchers.

On October 19, 2005, the USFWS published a final rule designating critical habitat for the southwestern willow flycatcher (USFWS 2005). This final rule designates 120,824 acres in Arizona, California, Nevada, New Mexico, and Utah as critical habitat. Of that, 17,212 acres were designated in Kern, Santa Barbara, San Bernardino, and San Diego Counties, California. Following lawsuits, the USFWS recently proposed a revised critical habitat designation on August 15, 2011. This revised critical habitat covers 2,090 stream miles in California, Nevada, Utah, Colorado, Arizona, and New Mexico (USFWS 2011). The proposed rule used a slightly different methodology to designate critical habitat. For example, it includes areas that are considered essential for the recovery of the species even if they were not occupied at the time of the species' listing. The survey area is not located within the previous final critical habitat designation, but it is located within the proposed revised critical habitat designation (Exhibit 4). It was excluded from the previous designation because it is within the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) area. Areas within the Western Riverside MSHCP have been included in the current proposed rule (USFWS 2011). However, the proposed rule states that the USFWS intends to exclude areas covered by the Western Riverside MSHCP based on protections included in the MSHCP's Implementation Agreement (IA).

Survey Methodology

The USFWS protocol for the least Bell's vireo requires that at least eight surveys be conducted from April 10 to July 31 with a ten-day interval between each site visit. The USFWS protocol for the southwestern willow flycatcher requires a total of five surveys, with the first survey conducted between May 15 and May 31; the second and third surveys between June 1 and June 24; and the fourth and fifth surveys between June 25 and July 17. BonTerra Consulting Ecologist Amber Oneal (Permit # TE148554-1) conducted surveys on April 14 and 27; May 16; June 3, 15 and 27; and July 11 and 22, 2011.

Ms. Oneal systematically surveyed the riparian habitats by walking slowly and methodically along the margins of riparian habitat or by using meandering transects through riparian habitat. Following the willow flycatcher protocol, recorded vocalizations were used to elicit a response from any potentially territorial southwestern willow flycatchers. If no southwestern willow flycatchers were detected after the initial playing of the recorded vocalization, Ms. Oneal replayed the recording at least once, but often multiple times. As the least Bell's vireo survey protocol does not require the playback of least Bell's vireo vocalizations, recorded least Bell's vireo vocalizations were not used during the surveys. "Pishing" sounds were used opportunistically to elicit responses from any potential southwestern willow flycatchers or least Bell's vireos present. Any least Bell's vireos or southwestern willow flycatcher sightings were recorded with a Global Positioning System (GPS) unit (Garmin Vista); territories recorded were numbered chronologically as they were detected.

All surveys were conducted under optimal weather conditions (i.e., between 55 and 95 degrees Fahrenheit [°F] with wind speeds between 0 and 15 miles per hour) and during early morning hours when bird activity is at a peak (Table 1). Ms. Oneal recorded all bird species detected during the survey (Attachment B).

TABLE 1
SUMMARY OF SURVEY DATA AND CONDITIONS FOR SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO SURVEYS

Survey Dates	Survey for Flycatcher/ Vireo	Time	Air Temperature (°F)		Cloud Cover	Wind (mph)
			Start	End		
April 14	V	6:00AM–12:45PM	55	78	0%	0–5
April 27	V	6:00AM–10:55AM	58	77	0%	0–5
May 16	F/V	6:00AM–12:00PM	60	70	40% → 20%	0–5
June 3	F/V	5:45AM–12:25PM	60	80	0%	0–5
June 15	F/V	5:45AM–11:20AM	63	80	100% →0%	0–5
June 27	F/V	5:50AM–11:30AM	67	83	0%	0–5
July 11	F/V	6:00AM–11:15AM	72	76	100% →0%	0–5
July 22	V	5:50AM–11:45AM	63	76	100% →0%	0–5

F: flycatcher; V: vireo; °F: degrees Fahrenheit; mph: miles per hour.

Survey Results

A total of 19 least Bell's vireo territories were observed in the survey area over the course of the surveys (Table 2, Exhibit 5), and are summarized by area below. No southwestern willow flycatchers were observed during the surveys. Per USFWS protocol requirements, the Willow Flycatcher Survey and Detection Form (showing negative survey results) is included in Attachment C.

TABLE 2
SUMMARY OF LEAST BELL'S VIREO OBSERVATIONS

LBV Territory	LBV1	LBV2	LBV3	LBV4	LBV5	LBV6	LBV7	LBV8	LBV9	LBV10	LBV11	LBV12	LBV13	LBV14	LBV15	LBV16	LBV17	LBV18	LBV19
Location within Survey Area	Edison Trail	Edison Trail	River Road Bridge (SW)	River Road Bridge (NE)	River Road Bridge (NW)	Edison Trail	Edison Trail	Edison Trail	Hellman and Chandler	River Road Bridge (SE)	River Road Bridge (NE)	River Road Bridge (SW)	River Road Bridge (NW)	River Road Bridge (SW)	River Road Bridge (SW)	Hellman and Chandler	River Road Bridge (SW)	River Road Bridge (NW)	River Road Bridge (SW)
Survey Date																			
April 14, 2011	Male singing intermittently[a]	Male singing intermittently	Male singing continuously[a]	Male singing continuously	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed
April 27, 2011	Male singing intermittently	Male singing continuously	Male singing intermittently	Male singing continuously; deeper into habitat than last visit.	Male singing continuously	Male singing continuously; moving around a lot; near territory for LBV1; confirmed different (both singing at the same time)	Male singing; near territory for LBV2; confirmed different (singing from opposite sides of the trail)	Male singing intermittently along water's edge (southern bank)	Male singing continuously	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed
May 16, 2011	Male singing intermittently	Male singing fairly continuously; calling; visually observed singing from treetops	Male singing intermittently	Male singing continuously	Male calling and singing infrequently; visually observed singing from treetops	Male singing continuously; moving around a lot; LBV1 singing also confirming different territory	Not observed	Male singing across river (northern bank)	Male singing continuously; possibly a second territory nearby, but not confirmed	Male singing continuously	Male singing; near territory for LBV4; confirmed different (both singing at the same time; LBV4 further into habitat, LBV11 closer to bridge)	Male singing continuously; moving around a lot; near territory for LBV3; confirmed different (both singing at the same time; LBV12 further into habitat, LBV3 closer to bridge)	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed	Not observed
June 3, 2011	Not observed	Male singing intermittently	Male singing continuously	Male singing continuously	Male singing intermittently; began singing continuously from treetop when LBV13 started singing	Not observed	Not observed	Male singing intermittently along water's edge (southern bank)	Male singing intermittently	Not observed	Male singing intermittently	Male singing continuously	Male singing continuously; near LBV5; confirmed different (both singing at the same time, LBV5 near cowbird trap, LBV13 closer to bridge)	Male singing continuously	Pair visually observed; male singing; male and female calling; at least one juvenile observed with parents	Male singing continuously	Not observed	Not observed	Not observed
June 15, 2011	Male singing intermittently	Not observed	Male singing continuously; moving around a lot	Male singing continuously; only singing downslur phrase	Male singing intermittently in same location as last visit	Male singing continuously near trail (both sides); visually observed; appears to be unpaired	Male singing continuously and moving around a lot; visually observed; appears to be alone; observed more northerly than previously	Not observed	Male singing intermittently	Possibly heard but not confirmed	Not observed	Male singing continuously and moving around a lot	Male singing intermittently in same location as last visit	Male singing continuously	Male singing continuously in the same location as previously observed	Male singing intermittently	Male singing continuously; moving around a lot; observed between LBV3 and LBV14	Male singing very intermittently; in habitat west of LBV5 and LBV13	Not observed

TABLE 2 (Continued)
SUMMARY OF LEAST BELL'S VIREO OBSERVATIONS

LBV Territory	LBV1	LBV2	LBV3	LBV4	LBV5	LBV6	LBV7	LBV8	LBV9	LBV10	LBV11	LBV12	LBV13	LBV14	LBV15	LBV16	LBV17	LBV18	LBV19
Location within Survey Area	Edison Trail	Edison Trail	River Road Bridge (SW)	River Road Bridge (NE)	River Road Bridge (NW)	Edison Trail	Edison Trail	Edison Trail	Hellman and Chandler	River Road Bridge (SE)	River Road Bridge (NE)	River Road Bridge (SW)	River Road Bridge (NW)	River Road Bridge (SW)	River Road Bridge (SW)	Hellman and Chandler	River Road Bridge (SW)	River Road Bridge (NW)	River Road Bridge (SW)
Survey Date																			
June 27, 2011	Male singing intermittently	Not observed	Male singing intermittently	Male singing intermittently	Male singing intermittently	Not observed	Male singing continuously	Male singing and calling by river; distinct from LBV7	Male singing intermittently	Male singing very intermittently; very quiet; only sang a few times	Not observed	Pair observed visually; male singing continuously	Male singing intermittently	Male singing intermittently	Male singing intermittently	Not observed	Male singing intermittently; visually observed	Male singing intermittently	Male singing continuously; different than LBV15 (both singing at the same time); silent bird observed with male, either female or juvenile
July 11, 2011	Not observed	Not observed	Not observed	Not observed	Male singing very intermittently; very quiet	Not observed	Individual calling	Not observed	Not observed	Not observed	Not observed	Male singing very intermittently ; very quiet	Not observed	Not observed	Not observed	Male singing very intermittently; very quiet	Not observed	Not observed	Not observed
July 22, 2011	Male singing; chased out invading pair (LBV6) with singing repeated downslur phrase	Male singing intermittently	Not observed	Visually observed foraging and calling	Not observed	Pair observed; flew into territory of LBV1; LBV1 responded and chased them out	Not observed	Male singing across river (northern bank)	Male singing intermittently	Not observed	Not observed	Male singing continuously; LBV15 singing also	2 individuals calling to each other	Male singing intermittently	Male singing continuously; LBV12 singing also; calling	Not observed	Male singing intermittently and calling	Individual calling	Not observed

[a] Unpaired males often sing their phrases continuously in short succession while paired males often pause between phrases and songs.

River Road Bridge

One least Bell's vireo territory was observed southeast of the River Road Bridge (LBV10). Bridge construction was very active (e.g., placement of riprap) in this quadrant of the bridge in early April when vireos are setting up their territories. This territory was first detected on May 16, 2011, when bridge construction had moved away from this area. The male sang intermittently In June, and therefore, was presumably paired. It is unknown if this territory successfully fledged young. This territory was last detected on June 27, 2011.

Two least Bell's vireo territories were observed northeast of the River Road Bridge (LBV 4 and LBV11). LBV4 was recorded singing continuously on almost every visit, indicating that this was likely an unpaired male throughout the survey. LBV11 was detected in late May and early June, and was determined to be a distinct individual from LBV4 because they sang from different areas within the habitat at different times. LBV11 may have attempted to establish a territory here and then moved to a new area outside the survey area in June.

Three least Bell's vireo territories were observed northwest of the River Road Bridge (LBV5, LBV13, and LBV18). LBV5 was the first to establish a territory and was detected singing intermittently on nearly every survey visit, indicating that this was likely a pair. It is unknown whether this territory successfully fledged young. LBV13 was detected singing intermittently on most survey visits, and was observed calling with a second vireo (either a female or a juvenile) on the last survey visit. LBV18 was detected singing intermittently from mid-June through the last survey, and was observed calling to a second vireo (either a female or juvenile) on the last survey visit.

Six least Bell's vireos were observed southwest of the River Road Bridge (LBV3, LBV12, LBV14, LBV15, LBV17, and LBV19). Additional vireo territories were observed as the riparian habitat in this quadrant dried and became more accessible for surveying within the habitat rather than from the edge. It should be noted that only LBV3 and LBV15 are located within the survey area, while LBV12, LBV14, LBV17, and LBV19 are in habitat adjacent to the survey area. LBV3 was reliably detected throughout the surveys, typically singing intermittently, indicating that he was likely paired as early as late April. LBV12, LBV14, and LBV17 appeared to be unpaired through the early surveys and found mates in late June. LBV15 was a family group detected for the first time on June 3, 2011; the male was singing from this location on most subsequent surveys. LBV19 was only detected on the June 27th survey; it was a singing male with a second silent bird (either a female or a juvenile) foraging with it. As noted, bridge construction was markedly reduced during the late June/July surveys, which coincides when several of the males became paired.

Edison Trail

Two least Bell's vireo territories are located at the southern end of the Edison Trail (LBV1 and LBV6). LBV1 was reliably observed singing intermittently throughout the survey period, indicating that he was likely paired in mid-April throughout the survey. LBV6 was typically observed singing continuously and moving widely in this area, until late July when a vireo pair (LBV6) invaded the territory of LBV1 and were chased out by LBV1. It is unknown if either of these territories successfully fledged young.

Three least Bell's vireo territories were observed in the northern section of the Edison Trail (LBV2, LBV7, and LBV8). LBV2 was reliably detected throughout the surveys, typically singing intermittently, indicating that he was likely paired. LBV7 was not reliably detected and typically sang continuously, indicating that this was likely an unpaired male that moved around the habitat. LBV8 was detected singing intermittently near the river on many of the surveys, and would sing from habitat on both sides of the river.

The habitat north of the Santa Ana River (south of Kendra Lane) was also surveyed; however, no least Bell's vireos were detected in this portion of the survey area.

Hellman and Chandler

Two least Bell's vireos were observed in the area along Mill Creek northwest of Hellman Avenue and Chandler Street (LBV9 and LBV16). LBV9 was reliably detected, typically singing intermittently, indicating that this was likely a pair. LBV16 was possibly detected in mid-May but was not confirmed until the following visit in early June. LBV16 was typically observed singing intermittently, indicating that this was also a pair. It is unknown whether LBV9 and LBV16 successfully fledged young.

2nd Street

No least Bell's vireos were observed in this area. Habitat in this area was limited in width and lacked a well-developed understory.

Other Observations

Two California Species of Special Concern were observed within the survey area during the surveys. Yellow warblers (*Dendroica petechia*) and yellow-breasted chat (*Icteria virens*) were consistently observed throughout the survey area, with the highest concentrations recorded along the Edison Trail and southwest of the River Road Bridge. A high count of 48 yellow warblers was observed during the June 27, 2011, survey. A high count of 15 yellow-breasted chats was observed on June 3, 2011. California Natural Diversity Database (CNDDB) forms will be submitted to the CDFG for these species (Attachment D).

Two CDFG Watch List species were observed, Cooper's hawk (*Accipiter cooperii*) and white-faced ibis (*Plegadis chihi*); nesting locations of these species are protected. Both of these species are expected to have nested within or near the survey area; however, because nests were not directly observed, no CNDDB form will be submitted for these species.

Prado Basin has a very active cowbird-trapping program, and a few cowbird traps were located within the survey area. In consideration of the quantity of habitat available, brown-headed cowbirds were observed at very low levels throughout the survey. A high count of five brown-headed cowbirds was observed on April 27, 2011; three or fewer were observed on all subsequent surveys. During a few surveys, cowbirds were not observed at all. Therefore, the trapping appears to be very effective.

BonTerra Consulting appreciates the opportunity to assist on this project. If you have any comments or questions, please call me at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager, Biological Services

I certify that the information in this survey report and enclosed exhibits fully and accurately represents my work.

Amber S Oneal

Amber S. Oneal
(Permit # TE148554-1)

Enclosures: Exhibits 1–5
Attachment A – Site Photos
Attachment B – Wildlife Compendium
Attachment C – Willow Flycatcher Survey and Detection Form
Attachment D – CNDDB Forms

cc: Adelina Muñoz, SCE

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Regional Location

Exhibit 1

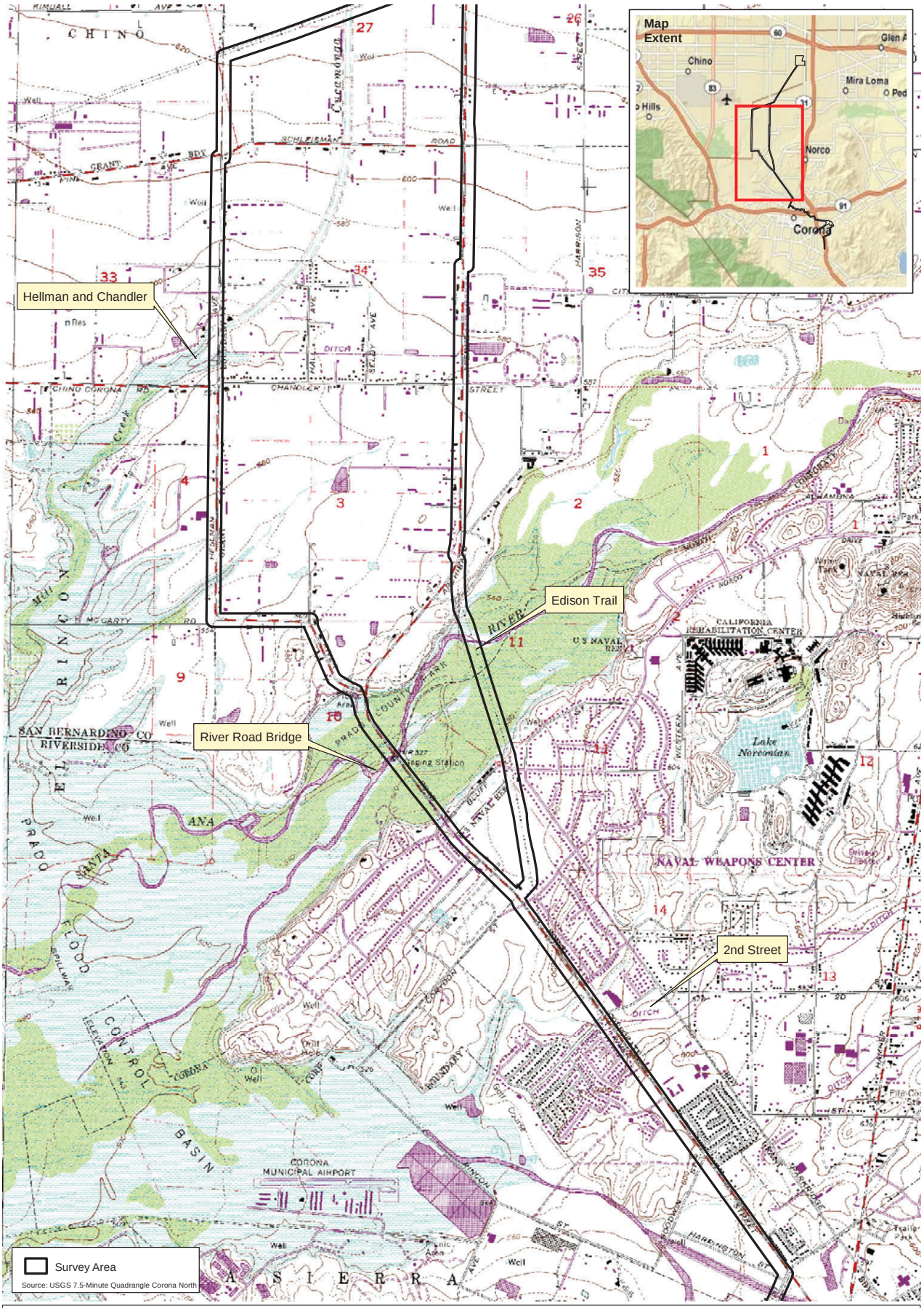
Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

10 5 0 10 Miles

BonTerra CONSULTING

(Rev: 10-20-2011 JCD) Projects\Edison\J045\Graphics\LBV_WIFL2011\Ex1_RL.pdf



USGS Quadrangle

Exhibit 2

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

BonTerra CONSULTING

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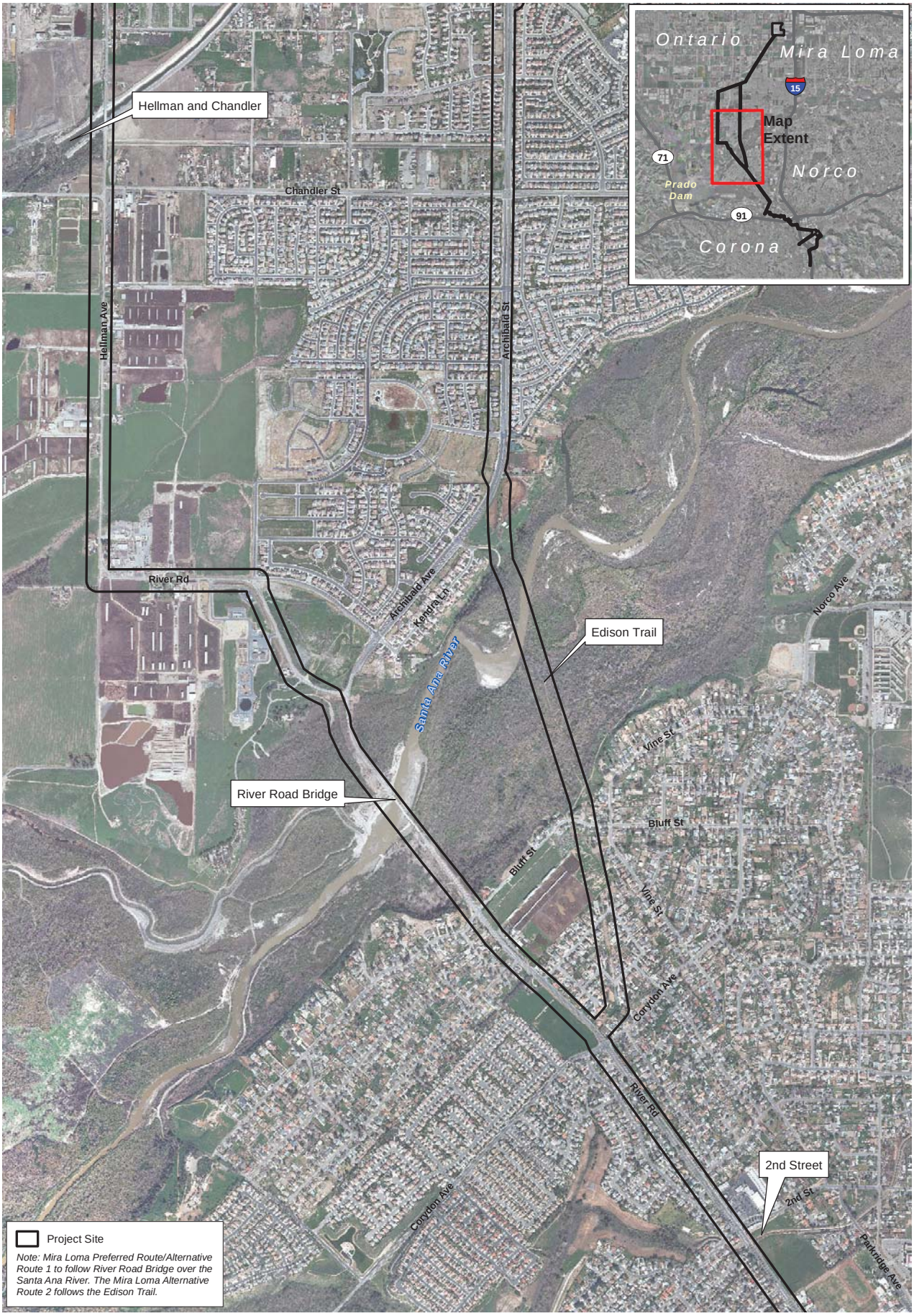

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Survey Area

Exhibit 3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

1,200 600 0 1,200 Feet

BonTerra CONSULTING

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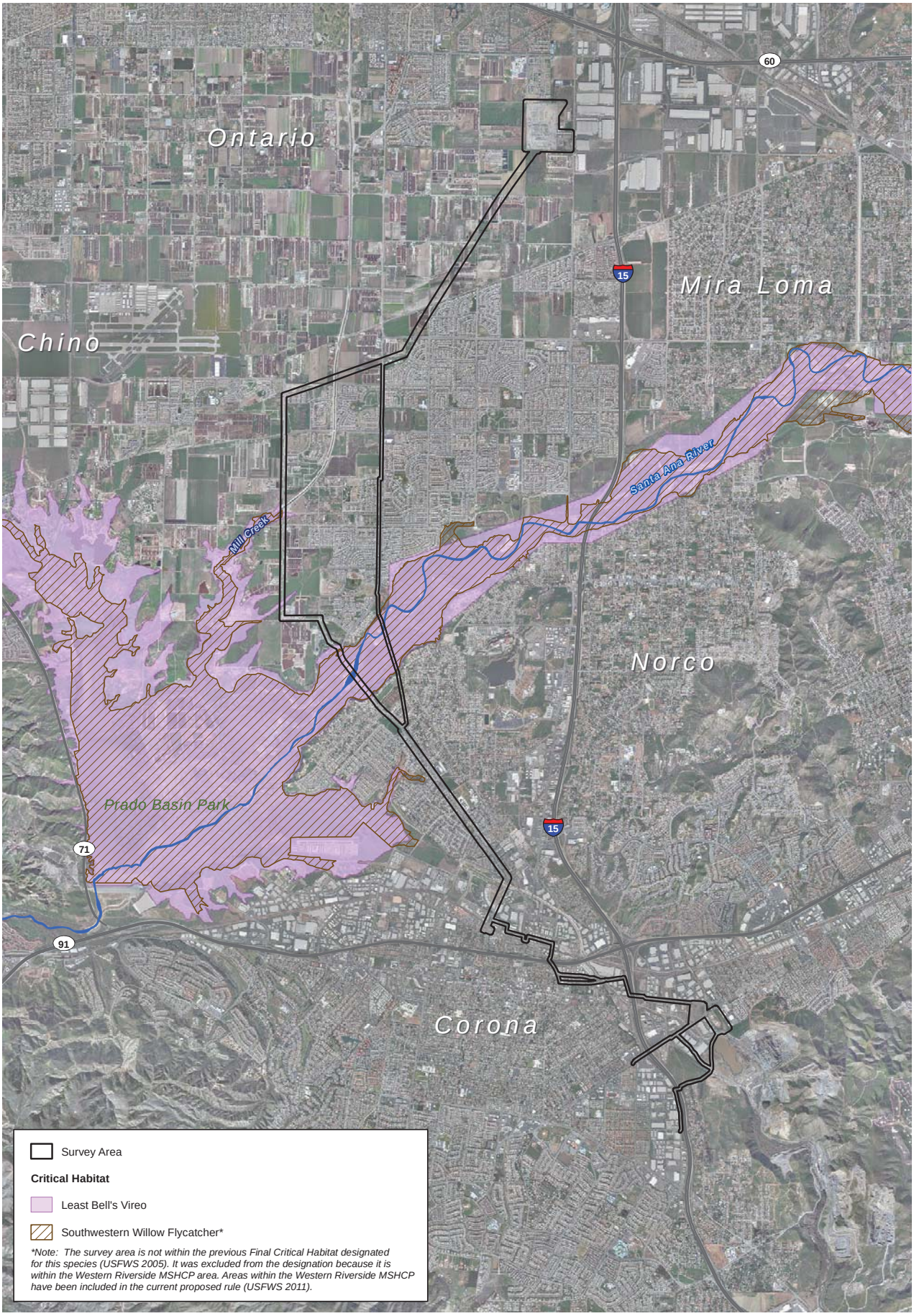

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Critical Habitat

Exhibit 4

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

5,000 2,500 0 5,000 Feet

BonTerra CONSULTING

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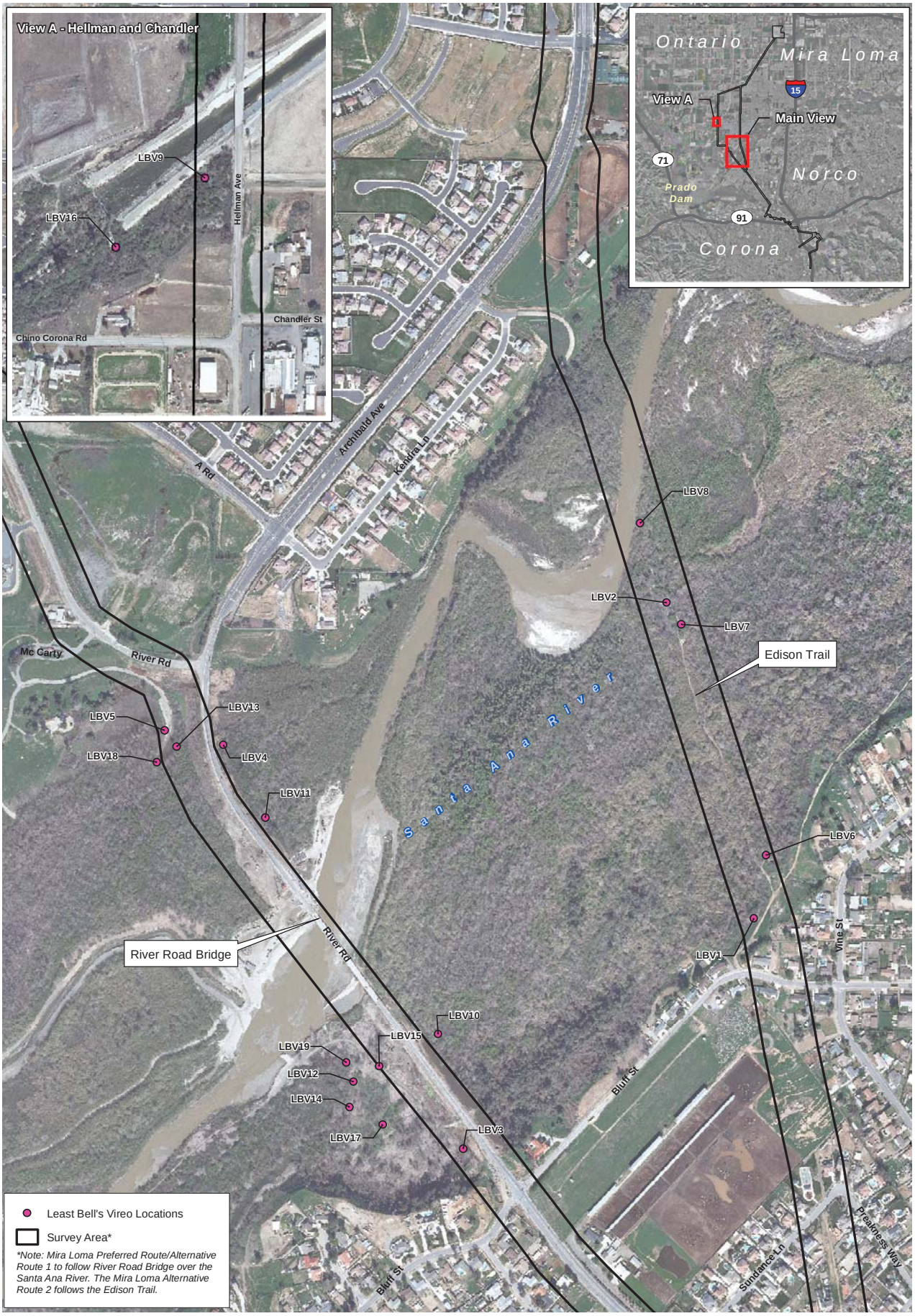

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Least Bell's Vireo Locations

Exhibit 5

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

500 250 0 500 Feet

BonTerra CONSULTING

(Rev: 10-25-2011 JFG) R:\Projects\Edison\J045\Graphics\WIFL-LBV2011\ex5_lbv_locations.pdf

ATTACHMENT A

SITE PHOTOS

From south, facing north. Overview of willow riparian forest located along Mira Loma Alternative Route 2. The proposed alternative alignment follows the existing power lines, which are located along the Edison Trail on the south side of the Santa Ana River.

From south, facing north. Willow riparian forest located along the Edison Trail (Mira Loma Alternative Route 2) near LBV Locations 1 and 6. The power lines are located directly over the trail; therefore, surveys were conducted primarily from the trail to minimize disturbance to habitat.

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From south, facing north. View of the representative habitat along the Edison Trail (Mira Loma Alternative Route 2) near LBV Location 8. The habitat is dominated by arroyo willow with a well-developed understory of stinging nettle, wild grape, and pepperweed. Pepperweed is an invasive species that was a very prominent understory species in the willow riparian forest along the Edison Trail portion of the survey area.

From south, facing north. View of the habitat north of the Santa Ana River and south of Kendra Avenue (Mira Loma Alternative Route 2). The habitat on this side of the river is dominated by giant reed and gum trees with some arroyo willow and mule fat.

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Site Photographs

Appendix A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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From north, facing southwest. Overview of the River Road Bridge over the Santa Ana River; the bridge was under construction throughout the vireo surveys. Note: the Mira Loma Preferred Route/Alternative Route 1 would follow the existing power line easement along the west side of the bridge.

From north, facing south. Another view of the existing power line alignment along the River Road Bridge; pole locations are on the road or abutments, while willow riparian forest habitat is adjacent. This photo was taken on the southwestern side of the bridge near LBV Location 15.

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Site Photographs

Appendix A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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From east, facing west. View of the representative habitat southwest of the River Road Bridge (Mira Loma Preferred Route/Alternative Route 1); note that the habitat in this photo is from just outside the survey area (near LBV Locations 14 and 17). Willow riparian habitat in this area is a mosaic of willow riparian forest, willow scrub, and riparian herb vegetation. Willow riparian forest and scrub is dominated by very large arroyo willow and black willow individuals with smaller stature willows and mule fat; riparian herb is mix of cocklebur, sweet clover, poison hemlock, and cattails.

From east, facing southwest. View of the representative habitat northwest of the River Road Bridge (Mira Loma Preferred Route/Alternative Route 1); note that the habitat in this photo is from just outside the survey area (near LBV Location 18). Willow riparian habitat in this area consists of willow riparian forest dominated by arroyo willow and black willow with mule fat and pepperweed in the understory.

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Site Photographs

Appendix A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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From west, facing east. View of the representative habitat southeast of the River Road Bridge (Mira Loma Preferred Route/Alternative Route 1) near LBV Location 9. Willow riparian habitat in this area consists of willow riparian forest dominated by black willow and arroyo willow with mule fat and cattails in the understory; it was inundated throughout the surveys.

From west, facing east. View of the representative habitat northeast of the River Road Bridge (Mira Loma Preferred Route/Alternative Route 1) near LBV Location 4. Willow riparian habitat in this area consists of willow riparian forest dominated by arroyo willow and black willow with mule fat in the understory.

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Site Photographs

Appendix A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

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(100411 KFD) R: Projects\Edison\J045\Graphics\LBV_WIFL2011\ExAppA_sp5.pdf

From north, facing southeast. Overview of habitat northwest of the intersection of Hellman Avenue and Chandler Street near LBV Location 9. Willow riparian habitat in this area consists of black willow, arroyo willow, and dense mule fat scrub with ruderal species along the periphery.

From west, facing southeast. Overview of habitat southeast of River Road and 2nd Street along a flood-control channel. Habitat in this area consists of black willow and arroyo willow in an incised channel with limited understory.

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Site Photographs

Appendix A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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ATTACHMENT B

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED ON THE PROJECT SITE SPRING/SUMMER 2011

Species	
Amphibians	
BUFONIDAE – TRUE TOADS	
Anaxyrus boreas [Bufo boreas]	western toad
HYLIDAE – TREEFROGS	
Pseudacris hypochondriaca [*Hyla regilla*]	Baja California treefrog
RANIDAE – TRUE FROGS	
Lithobates catesbeianus [*Rana catesbeiana*]*	bullfrog
PIPIDAE – TONGUELESS FROGS	
*Xenopus laevis**	African clawed frog
Reptiles	
PHRYNOSOMATIDAE – ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, & HORNED LIZARDS	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Birds	
ANATIDAE – WATERFOWL	
Branta canadensis	Canada goose
Aix sponsa	wood duck
Anas platyrhynchos	mallard
Anas cyanoptera	cinnamon teal
ODONTOPHORIDAE – QUAILS	
Callipepla californica	California quail
PODICIPEDIDAE – GREBES	
Aechmophorus clarkii	Clark's grebe
ARDEIDAE – HERONS, BITTERNS, & ALLIES	
Ardea herodias	great blue heron
Ardea alba	great egret
Egretta thula	snowy egret
Butorides virescens	green heron
THRESKIORNITHIDAE – IBIS	
Plegadis chihi	white-faced ibis
CATHARTIDAE – NEW WORLD VULTURES	
Cathartes aura	turkey vulture
ACCIPITRIDAE – HAWKS, KITES, EAGLES, & ALLIES	
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
RALLIDAE – RAILS	
Porzana carolina	sora
Gallinula chloropus	common moorhen
Fulica americana	American coot
CHARADRIIDAE – PLOVERS	
Charadrius vociferus	killdeer

WILDLIFE SPECIES OBSERVED ON THE PROJECT SITE
SPRING/SUMMER 2011
(Continued)

Species	
RECURVIROSTRIDAE – STILTS & AVOCETS	
Himantopus mexicanus	black-necked stilt
COLUMBIDAE – PIGEONS & DOVES	
Patagioenas fasciata	band-tailed pigeon
*Columba livia**	rock pigeon
*Streptopelia decaocto**	Eurasian collared-dove
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
Columbina passerina	common ground-dove
APODIDAE – SWIFTS	
Aeronautes saxatalis	white-throated swift
TROCHILIDAE – HUMMINGBIRDS	
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
PICIDAE – WOODPECKERS	
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Colaptes auratus	northern flicker
TYRANNIDAE – TYRANT FLYCATCHERS	
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus verticalis	western kingbird
VIREONIDAE – VIREOS	
Vireo bellii pusillus	least Bell's vireo
Vireo huttoni	Hutton's vireo
Vireo gilvus	warbling vireo
CORVIDAE – CROWS & JAYS	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE – SWALLOWS	
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
AEGITHALIDAE – BUSHTITS	
Psaltriparus minimus	bushtit
TROGLODYTIDAE – WRENS	
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Cistothorus palustris	marsh wren

WILDLIFE SPECIES OBSERVED ON THE PROJECT SITE
SPRING/SUMMER 2011
(Continued)

Species	
SYLVIIDAE – SYLVIID WARBLERS	
Chamaea fasciata	wrentit
MIMIDAE - THRASHERS	
Mimus polyglottos	northern mockingbird
STURNIDAE – STARLINGS	
*Sturnus vulgaris**	European starling
PARULIDAE – WARBLERS	
Oreothlypis [*Vermivora*] *celata*	orange-crowned warbler
Dendroica petechia	yellow warbler
Dendroica coronata	yellow-rumped warbler
Geothlypis trichas	common yellowthroat
Wilsonia pusilla	Wilson's warbler
Icteria virens	yellow-breasted chat
EMBERIZIDAE – SPARROWS & JUNCOS	
Pipilo maculatus	spotted towhee
Melozone [*Pipilo*] *crissalis*	California towhee
Melospiza melodia	song sparrow
Zonotrichia leucophrys	white-crowned sparrow
CARDINALIDAE – CARDINALS & ALLIES	
Pheucticus melanocephalus	black-headed grosbeak
Passerina caerulea	blue grosbeak
ICTERIDAE – BLACKBIRDS	
Euphagus cyanocephalus	Brewer's blackbird
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
FRINGILLIDAE – FINCHES	
Carpodacus mexicanus	house finch
Spinus [Carduelis] psaltria	lesser goldfinch
Spinus [Carduelis] tristis	American goldfinch
PASSERIDAE – OLD WORLD SPARROWS	
*Passer domesticus**	house sparrow
Mammals	
DIDELPHIDAE – NEW WORLD OPOSSUMS	
*Didelphis virginiana**	Virginia opossum
LEPORIDAE – HARES & RABBITS	
Sylvilagus audubonii	desert cottontail
SCIURIDAE – SQUIRRELS	
Spermophilus beecheyi	California ground squirrel
CANIDAE – WOLVES & FOXES	
Canis latrans	coyote
PROCYONIDAE – RACCOONS	
Procyon lotor	common raccoon

WILDLIFE SPECIES OBSERVED ON THE PROJECT SITE
SPRING/SUMMER 2011
(Continued)

Species	
MUSTELIDAE – WEASELS, SKUNKS & OTTERS	
Mephitis mephitis	striped skunk
Mustela frenata	long-tailed weasel
FELIDAE – CATS	
Lynx rufus	bobcat
Invertebrates	
CAMBARIDAE – CRAYFISHES	
*Procambarus clarkii**	red swamp crayfish
* introduced species	

ATTACHMENT C

WILLOW FLYCATCHER SURVEY AND DETECTION FORM

WILLOW FLYCATCHER SURVEY AND DETECTION FORM

Location	Number of Individuals Observed	UTM Location	Error (feet)	Elevation (feet)	Habitat Description
LBV1	1 male, likely paired	11S 0445494, 3753865	14	489	*Salix gooddingii, S. lasiolepis,* and *Platanus racemosa* with *Conium maculatum* and *Vitis girdiana*
LBV2	1 male, likely paired	11S 0445342, 3754403	20	525	*S. lasiolepis* and *S. gooddingii*
LBV3	1 male, likely paired	11S 0445002, 3753469	24	511	*Populus fremontii* and *S. gooddingii* with *Typha* sp.
LBV4	1 male, likely unpaired	11S 0444576, 3754151	14	558	*S. gooddingii* with *Baccharis salicifolia*
LBV5	1 male, likely paired	11S 0444487, 3754179	20	512	*S. gooddingii* and *S. lasiolepis* with *B. salicifolia* and *Lepidium latifolium*
LBV6	1 pair	11S 0445513, 3753974	17	553	*S. gooddingii* and *S. lasiolepis* with *C. maculatum, V. girdiana,* and *L. latifolium*
LBV7	1 male, likely unpaired	11S 0445367, 3754366	25	564	*S. gooddingii* and *S. lasiolepis* with *L. latifolium*
LBV8	1 male, likely paired	11S 0445296, 3754538	22	560	*S. gooddingii* with *B. salicifolia, Tamarisk* sp., and *Arundo donax*
LBV9	1 male, likely paired	11S 0443493, 3756578	12	534	*S. gooddingii* with *B. salicifolia*
LBV10	1 male, likely paired	11S 0444924, 3753637	6	567	*S. gooddingii* and *P. fremontii* with *Eucalyptus* sp. and *Tamarisk* sp.
LBV11	1 male, likely unpaired	11S 0444645, 3754020	7	540	*S. gooddingii* with *B. salicifolia*
LBV12	1 pair	11S 0444814, 3753582	16	530	*S. gooddingii* with *B. salicifolia* and *C. maculatum*
LBV13	1 pair	11S 0444493, 3754153	16	513	*S. gooddingii* with *B. salicifolia* and *L. latifolium*
LBV14	1 male, likely paired	11S 0444807, 3753539	20	574	*S. gooddingii* and *S. lasiolepis* with *B. salicifolia* and *L. latifolium*
LBV15	1 pair with at least 1 juvenile	11S 0444857, 3753609	11	574	*S. lasiolepis* with *Rosa californica* and *C. maculatum*
LBV16	1 male, likely paired	11S 0443387, 3756498	21	581	*S. gooddingii* with very dense *B. salicifolia*
LBV17	1 male, likely paired	11S 0444864, 3753509	12	555	*S. lasiolepis* and *S. gooddingii* with *B. salicifolia, C. maculatum,* and *Urtica* sp.
LBV18	1 male, likely paired	11S 0444473, 3754125	25	546	*S. gooddingii* with *L. latifolium*
LBV19	1 pair	11S 0444800, 3753615	12	587	*S. gooddingii* and *S. lasiolepis* with *B. salicifolia* and *C. maculatum*
Total	**24**	**Average**	**17**	**546**	

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Circle City State: CA County: Riverside

USGS Quad Name: Guasti, Corona North, Corona South Elevation: 166 (meters)

Creek, River, or Lake Name: Santa Ana River, Mill Creek

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ***Yes*** **X** ***No*** ____

Survey Coordinates: Start: E 445072 N 3753373 UTM Datum: NAD83 (See instructions)

Stop: E 444500 N 3754280 UTM Zone: 11

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

*****Fill in additional site information on back of this page*****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
Survey # 1 Observer(s): A. Oneal	Date: 05/16/11 Start: 0600 Stop: 1200 Total hrs: 6	0	0	0	N		# Birds: 0	Sex	UTM E	UTM N
Survey # 2 Observer(s): A. Oneal	Date: 06/03/11 Start: 0545 Stop: 1225 Total hrs: 6.6	0	0	0	N		# Birds: 0	Sex	UTM E	UTM N
Survey # 3 Observer(s): A. Oneal	Date: 06/15/11 Start: 0545 Stop: 1120 Total hrs: 5.6	0	0	0	N		# Birds: 0	Sex	UTM E	UTM N
Survey # 4 Observer(s): A. Oneal	Date: 06/27/11 Start: 0550 Stop: 1130 Total hrs: 5.6	0	0	0	N		# Birds: 0	Sex	UTM E	UTM N
Survey # 5 Observer(s): A. Oneal	Date: 07/11/11 Start: 0600 Stop: 1115 Total hrs: 5.25	0	0	0	N		# Birds: 0	Sex	UTM E	UTM N
Overall Site Summary. Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total survey hrs:		Total Adult Residents: 0	Total Pairs: 0	Total Territories: 0	Total Nests: 0	Were any WIFLs color-banded? Yes ____ No ____ If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual: Amber S. Oneal Date Report Completed: 10/24/11

US Fish & Wildlife Service Permit #: TE148554-1 State Wildlife Agency Permit #: 801229-03

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual: Amber S. Oneal Phone #: 714-444-9199

Affiliation: BonTerra Consulting E-mail: aoneal@bonterraconsulting.com

Site Name: Circle City Date report Completed: 10/24/11

Was this site surveyed in a previous year? Yes x ____ No ____ Unknown ____

Did you verify that this site name is consistent with that used in previous yrs? Yes X ____ No ____ Not Applicable ____

If name is different, what name(s) was used in the past? ____

If site was surveyed last year, did you survey the same general area this year? Yes ____ No X ____ If no, summarize below.

Did you survey the same general area during each visit to this site this year? Yes X ____ No ____ If no, summarize below.

Management Authority for Survey Area: Federal ____ Municipal/County X ____ State ____ Tribal ____ Private ____

Name of Management Entity or Owner (e.g., Tonto National Forest): Hired by SCE; project site owned by County

Length of area surveyed: ~2.6 km (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

____ Native broadleaf plants (entirely or almost entirely, > 90% native)

X Mixed native and exotic plants (mostly native, 50 - 90% native)

____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.
Salix gooddingii, Populus fremontii, Tamarix sp.

Average height of canopy (Do not include a range): 12 m (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

The same areas were surveyed for each visit but there were three different areas within the survey area. The River Road bridge crossing of the Santa Ana River was included above. The Edison Trail portion of the Santa Ana River started at E445528, N3753909 and ended at E445169, N3754835. The Mill Creek area northwest of Hellman Ave and Chandler St started at E443533, N3756605 and ended at E443359, N3756472.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Territory Summary Table, continued

Reporting Individual: Amber S. Oneal Phone #: 714-444-9199
Affiliation: BonTerra Consulting E-mail: aoneal@bonterraconsulting.com
Site Name: Canyon Crest Date report Completed: 08/11/11

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, renesting attemps, behavior)

Comments

The maps and photos requested for this form are included with the report submitted to the USFWS.

ATTACHMENT D

CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/14/2011

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Vireo bellii pusillus*

Common Name: least Bell's vireo

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 24 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Amber Oneal BonTerra Consulting
Address: 151 Kalmus Drive, Ste E-200
Costa Mesa, CA 92694
E-mail Address: aoneal@bonterraconsulting.com
Phone: (714) 444-9199

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
23	1			

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

The survey area included two alternative powerline routes over the Santa Ana River, one along the River Road Bridge and one along Edison Trail (horse trail north of Corydon). It also included a segment of Mill Creek near Hellman Ave and Chandler St.

County: Riverside County Landowner / Mgr.: various

Quad Name: Guasti, Corona North, Corona South Elevation: Average 546 ft

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin eTrek Vista

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy Average 17 ft meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: See attached table

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Willow riparian woodland dominated by Salix lasiolepis, Salix gooddingii, and Populus fremontii. The understory in this area is dominated by a mix of Baccharis salicifolia, Lepidium latifolium, Conium maculatum, Urtica sp., Vitis girdiana, Typha sp., and Melilotus alba. See attached table for a description of each location.

Other rare taxa seen at THIS site on THIS date: yellow warbler, yellow-breasted chat, white-faced ibis, Cooper's hawk
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: roadway, dairy, residential, commercial

Visible disturbances: Arundo donax, Tamarisk sp., and Lepidium latifolium occurs within riparian forest

Threats:

Comments: Brown-headed cowbird control very effective, low levels of cowbirds observed throughout the sutvey period (April-July), typically <3 individuals observed per survey

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Familiarity with species, visually and aurally

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/03/2011

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Icteria virens*

Common Name: yellow-breasted chat

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 15 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Amber Oneal BonTerra Consulting
Address: 151 Kalmus Drive, Ste E-200
Costa Mesa, CA 92694
E-mail Address: aoneal@bonterraconsulting.com
Phone: (714) 444-9199

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

15 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

The survey area included two alternative powerline routes over the Santa Ana River, one along the River Road Bridge and one along Edison Trail (horse trail north of Corydon). It also included a segment of Mill Creek near Hellman Ave and Chandler St.

County: Riverside County Landowner / Mgr.: various

Quad Name: Guasti, Corona North, Corona South Elevation: ~~515-590 ft

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin eTrek Vista

DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy ~15-24 ft meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: 11S 0445342, 3754403; 11S 0444807, 3753539; 11S 0443387, 3756498; coordinates were not recorded for every locations but these are representative

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Willow riparian woodland dominated by Salix lasiolepis, Salix gooddingii, and Populus fremontii. The understory in this area is dominated by a mix of Baccharis salicifolia, Lepidium latifolium, Conium maculatum, Urtica dioica, Vitis sp., Typha sp., and Melilotus alba.

Other rare taxa seen at THIS site on THIS date: least Bell's vireo, yellow warbler, white-faced ibis, Cooper's hawk
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: roadway, dairy, residential, commercial

Visible disturbances: Arundo donax, Tamarisk sp., and Lepidium latifolium occurs within riparian forest

Threats:

Comments: Brown-headed cowbird control very effective, low levels of cowbirds observed throughout the sutvey period (April-July), typically <3 individuals observed per survey

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Familiarity with species, visually and aurally

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/17/2011

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Dendroica petechia brewsteri*

Common Name: western yellow warbler

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 48 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Amber Oneal BonTerra Consulting
Address: 151 Kalmus Drive, Ste E-200
Costa Mesa, CA 92694
E-mail Address: aoneal@bonterraconsulting.com
Phone: (714) 444-9199

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

43	5			
# adults	# juveniles	# larvae	# egg masses	# unknown

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

The survey area included two alternative powerline routes over the Santa Ana River, one along the River Road Bridge and one along Edison Trail (horse trail north of Corydon). It also included a segment of Mill Creek near Hellman Ave and Chandler St.

County: Riverside County Landowner / Mgr.: various

Quad Name: Guasti, Corona North, Corona South Elevation: ~~515-590 ft

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin eTrek Vista

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy ~15-24 ft meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: 11S 0445342, 3754403; 11S 0444807, 3753539; 11S 0443387, 3756498; coordinates were not recorded for every locations but these are representative

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Willow riparian woodland dominated by Salix lasiolepis, Salix gooddingii, and Populus fremontii. The understory in this area is dominated by a mix of Baccharis salicifolia, Lepidium latifolium, Conium maculatum, Urtica dioica, Vitis sp., Typha sp., and Melilotus alba.

Other rare taxa seen at THIS site on THIS date: least Bell's vireo, yellow-breasted chat, white-faced ibis, Cooper's hawk
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: roadway, dairy, residential, commercial

Visible disturbances: Arundo donax, Tamarisk sp., and Lepidium latifolium occurs within riparian forest

Threats:

Comments: Brown-headed cowbird control very effective, low levels of cowbirds observed throughout the sutvey period (April-July), typically <3 individuals observed per survey

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Familiarity with species, visually and aurally

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

BonTerra CONSULTING
2 Executive Circle, Suite 175 Irvine, CA 92614
T: (714) 444-9199 F: (714) 444-9599 | www.BonTerraConsulting.com

August 23, 2012

Ms. Susie Tharratt
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

VIA EMAIL AND MAIL
susie_tharratt@fws.gov

Subject: Results of the 2012 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys for the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project in Riverside and San Bernardino Counties, California

Dear Ms. Tharratt:

This Letter Report presents the results of focused surveys to determine the presence or absence of the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) on the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereinafter referred to as the "Proposed Project") in Riverside and San Bernardino Counties, California (Figure 1). A Biologist with the necessary experience and the Federal Endangered Species Act 10(a) survey permit conducted the surveys according to U.S. Fish and Wildlife Service (USFWS) protocol for these species.

Project Description and Location

The Proposed Project will construct a new 66/12-kilovolt (kV) distribution substation (i.e., the Circle City Substation) with four 66-kV source line segments, 6 new 12-kV distribution circuit getaways, and a new 66-kV subtransmission line (Mira Loma-Jefferson); upgrade the existing Mira Loma Substation; and install new fiber optic cable and communication equipment to connect the proposed Circle City Substation to Southern California Edison's (SCE's) existing telecommunication system. The purpose of the Proposed Project is to ensure the availability of safe and reliable electric service to meet customer electrical demand in the Electrical Needs Area. The Study Area for the Proposed Project consists of the following:

1. A 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, the proposed Circle City Substation site, and the alternative Circle City Substation site);

2. A 300-foot buffer on either side of the proposed Mira Loma-Jefferson 66-kV subtransmission line route, the two alternative Mira Loma-Jefferson 66-kV subtransmission line routes (i.e., Alternative 2 and Alternative 3), and the proposed and alternative source line routes; and

3. A 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.

The Proposed Project primarily runs west of Interstate (I) 15 and north of State Route (SR) 91, with the southern end of

the Proposed Project extending south of SR-91 and east of I-15. It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Figures 2A-2C). Topography in the Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl). Land uses in the immediate Proposed Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project.

Sixteen vegetation types and other areas occur in the Study Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, freshwater marsh, open water, flood control channel, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost layer of vegetation.

The Study Area, including alternatives, was surveyed for least Bell's vireo and southwestern willow flycatcher in 2011 (BonTerra Consulting 2011). The 2012 Survey Area includes all suitable riparian habitat along the Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route (Figure 3).

Species Background

The southwestern willow flycatcher and least Bell's vireo were formerly more common and widespread, but became rare and local summer residents of Southern California's lowland riparian woodlands (Grinnell and Miller 1944; Garrett and Dunn 1981). The substantial population declines of these two avian species over the latter half of the twentieth century is attributable to the loss and degradation of riparian habitats and brood parasitism by the brown-headed cowbird (*Molothrus ater*). As a result, the least Bell's vireo was listed by the California Department of Fish and Game (CDFG) as Endangered on October 2, 1980, and by the USFWS as Endangered on May 2, 1986 (CDFG 2011). The CDFG listed all three subspecies of willow flycatcher that breed in California (*E. t. brewsteri*, *E. t. extimus*, and *E. t. adastus*) as Endangered on January 2, 1991 (CDFG 2011). The USFWS listed the southwestern willow flycatcher (*E. t. extimus*) as Endangered on February 7, 1995 (USFWS 1995) with an effective list date of March 29, 1995 (CDFG 2011).

Least Bell's Vireo

Bell's vireo is a Neotropical migrant that breeds in central and southwestern North America from northern Mexico to Southern California, Nevada, and Utah; east to Louisiana; and north to North Dakota, Wisconsin, and Indiana in the central U.S. (AOU 1998). Although not well known, the winter range of the Bell's vireo is believed to be the west coast of Central America from southern Sonora south to northwestern Nicaragua, including the cape region of Baja California, Mexico (Brown 1993). Of the four Bell's vireo subspecies, only two breed in California: the least Bell's vireo and the Arizona Bell's vireo (*V. b. arizonae*); the latter breeds in the Colorado River Valley (Garrett and Dunn 1981; Rosenberg et al. 1991). Though the least Bell's vireo was formerly considered a common breeder in riparian habitats throughout the Central Valley and other low-elevation riverine systems in California and Baja California, Mexico (Franzreb 1989), the least Bell's vireo had been eliminated from much of its historical range at the time of listing (Franzreb 1989; Brown 1993). The least Bell's vireo has increased tenfold since its listing to 2,968 territories, and it has begun to recolonize portions of its former range where it had been extirpated (USFWS 2006). The increase is credited to improvements in habitat abundance and quality and effective cowbird control. Continued cowbird control and exotic plant removal in

riparian areas are considered necessary for the foreseeable future in order to continue this trend (USFWS 2006).

The breeding habitat of the least Bell's vireo is primarily riparian dominated by willows (*Salix* sp.) with dense understory vegetation; shrubs such as mule fat (*Baccharis salicifolia* ssp. *salicifolia* [*B. salicifolia*]) and California rose (*Rosa californica*) are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often found in areas that include trees such as willow (*Salix* sp.), western sycamore (*Platanus racemosa*), or cottonwood (*Populus* sp.), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). The least Bell's vireo generally nests in early successional stages of riparian habitats, with nest sites frequently located in willows that are between four and ten years of age (RECON 1988; Franzreb 1989). The most critical factor in habitat structure is the presence of a dense understory shrub layer from approximately two to ten feet above ground (Goldwasser 1981; Salata 1983; Franzreb 1989).

On February 2, 1994, the USFWS issued their final determination of critical habitat for the least Bell's vireo (USFWS 1994), identifying approximately 37,560 acres as critical habitat in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties. The Study Area is located within designated critical habitat for this species along the Santa Ana River upstream of Prado Basin (Figure 4).

Southwestern Willow Flycatcher

The willow flycatcher is a Neotropical migrant that breeds in the west from northern Baja California, Mexico to central British Columbia, and generally east through the northern half of the U.S. to the Atlantic coast (AOU 1998). Depending on the authority, there are four or five recognized subspecies of willow flycatcher (Sedgwick 2000). The breeding range of southwestern willow flycatcher includes Southern California, Arizona, New Mexico, western Texas, and the extreme southern parts of Nevada and Utah (USFWS 1993). In California, the southwestern willow flycatcher breeds along the coast north to the Santa Ynez River, Santa Barbara County, and north in the interior to about Independence, Inyo County (USFWS 2002; Unitt 1987). The largest breeding populations of southwestern willow flycatcher in California are located at the South Fork of the Kern River in Kern County and on the Santa Margarita River in Camp Pendleton in San Diego County (Unitt 1987). The range-wide population of southwestern willow flycatcher is estimated at 1,299 territories at 288 sites (Durst et al. 2008). The population of southwestern willow flycatcher in California is estimated to be about 172 territories at 96 sites (Durst et al. 2008). Within the Coastal California Recovery Unit, the population is estimated at 120 territories at 73 sites (Durst et al. 2008). The southwestern willow flycatcher population has not shown the same recovery that the least Bell's vireo has shown in response to riparian habitat restoration and cowbird control (Kus 2011).

The southwestern willow flycatcher breeds in willow-dominated riparian habitats that are similar to least Bell's vireo nesting habitats. The southwestern willow flycatcher differs from least Bell's vireo in that it shows a stronger dependency on willow thickets for all its requirements (Grinnell and Miller 1944). In addition, the southwestern willow flycatcher appears to have a preference for sites with surface water in the vicinity, such as along streams, on the margins of a pond or lake, and at wet mountain meadows (Grinnell and Miller 1944; Flett and Sanders 1987; Harris et al. 1987). In Arizona, the southwestern willow flycatcher invariably nests near surface water (Phillips et al. 1964). Recently, the southwestern willow flycatcher has adapted to introduced vegetation present in riparian communities, such as tamarisk (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*) (USFWS 1993).

The willow flycatcher is a common migrant in the interior of California and a rare-to-uncommon migrant along the coastal slope, with most birds moving through Southern California between May 15 and June 20 (Garrett and Dunn 1981; Unitt 1987). The spring migration of southwestern willow flycatcher is earlier than that of the northern subspecies (Unitt 1984; USFWS 1993). As a result, the presence of more abundant subspecies that migrate through the range of the southwestern willow flycatcher during its breeding season complicates surveys for nesting southwestern willow flycatchers.

On October 19, 2005, the USFWS published a Final Rule designating critical habitat for the southwestern willow flycatcher (USFWS 2005). This final rule designates 120,824 acres in Arizona, California, Nevada, New Mexico, and Utah as critical habitat. Of that, 17,212 acres were designated in Kern, Santa Barbara, San Bernardino, and San Diego Counties, California. Following lawsuits, the USFWS recently proposed a revised critical habitat designation on August 15, 2011. This revised critical habitat covers 2,090 stream miles in California, Nevada, Utah, Colorado, Arizona, and New Mexico (USFWS 2011). The proposed rule uses a slightly different methodology to designate critical habitat. For example, it includes areas that are considered essential for the recovery of the species even if they were not occupied at the time of the species' listing. The Survey Area is not located within the previous final critical habitat designation, but it is located within the proposed revised critical habitat designation (Figure 4). It was excluded from the previous designation because it is within the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) area. Areas within the Western Riverside MSHCP have been included in the current proposed rule (USFWS 2011). However, the proposed rule states that the USFWS intends to exclude areas covered by the Western Riverside MSHCP based on protections included in the MSHCP's Implementation Agreement.

Survey Methodology

The USFWS protocol for the least Bell's vireo requires that at least eight surveys be conducted from April 10 to July 31 with a ten-day interval between each site visit. The USFWS protocol for the southwestern willow flycatcher requires a total of five surveys, with the first survey conducted between May 15 and May 31; the second and third surveys between June 1 and June 24; and the fourth and fifth surveys between June 25 and July 17. A total of eight surveys were conducted to satisfy the survey requirements of both species. BonTerra Consulting Senior Biologist Brian Daniels (Permit No. TE821401-3) conducted seven of the eight surveys with two least Bell's vireo surveys on April 23 and May 3, 2012, and all five southwestern willow flycatcher surveys on May 29; June 8, 18, 28; and July 9, 2012. BonTerra Consulting Biologist Lindsay Messett conducted one least Bell's vireo survey on May 18, 2012.

The Survey Area for the vireo and flycatcher surveys included all riparian habitat along the Proposed Mira Loma-Jefferson 66 kV Subtransmission Line Route. The riparian habitats were systematically surveyed by walking slowly and methodically along the margins of riparian habitat or by using meandering transects through riparian habitat. Following the willow flycatcher protocol, recorded vocalizations were used to elicit a response from any potentially territorial southwestern willow flycatchers. If no southwestern willow flycatchers were detected after the initial playing of the recorded vocalization, Mr. Daniels replayed the recording at least once, but often multiple times. As the least Bell's vireo survey protocol does not require the playback of least Bell's vireo vocalizations, recorded least Bell's vireo vocalizations were not used during the surveys. Any least Bell's vireos or southwestern willow flycatcher sightings were recorded with a hand-held Global Positioning System (GPS) device; territories recorded were numbered chronologically as they were detected.

All surveys were conducted under optimal weather conditions (i.e., between 55 and 95 degrees Fahrenheit [°F] with wind speeds between 0 and 15 miles per hour) and during the early

morning hours when bird activity is at a peak. Attachment A provides a list of bird species detected during the surveys.

Survey Results

A total of ten least Bell's vireo territories were established in the Survey Area over the course of the surveys (Figure 5). No southwestern willow flycatchers were observed during the surveys. These ten least Bell's vireo territories are summarized below. Nine of the ten least Bell's vireo territories were where the Survey Area crosses the Santa Ana River at the River Road Bridge. This part of the river is in critical habitat for the least Bell's vireo (Figure 4). Per USFWS protocol requirements, the Willow Flycatcher Survey and Detection Forms (showing negative survey results) are included in Attachment B.

River Road Bridge

Nine least Bell's vireo (LBV) territories were established in 2012 in the Survey Area at the River Road Bridge (Figure 5). The habitat on the southwest side of the bridge provides the highest quality habitat for the least Bell's vireo. This habitat is dominated by willow riparian forest that includes a mix of multi-layered canopies with dense understory vegetation. At least four least Bell's territories (Figure 5; LBV 2, 3, 4, and 5) were within 300 feet of the River Road Bridge on the southwest side of the bridge. One or two additional least Bell's vireo territories (Figure 5; LBV 6 and 7) were established just west of this Survey Area during these surveys. At least three of these four territories successfully paired and fledged young during these surveys. Just one least Bell's vireo territory (Figure 5; LBV 10) was on the southeast side of the bridge. The flooded conditions in this area combined with relatively sparse understory vegetation due to the extensive tree canopy limits the value of this habitat for least Bell's vireo. In addition, giant reed (*Arundo donax*) dominates areas here that are closer to the river channel and provides little habitat value for the least Bell's vireo. The breeding status of this one least Bell's vireo territory on the southeast side of the bridge was unknown. Two least Bell's vireo territories (Figure 5; LBV 8 and 9) were established on the northeast side of the bridge. Although not flooded, the habitat in this area is similar to the habitat southeast of the bridge as it is dominated by the tree canopy with relatively sparse understory vegetation and areas that are dominated by giant reed. The breeding status of these two least Bell's vireo territories during the surveys was not determined. Habitat northwest of the bridge provides similar habitat values to that southwest of the bridge, except it supported fewer least Bell's vireos, with only two territories (Figure 5; LBV 6 and 7) detected here during these surveys. The territory at the north edge consisted of a pair that fledged at least three young. The breeding success of the second least Bell's vireo territory here was unknown as its territory was largely outside the Survey Area.

Mill Creek at Hellman and Chandler

One least Bell's vireo territory (Figure 5; LBV 1) was established in the Survey Area at Mill Creek during these surveys. The "point" location on Figure 5 shows the primary use area for this territory, but the male least Bell's vireo was detected in the Survey Area on the south side of the channel on at least one occasion. This male was paired and at least two young fledged from this territory.

Other Observations

Three California Species of Special Concern (SSC), yellow warbler (*Setophaga petechia* [*Dendroica petechia*]), yellow-breasted chat (*Icteria virens*) and Vaux's swift (*Chaetura vauxi*)

were observed within the Survey Area during the surveys. California Natural Diversity Database (CNDDB) forms will be submitted to the CDFG for all special status species.

Four CDFG Watch List species were also observed during the surveys, double-crested cormorant (*Phalacrocorax auritus*), white-faced ibis (*Plegadis chihi*), Cooper's hawk (*Accipiter cooperii*), and California gull (*Larus californicus*); nesting locations of these species are protected. All of these species have potential to nest within or near the Survey Area; however, because nests were not directly observed, no CNDDB form will be submitted for these species.

Prado Basin has a very active cowbird-trapping program, and a few cowbird traps were located within the Survey Area. In consideration of the quantity of habitat available, brown-headed cowbirds were observed at very low levels throughout the survey.

BonTerra Consulting appreciates the opportunity to assist on this project. If you have any comments or questions, please call me at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager, Biological Services

I certify that the information in this survey report and enclosed exhibits fully and accurately represents my work.

Brian E. Daniels
Senior Biologist/Ornithologist
(Permit # TE821401-3)

Enclosures: Figures 1–5
Attachment A – Wildlife Compendium
Attachment B – Willow Flycatcher Survey and Detection Forms

cc: Adelina Muñoz, SCE

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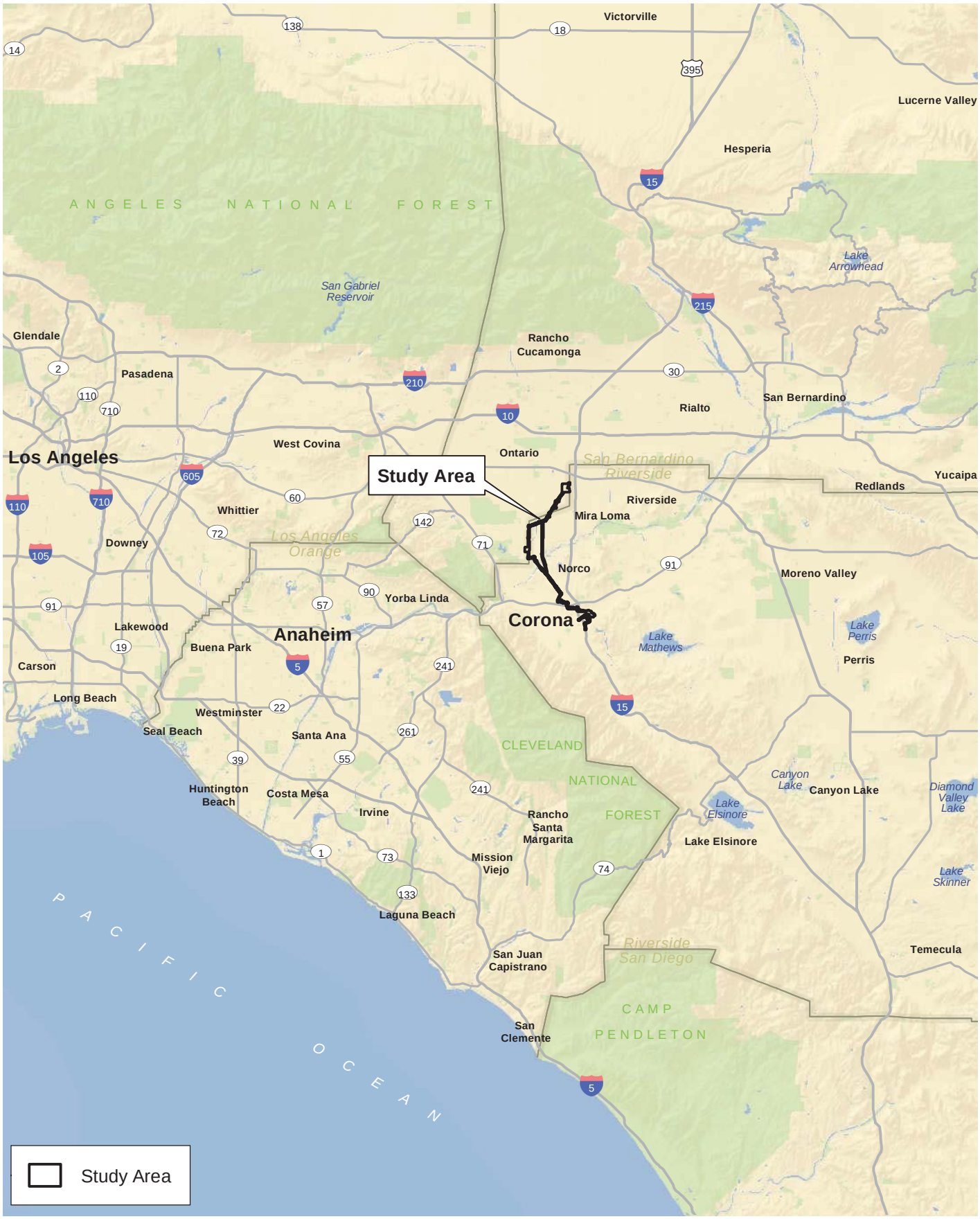

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Regional Location

Figure 1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

10 5 0 10 Miles

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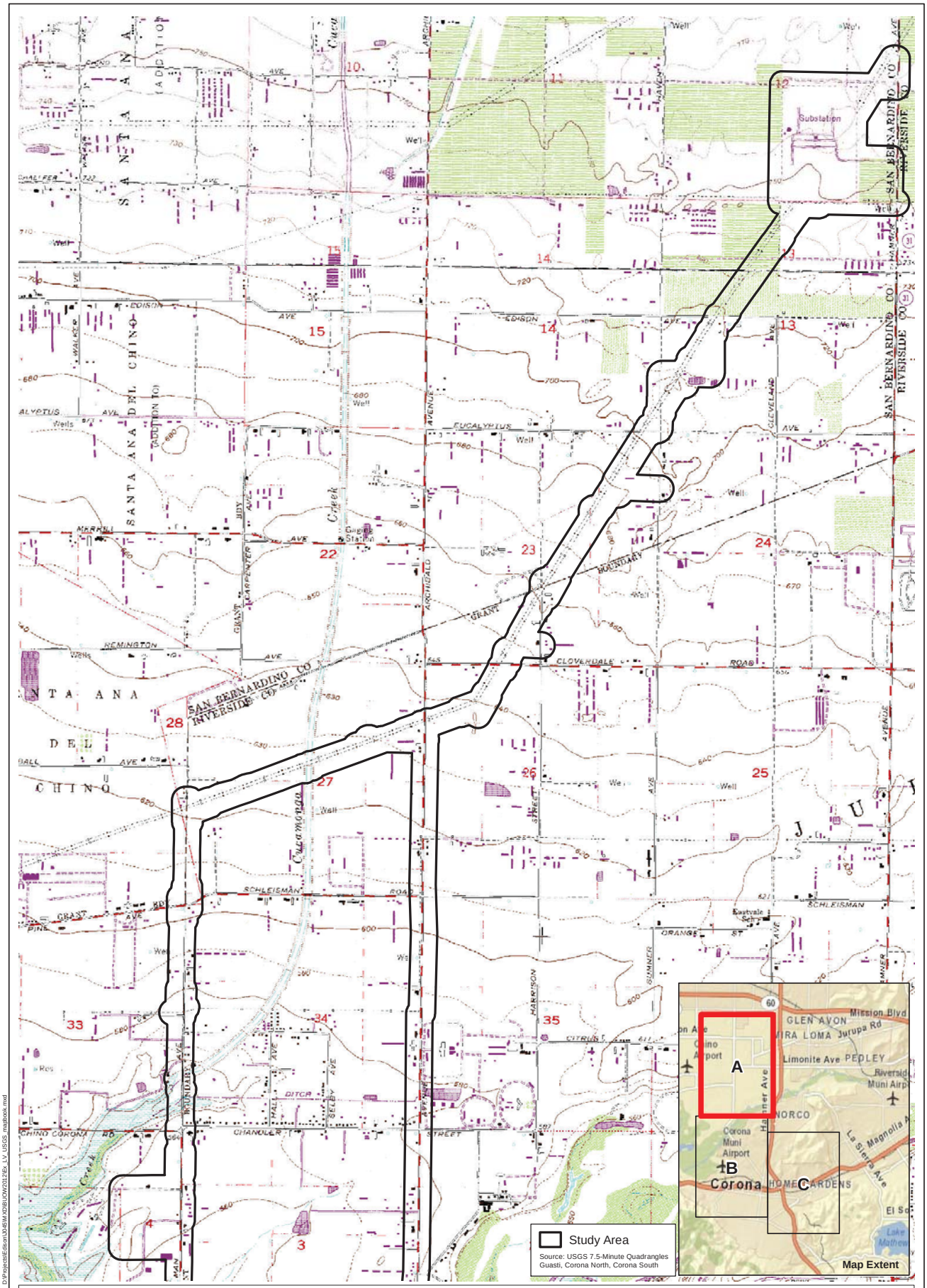

USGS 7.5-Minute Quadrangle

Figure 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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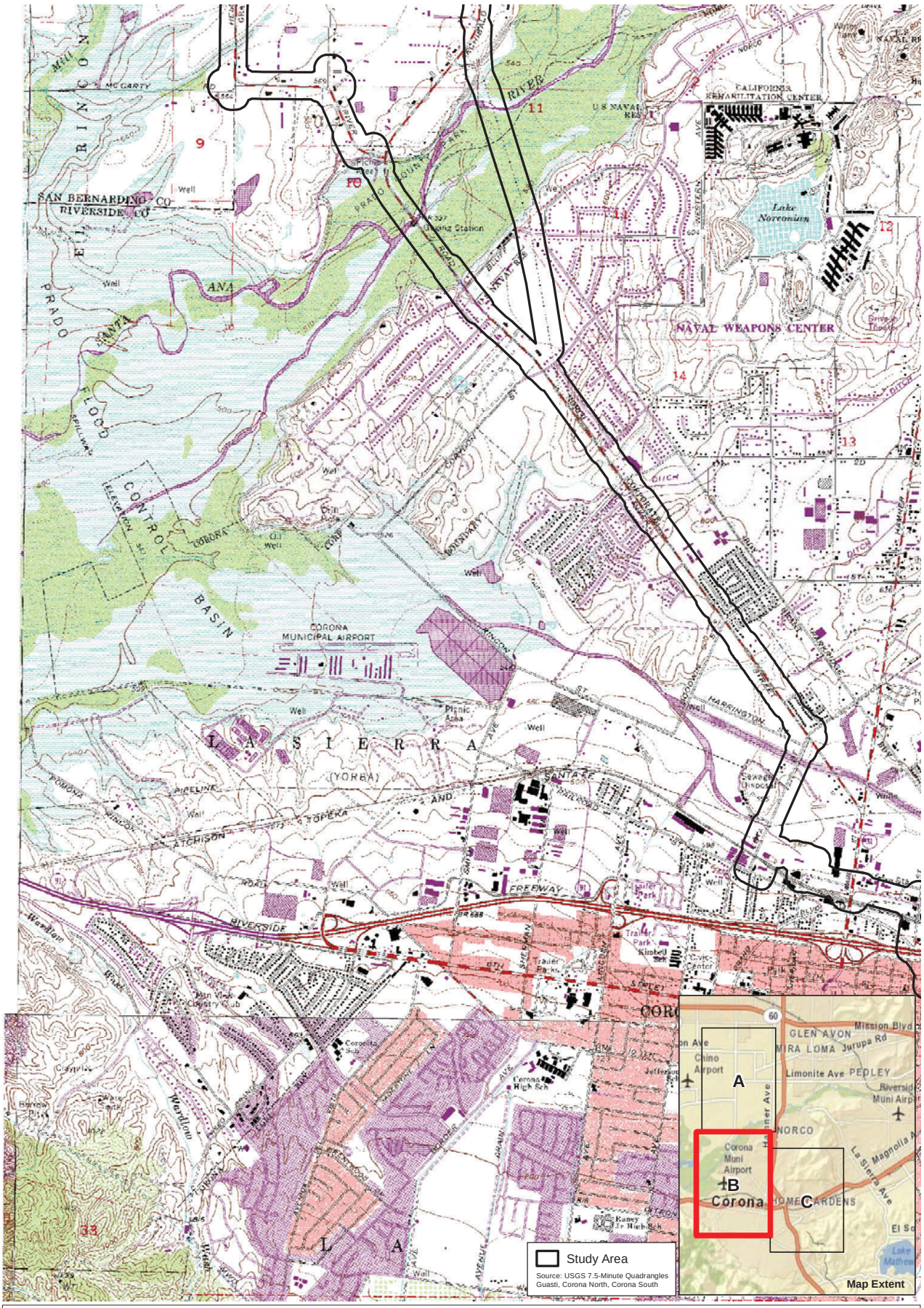

USGS 7.5-Minute Quadrangle

Figure 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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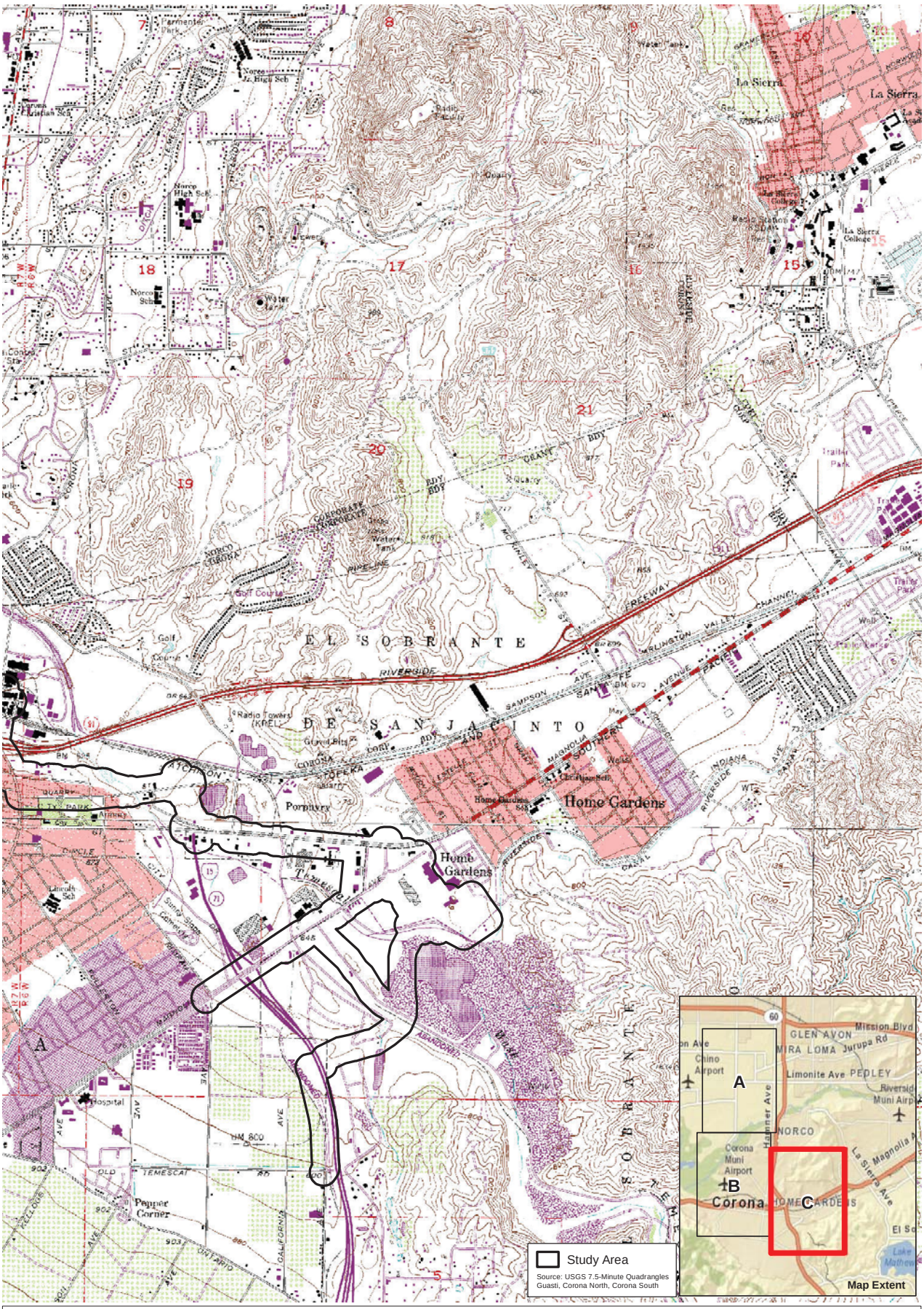

USGS 7.5-Minute Quadrangle

Figure 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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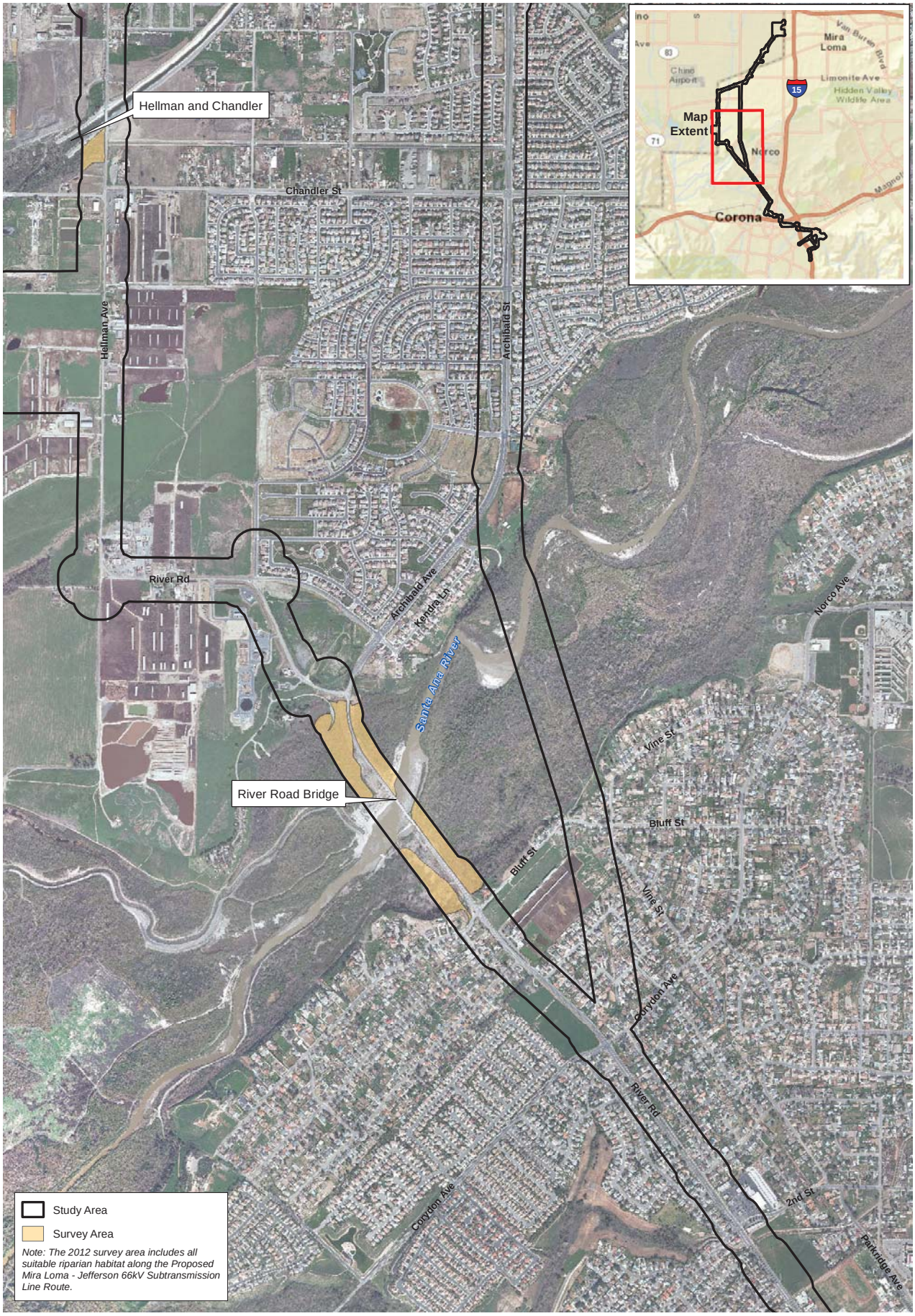

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Survey Area

Figure 3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

1,200 600 0 1,200 Feet

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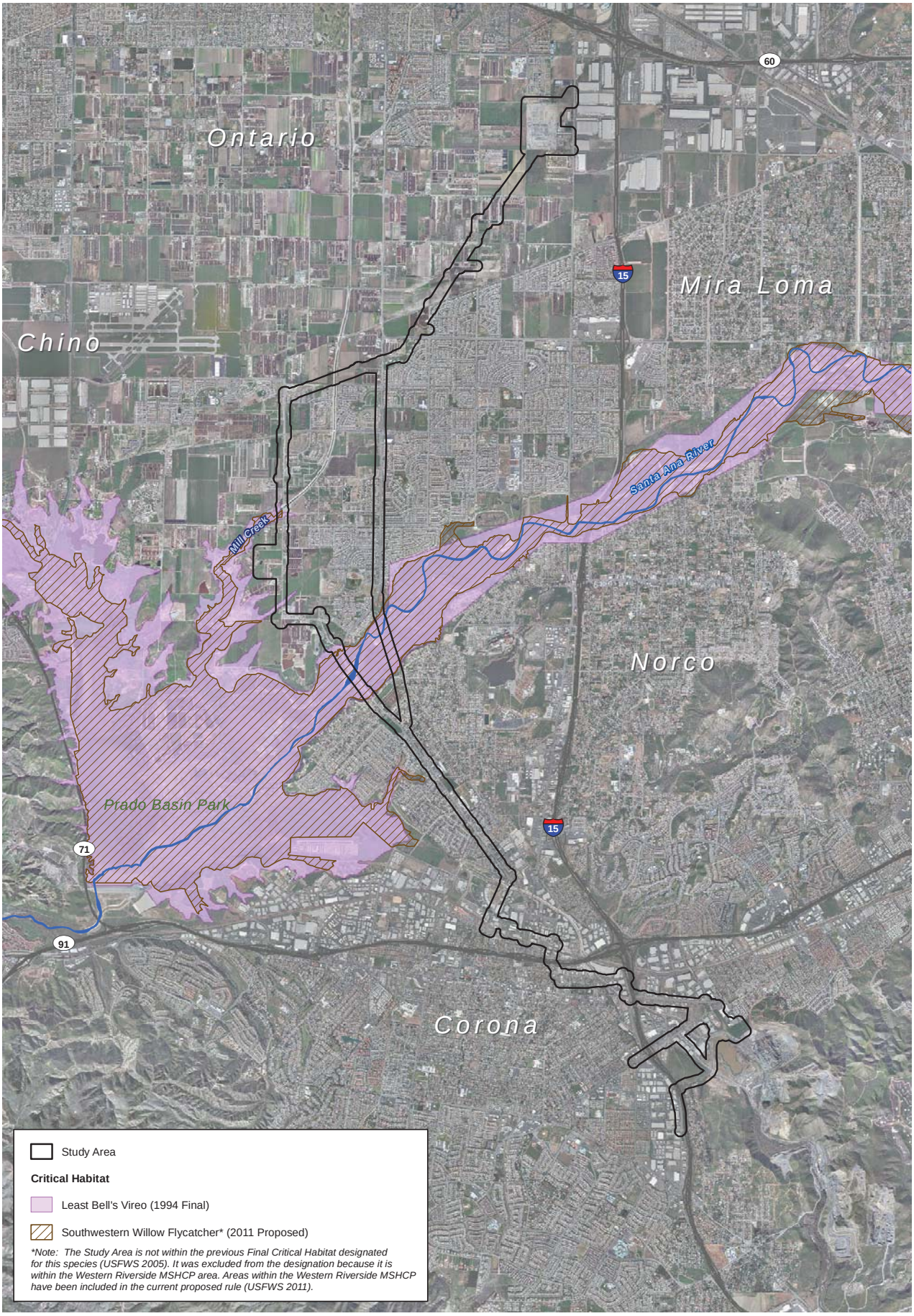

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Critical Habitat

Figure 4

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

5,000 2,500 0 5,000 Feet

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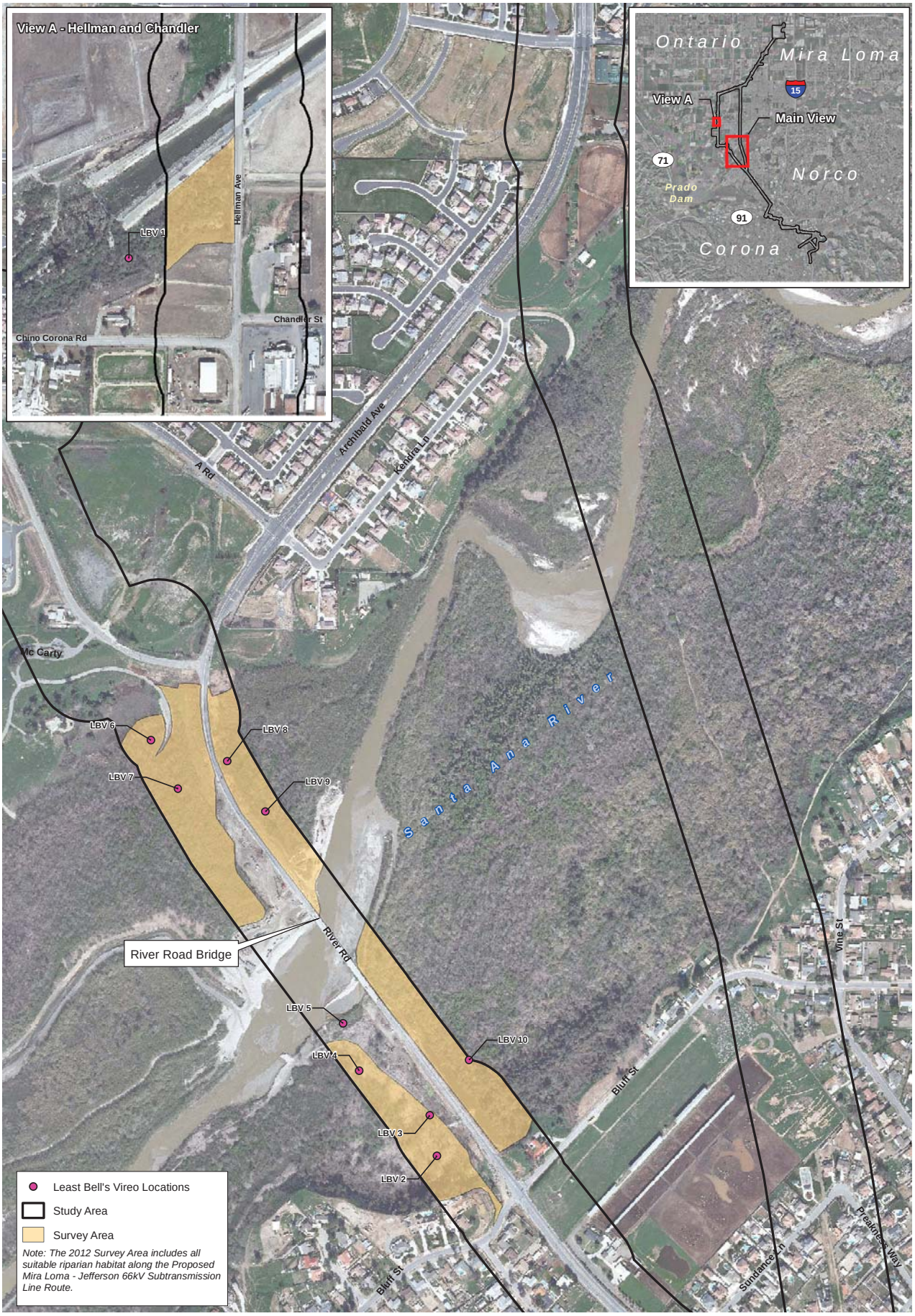

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Least Bell's Vireo Locations

Figure 5

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

500 250 0 500 Feet

BonTerra CONSULTING

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ATTACHMENT A

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species	
BIRDS	
***AVES* - BIRDS** *ANATIDAE* - WATERFOWL	
Aix sponsa	wood duck
Anas platyrhynchos	mallard
Anas cyanoptera	cinnamon teal
PHALACROCORACIDAE - CORMORANTS	
Phalacrocorax auritus	double-crested cormorant
ARDEIDAE - HERONS, BITTERNS, & ALLIES	
Ardea herodias	great blue heron
Ardea alba	great egret
Egretta thula	snowy egret
Butorides virescens	green heron
Nycticorax nycticorax	black-crowned night-heron
THRESKIORNITHIDAE - IBIS	
Plegadis chihi	white-faced ibis
CATHARTIDAE - NEW WORLD VULTURES	
Cathartes aura	turkey vulture
ACCIPITRIDAE - HAWKS, KITES, EAGLES, & ALLIES	
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
FALCONIDAE - FALCONS	
Falco sparverius	American kestrel
RALLIDAE - RAILS	
Gallinula galeata [*Gallinula chloropus*]	common gallinule
Fulica americana	American coot
CHARADRIIDAE - PLOVERS	
Charadrius vociferus	killdeer
RECURVIROSTRIDAE - STILTS & AVOCETS	
Himantopus mexicanus	black-necked stilt
SCOLOPACIDAE - SANDPIPERS & PHALAROPES	
Actitis macularius	spotted sandpiper
Tringa melanoleuca	greater yellowlegs
Numenius phaeopus	whimbrel
LARIDAE - GULLS & TERNS	
Larus occidentalis	western gull
Larus californicus	California gull
Sterna forsteri	Forster's tern
COLUMBIDAE - PIGEONS & DOVES	
Columba livia *	rock pigeon
Streptopelia decaocto *	Eurasian collared-dove
Zenaida macroura	mourning dove
Columbina passerina	common ground-dove

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species	
APODIDAE - SWIFTS	
Chaetura vauxi	Vaux's swift
Aeronautes saxatalis	white-throated swift
TROCHILIDAE - HUMMINGBIRDS	
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
Selasphorus sp.	rufous/Allen's hummingbid
PICIDAE - WOODPECKERS	
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Colaptes auratus	northern flicker
TYRANNIDAE - TYRANT FLYCATCHERS	
Contopus sordidulus	western wood-pewee
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus vociferans	Cassin's kingbird
Tyrannus verticalis	western kingbird
VIREONIDAE - VIREOS	
Vireo bellii pusillus	least Bell's vireo
Vireo huttoni	Hutton's vireo
Vireo gilvus	warbling vireo
CORVIDAE - CROWS & JAYS	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE - SWALLOWS	
Tachycineta bicolor	tree swallow
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
AEGITHALIDAE - BUSHTITS	
Psaltriparus minimus	bushtit
SITTIDAE - NUTHATCHES	
Sitta carolinensis	white-breasted nuthatch
TROGLODYTIDAE - WRENS	
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
SYLVIIDAE - SYLVIID WARBLERS	
Chamaea fasciata	wrentit
TURDIDAE - THRUSHES & ROBINS	
Catharus ustulatus	Swainson's thrush

WILDLIFE SPECIES OBSERVED DURING SURVEYS (Continued)

Species	
MIMIDAE - THRASHERS	
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
STURNIDAE - STARLINGS	
Sturnus vulgaris *	European starling
PARULIDAE - WARBLERS	
Oreothlypis [*Vermivora*] *celata*	orange-crowned warbler
Geothlypis trichas	common yellowthroat
Setophaga petechia [*Dendroica petechia*]	yellow warbler
Setophaga coronata [*Dendroica coronata*]	yellow-rumped warbler
Cardellina pusilla [*Wilsonia pusilla*]	Wilson's warbler
Icteria virens	yellow-breasted chat
EMBERIZIDAE - SPARROWS & JUNCOS	
Pipilo maculatus	spotted towhee
Melozone [*Pipilo*] *crissalis*	California towhee
Melospiza melodia	song sparrow
CARDINALIDAE - CARDINALS & ALLIES	
Piranga ludoviciana	western tanager
Pheucticus melanocephalus	black-headed grosbeak
Passerina caerulea	blue grosbeak
ICTERIDAE - BLACKBIRDS	
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Quiscalis mexicanus	great-tailed grackle
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
FRINGILLIDAE - FINCHES	
Carpodacus mexicanus	house finch
Spinus [Carduelis] psaltria	lesser goldfinch
Spinus [Carduelis] tristis	American goldfinch
PASSERIDAE - OLD WORLD SPARROWS	
Passer domesticus *	house sparrow
* introduced species	

ATTACHMENT B

WILLOW FLYCATCHER SURVEY AND DETECTION FORMS

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Circle City State CA County Riverside
USGS Quad Name Corona North Elevation 165m (meters)
Creek, River, Wetland, or Lake Name Santa Ana River
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? *Yes* ✓ *No*___

Survey Coordinates: Start: E 445006 N 3753438 UTM Datum NAD83 (see instructions)
Stop: E 444527 N 3754235 UTM Zone 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

***** Fill in additional site information on back of this page *****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) BED	Date 5/29 Start 0630 Stop 1130 Total hrs 5	0	0	0	N		0			
Survey # 2 Observer(s) BED	Date 6/8 Start 0600 Stop 1030 Total hrs 4.5	0	0	0	N		0			
Survey # 3 Observer(s) BED	Date 6/18 Start 0645 Stop 1130 Total hrs 4.75	0	0	0	N		0			
Survey # 4 Observer(s) BED	Date 6/28 Start 0600 Stop 1130 Total hrs 5.5	0	0	0	N		0			
Survey # 5 Observer(s) BED	Date 7/9 Start 0600 Stop 1015 Total hrs 4.25	0	0	0	N		0			

Overall Site Summary	Total Adult Residents	Total Pairs	Total Territories	Total Nests
Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs	0	0	0	0

Were any Willow Flycatchers color-banded? Yes___ No ___

If yes, report color combination(s) in the comments section on back of form and report to USFWS.

Reporting Individual Brian E. Daniels Date Report Completed 8/16/12
US Fish and Wildlife Service Permit # TE821401-3 State Wildlife Agency Permit #___

***Submit** form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.*

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian E. Daniels Phone # 626 351-2000
Affiliation BonTerra Consulting E-mail bdaniels@bonterraconsulting.com
Site Name Circle City Date Report Completed 8/18/12
Was this site surveyed in a previous year? Yes X No ___ Unknown ___
Did you verify that this site name is consistent with that used in previous years? Yes X No ___ Not Applicable ___
If site name is different, what name(s) was used in the past? ___
If site was surveyed last year, did you survey the same general area this year? Yes X No ___ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes X No ___ If no, summarize below.

Management Authority for Survey Area: Federal ___ Municipal/County X State ___ Tribal ___ Private ___
Name of Management Entity or Owner (e.g., Tonto National Forest) Hired by SCR; County owned; managed by SAWA

Length of area surveyed: ≈2.5 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

___ Native broadleaf plants (entirely or almost entirely, > 90% native)

X Mixed native and exotic plants (mostly native, 50 - 90% native)

___ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

___ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

___

Average height of canopy (Do not include a range): 10 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.
Only the River Road bridge and Mill Creek areas surveyed this year.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

APPENDIX H

SPECIAL STATUS MAMMAL REPORTS

BonTerra CONSULTING

PASADENA COSTA MESA

T: (714) 444-9199 F: (714) 444-9599
www.BonTerraConsulting.com

151 Kalmus Drive, Suite E-200
Costa Mesa, CA 92626

September 13, 2010

Ms. Adelina Muñoz
Southern California Edison
2244 Walnut Grove Avenue, Quad 3A
Rosemead, California 91770

VIA EMAIL
Adelina.Munoz@sce.com

Subject: Results of a Habitat Assessment for San Bernardino Kangaroo Rat, Stephens' Kangaroo Rat, and Los Angeles Pocket Mouse for the Circle City Substation and Transmission Line Project Located in Riverside and San Bernardino Counties

Dear Ms. Muñoz:

This attached Letter Report provides the results of the 2010 habitat assessment for the federally listed Endangered San Bernardino kangaroo rat (*Dipodomys merrami parvus*), federally listed Endangered and State-listed Threatened Stephens' kangaroo rat (*Dipodomys stephensi*), and California Species of Special Concern Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) conducted by Consulting Biologist Stephen Montgomery (TE-745541-10) for the Circle City Substation and Transmission Line Project (hereafter referred to as the "Proposed Project"). The entire Project area was assessed for suitable habitat for San Bernardino kangaroo rat (SBKR), Stephens' kangaroo rat (SKR), and Los Angeles pocket mouse (LAPM). The methods and results of the survey are discussed in the Letter Report attached.

Project Location and Description

The Project's purpose is to construct a new substation and a new transmission line segment to connect the substation to Southern California Edison's (SCE's) existing telecommunication system. The Proposed Project is divided into the Mira Loma Source Line and Circle City Substation Sites. The Proposed Project extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino (San Bernardino County; Mira Loma Preferred Route only), and the City of Norco to the City of Corona, California. It generally runs west of Interstate 15 (I-15) with the Mira Loma Source Line north of State Route 91 (SR-91). It is located on the U.S. Geological Survey's (USGS's) Guasti, Corona North, and Corona South 7.5-minute quadrangle maps. Land uses in the immediate Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project. Topography in the Project vicinity is generally flat, with an approximate range in elevation from 640 to 790 feet above mean sea level (msl).

Results

The survey was conducted on July 18, 2010 by a Biologist that holds a U.S. Fish and Wildlife Service Permit and/or California Department of Fish and Game Memorandum of Understanding to trap and handle SBKR, SKR, and LAPM. None of the undeveloped habitats exhibited habitat conditions suitable for SBKR, SKR, and LAPM. Therefore, these species are not expected to occur within the Proposed Project. If you have any questions, please feel free to call Stacie Tennant at 714-444-9199.

Sincerely,
BONTERRA CONSULTING

Stacie A. Tennant
Senior Project Manager

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SJM BIOLOGICAL CONSULTANTS

5 September 2010 SJMBC.822

Stacie Tennant
BonTerra Consulting
151 Kalmus Drive, Suite E-200
Costa Mesa, CA 92626

SUBJECT: Results of a habitat assessment for the federally endangered Stephens' kangaroo rat (*Dipodomys stephensi*; SKR) and San Bernardino kangaroo rat (*Dipodomys merriami parvus*; SBKR), and the California State Species of Special Concern Los Angeles pocket mouse (*Perognathus longimembris brevinasus*; LAPM), along 30-35 miles of alignments for the proposed Circle City Sub-station Project, located in Riverside and San Bernardino Counties. The project occurs on the USGS 7.5' Corona North Quadrangle Map (Figures 1-4).

Dear Ms. Tennant:

Following is a letter-report describing the details of a habitat assessment for SKR, SBKR, and LAPM for the above-described project.

Background

The Stephens' kangaroo rat, San Bernardino kangaroo rat, and Los Angeles pocket mouse are federally endangered or otherwise sensitive small mammal species that occur in the general area of the project described above.

The overall alignment occurs in Riverside and San Bernardino Counties and crosses lands characterized by different types of habitat that have been disturbed to varying degrees. These lands exhibit the following conditions: heavy disturbance at sites slated for development, paved and dirt roads, dense residential housing, sparser rural homesites, cultivated lands, and riparian woodlands along the Santa Ana River. In general, the substrates along the alignments have been heavily disturbed and are unsuitable for the three target species.

SKR are known to occur within approximately as few as 0.8 miles to the east of the southern end of the project (RCHCA 2003). A sizable population of LAPM is known from a site 7 miles northeast of the northern end of the current project area (Montgomery 2010), but this species also is known from locations as close as 4.5 miles. SBKR are known from approximately 10 miles of the northern end of the project area (McKernan 1997).

Methods

The entire project area was assessed for suitable habitat for the target species on 18 July 2010 by Stephen J. Montgomery. Montgomery holds a U.S. Fish and Wildlife Service Permit (TE745541-10) and/or California Department of Fish and Game Memorandum of Understanding to trap and handle Stephens' kangaroo rat, San Bernardino kangaroo rat and Los Angeles pocket mouse. General habitat conditions along the alignment were first viewed on aerial maps and an evaluation made concerning the likelihood of presence/absence of each species within and adjacent to the alignments. All undeveloped lands were noted on a field map and then checked for potential suitability for the three species in the field.

Results and Discussion

Weather conditions during the field study included mostly clear skies, low to moderate wind speeds (3-8mph) and air temperatures in the 80's (°F).

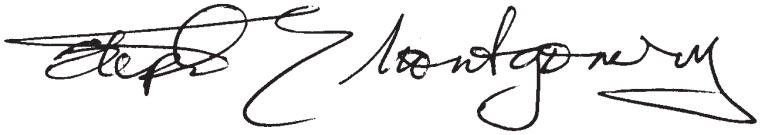
Locations with undeveloped land exhibited heavy riparian woodland, water cover, cultivation, or very heavy substrate disturbance. For these reasons, none of undeveloped habitats exhibited habitat conditions suitable for SKR, SBKR, or LAPM,. As mentioned above, habitat conditions within the Circle City project area consist of very heavily disturbed lands, including heavy development and intensive habitat degradation of varying types, as well as dense riparian vegetation cover and water in the Santa Ana River wash.

Known populations of the three target species occur 0.8 miles (SKR), 4.5 miles (LAPM) and approximately 10 miles (SBKR) from the project area. Thus, the potential for future colonization by either target species is essentially nonexistent, due to the intensity of development presently extant or planned for the area, and the absence of populations of these species in adjacent lands.

This survey confirmed that development in the proposed project area will not result in impacts to SKR, SBKR or LAPM.

Please contact me if you have any questions regarding this report or the associated field effort.

Sincerely,



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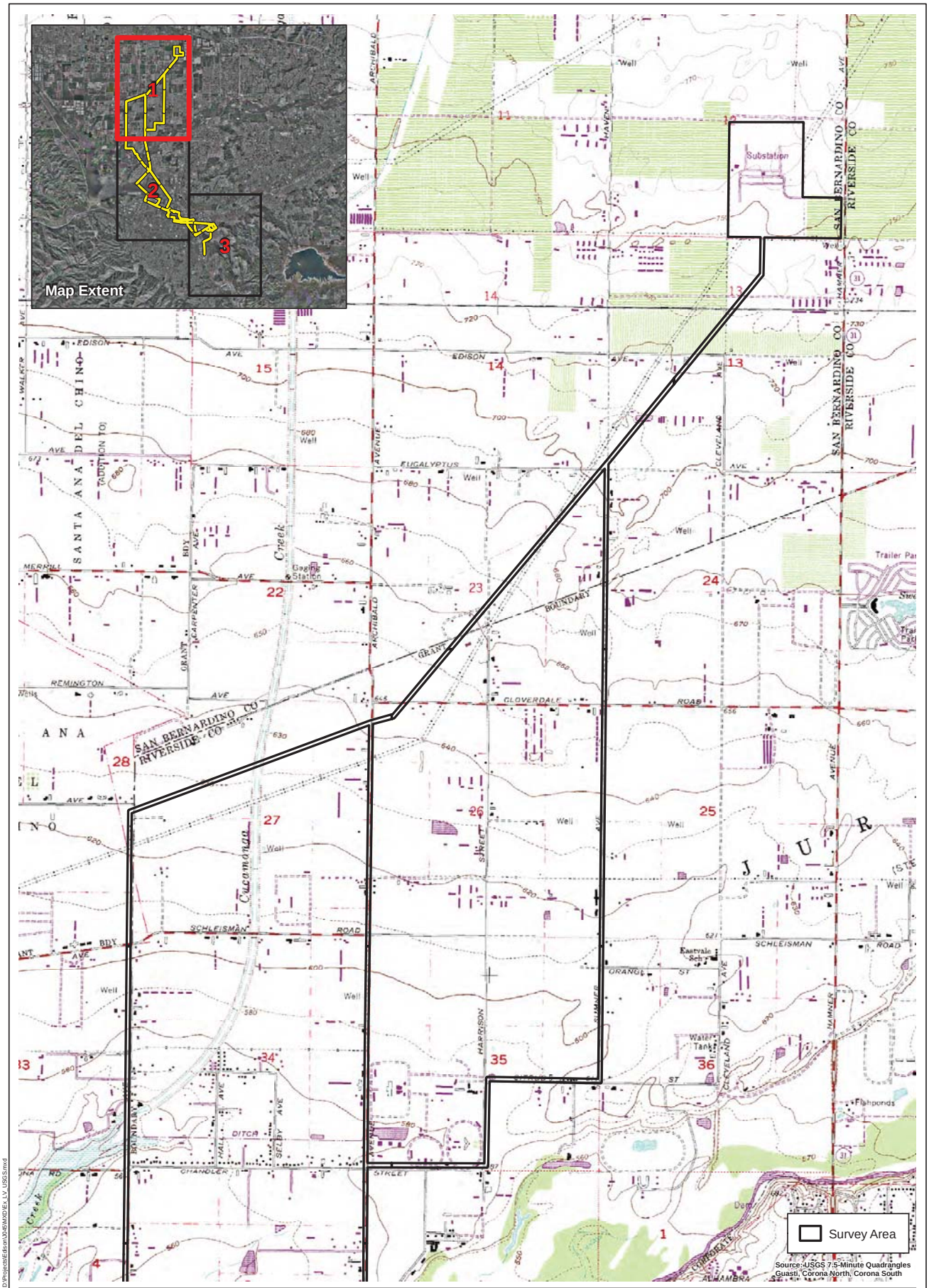
Literature Cited

Montgomery, Stephen J. 2010. Results of habitat assessments and trapping surveys for San Bernardino kangaroo rat and Los Angeles pocket mice along proposed alignments for the Southern California Edison Falcon Ridge project. Prepared for BonTerra Consulting, Inc. Costa Mesa, Calif.

RCHCA (Riverside County Habitat Conservation Agency). 1995. Habitat Conservation Plan for the Stephens' kangaroo rat in Western Riverside County (February 1995).

McKernan, R.L. 1997. The status and known distribution of the San Bernardino Kangaroo rat (*Dipodomys merriami parvus*): field surveys conducted between 1987 and 1996. Prepared for U. S. Fish and Wildlife Service.



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USGS Quads

In House – View 1

Circle City Substation Project

N W E S

2,000 1,000 0 2,000 Feet

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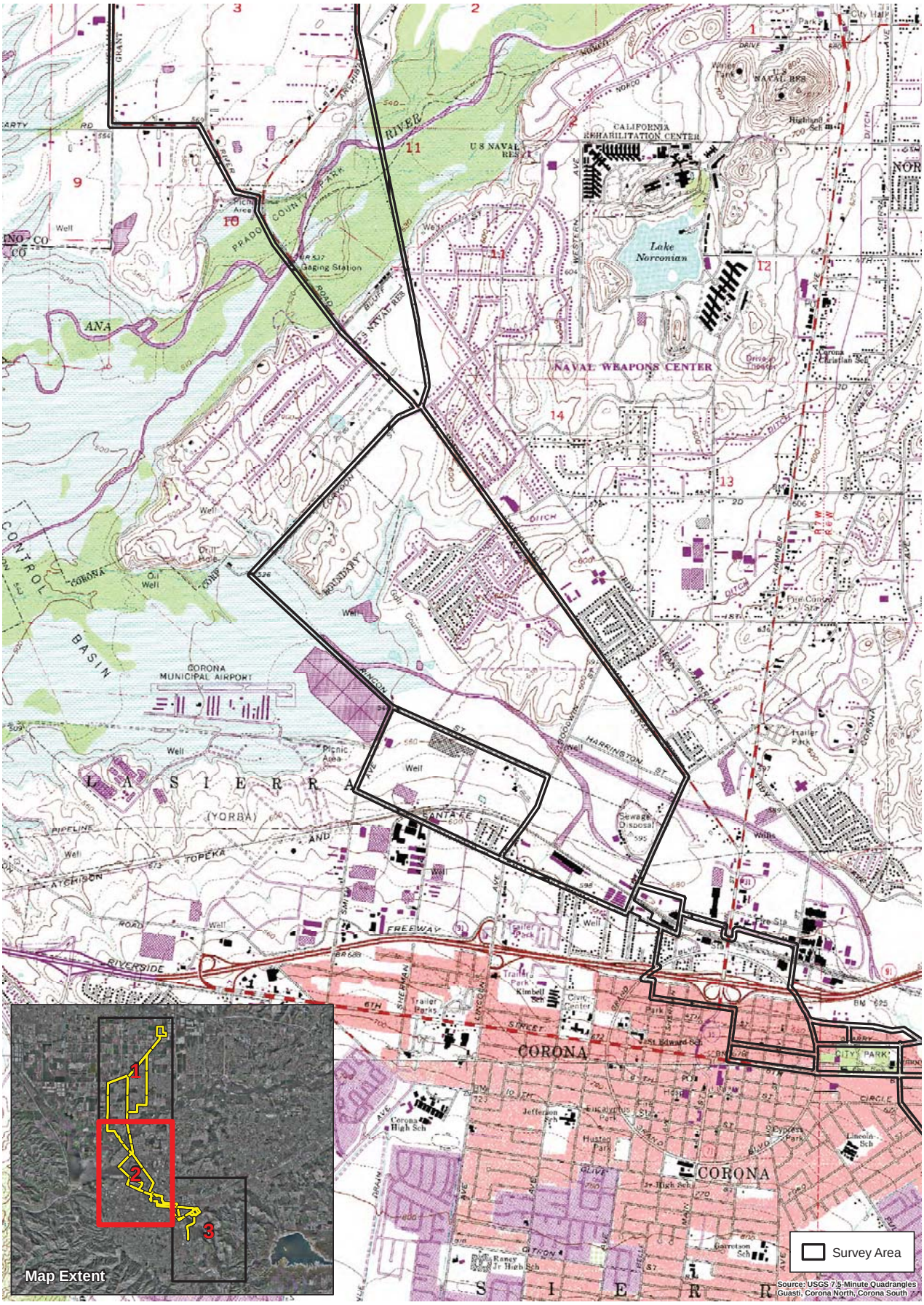

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USGS Quads

In House - View 2

Circle City Substation Project

N W E S

2,000 1,000 0 2,000 Feet

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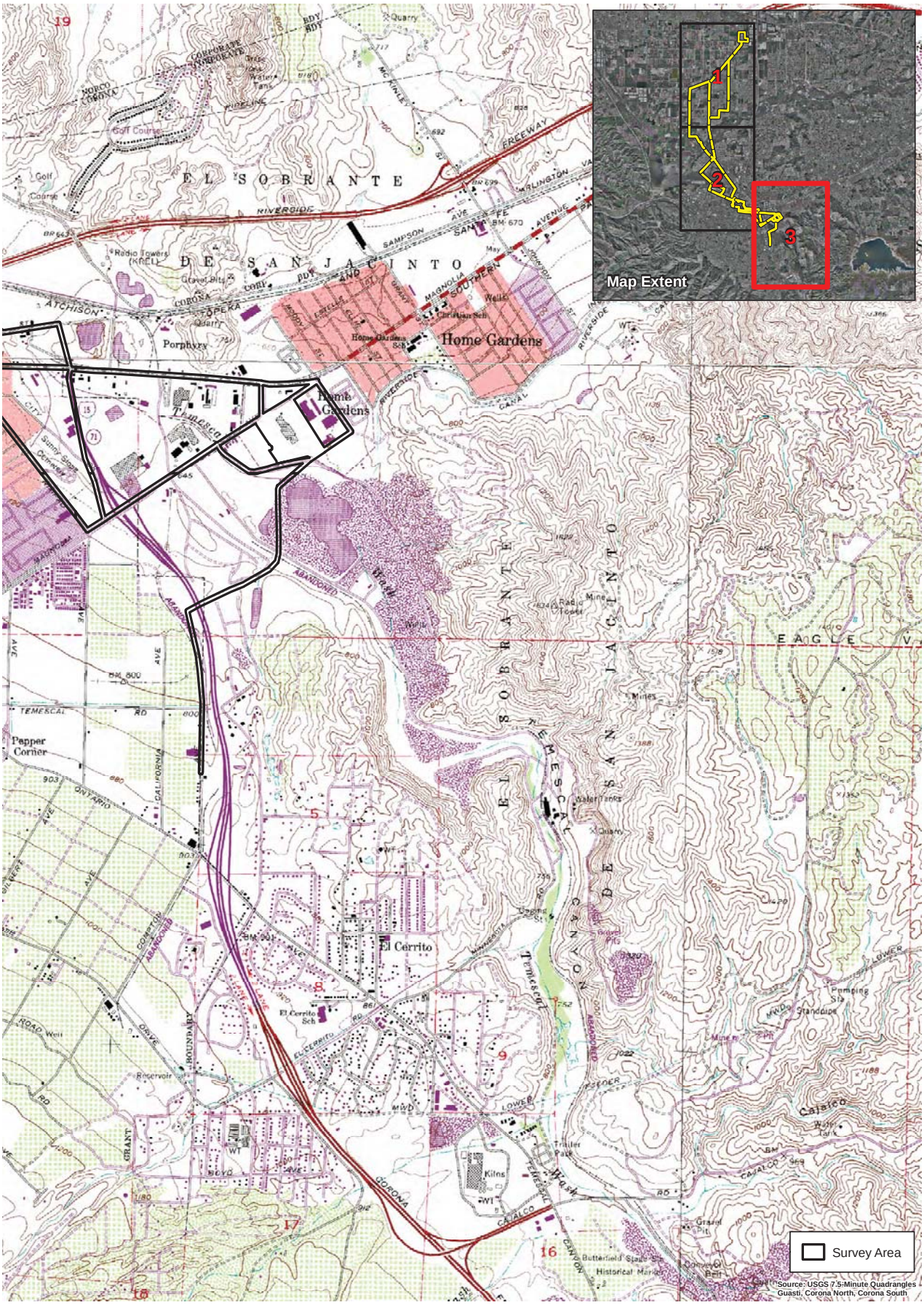

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USGS Quads

In House – View 3

Circle City Substation Project

N W E S

2,000 1,000 0 2,000 Feet

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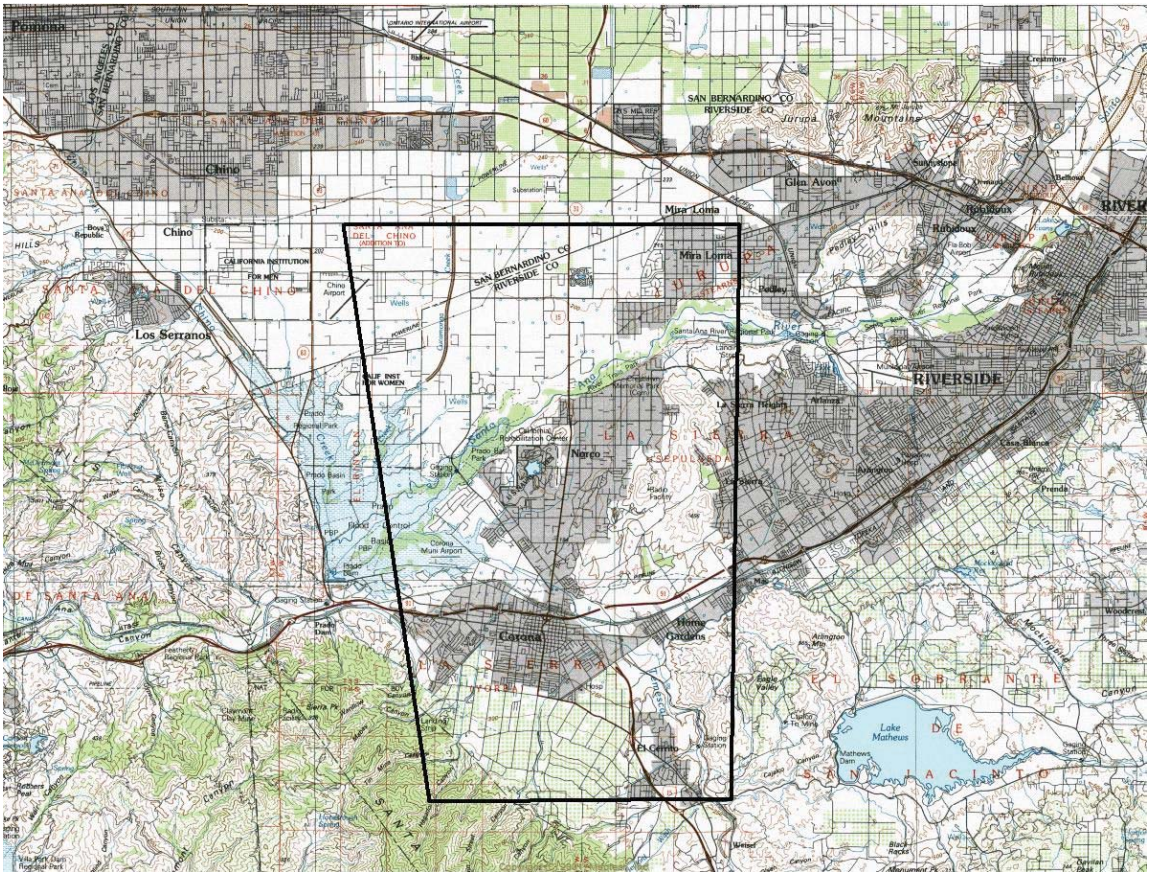

Figure 4. General location (vicinity) of the project. Source: Santa Ana USGS 1:100,000 map, which encompasses the Corona North USGS 7.5' Quad Map.

SJM BIOLOGICAL CONSULTANTS

14 August 2012 SJMBC.867

Stacie Tennant
BonTerra Consulting
2 Executive Circle, Suite 175
Irvine, CA 92614

SUBJECT: Results of a 2012 Habitat Assessment for Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, and Los Angeles Pocket Mouse for the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project, Riverside and San Bernardino Counties, California

Dear Ms. Tennant:

The following is a letter-report describing the results of a 2012 habitat assessment for the federally endangered Stephens' kangaroo rat (*Dipodomys stephensi*; SKR) and San Bernardino kangaroo rat (*Dipodomys merriami parvus*; SBKR), and the California Species of Special Concern Los Angeles pocket mouse (*Perognathus longimembris brevinasus*; LAPM), along 30-35 miles of alignments for the proposed Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereinafter referred to as the "Proposed Project"), located in Riverside and San Bernardino Counties (Figure 1). The Proposed Project occurs on the U.S. Geological Survey's (USGSs) Guasti, Corona North, and Corona South 7.5-minute quadrangle maps (Figures 2A-2C).

The Study Area for the Proposed Project consists of the following:

1) A 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, the proposed Circle City Substation site, and the alternative Circle City Substation site);

2) A 300-foot buffer on either side of the proposed Mira Loma-Jefferson 66 kV subtransmission line route, the two alternative Mira Loma-Jefferson 66 kV subtransmission line routes (i.e., Alternative 2 and Alternative 3), and the proposed and alternative source line routes; and

3) A 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the proposed routes.

The "Survey Area" for the 2012 habitat assessment includes the proposed substation and routes only, including proposed material yards, access roads, guard structures, and pulling sites for the proposed routes that have not been previously surveyed (Figure 3).

Background

The SKR, SBKR, and LAPM are federally endangered or otherwise sensitive small mammal species that occur in the general region of the Project described above.

The overall alignment occurs in Riverside and San Bernardino Counties and crosses lands characterized by different types of habitat that have been disturbed to varying degrees. These lands exhibit the following conditions: heavy disturbance at sites slated for development, paved and dirt roads, dense residential housing, sparser rural home sites, commercial and industrial developments, cultivated lands, and riparian woodlands along the Santa Ana River. In general, the substrates along the alignments have been heavily disturbed and are unsuitable for the three target species.

SKR are known to occur within as few as 0.8 mile to the east of the southern end of the Proposed Project (RCHCA 1995). A sizable population of LAPM is known from a site 7 miles northeast of the northern end of the Proposed Project (Montgomery 2010a), but this species also is known from locations as close as 4.5 miles. SBKR are known from approximately 10 miles of the northern end of the Proposed Project (McKernan 1997).

A field habitat assessment for the original Proposed Project was conducted on 18 July 2010. That survey found that habitat suitable for and potentially occupied by SBKR, SKR and/or LAPM was not present in the Proposed Project area (Montgomery 2010b). The Proposed Project was then revised in 2012, and certain parcels not included or covered in the original assessment were added, thereby necessitating a revised habitat assessment covering the Study Area.

Methods

The 2012 Survey Area was assessed for suitable habitat for the three target small mammal species on 13 May 2012 by Stephen J. Montgomery. Montgomery holds a U.S. Fish and Wildlife Service Permit (TE745541-10) and/or California Department of Fish and Game Memorandum of Understanding to trap and handle SKR, SBKR, and LAPM.

General habitat conditions along the alignment were first viewed on aerial maps and an evaluation made concerning the likelihood of presence/absence of each species within and adjacent to the alignments. All undeveloped lands were noted on a field map and then checked for potential suitability for the three species in the field.

Results and Discussion

Weather conditions during the field study included clear skies, low to moderate wind speeds (3-5 miles per hour), and air temperatures ranging from the low 50's to 80 degrees Fahrenheit (°F).

Locations in the 2012 Survey Area with undeveloped land exhibited heavy riparian woodland, water cover, cultivation, or otherwise very heavy substrate disturbance. For these reasons, none of the undeveloped habitats exhibited habitat conditions suitable for SKR, SBKR, or LAPM. As mentioned above, habitat conditions within the Survey Area consist of very heavily disturbed lands, including intensive developments of varying types, other intensive habitat degradation of varying types, and dense riparian vegetation cover and water in the Santa Ana River wash.

Known populations of the three target species occur 0.8 mile (SKR), 4.5 miles (LAPM) and approximately 10 miles (SBKR) from the Survey Area. Thus, the potential for future colonization by either target species is essentially nonexistent, due to the intensity of development presently extant or planned for the area, and the absence of populations of these species in adjacent lands.

This survey confirmed that development of the Proposed Project will not result in impacts to SKR, SBKR or LAPM. Due to the absence of suitable habitats for these species, trapping to confirm their presence/absence was not required.

Please contact me if you have any questions regarding this report or the associated field effort.

Sincerely,

Stephen J. Montgomery

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Office (928) 527-1604
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Email - steve@sjmbio.com

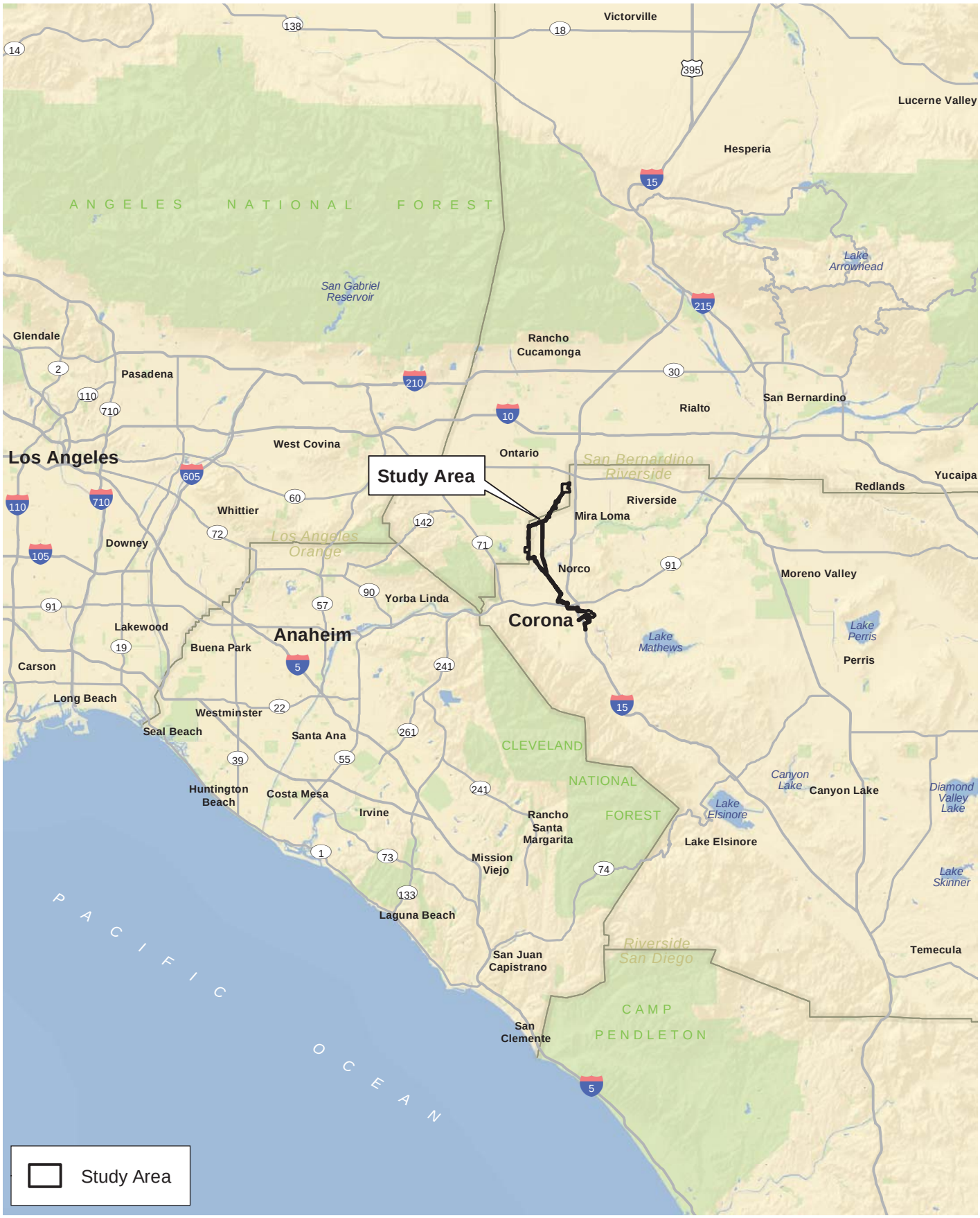
Literature Cited

Montgomery, Stephen J. 2010a. Results of habitat assessments and trapping surveys for San Bernardino kangaroo rat and Los Angeles pocket mice along proposed alignments for the Southern California Edison Falcon Ridge project. Prepared for BonTerra Consulting, Inc. Costa Mesa, Calif.

Montgomery, Stephen J. 2010b. Results of habitat assessments for Stephens' and San Bernardino kangaroo rats, and Los Angeles pocket mice along the revised proposed alignments for the Circle City Southern California Edison project. Prepared for BonTerra Consulting, Inc. Costa Mesa, Calif.

RCHCA (Riverside County Habitat Conservation Agency). 1995. Habitat Conservation Plan for the Stephens' kangaroo rat in Western Riverside County (February 1995).

McKernan, R.L. 1997. The status and known distribution of the San Bernardino Kangaroo rat (*Dipodomys merriami parvus*): field surveys conducted between 1987 and 1996. Prepared for U. S. Fish and Wildlife Service.



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Regional Location

Figure 1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

10 5 0 10 Miles

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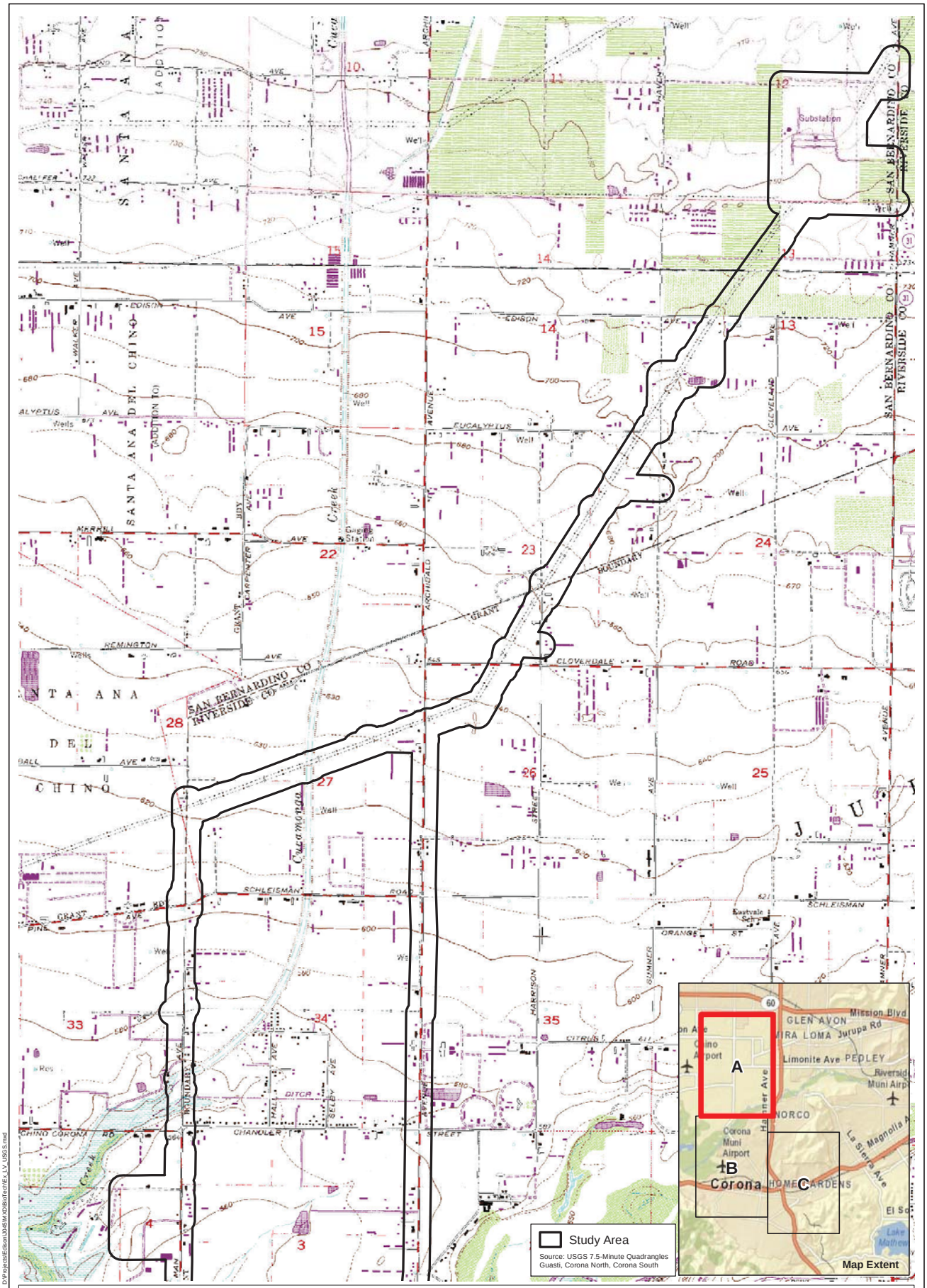

USGS 7.5-Minute Quadrangle

Figure 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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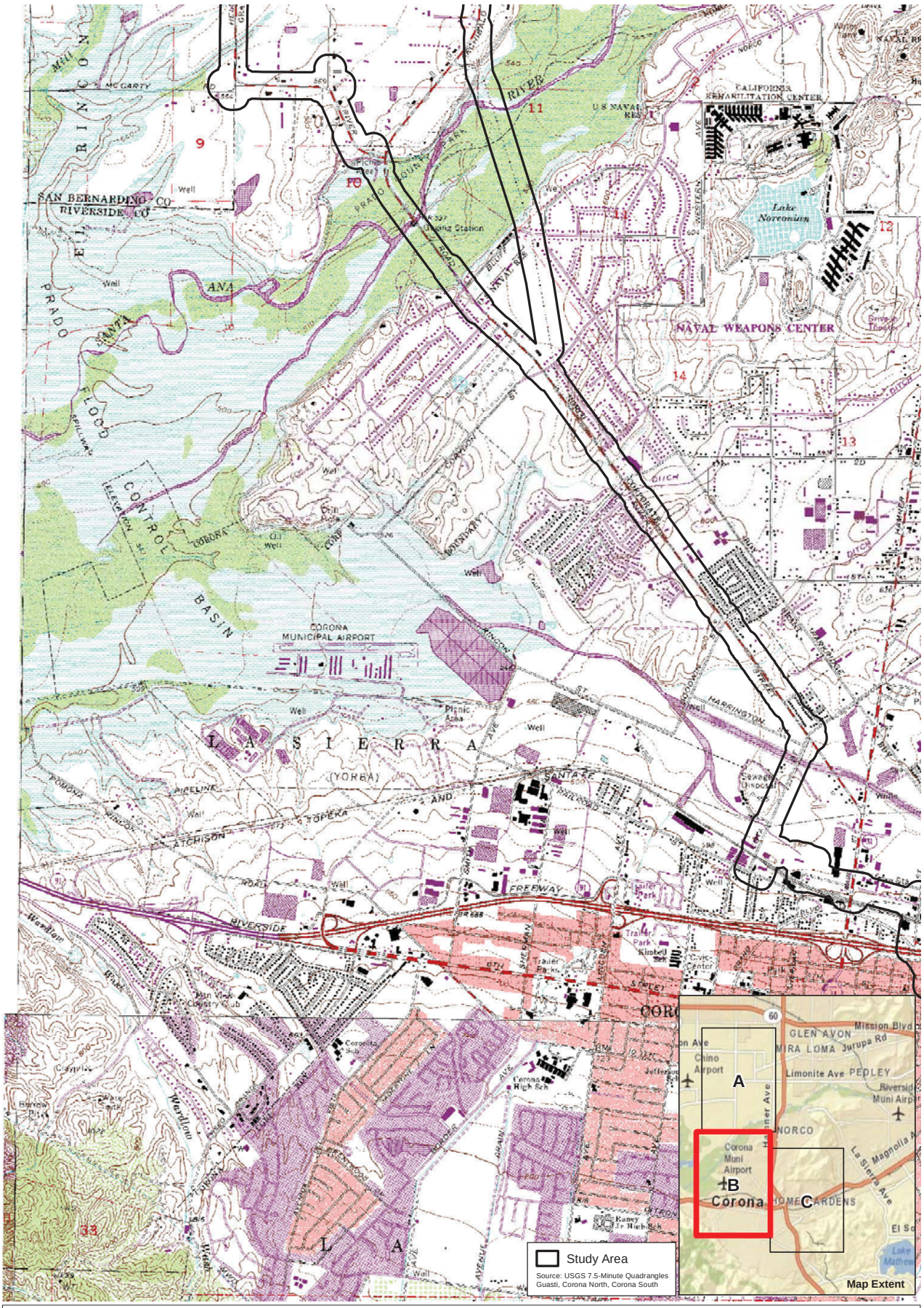

USGS 7.5-Minute Quadrangle

Figure 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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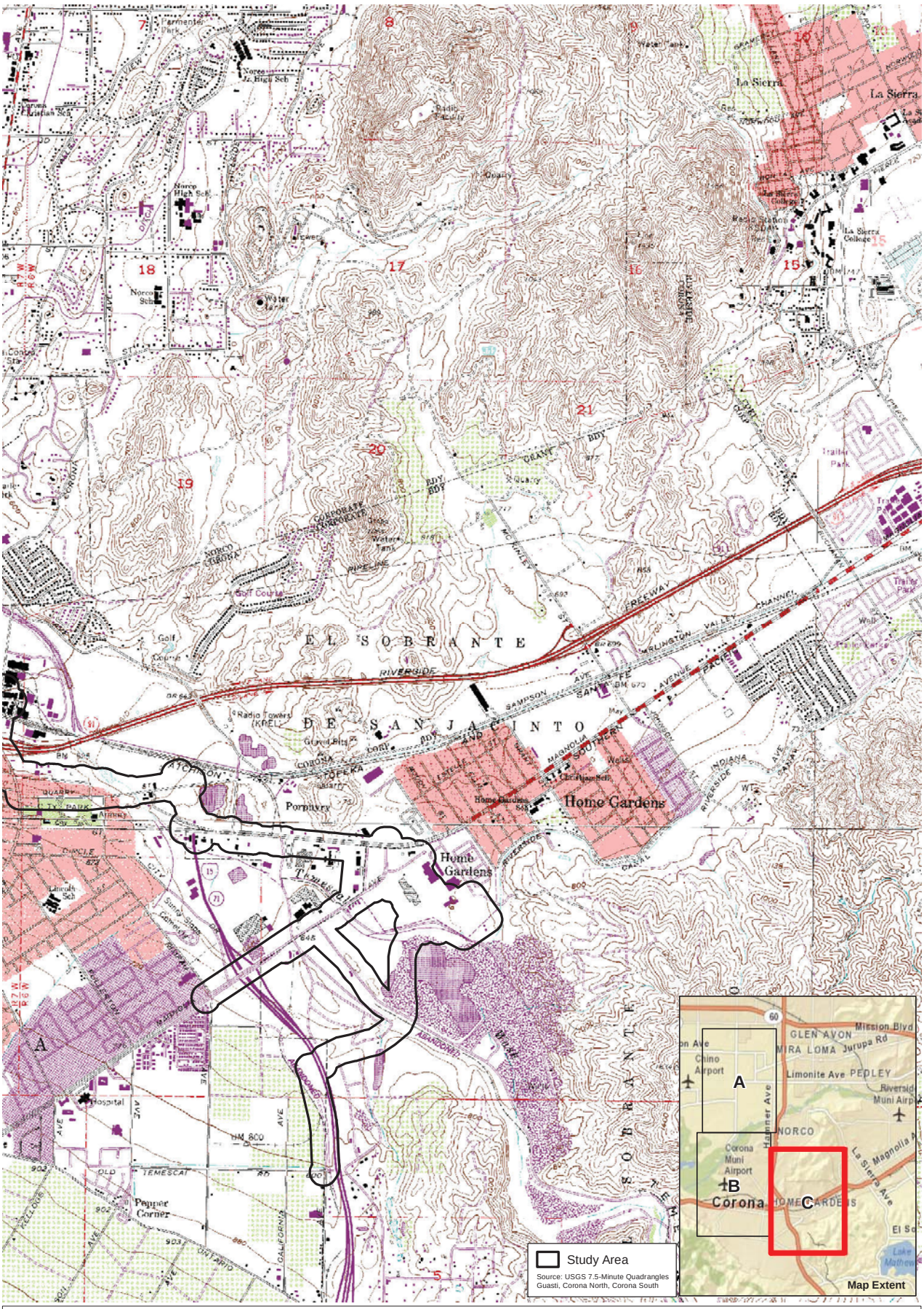

USGS 7.5-Minute Quadrangle

Figure 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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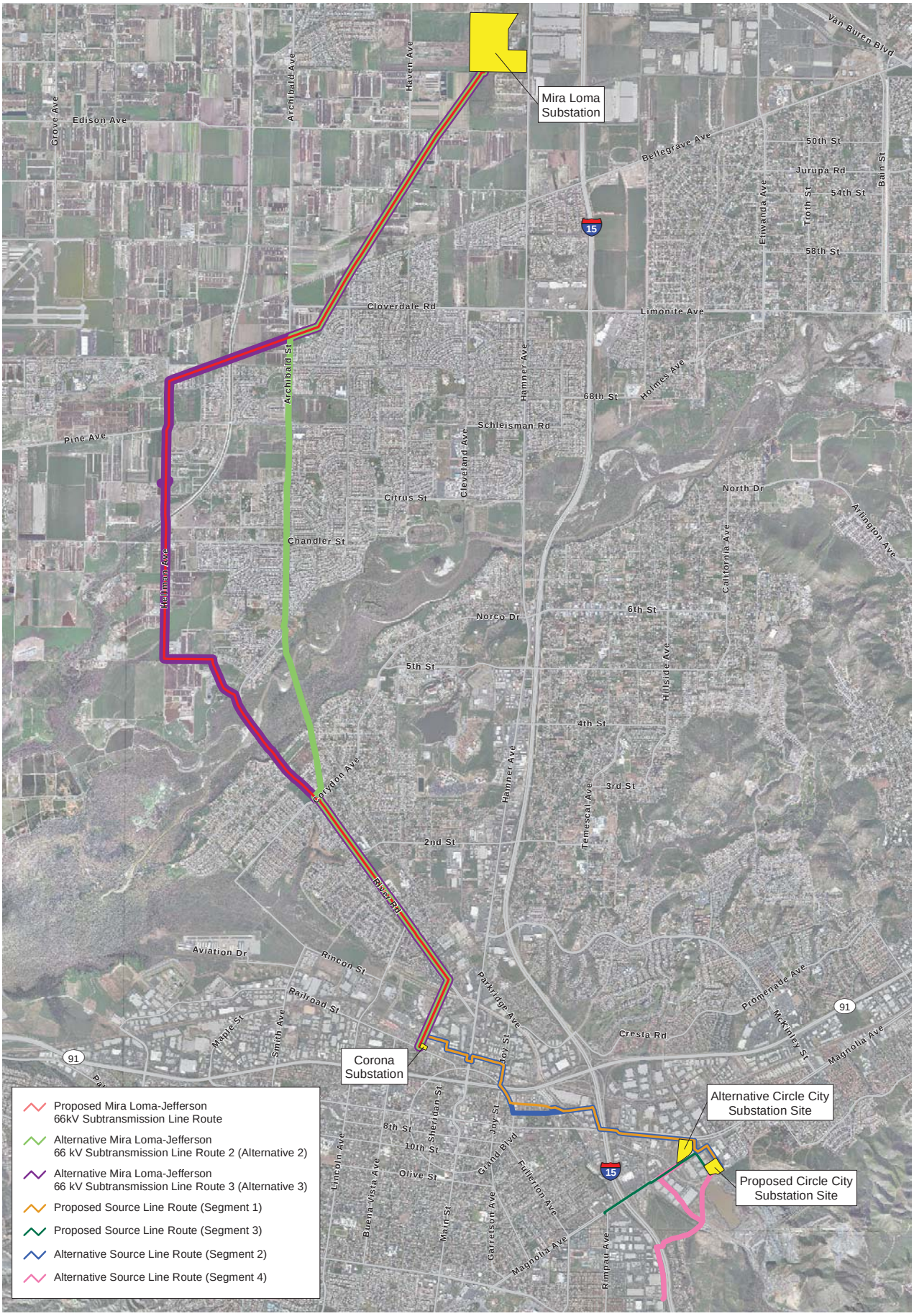

Project Overview

Figure 3

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

4,000 2,000 0 4,000 Feet

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APPENDIX I

JURISDICTIONAL DELINEATION REPORT

Jurisdictional Delineation Report

Circle City Substation and Mira Loma – Jefferson Subtransmission Line Project, Riverside and San Bernardino Counties, California

Prepared for

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May 2012

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B Soil Survey
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1.0 INTRODUCTION

This Jurisdictional Delineation Report (report) was prepared for Southern California Edison (SCE) to provide baseline data concerning the type and extent of resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the Regional Water Quality Control Board (RWQCB) for the Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project (hereafter referred to as "the Proposed Project"). This Jurisdictional Delineation Report is based on the jurisdictional delineation surveys performed on November 23, 2011 and January 6, 2012.

1.1 PROJECT LOCATION AND DESCRIPTION

The Proposed Project extends from the City of Ontario in San Bernardino County south through unincorporated Riverside County, the City of Chino (San Bernardino County; Mira Loma Preferred Route 1 and Mira Loma Alternative Route 3 only), and the City of Norco to the City of Corona, California (Figure 1). It generally runs west of Interstate (I) 15 with the Mira Loma Source Line north of State Route (SR) 91. It is located on the U.S. Geological Survey's (USGS') Guasti, Corona North, and Corona South 7.5-minute quadrangles on the San Bernardino Meridian (Figures 2A–2C). Land uses in the immediate Project vicinity are primarily agricultural (croplands and dairies) to the north and residential/commercial to the south. Open space is present in the Prado Basin near the center of the Proposed Project; this represents the confluence of the Santa Ana River, Mill Creek, Chino Creek, and Temescal Creek. Topography in the Project vicinity is generally flat, with an approximate range in elevation from 630 to 790 feet above mean sea level (msl).

The Proposed Project will construct a new 66/12 kilovolt (kV) distribution substation (i.e., the Circle City Substation) with four 66-kV source line segments, 6 new 12-kV distribution circuit getaways, and a new 66-kV subtransmission line (Mira Loma-Jefferson); upgrade the existing Mira Loma Substation; and install new fiber optic cable and communication equipment to connect the proposed Circle City Substation to SCE's existing telecommunication system. The Study Area for the Proposed Project consists of the following:

1. a 300-foot buffer around all substation sites (the existing Mira Loma Substation, the existing Corona Substation, Circle City Substation Site Alternative A, and Circle City Substation Site Alternative B);

2. a 300-foot buffer on either side of proposed subtransmission source line routes (the Mira Loma Preferred Route 1, the Mira Loma Alternative Route 2, the Mira Loma Alternative Route 3, the Circle City Preferred Route 1, the Circle City Preferred Route 2, and the Circle City Alternative Route); and

3. a 300-foot buffer around all proposed material yards, access roads, guard structures, and pulling sites for the preferred routes.

1.2 REGULATORY AUTHORITY

1.2.1 Summary of Regulations

U.S. Army Corps of Engineers

The USACE Regulatory Branch regulates activities that discharge dredged or fill materials into "Waters of the U.S." under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all "Waters of the U.S." where

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Regional Location

Figure 1

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

7 3.5 0 7 Miles

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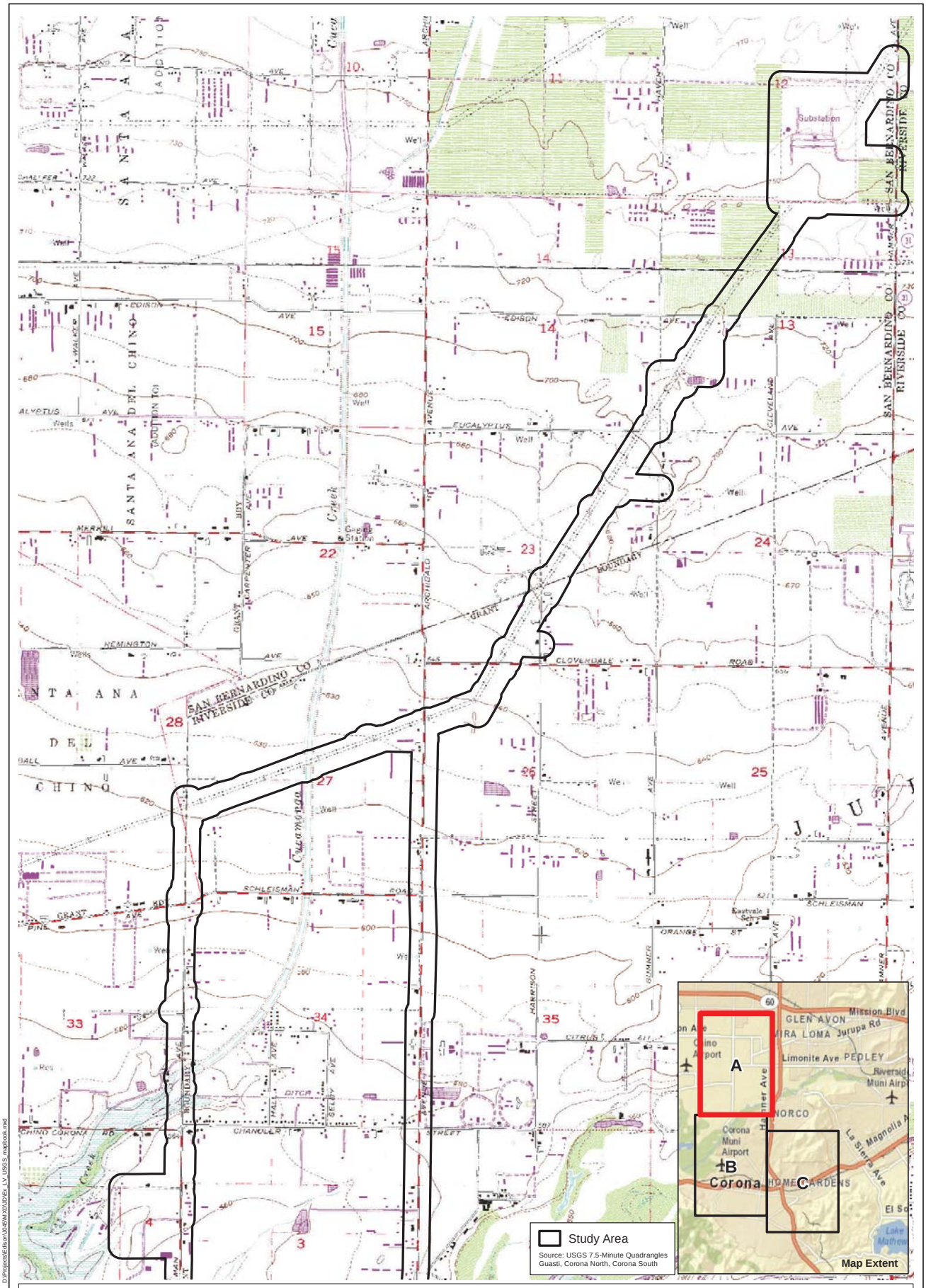

USGS Quadrangle

Figure 2A

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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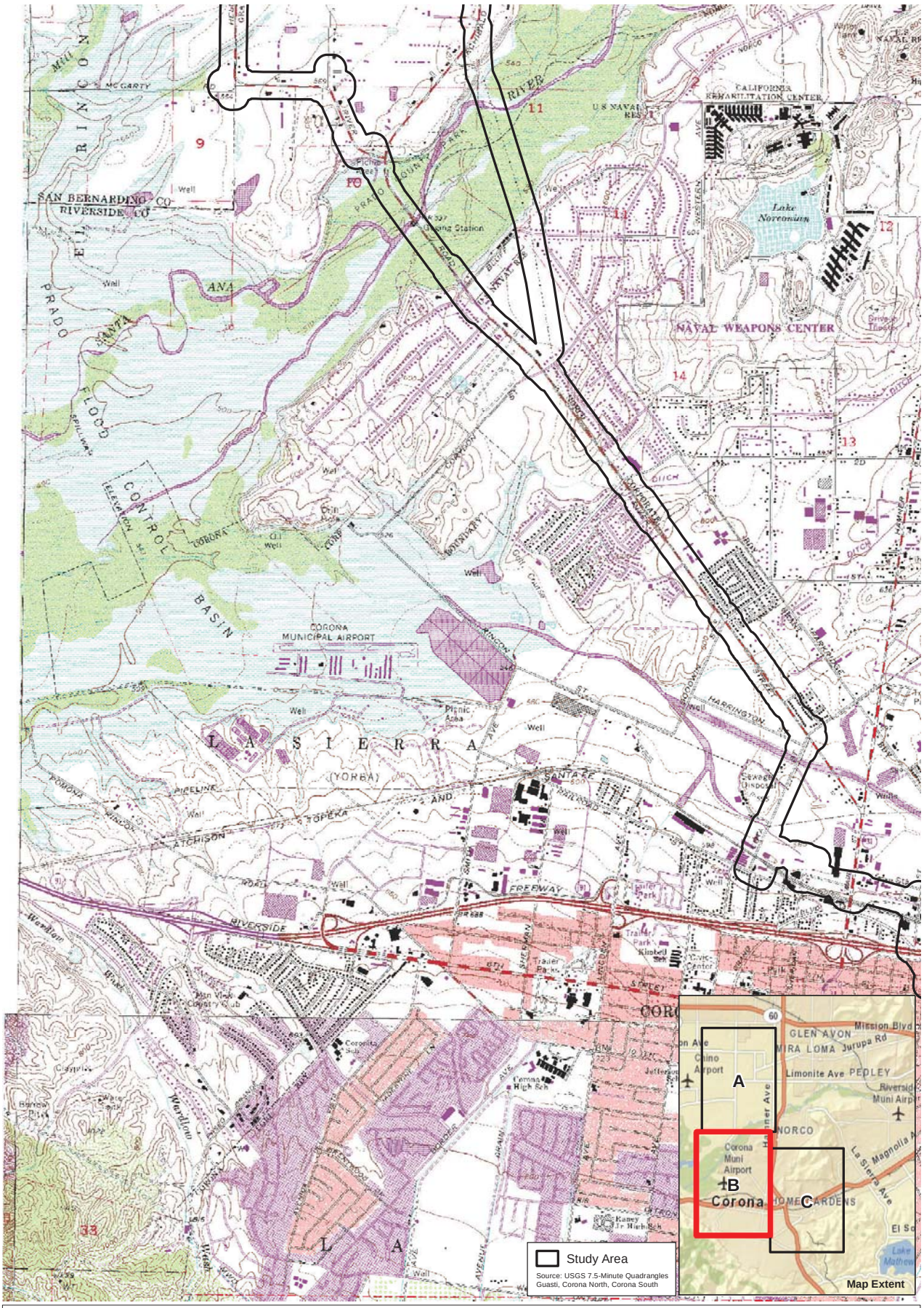

USGS Quadrangle

Figure 2B

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

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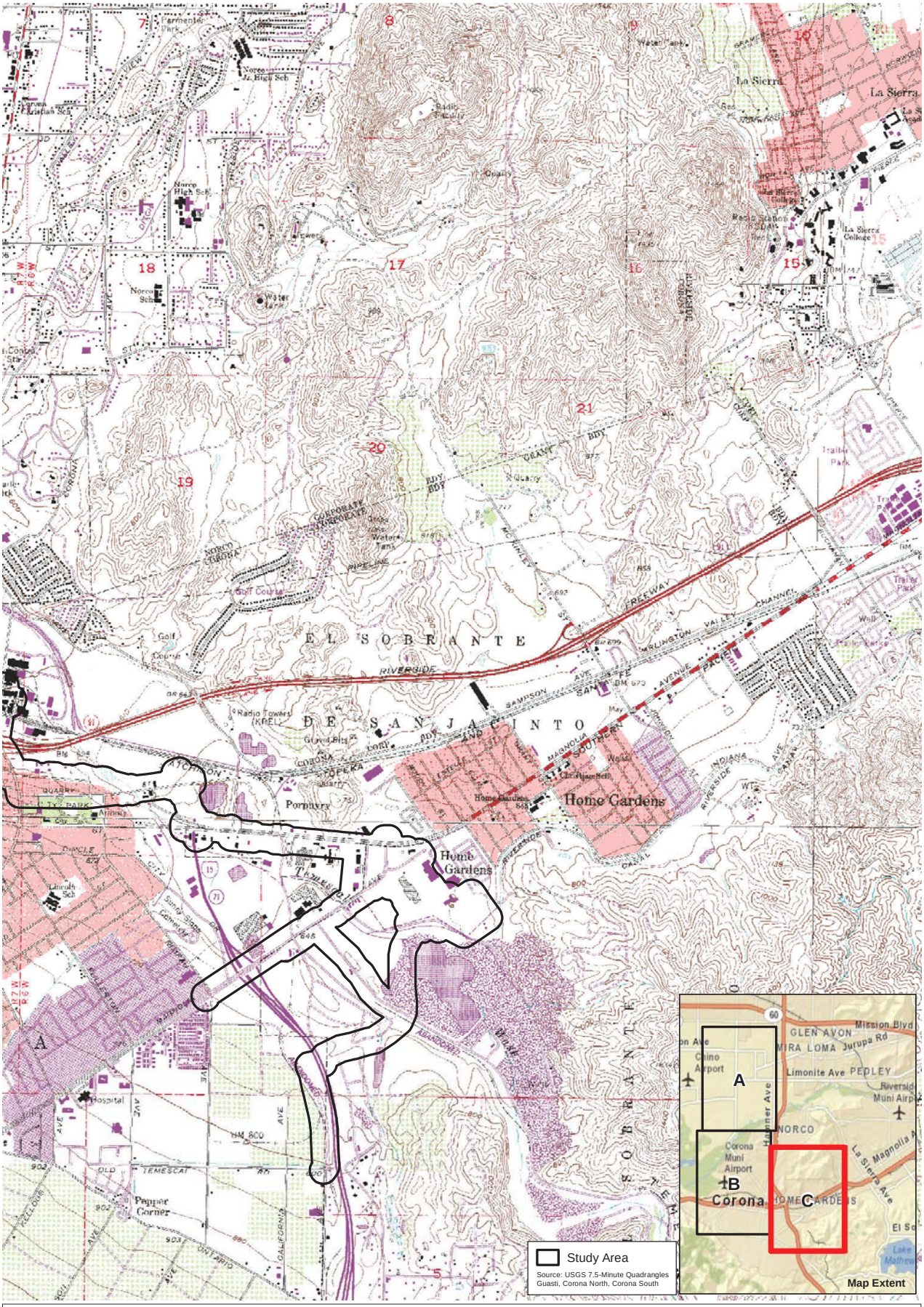

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USGS Quadrangle

Figure 2C

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

N W E S

2,000 1,000 0 2,000 Feet

BonTerra CONSULTING

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the material (1) replaces any portion of "Waters of the U.S." with dry land or (2) changes the bottom elevation of any portion of "Waters of the U.S.". These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these Waters. The selection of disposal sites for dredged or fill material is done in accordance with Section 404(b)(1) guidelines, which were developed by the U.S. Environmental Protection Agency (USEPA).

Waters of the United States

"Waters of the U.S." can be divided into three categories: territorial seas, tidal waters, or non-tidal waters. The term "Waters of the U.S." is defined by the *Code of Federal Regulations* (CFR, Title 33, Navigation and Navigable Waters; Part 328, Definition of Waters of the United States; Section 328.3, Definitions) and includes the following:

1. All waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide.
2. All interstate waters including interstate wetlands.
3. All other waters such as intrastate lakes, rivers, or streams (including intermittent streams); mudflats; sand flats; wetlands; sloughs; prairie potholes; wet meadows; playa lakes; or natural ponds where the use, degradation, or destruction of which could affect interstate or foreign commerce.
4. All impoundments of waters otherwise defined as "Waters of the U.S." under the definition.
5. All tributaries of waters identified above.
6. The territorial seas.
7. All wetlands adjacent to waters (other than waters that are themselves wetlands) identified above.

Ordinary High Water Mark

The landward limit of tidal "Waters of the U.S." is the high-tide line. In non-tidal waters where adjacent wetlands are absent, jurisdiction extends to the ordinary high water mark (OHWM). In the absence of wetlands in non-tidal waters, the extent of jurisdictional limits is determined by the OHWM. The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR §328.3[e]).

Wetlands

A wetland is a subset of jurisdictional waters and is defined by the USACE and the USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR §328.3[b]). Wetlands generally include swamps, marshes, bogs, and areas containing similar features. The definition and methodology for identifying wetland resources can be found in the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008c), a supplement to the USACE's *Corps of Engineers Wetlands Delineation Manual*

(Environmental Laboratory 1987). The methodology contained in the supplement was used to identify the type and extent of wetland resources within the boundaries of the Study Area.

On June 19, 2006, a majority of the U.S. Supreme Court overturned two Sixth Circuit Court of Appeals decisions, finding that certain wetlands constituted "Waters of the U.S." under the CWA. Justice Scalia argued that "Waters of the U.S." should not include channels through which water flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall. He also stated that a wetland may not be considered "adjacent to" remote "Waters of the U.S." based on a mere hydrologic connection. On June 5, 2007, the USACE published a memorandum that provides guidance to both the USEPA regions and the USACE districts that implement the Supreme Court's decision in the Rapanos cases (which address the jurisdiction over "Waters of the U.S." under the CWA).[1] The memorandum includes a chart that summarizes its key points, which is intended to be used as a reference tool along with a complete discussion of issues and guidance furnished throughout the memorandum.

In summary, the USACE and the USEPA will assert jurisdiction over the following waters: (1) traditional navigable waters (TNW); (2) wetlands adjacent to a TNW; (3) relatively permanent, non-navigable tributaries of a TNW that typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and (4) wetlands that directly abut such tributaries.

The USACE and the USEPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: (1) non-navigable tributaries that are not relatively permanent; (2) wetlands adjacent to non-navigable tributaries that are not relatively permanent; and (3) wetlands adjacent to but that do not directly abut a relatively permanent, non-navigable tributary.

The USACE and the USEPA generally will not assert jurisdiction over the following features: (1) swales or erosional features (e.g., gullies or small washes characterized by low volume, infrequent, or short duration flow) and (2) ditches (including roadside ditches) excavated wholly within and draining only uplands and that do not carry a relatively permanent flow of water.

The USACE and the USEPA will apply the significant nexus standard defined as follows:

1. A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs.
2. A significant nexus includes consideration of hydrologic and ecological factors.

Regional Water Quality Control Board

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB's jurisdiction extends to all "Waters of the State" and to all "Waters of the U.S.", including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality.

[1] Consolidated cases: Rapanos v. United States & Carabell v. United States refer to the U.S. Supreme Court's decision concerning USACE jurisdiction over "Waters of the U.S." under the Clean Water Act.

Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide "certification that there is reasonable assurance that an activity which may result in the discharge to 'Waters of the U.S.' will not violate water quality standards". Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the nine RWQCBs' Basin Plans.

The Porter-Cologne Act provides the State with very broad authority to regulate "Waters of the State" (which are defined as any surface water or groundwater, including saline waters). The Porter-Cologne Act has become an important tool in the post-SWANCC (Solid Waste Agency of Northern Cook Counties vs. Unites States Corps of Engineers) and Rapanos era with respect to the State's authority over isolated waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a "Report of Waste Discharge" (ROWD) when there is no federal nexus, such as under Section 404(b)(1) of the CWA. Although "waste" is partially defined as any waste substance associated with human habitation, the RWQCB interprets this to include fill discharge into water bodies.

Santa Ana River Basin Plan

There are nine RWQCBs in California. The project site is located within RWQCB Region 8, the Santa Ana Region. The State Water Resources Control Board and the RWQCB have adopted a Water Quality Control Plan (or "Basin Plan") for the Santa Ana River. The Basin Plan contains goals and policies, descriptions of conditions, and proposed solutions to surface and groundwater issues. The Basin Plan also establishes water quality standards for surface and groundwater resources and includes beneficial uses and levels of water quality that must be met and maintained to protect these uses. These water quality standards are implemented through various regulatory permits pursuant to CWA Section 401 for Water Quality Certifications and Section 402 for Report of Waste Discharge permits.

The Basin Plan indicates that the Study Area is located in the Santa Ana River Hydrologic Unit, Chino Hydrologic Subarea (HSA) Split 801.21 and the Temescal HSA 801.25. The Study Area occurs along Reach 3 of the Santa Ana River. The Basin Plan provides Water Quality Objectives for Reach 3 of the Santa Ana River (Table 1).

TABLE 1
WATER QUALITY OBJECTIVES FOR REACH 3 OF THE SANTA ANA RIVER

Water Quality Objectives (mg/L)						
Total Dissolved Solids	**Hardness**	**Sodium**	**Chloride**	**Total Inorganic Nitrogen**	**Sulfate**	**Chemical Oxygen Demand**
700	350	110	140	10[a]	150	30

mg/L: milligrams per liter
[a] total nitrogen, filtered sample.
Source: RWQCB 1995.

The Basin Plan identifies a number of beneficial uses, some or all of which may apply to a specific HSA, including Municipal and Domestic Water Supply (MUN) waters; Agricultural Supply (AGR) waters; Industrial Service Supply waters (IND); Industrial Process Supply (PROC) waters; Groundwater Recharge (GWR) waters; Navigation (NAV) waters; Hydropower Generation (POW) waters; Water Contact Recreation (REC 1) waters; Non-Contact Water

Recreation (REC 2) waters; Commercial and Sport Fishing (COMM) waters; Warm Fresh Water Habitat (WARM) waters; Limited Warm Water Habitat (LWARM) waters; Cold Fresh Water Habitat (COLD) waters; Preservation of Biological Habitats of Special Significance (BIOL) waters; Wildlife Habitat (WILD) waters; Rare, Threatened, or Endangered Species (RARE) waters; Spawning, Reproduction, and Development (SPWN) waters; Marine Habitat (MAR) waters; Shellfish Harvesting (SHEL) waters; and Estuarine Habitat (EST) waters.

Based on the Study Area hydrologic and biological resources, beneficial uses identified in the Basin Plan for the Santa Ana River include AGR, GWR, REC1, REC2, WARM, WILD, and RARE (RWQCB 1995). Potential effects on these beneficial uses would need to be addressed as part of the request for a CWA Section 401 Water Quality Certification for this project.

AGR waters are used for farming, horticulture, or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing. Multiple impoundment areas adjacent to dairies are present in the Study Area.

GWR waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality, or halting saltwater intrusion into freshwater aquifers.

REC 1 waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and the use of natural hot springs. Please note that while this beneficial use designation is assigned to surface water bodies in this Region, it should not be construed as encouraging recreational activities. REC 1 uses, with the possible exception of fishing, are not expected to occur in the Study Area.

REC 2 waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities. Please note that while this beneficial use designation is assigned to surface water bodies in this Region, it should not be construed as encouraging recreational activities. Trails run through the Prado Basin and are used by walkers and horseback riders.

WARM waters support warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife (including invertebrates). The Santa Ana River floodplain in the vicinity of Prado Basin contains willow riparian forest that is utilized by wildlife in the Study Area.

WILD waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife. As previously noted, the Santa Ana River provides wildlife habitat for waterfowl and other wildlife.

RARE waters support the habitats necessary for the survival and successful maintenance of plant or animal species designated under State or federal law as Rare, Threatened, or Endangered. Least Bell's vireo, a federally and State-listed Endangered species, has been observed at multiple locations within the Prado Basin in the Study Area. This species has also been reported from the Circle City Alternative Route. Other special status species observed in riparian areas in the Study Area include yellow warbler (*Dendroica petechia brewsteri*) and yellow-breasted chat (*Icteria virens*).

California Department of Fish and Game

The CDFG has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the *California Fish and Game Code* (§§1600–1616). Activities of State and local agencies as well as public utilities that are project proponents are regulated by the CDFG under Section 1602 of the *California Fish and Game Code;* this section regulates any work that will (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) 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.

Because the CDFG includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a particular project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA, and often do not have all three parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a wetland. However, riparian forests are frequently within CDFG regulatory jurisdiction under Section 1602 of the *California Fish and Game Code.*

The CDFG enters into a Lake or Streambed Alteration Agreement (SAA) with a project proponent and can impose conditions on the agreement. The notification process involves the completion of the applications that will serve as the basis for the CDFG's issuance of a Section 1602 SAA. Section 1602 of the *California Fish and Game Code* applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State.

The CDFG jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFG takes jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species, and watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

2.0 METHODOLOGY

The three-parameter approach used to identify USACE wetlands is summarized in Sections 2.1 through 2.3; literature reviewed for the preparation of the delineation is outlined in Section 2.4; and the field delineation is outlined in Section 2.5.

2.1 VEGETATION

Hydrophytic vegetation (or hydrophytes) is defined as any macrophytic plant that is typically adapted to and subsequently grows within water or that is on a substrate at least periodically deficient in oxygen; this oxygen deficiency can be a result of excessive saturation conditions that range from open water to periodically saturated soils. Specifically, these plant species are specialized and can survive in permanently saturated to periodically saturated soils where oxygen levels are very low or the soils are anaerobic. The U.S. Fish and Wildlife Service (USFWS) has identified approximately 2,000 plant species of this type within the State of California (i.e., Zone 0) and nearly 5,000 species throughout the U.S. (Reed 1988). The wetland indicator categories reflect the range of estimated probabilities (expressed as a frequency of occurrence) that a species occurs in wetlands versus non-wetlands. Therefore, a frequency of 67 percent to 99 percent means that 67 percent to 99 percent of sample plots containing the species randomly selected across its range would be a wetland. A positive (+) or negative (-) sign is used with the wetland indicator categories to more specifically define the regional frequency of a species' occurrence in wetlands (Reed 1988). The positive sign indicates a frequency toward the higher end of the category (i.e., more frequently found in wetlands), and a negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands). The positive and negative modifiers are eliminated from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* when determining if an area meets the hydrophytic plant criterion for a wetland. Species not listed by Reed (1988) are considered to be upland (UPL).

Plant indicator status categories are as follows:

- ***Obligate Wetland (OBL):*** Plants that occur almost always (estimated probability 99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability 1 percent) in non-wetlands (e.g., cattails [*Typha* spp.] or common water hyacinth [*Eichhornia crassipes*]).
- ***Facultative Wetlands (FACW):*** Plants that occur usually (estimated probability 67–99 percent) in wetlands, but also occur (estimated probability 1–33 percent) in non-wetlands (e.g., mule fat [*Baccharis salicifolia*] or arroyo willow [*Salix lasiolepis*]).
- ***Facultative (FAC):*** Plants with similar likelihood (estimated probability 34–66 percent) of occurring in both wetlands and non-wetlands (e.g., California orach [*Atriplex californica*]).
- ***Facultative Upland (FACU):*** Plants that occur sometimes (estimated probability 1–33 percent) in wetlands, but occur more often (estimated probability 67–99 percent) in non-wetlands (e.g., giant wild rye [*Elymus condensatus*]).
- ***Obligate Upland (UPL):*** Plants that occur rarely (estimated probability 1 percent) in wetlands, but occur almost always (estimated probability 99 percent) in non-wetlands under natural conditions (e.g., coast live oak [*Quercus agrifolia*]).

The following are three procedures for determining hydrophytic vegetation: Indicator 1, "Dominance Test", using the "50/20 Rule"; Indicator 2, "Prevalence Index"; or Indicator 3, "Morphological Adaptation", as identified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008c).

Hydrophytic vegetation is present if any indicator is satisfied. If none of the indicators are satisfied, then hydrophytic vegetation is absent unless (1) indicators of hydric soil and wetland hydrology are present and (2) the site meets the requirements for a problematic wetland situation.

Dominance Test: Vegetative cover is estimated and is ranked according to its dominance. Dominant species are the most abundant species for each stratum of the community (i.e., tree, sapling/shrub, herb, or woody vine) that individually or collectively amount to 50 percent of the total coverage of vegetation plus any other species that, by itself, accounts for 20 percent of the total vegetation cover (also known as the "50/20 Rule"). These species are recorded on the "Wetland Determination Data Form – Arid West Region" (see Attachment A). The wetlands indicator status of each species is also recorded on the data forms based on the *National List of Plant Species that Occur in Wetlands* (Reed 1988). If greater than 50 percent of the dominant species across all strata are OBL, FACW or FAC species, the criterion for wetland vegetation is considered to be met.

Prevalence Index: The prevalence index considers all plant species in a community, not just the dominant ones. The prevalence index is the average of the wetland indicator status of all plant species in a sampling plot. Each indicator status category is given a numeric code (OBL=1, FACW=2, FAC=3, FACU=4, and UPL=5) and is weighted by the species' abundance (percent cover). Hydrophytic vegetation is present if the prevalence index is 3.0 or less.

Morphological Adaptation: Morphological adaptations, such as adventitious roots (i.e., roots that take advantage of the wet conditions) and shallow root systems, must be observed on more than 50 percent of the individuals of a FACU species for the hydrophytic vegetation wetland criterion to be met.

2.2 SOILS

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that is formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions (or conditions of limited oxygen) at or near the soil surface and that favor the establishment of hydrophytic vegetation (USDA NRCS 2008). It should be noted that hydric soils created under artificial conditions of flooding and inundation sufficient for the establishment of hydrophytic vegetation would also meet this hydric soils indicator.

The soil conditions are verified by digging test pits along each transect to a depth of at least 20 inches (except where a restrictive layer occurs in areas containing hard pan, cobble, or solid rock). It should be noted that at some sites, it may be necessary to make exploratory soil test pits up to 40 inches deep to more accurately document and understand the variability in soil properties and hydrologic relationships on the site. Soil test pit locations are usually dug within the drainage invert or at the edge of a drainage course within vegetated areas. Soil extracted from each soil test pit is then examined for texture and color using the standard plates within the Munsell Soil Color Chart (1994) and recorded on the Data Form. The Munsell Soil Color Chart aids in designating soils by color labels based on gradations of three simple variables: hue, value, and chroma. Any indicators of hydric soils—such as redoximorphic features (i.e., areas where iron is reduced under anaerobic conditions and oxidized following a return to aerobic conditions); buried organic matter; organic streaking; reduced soil conditions; gleyed (i.e., soils having a characteristic bluish-gray or greenish-gray in color) or low-chroma soils; and/or sulfuric odor—are also recorded on the Data Form. If hydric soils are found, progressive pits are dug along the transect moving laterally away from the active channel area until hydric soil features are no longer present within the top 20 inches of the soil.

2.3 HYDROLOGY

Wetlands hydrology is represented by either (1) all of the hydrological elements or characteristics of areas permanently or periodically inundated or (2) areas containing soils that are saturated for a sufficient duration of time to create hydric soils suitable for the establishment of plant species that are typically adapted to anaerobic soil conditions. The presence of wetland hydrology is evaluated at each intersect by recording the extent of observed surface flows; the depth of inundation; the depth to saturated soils; and the depth to free water in soil test pits. In instances where stream flow is divided into multiple channels with intervening sandbars, the entire area between the channels is considered within the OHWM. Therefore, an area containing these features would meet the indicator requirements for wetland hydrology.

2.4 LITERATURE

Prior to conducting the delineation, BonTerra Consulting reviewed the following documents to identify areas that may fall under agency jurisdiction: the USGS Guasti, Corona North, and Corona South 7.5-minute quadrangles; color aerial photography provided by Aerials Express (spring 2009); the Report and General Soil Maps for the San Bernardino County, Southwestern Part, California and Western Riverside Area, California (USDA NRCS 1980; 1974); the National Hydric Soils List (USDA NRCS 2012); and the National Wetlands Inventory's Wetland Mapper (USFWS 2012). A description of this literature is provided below.

USGS Topographic Quadrangle. USGS quadrangle maps show geological formations and their characteristics; they describe the physical settings of an area through topographic contour lines and other major surface features. These features include lakes, streams, rivers, buildings, roadways, landmarks, and other features that may fall under the jurisdiction of one or more regulatory agencies. In addition, the USGS maps provide topographic information that is useful in determining elevations, latitude and longitude, and Universal Transverse Mercator Grid coordinates for a project site.

The Study Area is shown on the USGS Guasti, Corona North, and Corona South 7.5-minute quadrangles (Figures 2A–2C). Multiple blueline streams are shown on the quadrangle map. The most prominent features in the Study Area are the Santa Ana River and Prado Basin. These cross the Mira Loma Preferred Route 1; the Mira Loma Alternative Route 2; and the Mira Loma Alternative Route 3. Cucamonga Creek crosses the Mira Loma Preferred Route 1 and the Mira Loma Alternative Route 3. Temescal Wash crosses the Circle City routes. Other unnamed blueline streams cross the Mira Loma Routes; the Circle City Preferred Route 1; and the Circle City Alternative Route.

Color Aerial Photography. BonTerra Consulting reviewed an existing color aerial photograph prior to the November 23, 2011 and January 6, 2012, site visits to identify the extent of any drainages and riparian vegetation occurring in the Study Area.

Open water is visible in the active channel of the Santa Ana River. Extensive riparian vegetation occurs in the Prado Basin around the active channel. Riparian vegetation is present adjacent to Cucamonga Creek. Temescal Wash is primarily channelized and unvegetated in the Study Area. Other concrete-lined and unlined flood-control channels occur throughout the Study Area. Some of these contain open water. Some unlined channels are unvegetated while others appear vegetated. Multiple impoundment areas adjacent to agricultural land or dairies are present in the northern portion of the Study Area; these areas are used as holding ponds to prevent runoff from the dairies. These areas are either inundated or dry and unvegetated or with sparse vegetation. A lake is adjacent to the Circle City Alternative Route.

U.S. Department of Agriculture, Natural Resources Conservation Service. The presence of hydric soils is one of the chief indicators of jurisdictional wetlands. BonTerra Consulting reviewed the U.S. Department of Agriculture (USDA) soil data for the Project site (USDA NRCS 1980, 1974).

The following soil series have been mapped along the Project alignment: Arbuckle, Buchenau, Cajalco, Chino, Chualar, Cieneba, Cortina, Delhi, Dello, Domino, Garretson, Grangeville, Greenfield, Hanford, Hilmar, Metz, Pachappa, Placentia, Ramona, San Emigdio, Temescal, and Waukena; gravel pits, riverwash, rough broken land, terrace escarpments, and water have also been mapped (USDA NRCS 1980, 1974). A brief description of the soil series mapped in the Study Area is provided in Attachment B of this report. Figures 3A–H show the specific soil types in the Study Area. The following mapped soils are listed as "hydric" on the National Hydric Soils List for the soil survey area in which they occur (USDA NRCS 2012): Chino silt loma, Chualar clay loam (0 to 2 percent slopes and 2 to 9 percent slopes), Cortina gravelly sandy loam (0 to 2 percent slopes), Delhi fine sand, Dello loamy sand (poorly drained, 0 to 2 percent slopes), Grangeville fine sandy loam (poorly drained, saline-alkali, 0 to 5 percent slopes), Placentia fine sandy loam (0 to 5 percent slopes and 5 to 15 percent slopes), and riverwash; Grangeville fine sandy loam is listed as hydric in San Bernardino County, Southwestern Part, but it is only mapped in Riverside County portion of the Study Area.

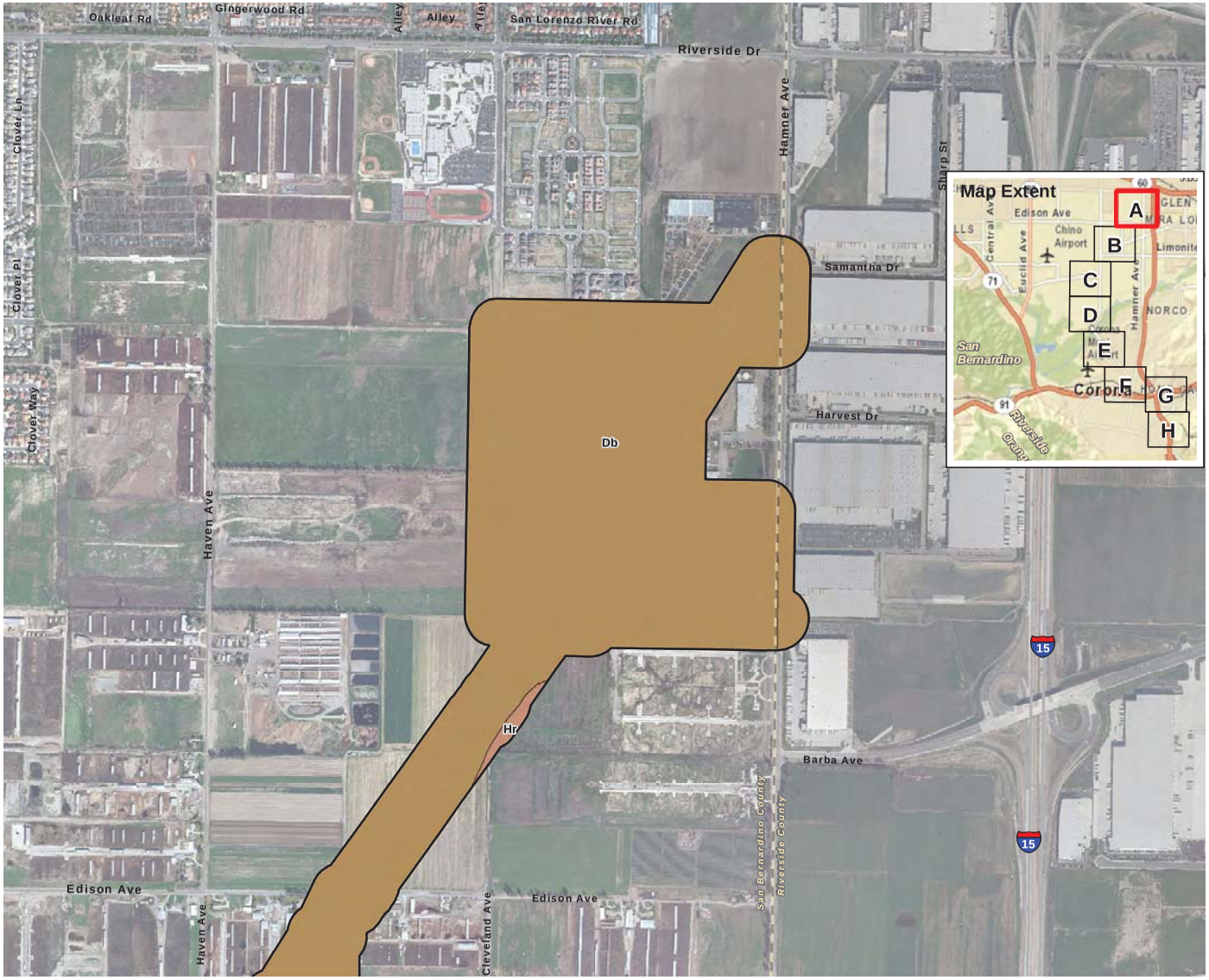
U.S. Fish and Wildlife Service, National Wetlands Inventory. The Wetlands Mapper shows wetland resources available from the Wetlands Spatial Data Layer of the National Spatial Data Infrastructure (USFWS 2012). This resource provides the classification of known wetlands following the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This classification system is arranged in a hierarchy of (1) Systems that share the influence of similar hydrologic, geomorphologic, chemical, or biological factors (i.e., Marine, Estuarine, Riverine, Lacustrine, and Palustrine); (2) Subsystems (i.e., Subtidal and Intertidal; Tidal, Lower Perennial, Upper Perennial, and Intermittent; or Littoral and Limnetic); (3) Classes, which are based on substrate material and flooding regime or on vegetative life forms; (4) Subclasses; and (5) Dominance Types, which are named for the dominant plant or wildlife forms. In addition, there are modifying terms applied to Classes or Subclasses.

The mapped wetlands resources are included in Figures 4A–H. Resources in Prado Basin are mapped a PFOY (current USFWS naming convention[2] classifies this as PFOC), PSSY (currently PSSC), and PSSW (currently PSSA). Other resources in the Study Area are mapped as PEMY (currently PEMC), POWKY (currently PUBK), POWKZ (currently PUBK and A, C, J, or K), POWY (currently PUBF), PSSW (currently PSSA), PSSY (currently PSSC), PUBHx, PUSAx, R4SBW (currently R4SBA), R4SBY (currently R4SBC), and R4SBYx (R4SBCx).

The description for the Palustrine codes under current USFWS naming convention is as follows (USFWS 2012):

- ***P: System PALUSTRINE.*** The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 part per trillion (ppt). Wetlands lacking (such vegetation) are also included if they exhibit all of the following characteristics: (1) are less than 8 hectares (20 acres); (2) do not have an active wave-formed or bedrock shoreline

[2] Although the USFWS originally created the NWI classifications, they have recently updated the naming conventions. The updated naming conventions are shown in parentheses and are discussed in detail below. Since the USFWS has not updated the GIS layers on their maps, Figures 4A–H show the original classifications.



Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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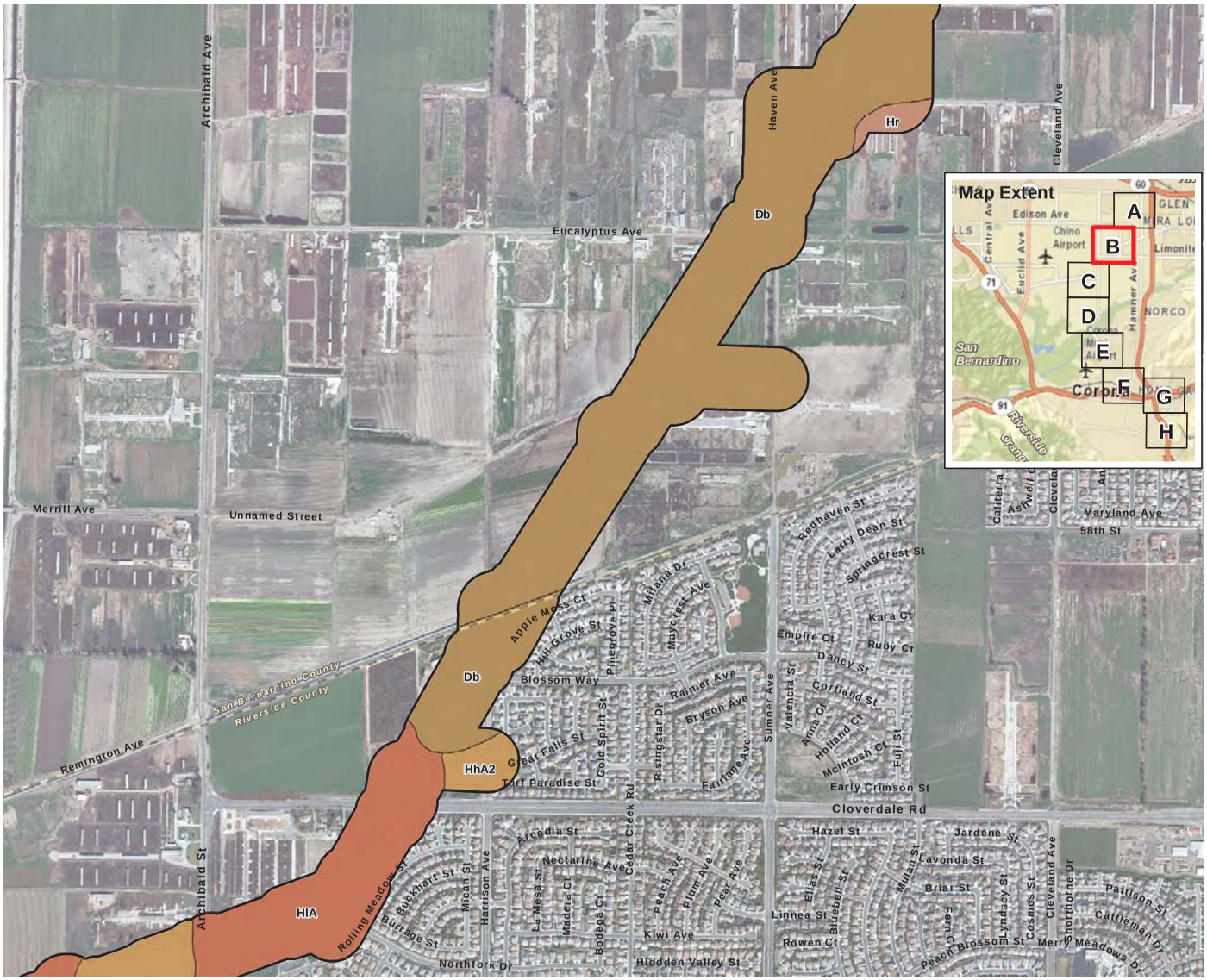

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3B

N W E S

1,000 500 0 1,000 Feet

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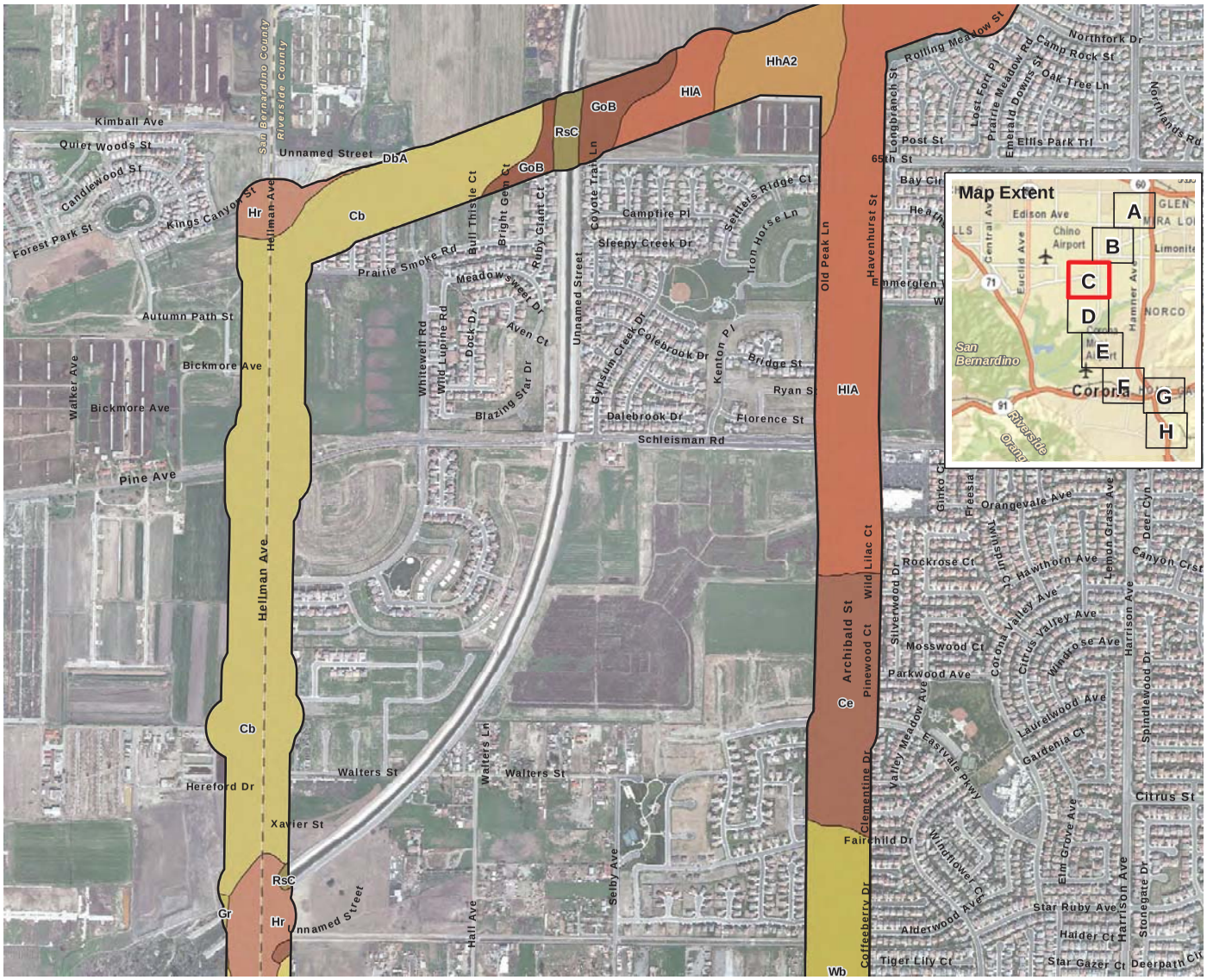

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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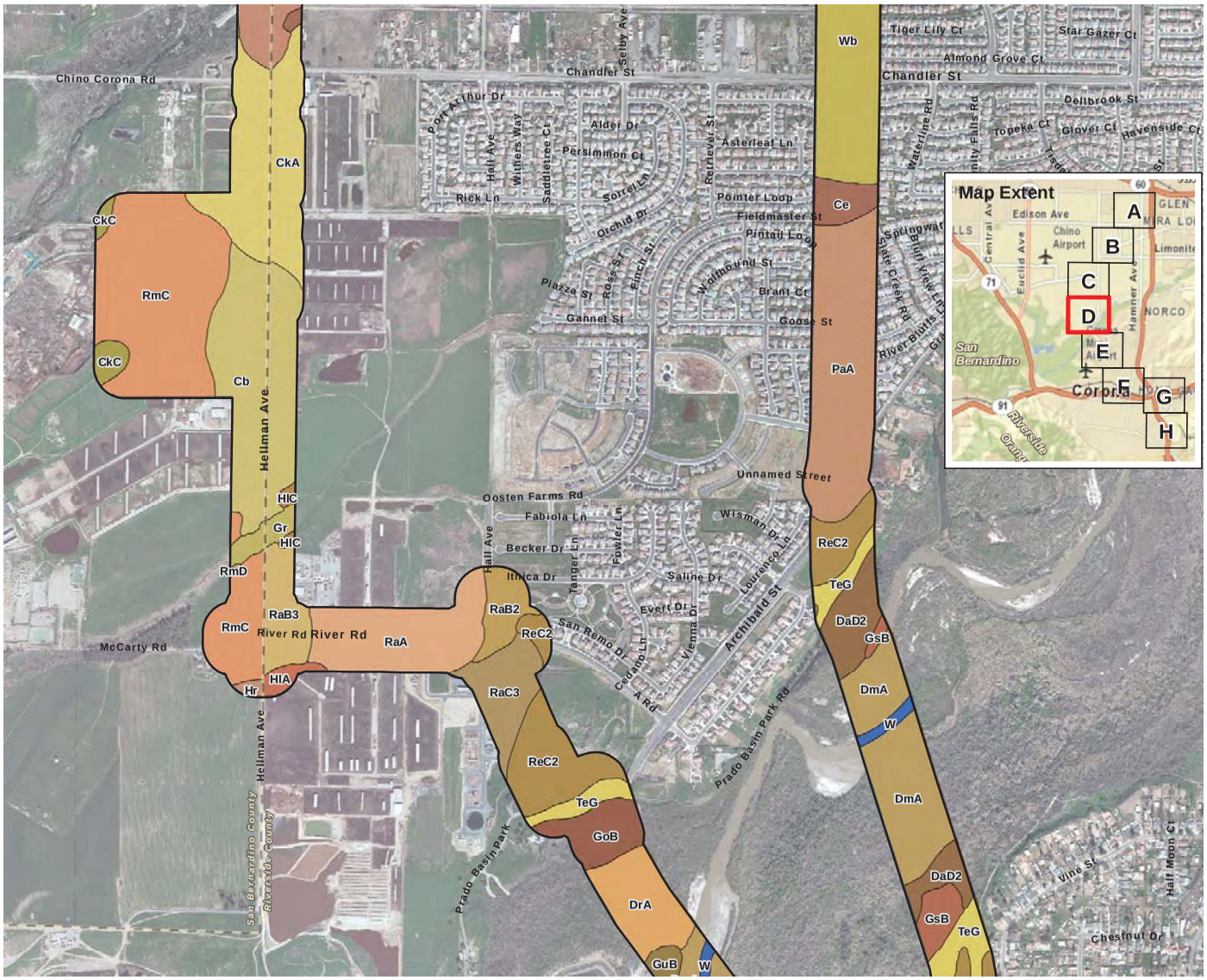

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HIA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HIC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PIB - Placentia fine sandy loam, 0 to 5 percent slopes
- PID - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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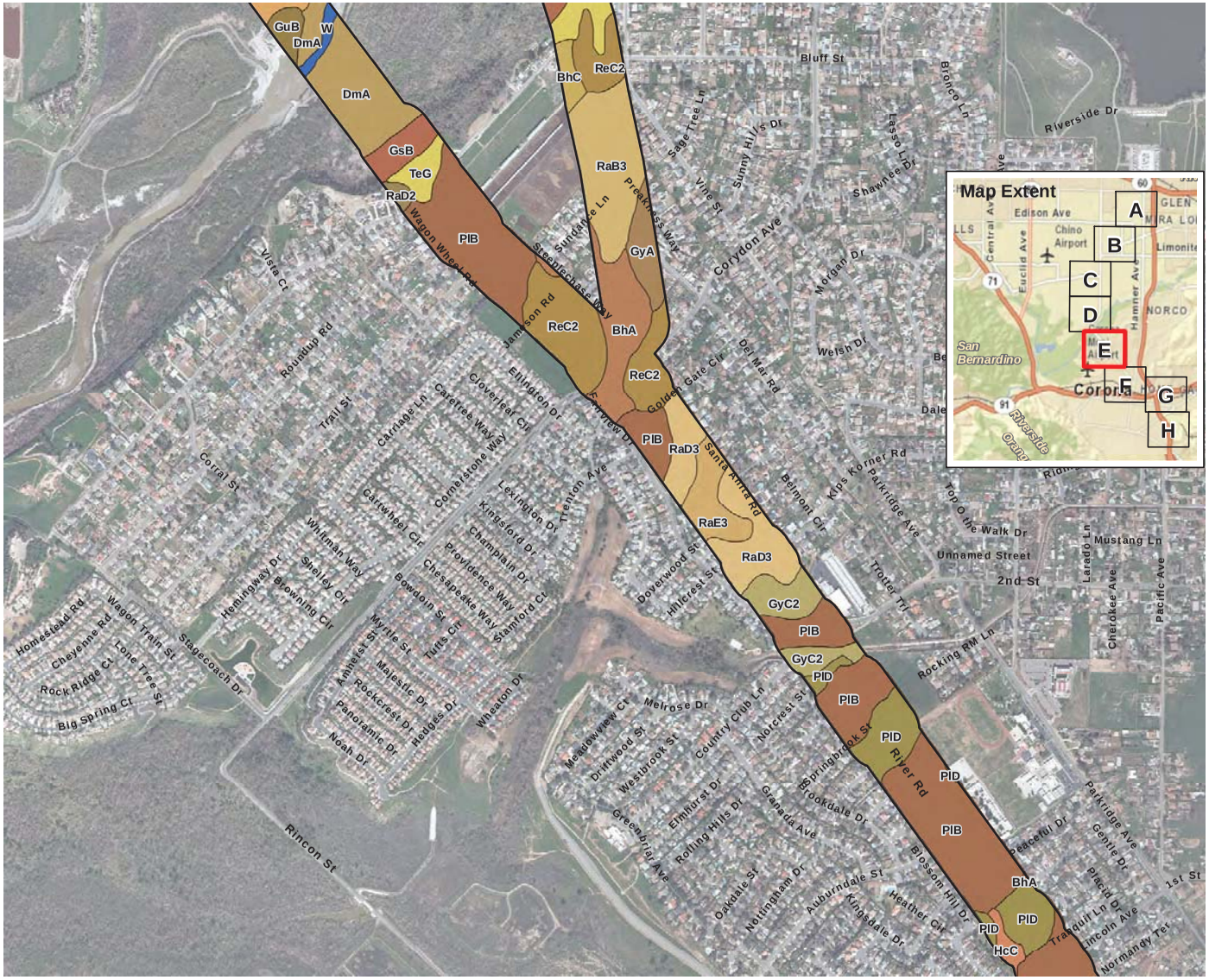

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

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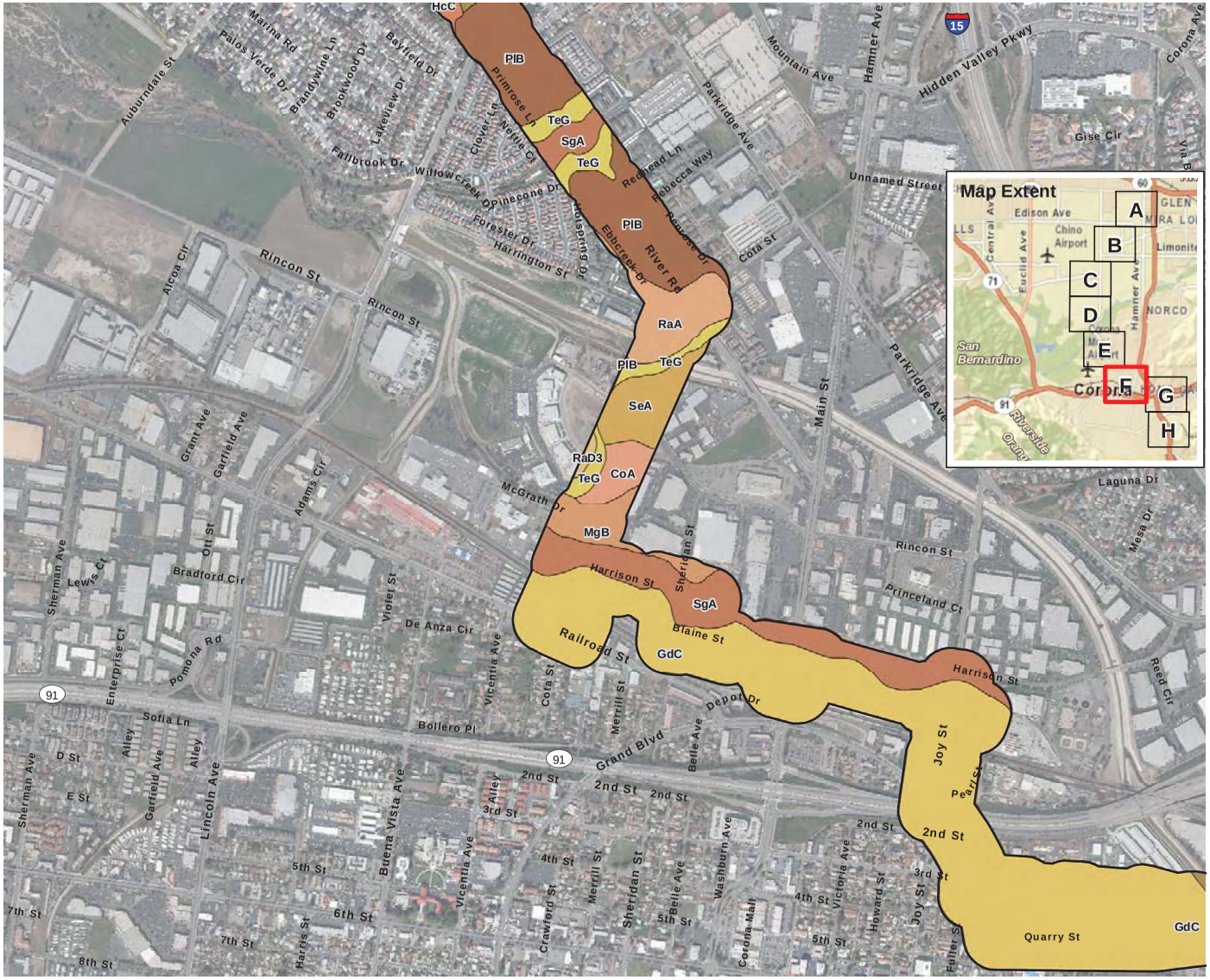

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 3F

N W E S

1,000 500 0 1,000 Feet

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Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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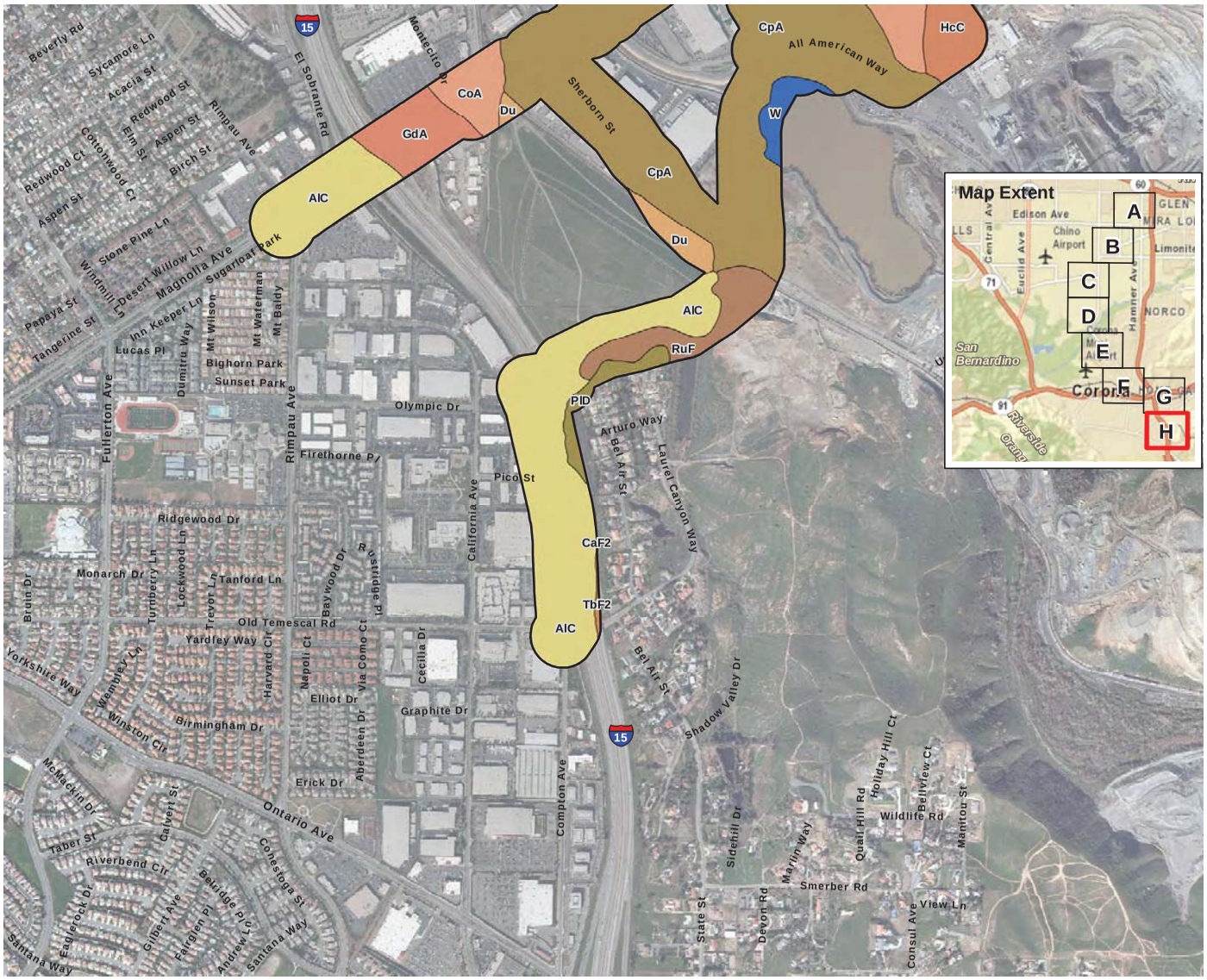

Study Area

Soil Types

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- BhA - Buchenau loam, slightly saline-alkali, 0 to 2 percents lopes
- BhC - Buchenau loam, slightly saline-alkali, 2 to 8 percents lopes
- CaF2 - Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- Cb - Chino silt loam
- Ce - Chino silt loam, drained
- CkA - Chualar clay loam, 0 to 2 percent slopes
- CkC - Chualar clay loam, 2 to 9 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- CoA - Cortina sandy loam, 0 to 2 percent slopes
- CpA - Cortina gravelly sandy loam, 0 to 2 percent slopes
- DaD2 - Delhi fine sand, 2 to 15 percent slopes, wind-eroded
- Db - Delhi fine sand
- DbA - Delhi loamy fine sand, 0 to 2 percent slopes
- DmA - Dello loamy sand, poorly drained, 0 to 2 percent slopes
- DrA - Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
- Du - Domino silt loam
- GP - Gravel pits
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- GoB - Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Gr - Grangeville fine sandy loam
- GsB - Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
- GuB - Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- GyA - Greenfield sandy loam, 0 to 2 percent slopes
- GyC2 - Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HhA2 - Hilmar loamy sand, 0 to 2 percent slopes, eroded
- HlA - Hilmar loamy very fine sand, 0 to 2 percent slopes
- HlC - Hilmar loamy very fine sand, 2 to 8 percent slopes
- Hr - Hilmar loamy fine sand
- MgB - Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- PaA - Pachappa fine sandy loam, 0 to 2 percent slopes
- PlB - Placentia fine sandy loam, 0 to 5 percent slopes
- PlD - Placentia fine sandy loam, 5 to 15 percent slopes
- RaA - Ramona sandy loam, 0 to 2 percent slopes
- RaB2 - Ramona sandy loam, 2 to 5 percent slopes, eroded
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded
- ReC2 - Ramona very fine sandy loam, 0 to 8 percent slopes, eroded
- RmC - Ramona sandy loam, 2 to 9 percent slopes
- RmD - Ramona sandy loam, 9 to 15 percent slopes
- RsC - Riverwash
- RuF - Rough broken land
- SeA - San emigdio fine sandy loam, 0 to 2 percent slopes
- SgA - San emigdio loam, 0 to 2 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- Wb - Waukena fine sandy loam, saline-alkali
- W - Water

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Soil Types

Figure 3H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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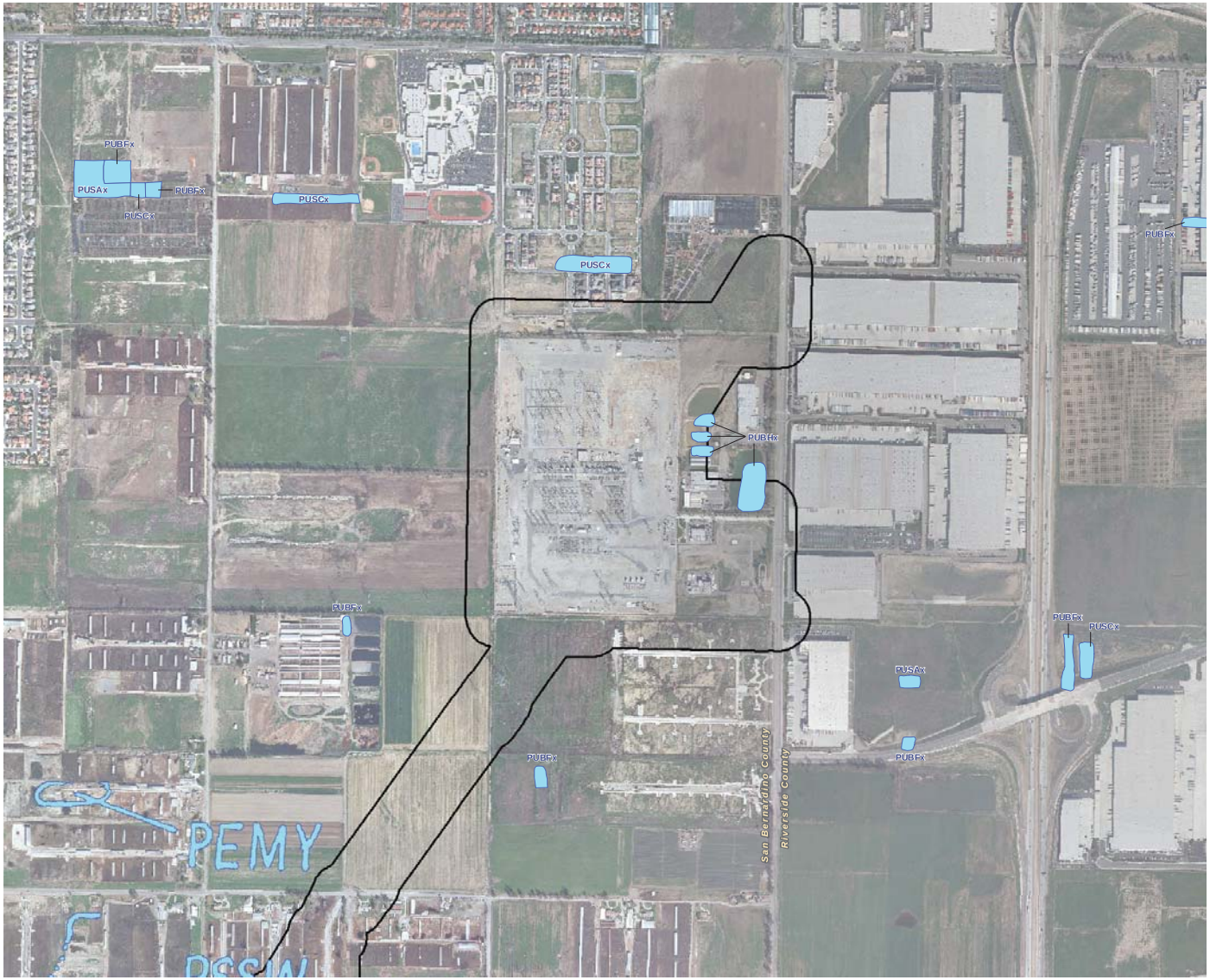
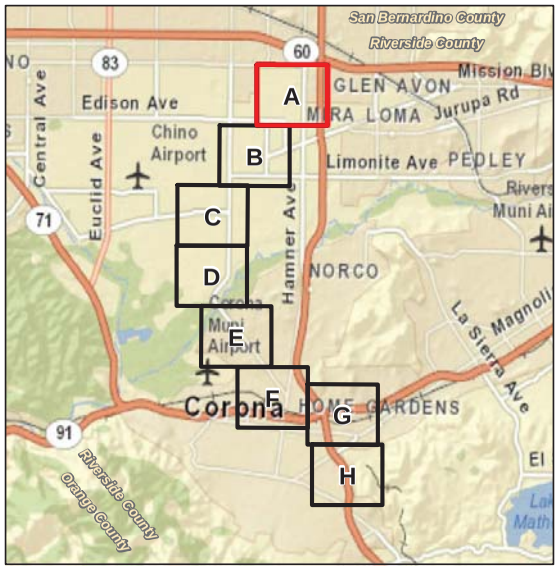


Study Area

NWI Data



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National Wetlands Inventory

Figure 4A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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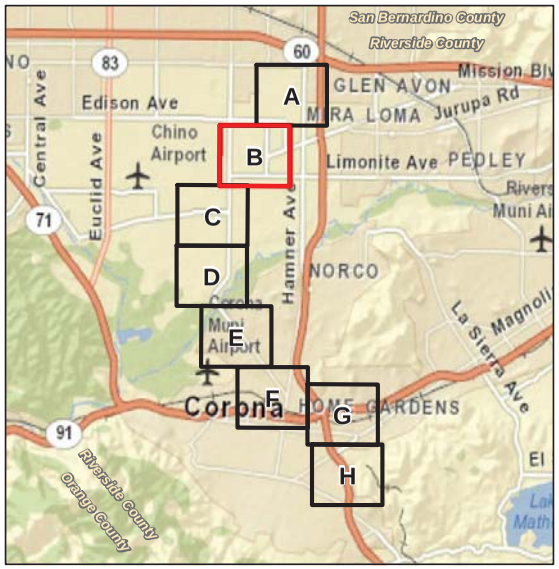
Study Area
NWI Data



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National Wetlands Inventory

Figure 4B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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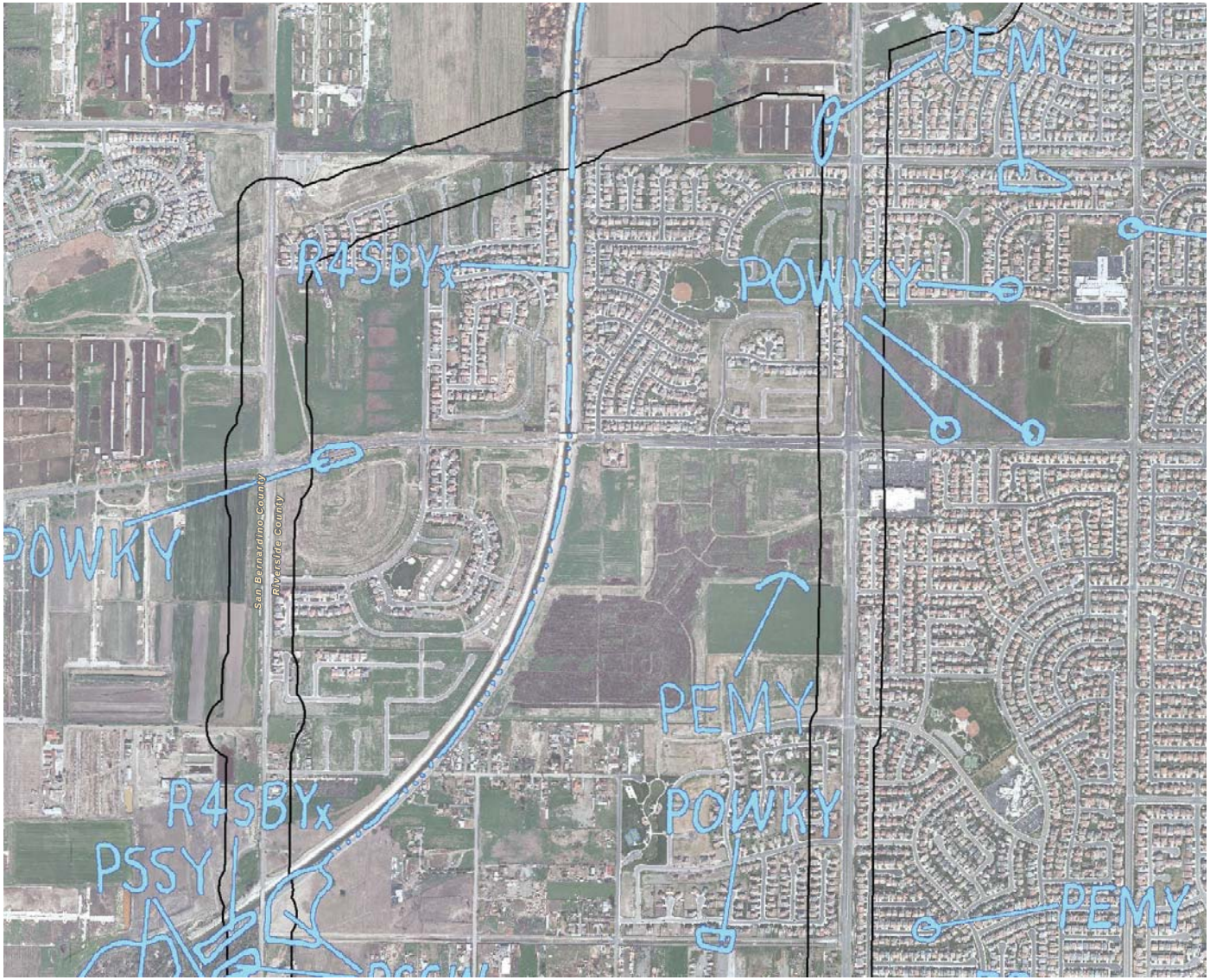

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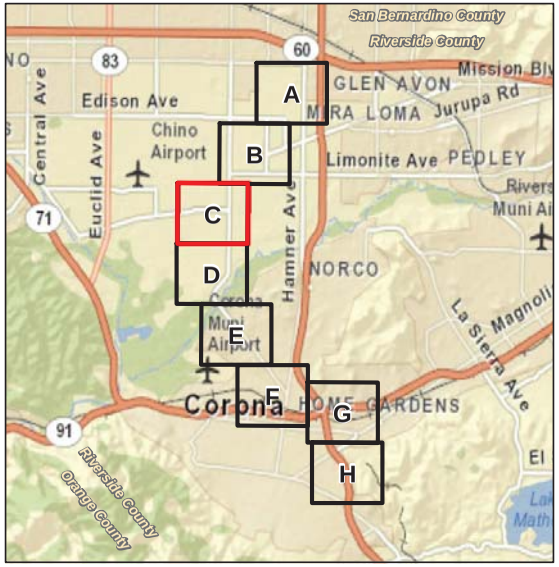

National Wetlands Inventory

Figure 4C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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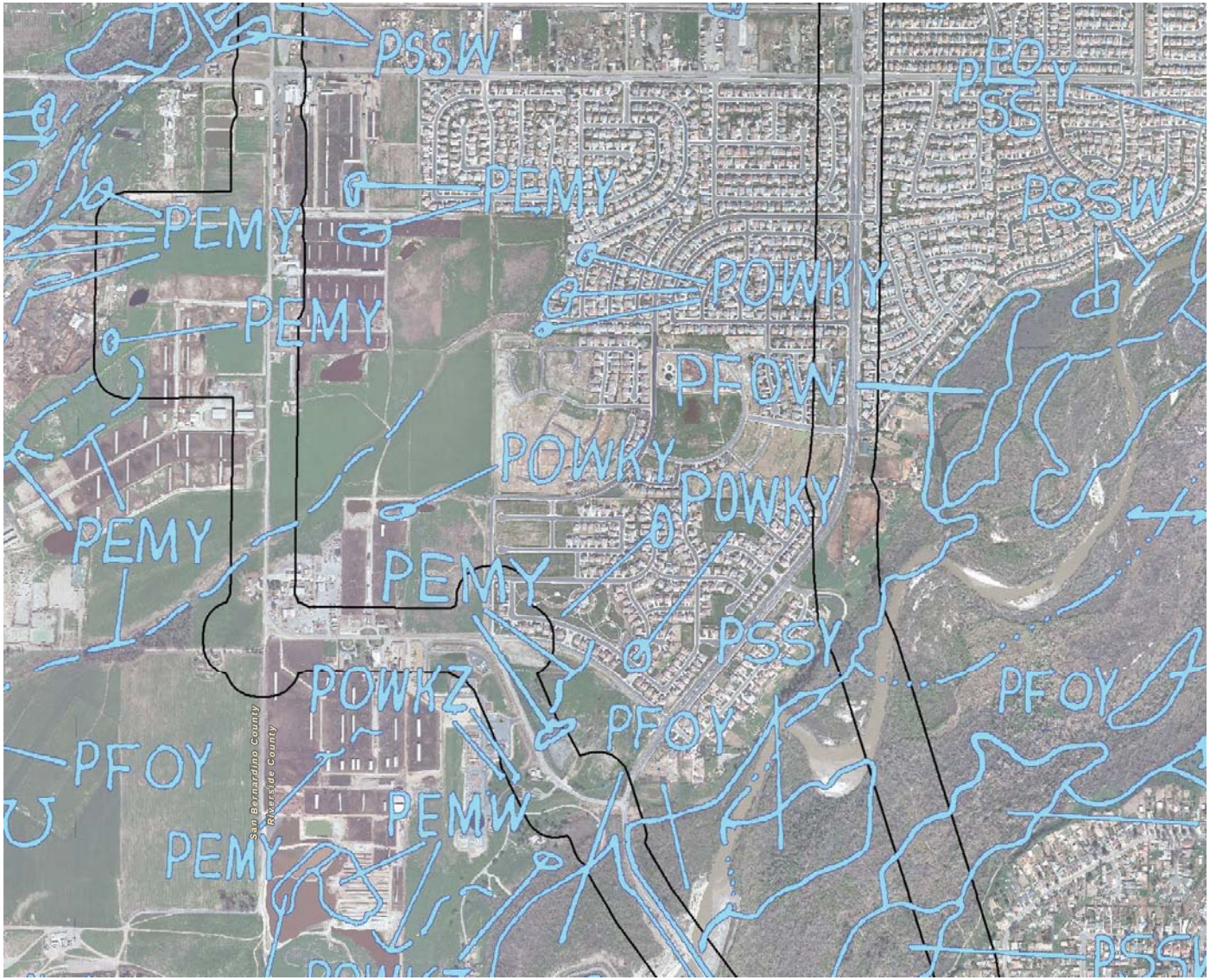
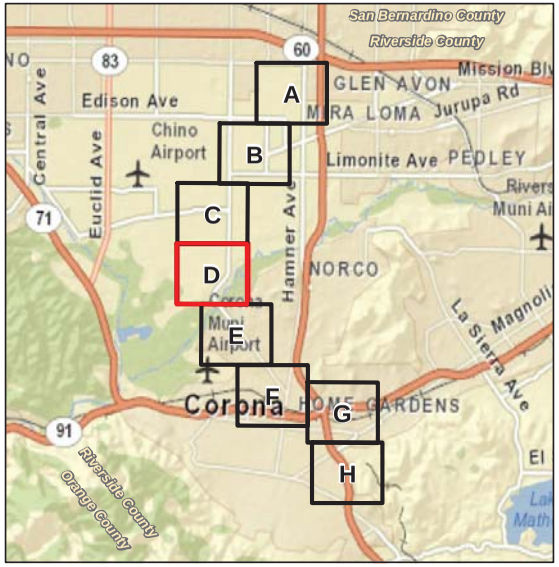


Study Area

NWI Data



National Wetlands Inventory

Figure 4D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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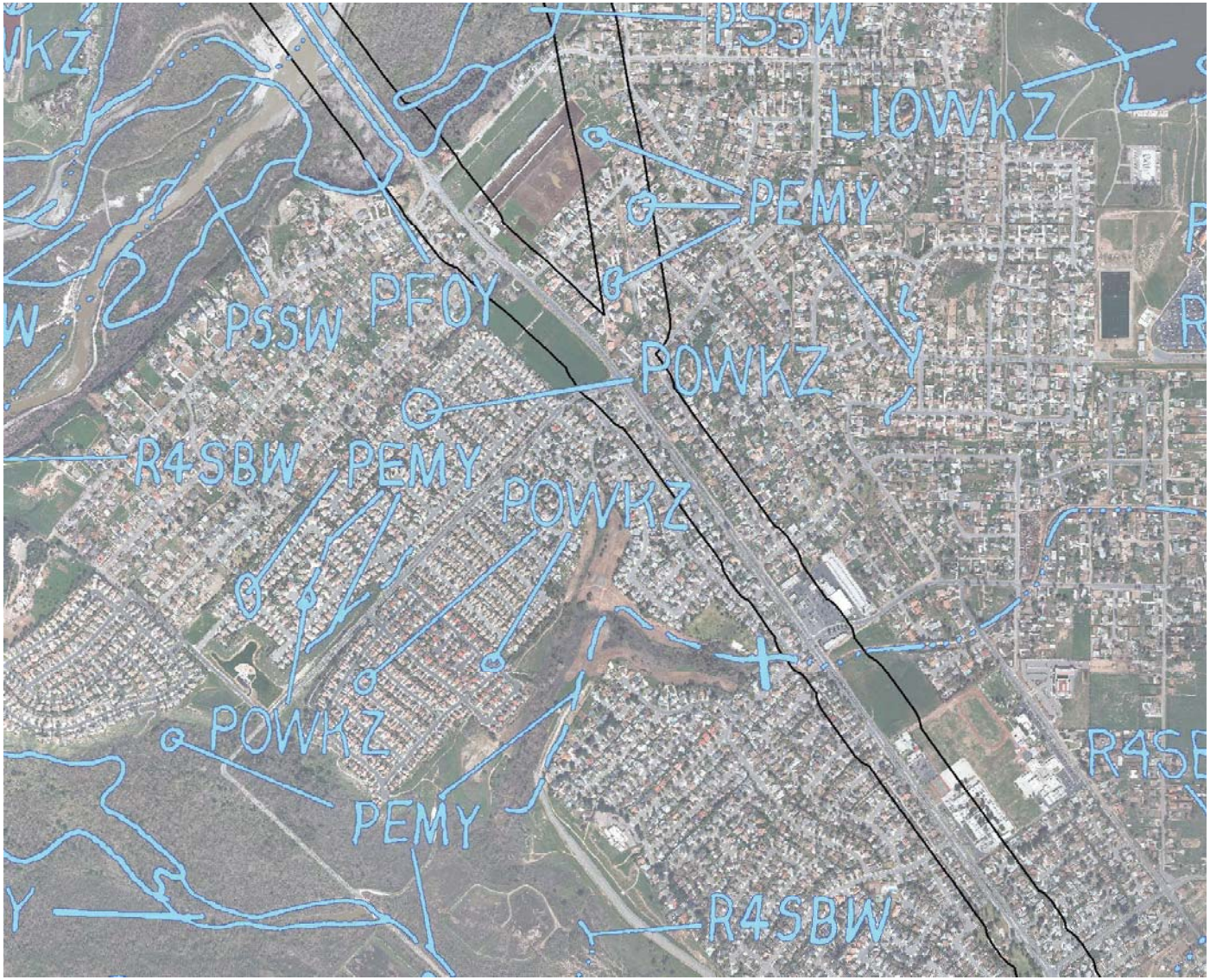

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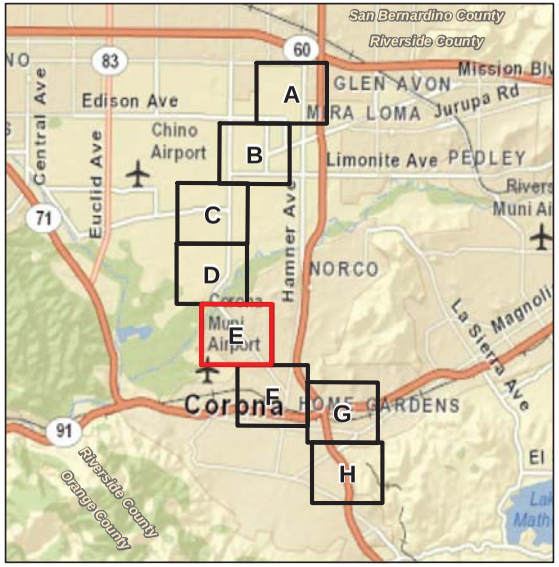

National Wetlands Inventory

Figure 4E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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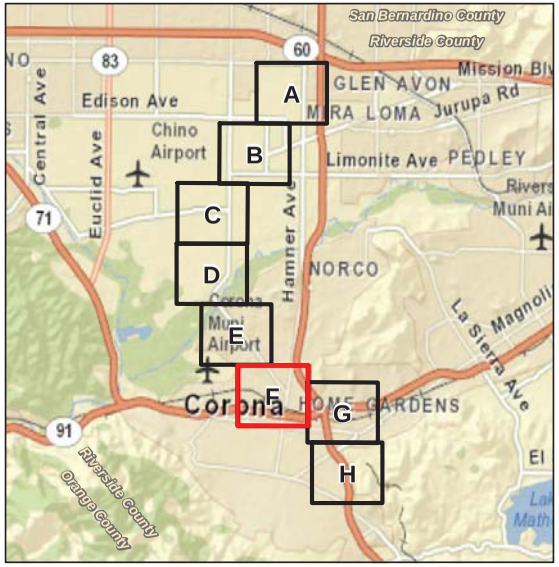
NWI Data



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National Wetlands Inventory

Figure 4F

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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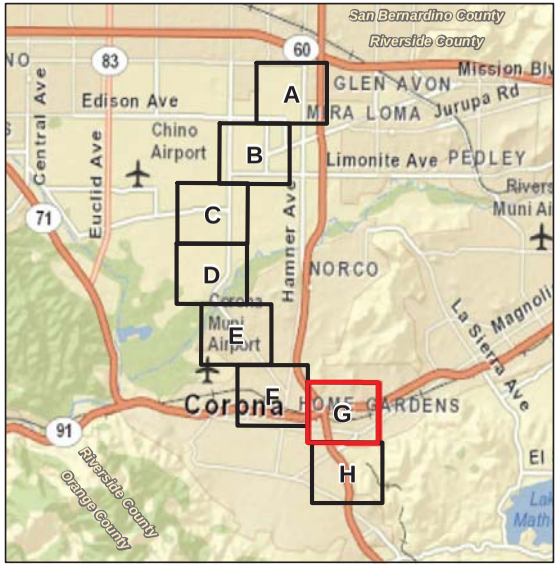
Study Area
NWI Data



National Wetlands Inventory

Figure 4G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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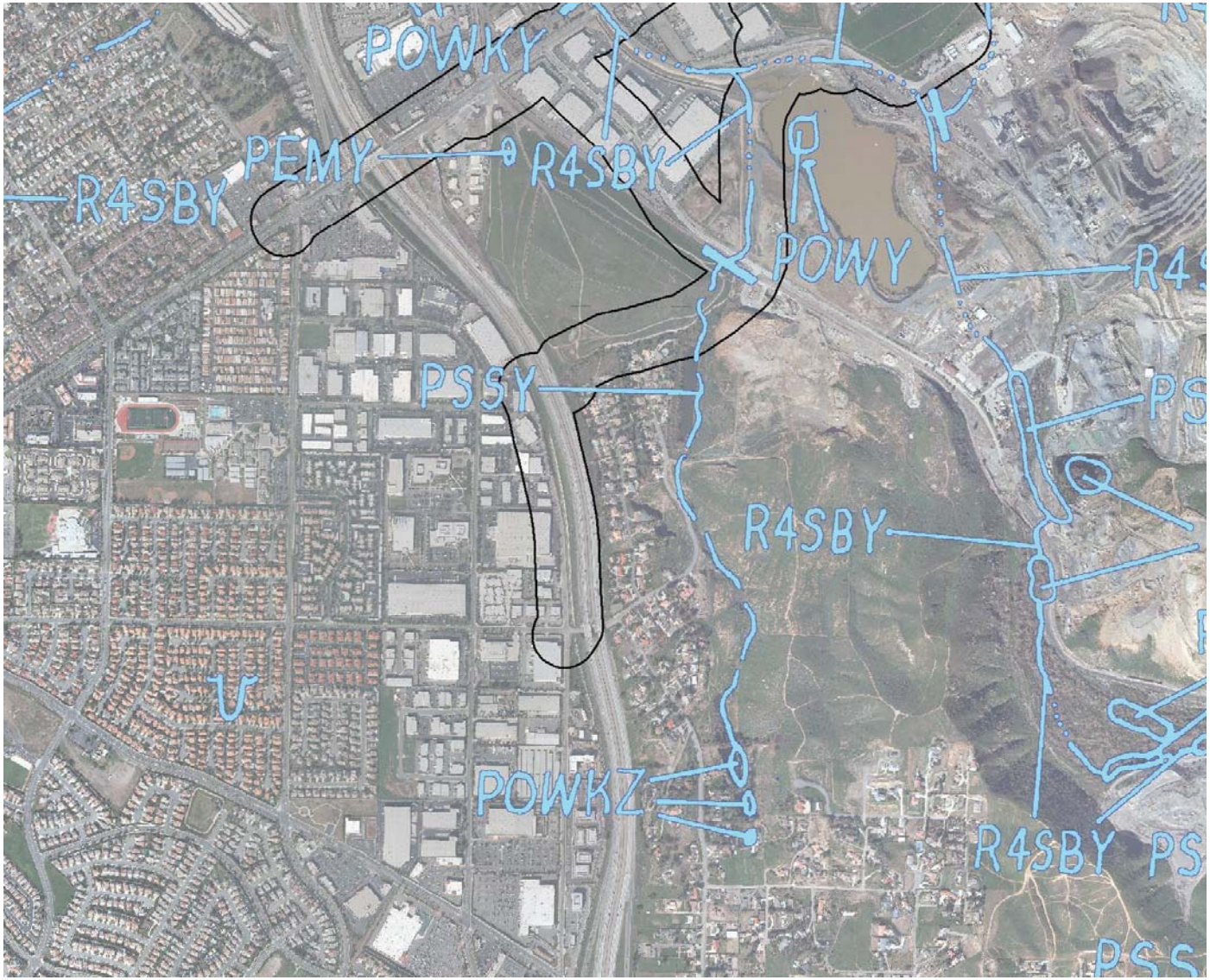
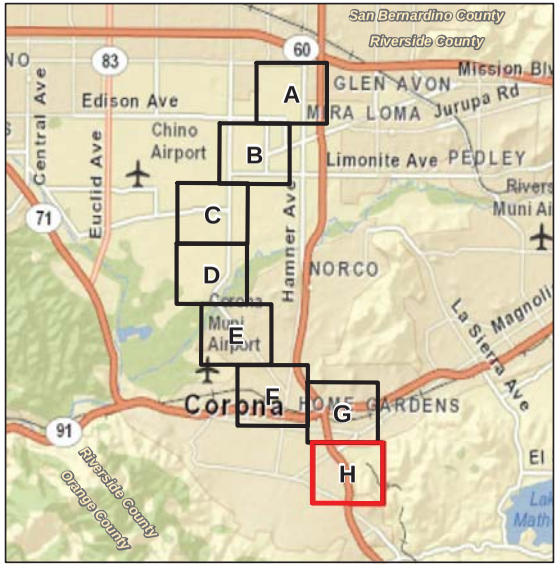


Study Area
NWI Data



National Wetlands Inventory

Figure 4H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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feature; (3) have at low water a depth of less than 6.6 feet in the deepest part of the basin; and (4) have salinity due to ocean-derived salts of less than 0.5 ppt.

- ***EM: Class EMERGENT.*** This Class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. The vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

- ***FO: Class FORESTED.*** This Class is characterized by woody vegetation that is 6 meters (20 feet) tall or taller.

- ***SS: Class SCRUB-SHRUB.*** This Class is dominated by woody vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.

- ***UB:*** **Class UNCONSOLIDATED BOTTOM.** Includes all wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones (less than 6 to 7 centimeters) and a vegetative cover less than 30 percent.

- ***US: Class UNCONSOLIDATED SHORE***. Includes all wetland habitats having two characteristics: (1) unconsolidated substrates with less than 75 percent areal cover of stones, boulders or bedrock and; (2) less than 30 percent areal cover of vegetation. Landforms such as beaches, bars, and flats are included in the Unconsolidated Shore class.

  - ***A: Water Regime Modifier TEMPORARY FLOODED.*** Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the growing season. Plants that grow both in uplands and wetlands may be characteristic of this water regime.

  - ***C: Water Regime Modifier SEASONALLY FLOODED.*** Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

  - ***F: Water Regime Modifier SEMIPERMANENTLYL FLOODED.*** Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.

  - ***H: Water Regime Modifier PERMANENTLY FLOODED.*** Water covers the land surface throughout the year in all years.

  - ***K: Water Regime Modifier ARTIFICALLY FLOODED.*** The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes or dams. The vegetation growing on these areas cannot be considered a reliable indicator of water regime. The Artificially Flooded modifier should be used with water and waste-water treatment facilities. Neither wetlands within nor resulting from leakage from man-

made impoundments, nor irrigated pasture lands supplied by diversion ditches or artesian wells are included under this modifier. The K water regime should not be used in the Riverine System as more applicable special modifiers such as impounded, excavated or artificial better describe artificial flooding conditions in riverine channels.

- ***x:* Special Modifier EXCAVATED.** Lies within a basin or channel that has been dug, gouged, blasted, or suctioned through artificial means by man.

The description for the Riverine codes is as follows (USFWS 2012):

- ***R: System RIVERINE.*** The Riverine System includes all wetlands and deep water habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.
  - ***4: Subsystem INTERMITTENT.*** This Subsystem includes channels that contain flowing water only part of the year, but may contain isolated pools when the flow stops.
    - ***SB: Class STREAMBED.*** This includes wetlands within the Intermittent Subsystem or the Riverine System.
      - ***A: Water Regime Modifier TEMPORARY FLOODED.*** Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the growing season. Plants that grow both in uplands and wetlands may be characteristic of this water regime.
      - ***C: Water Regime Modifier SEASONALLY FLOODED.*** Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.
        - ***x:* Special Modifier EXCAVATED.** Lies within a basin or channel that has been dug, gouged, blasted, or suctioned through artificial means by man.

2.5 JURISDICTIONAL DELINEATION

In September 2008, the USACE issued the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.* This regional supplement is designed for use with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of “Waters of the U.S.” and wetland resources. A three-parameter approach is used to identify wetlands and requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils. Wetlands generally include swamps, marshes, bogs, and similar areas. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within the three parameters. Some wetlands can

be difficult to identify because wetland indicators may be missing due to natural processes or recent disturbances. The Arid West Supplement discusses "difficult wetland situations" and defines problem area wetlands as "naturally occurring wetland types that lack indicators of hydrophytic vegetation, hydric soil, or wetland hydrology periodically due to normal seasonal or annual variability, or permanently due to the nature of the soils or plant species on the site" (USACE 2008c). The Arid West Supplement addresses three types of problematic wetland area conditions: Problematic Hydrophytic Vegetation, Problematic Hydric Soils, and Wetlands that Periodically Lack Indicators of Wetland Hydrology. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement. Non-wetland "Waters of the U.S." are delineated based on the limits of the OHWM, which can be determined by a number of factors including erosion; the deposition of vegetation or debris; and changes in vegetation.

It should be noted that the RWQCB shares USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE's definition of the OHWM and/or the three-parameter wetlands methodology pursuant to the 1987 Wetlands Manual. The CDFG's jurisdiction is defined as the top of the bank to the top of the bank of the stream, channel, or basin or to the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake or other impoundment.

The analysis contained in this report uses the results of field surveys conducted by BonTerra Consulting Associate Principal/Regulatory Services Gary Medeiros and BonTerra Consulting Biologist/Regulatory Technician Allison Rudalevige on November 23, 2011 and January 6, 2012. Jurisdictional features were delineated using a 1 inch equals 200 feet (1″ = 200′) scale aerial photograph. The field survey included the collection of vegetation, soils, and hydrologic data from nine sampling points in the Study Area; this information was recorded on Wetland Determination Data Forms (Attachment A). Representative photographs of the Study Area are included in Attachment C.

3.0 RESULTS

Nine sampling points were assessed within the Santa Ana River and a number of drainage features in the Study Area. Concrete-lined channels or inaccessible areas in private property were not sampled. The jurisdictional areas have not changed substantially since the original delineation surveys on November 23, 2011 and January 6, 2012; however, the drainage east of River Road just south of Country Club Lane (near Sampling Point 9) has been cleared of all vegetation. Based on a site visit after January 6, 2012, this area has been cleared of all vegetation.

3.1 VEGETATION

Sixteen vegetation types and other areas occur in the Study Area: Riversidian sage scrub, disturbed Riversidian sage scrub, non-native grassland, ruderal, disturbed mule fat scrub, willow riparian forest, freshwater marsh, open water, flood-control channel, impoundment, agricultural field, dairy, developed, ornamental, ornamental/developed, and disturbed.

The hydrophytic vegetation criterion was met at Sampling Points 1 through 8. Sampling Point 1 was characterized by disturbed mule fat scrub. Vegetation at Sampling Points 2, 3, 5, 6, 7, and 8 were characterized by willow riparian forest. Sampling Point 4 was located in a patch of wetland vegetation on a sandbar of the Santa Ana River. Sampling Point 9 was located in an area of willow riparian forest at the time of the survey and originally met the hydrophytic vegetation criterion; however, this area has since been cleared of all vegetation by the Riverside County Flood Control and Water Conservation District and will be developed in the future[3].

3.2 SOILS

Soils at each Sampling Point were documented as sandy or clayey loam, sand, silty or loamy sand, and sandy clay. Indicators of hydric soils (i.e., a hydrogen sulfide odor [A4], sandy gleyed matrix [S4], depleted matrix [F3], or redox depression [F8]), were observed at Sampling Points 3, 4, 5, 7, and 9. Therefore, the hydric soil criterion for wetlands was met in these areas. The soil around Sampling Point 8 was sandy and is mapped in the Dello series, which is considered an Entisol. Entisols are recently derived soils that show little profile development and can be formed from river deposits; therefore, these soils are less likely to have indicators of hydric soil. Because FACW and OBL vegetation were present in the tree, sapling/shrub, and herb strata, the area exhibits multiple indicators of wetland hydrology, and sandy soils appeared to be the result of recent deposition due to season flooding within the area. The soils will be considered hydric.

3.3 HYDROLOGY

The Study Area is within the 1,680-square-mile Santa Ana River watershed (Hydrologic Unit Code 8070203). The drainage area for the Santa Ana River is 810 square miles and includes the drainages in the Study Area. The locations of these drainages and their connection to the Santa Ana River and Prado Basin are shown in Table 2.

[3] Based on a conversation between Riverside County Flood Control and Water Conservation District staff and Ms. Rudalevige at the Project site on March 21, 2012.

TABLE 2
DRAINAGES IN THE STUDY AREA

Drainage	Location	Path of Flow	Distance to Prado Basin	
			River Miles	Aerial Miles
Santa Ana River	River Rd between Bluff Street and Archibald St	Flows to the Pacific Ocean	0.0	0.0
Unnamed Flood-Control Channel	North of Harrison Ave and Blossom Way	Flows into Cucamonga Creek Flood-control Channel then Prado Basin	6.4	5.2
Cucamonga Creek Flood-Control Channel	West of 65th St and Coyote Trail Ln	Flows into Prado Basin	4.4	4.0
Cucamonga Creek Flood-Control Channel	Hellman Ave and War Bonnet Way	Flows into Prado Basin	2.9	2.6
Unnamed drainage	Hellman Ave north of River Rd	Flows into Cucamonga Creek Flood-control Channel then Prado Basin	2.0	1.9
Unnamed Flood-Control Channel	River Rd south of 2nd St	Flows into Temescal Wash then Prado Basin	1.3	0.9
Unnamed Flood-Control Channel	River Road north of Cota Street	Flows into Temescal Wash then Prado Basin	1.4	1.3
Temescal Wash	Various locations south of SR-91	Flows into Prado Basin	3.3	3.1
Unnamed Flood-Control Channel	Harrison St and Sheridan St	Flows into Temescal Wash then Prado Basin	1.3	1.8
Unnamed Flood-Control Channel	I-15 north of Old Temescal Rd	Flows into Temescal Wash then Prado Basin	4.5	4.1

Flow in the Santa Ana River has been regulated by Prado Dam since 1940; the dam has a 196,200 acre-foot capacity (USGS 2012a). Stream gauge data from upstream of the Study Area (i.e., at the Metropolitan Water District Crossing near Arlington) indicates that flow is partly regulated by Big Bear Lake and Seven Oaks Flood-Control Reservoir. Natural stream flow is affected by groundwater withdrawals; diversions for irrigation; return flows from irrigated areas; and discharge of treated effluent. Discharge at this gauge indicates that the Santa Ana River experiences year-round flow ranging from an average of 52.5 to 326 cubic feet per second (USGS 2012a; data from 1970 to 1999). The Santa Ana River discharges into the Pacific Ocean in the City of Newport Beach, approximately 34 river miles (29 aerial miles) downstream of the Study Area. Temescal Wash experiences at least seasonal flow throughout the year with an average discharge of 10.2 cubic feet per second in August to 94.6 cubic feet per second in February (USGS 2012b; data from 1991 to 2011).

Indicators of wetland hydrology were observed at Sampling Points 1, 3, 4, 5, 7, 8, and 9. Various primary or secondary indicators of hydrology were observed, including surface water, a high water table, saturation, inundation visible on aerial imagery, hydrogen sulfide odor, water marks, sediment deposits, drift deposits, drainage patterns, and the FAC-Neutral test. Therefore, the hydrology criterion for wetlands hydrology was met in these areas.

4.0 JURISDICTIONAL DELINEATION

This section quantifies the amount of jurisdictional resources in the Study Area and the impacts resulting from the following Project components: (1) the Mira Loma Substation; (2) the Corona Substation; (3) the Circle City Substation Site Alternative A; (4) the Mira Loma Preferred Route 1; (5) the Circle City Preferred Route 1; (6) the Circle City Preferred Route 2; and (7) proposed material yards, access roads, guard structures, and pulling sites for the preferred routes. Impacts of the Circle City Substation Site Alternative A, new overhead structures, and 18-foot-wide access roads (including shoulders) are assumed to be permanent. Impacts of the underground route (i.e., a 2-foot-wide trench), underground structures, vaults, proposed material yards, guard structures, and pulling sites are assumed to be temporary. Since some of the Project components overlap (e.g., pulling sites and proposed material yards), the actual total impact of the Proposed Project is less than the summation of the impacts of all Project components.

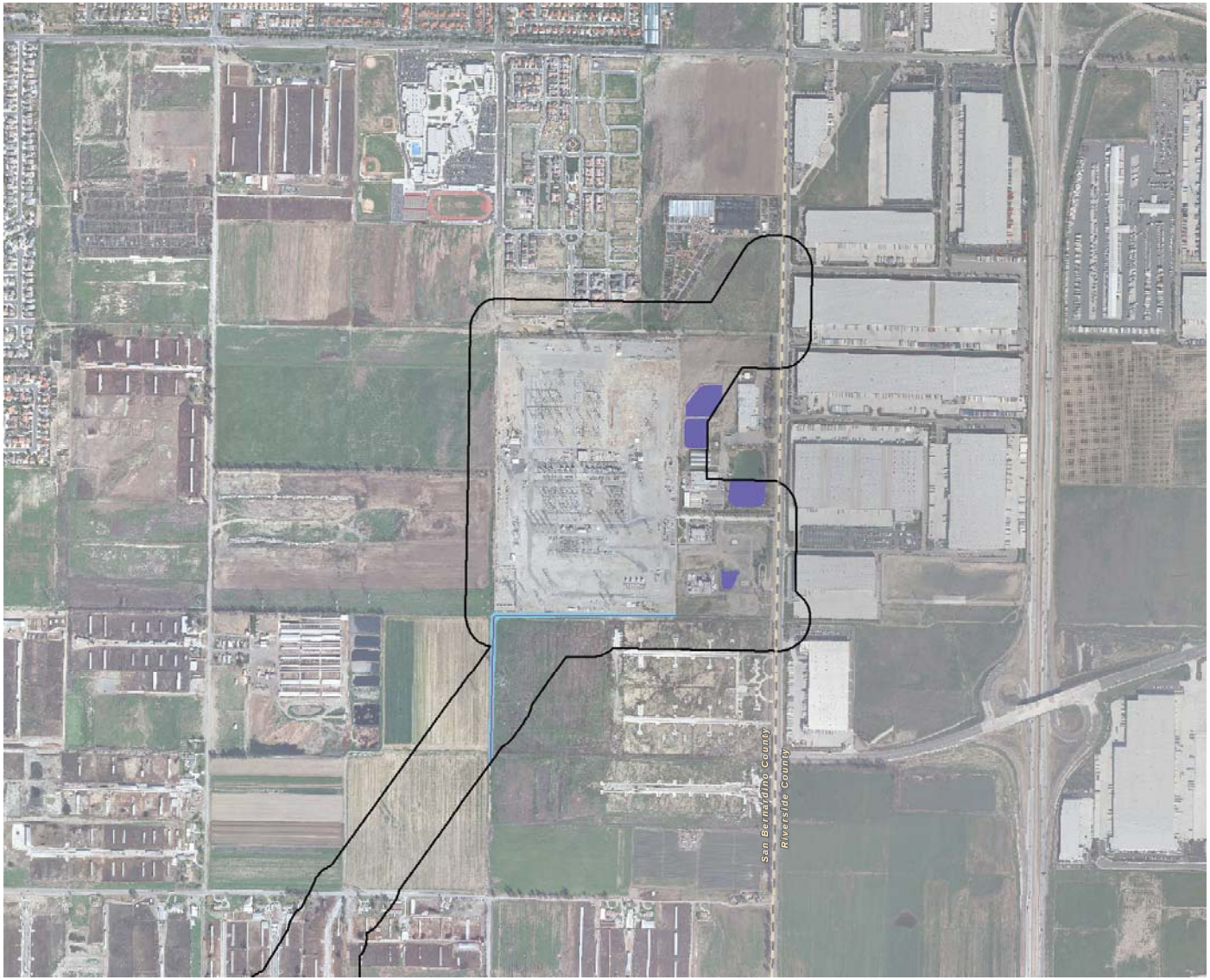
Impacts resulting from the Circle City Substation Site B, the Mira Loma Alternative Route 2, the Mira Loma Alternative Route 3, the Circle City Alternative Route, and any associated material yards, access roads, guard structures, and pulling sites unique to these alternatives are not analyzed in this report. Detailed Project design has not been developed for these Project components. With a few exceptions, the general conditions of the Project alternatives are consistent with the preferred alternative and the resultant impacts are expected to be qualitatively similar. However, there are additional jurisdictional resources at the southern end of the Circle City Alternative Route. Therefore, total impact on jurisdictional resources may be potentially higher if a Project alternative is selected.

4.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

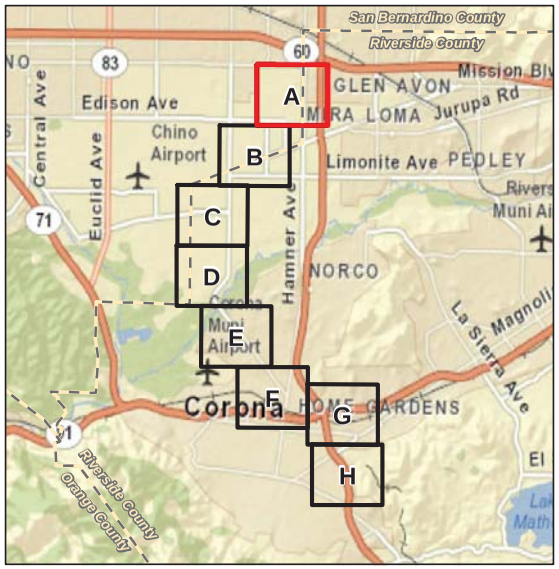
"Waters of the U.S." (Non-Wetland) Determination. The Santa Ana River experiences perennial flows and the other major waterways in the Study Area likely experience seasonal flows that would satisfy the USACE criteria for Relatively Permanent Waters (RPW); some of the smaller unnamed drainages may experience intermittent or ephemeral flow. The USACE would likely take jurisdiction over all the drainages in the Study Area, given their connectivity with a TNW. The USACE would not take jurisdiction over the isolated impoundments in the Study Area. The lateral limits of the "Waters of the U.S." in the Study Area were defined by the presence of the OHWM.

Based on the field observations and data collected, approximately 102.53 acres of non-wetland "Waters of the U.S." (7.17 acres open water and 95.36 acres other non-wetland waters) occur in the Study Area (Figures 5A–5H; Table 3). Based on the current limits of disturbance, approximately 1.18 acres of non-wetland "Waters of the U.S." would be potentially impacted by Project development (Figures 6A–6H; Table 3).

Wetlands Determination. As previously described in Section 2.0 of this report, an area must exhibit all three wetland parameters, as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008c) and the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) in order to be considered a jurisdictional wetland. Hydrophytic vegetation was present at all sampled portions of the Project site. Sampling Points 3, 4, 5, 7, and 9 also contained both indicators of hydric soil and wetland hydrology. These areas are considered to be wetland "Waters of the U.S.". Hydric soil and/or wetland hydrology was not observed at Sampling Points 1, 2, 6, or 8 and these areas are not considered wetland "Waters of the U.S.".



Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 5A

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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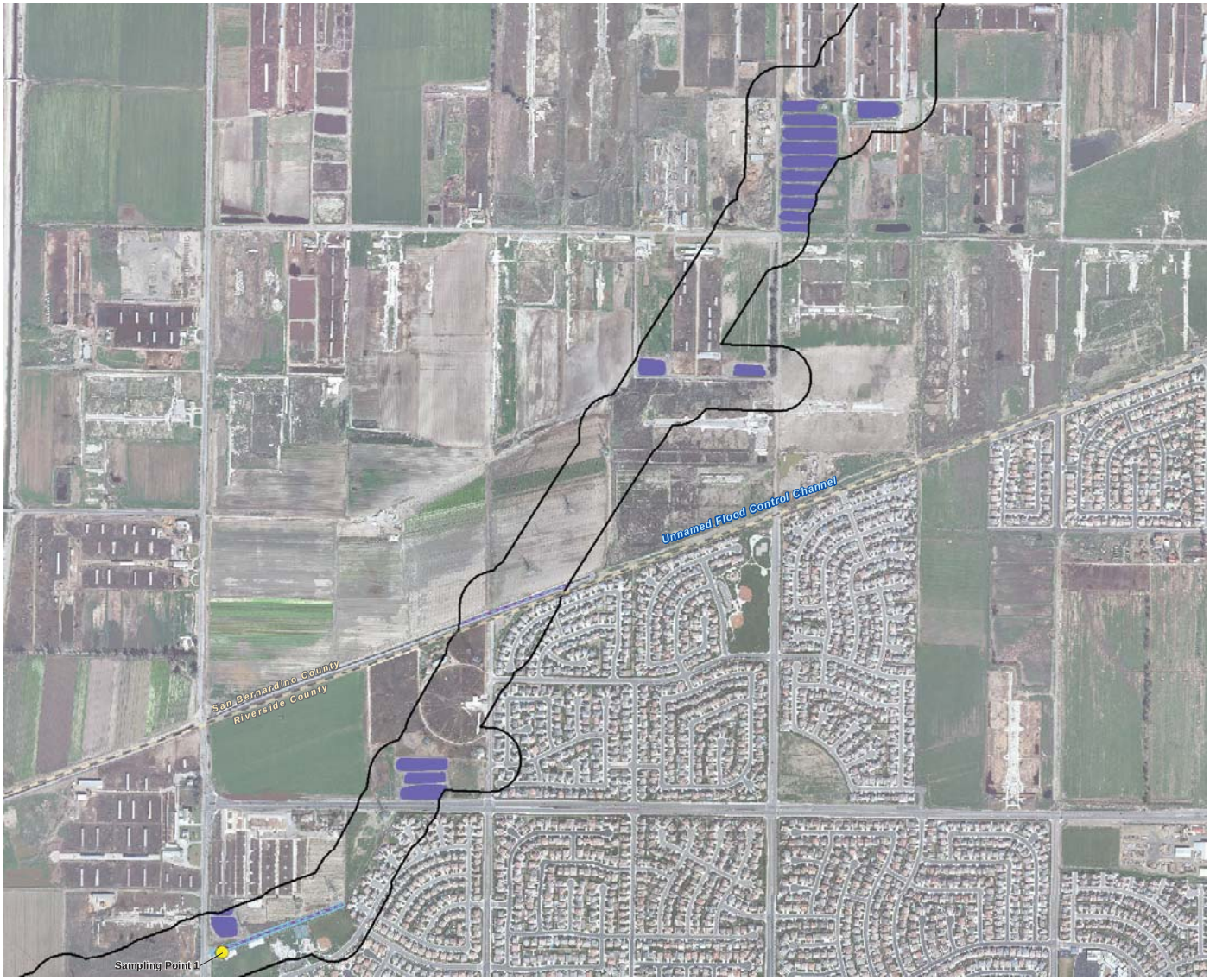
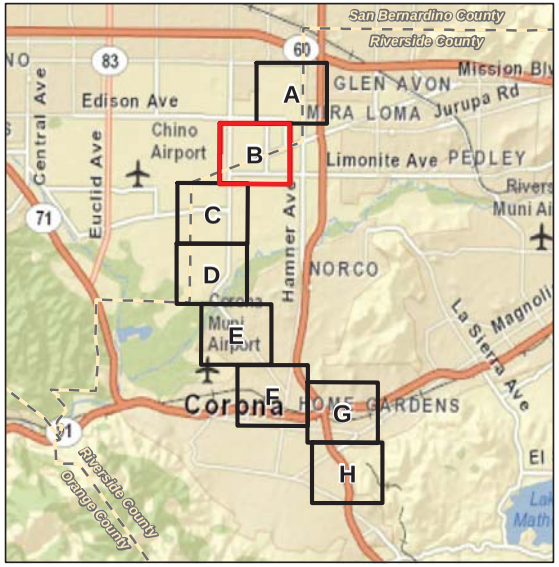
(Rev: 8-22-2012 CJS) Projects\Edison\J045\Graphics\JD\Ex6_JD.pdf



Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 5B

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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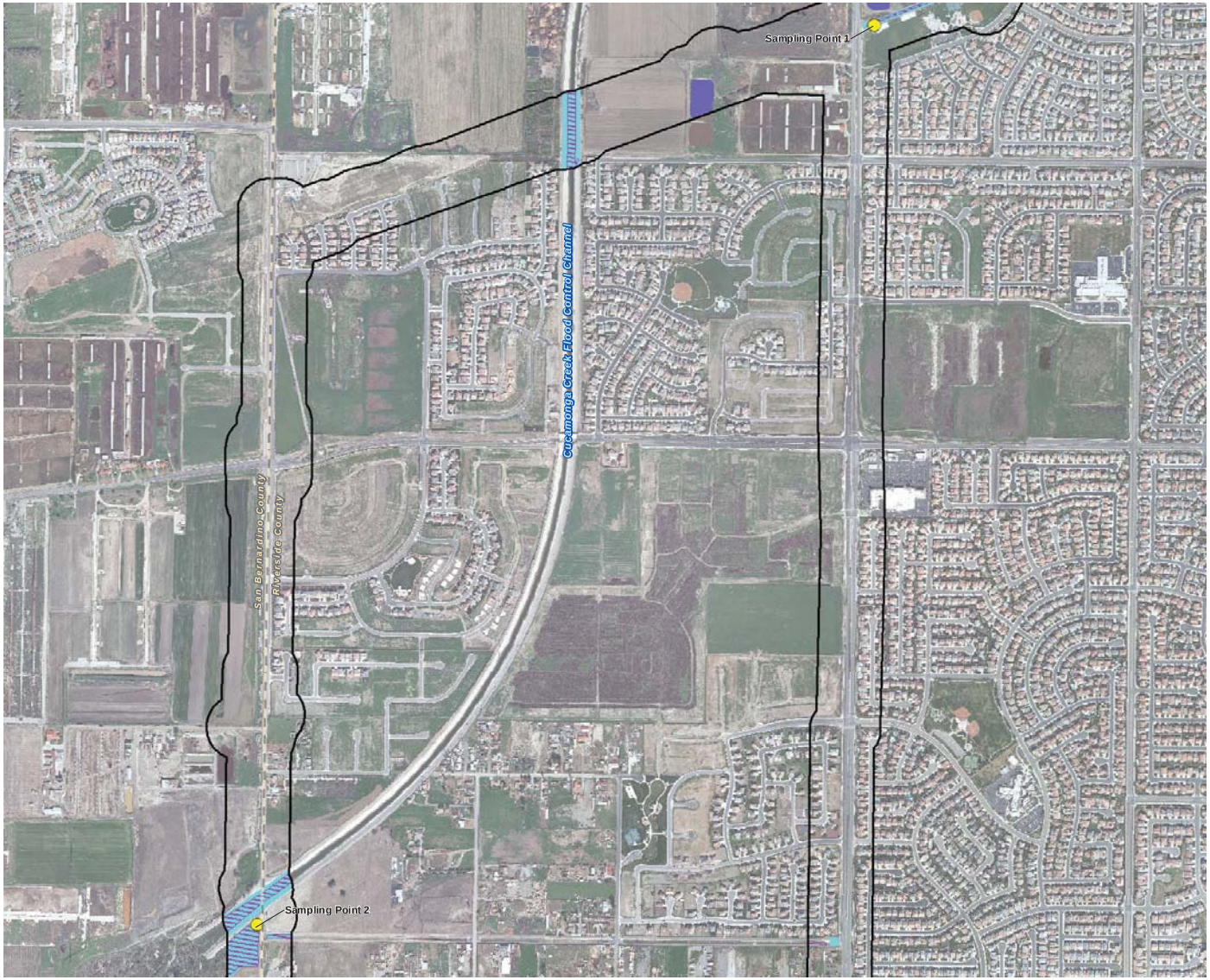
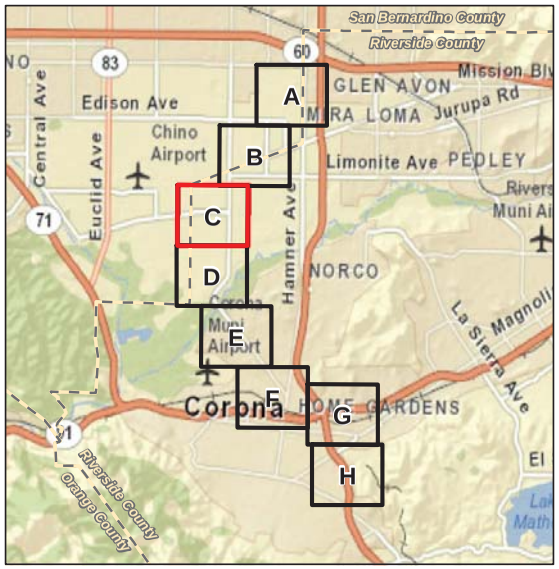
(Rev: 8-22-2012 CJS) Projects\Edison\J045\Graphics\JD\Ex6_JD.pdf



Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 5C

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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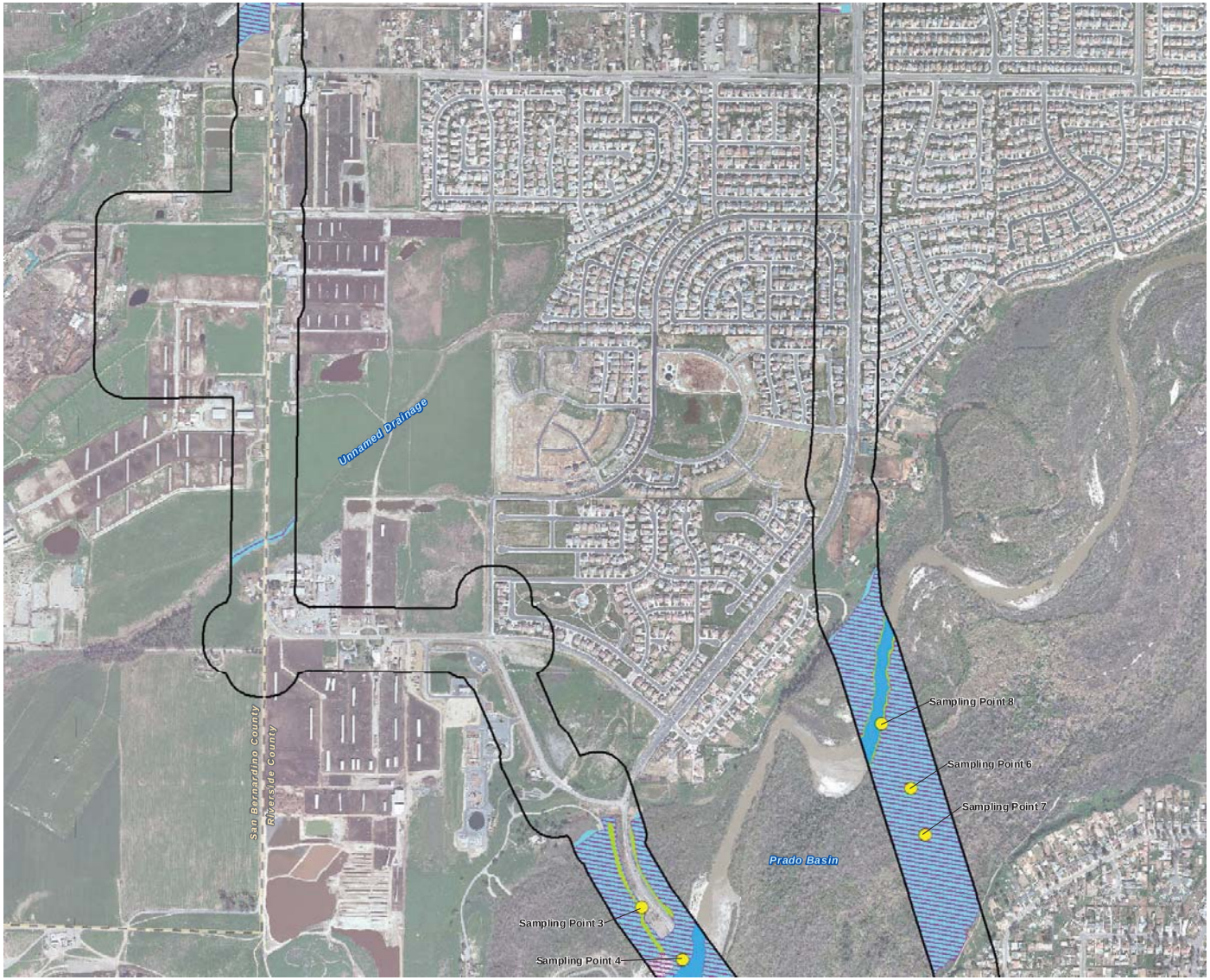
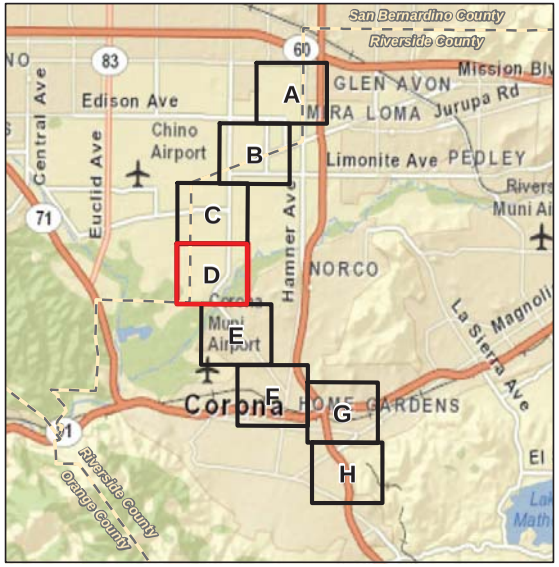


Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 5D

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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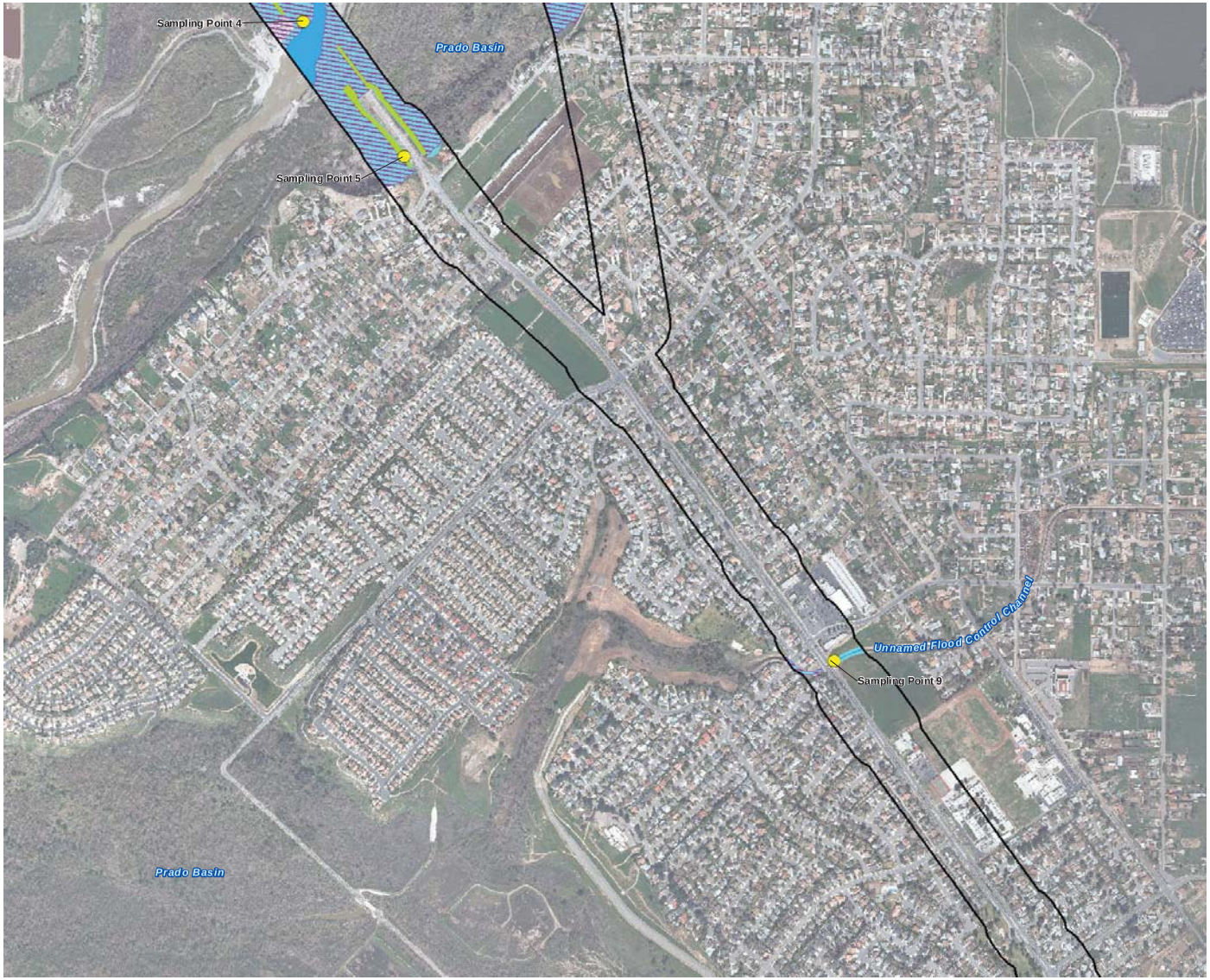
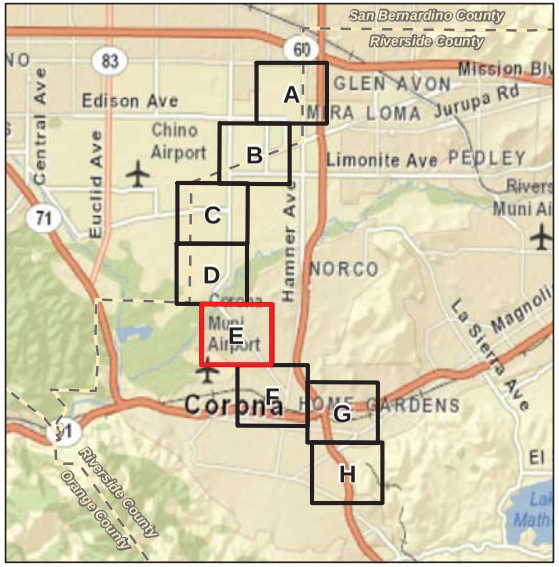


Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



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Jurisdictional Resources

Figure 5E

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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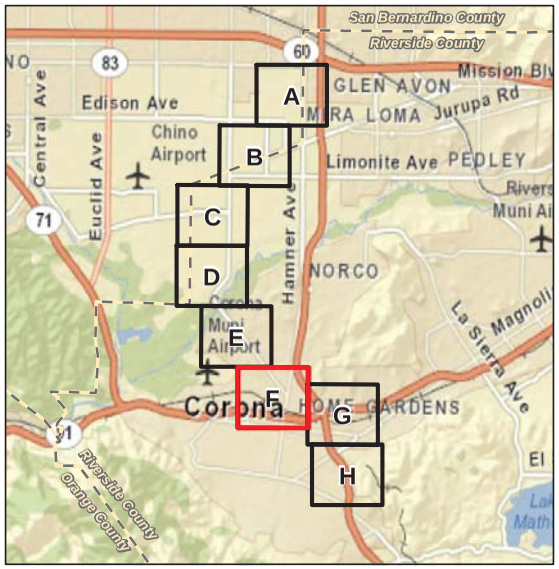
- Sampling Points
- Study Area

"Waters of the State"

- Impoundment
- Other "Waters of the State"

"Waters of the U.S."

- Wetlands
- Open Water
- Other "Waters of the U.S."



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Jurisdictional Resources

Figure 5F

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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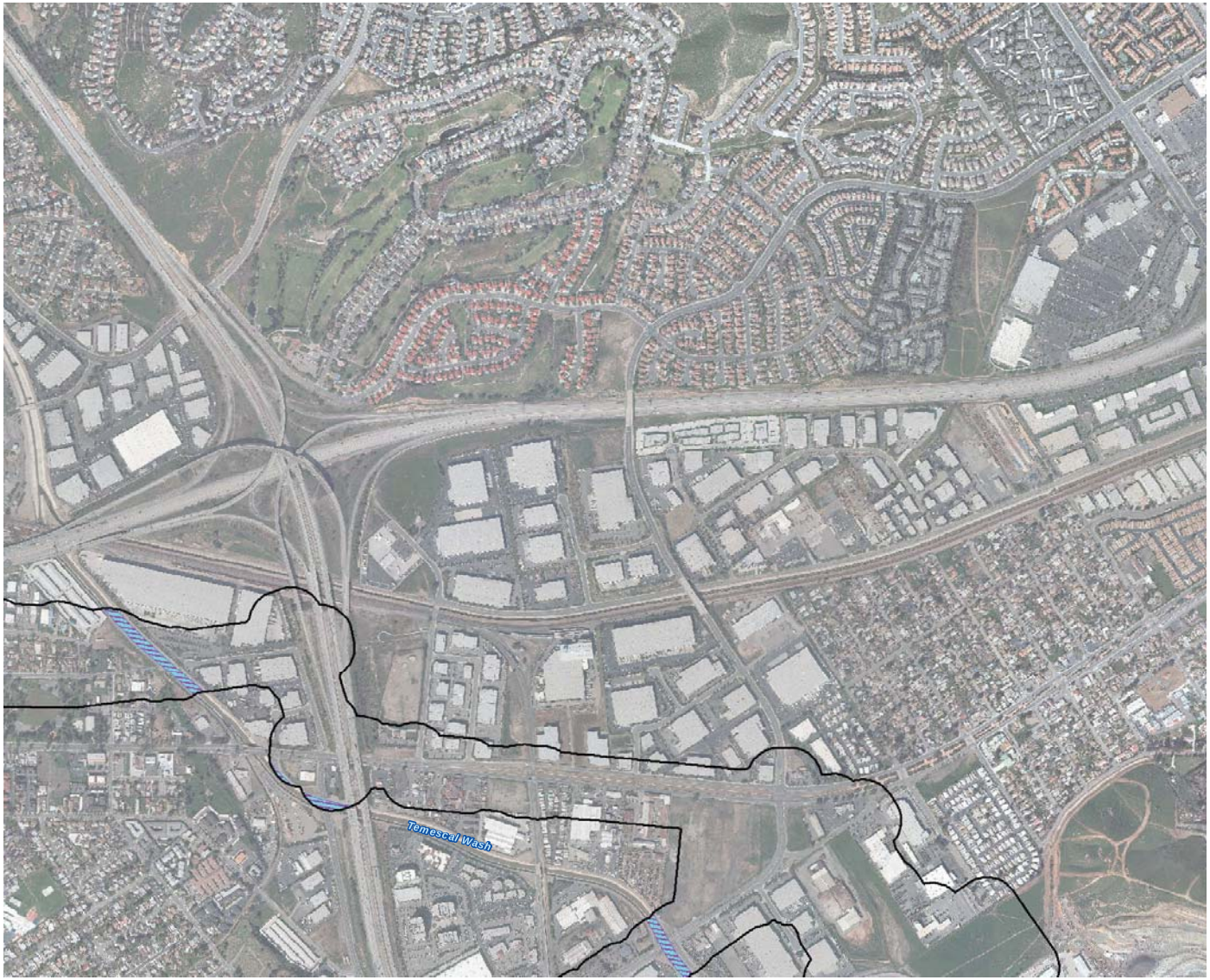
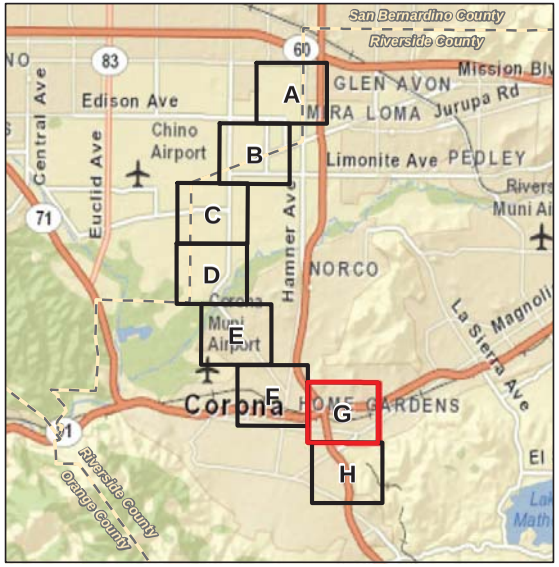


Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



Jurisdictional Resources

Figure 5G

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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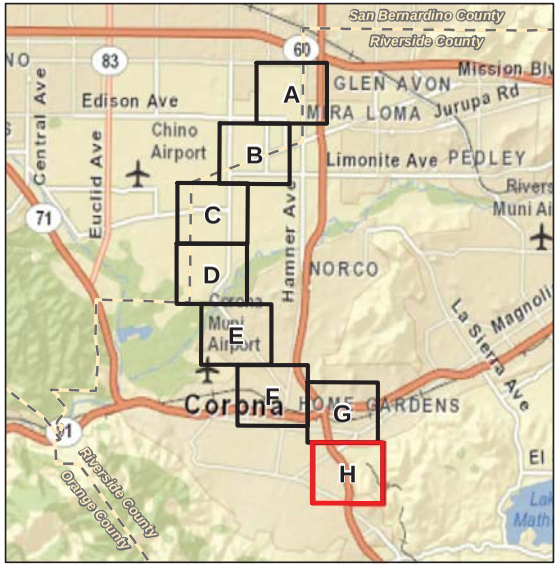
Sampling Points
Study Area
"Waters of the State"
Impoundment
Other "Waters of the State"
"Waters of the U.S."
Wetlands
Open Water
Other "Waters of the U.S."



Jurisdictional Resources

Figure 5H

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

N W E S

1,000 500 0 1,000 Feet

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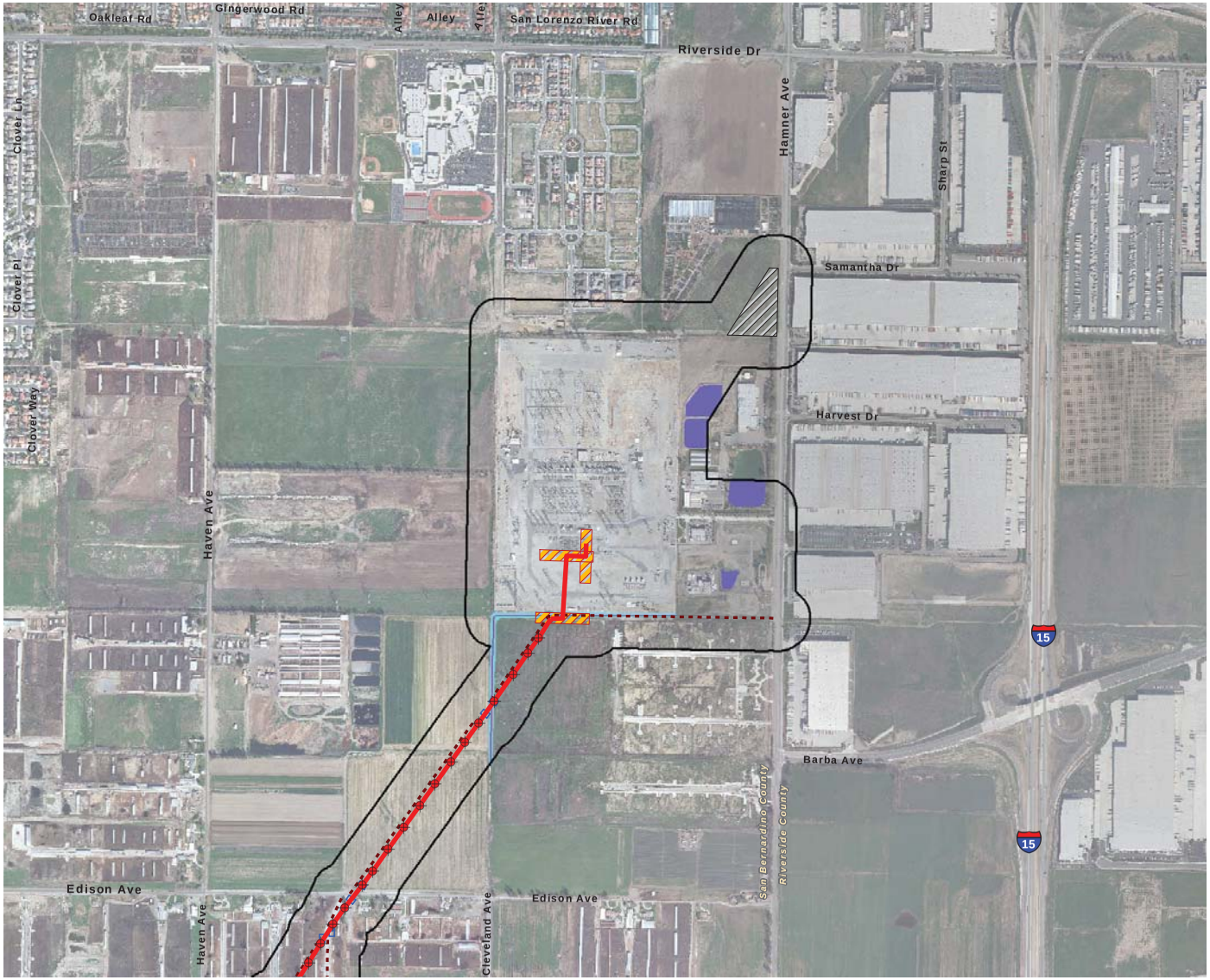


Study Area

Project Components

Preferred Route
- Overhead
- Underground

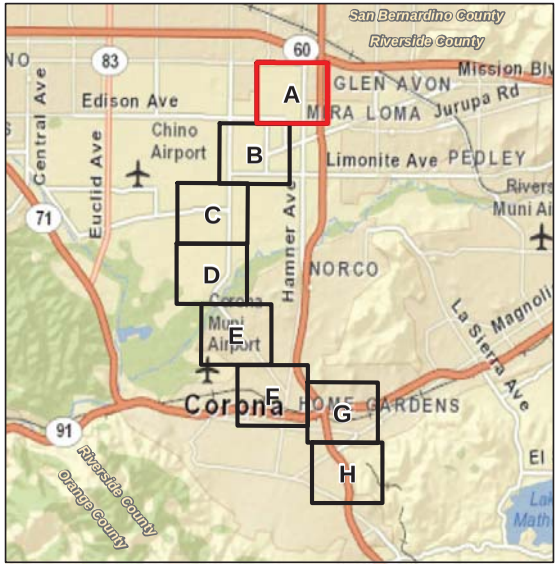
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6A

N W E S

1,000 500 0 1,000 Feet

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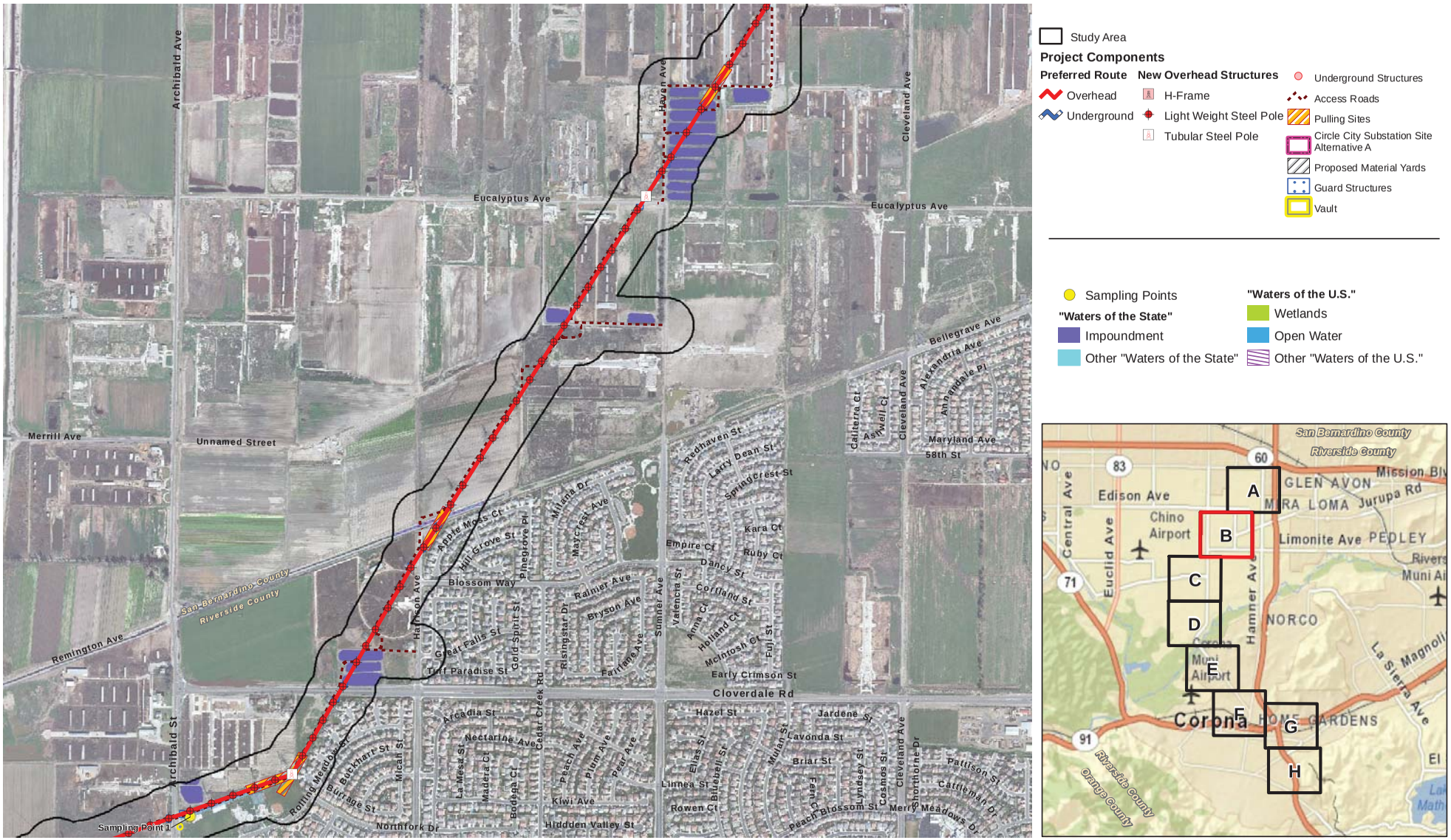

Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6B

N W E S

1,000 500 0 1,000 Feet

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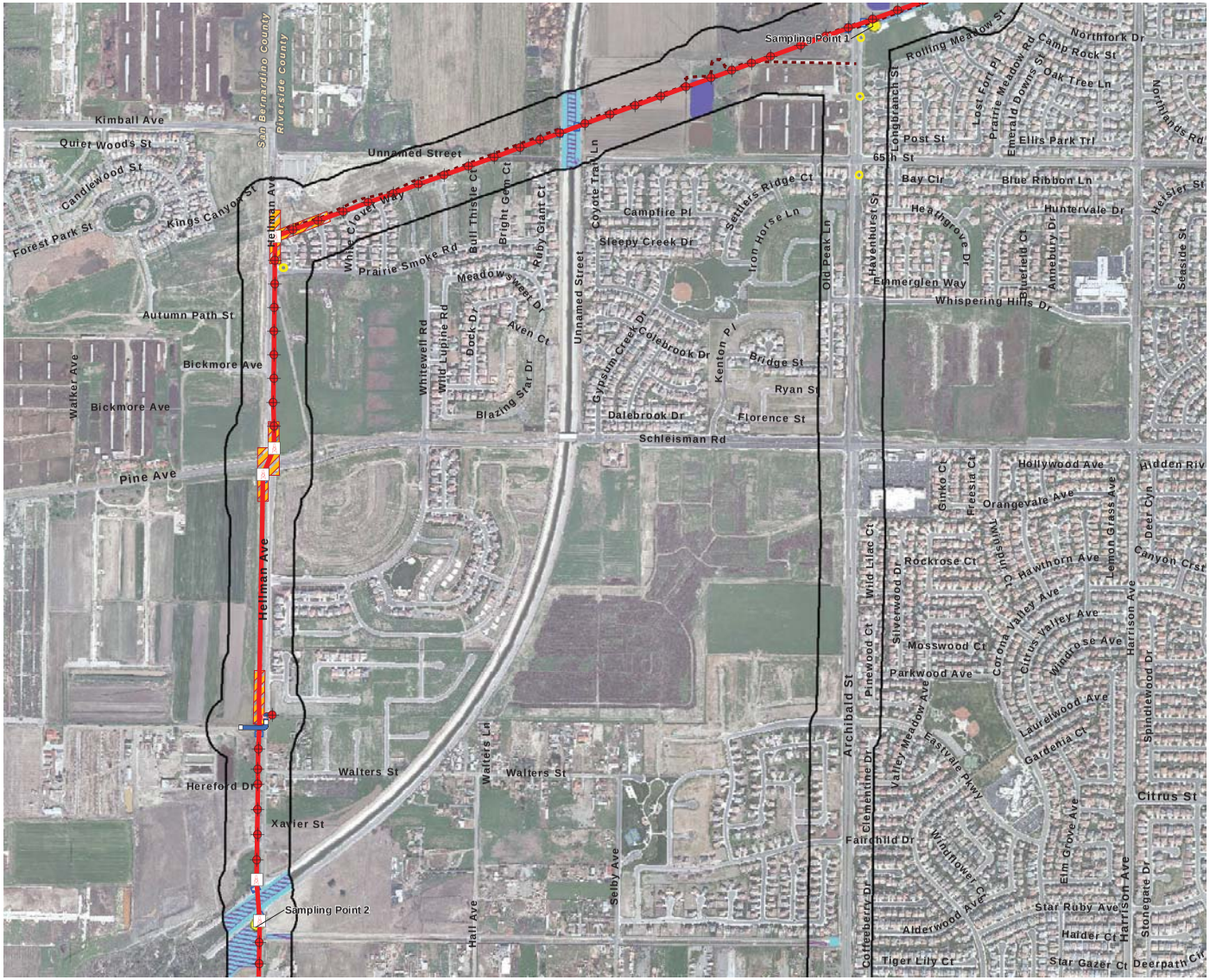


Study Area

Project Components

Preferred Route
- Overhead
- Underground

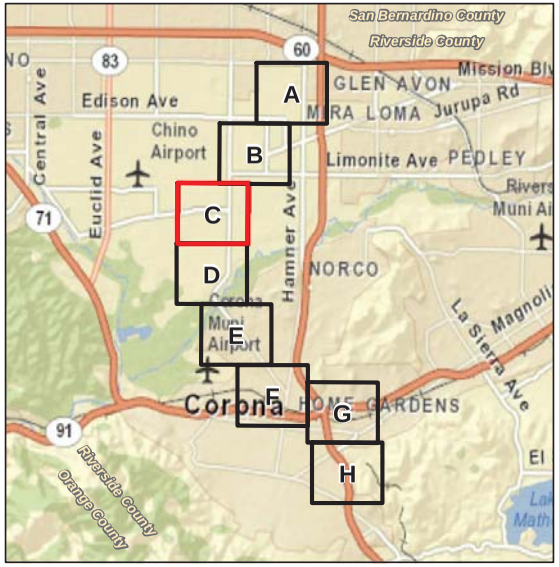
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6C

N W E S

1,000 500 0 1,000 Feet

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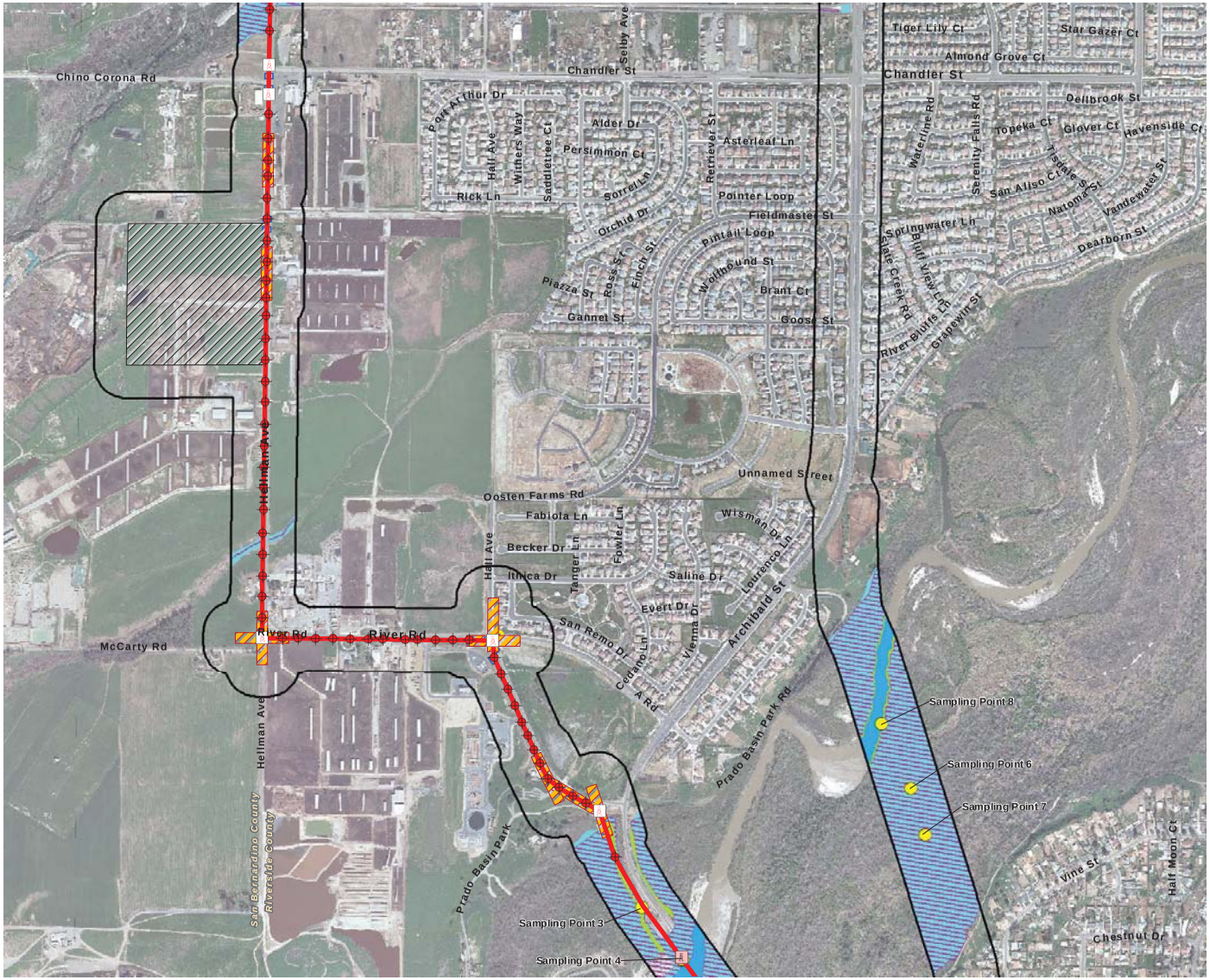


Study Area

Project Components

Preferred Route
- Overhead
- Underground

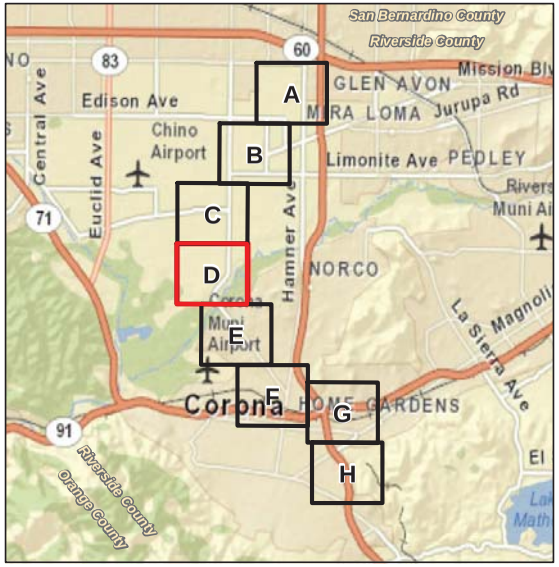
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6D

N W E S

1,000 500 0 1,000 Feet

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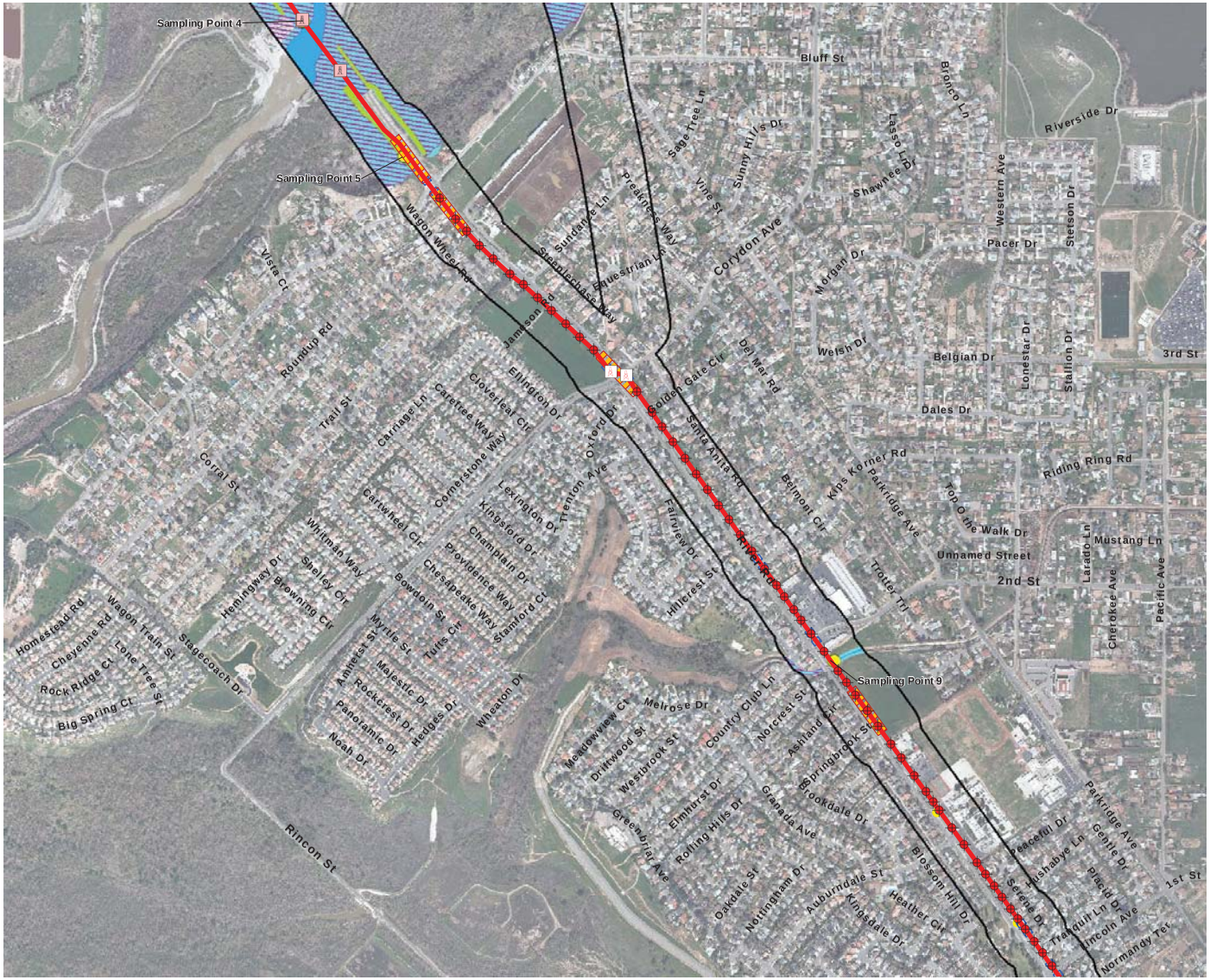


Study Area

Project Components

Preferred Route
- Overhead
- Underground

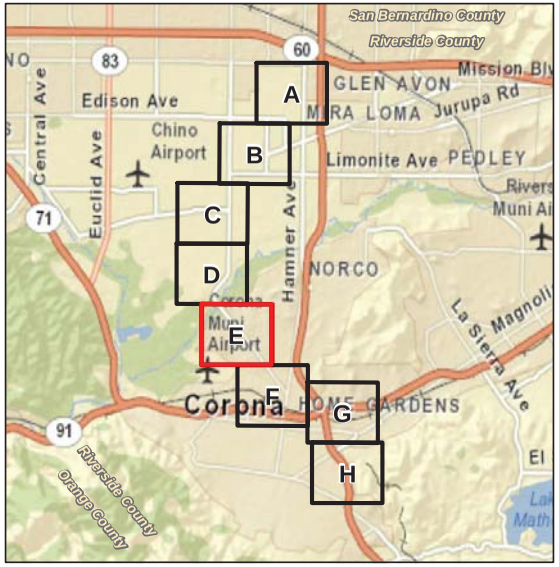
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6E

N W E S

1,000 500 0 1,000 Feet

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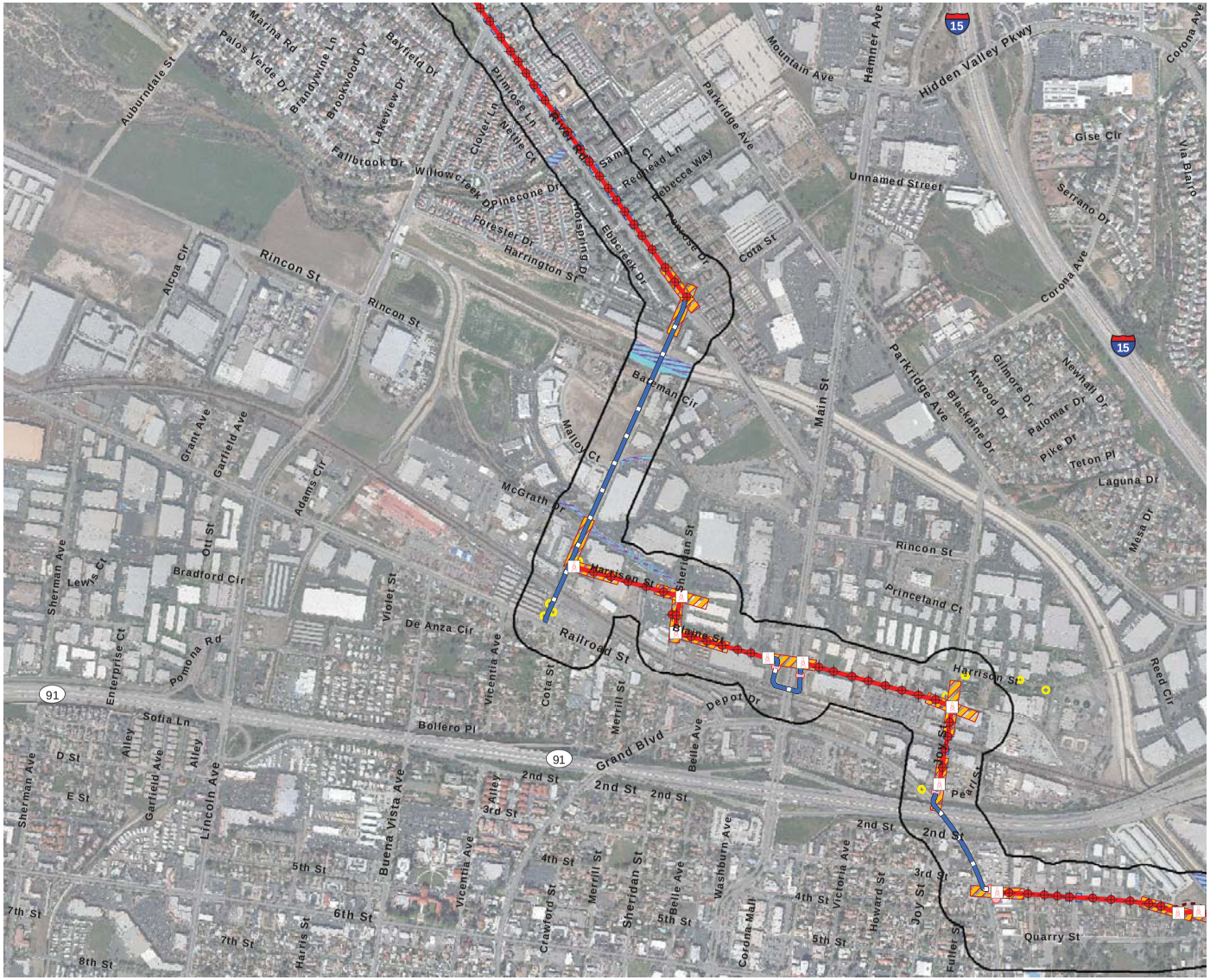


Study Area

Project Components

Preferred Route
- Overhead
- Underground

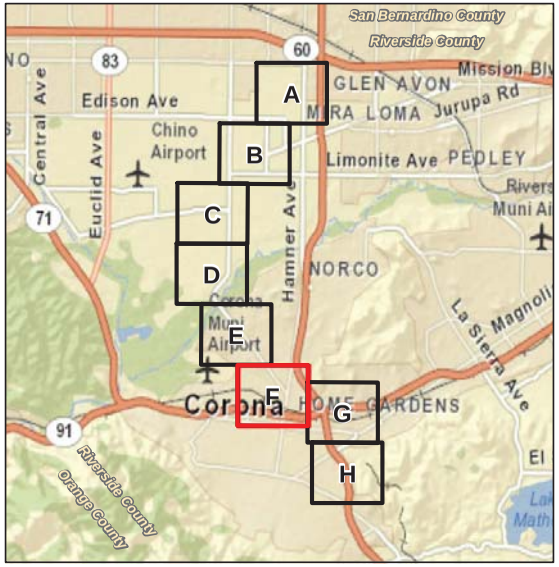
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



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Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6F

N W E S

1,000 500 0 1,000 Feet

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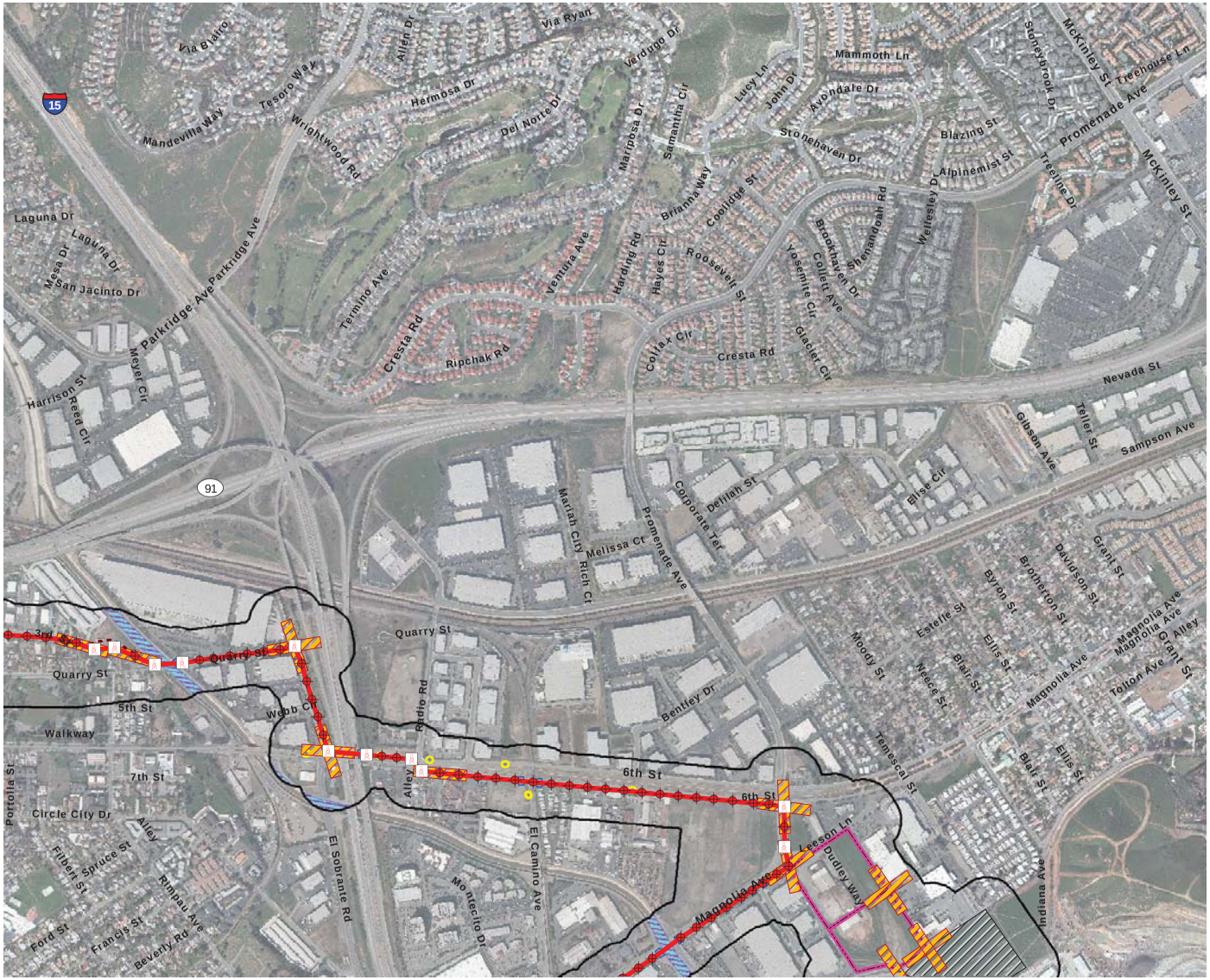


Study Area

Project Components

Preferred Route
- Overhead
- Underground

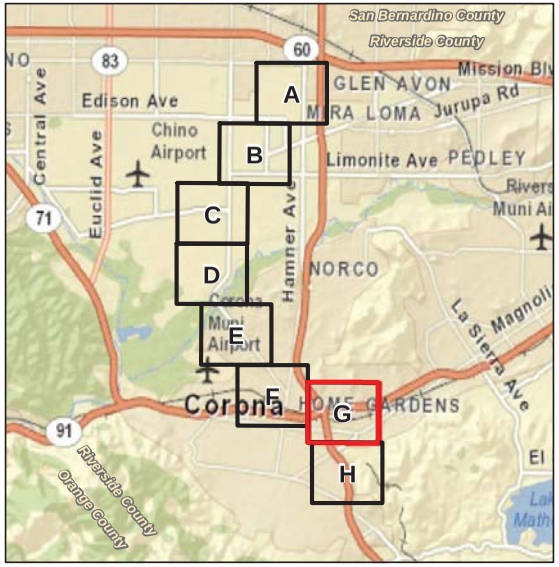
New Overhead Structures
- H-Frame
- Light Weight Steel Pole
- Tubular Steel Pole

- Underground Structures
- Access Roads
- Pulling Sites
- Circle City Substation Site Alternative A
- Proposed Material Yards
- Guard Structures
- Vault

- Sampling Points

"Waters of the State"
- Impoundment
- Other "Waters of the State"

"Waters of the U.S."
- Wetlands
- Open Water
- Other "Waters of the U.S."



Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6G

N W E S

1,000 500 0 1,000 Feet

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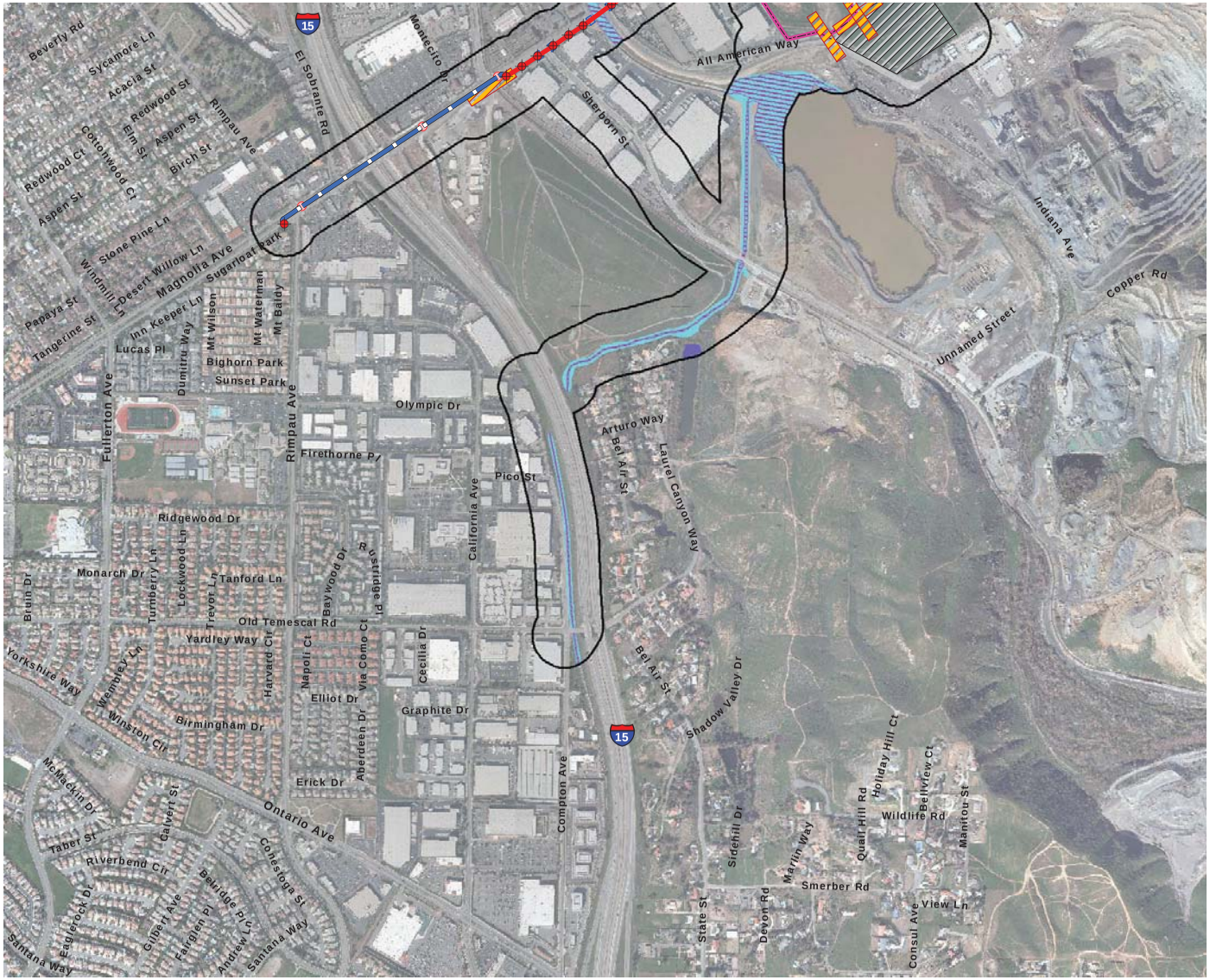

Project Impacts – Jurisdictional Resources

Circle City Substation and Mira Loma-Jefferson Subtransmission Line Project

Figure 6H

N W E S

1,000 500 0 1,000 Feet

BonTerra CONSULTING

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Based on the field observations and data collected, approximately 4.39 acres of wetland "Waters of the U.S." occur in the Study Area (Figures 5A–5H; Table 3). An additional 0.06 acre was originally mapped as wetlands (Sampling Point 9); however, due to vegetation clearance of the site this area is not longer included in the wetland acreage. Based on the current limits of disturbance, approximately 0.32 acre of wetland "Waters of the U.S." would be potentially impacted by Project development (Figures 6A–6H; Table 3).

TABLE 3
JURISDICTIONAL RESOURCES IN THE STUDY AREA

Jurisdiction	Amount (Acres)	Impacts (Acres)						
		New Overhead Structures	Underground Route	Access Roads	Guard Structures	Pulling Sites	Overlap	Total
USACE Jurisdiction								
Wetlands	4.39	0.00*	0.00	0.00	0.00	0.32	0.00	**0.32**
Open Water	7.17	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Other Non-wetland "Waters of the U.S."	95.36	0.00*	0.05	0.35	0.02	0.59	0.17	**1.18**
Total "Waters of the U.S."	**106.92**	**0.00***	**0.05**	**0.35**	**0.02**	**0.91**	**0.17**	**1.50**
CDFG Jurisdiction								
Isolated Waters	24.19	0.00*	0.00	0.65	0.09	0.18	0.00*	**0.92**
Non-isolated "Waters of the State"	117.12	0.00*	0.08	0.56	0.12	1.18	0.38	**2.32**
Total "Waters of the State"	**141.31**	**0.00***	**0.08**	**1.21**	**0.21**	**1.36**	**0.38**	**3.24**

New overhead structures include hybrid H-Frames, light-weight steel poles, and tubular steel poles. Impacts assume a single footing for the light-weight steel poles and tubular steel poles, and 2 footings for the hybrid H-frames based on the maximum approximate diameter provided in Table 3.2 of the PEA (SCE, in progress).
* Impacts would be less than 0.005 acre.

4.2 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION

The RWQCB jurisdictional boundaries are defined as those determined for the USACE under "Waters of the U.S.". However, the RWQCB takes jurisdiction over both connected and isolated waters. A variety of impoundments are present in the northern portions of the Study Area; these areas would be included within the RWQCB's jurisdiction but not the USACE's jurisdiction because they are isolated. Approximately 131.11 acres in the Study Area (including 4.39 acres wetlands, 7.17 acres open water, 95.36 other non-wetland "Waters of the U.S.", and 24.19 acres of isolated waters) would be considered jurisdictional by the RWQCB. Based on the current limits of disturbance, approximately 2.42 acres under the jurisdiction of the RWQCB (including 0.32 acre wetlands, 1.18 acre other non-wetland "Waters of the U.S.", and 0.92 acre of isolated waters) would be potentially impacted by Project development (Figures 6A–6H; Table 3).

4.3 CALIFORNIA DEPARTMENT OF FISH AND GAME DETERMINATION

The CDFG jurisdiction within the drainages extends from the top of the bank to the top of the bank and to the outer drip line in areas containing riparian vegetation. Based on field observations and data collection, a total of approximately 141.31 acres of resources under CDFG jurisdiction pursuant to Section 1602 of the *California Fish and Game Code* are located in the Study Area (Figures 5A–5H; Table 3). Based on the current limits of disturbance, approximately 3.24 acres of resources under the jurisdiction of the CDFG would be potentially impacted by Project development (Figures 6A–6H; Table 3).

5.0 CONCLUSION OF REGULATORY APPROVAL PROCESS

5.1 REGULATORY PERMIT REQUIREMENTS

The following is a general summary of the various permits, agreements, and certifications required prior to initiation of project activities that involve impacts to areas under the jurisdiction of the USACE, the RWQCB, and the CDFG.

- USACE Section 404 Permit;
- RWQCB Section 401 Water Quality Certification; and
- CDFG Section 1602 Streambed Alteration Agreement.

It should be noted that the USACE and the RWQCB applications can be processed concurrently. The USACE permit would be issued subject to the receipt of the RWQCB's Section 401 Water Quality Certification. There is no filing fee for the Section 404 Permit. The Section 401 Water Quality Certification filing fee has a $944 base fee with additional fees based on the size of the dredge or fill unless the project qualifies for a flat fee. For low impact discharges (e.g., discharge of less than 0.1 acre, 200 linear feet, and 25 cubic yards), there is no charge above the base fee. For fill and excavation discharges, there is a rate of $4,059 per acre of discharge. For dredging discharges, there is a rate of $0.15 per cubic yard of dredge volume. For discharges of isolated waters, the applicable fee is doubled, except for restoration projects.

The CDFG's Streambed Alteration Agreement filing fee is based on project cost and length of permit authorization. For projects lasting five years or less, the maximum fee is $4,482.75 for projects costing $500,000 or more; the fee decreases as cost decreases. For projects lasting longer than five years, there is a base fee of $2,689.50 plus a maximum of $4,482.75. The current fee schedule can be found on the CDFG website at: http://www.dfg.ca.gov/habcon/1600/forms.html. The CDFG will not deem an application to be complete until the application fees have been paid and the agency is provided with a certified California Environmental Quality Act (CEQA) document and a signed copy of the receipt of County Clerk filing fees for the Notice of Determination (NOD). In addition, land use jurisdictions can no longer make "de minimis" findings if they determine that the project will not impact resources under the CDFG's jurisdiction. Therefore, the finding of "No Impact" to the CDFG jurisdictional resources must now be made by the CDFG prior to the payment of CDFG fees.

A detailed explanation of the regulatory permitting requirements for impacts to jurisdictional resources is provided in Sections 5.2 through 5.4.

5.2 U.S. ARMY CORPS OF ENGINEERS

Regulatory authorization in the form of an NWP is provided for certain categories of activities (e.g., repair, rehabilitation, or replacement of a structure or fill which was previously authorized; utility line placement; bank stabilization). These permits are valid only if the conditions applicable to the permits are met. For some NWPs, there is a maximum impact to "Waters of the U.S." allowable under that NWP; otherwise, impacts must be authorized under an Individual Permit (IP). NWP 12 (Utility Line Activities) covers the construction, maintenance, repair, and removal of utility lines and associated facilities in "Waters of the U.S."; however, this NWP has a threshold of ½ acre for an entire project. Project activities may impact up to 1.50 acres of "Waters of the U.S.". Therefore, based the amount and extent of Project impacts, the Project would likely be authorized by the USACE under an IP.

5.2.1 Jurisdictional Determinations

Pursuant to USACE Regulatory Guidance Letter (RGL) 08-02 (dated June 26, 2008), the USACE can issue two types of jurisdictional determinations to implement Section 404 of the CWA: Approved Jurisdictional Determinations (JDs) and Preliminary JDs (USACE 2008a). An Approved JD is an official USACE determination that jurisdictional "Waters of the U.S.", "Navigable Waters of the U.S.", or both are either present or absent on a site. An Approved JD also identifies the precise limits of jurisdictional waters within a project site.

The USACE will provide an Approved JD when (1) an applicant requests an official jurisdictional determination; (2) an applicant contests jurisdiction over a particular water body or wetland; or (3) when the USACE determines that jurisdiction does not exist over a particular water body or wetland. The Approved JD then becomes the USACE's official determination that can then be relied upon over a five-year period to request regulatory authorization as part of the permit application.

In addition, an Applicant may decline to request an Approved JD and instead obtain a USACE IP or General Permit Authorization based on a Preliminary JD or, in certain circumstances (e.g., authorizations by non-reporting nationwide general permits), with no JD.

Preliminary JDs are non-binding, advisory in nature, and may not be appealed. They indicate that there may be "Waters of the U.S." on a project site. An applicant may elect to use a Preliminary JD to voluntarily waive or set aside questions regarding CWA jurisdiction over a site, usually in the interest of allowing the applicant to move ahead expeditiously with the permitting process. The USACE will determine what form of JD is appropriate for a particular project site. Given the type and extent of project impacts and duration of construction, the USACE will likely approve the Jurisdictional Delineation Report through a Preliminary JD.

On January 31, 2007, the USACE published a memorandum clarifying the Interim Guidance for amendments to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) implementing regulations (USACE 2007). The Interim Guidance applies to all Department of the Army requests for authorization/verification, including Individual Permits (standard permits and letters of permission) and all Regional General Permits (RGPs) and NWPs. The State or Tribal Historic Preservation Officer (SHPO/THPO) has 30 days to respond to a determination that a proposed activity, which otherwise qualifies for an NWP or RGP, has no effect or no adverse effect on a historic property. If the SHPO/THPO does not respond within 30 days of notification, the Los Angeles District may proceed with verification. If the SHPO/THPO disagrees with the District's determination, the District may work with the SHPO/THPO to resolve the disagreement or request an opinion from the ACHP. The USACE will submit the Draft Jurisdictional Delineation Report to the SHPO/THPO for review prior to initiating the actual regulatory process.

The USACE Regulatory Branch Offices will coordinate with the USEPA Regional Office and USACE Headquarters (HQ), as outlined in its January 28, 2008, memorandum entitled the "Process for Coordinating Jurisdictional Delineations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the *Rapanos* and *SWANCC* Supreme Court Decisions" (USACE 2008b). The guidance provided in this memorandum is quoted as follows:

1. Effective immediately, unless and until paragraph 5(b) of the June 5, 2007, Rapanos guidance coordination memorandum is modified by a joint memorandum from Army and EPA, we will follow these procedures:

a. For jurisdictional determinations involving significant nexus determinations, USACE districts will send copies of draft jurisdictional delineations via e-mail to appropriate EPA regional offices. The EPA regional office will have 15 calendar days to decide whether to take the draft jurisdictional delineation as a special case under the January 19, 1989, "Memorandum of Agreement Between the Department of the Army and the USEPA Concerning the Determination of the Section 404 Program and the Application of the Exceptions under Section 404(f) of the Clean Water Act." If the EPA regional office does not respond to the district within 15 days, the district will finalize the jurisdictional determination.

b. For jurisdictional determinations involving isolated waters determinations, the agencies will continue to follow the procedure in paragraph 5(b) of June 5, 2007, coordination memorandum, until a new coordination memorandum is signed by USACE and EPA. (In accordance with paragraph 6 of the June 5, 2007, coordination memorandum, this is a 21-day timeline that can only be changed through a joint memorandum between agencies).

2. Approved JDs are not required for non-reporting NWPs, unless the project proponent specifically requests an approved JD. For proposed activities that may qualify for authorization under a State Programmatic General Permit (SPGP) or RGP, an approved JD is not required unless requested by the project proponent.

3. The USACE will continue to work with EPA to resolve the JDs involving significant nexus and isolated waters determinations that are currently in the elevation process.

4. USACE districts will continue posting completed Approved JD Forms on their web pages.

Please note that if the USACE determines that the channels are jurisdictional and would be impacted by project implementation, the Applicant will be required to obtain a CWA Section 401 Water Quality Certification from the RWQCB before the USACE will issue the Section 404 permit. That is, the USACE may issue a "Denial Without Prejudice" as part of the issuance of the Section 404 permit that makes the permit valid once the Section 401 Water Quality Certification is issued. If the USACE determines that the impacted drainage is not jurisdictional, the Applicant will be required to obtain RWQCB authorization under the provisions of a Report of Waste Discharge (ROWD).

Please also note that the USACE has prepared Draft Guidelines on Identifying Waters Protected by the Clean Water Act (Act) to implement the U.S. Supreme Court's decisions concerning the extent of waters covered by the Act (Solid Waste Agency of Northern Cook County v. USACE [SWANCC] and Rapanos v. United States [Rapanos]). The review period for the draft guidelines ended in July 2011. The Environmental Protection Agency and the USACE now propose to finalize the guidance and continue working on a rulemaking. The result will be a "nonbinding guidance" for the identification of resources under the jurisdiction of the USACE. The final guidance will not affect jurisdictional delineations that have already received approval from the USACE.

5.3 REGIONAL WATER QUALITY CONTROL BOARD

As noted above, issuance of the USACE Section 404 permit would be contingent upon the approval of a Section 401 Water Quality Certification from the Colorado River RWQCB. If the USACE does not take jurisdiction over any impacted drainage features, then a Report of Waste Discharge permit (ROWD) would be required. Also, the RWQCB requires certification of the project's CEQA documentation before it will approve the Section 401 Water Quality Certification or ROWD. The RWQCB, as a responsible agency, will use the project's CEQA document to satisfy its own CEQA-compliance requirements.

Upon acceptance of a complete permit application, the RWQCB has between 60 days and 1 year to make a decision regarding the permit request. That is, USACE regulations indicate that the RWQCB has 60 days from the date of receipt of a completed application that requests water quality certification to make a decision (33 CFR §325.2[b][1][ii]). The USACE District Engineer may specify a longer time (up to one year) or shorter time based on his/her determination of a reasonable processing time (33 CFR §325.2[b][1][ii]). If the RWQCB determines that more than 60 days are needed to process the request, it has the option of requesting additional time from the USACE. Also, the RWQCB has the option of issuing a "Denial Without Prejudice", which does not mean that the request is denied, but that it requires more information in order to make a decision. This effectively stops the processing clock until this information is provided.

The RWQCB is required under *California Code of Regulations* (CCR) (Title 23, §3858[a]) to have a "minimum 21 day public comment period" before any action can be taken on the Section 401 application. This period closes when the RWQCB acts on the application. Since projects often change or are revised during the Section 401 permit process, the comment period can remain open. The public comment period starts as soon as an application has been received. Generally, the RWQCB Section 401, USACE Section 404, and CDFG Section 1602 permit applications are submitted at the same time. However, the RWQCB Section 401 Water Quality Certification may take longer to process.

The RWQCB requires the Applicant to address urban storm water runoff during and after construction in the form of Best Management Practices (BMPs). These BMPs are intended to address the treatment of pollutants carried by storm water runoff and are required in all complete applications. Please note that the application would also require the payment of an application fee, which would be based on project impacts.

5.4 CALIFORNIA DEPARTMENT OF FISH AND GAME

The CDFG regulates all work (including initial construction and ongoing operation and maintenance) that may 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 through its Streambed Alteration Program. An Applicant must enter into an agreement with the CDFG to ensure no net loss of wetland values and acreages.

Impacts resulting from Project implementation will require a Section 1602 Streambed Alteration Agreement. The Streambed Alteration Agreement must address the initial construction and long-term operation and maintenance of any structures within areas identified as "Waters of the State" (such as a culvert or desilting basin) that may require periodic maintenance if these are included in the Project design.

Prior to construction, a notification (Streambed Alteration Agreement application) must be submitted to the CDFG that describes any proposed streambed alteration contemplated by the

proposed Project. In addition to the formal application materials and the fee, a copy of the appropriate environmental document (e.g., Mitigated Negative Declaration [MND]) should be included in the submittal, consistent with CEQA requirements. The CDFG will prepare a draft Streambed Alteration Agreement, which will include standard measures to protect sensitive plant and wildlife resources during Project construction and during ongoing operation and maintenance of any Project element that occurs within a CDFG jurisdictional area.

If a Streambed Alteration Agreement is required, the CDFG may want to conduct an on-site inspection. The CDFG then prepares a draft agreement, which will include measures to protect fish and wildlife resources that will be directly or indirectly impacted by Project construction. The draft agreement will be transmitted to the Applicant within 60 calendar days of the CDFG's determination that the notification is complete. It should be noted that the 60-day timeframe may not apply to long-range agreements.

The Applicant has 30 calendar days to notify the CDFG concerning the acceptability of the proposed terms, conditions, and measures. If the Applicant agrees with these terms, conditions, and measures, the agreement must be signed and returned to the CDFG. The agreement becomes final once the CDFG executes it and a Streambed Alteration Agreement is issued. Please note that all application fees must be paid and the final certified CEQA documentation must be provided prior to the CDFG's execution of the agreement.

If the CDFG does not respond in writing concerning the completeness of the Notification within 30 days of its submittal, the Notification automatically becomes complete. If the CDFG does not submit a draft Streambed Alteration Agreement to the Applicant within 60 days of the determination of a completed Notification package, the CDFG will issue a letter that either (1) identifies the final date to transmit a draft Streambed Alteration Agreement or (2) indicates that a Streambed Alteration Agreement was not required. The CDFG will also indicate that it was unable to meet this date and that by law the Applicant must complete the project without a Streambed Alteration Agreement and must comply with all avoidance, minimization, and mitigation measures described in the submitted Notification package.

5.5 RECOMMENDATIONS

Based on the conclusions of this jurisdictional delineation, the following recommendations are identified:

1. Schedule a pre-application meeting with USACE, CDFG, and RWQCB staff to discuss site conditions; biological and jurisdictional resources; the Proposed Project; impacts to these resources resulting from the Proposed Project; proposed minimization measures and the mitigation program to offset these impacts; and the regulatory permit process, including the need for an Approved Jurisdictional Determination or a Preliminary Jurisdictional Determination.

2. Prepare and process a USACE Section 404 Permit, an RWQCB Section 401 Water Quality Certification, a CDFG Section 1602 Streambed Alteration Agreement, and the appropriate jurisdictional determination form approved by the USACE.
3. The Project Applicant should consider mitigating jurisdictional impacts resulting from Project implementation on site through the preparation of a Habitat Mitigation Monitoring Plan (HMMP). The preparation of an HMMP early in the process will help to accelerate and shorten the regulatory permitting process, if necessary. The Project Applicant may also propose to mitigate through the payment of an in-lieu fee to an appropriate mitigation bank covering the Project region.

6.0 REFERENCES

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ATTACHMENT A

WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Riverside County Sampling Date: 1/6/12

Applicant/Owner: Southern California Edison State: CA Sampling Point: 1

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 27, T2S, R7W

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): CA Lat: 33.97150604 Long: -117.59256374 Datum: NAD83

Soil Map Unit Name: Hilmar loamy very fine sand, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

The channel is partially concrete-lined (sides and a portion of the bottom). It empties into an approximate 5-foot diameter pipe.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	25	yes	OBL
2.			
3.			
4.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix gooddingii	10	yes	OBL
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Urtica dioica	1	no	FACW
2. Silybum marinum	1	no	UPL
3. Sonchus oleraceus	5	no	NI*
4. non-native grass (not identifiable)	50	yes	UPL
5.			
6.			
7.			
8.			
	57	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 45 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	51	x 5 =	255
Column Totals:	87 (A)		292 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 4/1	99	2.5Y 8/4	1	C	M	sandy loam	prominent mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 12

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

✓ Water Marks (B1) (**Riverine**)
✓ Sediment Deposits (B2) (**Riverine**)
✓ Drift Deposits (B3) (**Riverine**)
✓ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The drainage is a man-altered flood control channel with concrete sides and partial concrete bottom. Water marks are observable on the concrete sides.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Chino/San Bernardino County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 2

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 33, T2S, R7W

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): CA Lat: 33.94824894 Long: -117.61112832 Datum: NAD83

Soil Map Unit Name: Hilmar loamy fine sand NWI classification: adjacent to PSSW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

The depression is downstream of a soft-bottom channel and separated by a culvert. It is also adjacent to a concrete-lined channel and separated by a berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Baccharis salicifolia	50	yes	FACW
2.			
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 15' (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		100 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

The remainder of the 15'-radius sapling/shrub stratum consists of dead Salsola tragus.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Corona/Riverside County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 3

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 10, T3S, R7W

Landform (hillslope, terrace, etc.): riverine Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): CA Lat: 33.92491213 Long: -117.59930497 Datum: NAD83

Soil Map Unit Name: Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes NWI classification: PFOY

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____
Hydric Soil Present?	Yes ✓	No _____
Wetland Hydrology Present?	Yes ✓	No _____

Is the Sampled Area within a Wetland? **Yes** ✓ **No** _____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Arundo donax	20	yes	FACW
2. Baccharis salicifolia	10	yes	FACW
3. Salix lasiolepis	5	no	FACW
4.			
5.			
	35	= Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Apium graveolens	5	yes	FACW*
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	40 (A)		80 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Other species in the vicinity but outside the 5-foot sampling plot include Typha sp. and Cyperus sp.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10Y4/1	100					silty sand	gleyed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ✓ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Corona/Riverside County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 4

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 10, T3S, R7W

Landform (hillslope, terrace, etc.): riverine Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): CA Lat: 33.92362249 Long: -117.59802807 Datum: NAD83

Soil Map Unit Name: Grangeville fine sandy loam, poorly drained, saline-alkali, 0-5 % slopes NWI classification: PFOW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ✓, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____
Hydric Soil Present?	Yes ✓	No _____
Wetland Hydrology Present?	Yes ✓	No _____

Is the Sampled Area within a Wetland? **Yes** ✓ **No** _____

Remarks:

Within the active floodplain of the Santa Ana River. There has been extensive disturbance in the vicinity of this sampling point due to bridge construction. The soil is compacted and areas have been graded and built up.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Melilotus alba	10	yes	FACU
2. Tamarix ramosissima	5	yes	FAC
3. Ricinus communis	5	yes	FACU
4. Salix lasiolepis	2	no	FACW
5.			
	22	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Polygonum lapathifolium	10	yes	OBL
2. Cyperus sp.	1	no	FACW
3. Polypogon monspeliensis	1	no	FACW
4.			
5.			
6.			
7.			
8.			
	12	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 88 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	4	x 2 =	8
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	34 (A)		93 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Riparian areas are naturally problematic and the sampling point is within the active floodplain of the Santa Ana River adjacent to the low-flow channel.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 5/1	100					loamy sand	
6-16	10Y4/1	100					loamy sand	gleyed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 16

Hydric Soil Present? Yes ✓ No ___

Remarks:

The area has been heavily altered (grading) due to bridge construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

There is adjacent surface water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Corona/Riverside County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 5

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 10, T3S, R7W

Landform (hillslope, terrace, etc.): riverine Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): CA Lat: 33.92019706 Long: -117.59487153 Datum: NAD83

Soil Map Unit Name: Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0-5% NWI classification: PFOY

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____
Hydric Soil Present?	Yes ✓	No _____
Wetland Hydrology Present?	Yes ✓	No _____

Is the Sampled Area within a Wetland? **Yes** ✓ **No** _____

Remarks:

There is some disturbance due to vehicle treads.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	60	yes	OBL
2.			
3.			
4.			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Salix lasiolepis	5	yes	FACW
2. Baccharis salicifolia	5	yes	FACW
3.			
4.			
5.			
	10	= Total Cover	

Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		80 (B)

Prevalence Index = B/A = 1.14

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Other species in the vicinity but outside the 5-foot sampling plot include Typha sp., Cyperus sp., and Nasturtium officinale.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10Y 4/1	100					coarse sand	gleyed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ✓ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 10

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Norco/Riverside County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 6

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 11, T3S, R7W

Landform (hillslope, terrace, etc.): riverine Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): CA Lat: 33.92806264 Long: -117.59109657 Datum: NAD83

Soil Map Unit Name: Dello loamy sand, poorly drained, 0 to 2 percent slopes NWI classification: PFOY

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Part of Santa Ana River floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	25	yes	OBL
2. Salix lasiolepis	40	yes	FACW
3.			
4.			
	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Arundo donax	20	yes	FACW
2. Baccharis salicifolia	10	yes	FACW
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Sisymbrium sp.	70	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	70	x 2 =	140
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	70	x 5 =	350
Column Totals:	165 (A)		515 (B)

Prevalence Index = B/A = 3.12

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10Y 6/1	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 10

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Norco/Riverside County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 7

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 11, T3S, R7W

Landform (hillslope, terrace, etc.): riverine Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): CA Lat: 33.926883 Long: -117.590656 Datum: NAD83

Soil Map Unit Name: Dello loamy sand, poorly drained, 0 to 2 percent slopes NWI classification: PFOY

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Ponded area within Santa Ana River floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	90	yes	FACW
2.			
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Arundo donax	20	yes	FACW
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		220 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Other species present in the vicinity include Rubus ursinus and Vitus girdiana.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/2	85	10YR 6/6	15	C	M	clayey loam	prominent mottles
5-20	2.5Y 3/1	100					clayey loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Part of Santa Ana River floodplain.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Norco/Riverside County Sampling Date: 01/06/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 8

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 11, T3S, R7W

Landform (hillslope, terrace, etc.): riverine Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): CA Lat: 33.929698 Long: -117.592032 Datum: NAD83

Soil Map Unit Name: Dello loamy sand, poorly drained, 0 to 2 percent slopes NWI classification: PFOY

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Immediately adjacent to low-flow channel of the Santa Ana River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	5	yes	FACW
2.			
3.			
4.			
	5	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Salix lasiolepis	15	no	FACW
2. Salix exigua	15	no	OBL
3. Arundo donax	65	yes	FACW
4.			
5.			
	95	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Artemisia douglasiana	5	yes	FACW
2. Nasturtium officinale	2	yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	7	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	107 (A)		197 (B)

Prevalence Index = B/A = 1.84

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 5/2	100					sand	
11-20	10YR 4/1	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

The soil around Sampling Point 8 was sandy and is mapped in the Dello series, which is considered an Entisol. Entisols are recently derived soils that show little profile development and can be formed from river deposits; therefore, these soils are less likely to have indicators of hydric soil. Because FACW and OBL vegetation were present in the tree, sapling/shrub, and herb strata, the area exhibits multiple indicators of wetland hydrology, and sandy soils appeared to be the result of recent deposition due to season flooding within the area, the soils will be considered hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 8

Water Table Present? Yes ✓ No ___ Depth (inches): 17

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 17

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Edison J045 - Circle City City/County: Norco/Riverside County Sampling Date: 1/6/2012

Applicant/Owner: Southern California Edison State: CA Sampling Point: 9

Investigator(s): Allison Rudalevige, Gary Medeiros Section, Township, Range: 14 T3S R7W

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): CA Lat: 33.907440 Long: -117.581485 Datum: NAD83

Soil Map Unit Name: Greenfield sandy loam, 2 to 8 percent slopes, eroded NWI classification: R4SBW

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Channel flows into a box culvert. Since this area was surveyed, vegetation has since been cleared from the drainage by the Riverside County Flood Control and Water Conservation District.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	80	yes	OBL
2. Washingtonia robusta	10	no	UPL
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Tamarix ramosissima	20	yes	FAC
2. Ricinus communis	2	no	FACU
3.			
4.			
5.			
	22	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	2	x 4 =	8
UPL species	10	x 5 =	50
Column Totals:	112 (A)		198 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks:

Since this area was surveyed, all vegetation has been cleared from the drainage by the Riverside County Flood Control and Water Conservation District.

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100					sandy clay	
4-6	2.5 N	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: roots and cobbles

Depth (inches): 6

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil test pit dug just above active channel containing open water.

ATTACHMENT B

SOIL SURVEY

The soil classifications identified below was obtained from the U.S. Department of Agriculture, Natural Resources Conservation Service[4]. The Official Soil Series Descriptions were obtained from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture.

Arbuckle Series

The Arbuckle series is a fine-loamy, mixed, superactive, thermic typic haploxeralf. It consists of very deep, well drained soils that formed in alluvial materials from mainly conglomerate and metasedimentary rocks. Arbuckle soils are on low terraces, and have slopes of 0 to 75 percent. The mean annual precipitation is about 508 millimeters (20 inches) and the mean annual air temperature is about 61 degrees Fahrenheit (°F).

Range in Characteristics:

The mean annual soil temperature is 60 to 65°F and the soil temperature is above 47°F all year. The soil between the depths of 20 to 66 centimeters (8 to 26 inches) is dry in all parts from May 15 to October 31 and moist in some or all parts from November 1 to May 15. Organic matter is assumed to be less than 1 percent from data from similar soils on similar geographic positions. The solum thickness is more than 100 centimeters (40 inches). The A horizon has a hue of 10YR with a value of 5 or 6 dry (3, 4, or 2 moist) and a chroma of 2, 3, or 4 dry (2, 3, 4, or 1 moist) or a hue of 7.5YR with a value of 5 or 6 dry (4, 5, or 6 moist) and a chroma of 3 or 4 dry (4 moist). The texture is sandy loam, fine sandy loam, loam, or their gravelly equivalents. There is 3 to 35 percent coarse fragments. The reaction is slightly acid to neutral.

The Bt horizon has a hue of 10YR with a value of 5, 6, or 7 dry (3 or 4 moist) and a chroma of 3 or 4 dry (3, 4, or 2 moist) or a hue of 7.5YR with a value of 5, 6, or 7 dry (3, 4, or 5 moist) and a chroma of 4 or 6 dry (3 or 4 moist). The texture is loam, sandy loam, sandy clay loam, clay loam, or their gravelly equivalents. There is 3 to 35 percent gravel and 18 to 32 percent clay content with less than 20 percent coarse and very coarse sand. The reaction is slightly acid to slightly alkaline.

The BC horizon has a hue of 10YR or 7.5YR; a value of 5, 6, or 7 dry (5, 4, or 3 moist); and a chroma of 4 or 3 dry and moist. The texture is stratified, ranging from sandy clay loam to very gravelly loamy sand. The reaction is moderately acid to slightly alkaline. There is 45 to 80 percent gravel.

Drainage and Permeability:

Arbuckle soils are well drained, have negligible to high runoff, and have moderately slow to slow permeability.

Buchenau Series

The Buchenau series is a fine-loamy, mixed, active, thermic typic durixeralf. It consists of very dark gray, moderately alkaline, calcareous medium textured A horizons and grayish brown, moderately alkaline and calcareous, medium to moderately fine B2 horizons that overlie a strongly lime cemented hardpan at moderate depth.

[4] U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2011 (February). Official Soil Series Descriptions (Tujunga). Fort Worth, TX: USDA, NRCS. http://soils.usda.gov/technical/classification/osd/index.html.

Range in Characteristics:

The soils have umbric epipedons, argillic and calcic horizons (minimal argillic with 10 percent clay increase A/B); are dry for 60 consecutive days; have mean soil temperature 59°F; are of mixed mineralogy. Depth to the calcic horizon ranges from 20 to 52 inches. The soils have variable amounts of salt and alkali.

The A horizons range in color from gray, brown, grayish brown and dark grayish brown in 10YR hue; in texture from very fine sandy loam, loam to silt loam; moderately to strongly alkaline and slightly to moderately calcareous.

The B horizons range in color from grayish brown, light brownish gray to yellowish brown; in texture from loam to clay loam; in reaction from mildly to strongly alkaline and slightly to moderately calcareous.

The Ccam horizon is strongly cemented with lime and has over 15 percent calcium carbonate equivalent (45 percent in official).

Drainage and Permeability:

Buchenau soils are generally well to moderately well drained, have medium to very slow runoff, and have moderately slow permeability to the hardpan and very slow permeability after the hardpan.

Cajalco Series

The Cajalco series is a fine-loamy, mixed, active, thermic mollic haploxeralf. It is well drained, moderately permeable and occurs on gently sloping to steep uplands in areas of deeply weathered, basic igneous rocks. Average annual rainfall is 9 to 16 inches and the average annual temperature 62°F.

Range in Characteristics:

The climate is one of long, dry summers and short, mild winters. Depth to weathered rock may range from 18 to 46 inches.

The Cajalco soils have yellowish brown, slightly acid, moderately coarse textured A horizons. The A horizons range from brown to dark brown to yellowish brown, with hues of 10YR or 7.5YR, values of 4 or 5 dry, 3 or 4 moist, and chromas of 3 or 4, from sandy loam to loam, and neutral to slightly acid.

The Cajalco soils have brown, slightly acid, medium textured Bt horizons. The B2t horizon ranges from brown to reddish brown, with hues of 7.5YR to 5YR, and values of 4 or 5 dry, 3 or 4 moist, from sandy loam to clay loam, and neutral to slightly acid.

The subsurface horizons commonly are higher in reaction than the surface, although there is no consistent trend in reaction with depth. They developed in deeply weathered gabbro. Small soft masses or seams of lime sometimes occur in the weathered gabbro.

Drainage and Permeability:

Cajalco soils are well drained, are moderately permeable, and have medium runoff.

Chino Series

The Chino series is a fine-loamy, mixed, superactive, thermic aquic haploxeroll. It has gray, calcareous, silt loam A horizons and gray and light gray, calcareous silty clay loam C horizons.

Range in Characteristics:

Usually the soils between depths of about 4 and 12 inches are moist all the time from sometime in November until sometime in May and are dry all the rest of the year. The mean annual soil temperature at a depth of 20 inches is 59 to 65°F. Except where drained, the soils are saturated within 40 to 60 inches of the surface from about February to May or for noncalcareous in some pedons and is slightly acid to moderately alkaline.

The A horizon is dark gray, gray or grayish brown in 10YR hue, moist value is 3. It has weak to strong, fine to medium granular structure. The 10 to 40 inches section is very fine sandy loam to silty clay loam (18 to 35 percent clay).

The C horizon is dark gray, gray, light gray, light brownish gray, or grayish brown in 10YR and 2.5Y hue and in some pedons is faintly to distinctly mottled.

Drainage and Permeability:

Chino soils are poorly to somewhat poorly drained. Many areas have been drained by stream channel entrenchment or reduction of ground water level by pumping. The runoff is slow to very slow and the permeability is moderately slow.

Chualar Series

The Chualar series is a fine-loamy, mixed, superactive, thermic Typic Argixeroll. It consists of very deep, well drained soils that formed in alluvial material from mixed rock sources. Chualar soils are on terraces and fans of the coastal areas and have slopes of 0 to 9 percent. The mean annual precipitation is approximately 18 inches and the mean annual temperature is approximately 59°F.

Range in Characteristics:

The mean annual soil temperature is 59 to 63°F, and the soil temperature usually is not below 47°F at any time. The difference between mean summer and mean winter temperatures is less than 19°F. The soil from about 6 to 20 inches usually is dry all of the time from late April or May until November or early December and is moist in some or all parts the rest of the year. Coarse and very coarse angular sand particles make up 20 to 30 percent of the A and C horizons and 20 to 25 percent of the Bt horizon. Rock fragments, mostly fine angular gravel, range from 1 to 2 percent to about 25 percent, but most pedons have less than 15 percent gravel. Also there are numerous mica particles throughout the profile. Base saturation is more than 75 percent throughout.

The A horizon is 10YR 5/3, 5/2, 4/3, 4/2, 3/3; 7.5YR 5/4, 5/2, 4/4, 4/2 or 3/2. Moist colors have values or chromas of 3 or less. It is sandy loam or loam and it is slightly acid or neutral. In some pedons, the A horizon is slightly alkaline because of soil amendments, irrigation water or other cultural measures. It has weak or moderate granular or subangular blocky structure and is slightly hard or hard. Organic matter content is 1 to 4 percent to a depth of more than 10 inches and decrease regularly and is less than 1 percent at a depth of 20 inches. The lower boundary

is diffuse or there is a transitional AB or BA horizon. Note: reaction of the A horizon and possibly of the BA horizon is alkaline because of fertilizers or amendments.

The Bt horizon is 7.5YR 6/6, 6/4, 5/2, 5/4; 10YR 4/2, 5/3, 5/4. It is heavy sandy loam or sandy clay loam and average 18 to 25 percent clay. This horizon is massive or has weak to moderate angular blocky structure. It is slightly acid to slightly alkaline in the upper part and is moderately alkaline in the lower part of some pedons.

The C horizon is 10YR 5/2, 5/3, 5/4, 6/2, 6/3, 6/4; 7.5YR 5/2, 5/4, 5/6, 6/6. It is somewhat stratified loamy sand, sandy loam, or light sandy clay loam. It is neutral to moderately alkaline. Some pedons are calcareous.

Drainage and Permeability:

Chualar soils are well drained; have slow to medium runoff; and have moderately slow permeability.

Cieneba Series

The Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. Cieneba soils are on uplands and have slopes of 9 to 85 percent. The mean annual precipitation is about 25 inches and the mean annual air temperature is about 60°F.

Range in Characteristics:

Depth to a paralithic contact is 4 to 20 inches. Soil below a depth of about 4 to 6 inches usually is moist all of the time after November until sometime in May. It is dry all the rest of the time. The mean annual soil temperature just above the weathered rock is 59 to 65°F. Fragments larger than 2 mm make up 0 to 35 percent of the soil. The soil is neutral to strongly acid, though moist pedons are slightly or medium acid. It is coarse sandy loam, gravelly sandy loam, light loam or gravelly light loam and has less than 18 percent clay throughout the profile. The amount of coarse and very coarse sand is 15 to 25 percent. Organic matter content is less than 1 percent below a depth of about 1 inch to about 4 inches.

The A horizon is dark grayish brown to light brown (10YR 4/2, 4/3, 5/2, 5/3, 6/2, 6/3; 7.5YR 5/2, 6/4). Dry values of 4 or 5 extend to a depth of 1 to 5 inches in protected pedons that have not been burned and eroded.

Drainage and Permeability:

Cieneba soils are somewhat excessively drained; have low to medium runoff; and have moderately rapid permeability in the soil, but much slower in the weathered granite.

Cortina Series

The Cortina series is a loamy-skeletal, mixed, superactive, nonacid, thermic typic xerofluvent. It consists of very deep, somewhat excessively drained soils on alluvial fans and floodplains. These soils formed in gravelly alluvium from mixed rock sources. Slope ranges from 0 to 15 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 62°F.

Range in Characteristics:

The mean annual soil temperature is about 60 degrees to 65°F and the soil temperature usually is not below 47°F at any time. The soil between depths of about 8 to 25 inches is usually dry all the time from May or early June until early December and is moist in some or all parts the rest of the year. Rock fragments average 35 to 65 percent in all parts of the profile. Individual horizons, particularly near the surface, have less than 35 percent rock fragments in some pedons. Most fragments are of gravel size, though some pedons have up to 20 percent cobblestones and a few larger stones. Dominant texture throughout the profile is sandy loam, but individual horizons are loamy sand or loam. In many pedons, lower horizons are loamy sand or sand and rock fragments are more numerous. Some pedons have a distinct A horizon and in other pedons there is little horizon differentiation. Organic matter decreases irregularly with depth. Average organic matter is less than 1 percent to a depth of more than 7 inches. The soil is 10YR 7/3, 6/2, 6/3, 6/4, 5/2, 5/3, 5/4, 4/2; 2.5Y 7/2, 6/2 and 5/2. Moist values are 1 or 2 units darker. The soils are moderately acid to slightly alkaline.

Drainage and Permeability:

Cortina soils are somewhat excessively drained, have negligible to low runoff, and have rapid permeability.

Delhi Series

The Delhi series is a mixed, thermic typic xeropsamment. It consists of very deep, somewhat excessively drained soils. They formed in wind modified material weathered from granitic rock sources. Delhi soils are on floodplains, alluvial fans and terraces. Slopes are 0 to 15 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 62°F.

Range in Characteristics:

Delhi soils have short undulating slopes of 0 to 15 percent and lack stratification. The mean annual soil temperature at a depth of 20 inches is 60 to 66°F and the soil temperature usually is not below 47°F at any time. The average January soil temperature is about 50°F and the average July temperature is 75 to 85°F. The soil between depths of about 12 to 35 inches is continuously dry from late April or May until late October or early December and is continuously moist in some or all parts all the rest of the year. Very coarse sand is 0 to 5 percent and combined coarse and very coarse sand is 35 percent or less.

The C horizon is 10YR 5/3, 5/4, 6/4, 6/3, 6/2, 6/1, 7/1, 7/2, 7/3 or 7/4. Moist colors are 10YR 4/2, 4/3, 4/4, 5/4, 5/3, 5/2, 5/1, 6/1, 6/2, 6/3 or 6/4. Usually there is little change in color with depth, but in some pedons the upper part of the profile is slightly darker than the lower part and an A horizon can be identified. The upper part is sand, fine sand, loamy fine sand or loamy sand. The lower part is sand or loamy sand. The clay content ranges from 0 to 5 percent. The soil is slightly acid to slightly alkaline.

When an A horizon is present, it has dry color of 10YR 6/2, 6/3, 5/2, 5/3, 5/4 or 4/3. Moist color is 10YR 4/3 or 4/2. Clay content is 0 to 5 percent and textures are fine sand or loamy sand. Organic matter content is less than 1 percent. Reaction is slightly acid to slightly alkaline.

Drainage and Permeability:

Delhi soils are somewhat excessively drained, have negligible to slow runoff, and have rapid permeability.

Dello Series

The Dello series is a mixed, thermic typic psammaquent. It consists of very deep, very poorly drained soils that formed in alluvium from granitic rock sources. Dello soils are in small depressions and have slopes of 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 63°F.

Range in Characteristics:

The mean annual soil temperature is 60 to 70 °F. The soil between the depth of 10 to 50 inches is saturated for at least a few days. Some pedons are saline-sodic throughout.

The A horizon has dry color of 10YR 4/2, 4/3, 4/4, 5/2, 5/3, 6/2, 6/3, or 6/4; 2.5Y 6/2, 5/2, 4/2; 5Y 5/2, and moist color of 10YR 4/4, 4/3, 4/2; 2.5Y 4/2; 5Y 4/2. It is neutral to moderately alkaline. The texture is sand, loamy fine sand, loamy sand, sandy loam or fine sand. Most pedons have distinct or prominent mottles or a clay loam overwash texture.

The Cg horizon has dry color of 10YR 5/3, 6/2, 6/3, 6/4, 6/6, 7/2, 7/3, 8/2 or 8/3; 5Y 6/1; 2.5Y 8/2, 7/2, 6/2 and moist color of 10YR 5/2, 5/4, 6/2, 6/3, 6/4 or 7/2; 2.5Y 5/2, 6/2, 7/2. Mottles are faint, distinct or prominent. It is neutral to moderately alkaline. The textural control section between the depth of 10 to 40 inches is sand, loamy sand, fine sand or loamy fine sand. Fine stratification is present, but individual strata are evidenced primarily by minor color differences. In some pedons the lower C horizon (below 40 inches) have stratified silty clay to clay loam lenses.

Drainage and Permeability:

Dello soils are very poorly drained, have slow runoff, and have rapid permeability (clay substratum phase has slow permeability below a depth of 40 inches). In some areas a water table is more than six feet from the surface because of flood control structures and/or installed drains. The frequency of flooding is rare or occasional.

Domino Series

The Domino series is a fine-loamy, mixed, superactive, thermic Xeric Petrocalcid. It consists of moderately deep, moderately well drained soils over lime-cemented hardpans. Domino soils are in basin areas and have slopes up to two percent. The mean annual precipitation is about 12 inches and the annual air temperature is about 63°F.

Range in Characteristics:

Depth to the indurated lime hardpan ranges from 20 to 40 inches. The soils are usually dry from early May to sometime in December. They are moist in some parts of the moisture control section (4 to 12 inches depth) all the remaining time. The mean annual soil temperature at a depth of 20 inches is 59 to 71°F. The control section is dominantly heavy silt loam, light silty clay loam or heavy loam. The fine sand and coarser fraction exceeds 15 percent. The CaCO3 equivalent in the control section is 15 to 40 percent. The pH ranges from 8.0 to 8.8.

The A horizon is grayish brown, light brownish gray or pale brown in 10YR or 2.5Y. It ranges from fine sandy loam to silt loam and may be saline.

The Ccam horizon contains few to many fractures that are commonly filled with carbonates. A sequence of hard and soft horizons may be repeated. The hardest layers do no slake in water and dry soil is not penetrated by spade. Lower C horizons are saline and are strongly alkaline in some pedons.

Drainage and Permeability:

Domino soils are moderately well drained; have slow runoff; and have slow permeability.

Garretson Series

The Garretson series is a fine-loamy, mixed, active, nonacid, thermic fluvaquentic haploxeroll. Typically, Garretson soils have brown and yellowish brown, slightly acid, gravelly very fine sandy loam and gravelly loam A horizons and yellowish brown, brown and grayish brown, slightly acid and neutral, gravelly loam C horizons.

Range in Characteristics:

The mean annual soil temperature at a depth of 20 inches is 59 to 65°F and the soil temperature is not below 47°F at any time. Soil between depths of about 5 and 15 inches is dry in all parts from late April or May until late October or early December and usually is moist in some or all parts all the rest of the year. Texture throughout the profile is generally loam that contains some gravel. The range is very fine sandy loam, loam, clay loam or sandy clay loam. The 10 to 40 inch control section has 18 to 27 percent clay and 15 to 70 percent material coarser than very fine sand. Rock fragments, mostly gravel, make up 2 to 35 percent of the control section and rock fragments usually become more numerous as depth increases. Fine stratification is lacking, but some pedons have coarse stratification, particularly in the lower part.

The A horizon is brown, grayish brown, dark grayish brown, light brownish gray, yellowish brown, light yellowish brown or pale brown in l0R or 2.5Y hue when dry. The moist value is 3 or 4. This horizon contains 1/2 to 2 percent organic matter. It has weak to moderate granular or subangular blocky structure or is massive and hard or very hard when dry. One or more of the requirements of a mollic epipedon is lacking in each pedon although most properties of a mollic epipedon are present. The A horizon is slightly acid or neutral.

The C horizon has the same color as the A horizon or it has one unit higher value or chroma. It is slightly acid to slightly and in some pedons below a depth of 44 inches the soil is moderately alkaline and a small amount of secondary or disseminated lime is present.

Drainage and Permeability:

Garretson soils are well drained, have slow to medium runoff, and have moderate permeability.

Grangeville Series

The Grangeville series is a coarse-loamy, mixed, superactive, thermic, fluvaquentic haploxeroll. It consists of very deep, somewhat poorly drained soils that formed in moderate coarse textured alluvium dominantly from granitic rock sources. Grangeville soils are on alluvial fans and floodplains and have slopes ranging from 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 63°F.

Range in Characteristics:

The mean annual soil temperature at a depth of 20 inches is 59 degrees to 65°F, and the soil temperature usually is not below 47°F at any time. Soil between the depths of about 8 and 24 inches is continuously dry from May or early June until November or early December. In most years under natural conditions, the soils are saturated within 25 to 40 inches of the surface for several months or more, usually about January to April. Additional effective moisture is added through dense ground fog in the San Joaquin Valley. The 10 to 40 inch control section is stratified and averages less than 18 percent clay by weight and has more than 15 percent sand coarser than very fine sand. Rock fragments range from 0 to 5 percent. Organic matter is 1.5 to 6 percent in the upper 10 inches and averages less than 1 percent at a depth of 20 inches. The organic matter decreases irregularly with increasing depth.

The A horizon has dry color of 10YR 4/1, 4/2, 4/3, 5/1, 5/2, 5/3, 6/2; 2.5Y 5/2, 4/2; 5Y 4/1 or 4/2 and moist color of 10YR 2/1, 2/2, 3/1, 3/2, 3/3; 2.5Y 3/2, 3/3; 5Y 3/1 or 3/2. It is sandy loam, very fine sandy loam, fine sandy loam, light loam, silt loam, or clay loam. The A horizon is slightly acid to moderately alkaline and slightly alkaline to very strongly alkaline in saline-sodic phases. Some pedons are effervescent at the surface. In saline-sodic phases the sodium adsorption ratio is always less than 13 in this horizon.

The B horizon has dry color of 10YR 5/2, 6/2, 6/3, 7/2, 7/3; 2.5Y 6/2, 5/2; 5Y 5/1, 5/2, 6/2 or 6/3. Faint to prominent redoximorphic masses of iron are present. This horizon is sandy loam, fine sandy loam, light loam or light silt loam. It has weak structure or is massive. It is neutral to moderately alkaline and slightly alkaline to very strongly alkaline in saline-sodic phases. In most pedons, some or all of this horizon is calcareous with carbonates mostly disseminated, but in some pedons fine carbonate segregations are present. Carbonates range from 0 to 5 percent. In some pedons the B horizon is absent.

The C horizon is similar to the B horizon in most features but includes dry color of 10YR 8/1, 7/2, 6/2, 5/4, 5/3, or 5/2; 2.5Y 7/2; 5Y 5/1, or 6/1 and moist color of 5Y 4/1, 4/2, 5/1, 5/2; 2.5Y 4/2, 5/2; 10YR 3/2, 3/3, 4/2, 4/3, 5/2, 5/3 or 7/1. It is stratified loamy sand to silt loam, clay content is 8 to 18 percent, and colors are very variable. It is neutral to strongly alkaline and slightly alkaline to very strongly alkaline in saline-sodic phases. Carbonates usually decrease from the B horizon but always by less than 5 percent.

Drainage and Permeability:

Grangeville soils are somewhat poorly drained; this soil has altered drainage because of the dams and reservoirs in the Sierra Nevada, pumping from the water table, tile and interceptor drains, and filling and leveling of sloughs in the vicinity. Negligible to very low runoff; moderately rapid permeability and moderate permeability in saline-sodic phases. Formerly most areas of Grangeville soils were occasionally flooded, but now stream flow is controlled by large flood control structures to the extent that most areas are not flooded more than once in about 25 to 75 years. The water table is at depths of 24 to 48 inches unless drained. If drained, the water table is at depths of 48 to greater than 60 inches.

Greenfield Series

The Greenfield series is a coarse-loamy, mixed, active, thermic typic haploxeralf. It 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 mean annual precipitation is about 15 inches and the mean annual air temperature is about 62°F.

Range in Characteristics:

The mean annual soil temperature is 59 to 65°F and the soil temperature is not below 47°F at any time for more than a few days all of the time from late April or May until November or early December and usually is moist in some or all parts of the moisture control section all the rest of the year. Rock fragments range from less than 1 to 25 percent in the A and B horizons. Coarse and very coarse sand average more than 20 percent.

The A horizon is pale brown, light brownish gray, grayish brown, brown, light yellowish brown, dark yellowish brown, yellowish brown, pinkish gray or light brown (10YR 6/2, 6/3, 6/4, 5/2, 5/3, 5/4, 4/3, 4/4; 7.5YR 5/2, 5/4, 6/2, 6/4). It is loamy sand, sandy loam, fine sandy loam or gravelly equivalents of each. This horizon contains less than 1 percent organic matter in all parts. It is slightly acid to mildly alkaline. The lower boundary is gradual or clear.

The B2t horizon is pale brown , brown, light brown, light gray, light yellowish brown, yellowish brown, dark yellowish brown, grayish brown, reddish yellow, pink or brownish yellow (10YR 6/1, 6/3, 5/3, 6/4, 6/6, 5/4, 5/6, 5/8, 4/4, 4/6, 7/4, 7/6, 5/2; 7.5YR 5/2, 5/4, 4/2, 4/4, 6/4, 6/6, or 7/4). It is heavy sandy loam, heavy fine sandy loam, or gravelly equivalents of each and has 3 to 6 percent more clay than the A horizon. This horizon is slightly acid to mildly alkaline.

The C horizon is light yellowish brown, very pale brown, yellowish brown, pale brown, light brownish yellow (10YR 6/4, 5/4, 5/6, 5/8, 6/3, 6/2, 6/6, 6/8, 7/3, 7/4, 4/2, 4/4) or brown (7.5YR 4/4, 4/2). It is loamy sand, coarse sandy loam, sandy loam, fine sandy loam or gravelly equivalents of each. This horizon is neutral to moderately alkaline. Some pedons have silica cementation or contrasting soil material or more than 35 percent gravel, all below 40 inches.

Drainage and Permeability:

Greenfield soils are well drained, have slow to medium runoff, and have moderately rapid permeability.

Hanford Series

The Hanford series is a coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthent. It consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Hanford soils are on stream bottoms, floodplains, and alluvial fans and have slopes of 0 to 15 percent. The mean annual precipitation is about 12 inches and the mean annual air temperature is about 63°F.

Range in Characteristics:

The mean annual soil temperature at a depth of 20 inches is about 59 to 68°F, and the soil temperature is not below 47 °F for any significant period. Soil between the depths of about 8 to 24 inches usually is dry all of the time from late April or May until November or early December and usually is moist in some or all parts of this section all the rest of the year. The 10 to 40 inch control section averages sandy loam, coarse sandy loam, fine sandy loam or gravelly equivalents of each. The coarse fragments range from 0 to 35 percent. The particle size control section has little or no stratification. Clay content usually averages 6 to 18 percent. Organic matter is less than 1 percent and decreases regularly with increasing depth. Below a depth of 40 inches some pedons have marked stratification. The soils are medium acid to slightly alkaline and usually become more alkaline with depth. Secondary free carbonates do not occur above a depth of 40 inches. In some cases carbonates have been added to the soil by farmers which results in slight effervescence in the surface layers.

The A horizon is pale brown or light brownish gray (10YR 5/2, 5/3, 6/3, 6/2).

The C horizon is very pale brown, pale brown or light yellowish brown (10YR 5/3, 6/3, 6/4, 7/3, 7/4).

Drainage and Permeability:

Hanford soils are well drained; have negligible to low runoff; and have moderately rapid permeability.

Hilmar Series

The Hilmar series is a sandy over loamy, mixed, active, calcareous, thermic aeric halaquept. Typically, Hilmar soils have pale brown, mildly alkaline, loamy sand A horizons, very pale brown, very strongly alkaline, loamy sand upper C horizons over light gray and light olive gray, very strongly alkaline, stratified, silt loam lower C horizons.

Range in Characteristics:

Depth to loamy soil of contrasting texture is 16 to 30 inches. Except where drained and reclaimed, the soil is saturated from a depth of 10 to 40 inches from February to May or for a longer period and is saline and strongly to very strongly alkaline in some part of the profile. The mean annual soil temperature at a depth of 20 inches is 60 degrees to 65°F. Rock fragments are mostly less than 5mm. in diameter and make up less than 2 percent of the soil.

The sandy section consisting of the A horizon and upper C horizon is grayish brown to light gray in 2.5Y or 10YR hue and pale brown or very pale brown in 10YR hue when dry. It has mottles of stronger chroma in some or all parts within a depth of 20 inches. It is sand, loamy sand or loamy fine sand, and has no or slight stratification. It is mildly to strongly alkaline in the upper 10 inches and is noneffervescent to strongly effervescent. Below a depth of 10 inches the sandy section is weakly to strongly effervescent in all parts. The soil below a depth of 10 inches is strongly to very strongly alkaline and in artificially drained and reclaimed areas it is moderately to strongly alkaline in some or all parts.

The IIC horizon is light gray to grayish brown and light olive brown (2.5Y 7/2, 6/2, 5/2, 5/3) and light olive gray in 5Y hue. In most pedons, this horizon has mottles of stronger chroma or redder bue but in pedons lacking mottles there are lime concretions and nodules or thin weakly cemented discontinuous places. Cementation is by lime or silica or both. Organic matter decreases irregularly with depth and there is more organic matter in this horizon than in the upper C or A horizon. It is loam near silt loam or silt loam, but in some pedons thin strata of coarse texture are present.

Drainage and Permeability:

Hilmar soils are somewhat poorly and poorly drained with a fluctuating water table that rises to within a foot or so of the surface during the rainy season and during periods of heavy irrigation either on the soil or on nearby areas. Some areas are wet near the surface most of the year. Drainage has been altered in many areas by pumping and changes made to stream flow resulting in lower water table. Improved drainage has resulted in the leaching out of salt and alkali. The surface soil is rapidly permeable and the IIC horizon is slowly permeable. These soils have slow runoff.

Metz Series

The Metz series is a sandy, mixed, thermic Typic Xerofluvent. It consists of very deep, somewhat excessively drained soils that formed in alluvial material from mixed, but dominantly sedimentary rocks. Metz soils are on floodplains and alluvial fans and have slopes of 0 to 15 percent. The mean annual precipitation is about 15 inches and the mean annual air temperature is about 59°F.

Range in Characteristics:

The mean annual soil temperature is 59 to 64°F. The soil between the depths of 10 and 30 inches is usually dry all of the time from late April or May until November or early December and is usually moist in some or all parts the rest of the year. The textural control section (10 to 40 inches) averages loamy sand. Individual strata are sand, coarse sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam, very fine sandy loam and loam plus minor thin silty lenses. Organic matter decreases irregularly with depth and on the average is less than 1 percent. The soil is neutral, slightly or moderately alkaline, although most pedons are moderately alkaline in most parts. Individual strata are noncalcareous or weakly to strongly calcareous. Gravel content ranges from 0 to 15 percent, although individual strata may reach 35 percent. A few mottles are present in some pedons but they seem to be relic from initial deposition and are associated with the finer textures.

The A and C horizons are 10YR 7/3, 6/1, 6/4, 5/2, 5/3; 2.5Y 6/2, 6/4, 5/2, and 5/4.

Drainage and Permeability:

Metz soils are somewhat excessively drained, have negligible to low runoff, and have moderately rapid permeability. Some areas subject to flooding are protected by dikes and dams.

Pachappa Series

The Pachappa series is a coarse-loamy, mixed, active, thermic mollic haploxeralf. It consists of well drained (minimal) Noncalcic Brown soils developed from moderately coarse textured alluvium. They occur on gently sloping alluvial fans and flood plains under annual grass-herb vegetation. Characteristically the Pachappa soils have grayish brown, slightly acid A1 horizons and brown, slightly finer textured, neutral B2 horizons that overlie moderately alkaline, slightly calcareous B3ca horizons and very slightly calcareous, stratified C horizons.

Range in Characteristics:

The A1 horizons range in color from brown (10YR 5/3) to pale brown (10YR 6/3) or grayish brown (10YR 5/2), in texture from fine sand to loam, and in reaction from slightly acid to mildly alkaline. The lighter or paler colors are generally associated with coarser texture. The B2 horizons are characteristically noncalcareous and weakly developed. Lime occurs in the B3ca horizon but is not always distinctly segregated. The C horizon is variable in color and texture, being pale brown (10YR 6/3), brown (10YR 5/3), light brownish gray (10YR 6/2) or light yellowish brown (10YR 6/4) fine sandy loam, sandy loams, loamy sands, or sands. In places the soils rest on older finer textured marly deposits within a depth of 5 feet. Variable amounts of excess soluble salts and exchangeable sodium also occur, principally below the A1 horizon but may be present in the surface layer as well. In a few areas an unconforming lime-silica hardpan occurs at depths of 2 1/2 feet or more.

Drainage and Permeability:

Pachappa soil drainage is generally good. Surface runoff is very slow, and permeability is moderate. In places the soil is subject to occasional overflow and high water table. The soils appear to have developed under conditions of occasional high water table. Most areas are no longer so affected, but excess salts and exchangeable sodium are still present in places.

Placentia Series

The Placentia series is a fine, smectitic, thermic typic natrixeralf. It has brown, medium acid, sandy loam A horizons, dark reddish brown, clay and heavy sandy clay loam B2t horizons with prismatic structure in the upper part and strong brown, gravelly sandy loam C horizons.

Range in Characteristics:

The mean annual soil temperature is 59 to 67 °F. The soil between depths of about 5 and 15 inches usually is moist in some or all parts all of the time from November or mid-December until sometime late in April or May and usually is dry all the rest of the year. The A horizon is grayish brown to pale brown (10YR 5/2, 4/2, 5/3, 5/4, 6/3; 7.5YR 5/2, 5/4). It is sandy loam or loam with about 24 to 28 percent coarse and very coarse sand. Average organic matter is less than 1 percent or additionally the surface horizon is hard or very hard and massive when dry. This horizon is medium acid to mildly alkaline. The A2 horizon was dry or moist values 1 unit higher than the adjacent horizons. The following units are included, 10YR 5/3, 6/3, 7/3, 7/2, 6/2; 7.5YR 5/4, 6/4, 6/2, 7/2. The B2t horizon has an abrupt upper boundary with an absolute clay increase from A to B2t horizon of 15 to 25 percent. The B2t horizon is reddish brown to yellowish brown (5YR 3/3, 3/4, 4/3, 4/4, 5/3, 5/4; 7.5YR 3/2, 3/4, 4/4, 4/2, 5/4). It is clay, sandy clay or gravelly clay with 35 to 45 percent clay and 15 to 20 percent coarse and very coarse sand. This horizon is neutral to moderately alkaline and alkalinity increases in the lower part. The upper 16 inches of this horizon has more than 15 percent exchangeable sodium in some part and in most pedons the sodium is more than 15 from the upper boundary downward. Structure in the upper part is prismatic or columnar and in the lower part it is massive or more commonly angular blocky. Lower B2 or B3 horizons are strong brown, reddish brown or brown in 5YR, 7.5YR or 10YR hue. They are sandy clay loam, loam or sandy loam with considerable coarse and very coarse sand and some gravel. They are mildly or moderately alkaline and most pedons have a few lime segregations in the lower B or upper C horizons.

Drainage and Permeability:

Placentia soils are well or moderately well drained, have slow to rapid runoff, and have very slow permeability.

Ramona Series

The Ramona series is a fine-loamy, mixed, superactive, thermic typic haploxeralf. Typically, Ramona soils have brown, slightly and medium acid, sandy loam and fine sandy loam A horizons, reddish brown and yellowish red, slightly acid, sandy clay loam B2t horizons, and strong brown, neutral, fine sandy loam C horizons.

Range in Characteristics:

The mean annual soil temperature at a depth of 20 inches is 59 to 65°F and the soil temperature usually is not below 47°F, or is below 47°F for only a few days in January. Soil between the depth of about 5 and 15 inches usually is moist in some or all parts from November

or early December until late April or May and is dry all the rest of the year. The A and B horizons have more than 15 percent combined coarse and very coarse sand and 5 to 35 percent fine rock fragments of 2 to 5mm size. Rock fragments larger than 5mm are less than 5 percent. The C horizons are variable as to coarse sand, fine gravel, and rock fragments larger than 5mm but in general are more coarse than the A and B horizons.

The A horizon is light brownish gray to dark grayish brown or yellowish brown (10YR 6/2, 5/2, 4/2, 6/3, 5/3, 4/3, 5/4; 7.5YR 5/2, 5/4) when dry. It is course sandy loam, sandy loam, fine sandy loam or light loam and has less than 1 percent organic matter. After considerable cultivation or cattle trampling some or all of the A horizon is hard or very hard and massive when dry. It is neutral to moderately acid. The lower boundary is gradual or there is an A3 horizon or a B1 horizon or both horizons are present.

The B2t horizon is dark brown, strong brown, brown or light brown in 7.5YR hue or reddish brown or yellowish red in 5YR hue in yellowish in 10YR hue in the lower part. It is heavy sandy loam, sandy clay loam or loam with 18 to 27 percent clay. Total clay content is 3 to 12 percent more in the B2t horizon than in the A horizon. The B2t horizon is slightly acid or neutral in all parts or in some pedons it is slightly alkaline in the lower part. It has weak or moderate angular blocky or prismatic structure. In pedons having a B3 or B3t horizon, color of the transitional horizon is similar to the B2t horizon or it has a hue 1/4 letter interval less red. It is slightly acid to moderately alkaline.

The C horizon is coarse sandy loam, fine sandy loam or loam and is neutral to moderately alkaline. In some pedons it is calcareous in some part with a small amount of segregated or disseminated lime.

Drainage and Permeability:

Ramona soils are well drained, have slow to rapid runoff, and have moderately slow permeability.

San Emigdio Series

The San Emigdio series is a coarse-loamy, mixed, superactive, calcareous, thermic Typic Xerofluvent. It consists of very deep, well drained soils that formed in dominantly sedimentary alluvium. San Emigdio soils are on fans and floodplains and have slopes of 0 to 15 percent. The mean annual precipitation is about 15 inches and the mean annual air temperature is about 62°F.

Range in Characteristics:

The mean annual soil temperature at a depth of 20 inches is 60 to 65 °F and the soil temperature usually is not below 47 °F at any time. Soil between the depths of about 8 and 15 inches is dry all of the time from April or May until late October to early December and is moist in some or all parts the rest of the year. The soil is coarse sandy loam, sandy loam, fine sandy loam, silt loam, or loam to a depth of 40 inches or more. Rock fragments, mostly fine pebbles, range to 15 percent, the amount tends to be greater in the lower part of the profile. The 10 to 40 inch control section averages less than 18 percent clay. There is weak to strong stratification and the organic matter decreases irregularly with depth.

The A horizon has dry color of 10YR 5/3, 5/4, 6/2, 6/3 or 6/4; 2.5Y 6/2 or 7/2. Moist colors are 10YR 3/3, 3/4, 4/3, 4/4; 2.5Y 4/2, 3/2. The organic matter is 0.5 to 1.5 percent. It is mildly to moderately alkaline.

The C horizon has dry color of 10YR 6/3, 6/4, 6/6 or 7/6; 2.5Y 6/2, 7/2, 7/3, 7/4; moist colors are 10YR 4/3, 4/4, 4/6, 5/3, 5/4 or 5/6. When moist values are 3, dry values are 6 or more. Lime is disseminated throughout and many pedons have small amounts of fine segregated lime.

Drainage and Permeability:

San Emigdio soils are well drained; have negligible to low runoff; and have moderately rapid permeability.

Temescal Series

The Temescal series is a loamy, mixed, active, thermic lithic haploxerept. Typically, Temescal soils have grayish brown, slightly acid and neutral, loam A horizons, brown, neutral, loam B2 horizons over hard fractured latite porphyry at a depth of 17 inches.

Range in Characteristics:

Thickness of the solum and depth to bedrock are 10 to 20 inches. The mean annual soil temperature just above the bedrock is 60 to 63 °F and the soil temperature usually is dry in some or all parts from mid-April or early May until late November or early December and is moist all the rest of the time. Most rock fragments are less than 3/4 inch in diameter and make up to 20 percent of the soil. Fragments are mostly in the lower 1/2 of the soil profile. The soil profile is sandy loam, fine sandy loam or loam and has less than 20 percent clay. It is neutral or slightly acid throughout. The A horizon is light brownish gray to yellowish brown (lOYR 6/2, 6/3, 5/2, 5/3, 5/4). It averages less than 1 percent organic matter. The B2 horizon is light yellowish brown to yellowish brown (lOYR 6/4, 6/2, 5/3, 5/4). In most pedons it has one unit brighter chroma than the A horizon. This horizon has weak or moderate subangular blocky structure.

Drainage and Permeability:

Temescal soils are well drained, have medium to rapid runoff, and have moderate permeability.

Waukena Series

The Waukena series is a fine-loamy, mixed, superactive, thermic typic natrixeralf. It has light gray and gray fine sandy loam A horizons, light yellowish brown sandy clay loam Bt and A2 horizons, light yellowish brown, very strongly alkaline Bt horizons and light gray, stratified C horizons.

Range in Characteristics:

The soils have ochric epipedons and natric horizons. They are usually moist but dry for 60 consecutive days in the summer. The mean annual soil temperature is 59 to 72 °F. The mineralogy is mixed. The solum is 24 to 44 inches thick. The soils very in content of salts, alkali and lime, with the lime usually decreasing with depth. The soils may have a thin salt crust, 1/4 to 1 inch thick, grayish brown to white in color, which may be massive, vesicular or platy. The A horizons range in color from gray to light gray and light brownish gray in 10YR, 2.5Y and 5Y hues with values of 4 to 7 and chromas of 1 and 2 and N 5/ to N 7/; in reaction from neutral to strongly alkaline and sometimes calcareous; in texture from fine sandy loam to clay loam. Structure is usually massive but may be weak or medium blocky or platy. Consistence is slightly hard or hard. The Bt1 horizon ranges in color from gray to grayish brown, dark brown to olive brown to olive and olive gray in 2.5Y and 5Y hues with values of 4 and 5 and chromas of 2 to 4; in texture from heavy loam, sandy clay loam to silty clay loam; in reaction from moderately to

very strongly alkaline. The Btk horizons are calcareous with variable amounts of segregated and disseminated lime. Structure is strong columnar to medium or strong prismatic in the upper Bt becoming blocky in the lower part. The consistence is hard to extremely hard. The C horizons are stratified, with medium, moderately coarse and coarse textures, usually becoming lighter in texture with depth. They become less alkaline and calcareous with depth. They may have medium to large lime concretions.

Drainage and Permeability:

Waukena soils have moderately well to somewhat poor drainage, slow to very slow permeability, and slow runoff.

ATTACHMENT C

SITE PHOTOGRAPHS

Vegetation in the Prado Basin along the Mira Loma Route.

Drainage along the Circle City Alternative Route at the southern end of the Study Area.

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Site Photographs

Appendix C-1

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

(05/03/12 JCD) Projects\Edison\J045\Graphics\JD\ExAttC-1_SP1.pdf

Impoundment area along the Mira Loma Route in the northern portion of the Study Area.

Flood control channel at River Road and Primrose Lane, facing southwest.

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Site Photographs

Appendix C-2

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

(05/03/12 JCD) Projects\Edison\J045\Graphics\JD\ExAttC-2_SP2.pdf

Flood control channel south of the intersection of River Road and Cota Street, facing southwest.

Sampling Point 1 along the Mira Loma Route in the northern portion of the Study Area.

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Site Photographs

Appendix C-3

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

(05/03/12 JCD) Projects\Edison\J045\Graphics\JD\ExAttC-3_SP3.pdf

Sampling Point 2 adjacent to a flood control channel that crosses the Mira Loma Preferred Route 1 and the Mira Loma Alternative Route 3.

Sampling Point 3 in the Santa Ana River floodplain.

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Site Photographs

Appendix C-4

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

(05/03/12 JCD) Projects\Edison\J045\Graphics\JD\ExAttC-4_SP4.pdf

Sampling Point 4 near the active channel of the Santa Ana River.

Sampling Point 5 at the edge of the Santa Ana River floodplain.

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Site Photographs

Appendix C-5

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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Sampling Point 6 in the Santa Ana River floodplain.

Sampling Point 7 in the Santa Ana River floodplain.

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Site Photographs

Appendix C-6

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

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Sampling Point 8 adjacent to the active channel of the Santa Ana River.

Sampling Point 9 prior to vegetation clearance.

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Site Photographs

Appendix C-7

Circle City Substation and Mira Loma - Jefferson Subtransmission Line Project

BonTerra CONSULTING

(05/03/12 JCD) Projects\Edison\J045\Graphics\JD\ExAttC-7_SP7.pdf

APPENDIX J

CONSTRUCTION GUIDELINES

The following measures are taken from Section 7.5.3 of the MSHCP:

- Plans for water pollution and erosion control will be prepared for all Discretionary Projects involving the movement of earth in excess of 50 cubic yards. The plans will describe sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, use of plant material for erosion control. Plans will be reviewed and approved by the County of Riverside and participating jurisdiction prior to construction.
- Timing of construction activities will consider seasonal requirements for breeding birds and migratory non-resident species. Habitat clearing will be avoided during species active breeding season defined as March 1 to June 30.
- Sediment and erosion control measures will be implemented until such time soils are determined to be successfully stabilized.
- Short-term stream diversions will be accomplished by use of sand bags or other methods that will result in minimal in-stream impacts. Short-term diversions will consider effects on wildlife.
- Silt fencing or other sediment trapping materials will be installed at the downstream end of construction activities to minimize the transport of sediments off the site.
- Settling ponds where sediment is collected will be cleaned in a manner that prevents sediment from re-entering a stream or damaging/disturbing adjacent areas. Sediment from settling ponds will be removed to a location where sediment cannot re-enter the stream or surrounding drainage area. Care will be exercised during removal of silt fencing to minimize release of debris or sediment into streams.
- No erodible materials will be deposited into water courses. Brush, loose soils, or other debris material will not be stockpiled within stream channels or on adjacent banks.
- The footprint of disturbance will be minimized to the maximum extent feasible. Access to sites will occur on pre-existing access routes to the greatest extent possible.
- Equipment storage, fueling and staging areas will be sited on non-sensitive upland habitat types with minimal risk of direct discharge into riparian areas or other sensitive habitat types.
- The limits of disturbance, including the upstream, downstream and lateral extents, will be clearly defined and marked in the field. Monitoring personnel will review the limits of disturbance prior to initiation of construction activities.
- During construction, the placement of equipment within the stream or on adjacent banks or adjacent upland habitats occupied by covered species that are outside of the project footprint will be avoided.
- Exotic species removed during construction will be properly handled to prevent sprouting or regrowth.
- Training of construction personnel will be provided.
- Ongoing monitoring and reporting will occur for the duration of the construction activity to ensure implementation of best management practices.
- When work is conducted during the fire season (as identified by the Riverside County Fire Department) adjacent to coastal sage scrub or chaparral vegetation, appropriate fire-fighting equipment (e.g., extinguishers, shovels, water tankers) shall be available on the site during all phases of project construction to help minimize the chance of human-

caused wildfires. Shields, protective mats, and/or other fire preventative methods shall be used during grinding, welding, and other spark-inducing activities. Personnel trained in fire hazards, preventative actions, and responses to fires shall advise contractors regarding fire risk from all construction-related activities.

- Active construction areas shall be watered regularly to control dust and minimize impacts to adjacent vegetation.
- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances shall occur only in designated areas within the proposed grading limits of the Study Area. These designated areas shall be clearly marked and located in such a manner as to contain run-off.
- Waste, dirt, rubble, or trash shall not be deposited on native habitat.

APPENDIX K

GUIDELINES PERTAINING TO THE URBAN/WILDLANDS INTERFACE

The following guidelines pertaining to the Urban/Wildlands Interface are taken from Section 6.1.4 of the MSHCP. These guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area, where applicable.

Drainage: Proposed Developments in proximity to the MSHCP Conservation Area shall incorporate measures, including measures required through the National Pollutant Discharge Elimination System (NPDES) requirements, to ensure that the quantity and quality of runoff discharged to the MSHCP Conservation Area is not altered in an adverse way when compared with existing conditions. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP Conservation Area. This can be accomplished using a variety of methods including natural detention basins, grass swales or mechanical trapping devices. Regular maintenance shall occur to ensure effective operations of runoff control systems.

Toxics: Land uses proposed in proximity to the MSHCP Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. Measures such as those employed to address drainage issues shall be implemented.

Lighting: Night lighting shall be directed away from the MSHCP Conservation Area to protect species within the MSHCP Conservation Area from direct night lighting. Shielding shall be incorporated in project designs to ensure ambient lighting in the MSHCP Conservation Area is not increased.

Noise: Proposed noise generating land uses affecting the MSHCP Conservation Area shall incorporate setbacks, berms or walls to minimize the effects of noise on MSHCP Conservation Area resources pursuant to applicable rules, regulations and guidelines related to land use noise standards. For planning purposes, wildlife within the MSHCP Conservation Area should not be subject to noise that would exceed residential noise standards.

Invasives: When approving landscape plans for Development that is proposed adjacent to the MSHCP Conservation Area, Permittees shall consider the invasive, non-native plant species listed in Table 6-2 of the MSHCP and shall require revisions to landscape plans (subject to the limitations of their jurisdiction) to avoid the use of invasive species for the portions of Development that are adjacent to the MSHCP Conservation Area. Considerations in reviewing the applicability of this list shall include proximity of planting areas to the MSHCP Conservation Areas, species considered in the planting plans, resources being protected within the MSHCP Conservation Area and their relative sensitivity to invasion, and barriers to plant and seed dispersal, such as walls, topography and other features.

Barriers: Proposed land uses adjacent to the MSHCP Conservation Area shall incorporate barriers, where appropriate in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass or dumping in the MSHCP Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls, signage and/or other appropriate mechanisms.

Grading/Land Development: Manufactured slopes associated with proposed site development shall not extend into the MSHCP Conservation Area.